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भाकृअनुप-कृषि तकनीकी अनुप्रयोग अनुसंधान संस्थान (अटारी)

ICAR-Agricultural Technology Application Research Institute (ATARI)

Zone-X/क्षेत्र 10, क्रीडापरिसर/CRIDA Campus, संतोषनगर/Santoshnagar, हैदराबाद/Hyderabad – 500059

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Edited by:

J.V. Prasad
A.R. Reddy
A. Bhaskaran
B. Malathi

Compiled by:

KVK Subject Experts in Andhra Pradesh, Telangana, Tamil Nadu and Puducherry

Published by:

Dr. J.V. Prasad
Director (Acting)
ICAR-Agricultural Technology Application Research Institute (ATARI),
Zone-X, CRIDA Campus, Santoshnagar, Hyderabad-500059.

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PREFACE

ICAR-Agricultural Technology Application Research Institute (ATARI), Hyderabad is vested with the responsibility of coordination and monitoring of technology application and frontline extension education programs through Krishi Vigyan Kendras (KVKs) in three states viz., Tamil Nadu, Andhra Pradesh and Telangana and Puducherry Union Territory. At present there are 75 KVKs in the Zone including 32 in Tamil Nadu, 24 in Andhra Pradesh, 16 in Telangana and 3 in Puducherry. The ATARI is also Mandated with the responsibility of strengthening of agricultural extension research and knowledge management.

During 2021-22, KVKs assessed 1432 technologies through 4883 OFTs and conducted 12726 frontline demonstrations in farmers' fields, undertook 6887 training programmes covering 251601 participants including farmers, farm women, rural youth and extension functionaries. KVKs conducted 4297 number of cluster frontline demonstrations on pulses covering an area of 1885 ha under the National Food Security Mission (NFSM). Similarly, 3825 number of CFLDs were conducted on oilseeds covering an area of 1530 ha under NFSM.

Seed hubs for pulses started functioning at 12 KVK's in Zone-X in the states of Tamil Nadu (6), Andhra Pradesh (4) and Telangana (2). During 2021-22, seed hub KVK's produced 6485.01 q of seed for supply of quality seed of greengram, blackgram, redgram and Bengal gram. A total of 632 enterprise units were established empowering 2361 youth under Attracting Rural Youth in Agriculture (ARYA) Project. Under the innovative programme of Mera Gaon Mera Gaurav (MGMG), 8 ICAR-research Institutes in the Zone implemented various activities in 226 adopted villages involving 66 teams comprising of 306 scientists. A total of 1083 activities were undertaken during the year under MGMG programme.

Human Resource Development (HRD) activities were jointly organized by the Directorates of Extension (SAUs) and ATARI benefiting 3484 KVK staff in the Zone. About 14244 farmers were given direct access to institutional resources through three Agricultural Technology Information Centers in the Zone. A total of 7849 training courses were conducted to 282866 farmers, farm women and extension personnel. A number of extension activities were taken up by the KVKs with the participation of 2513272 farmers and extension personnel. All the KVKs are equipped with mini soil testing laboratories to provide soil testing service to farmers. A total of 57613 samples including soil (52674), water (4696) and other samples were analyzed benefiting 33488 farmers.

We acknowledge the contributions of Vice-Chancellors and Directors of Extension of SAUs, Horticulture and Veterinary Universities and Directors of ICAR institutes in Zone-X for providing necessary technological backstopping to the KVKs. We gratefully acknowledge the constant support, guidance and encouragement received from Dr. T. Mohapatra, Secretary, DARE and Director General, ICAR and Dr. A.K. Singh, DDG (AE). I complement all the Senior Scientists & Heads and staff of KVKs in the Zone for their dedicated efforts towards implementation of the scheme and all my colleagues at ATARI for compiling the Annual Report.

Dr. J. V. Prasad,
Director (A)

कार्यकारी सारांश

कृषि तकनीकी अनुप्रयोग संस्थान (अटारी), हैदराबाद को क्षेत्र-X के लिए स्वीकृत 75 कृषि विज्ञान केंद्रों के समन्वय की जिम्मेदारी दी गई है। उनमें से 71, वर्ष 2021-22 के दौरान कार्यारत थे। वार्षिक रिपोर्ट वर्ष 2021-22 में तमिलनाडु के 30, आंध्र प्रदेश के 23, तेलंगाना के 16 और पुदुचेरी के 2 कृषि विज्ञान केंद्रों की गतिविधियों का उल्लेख है।

प्रौद्योगिकी का मूल्यांकन

वर्ष के दौरान, कृषि विज्ञान केंद्रों ने 4883 खेतों पर परीक्षण कर 1432 तकनीकों का मूल्यांकन और परिशोधन किया। जाचं की गई प्रौद्योगिकियों में, 1032 प्रौद्योगिकियां फसल संबंधी, 136 पशु संबंधी एवं 42 महिला सशक्तिकरण संबंधी थे। फसलों के मामले में शामिल किए गए महत्वपूर्ण विषयगत क्षेत्रों में किस्मों मूल्यांकन, फसल प्रणाली, समेकित रोग प्रबंधन, समेकित कीट प्रबंधन, समेकित पोषक तत्व प्रबंधन, समेकित खरपतवार प्रबंधन, समेकित फसल प्रबंधन, संसाधन संरक्षण प्रौद्योगिकियां, कृषि मशीनरी और उपकरण शामिल थे। पशुओं के मामले में, प्रजनन मूल्यांकन, रोग प्रबंधन, चारा और पोषण प्रबंधन और आश्रय प्रबंधन जैसे विषयगत क्षेत्रों का मूल्यांकन और परिष्करण किया गया। ग्रामीण महिलाओं के सशक्तीकरण के अंतर्गत, विषयगत क्षेत्रों जैसे कि शारीरिक श्रम में कमी, स्वास्थ्य और पोषण, मूल्य संवर्धन और उद्यमिता विकास पर खेतों पर परीक्षणों का आयोजन किया गया।

तमिलनाडु के कृषि विज्ञान केंद्रों ने फसलों सहित बागवानी प्रजातियों (1067), पशुओं (210) एवं ग्रामीण महिलाओं के सशक्तिकरण (15) पर, 2514 खेतों पर परीक्षण कर 624 प्रौद्योगिकियों की उपयुक्तता का मूल्यांकन किया। आंध्र प्रदेश के कृषि विज्ञान केंद्रों ने फसलों सहित बागवानी प्रजातियों (1001), पशुओं (191) एवं ग्रामीण महिलाओं के सशक्तिकरण (277) पर, 1572 खेतों पर परीक्षण कर 498 प्रौद्योगिकियों की उपयुक्तता का मूल्यांकन किया। तेलंगाना के कृषि विज्ञान केंद्रों ने फसलों सहित बागवानी प्रजातियों (519), पशुओं (71) एवं ग्रामीण महिलाओं के सशक्तिकरण (82) पर, 755 खेतों पर परीक्षण कर 288 प्रौद्योगिकियों की उपयुक्तता का मूल्यांकन किया। पुदुचेरी के कृषि विज्ञान केंद्रों ने फसलों सहित बागवानी प्रजातियों (20), पशुओं (17) 42 खेतों पर परीक्षण कर 22 प्रौद्योगिकियों का मूल्यांकन किया।

प्रौद्योगिकी प्रदर्शन

3064 हेक्टेयर क्षेत्र में फसलों (8328), पशुओं (1956) एवं कृषि उपकरणों (626) पर कुल 12726 अग्रिम प्रदर्शन कार्यान्वित किए गए। अनाजों पर किए गए 1702 प्रदर्शनों में चावल पर ही 1356 प्रदर्शन शामिल थे। दलहनों पर किए गए 746 प्रदर्शनों में, उड़द पर 385 एवं अरहर पर 131 प्रदर्शन शामिल थे। तिलहनों पर किए गए 443 प्रदर्शनों में 376 प्रदर्शन मूंगफली पर ही थे। व्यावसायिक फसलों पर 128 प्रदर्शन गन्ने पर थे। तमिलनाडु में किए गए 4317 प्रदर्शनों में 768 सब्जियों पर एवं 1020 प्रदर्शन अनाज पर थे। आंध्र प्रदेश में किए गए 2573 प्रदर्शनों में से, 345 मोटा अनाज पर, 298 अनाज पर, 488 फलों पर एवं 468 प्रदर्शन सब्जियों पर थे। तेलंगाना में प्रदर्शित किए गए 1303 प्रदर्शनों में, 329 अनाजों पर एवं 410 सब्जियों पर थे। पुदुचेर्री में किए गए 135 प्रदर्शनों में 20 दलहनों पर, 55 अनाजों पर एवं 10 प्रदर्शन मोटा अनाज पर शामिल थे। पशुपालन और विभिन्न उद्यमों के विभिन्नन पहलुओं के अंतर्गत प्रौद्योगिकियों को लोकप्रिय बनाने के लिए 1956 प्रदर्शनों का आयोजन किया गए।

प्रशिक्षण

प्रशिक्षण, कृषि विज्ञान केंद्रों की एक महत्वपूर्ण गतिविधि है, जो विभिन्न बेहतर तकनीकों के बारे में ज्ञान और कौशल को बढ़ाने में महत्वपूर्ण भूमिका निभाता है। वर्ष के दौरान क्षेत्र-X में कृषि विज्ञान केंद्रों ने फसलों, डेअरी एवं अन्य उत्पादन एवं उत्पादकता में वृद्धि करने के लिए कृषि एवं उससे संबंधित प्रौद्योगिकियों पर 6887 प्रशिक्षण कार्यक्रमों का आयोजन किया। जिसमें 194712 किसान एवं कृषि महिलाएं, 23162 ग्रामीण युवा एवं 33727 प्रसार अधिकारी और 251601 प्रतिभागियों को शामिल किया गया।

तमिलनाडु के कृषि विज्ञान केंद्रों ने कृषि महिलाओं, ग्रामीण युवाओं और प्रसार अधिकारियों सहित 111880 किसानों की भागीदारी के साथ 3942 प्रशिक्षण पाठ्यक्रम आयोजित किए, जबकि आंध्र प्रदेश के कृषि विज्ञान केंद्रों ने 41819 किसानों की भागीदारी के साथ 1718 प्रशिक्षण पाठ्यक्रम आयोजित किए, जिसमें किसान के साथ-साथ कृषि महिलाएं, ग्रामीण युवा और प्रसार अधिकारी शामिल हुए। तेलंगाना के कृषि विज्ञान केंद्रों ने 38443 लाभार्थियों के लिए 1160 पाठ्यक्रम संचालित किए। पुदुचेरी के कृषि विज्ञान केंद्रों ने 2570 लाभार्थियों के लिए 67 पाठ्यक्रम संचालित किए। प्रशिक्षण के अंतर्गत आने वाले मुख्य विषयगत क्षेत्रों में फसल उत्पादन, बागवानी, मृदा स्वास्थ्य और उर्वरता प्रबंधन, पशुधन उत्पादन और प्रबंधन, गृह विज्ञान / महिला सशक्तीकरण, कृषि अभियांत्रिकी, पादप संरक्षण, मत्स्य पालन, क्षमता निर्माण और सामूहिक शक्ति, कृषि-वानिकी आदि शामिल हैं।

जोन-X के कृषि विज्ञान केंद्रों ने 24618 किसानों और कृषि कार्य में शामिल महिलाएं और ग्रामीण युवाओं को शामिल करते हुए 723 प्रायोजित प्रशिक्षण कार्यक्रम आयोजित किए। उद्यमिता विकास, आय सृजन और स्वरोजगार की सुविधा के लिए, विशेष रूप से 6647 ग्रामीण युवाओं और स्कूल बीच में छोड़ने वाले जैसे लोगों के लाभ लिए, कृषि विज्ञान केंद्रों ने 239 व्यावसायिक प्रशिक्षण कार्यक्रम आयोजित किए। इसमें शामिल किए गए महत्वपूर्ण विषयगत क्षेत्रों में फसल उत्पादन और प्रबंधन, कटाई के बाद की तकनीक और मूल्य संवर्धन, पशुधन और मत्स्य पालन और आय सृजन की गतिविधियां हैं।

प्रौद्योगिकी प्रसार

उन्नत प्रौद्योगिकियों के बारे में जागरुकता प्रदान करने के लिए 2513272 किसानों, कृषि महिलाओं एवं प्रसार अधिकारियों की भागीदारी से क्षेत्र-x के कृषि विज्ञान केंद्रों में 40863 प्रसार गतिविधियों का आयोजन किया गया। प्रसार गतिविधियों में सलाह सेवाएं, प्रदर्शन दौरे, पशु स्वास्थ्य शिविर, प्रौद्योगिकी सप्ताह, सामूहिक विचार-विमर्श, प्रदर्शनों की पद्धत्ति, मृदा स्वास्थ्य शिविर, किसान मेले, किसान गोष्ठियां आदि शामिल थे। उन्नत कृषि प्रौद्योगिकियों पर सूचना को तुरंत प्रसारित करने के लिए क्षेत्र-X के कृषि विज्ञान केंद्रों ने 5182 प्रकाशन प्रकाशित किए।

संस्थागत संसाधनों तक किसानों की सीधी पहुंच की सुविधा के लिए, भाकृअनुप ने विभिन्न प्रौद्योगिकी उत्पादों की एकल गवाक्ष वितरण के उद्देश्य से क्षेत्र-X में तीन कृषि प्रौद्योगिकी सूचना केंद्रों की स्थापना की। वर्ष के दौरान कुल 14244 किसानों ने नवीनतम तकनीकी जानकारी जानने और महत्वपूर्ण प्रौद्योगिकी उत्पादों अर्थात बीज और रोपण सामग्री प्राप्त करने के लिए तीन एटीआईसी का दौरा किया।

परीक्षण सेवाओं और महत्वपूर्ण निवेशों की आपूर्ति

कृषि विज्ञान केंद्रों ने मृदा की पोषक स्थिति का पता लगाने और जिले में मौजूदा सूक्ष्म कृषि स्थितियों में किसानों को मृदा परीक्षण आधारित पोषक सिफारिशें देने के लिए मृदा और जल परीक्षण किया। कृषि विज्ञान केंद्रों द्वारा मृदा के 52674 नमूनों, पानी के 4696 नमूनों, पौधों के 137 नमूनों और उर्वरकों / खादों के 26 नमूनों सहित कुल 57613 नमूनों का विश्लेषण किया गया, जिससे तमिलनाडु, आंध्र प्रदेश, तेलंगाना और पुदुचेरी के 6175 गांवों के 33488 किसानों को लाभ हुआ।

कृषि विज्ञान केंद्रों ने 8062 क्विंटल बीज और 34.06 लाख पौधे खेत / बागवानी फसलों की कुल सामग्री का उत्पादन और आपूर्ति की। दालों के लिए कृषि विज्ञान केंद्र के बारह बीज हबों (तमिलनाडु में छह, आंध्र प्रदेश में चार और तेलंगाना में दो) ने किसानों को गुणवत्तापूर्ण बीज की आपूर्ति के लिए 6485.01 क्विंटल बीज (मूंग, उड़द, अरहर और चना) का उत्पादन किया। कृषि विज्ञान केंद्रों ने 373.78 क्विंटल जैव उर्वरकों और 186.8 क्विंटल जैव कीटनाशकों का उत्पादन और आपूर्ति की।

कृषि विज्ञान केंद्रों के अधिकारियों का मानव संसाधन विकास

राज्य कृषि विश्वविद्यालयों और कृषि तकनीकी अनुप्रयोग अनुसंधान संस्थान के प्रसार शिक्षा निदेशालय ने कृषि विज्ञान केंद्रों के वैज्ञानिकों को प्रशिक्षण, सेमिनार, कार्यशालाओं आदि के माध्यम से प्रौद्योगिकी की अत्याधुनिक सूचना और मानव संसाधन विकास की सुविधा प्रदान की है। क्षेत्र के 3484 कृषि विज्ञान केंद्रों के कर्मचारियों को लाभान्वित करने वाली कुल 48 मानव संसाधन विकास गतिविधियों को संयुक्त रूप से पाँच प्रसार निदेशालयों और कृषि तकनीकी अनुप्रयोग संस्थान द्वारा आयोजित किया गया।

राष्ट्रीय जलवायु समुत्थान कृषि में नवप्रवर्तन (निक्रा)

जोन-x के 5 कृषि विज्ञान केंद्रों द्वारा कार्यान्वित निक्रा परियोजना के प्रौद्योगिकी प्रदर्शन घटक ने तीन राज्यों में जलवायु समुत्थान

कृषि प्रौद्योगिकियों और प्रक्रियाओं का प्रदर्शन किया। परियोजना के अंतर्गत, कृषि विज्ञान केंद्रों ने चार मापदंडों अर्थात प्राकृतिक संसाधन प्रबंधन (318), फसल उत्पादन (727), पशुधन और मत्स्य पालन (293) में 1338 किसान लाभान्वित हुए। संस्थागत हस्तक्षेपों जैसे किराए केंद्र, चारा बैंक और बीज बैंक के तहत 148 किसान लाभान्वित हुए। क्षमता निर्माण और प्रसार गतिविधियों के माध्यम से, जलवायु समुत्थान तकनीकों पर जागरूकता चलाए गए 21 और 34 गतिविधियों से क्रमश: 663 और 1605 किसान लाभान्वित हुए।

कृषि की ओर युवाओं को आकर्षित करना एवं उस कार्य में उन्हें बनाए रखना (आर्या)

क्षेत्र के दस कृषि विज्ञान केंद्रों (तमिलनाडु में 4, आंध्र प्रदेश में 3, तेलंगाना में 2 और पांडिचेरी में एक) द्वारा आर्या परियोजना कार्यान्वित की गई। परियोजना के तहत उद्यम इकाइयों की स्थापना के लिए 111 प्रशिक्षण कार्यक्रमों के माध्यम से 2361 ग्रामीण युवाओं को कौशल प्रशिक्षण प्रदान किया गया। जीविकापार्जन सुरक्षा को सुनिश्चित करने एवं 1151 ग्रामीण युवाओं को लाभ पहुंचाने के लिए वर्ष 2021-22 के दौरान 632 उद्यम इकाइयों को स्थापित किया गया।

किसान पहले परियोजना (एफएफपी)

चार भाकृअनुप संस्थानों (आईआईएमआर, आईआईओपीआर, आईआईओआर और क्रीडा) और एक विश्वविद्यालय (टीएएनयूवीएएस) ने किसान पहले परियोजना को लागू किया। पहले किसान परियोजना लागू किए गए गांवों के 3444 हेक्टेयर क्षेत्र में, 4805 घरों को शामिल करते हुए 36 फसल हस्तक्षेप अपनाए गए। 477 परिवारों को शामिल करते हुए 156 हेक्टेयर क्षेत्र में 8 बागवानी हस्तक्षेप कार्यन्वित किए गए। 1163 घरों को लाभान्वित करने के लिए 1613 हेक्टेयर क्षेत्र में 10 प्राकृतिक संसाधन प्रबंधन (NRM) हस्तक्षेप कार्यान्वित किए गए। 913 परिवारों को शामिल करते हुए पशुधन के अंतर्गत बेहतर चारा किस्मों, आहात कुक्कुट नस्लों का प्रदर्शन, खनिज और पोषक तत्वों के मिश्रण की शुरूआत, एस्ट्रो सिंक्रोनाइजेशन प्रोटोकॉल, पशु स्वास्थ्य शिविर, भेड़ और बकरियों में नस्ल सुधार आदि से संबंधित कुल 26 हस्तक्षेप आरंभ किए गए।

दक्षिण एशिया के लिए अनाज प्रणाली पहल (सीएसआईएसए)

जिंक को चावल की फसल की प्रतिक्रिया पर आईसीएआर, एसएयू, डीओए, आईएफपीआरआई और आईआरआरआई के सहयोग से सीआईएमएमवाईटी के नेतृत्व में सीएसआईएसए और मृदा खुफिया प्रणाली (एसआईएस) परियोजना आंध्र प्रदेश में नौ केवीके द्वारा लागू की गई थी। खेत पर किए गए मूल्यांकनों में जस्ता उर्वरक के लिए उपज में औसतन 7.74% की वृद्धि देखी गई।

जिला कृषि-मौसमविज्ञान की इकाइयां (डीएएमयु)

उप-जिला स्तर पर किसानों को कृषि-मौसमविज्ञान के सलाहों को जारी एवं प्रसार करने के लिए पहले चरण में भारतीय मौसमविज्ञान विभाग (आईएमडी) के सहयोग से ग्रामीण कृषि मौसम सेवा (जीकेएमएस) के अंतर्गत 28 कृषि-मौसम इकाइयों (डीएएमयु) (आंध्र प्रदेश में 9, तेलंगाना में 8, तमिलनाडु में 10 और पुडुचेरी में 1) स्थापना की गई। वर्ष के दौरान जिला कृषि-मौसमविज्ञान इकाइयों (डीएएमयु) केंद्रों ने कृषि-मौसमविज्ञान-डीएसएस पर 42365 कृषि-मौसमविज्ञान सलाहों को तैयार कर विभिन्न प्रसार साधनों के माध्यम से मौसम संबंधी सलाह का प्रसार किया। मौसम आधारित सलाह की उपयोगिता और उन्हें उपयोग करने के तरीकों पर 13260 किसानों के लाभ के लिए कुल 328 किसान जागरूकता कार्यक्रम/बैठकें आयोजित की गईं। प्रतिकूल मौसमी की घटनाओं के दौरान समय पर कृषि कार्य आरंभ करने एवं फसल के नुकसान को रोकने के लिए 184588 किसानों को मौसम आधारित सलाह सेवाओं संबंधित लघु संदेश प्राप्त करने के लिए 11455 की संख्या दी गई।

दलहनों एवं तिलहनों पर केंद्र पर अग्रिम प्रदर्शन

वर्ष 2021-22 के तीन मौसमों के दौरान क्षेत्र-X में स्थित तमिलनाडु, आंध्र प्रदेश, तेलंगाना और पुडुचेरी के 61 कृषि विज्ञान केंद्रों द्वारा राष्ट्रीय खाद्यान्न सुरक्षा मिशन (एनएफएसएम) के अंतर्गत दलहनों पर अग्रिम प्रदर्शनों (Cluster Frontline Demonstration) का आयोजन किया गया। उन्नत उत्पादकता के लिए प्रौद्योगिकी पैकेज को शामिल कर दलहनों के अंतर्गत 1865 हेक्टेयर क्षेत्र को शामिल किया गया। इसी प्रकार, वर्ष 2021-22 के खरीफ और रबी के दौरान 45 कृषि विज्ञान केंद्रों

द्वारा तिलहनी फसलों के लिए 1530 हेक्टेयर में 3825 केंद्र पर अग्रिम प्रदर्शन (Cluster Frontline Demonstration) आयोजित किए गए। क्षेत्र स्तरीय प्रदर्शनों (FLDs) में प्राप्त की गई दलहनों और तिलहनों की उत्पादकता जिले / राज्य के औसत से अधिक थी, जो पैदावार के अंतर को कम करने का संभावित संकेत था।

जनजाति उप योजना (टीएसपी)

16 कृषि विज्ञान केंद्रों (आंध्र प्रदेश में 7 तेलंगाना में 7 और तमिलनाडु में 2) द्वारा जनजाति समुदायों की सामाजिक-आर्थिक स्थितियों को उन्नत बनाने के उद्देश्य से जनजाति उप योजना (टीएसपी) को कार्यान्वित किया गया और 5422 परिसंपत्तियों/ सूक्ष्म-उद्यमों का निर्माण कर 34453 लाभार्थियों को आय सृजन का अवसर प्रदान किया गया। 1478 लाभार्थियों को कौशल विकास प्रशिक्षण (59) प्रदान किए गए।

स्वच्छ्ता ही सेवा

स्वच्छ्ता ही सेवा कार्यक्रम को 71 कृषि विज्ञाान केंद्रों द्वारा लागू किया गया, जिसमें कृषि विज्ञान केंद्रों ने गांवों में श्रमदान किया और अपनाए गए गांवों/सार्वजनिक स्थानों पर स्वच्छता और स्वास्थ्य-रक्षा के लिए योगदान दिया। 16 से 31 दिसंबर 2021-22 के दौरान केवीके द्वारा स्वच्छ्ता गतिविधियों का आयोजन किया गया।

मेरा गाँव मेरा गौरव (एमजीएमजी)

मेरा गाँव मेरा गौरव कार्यक्रम के अंतर्गत, 8 भाकृअनुप के अनुसंधान संस्थानों ने 66 टीमों के माध्यम से कुल 306 वैज्ञानिकों ने 226 गाँवों को अपनाया और 1083 विभिन्न गतिविधियों को कार्यान्वित किया।

मानव संसाधन विकास

भाकृअनुप-अटारी के तीन वैज्ञानिक और प्रशासनिक कर्मचारियों ने विभिन्न विषयों पर प्रशिक्षण लिया, जबकि संस्थान द्वारा 180 प्रतिभागियों के लिए 3 प्रशिक्षण आयोजित किए गए।

EXECUTIVE SUMMARY

ATARI, Hyderabad is vested with the mandate of coordinating technology application activities of 75 KVKs established in Zone-X. Among them 71 are functional during 2021-22. The Annual Report 2021 documents the activities of 30 KVKs in Tamil Nadu, 23 in Andhra Pradesh, 16 in Telangana and 2 in Puducherry.

Technology Assessment

During the year, KVKs assessed and refined 1432 technologies by laying out 4883 On-Farm Trials. Of these technologies tested, 1052 technologies are related to crops, 136 are related to animals and 42 are related to women empowerment. The important thematic areas covered in case of crops include varietal evaluation, cropping systems, integrated disease management, integrated pest management, integrated nutrient management, integrated weed management, integrated crop management, resource conservation technologies, farm machinery and equipment. In case of animals, thematic areas such as breed evaluation, disease management, feed and nutrition management and shelter management are assessed and refined. Under the empowerment of rural women, on-farm trials were conducted in thematic areas *viz*., drudgery reduction, health and nutrition, value addition and entrepreneurship development.

KVKs in Tamil Nadu assessed the suitability of 624 technologies by conducting 2514 OFTs covering crops including horticultural species (1067), animals (210) and empowerment of rural women (15). KVKs in Andhra Pradesh, assessed the suitability of 498 technologies by conducting 1572 OFTs covering crops including horticultural species (1001), animals (191) and empowerment of rural women (277). KVKs in Telangana, assessed the suitability of 288 technologies by conducting 755 OFTs covering crops including horticultural species (519), animals (71) and empowerment of rural women (82). KVKs in Puducherry, assessed 22 technologies by organizing 42 OFTs that include crops including horticultural species (20) and animals (17).

Technology demonstrations

KVKs in Zone X conducted 12726 frontline demonstrations on crops (8328), animals (1956) and farm implements (626) in an area of 3064 ha. Among the 1702 demonstrations in cereals, 1356 were on rice. Among the 746 demonstrations on pulses, 385 were in blackgram and 131 in redgram. Among 443 demonstrations in oilseeds, 325 were in groundnut. In commercial crops 128 demonstrations were in sugarcane.

In Tamil Nadu, out of 4317 demonstrations, 1020 were in cereals and 768 in vegetables. In Andhra Pradesh out of 2573 demonstrations, 488 were in fruits, 468 on vegetables, 345 in millets and 298 in cereals. Out of 1303 demonstrations in Telangana, 410 were in vegetables and 329 in cereals. In Puducherry, out of 135 demonstrations, 55 were in cereals, 20 in vegetables, 20 in pulses and 10 each in millets and oil seeds. KVKs of the zone conducted 1956 demonstrations on livestock, poultry and fisheries involving 274095 animals, poultry birds and fish fingerlings.

Trainings

Training is an important activity of KVK, which plays a pivotal role in enhancing the knowledge and skill about various improved technologies. During the year, KVKs in Zone-X organized 6887 training programmes covering 251601 participants that include 194712 farmers, 23162 rural youth and 33727 extension functionaries.

KVKs in Tamil Nadu, organized 3942 training courses with a participation of 111880 farmers including farm women, rural youth and extension functionaries, while KVKs in Andhra Pradesh organized 1718 training courses with a participation of 41819 farmers including farm women, rural youth and extension functionaries. KVKs in Telangana conducted 1160 courses for 38443 beneficiaries. KVKs in Puducherry, conducted 67 courses for 2570 beneficiaries. The main thematic areas covered under training include crop production, horticulture, soil health and fertility management, livestock production and management, home science/women empowerment, agricultural engineering, plant protection, fisheries, capacity building and group dynamics, agro-forestry *etc*.

KVKs in Zone-X also organized 723 sponsored training programmes covering 24618 farmers and farm women and rural youth. In order to facilitate entrepreneurship development, income generation and self-employment, especially among rural youth and school dropouts, KVKs organized 239 vocational training programmes for 6647 beneficiaries. The important thematic areas include crop production and management, post-harvest technology and value addition, livestock and fisheries, income generation activities *etc*.

Technology dissemination

To create awareness on improved technologies the KVKs in Zone-X organized 40863 extension activities with the participation of 2513272 farmers, farmwomen and extension personnel. The extension activities included advisory services, exposure visits, animal health camps, technology week, group discussions, method demonstrations, soil health camps, *kisan melas*, *kisan ghostis etc*. To accelerate rapid dissemination of information on improved farm technologies, KVKs in Zone-X brought out 5182 publications.

To facilitate direct access of farmers to institutional resources, ICAR established three Agricultural Technology Information Centers in Zone-X with the objective of single window delivery of various technology products. During the year a total of 14244 farmers visited the three ATICs to know the latest technology information and to obtain critical technology products *viz*., seed and planting material.

Testing services and supply of critical inputs

KVKs undertook soil and water testing to ascertain the soil nutrient status and also to make soil test based nutrient recommendations to farmers in the prevailing micro-farming situations in the district. A total of 57613 samples including 52674 soil samples, 4696 water samples, 137 plant samples and 26 fertilizers/manures were analyzed by the KVKs that benefited 33488 farmers belonging to 6175 villages in Tamil Nadu, Andhra Pradesh, Telangana and Puducherry.

KVKs produced and supplied 8062 q of seed and 34.06 lakh saplings of elite material of field/ horticultural crops. Twelve seed hub KVKs for pulses (6 in Tamil Nadu, 4 in Andhra Pradesh and 2 in Telangana produced 6485.01 q of seed (greengram, blackgram, redgram and Bengal gram) for supply of quality seed to farmers. KVKs also produced and supplied 373.78 q of bio-fertilizers, 9310.18 q of bio inputs and 186.38 q of bio-pesticides. KVKs distributed 21.39 lakh livestock materials including cattle goat and sheep, poultry chicks and fish fingerlings to farmers.

HRD of KVK personnel

Directorates of Extension Education of SAUs and ATARI facilitated technology backstopping and Human Resources Development to KVK scientists through trainings, seminars, workshops *etc*. A total of 48 HRD activities benefitting 3484 KVK staff

in the Zone were jointly organized by the three directorates of extension.

National Innovations in Climate Resilience Agriculture (NICRA)

Technology demonstration component of NICRA project in Zone-X implemented by five KVKs demonstrated climate resilient agricultural technologies and practices across the three states. Under the project, Demonstrations were organized in 64.7 ha benefiting 318 farmers under NRM interventions. Under crop production module, demonstrations were taken up on 210.6 ha area covering 727 farmers. Under livestock and fisheries interventions, 293 farmers were benefited on improved fodder production covering 30.5 ha. Under institutional interventions 148 farmers were benefited and an area of 103 ha was covered. Through capacity building and extension activities, awareness on climate resilient technologies was brought about benefitting 663 and 1605 farmers through 21 and 34 activities respectively.

Attracting and Retaining Youth in Agriculture (ARYA)

ARYA project was implemented by ten KVKs of the Zone (4 in Tamil Nadu, 3 in Andhra Pradesh, 2 in Telangana and one in Puducherry). Skill training was imparted to 2361 rural youth through 111 training programmes for establishing enterprise units under the project. Enterprise units numbering 632 were established benefiting 1151 rural youth during 2021-22 ensuring livelihood security.

Farmer FIRST Project (FFP)

Four ICAR Institutes (IIMR, IIOPR, IIOR and CRIDA) and one University (TANUVAS) implemented Farmer FIRST project. The Farmer FIRST centers undertook 90 interventions covering 3444 ha area and 4805 households in the operational villages. Thirty six crop-based technologies were demonstrated in 1669 ha benefiting 2088 households. Horticultural interventions on 12 technologies were demonstrated in 156 ha benefiting 477 households. In livestock module, 26 technologies were demonstrated involving 6615 animals benefiting 913 households. Thirteen NRM technologies were demonstrated in 1613 ha benefiting 1163 households. Five enterprises were established for the benefit of 164 households.

Cereal Systems Initiative for South Asia (CSISA)

CSISA and Soil Intelligence System (SIS) project led by CIMMYT in collaboration with ICAR, SAUs, DOAs, IFPRI and IRRI on response of rice crop to Zn was implemented by nine KVKs in Andhra Pradesh. In low zinc soils the highest yield of 59.7q/ha (7.74% higher than control) was obtained in the combination of soil application + foliar spray. In medium Zinc soils the highest yield of 58.5 q/ha (10.29% higher than control) was recorded in soil application of zinc + foliar spray.

District Agro Met Units (DAMU)

Under Gramin Krishi Mausam Seva (GKMS) 28 District Agro Met Units (DAMUs) were established (Nine in Andhra Pradesh, eight in Telangana, 10 in Tamil Nadu and one in Puducherry) in collaboration with IMD for issuing and disseminating agromet advisories to farmers at sub-district level. During the year, DAMU centers generated 42365 agromet advisories on Agromet-DDS and disseminated weather related advisories through different means. A total of 328 farmers awareness programmes and meetings were conducted for the benefit of 13260 farmers on the utility of weather-based advisories and ways to access them. Short messages related to weather-based advisories numbering 11455 were given to 184588 famers for taking up timely farm operations and to prevent crop damage during extreme weather events.

Cluster Frontline Demonstrations on Pulses and Oilseeds

Cluster Frontline Demonstrations on Pulses under NFSM were organized by 65 KVKs comprising of Tamil Nadu, Andhra Pradesh, Telangana and Puducherry in Zone-X during 2021-22 across three seasons. A total of 4297 FLDs were conducted covering an area of 1865 ha under pulses. Similarly, 3825 cluster frontline demonstrations covering 1530 ha were conducted under NFSM in oilseed crops by 45 KVKs during *kharif* and *rabi* 2021. Productivity of pulses and oilseeds realized in FLDs was higher than the district/ state averages indicating potential for bridging the yield gap.

Tribal Sub Plan (TSP)

The Tribal Sub Plan (TSP) aimed at ameliorating the socio-economic conditions of tribal communities was implemented by 16 KVKs in the zone (7 in Andhra Pradesh, 7 in Telangana and 2 in Tamil Nadu) and facilitated creation of 5422 assets/ micro-enterprises and provided income generating opportunities to 34453 tribals. Skill development trainings (59) were imparted to 1478 beneficiaries.

Kisan Sarathi

ATARI, Hyderabad implemented Kisan Sarathi involving total of 71 KVKs, 13 DATT Centers from Andhra Pradesh, Telangana and Puducherry in which 330 experts, 37 KVK executives and 683803 farmers have been registered.

Capacity building on profitable dairy farming

Twenty five KVKs in the zone organized 117 training programmes on scientific dairy cattle, sheep and goat farming for enhanced profitability and doubling of farmers income to 4960 farmers.

Swachhta Hi Sewa

Swachhta Hi Sewa program was implemented by 71 KVKs in which KVKs performed *Swachhta Pakhwada* and contributed towards cleanliness and hygiene in adopted villages/ public places. KVKs organized 'Swachhta Hi Seva' during 2nd to 31st October 2021 and 'Swachhta Hi Suraksha' from 16th to 31st December, Special National Swachhta Campaign on 12th October 2021 and celebration of Special day "Kisan Diwas" on 23rd December 2021 in Andhra Pradesh, Telangana, Tamil Nadu and Puducherry.

Mera Gaon Mera Gaurav

Under *Mera Gaon Mera Gaurav* (MGMG) programme a total of 66 teams of scientists from 10 ICAR research Institutes adopted 226 villages and and organized 1083 activities benefiting 16571 farmers and rural people.

Human Resource Development

Three scientific and administrative staff of ICAR-ATARI underwent trainings on various topics while three trainings were organized by the institute to 180 participants.

CONTENTS

1. INTRODUCTION

ICAR-Agricultural Technology Application Research Institute (ATARI)

A massive programme by the name "Lab to Land" was launched by the National Co-ordination committee during 1979-80, the golden jubilee year of ICAR for ensuring successful transfer of economically viable and socially acceptable technologies generated in the laboratories to farmers' fields. The objective of the programme was to adopt 50000 small and marginal farmers and landless labourers throughout the country to transfer available farm technologies of crop production, livestock farming, farm tools and implements, pisciculture, sericulture, apiculture *etc*. including crop-livestock integration and the programme was implemented from September, 1979. To facilitate the implementation and monitoring of the Lab to Land programme, the country was divided into eight zones and Zonal Co-ordination units were established for each zone during the same year. Zonal Coordination Unit for Transfer of Technology, Zone-V was established in September, 1979 as Cess Fund Scheme at Andhra Pradesh Agricultural University, Hyderabad primarily to monitor the activities of the Lab to Land Programme in the states of Andhra Pradesh and Maharashtra. The unit was shifted to the campus of Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad during the year 1985 and it remained operational till 1986. It was later brought under the plan scheme of ICAR during the year 1986.

All the other ICAR supported Transfer of Technology Projects that were implemented in the zone *viz*. Krishi Vigyan Kendras (KVK), Trainers Training Centre (TTC), National Demonstration Scheme (NDS), Operational Research Projects (ORP), All India Coordinated Project on SC / ST (AICRP SC/ ST) and Special Projects on Oilseeds were brought under the umbrella of the Zonal Co-ordination unit during the year 1987. The additional responsibility of monitoring the Frontline Demonstrations (FLD) on oilseeds under Oilseeds Production Programme (OPP) and pulses under National Pulse Project (NPP), farm implements, and cotton was entrusted with the ZC Unit during the years 1990 and 1991. In 1995, a pilot project on Institute Village Linkage Programme (IVLP) launched by the council for Technology Assessment and Refinement (TAR) was also implemented in the zone by the unit. In 1998, Zonal Research Stations under the State Agricultural Universities (SAU) were strengthened to take up the additional functions of KVKs and these re-mandated KVKs have also been monitored by the unit since then.

The X and XI Five Year Plan (FYP) period was marked by a phenomenal impetus in the establishment of new KVKs in Zone-V covering the states of Andhra Pradesh and Maharashtra. During XI FYP period, Council approved establishment of 97 new KVKs which included 24 additional KVKs in geographically larger districts, 12 each in the states of Andhra Pradesh and Maharashtra. With the addition of several new KVKs in each zone, ICAR has upgraded all the eight Zonal Coordination Units to the status of Directorates and thus Zonal Project Directorate (ZPD), Zone-V came into existence during the year 2009. The status of the ZPDs was changed into Institutes with the mandate of Extension Research being added and the post of Zonal Project Director being upgraded to that of Director with effect from 2015. The ZPD was re-designated as "Agricultural Technology Application Research Institute (ATARI). Further, ICAR reorganized the 8 ATARIs into 11 with revised jurisdiction of states. ATARI, Hyderabad is re-designated as Zone-X for coordination of KVKs in Andhra Pradesh, Telangana, Tamil Nadu and Puducherry. In XII plan, 11 additional KVKs were sanctioned out of which six were established in Andhra Pradesh and Telangana.

Mandates of ATARI

a. Coordination and monitoring of technology application and Frontline Extension Education Programs

b. Strengthening Agricultural Extension Research and Knowledge Management

The ICAR-ATARI, Hyderabad functions under the administrative control of Division of Agricultural Extension of ICAR headed by the Deputy Director General (Agricultural Extension). The ATARI is headed by the Director who is assisted by the Principal Scientists, Senior Scientists, Scientists, technical, administrative and supporting staff. The requisite infrastructure for the smooth functioning of ATARI was built in the same premises as ICAR-Central Research Institute for Dryland Agriculture (CRIDA), Santoshnagar, Hyderabad.

Krishi Vigyan Kendra

Krishi Vigyan Kendra (Farm Science Center) is a science/ technology led, farmer centric institution, established with the purpose of providing knowledge and skill training to the farmers, rural youth and field-level extension workers. Vocational training in agriculture and allied fields through KVK has become the need of the hour for ensuring livelihood security and enhancing farm income which is envisaged to be doubled. The farmers not only require knowledge and understanding of intricacies of new technologies but also more skills to adopt the same in varied and complex field situation on their farms. In view of this, the role of KVK was further enhanced by adding the responsibility of on-farm testing and front-line demonstrations of major agricultural technologies to dovetail the same with location specific environment. To equip the present-day farmers to face the challenges of information explosion and to bridge the digital divide, KVKs were also given the other responsibility of acting as knowledge and resource centre of agricultural and allied technologies. The use of ICT by KVKs has been substantial to provide necessary and timely information on weather, markets and solutions to various day to day problems faced by farmers.

Mandates of KVKs

- On-farm testing to assess the location specificity of agricultural technologies under various farming systems.
- Organize frontline demonstrations to establish production potential of technologies on the farmers' fields.
- Capacity development of farmers and extension personnel to update their knowledge and skills in frontier agricultural technologies and enterprises.
- Work as Knowledge and Resource Centre for improving overall agricultural economy in the operational area.

2. KRISHI VIGYAN KENDRAS

2.1. Status

The sanctioned strength of KVKs in Zone-X is 75 out of which 71 are in operation during 2021. The state-wise sanctioned KVKs include 32 in Tamil Nadu, 24 in Andhra Pradesh, 16 in Telangana and three in Puducherry. Out of 32 KVKs in Tamil Nadu, 19 are with SAUs (14 with TNAU, four with TANUVAS and one with TNJFU), two with DU and eleven with NGOs. Two KVKs with NGOs are non-functional during 2021. Of the 24 KVKs in Andhra Pradesh, 18 are with SAUs (13 with ANGRAU, four with Dr YSRHU and one with SVVU), two with ICAR (ICAR-CTRI) and four are with NGOs. One among the NGO KVKs is non-functional. Of the 16 KVKs in Telangana,10 are with SAUs (eight with PJTSAU, one each with SKLBTSHU and PVNRTSVU) one with ICAR (ICAR-CRIDA) and five with NGOs. In Puducherry, all three KVKs are administered by State Department of Agriculture. One among the three KVKs is not established.

Table 2.1.1. Status of KVKs

State	No. of rural districts	No. of KVKs Sanctioned						Functional during 2021
		SAU	ICAR	NGO	DU	SDA	Total	
Tamil Nadu	38	19	-	11	2	-	32	30
Andhra Pradesh	13	18	2	4	-	-	24	23
Telangana	33	10	1	5	-	-	16	16
Puducherry	4	-	-	-	-	3	3	2
Total	**88**	**47**	**3**	**20**	**2**	**3**	**75**	**71**

2.2 Staff

The details of staff position of KVKs in different states is given in Table 2.2.1. The total sanctioned staff strength of KVKs in Zone-X stands at 1136, out of which 903 (79.49%) positions are filled. Scientific staff strength is 426 out of which 338 (79.34%) are filled. In Tamil Nadu, 416 out of 480 positions are filled (86.67%), in Andhra Pradesh, 256 out of 368 positions are filled (69.56%), in Telangana, 213 out of 256 positions are filled (83.20%) and in Puducherry, 18 out of 32 positions are filled (56%).

Table 2.2.1 Consolidated staff position

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	S	F	V	S	F	V	S	F	V	S	F	V	S	F	V
Programme Coordinators	30	24	6	23	22	1	16	13	3	2	1	1	**71**	**60**	**11**
Subject Matter Specialists	180	161	19	138	97	41	96	74	22	12	6	6	**426**	**338**	**88**
Farm Managers	30	26	4	23	12	11	16	14	2	2	2	0	**71**	**54**	**17**
Programme Assistant (Computer)	30	25	5	23	13	10	16	15	1	2	2	0	**71**	**55**	**16**
Programme Assistant (Lab Tech)	30	24	6	23	13	10	16	14	2	2	1	1	**71**	**52**	**19**
Assistant	30	27	3	23	20	3	16	12	4	2	0	2	**71**	**59**	**12**
Stenographer (Grade-III)	30	25	5	23	17	6	16	14	2	2	1	1	**71**	**57**	**14**
Driver	60	53	7	46	29	17	32	29	3	4	2	2	**142**	**113**	**29**
SSS	60	51	9	46	33	13	32	28	4	4	3	1	**142**	**115**	**27**
Total	**480**	**416**	**64**	**368**	**256**	**112**	**256**	**213**	**43**	**32**	**18**	**14**	**1136**	**903**	**233**

S=Sanctioned; F= Filled; V=Vacant

2.3. Infrastructure

To facilitate proper functioning of KVKs, modest infrastructure is provided by ICAR. The details of land, buildings, laboratory, vehicles, demonstration units and other facilities available at KVKs are presented in Tables 2.3.1 to 2.3.4. The other infrastructure such as rainwater harvesting structure and Integrated Farming System models are provided to some KVKs, while the buildings and vehicle are provided to all the KVKs by ICAR.

Table 2.3.1. Details of infrastructure facilities available with KVKs in Tamil Nadu

KVK	Land area (ha)	Admin Building	Farmers Hostel	Staff Quarters	Soil & Water Testing Lab	Mini Soil Testing Kit	Sales Counter	Jeep	Tractor	Two-wheeler	No. of Demo Units
Ariyalur	20.00	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	24
Coimbatore	20.50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	25
Cuddalore	20.00	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	18
Dharmapuri	16.16	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	yes	30
Dindigul	20.00	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	16
Erode	22.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	24
Kancheepuram	20.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	19
Kanyakumari	16.08	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes	7
Karur	21.51	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	15
Krishnagiri	20.30	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	20
Madurai	21.81	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	21
Nagapattinam	22.67	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	29
Namakkal	20.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	30
Perambalur	21.54	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	12
Pudukkottai	23.20	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	10
Ramanathapuram	6.12	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes	10
Salem	9.95	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	25
Sivagangai	17.95	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	15
Theni	22.00	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	5
Thiruvallur	16.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	11
Thiruvannamalai	20.48	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	22
Thiruvarur	18.66	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	13
Thoothukudi	20.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	20
Tiruchirappalli	20.00	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	16
Tirunelveli	20.00	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	13
Tiruppur	15.62	No	No	No	No	No	No	Yes	Yes	Yes	16
Vellore	24.15	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	14
Villupuram	16.80	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	13
Villupuram II	20.00	No	No	No	No	No	No	Yes	Yes	Yes	16
Virudhunagar	16.00	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	6
Total	**569.50**	**28**	**25**	**21**	**25**	**26**	**19**	**29**	**30**	**30**	**519**

Table 2.3.2. Details of infrastructure facilities available with KVKs in Andhra Pradesh

KVK	Land area (ha)	Admin Building	Farmers Hostel	Staff Quarters	Soil & Water Testing Lab	Mini Soil Testing Kit	Sales Counter	Jeep	Tractor	Two-wheeler	No. of Demo Units
Ananthapuram (Reddipalli)	21.25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	19
Ananthapuram (Kalyandurg)	20.23	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	8
Chittoor (RASS)	20.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	24
Chittoor (Kalikiri)	20.22	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	7
East Godavari (Kalavacharla)	14.37	Yes	Yes	Yes	No	No	No	No	Yes	Yes	16
East Godavari (Pandirimamidi)	19.40	Yes	Yes	No	No	Yes	No	Yes	Yes	No	25
Guntur (Lam)	23.60	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	19
Kadapa (Utukur)	10.00	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	13
Kadapa (Vonipenta)	42.36	No	Yes	No	No	No	No	Yes	No	Yes	15
Krishna (Garikapadu)	20.80	Yes	Yes	Yes	No	Yes	No	No	No	Yes	13
Krishna (Ghantasala)	15.41	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	19
Kurnool (Yagantipalle)	20.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	2
Kurnool (Banavasi)	20.00	Yes	Yes	No	Yes	No	No	Yes	No	No	18
Nellore	24.00	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	14
Nellore (Periyavaram)	22.70	No	No	No	No	Yes	No	Yes	No	Yes	12
Prakasam (Darsi)	25.60	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	11
Prakasam (Kandukur)	20.00	Yes	No	No	No	Yes	No	Yes	Yes	No	1
Srikakulam	19.15	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	19
Visakhapatnam (Haripuram)	40.00	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	15
Visakhapatnam (Kondempudi)	20.00	Yes	Yes	No	No	No	No	No	Yes	Yes	11
Vizianagaram	22.50	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes	9
West Godavari (Undi)	50.00	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	12
West Godavari (VR Gudem)	20.00	Yes	Yes	No	No	Yes	No	No	No	No	0
Total	531.59	21	19	10	10	18	6	19	18	22	302

Table 2.3.3. Details of infrastructure facilities available with KVKs in Telangana

KVK	Land area (ha)	Admin Building	Farmers Hostel	Staff Quarters	Soil & Water Testing Lab	Mini Soil Testing Kit	Sales Counter	Jeep	Tractor	Two-wheeler	No. of Demo Units
Adilabad	5.60	Yes	No	No	No	Yes	No	Yes	Yes	Yes	5
Kammam (Wyra)	13.38	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	16
Kammam (Kothagudam)	20.00	Yes	No	No	No	Yes	No	Yes	Yes	Yes	1
Karimnagar (Jammikunta)	26.50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	26
Karimnagar (Ramagirikhilla)	25.60	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	2
Mahabubnagar (YFA)	20.00	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	10
Mahabubnagar (Palem)	21.26	Yes	Yes	No	No	Yes	No	Yes	Yes	No	17
Mancherial	20.00	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	21
Medak (DSS)	25.80	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	18
Medak (Tuniki)	12.00	Yes	No	No	No	Yes	No	Yes	Yes	No	18
Nalgonda (Gaddipally)	25.60	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	25
Nalgonda (Kampasagar)	20.00	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	5
Nizamabad	20.00	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	2
Ranga Reddy	20.00	yes	yes	No	yes	yes	No	Yes	Yes	Yes	18
Warangal (Malyal)	18.30	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	6
Warangal (Mamnoor)	20.00	Yes	Yes	No	No	Yes	No	Yes	Yes	No	7
Total	**314.04**	**16**	**12**	**6**	**5**	**16**	**6**	**16**	**15**	**11**	**197**

Table 2.3.4. Details of infrastructure facilities available with KVKs in Puducherry

KVK	Land area (ha)	Admin Building	Farmers Hostel	Staff Quarters	Soil & Water Testing Lab	Mini Soil Testing Kit	Sales Counter	Jeep	Tractor	Two-wheeler	No. of Demo Units
Karaikal	24.38	Yes	No	No	No	Yes	No	Yes	Yes	Yes	14
Puducherry	58.00	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	13
Total	**82.38**	**2**	**0**	**0**	**1**	**2**	**1**	**2**	**1**	**2**	**27**

2.4. Revolving Fund

The total income generated through revolving fund by KVKs in the Zone-X is Rs.1968.03 lakhs of which Rs.700.57 lakhs is generated by KVKs in Tamil Nadu, Rs.664.78 lakhs by KVKs in Andhra Pradesh, Rs.595.25 lakhs by KVKs in Telangana and Rs.7.43 lakhs by KVKs in Puducherry (Table 2.4.1.). Closing Balance as on 31.03.2022 is Rs.1443.88 Lakhs KVK wise status is given in Tables 2.4.2 to 2.4.5.

Table 2.4.1. Status of revolving fund

(Rs. in lakh)

State	Receipts 2021-22	Expenditure 2021-22	Balance on 31.03.2021
Tamil Nadu	700.57	619.10	438.72
Andhra Pradesh	664.78	579.50	581.55
Telangana	595.25	562.96	413.32
Puducherry	7.43	4.18	10.29
Total	**1968.03**	**1765.75**	**1443.88**

Table 2.4.2. Status of revolving fund in KVKs of Tamil Nadu (Rs. In lakhs)

KVK	Balance on 31.03.2021	KVK	Balance on 31.03.2021
Ariyalur	9.12	Ramanathapuram	3.31
Coimbatore	16.81	Salem	15.07
Cuddalore	6.88	Sivagangai	25.86
Dharmapuri	25.99	Theni	11.55
Dindigul	41.53	Thiruvallur	1.35
Erode	11.51	Thiruvannamalai	18.64
Kancheepuram	7.27	Thiruvarur	2.79
Kanyakumari	8.48	Thoothukudi	3.86
Karur	10.56	Tiruchirappalli	12.48
Krishnagiri	20.44	Tirunelveli	11.19
Madurai	5.11	Tiruappur	15.58
Nagapattinam	0.67	Vellore	31.61
Namakkal	60.71	Villupuram	15.47
Perambalur	36.31	Villupuram II	4.69
Pudukkottai	1.73	Virudhunagar	2.14
Total			**345.90**

Table 2.4.3. Status of revolving fund in KVKs of Andhra Pradesh (Rs. In lakhs)

KVK	Balance on 31.03.2021	KVK	Balance on 31.03.2021
Ananthapuram (Reddipalli)	126.37	Kurnool (Banavasi)	11.76
Ananthapuram (Kalyandurg)	19.54	Nellore (Nellore)	2.72
Chittoor (RASS)	71.22	Nellore (Periyavaram)	8.48
Chittoor (Kalikiri)	7.42	Prakasam (Darsi)	36.96
East Godavari (Kalavacharla)	0.00	Prakasam (Kandukur)	9.50
East Godavari (Pandirimamidi)	40.12	Srikakulam	29.86
Guntur (Lam)	9.51	Visakhapatnam (Haripuram)	94.84
Kadapa (Utukur)	6.93	Visakhapatnam (Kondempudi)	6.90
Kadapa (Vonipenta)	2.44	Vizianagaram	10.97
Krishna (Garikapadu)	22.06	West Godavari (Undi)	12.83
Krishna (Ghantasala)	38.08	West Godavari (VR Gudem)	11.90
Kurnool (Yagantipalle)	1.14	**Total**	581.55

Table 2.4.4. Status of revolving fund in KVKs of Telangana (Rs. In lakhs)

KVK	Balance on 31.03.2021	KVK	Balance on 31.03.2021
Adilabad	23.68	Medak (DSS)	10.37
Kammam (Wyra)	116.21	Medak (Tuniki)	0.87
Kammam (Kothagudam)	4.67	Nalgonda (Gaddipally)	81.36
Karimnagar (Jammikunta)	54.82	Nalgonda (Kampasagar)	1.20
Karimnagar (Ramagirikhilla)	3.09	Nizamabad	15.86
Mahabubnagar (YFA)	23.22	Ranga Reddy	0.23
Mahabubnagar (Palem)	10.53	Warangal (Malyal)	59.95
Mancherial	6.19	Warangal (Mamnoor)	1.07
		Total	**413.32**

Table 2.4.5. Status of revolving fund in KVKs of Puducherry (Rs. In lakhs)

KVK	Balance on 31.3.2020
Karaikal	5.29
Puducherry	5.00
Total	**10.29**

2.5 Scientific Advisory Committee (SAC) Meetings

The Scientific Advisory Committee meetings are conducted by KVKs to get necessary guidance and support to carry out the mandated activities of KVK in a more planned and scientific manner. A total of 71 Scientific Advisory Committee meetings were conducted by KVKs for the year 2021 (Table 2.5.1).

Table 2.5.1. Details of SAC meetings conducted in Zone-X

State	No. of operational KVKs	No. of SAC meetings conducted
Tamil Nadu	30	30
Andhra Pradesh	23	23
Telangana	16	16
Puducherry	2	2
Total	**71**	**71**

3. ACHIEVEMENTS

3.1. Technology Assessment

During the year, KVKs in Zone X assessed 1432 technologies in 4883 trials conducted at different locations on farmers' fields (Table 3.1.1) through On-farm Trials (OTF). The technologies included 1052 on crops, 136 on animals 42 on women empowerment, 126 technologies on Enterprises 36 on farm machinery and 32 on ICT. KVKs of Tamil Nadu, Andhra Pradesh, Telangana and Puducherry assessed 624, 498,288 and 22 technologies in 2514, 1572, 755 and 42 trials, respectively. A total of 1052 technologies assessed were on crops of which 464 were new and improved crop varieties (Table 3.1.2.). Among the other crop production and protection technologies, 176 were on IPM, 118 on INM and 74 on ICM. Out of 136 technologies assessed in animal category, 40 each were on nutrition management and production management. In women empowerment and enterprises 40 and 126 technologies were assessed, respectively. Under ICT extension studies and farm machinery, 32, 10 and 36 technologies were assessed, respectively.

Table 3.1.1. Abstract of technologies assessed in OFTs by KVKs in Zone X (Updated)

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Tech.	Trials	KVKs	Tech.	Trials	KVKs	Tech.	Trials	KVKs	Tech.	Trials	KVKs	Tech.	Trials	KVKs
Crops	432	1067	30	394	1001	23	218	519	19	8	20	2	**1052**	**2607**	**71**
Animals	56	210	16	44	191	11	26	71	4	10	17	2	**136**	**489**	**33**
Women empowerment	6	15	3	26	277	10	8	82	3				**42**	**374**	**16**
Enterprises	89	518	22	28	89	9	8	22	3	2	3	1	**126**	**632**	**35**
Farm Machinery				6	14	2	28	61	6	2	2	1	**36**	**77**	**9**
ICT	32	620	8										**32**	**84**	**8**
Others	20	84	2												
Total	**624**	**2514**	**30**	**498**	**1572**	**23**	**288**	**755**	**16**	**22**	**42**	**2**	**1432**	**4883**	**71**

Tech. = No. of Technologies; Trials = No. of Trials; KVKs = No. of KVKs

In Tamil Nadu, 432 crop based technologies were assessed for their suitability in 1067 locations, 56 technologies on animals in 210 locations, six technologies on empowerment of women in 15 locations, 88 technologies on enterprises in 518 locations, 32 technologies on ICT in 620 locations and 10 technologies on extension in 84 locations. The KVKs of Andhra Pradesh assessed the suitability of 394 crop-based technologies in 1001 locations, 44 animal-based technologies in 191 locations, 26 technologies for women empowerment in 277 locations and 28 technologies on enterprises in 89 locations. In Telangana, 218 crop-based technologies were assessed for their suitability in 519 locations, 26 animal-based technologies in 71 locations, eight technologies for the empowerment of women in 82 locations and eight technologies for enterprises in 22 locations. On farm machinery, 28 technologies were assessed at 61 locations. In Puducherry, eight crop-based technologies were assessed for their suitability in 20 locations, in animals 10 technologies in 17 locations and two enterprises technologies in three locations.

Table 3.1.2. Details of thematic area wise technologies assessed in OFTs by KVKs in Zone X

Thematic area	Tamil Nadu				Andhra Pradesh				Telangana				Puducherry				Total			
	OFTs	Tech.	Trials	KVKs	OFTs	Tech.	Trials	KVKs	OFTs	Tech.	Trials	KVKs	OFTs	Tech.	Trials	KVKs	OFTs	Tech.	Trials	KVKs
Crops																				
Cropping Systems	2	4	7	2	10	20	56	5	10	20	42	6					22	44	105	13
ICM	16	32	95	8	5	10	31	5	16	32	63	9					37	74	189	22
IDM	12	24	60	10	16	32	77	11	6	12	36	5					34	68	173	26
INM	24	48	115	16	22	44	108	12	12	24	56	8	1	2	5	1	59	118	284	37
IPDM	6	12	30	3	5	10	25	3	5	10	23	5					16	32	78	11
IPM	36	72	183	20	29	58	134	14	22	44	92	13	1	2	5	1	88	176	414	48
Post-Harvest Management					3	6	15	3	1	2	50	1					4	8	65	4
Resource Conservation	5	10	23	5	5	10	36	4	3	6	16	3					13	26	75	12
Seed production									1	2	4	1					1	2	4	1
Storage Technique	2	4	10	2													2	4	10	2
Varietal Assessment	104	208	501	28	97	194	495	23	30	60	128	14	1	2	5	1	232	464	1129	66
Weed Management	9	18	43	9	5	10	24	5	3	6	9	3	1	2	5	1	18	36	81	18
Total (Crops)	**216**	**432**	**1067**	**30**	**197**	**394**	**1001**	**23**	**109**	**218**	**519**	**16**	**4**	**8**	**20**	**2**	**526**	**1052**	**2607**	**71**
Animals																				
Disease Management	3	6	50	2	3	6	56	3	3	6	11	3	1	2	5	1	10	20	122	9
Evaluation of Breeds	2	4	5	2	5	10	38	4									7	14	43	6
Feed and Fodder management	4	8	18	4	5	10	33	5	1	2	4	1	1	2	3	1	11	22	58	11
Nutrition Management	7	14	56	7	4	8	36	4	6	12	45	3	3	6	9	2	20	40	146	16
Production and Management	12	24	81	11	5	10	28	3	3	6	11	3					20	40	120	17
Total (Animals)	**28**	**56**	**210**	**16**	**22**	**44**	**191**	**11**	**13**	**26**	**71**	**4**	**5**	**10**	**17**	**2**	**68**	**136**	**489**	**33**
Women Empowerment																				
Drudgery Reduction					2	4	8	2									2	4	8	2
Enterprises	1	2	5	1													1	2	5	1
Health and nutrition	2	4	10	2	4	8	236	4	4	8	82	3					10	20	328	9

Thematic area	Tamil Nadu				Andhra Pradesh				Telangana				Puducherry				Total			
	OFTs	Tech.	Trials	KVKs	OFTs	Tech.	Trials	KVKs	OFTs	Tech.	Trials	KVKs	OFTs	Tech.	Trials	KVKs	OFTs	Tech.	Trials	KVKs
Kitchen Garden					1	2	5	1									1	2	5	1
Storage Technique					1	2	5	1									1	2	5	1
Value addition					5	10	23	4									5	10	23	4
Total (WE)	**3**	**6**	**15**	**3**	**13**	**26**	**277**	**10**	**4**	**8**	**82**	**3**	**0**	**0**	**0**		**20**	**40**	**374**	**16**
Enterprises																				
Entrepreneurship Development	12	24	59	10	3	6	11	3	1	2	6	1	1	2	3	1	17	34	79	15
Health and Nutrition	2	4	95	2													2	4	95	2
Processing and value addition	14	28	64	10	3	6	23	3	2	4	10	1					19	38	97	14
Resource Conservation					1	2	5	1									1	2	5	1
Small scale income generation	1	2	220	1	4	8	29	3									5	10	249	4
Storage techniques	3	6	20	3	1	2	10	1	1	2	6	1					5	10	36	5
Value addition	12	24	60	7	2	4	11	2									14	28	71	9
Total (Enterprises)	**44**	**88**	**518**	**22**	**14**	**28**	**89**	**9**	**4**	**8**	**22**	**3**	**1**	**2**	**3**	**1**	**63**	**126**	**632**	**35**
ICT	**16**	**32**	**620**	**8**													**16**	**32**	**620**	**8**
Extension Studies	**5**	**10**	**84**	**2**													**5**	**10**	**84**	**2**
Farm Machinery																				
Cost saving									3	6	14	3					3	6	14	3
Drudgery reduction					2	4	8	2	2	4	7	2					4	8	15	4
Labor saving									1	2	3	1					1	2	3	1
Manpower saving									1	2	5	1					1	2	5	1
Time saving					1	2	6	1	6	12	26	4	1	2	2	1	8	16	34	6
Water saving									1	2	6	1					1	2	6	1
Total (Farm Machinery)	**0**	**0**	**0**		**3**	**6**	**14**	**2**	**14**	**28**	**61**	**6**	**1**	**2**	**2**	**1**	**18**	**36**	**77**	**9**
Grand Total	**312**	**624**	**2514**	**30**	**249**	**498**	**1572**	**23**	**144**	**288**	**755**	**16**	**11**	**22**	**42**	**2**	**716**	**1432**	**4883**	**71**

OFTs = No. of OFTs, Tech. = No. of Technologies; Trials = No. of Trials; KVKs = No. of KVKs

PERFORMANCE OF TECHNOLOGIES

3.1.1. Varietal Assessment

I. Field Crops

a. Cereals

Rice varieties TRY 4, CSR 56, ADT 53 and VGD 1 were assessed by KVKs of Tamil Nadu and were found superior to Farmer's Practice with 24.5, 12.5, 18.5 and 20.5 per cent higher yield and higher economic returns than farmers' varieties. Rice variety TKM 13 gave 26 per cent higher yield than BPT 5204. Varieties NLR 3354, NLR 34449 and MTU 1224 were found to be superior to Farmer's practice with 38, 28 and 21 per cent higher yield in Andhra Pradesh.

Table 3.1.3. Performance of rice varieties in On Farm Trials of Zone X

State and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers' Practice		
		Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	BCR
Tamil Nadu												
Ariyalur	5	TRY 4	50.75	26	2.81:1	CSR 56	46.25	15	2.50:1	BPT 5204	40.25	2.08:1
Thiruvarur	5	TRY 4	55.45	23	2.34:1	CSR 56	49.52	10	2.09:1	Local rice	45.21	2.05:1
Cuddalore	5	ADT 53	52.00	6	2.09:1	RNR 15048	47.00	-4	2.01:1	ASD 16	49.00	2.00:1
Karur	3	ADT 53	60.23	31	2.81:1	CO 51	52.49	14	2.41:1	BPT 5204	46.04	2.10:1
Cuddalore	5	VGD 1	51.00	12	2.16:1	TKM 13	49.00	8	2.10:1	BPT 5204	45.50	1.87:1
Ramanathapuram	5	VGD 1	44.00	26	1.55:1	RNR 15048	42.00	20	1.52:1	ADT 45	35.00	1.47:1
Thoothukudi	3	VGD 1	69.22	30	1.65:1	NDLR 7	64.20	21	1.52:1	Seegara Samba	53.12	1.25:1
Tirunelveli	5	VGD 1	55.50	14	3.51:1	NDLR 7	54.00	11	2.95:1	BPT 5204	48.75	2.73:1
Thiruvallur	5	CO 53	46.20	1	1.35:1	CR Dhan 205	49.50	8	1.85:1	ADT 37	45.80	1.31:1
Theni	5	CO 54	66.68	23	2.39:1	ADT 55	60.06	11	2.21:1	Sowbagya	54.22	1.90:1
Thiruvannamalai	5	TKM 13	62.48	26	1.79:1	AU 1 GSR	55.58	12	1.59:1	BPT 5204	49.44	1.38:1
Andhra Pradesh												
Kadapa (Utukur)	3	NLR 3354	49.00	38	1.97:1	NLR 34449	45.50	28	1.86:1	NDLR 7	35.50	1.41:1
Krishna (Ghantasala)	6	MTU 1190	65.63	17	1.81:1	MTU 1224	62.34	11	1.68:1	BPT 5204	56.25	1.42:1
Visakhapatnam (Kondempudi)	5	MTU 1224	40.00	21	7.06:1	MTU 1210	34.00	3	6.15:1	RGL 2537	33.00	6.00:1

%=Increase in yield over Farmer's practice (%)

b. Millets

Finger millet variety ATL 1 performed better than ML 365 and GPU 28 with 40 per cent higher yield than GPU 28 in Tamil Nadu. Foxtail millet SIA 3223 gave 28 per cent higher yield and higher economic returns than SIA 326 in Andhra Pradesh. Kodo millet variety ATL 1 gave 15 per cent higher yield than the local variety in Tamil Nadu. Pearl millet varieties AHB 1200, ABV 4 and CO 9 gave 11.5, 34 and 31.5 per cent higher yields than farmers' varieties, respectively in Tamil Nadu. Sorghum variety CSV 27 gave 43 per cent higher yield and higher economic returns than farmers' variety in Tamil Nadu

Table 3.1.4. Performance of millet varieties in On Farm Trials of Zone X

State and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	BCR
Finger millet												
Dharmapuri	5	ATL 1	25.80	40	2.11:1	ML 365	23.20	26	2.02:1	GPU 28	18.40	1.94:1
Foxtail Millet												
Kurnool (Banavasi)	5	SIA 3223	25.00	28	1.74:1	SIA 3156	22.50	15	1.71:1	Prasad (SIA 326)	19.50	1.66:1
Srikakulam	5	Suryanandi	5.50	16	1.67:1					Local variety	4.75	1.57:1
Medak (DSS)	3	SIA 3222	10.26	6	1.83:1					Local Variety	9.65	1.7:1
Kodo millet												
Cuddalore	5	ATL 1	18.20	15	1.77:1	Chhattisgarh Kodo 2	16.60	5	1.6:1	Local variety	15.80	1.55:1
Pearl millet												
Salem	5	AHB 1200	31.20	10	2.73:1	CO 9	36.20	28	3.17:1	Noi cumbu	28.30	2.25:1
Theni	5	AHP 1200	24.72	13	2.50:1	CO 9	29.50	35	2.72:1	Private Hybrid	21.90	2.14:1
Villupuram II	10	ABV 04	26.50	34	3.94:1	CO 10	21.50	8	3.06:1	Nattu cumbu	19.85	2.85:1
Sorghum												
Coimbatore	5	CO 32	22.40	54	1.86:1	CSV 27	20.80	43	1.80:1	Fodder sorghum	14.50	1.66:1
Ananthapuram (Kalyandurg)	5	NTJ 5	18.75	18		NTJ 4	12.41	-22		Local Variety	15.87	

%=Increase in yield over Farmer's practice (%)

c. Pulses

Blackgram varieties VBN 11, TBG 104 and GBG 1 were found to yield 21.4, 31.5 and 14.6 per cent higher than Farmer's practice with higher economic returns. Greengram varieties VBN 4, MH 421 and CO 8 yielded 23.8, 10.75 and 39 per cent higher than the Farmer's practice with higher economic returns. Redgram varieties WRG 93, CO 8. LRG 133-33 and LRG 105 gave 22.5, 12.5, 21 and 28.6 per cent higher yield than farmers varieties in Tamil Nadu and Andhra Pradesh with higher economic returns.

Table 3.1.5. Performance of pulses varieties in On Farm Trials of Zone X

State and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	BCR
Blackgram												
Madurai	5	VBN 8	4.52		2.85:1	ADT 6	5.35		3.38:1	Fallowing		
Guntur (Lam)	10	LBG 787	16.25	23	2.18:1	VBN 8	10.20	-23	1.38:1	LBG 787	13.20	1.61:1
Thiruvarur	5	VBN 9	7.10	26	2.56:1	ADT 6	6.15	9	2.22:1	ADT 5	5.65	2.30:1

State and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	BCR
Kanyakumari	5	VBN 11	8.60	15	1.81:1	VBN 8	8.20	9	1.80:1	Local variety	7.50	1.77:1
Thoothukudi	3	VBN 11	9.20	28	1.87:1	TBG 104	8.52	18	1.77:1	Local variety	7.20	1.48:1
Thiruvallur	5	VBN 11	8.20	28	1.71:1	TBG 104	7.80	22	1.56:1	Selection	6.40	1.28:1
Tirunelveli	5	VBN 11	8.63	17	3.29:1	TBG 104	8.05	9	3.07:1	VBN (Bg) 4	7.40	2.87:1
Thiruvarur	5	VBN 11	9.25	19	2.38:1	TBG 104	14.20	82	3.60:1	VBN 5	7.80	2.29:1
Dharmapuri	5	CO 7	11.20	10	2.28:1	TBG 104	13.65	34	2.50:1	VBN 8	10.20	2.18:1
Theni	5	CO 7	10.27	34	3.50:1	TBG 104	9.18	20	3.15:1	VBN 4	7.65	2.32:1
Kadapa (Vonipenta)	5	GBG 1	17.00	13	1.63:1	TBG 104	22.00	47	1.76:1	PU 31	15.00	1.73:1
Prakasam (Darsi)	5	GBG 1	16.59	32	1.59:1	TBG 104	15.10	20	1.55:1	PU 31	1261	1.44:1
Kadapa (Vonipenta)	5	GBG 1	10.70	1	1.75:1	TBG 129	20.00	89	1.70:1	TBG 129	10.60	1.93:1
Krishna (Garikapadu)	5	GBG 1	9.38	6	1.24:1	GBG 12	9.44	7	1.43:1	PU 31	8.86	1.20:1
Srikakulam	5	GBG 1	7.53	21	2.66:1	LBG 787	8.21	32	2.90:1	TBG 104	6.24	2.21:1
Kurnool (Banavasi)	3	NBeG 452	21.70	10	1.63:1	NBeG 49	20.50	4	1.61:1	JG 11	19.70	1.60:1
Guntur (Lam)	10	VBN 8	16.25	23	3.18:1	GBG 1	10.20	-23	2.38:1	LBG 787	13.20	2.61:1
Chickpea												
Prakasam (Darsi)	5	NBeG 452	20.50	14	1.60:1	NBeG 49	19.75	10	6.81:1	JG 11	18.00	1.54:1
Cowpea												
Ramanathapuram	5	VBN 3	6.80	26	1.51:1	CO (CP) 7	6.10	13	1.35:1	T 85F 2020	5.40	1.20:1
Greengram												
Villupuram	5	VBN 4	9.88	22	1.64:1	MH 421	8.28	2	1.57:1	Local variety	8.12	1.52:1
Pudukkottai	5	VBN 4	8.10	25	4.86:1	MH 421	7.60	17	4.62:1	Local variety	6.50	4.15:1
Salem	5	VBN 4	7.10	27	4.51:1	MH 421	5.80	4	3.86:1	VBN (Gg) 2	5.60	3.87:1
Virudhunagar	5	VBN 4	9.88	34	1.71:1	MH 421	8.90	20	1.68:1	CO 8	7.40	1.53:1
Namakkal	5	VBN 4	9.85	11	2.93:1	WGG 42	8.92	1	2.70:1	CO 8	8.85	2.71:1
Krishnagiri	5	CO 8	8.10	29	2.50:1	CO 7	7.40	17	2.31:1	VBN 3	6.30	1.94:1
Perambalur	5	CO 8	6.79	39	2.95:1	DDG 1	6.25	28	2.84:1	VBN 1	4.90	2.48:1
Ananthapuram (Reddipalli)	5	LGG 607	7.75	7	1.45:1	LGG 574	6.10	-16	1.30:1	Local variety	7.25	1.40:1
Horse gram												
Vellore	5	CRHG 22	8.20	21	2.51:1					Local variety	6.78	2.19:1

State and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	BCR
Rajmah												
Visakhapatnam (Kondempudi)	5	Jwala	7.50	56	6.00:1	Chintapalle Red	5.20	8	4.16:1	Local variety	4.80	3.84:1
Redgram												
Dharmapuri	5	WRG 93	17.50	9	1.75:1	CO 8	18.00	13	1.72:1	Local variety	16.00	1.60:1
Vellore	5	WRG 93	10.76	36	2.88:1	CO 8	8.89	12	2.31:1	Local variety	7.94	2.01:1
Guntur (Lam)	10	LRG 133-33	22.50	21	1.79:1	LRG 105	19.80	6	1.72:1	LRG 52	18.60	1.49:1
Guntur (Lam)	10	LRG 133-33	22.50	21	1.79:1	LRG 105	19.60	5	1.72:1	LRG 52	18.60	1.49:1
Kadapa (Utukur)	3	LRG 105 (Krishna)	12.29	26	2.77:1	TRG 59	10.30	5	2.32:1	LRG 52	9.78	2.20:1
Kurnool (Yagantipalle)	6	LRG 105	11.21	18	1.86:1	LRG 133-33	12.90	35	2.15:1	Local variety	9.54	1.59:1
Prakasam (Darsi)	5	LRG 105	5.63	88	1.12:1	BSMR 736	4.53	51	1.12:1	LRG 52	3.00	1.09:1

%=Increase in yield over Farmer's practice (%)

d. Oilseeds

Castor varieties ICH 66 and DGR 519 gave 28.5 and 11.5 per cent higher yields than farmers varieties. Groundnut variety BSR 2 gave 24.33 per cent higher yield than farmers variety. Varieties TMV 14 and K 1812 gave 24.8 and 42.4 per cent higher yields than farmers varieties with higher economic returns.

Table 3.1.6. Performance of oilseed varieties in On Farm Trials of Zone X

State and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	BCR
Castor												
Ananthapuram (Kalyandurg)	5	ICH 66	15.89	22	1.68:1	DGR 519	14.24	9	1.65:1	Local variety	13.07	2.56:1
Kurnool (Yagantipalle)	6	ICH 66	21.44	35	3.09:1	DCH 519	18.10	14	2.61:1	Private Hybrid	15.92	2.29:1
Prakasam (Kandukur)	2	DCH 119	6.00	20	1.33:1	DCH 107	5.80	16	1.31:1	Local variety	5.00	1.20:1
Groundnut												
Kadapa (Vonipenta)	5	K 9	42.00	17	2.33:1	K 6	40.00	11	2.16:1	TAG 24	36.00	1.82:1
Ariyalur	3	BSR 2	18.13	9	2.57:1	VRI 8	20.30	22	2.85:1	GJG 9	16.60	2.22:1
Dindigul	3	BSR 2	17.10	38	2.63:1	VRI 8	16.80	35	2.60:1	VRI 2	12.40	1.81:1
Nagapattinam	5	TMV 13	24.60	11	2.90:1	VRI 8	27.80	25	3.32:1	GJG 9	22.20	2.64:1
Kanyakumari	5	TMV 14	16.47	35	1.76:1	BSR 2	15.32	26	1.74:1	Local variety	12.18	1.67:1

State and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	BCR
Krishnagiri	5	TMV 14	19.50	11	1.87:1	ICGV 00350	29.50	69	2.77:1	TMV 7	17.50	1.59:1
Thiruvannamalai	5	TMV 14	23.79	21	2.59:1	ICGV 00350	28.87	47	3.09:1	VRI 2	19.62	2.08:1
Dindigul	3	Dheeraj TCGS 1073	17.80	42	2.63:1	Nithiya Haritha	17.30	38	2.57:1	VRI 2	12.50	1.76:1
Chittoor (RASS)	3	Dheeraj (TCGS 1073)	16.50	20	1.80:1	TCGS 1694	19.25	41	2.00:1	Kadiri 6	13.70	1.51:1
Tiruchirappalli	5	Ginar 4	22.20	35	1.92:1	GJG 33	20.30	23	1.80:1	Local variety	16.50	1.55:1
Krishnagiri	5	K 1812 Kadiri Lepakshi	22.71	15	2.36:1	TCGS 1043 Dharani	24.70	25	2.44:1	VRI 2	19.74	1.59:1
Vellore	5	K 1812 Kadiri Lepakshi	13.96	30	2.08:1	TMV 14	12.93	20	1.83:1	Local variety	10.75	1.50:1
Virudhunagar	5	K 1812 Kadiri Lepakshi	18.60	35	1.56:1	TMV 14	18.90	37	1.59:1	Local variety	13.80	1.23:1
Ananthapuram (Kalyandurg)	5	K 1812 Kadiri Lepakshi	14.38	61	1.51:1					Local variety	8.94	1.26:1
Ananthapuram (Reddipalli)	5	K 1812 Kadiri Lepakshi	18.90	125	1.51:1	K Harithandra	11.50	37	1.43:1	Local variety	8.40	1.19:1
Chittoor (Kalikiri)	5	K 1812 Kadiri Lepakshi	12.60	14	1.10:1	TCGS 1043 Dharani	12.70	14	1.21:1	Narayani	11.10	1.06:1
Kurnool (Banavasi)	3	K 1812 Kadiri Lepakshi	46.00	31	1.73:1	Nithya Haritha	39.60	13	1.68:1	Local variety	35.20	1.62:1
Nellore (Nellore)	5	K 1812 Kadiri Lepakshi	30.80	24	2.46:1					TAG 24	24.75	1.79:1
Prakasam (Darsi)	5	K 1812 Kadiri Lepakshi	36.00	33	3.94:1	TCGS 1043 Dharani	32.45	20	1.22:1	TAG 24	27.00	1.06:1
Prakasam (Kandukur)	5	K 1812 Kadiri Lepakshi	25.00	56	1.51:1	TCGS 1073 Dheeraj	20.00	25	1.59:1	Local variety	16.00	1.48:1
Vizianagaram	5	K 1812 Kadiri Lepakshi	21.42	20	1.71:1	Nithya Haritha	19.55	10	1.69:1	K 6	17.82	1.66:1
Srikakulam	5	K 1812 Kadiri Lepakshi	17.79	86	1.93:1	TCGS 1157	16.18	69	1.75:1	Local variety	9.55	1.03:1

State and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	BCR
Visakhapatnam (Kondempudi)	5	K 1812 Kadiri Lepakshi	18.20	21	4.59:1	Kadiri Amaravati	16.00	7	4.04:1	K 6	15.00	3.78:1
Nalgonda (Gaddipally)	6	K 1812 Kadiri Lepakshi	26.25	42	2.26:1					K 6	18.50	2.20:1
Kammam (Wyra)	6	Kadiri 6	23.62	23	1.61:1	Kadiri Amaravati	24.50	27	1.23:1	TAG 24	19.25	1.55:1
Safflower												
Ananthapuram (Kalyandurg)	5	ISF 764	14.98	54	1.67:1	PBNS 12	12.25	26	1.60:1	Local variety	9.75	1.46:1
Cuddalore	5	VRI 3	9.96	41	2.97:1	SVPR 1	7.89	12	2.98:1	Local variety	7.04	2.77:1
Soybean												
Adilabad	3	KDS 726	22.50	10	3.64:1					JS 335	20.50	3.32:1

%=Increase in yield over Farmer's practice (%)

II. Horticultural Crops

a. Vegetables

Bhindi hybrids CO Bh H4 and Arka Nikita were assessed against local varieties by KVKs of Tamil Nadu and Andhra Pradesh. The yields of new hybrids were 37.6 and 21.25 per cent higher than the Farmer's practice, respectively. Chilli varieties TNAU Hy Co 1, Arka Khyati and Arka Meghna gave 21.4, 29.3 and 18 per cent higher yield than local varieties. Clusterbean varieties MDU 1 and Pusa Naubuhar gave 99.5 and 78.5 per cent higher yields than farmers varieties. Cowpea variety PKM 1 gave 62.7 per cent higher yield than local variety. Aggregatum onion varieties CO (On) 6 and Arka Ujjwal gave 33.8 and 22.5 per cent higher yields than farmers varieties. Ridge gourd varieties CO H 1, Arka Prasan and Arka Vikram gave 23, 16.8 and 15.8 per cent higher yields than local varieties. Tomato varieties CO TH 4, Arka Abhed and Arka Samrat gave 16.8, 19.5 and 23 per cent higher yields and economic returns than local varieties.

Table 3.1.7. Performance of vegetable varieties in On Farm Trials of Zone X

Crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	BCR
Amaranthus												
Chittoor (RASS)	10	Arka Verna	102	26	1.58:1	Arka Samraksha	95	17	1.48:1	Local variety	81	1.29:1
Bhindi/Okra												
Cuddalore	5	COBh H 4	209	136	3.97:1	Arka Nikita	164	85	3.11:1	Local variety	89	2.07:1
Pudukkottai	5	COBh H 4	238	23	2.57:1	Arka Nikita	200	3	2.29:1	Local variety	194	2.04:1

Crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	BCR
Ananthapuram (Kalyandurg)	5	COBh H 4	121	8	1.66:1	Arka Nikita	134	20	1.68:1	Local variety	112	1.63:1
Chittoor (RASS)	11	COBh H 4	102	17	1.38:1	Arka Nikita	84	-3	1.20:1	Radhika/ Samrat	87	1.20:1
East Godavari (Pandirimamidi)	3	COBh H 4	157	47	3.61:1	Arka Nikita	113	5	2.61:1	Sakti	107	2.40:1
Nellore (Nellore)	3	COBh H 4	224	16	1.65:1	Arka Nikita	199	3	1.56:1	Radhika	193	1.50:1
Rastakuntubai	5	COBh H 4	128	23	3.08:1	Arka Nikita	127	21	3.04:1	Raadhika	105	2.53:1
Nellore (Periyavaram)	5	COBh H 4	170	31	2.18:1	Arka Abhay	110	-15	1.47:1	Samrat	130	1.56:1
West Godavari (VR Gudem)	6	Radhika	85	9	2.28:1	Arka Nikita	106	36	2.92:1	Local variety	78	2.24:1
Bottle gourd												
Ramanathapuram	5	PLR 2	23	28	4.70:1	Arka Bahar	21	17	4.20:1	Local variety	18	3.90:1
Chilli (green)												
Ariyalur	3	TNAU Hy Co 1	224	27	3.09:1	Arka Khyati	208	18	2.88:1	Private hybrids	176	2.56:1
Nagapattinam	5	TNAU Hy Co 1	283	6	2.54:1	Arka Khyati	386	44	3.08:1	VNR 145	268	1.99:1
Krishnagiri	5	TNAU Hy Co 1	257	16	2.11:1	Arka Khyati	280	26	2.28:1	Sierra	221.82	1.75:1
Thiruvannamalai	8	TNAU Hy Co 1	249	15	2.73:1	Arka Khyati	278	28	2.86:1	Private hybrids	216.89	2.14:1
Coimbatore	5	TNAU Hy Co 1	199	9	1.5:1	Arka Tanvi	213	17	1.88:1	Local varieties	183	1.18:1
Perambalur	5	TNAU Hy Co 1	68	26	2.87:1	Arka Tanvi	72	33	2.63:1	Private hybrids	54	2.37:1
Ramanathapuram	5	TNAU Hy Co 1	168	31	3.04:1	Arka Meghana	133	3	2.35:1	Local varieties	128	2.19:1
Salem	5	TNAU Hy Co 1	240	41	2.71:1	Arka Saanvi	210	24	2.19:1	Sierra	170	1.79:1
Tirunelveli	5	Arka Gagan	165	24	2.78:1	Arka Meghana	188	41	3.68:1	VNR 145	133	2.28:1
Nellore (Nellore)	3	LCH 111	321	20	1.85:1	Arka Meghana	293	10	1.82:1	VNR 145, Indam 5	267	1.78:1
West Godavari (VR Gudem)	6	Arka Khyati	184	56	2.67:1	Arka Swetha	176	49	2.43:1	Local Variety	118	1.45:1
Nalgonda (Gaddipally)	6	Arka Khyati	236	4	3.13:1					Ankur 2121, VNR 145	226	2.54:1
Cluster bean												
Cuddalore	5	MDU 1	158	161	3.30:1	Pusa Naubahar	143	137	2.99:1	Local variety	60	1.81:1

Crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	BCR
Thiruvarur	5	MDU 1	115	38	4.48:1	Pusa Naubahar	100	20	3.90:1	Local variety	83	3.25:1
Cowpea												
Madurai	10	PKM 1	250	127	1.75:1	ARKA Garima	180	64	1.64:1	Local variety	110	1.62:1
Pudukkottai	5	PKM 1	480	21	2.61:1	Arka Samruthi	427	7	2.44:1	local variety	398	2.33:1
Tirunelveli	5	PKM 1	175	40	3.63:1	Arka Mangala	195	56	3.64:1	Local variety	125	2.83:1
Karimnagar (Jammikunta)	4					Arka Garima	155	29	7.62:1	Private hybrids	120	7.5:1
Onion												
Kadapa (Vonipenta)	4	NHRDF Red 3 (L 652)	240	20	2.50:1	Agrifound Light Red	210	5	2.07:1	Bellary Red	200	2.35:1
Mahabubnagar (YFA)	3	Bhima super	235	45	2.33:1	Bhima Kiran	222	37	2.36:1	Local red	162	1.4:1
Medak (Tuniki)	6					Bhima Kiran	350	19	2.28:1	Bhoomi	295	1.9:1
Onion (Aggregatum)												
Ariyalur	5	CO (On) 6	132	27	3.33:1	Arka Ujjwal	120	16	3.05:1	CO (On) 5	104	1.85:1
Perambalur	5	CO (On) 6	150	35	2.77:1	Arka Ujjwal	143	29	2.57:1	CO (On) 5	111	2.43:1
Thiruvallur	5	CO (On) 6	134	42	2.05:1	CO (On) 5	107	13	2.24:1	Local variety	95	1.85:1
Thoothukudi	5	CO (On) 6	162	31	4.76:1	CO (On) 5	148	19	4.35:1	Local variety	124	3.26:1
Ridge gourd												
Krishnagiri	5	CO H 1	333	17	3.03:1	Arka Vikram	310	9	2.82:1	Saloni, PHS	285	2.78:1
Karaikal	5	CO H 1	270	29	2.58:1					Local varieties	210	2.16:1
East Godavari (Pandirimamidi)	6	Arka Prasan	215	4	3.60:1	Arka Vikram	220	6	3.41:1	Private hybrid	207	3.01:1
Krishna (Ghantasala)	5	Arka Prasan	311	10	2.49:1	Arka Vikram	298	5	2.42:1	Jaipur long	284	2.19:1
Kurnool (Yagantipalle)	5	Arka Prasan	286	14	1.79:1	Arka Vikram	298	19	1.80:1	Local variety	251	1.75:1
Rastakuntubai	5	Arka Prasan	230	31	3.40:1	Arka Vikram	221	26	3.27:1	Jaipur long	176	2.56:1
Visakhapatnam (Kondempudi)	5	Arka Prasan	172	13	3.47:1	Arka Vikram	198	30	3.54:1	Saniya 4	152	2.71:1
Krishna (Garikapadu)	5	Arka Prasan	245	35	1.70:1	Jaipur long	208	15	1.65:1	Local variety	181	1.67:1

Crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	BCR
West Godavari (Undi)	5	Arka Prasan	153	22	2.64:1	Chitrada	138	10	2.36:1	Jaipur long	125	2.14:1
West Godavari (VR Gudem)	6	Arka Prasan	186	41	5.78:1					Local variety	132	4.19:1
Mahabubnagar (Palem)	5	Arka Prasan	253	-10	7.08:1					Naaga	280	6.57:1
Nalgonda (Gaddipally)	6	Arka Prasan	256	8	3.89:1					Saniya Four, Naga, US-6001	238	2.26:1
Tomato												
Dharmapuri	5	CO TH 4	650	13	1.85:1	Arka Abhed	713	24	2.05:1	Sivam	575	1.58:1
Dindigul	5	CO TH 4	667	12	3.12:1	Arka Abhed	624	5	2.97:1	Sivam	594	2.75:1
Kanyakumari	5	CO TH 4	576	15	1.62:1	Arka Samrat	567	13	1.56:1	Local variety	500	1.36:1
Perambalur	3	CO TH 4	594	22	2.71:1	Arka Abhed	544	12	2.17:1	Private hybrid	486	2.02:1
Thoothukudi	5	CO TH 4	528	22	3.31:1	Arka Rakshak	502	16	3.28:1	MAHY 552	433	2.8:1
Ananthapuram (Kalyandurg)	5	Arka Abhed	255	19	1.76:1	Arka Rakshak	236	10	1.75:1	Local variety	215	1.72:1
Ananthapuram (Reddipalli)	5	Arka Abhed	314	10	1.48:1	Abhinav	296	4	1.40:1	Private hybrid	285	1.36:1
East Godavari (Pandirimamidi)	4	Arka Abhed	565	26	4.72:1	Arka Samrat	546	21	4.54:1	Private hybrid	450	3.2:1
Krishna (Garikapadu)	5	Arka Abhed	599	36	1.63:1	Arka Samrat	627	42	1.64:1	Private hybrid	442	1.52:1
Kurnool (Banavasi)	5	Arka Abhed	620	17	1.86:1	Arka Samrat	685	30	2.06:1	Local variety	528	1.88:1
Prakasam (Darsi)	5					Arka Samrat	545	9	1.57:1	US 448	500	1.56:1
Prakasam (Darsi)	10					Arka Samrat	400	8	1.54:1	US 448	370	1.46:1
Visakhapatnam (BCT)	5	Arka Abhed	540	31	2.17:1	Arka Samrat	561	36	2.23:1	Lakshmi	413	1.83:1
Visakhapatnam (Kondempudi)	5	Arka Abhed	481	31	3.47:1	Arka Samrat	444	21	3.20:1	Lakshimi	366	2.64:1
West Godavari (Undi)	5	Arka Abhed	535	11	3.14:1	Arka Samrat	571	19	3.35:1	Abhilash	481	2.55:1
West Godavari (VR Gudem)	6	Arka Abhed	364	12	5.33:1	Arka Samrat	372	15	5.97:1	Local variety	324	4.75:1
Adilabad	3	Arka Abhed	290	16	1.86:1					Private hybrid	251	1.61:1

Crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	BCR
Karimnagar (Jammikunta)	4	Arka Abhed	620	11	13.91:1	Arka Samrat	530	-5	9.17:1	PHS 448	560	6.32:1
Karimnagar (Ramagirikhilla)	5	Arka Abhed	620	7	1.75:1					US 440, PHS 448	580	1.73:1
Mancherial	5	Arka Abhed	438	51	1.66:1	Arka Samrat	385	33	1.62:1	PHS 448	289	1.47:1
Nalgonda (Gaddipally)	6	Arka Abhed	543	16	3.01:1					US 440, PHS 448	467	2.74:1
Ranga Reddy	5	Arka Abhed	402	20	1.63:1	Arka Samrat	398	19	1.63:1	US 440	335	1.47:1

%=Increase in yield over Farmer's practice (%)

b. Flowers fruits, spices and condiments

Marigold varieties Arka Bangara 2, Arka Sahakthi, Arka Abhi, and Arka Abha yielded 6, 56, 16 and 33 per cent higher than local varieties with higher economic returns. Banana variety Co 2 gave 22.3 per cent higher yield than the local varieties. Chilli varieties LCA 680 and LCA 625 gave 24 and 36 per cent higher yields than local varieties with higher economic returns.

Table 3.1.8. Performance of varieties of flowers, fruits and spices in On Farm Trials of Zone X

State and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	BCR
Marigold												
Krishna (Ghantasala)	5	Arka Bangara-2	291	6	2.36:1	Bidhan Marigold	273	-1	2.22:1	Local variety	275	2.07:1
TN Erode	2	Arka Sahakthi (MOH 1-2)	280	56	1.71:1	Arka Abha (MOH5-3)	240	33	1.67:1	LR 21	180	1.57:1
Visakhapatnam (Kondempudi)	5	Arka Abhi	98	16	3.57:1	Arka Bhanu	95	12	3.44:1	Yellow maxima	84	3.07:1
Banana												
Ariyalur	3	CO 2	515	26	2.42:1	Ney Poovan	467	15	2.21:1	Poovan	407	2.00:1
Erode	2	CO 2	300	43	1.80:1	Ney Poovan	240	14	1.69:1	Red banana	210	1.60:1
Karur	3	CO 2	312	7	2.99:1					Ney Poovan	290	2.75:1
Theni	5	CO 2	315	13	3.89:1	KAVERI SABA	437	56	2.00:1	Local variety	280	3.15:1
Chilli (Red)												
Kadapa (Vonipenta)	4	LCH 111	50	19	2.20:1	Arka Meghana	44	5	2.33:1	VNR 32	42	2.20:1

State and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	%	BCR	Variety	Yield (q/ha)	BCR
Nellore (Periyavaram)	5	LCA 680	57	24	2.38:1	Arka Meghana	50	10	1.91:1	Indam	46	1.70:1
Visakhapatnam (Kondempudi)	5	LCA 625	41	36	2.85:1	LCA 620	37	21	2.55:1	Potti Mirapa	30	2.10:1
Kammam (Kothagudam)	3	Akra Sweta	43	22	2.06:1					MHCP-318	35	1.94:1
Kammam (Wyra)	3	Arka Tejasvi	38	14	1.94:1					Yashaswini	33	1.60:1
Mahabubnagar (Palem)	4	Arka Yashasvi	46	-8	3.61:1					Teja	50	3.58:1

%=Increase in yield over Farmer's practice (%)

3.1.2 Crop Production Technologies

a. Integrated Nutrient Management

The integrated nutrient management practices assessed by KVKs include Soil Test Based fertilizer management, organic farming, bio-fertilizers, nutrient solubilizers and mobilizers, crop specific nutrient mixture for soil application and foliar spray. In maize and paddy, soil test based INM gave 33 and 40 per cent higher yields than farmer's practice in Tamil Nadu. Spraying of TNAU Cassava booster and CTR Cassava special gave 37 and 27 per cent higher yields than farmers practice.

Table 3.1.9. Performance of INM Technologies in On Farm Trials of Zone X

State, crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	BCR
Tamil Nadu												
Maize												
Tiruppur	5	STB-INM	57.33	33	1.46:1	Blanket	51.83	20	1.38:1	FP	43.24	1.37:1
Paddy (Rice)												
Coimbatore	5	ZSB (TNAU)	49.85	19	1.72:1	IIHR ZSB	47.36	14	1.62:1	FP	41.72	1.33:1
Karur	3	Organic	40.00	5	2.84:1	INM	43.5	14	2.91:1	FP	38.00	2.75:1
Ramanathapuram	5	STB-INM	46.50	40	1.47:1	STB-INM + MNS	49.8	50	1.50:1	FP	33.10	1.22:1
Sivagangai	3	ZnSO4 basal + foliar	43.12	22	2.25:1	ZSB	38.5	9	2.17:1	FP	35.30	1.65:1
Sugarcane												
Namakkal	5	TNAU INM	166.7	45	2.76:1	SBI-INM	161.64	40	2.73:1	FP	115.33	1.95:1
Cotton												
Namakkal	5	TNAU-INM	20.5	32	2.22:1	CICR INM	19.67	27	2.15:1	FP	15.54	1.74:1

State, crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	BCR
Banana												
Krishnagiri	5	De-navelling & Post shoot feeding	330	15	4.33:1	Bunch spraying	321	12	4.26:1	FP	287	3.86:1
Groundnut												
Cuddalore	5	CSR-NOVEL-BIO	26.0	24	2.32:1	TNAU Groundnut rich	26.5	26	2.34:1	FP	21.0	2.07:1
Blackgram												
Cuddalore	5	1% MAP Foliar	8.7	36	2.56:1	2 % DAP Foliar	7.6	19	2.43:1	FP	6.4	2.14:1
Theni	5	2% KCl + 100 ppm Boric acid; NAA, TNAU Pulse wonder, salicylic acid	6.7	20	2.11:1	CRIDA Bacterial consortia	6.4	14	1.98:1	FP	5.6	1.76:1
Turmeric (Raw)												
Thiruvannamalai	8	STB-INM + IISR Turmeric MNS mixture	218	20	2.73:1	STB-INM + MNS spray	207	14	2.50:1	FP	182	2.02:1
Tapioca (Cassava)												
Erode	5	Cassava special	29.80	19	2.18:1	MNS Foliar Spray	28.2	13	2.09:1	FP	25	1.92:1
Karur	3	TNAU cassava booster	30.10	37	2.46:1	CTCRI - Cassava special	27.9	27	2.37:1	FP	21.9	2.05:1
Namakkal	3	STB-INM	42.96	41	2.46:1	Blanket-INM	36.48	19	2.05:1	FP	30.53	1.82:1
Perambalur	5	Cassava tonic	40.63	14	2.85:1	CTCRI MNS	38.73	9	2.73:1	FP	35.54	2.64:1
Bhindi/Okra												
Dharmapuri	5	CSR Bio	157	14	2.82:1	Arka microbial consortium	152	10	2.46:1	FP	138	2.2:1
Brinjal												
Krishnagiri	5	Blanket-INM + Vegetable special	344	19	3.19:1	Blanket INM + Triacontanol + Sodium Borate + Zinc Sulphate	321	11	2.86:1	FP	288	2.31:1
Tiruchirappalli	5	STB- NPK + CSR-BIO SA	184	7	4.01:1	STB NPK + Arka Microbial Consortium	180	4	3.91:1	FP	172	3.60:1
Onion												
Theni	5	WS Fertilizers+ IIHR vegetable special	164	12	2.26:1	INM + MNS	172	17	2.66:1	FP	147	1.95:1
Onion (Aggregatum)												
Tiruchirappalli	5	Arka microbial consortium	13.18	15	2.03:1	CSR Bio-Consortia	13.35	17	2.09:1	FP	11.42	1.88:1

State, crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	BCR
Tomato												
Dindigul	5	Arka microbial consortium	620	20	2.97:1	Bio-fertilizers	577	12	2.81:1	FP	515	2.57:1
Andhra Pradesh												
Paddy (Rice)												
Ananthapuram (Reddipalli)	5	Organic	58.75	4	1.59:1					Inorganic	56.25	1.62:1
Kadapa (Utukur)	3	200:60:40 kg $N:P_2O_5:K_2O$	51.00	17	1.77:1					80:60:40 kg $N:P_2O_5:K_2O$	43.50	1.63:1
Kadapa (Vonipenta)	5	Organic	49.00	34	1.83:1	INM	42	14	2.15:1	FP	36.70	1.74:1
Krishna (Garikapadu)	5	75% RDF + Bio-solubilizers	58.56	25	2.05:1	RDF	49.24	5	1.64:1	FP	46.84	1.45:1
Krishna (Ghantasala)	6	STB-INM	58.59	15	1.63:1	Blanket INM	55.08	8	1.49:1	FP	50.86	1.31:1
Kurnool (Banavasi)	3	ANGRAU organic practices	66.50	-1	1.67:1	Blanket RDF	68.00	1	1.62:1	FP	67.50	1.6:1
Kurnool (Yagantipalle)	6	Humic acid + RDF	54.78	15	1.57:1	FYM + RDF	53.50	12	1.44:1	RDF	47.75	1.39:1
Kurnool (Yagantipalle)	6	Organic	43.12	-12	1.76:1					FP	48.75	1.38:1
Visakhapatnam (BCT)	6	Humic acid + RDF	54.25	11	2.63:1	FYM +RDF	51.56	6	2.18:1	FP	48.75	2.35:1
Sugarcane												
Chittoor (RASS)	4	125%N,P,Zn,B + 100%K	1020	17	1.85:1	100% N,P and K	980	12	1.88:1	FP	875	1.73:1
Krishna (Ghantasala)	6	150-100-100-125-25-25 % RD $N-P_2O_5-K_2O$-S-Zn-B	1100	17	1.89:1	168-75-100 $N-P_2O_5-K_2O$ + FYM	1015	8	1.69:1	FP	938	1.49:1
Rastakuntubai	5	STCR	841	19	1.43:1	Blanket	763	8	1.39:1	FP	710	1.37:1
Melons												
Ananthapuram (Reddipalli)	5	INM	62.2	12	1.43:1					FP	55.3	1.33:1
Groundnut												
Chittoor (Kalikiri)	3	RARS Organic package	13.50	-9	1.51:1					FP	14.9	1.43:1
Kadapa (Utukur)	3	Spraying 13-0-45 ($N:P_2O_5:K_2O$)	34.97	7	2.22:1					FP	32.59	2.15:1
Kadapa (Utukur)	3	Shale @ 200 t/ha	37.2	17	2.84:1					FP	31.7	2.31:1
Redgram												
Kadapa (Utukur)	3	60 kg K_2O + RDF	11.22	19	2.17:1					FP	9.44	2.13:1

State, crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	BCR
Tapioca (Cassava)												
East Godavari (Pandirimamidi)	5	STB-INM	32.6	14	2.78:1	Blanket INM	31.2	9	2.49:1	FP	28.7	1.97:1
Brinjal												
Chittoor (RASS)	12	Arka Microbial Consortium	503	20	4.80:1	Azospirillum and Phosphobacteria	478	14	4.52:1	FP	419	3.65:1
Telangana												
Maize												
Karimnagar (Jammikunta)	4	PSB + Azospirillum + KNB	70.00	8	3.26:1	Inorganics	68.75	6	3.11:1	FP	65.00	2.68:1
Mancherial	5	STCR	56.45	3	1.50:1	Blanket	52.6	-4	1.45:1	FP	54.6	1.46:1
Paddy (Rice)												
Mahabubnagar (Palem)	5	STCR	71.15	5	2.31:1	STB-Fertilizer	69.51	2	2.20:1	FP	67.92	2.00:1
Mancherial	5	STCR	60.18	10	1.60:1	Blanket	51.97	-5	1.56:1	FP	54.62	1.54:1
Medak (Tuniki)	3	Activated biochar	78	10	2.94:1	Vermicompost	74.00	5	2.92:1	FP	70.80	2.66:1
Medak (Tuniki)	3	Organics alone	46.25	-20	2.38:1	INM				FP	57.50	1.81:1
Warangal (Malyal)	6	75% P2O5	73	3	2.7:1	50% P2O5 + PSB	74.5	5	2.76:1	FP	71	2.46:1
Groundnut												
Nalgonda (Gaddipally)	5	RDF N:P:K+ multi-K + MNS Foliar	21.46	11	2.27:1					FP	19.4	2.04:1
Chickpea												
Adilabad	6	STCR	14	9	2.78:1	Blanket	12.92	1	2.72:1	FP	12.85	2.59:1
Bhindi/Okra												
Medak (Tuniki)	3	Activated Biochar	100	5	1.98:1	FYM + RDF	98	3	1.94:1	FP	95	1.88:1
Bottle gourd												
Ranga Reddy	5	Fertigation	369	44	1.73:1					FP	256	1.61:1
Puducherry												
Paddy (Rice)												
Puducherry	5	CSR-BIO	46.0	22	2.20:1	Arka Microbial Consortia	42.4	12	2.08:1	FP	37.7	1.89:1

FP=Farmer's Practice, STB=Soil Test Based, STCR=Soil Test Crop Response, F=Fertilizers, ZSB=Zinc Solubilizing Bacteria, PSB=Phosphate Solubilizing Bacteria, INM = Integrated Nutrient Management, IPNS=Integrated Plant Nutrition System, RDF = =Recommended Dose of Fertilizers. %=Increase in yield over Farmer's practice (%), MC = microbial consortia, BF=Biofertilizer, ST=Seed Treatment, SOP=Sulphate of Potash, SSP=Single Super Phosphate

b. Integrated Crop Management

Application of PPFM to blackgram gave 19.5 per cent higher yields than farmers practice. Pandal system of growing spine gourd and mulching to tomato gave 39 and 92 per cent higher yields and economic returns than farmers practice. High density planting in guava gave 27.5 per cent higher yield and economic returns.

Table 3.1.10 Performance of ICM Technologies in On Farm Trials of Zone X

State, crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	BCR
Tamil Nadu												
Rice												
Cuddalore	10	Drum seeding	51	8	2.02:1	Paper roll	46	-3	1.51:1	Direct sowing of paddy	47.2	1.75:1
Blackgram												
Cuddalore	5	PPFM	4.45	27	5.17:1	Bacterial consortium	4.2	20	5.4:1	FP	3.5	4.57:1
Dindigul	5	PPFM	7.4	12	2.23:1	KNO 3 spray	7.1	8	2.18:1	FP	6.6	2.14:1
Andhra Pradesh												
Chilli (Red)												
Chittoor (RASS)	9	Planting 1 to 15 Dec	22.5	-5	3.05:1	Planting 16 to 30 Nov	31	31	4.24:1	Broadcasting 1 to 15 Nov	23.6	3.26:1
Telangana												
Redgram												
Medak (DSS)	3	Nipping vertical grown shoots	1322	11	2.65:1					FP	1188	2.39:1
Spine gourd												
Kammam (Kothagudam)	3	Pandal	41.5	39	2.15:1					FP	29.8	1.83:1
Summer Squash												
Kammam (Kothagudam)	3	Mulching	203.6	12	2.16:1					FP	181.3	1.85:1
Tomato												
Kammam (Wyra)	4	Mulching	62.5	92	1.32:1					FP	32.5	1.25:1
Guava												
Kammam (Wyra)	3	High density planting + drip irrigation	226.8	13	2.45:1					FP	200.5	2.39:1
Mahabubnagar (YFA)	4	High density planting + drip irrigation	84.5	42	2.1:1					FP	59.7	1.12:1
Marigold												
Kammam (Kothagudam)	3	Portray nursery	85.2	34	2.04:1					Flatbed nursery	63.8	1.92:1

%=Increase in yield over Farmer's practice (%)

3.1.3 Integrated Pest and Disease Management

a. Integrated Pest Management

The mean increase in yield due to integrated pest management technologies assessed by KVKs in the Zone was 19.08 per cent in TO 1 and 17.85 per cent in TO 2 with higher economic returns. Herboliv+ was assessed for the control of wild boar by 6 KVKs which gave 24.17 per cent higher yield and higher economic returns due to effective control of wild boar. Assessment of IPM package for fall army worm management in Maize by 10 KVKs in the Zone resulted in 20.75 per cent higher yield than parmers practice with higher economic returns NBAIR IPM Technology for Blossom Midge management in Jasmine was assessed by three KVKs of Tamil Nadu which gave 15.33 per cent higher yield and economic returns than farmers practice. TNAU IPM Package for Cotton sucking pests and chilli sucking pests gave 31 and 41.75 per cent higher yields than farmers practice.

Table 3.1.11. Performance of IPM Technologies in On Farm Trials of Zone X

State, crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	BCR
Tamil Nadu												
Maize												
Karur	3	IPM of FAW	25.2	42	2.99:1					Insecticides	17.74	1.79:1
Ramanathapuram	5	Herboliv+ for wild boar	58.0	45	1.69:1	Neelbo	61	53	1.71:1	Manual	40	1.61:1
Paddy (Rice)												
Thiruvannamalai	5	Herboliv+ for wild boar	60.8	23	2.20:1	Neelbo	55.21	12	2.11:1	Manual monitoring	49.26	1.79:1
Tirunelveli	5	Herboliv+ for wild boar	49.6	22	1.97:1	Neelbo	45.8	13	1.9:1	Manual monitoring	40.5	1.64:1
Tirunelveli	5	Herboliv+ for wild boar	45.5	25	1.91:1	Neelbo	41.8	15	1.85:1	Manual monitoring	36.3	1.63:1
Blackgram												
Erode	7	VBN 11 for MYMV	8.59	14	2.26:1	VBN 8 for MYMV	8.54	13	2.2:1	FP	7.56	1.86:1
Groundnut												
Krishnagiri	5	Herboliv+ for wild boar	23.12	20	2.46:1	Neelbo	22.12	15	2.28:1	FP	19.3	2.11:1
Coconut												
Dindigul	10	IPM for Rugose spiraling whitefly	10073	12	1.92:1					Insecticides	9000	1.45:1
Tiruppur	5	IPM for Rugose spiraling whitefly	7150	21	1.72:1	Isaria spray	6730	14	1.65:1	Insecticides	5900	1.58:1
Sugarcane												
Villupuram	5	Wild boar repellent	66	38	2.15:1	Pig dung spray	52	8	1.84:1	Hanging bottles	48	1.79:1
Cotton												
Ariyalur	5	CICR IPM for stem weevil	36.4	14	2.5:1	TNAU - IPM	38.2	20	2.78:1	FP	31.9	2.22:1
Nagapattinam	5	TNAU IPM for sucking pest	36.0	38	3.84:1	CICR IPM	33.5	29	3.22:1	FP	26	2.78:1

State, crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	BCR
Perambalur	5	TNAU IPM for Root Rot	16.5	96	1.73:1	CICR IPM for Root Rot	13.6	62	1.66:1	FP	8.4	1.35:1
Ramanathapuram	5	TNAU IPM for sucking pest	8.2	17	1.59:1	CICR IPM for sucking pest	9.8	40	1.64:1	FP	7	1.56:1
Thiruvarur	5	TNAU IPM for sucking pest	36.0	38	3.84:1	CICR IPM for sucking pest	33.2	28	3.22:1	FP	26.0	2.79:1
Virudhunagar	5	AICRP IPM for Cotton Stem Weevil	18.2	12	1.74:1	TNAU IPM for Stem Weevil	19.1	18	1.82:1	FP	16.3	1.57:1
Jasmine												
Erode	5	NBAIR IPM for Blossom Midge	94.32	26	2.59:1	TNAU IPM for Blossom Midge	91.78	23	2.56:1	FP	74.57	2.41:1
Karur	3	NBAIR IPM for Blossom Midge	23.83	14	3.57:1	TNAU IPM for Blossom Midge	22.00	6	3.27:1	FP	20.83	2.69:1
Krishnagiri	5	NBAIR IPM for Blossom Midge	72.46	6	4.65:1	TNAU IPM for Blossom Midge	71.54	5	4.64:1	FP	68.39	3.35:1
Brinjal												
Salem	5	TNAU EPN for Fruit and shoot borer	285	56	1.84:1	NBAIR IPN	244	33	1.77:1	FP	183	1.58:1
Thiruvallur	5	TNAU EPN for Fruit and shoot borer	326	19	3.24:1	NBAIR IPN	298	8	2.77:1	FP	275	2.18:1
Thiruvannamalai	5	TNAU IPM	356	18	2.77:1	NBAIR IPM	339	12	2.58:1	FP	302	2.13:1
Thoothukudi	5	TNAU IPM	375	19	3.16:1	NBAIR IPM	330	5	2.81:1	FP	315	2.61:1
Vellore	5	TNAU IPM for Fruit and shoot borer	437	36	6.81:1	IIHR IPM for fruit and shoot borer	400	24	5.97:1	FP	322	5.01:1
Chilli (green)												
Dindigul	5	TNAU IPM for sucking pest	228	64	1.85:1	IIVR IPM	206.1	48	1.73:1	FP	139.6	1.29:1
Nagapattinam	5	TNAU IPM for sucking pest	292	21	3.27:1	NIPHM IPM	278	15	3.03:1	FP	242	2.45:1
Vellore	5	TNAU IPM for sucking pest	177	22	4.70:1	IIHR IPM	162	12	4.38:1	FP	145	3.80:1
Villupuram	5	TNAU IPM for sucking pest	240	60	4.46:1	NIPHM IPM	200	33	1.29:1	FP	150	3.21:1
Tomato												
Tirunelveli	5	NBAIR IPM	361	20	2.21:1	IIHR IPM	400.2	33	2.47:1	FP	300.4	1.8:1
Banana												
Tiruppur	5	TNAU IPM for pseudo stem borer	126	25	3.36:1	NRCB+IIHR IPM for pseudo stem borer	120	19	3.29:1	FP	101	3.01:1
Guava												
Villupuram	5	IIHR IPM for Nematode	25.85	24	5.23:1	TNAU IPM for Nematode	23.25	11	4.81:1	FP	20.87	4.41:1
Mango												

State, crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	BCR
Vellore	5	TNAU IPM for leaf hopper	528	10	4.09:1	IIHR IPM for Leaf Hopper	506.2	5	3.42:1	FP	480	2.59:1
Chilli (Red)												
Cuddalore	5	Neem seed kernel extract for sucking pests	7.8	30	2.5:1	Arka neem seed powder	8.5	42	2.63:1	FP	6	2.1:1
Andhra Pradesh												
Maize												
Kadapa (Vonipenta)	5	IIMR-IPM for FAW	62.5	67	1.97:1					FP	37.5	2.03:1
Krishna (Ghantasala)	5	IIMR-IPM for FAW	73.9	9	1.84:1					FP	67.5	1.58:1
Kurnool (Yagantipalle)	6	IIMR-IPM for FAW	86.0	6	2.98:1					FP	81.0	2.92:1
Prakasam (Darsi)	5	IIMR-IPM for FAW	71.1	20	1.52:1					FP	59.3	1.40:1
West Godavari (Undi)	6	IIMR-IPM for FAW	101.3	6	1.57:1					FP	95.6	1.40:1
Paddy (Rice)												
Kurnool (Yagantipalle)	6	ANGRAU IPM for BPH and Blast	50.94	4	1.21:1	Organic Package	50.63	3	1.20:1	FP	49.06	1.13:1
Kurnool (Yagantipalle)	6	IPM for gall midge	52.34	5	1.40:1	Fipronil	51.28	3	1.39:1	FP	49.84	1.16:1
Prakasam (Darsi)	5	IPM for gall midge	52.50	33	1.46:1	Carbofuran	48.57	23	1.42:1	FP	39.37	1.29:1
West Godavari (Undi)	6	Ecological Eng. for plant hopper	94.69	2	2.80:1	IPM	93.28	1	2.71:1	FP	92.81	2.49:1
West Godavari (Undi)	6	Trap Barrier System for Rat	96.56	6	2.53:1	Poisonous baiting	91.88	1	2.51:1	Manual trap	90.94	2.47:1
Sugarcane												
Krishna (Ghantasala)	6	SRS Vuyyuru IPM for scale insect	1033	8	1.41:1	ANGRAU IPM	981	3	1.37:1	FP	956	1.34:1
Cotton												
Kurnool (Banavasi)	3	MDT for Pink Boll Worm	50.31	23	4.58:1	Pheromone trap	43.57	7	4.41:1	FP	40.79	3.80:1
Blackgram												
Nellore (Nellore)	3	TBG 104 for YMV	9.57	37	1.49:1					LBG 752	7.00	1.15:1
Groundnut												
Chittoor (Kalikiri)	3	Herboliv for wild boar	12.90	10	1.14:1	GI wire	12.00	3	1.19:1	Check	11.70	1.18:1
Acid lime												
Nellore (Periyavaram)	5	Dr.YSRHU-IPM for Nematode	220	53	5.30:1	Carbofuran + neem cake	190	32	4.56:1	FP	144	3.89:1
Bhindi/Okra												
Ananthapuram (Reddipalli)	5	DrYSRHU IPM	35.4	22	1.73:1					FP	28.9	1.64:1

State, crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	BCR
Brinjal												
Krishna (Ghantasala)	6	Dr.YSRHU IPM	255	6	2.48:1	NIPHM IPM	249	4	2.14:1	FP	241	1.88:1
Kurnool (Banavasi)	5	Pheromone trap	13.84	7	1.93:1					FP	12.94	1.55:1
Vizianagaram	5	DPPQS-IPM	18.21	26	1.86:1	IPM	15.68	9	1.72:1	FP	14.43	1.65:1
Cabbage												
Visakhapatnam (BCT)	5	Neem seed powder for DBM and Aphid	63.2	10	2.27:1	IPM	63.0	10	2.35:1	FP	57.4	2.15:1
Ridge gourd												
Visakhapatnam (BCT)	5	Low-cost Methyl eugenol lure trap with plastic bottles	21.4	10	2.37:1	Methyl eugenol lure traps	21.6	11	2.32:1	FP	19.5	2.17:1
Tomato												
Ananthapuram (Reddipalli)	5	IIHR Arka Tuta trap	169	7	1.66:1					FP	157	1.62:1
Chittoor (Kalikiri)	3	IIHR Organic package	52.5	-14	1.36:1					FP	61.0	1.39:1
Telangana												
Maize												
Adilabad	5	IIMR BIPM for FAW	94.40	47	3.32:1					FP	64.40	2.62:1
Kammam (Wyra)	6	IIMR IPM for FAW	10.12	-89	2.46:1	IPM	91.79	3	2.26:1	FP	88.72	2.00:1
Karimnagar (Jammikunta)	6	PJTSAU IPM for FAW	87.50	9	4.12:1	Microbial consortia	82.00	3	3.61:1	FP	80.00	3.35:1
Mahabubnagar (Palem)	4	IPM for FAW	49.81	19	1.73:1					FP	41.93	1.35:1
Mahabubnagar (YFA)	8	IIMR IM for FAW	46.96	36	1.85:1					FP	34.56	1.38:1
Mancherial	4	PJTSU IPM for FAW	57.42	6	2.05:1					FP	54.06	1.93:1
Medak (Tuniki)	5	IIMR IPM for Faw	58.75	24	2.14:1					FP	47.50	1.60:1
Nizamabad	5	ATARI IPM for FAW	94.00	7	1.66:1					FP	88.00	1.61:1
Warangal (Malyal)	6	IIMR IPM for FAW	84.50	6	3.91:1					FP	79.50	3.89:1
Paddy (Rice)												
Kammam (Wyra)	3	PJTSAU Organic	33.43	-37	3.13:1					FP	52.95	1.42:1
Mancherial	3	PJTSAU IPM	52.73	12	2.00:1					FP	46.90	1.51:1
Medak (Tuniki)	3	Organic	45.00	-22	2.40:1					FP	57.50	1.83:1
Nizamabad	3	Triflumezopyrim for BPH	74.63	11	1.64:1					FP	67.08	1.49:1
Guava												

State, crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	BCR
Nalgonda (Kampasagar)	3	IIHR IPM	126	30	1.76:1					FP	97	1.56:1
Cauliflower												
Kammam (Wyra)	3	IIHR IPM for DBM and aphid	238	12	1.78:1					FP	213	1.54:1
Tomato												
Medak (DSS)	3	IPM for pod borer	413	2	3.17:1					FP	405	2.74:1
Medak (Tuniki)	3	IIHR Organic package	168	-11	2.47:1					FP	188	1.7:1
Ranga Reddy	5	IIHR Organic package	363	42	1.57:1					FP	255	1.43:1
Puducherry												
Paddy (Rice)												
Karaikal	5	TNAU Botanical-Nochi	41.0	17	1.55:1	UAS Dharwad Botanical - Neem	52.4	49	2.01:1	FP	35.1	1.35:1

%=Increase in yield over Farmer's practice (%), ST = Seed Treatment

b. Integrated Disease Management

Integrated Disease Management practices assessed by KVKs included chemical control, microbial control, inter cropping and tolerant / resistant varieties. Integrated disease management technology package for the management of Groundnut fungal disease of TNAU resulted in 19.67 per cent yield enhancement and that of DGR technology package resulted in 20 per cent yield enhancement as compared to farmers practice.

Table 3.1.12. Performance of IDM Technologies in On Farm Trials of Zone X

State, crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	BCR
Tamil Nadu												
Paddy (Rice)												
Thiruvarur	5	TNAU IDM for false smut	56.50	10	1.91:1	NRRI IDM	55.64	8	1.90:1	FP	51.43	1.76:1
Kanyakumari	5	*P. fluorescens* + *T. harzianum* for RKN	147.98	20	3.22:1	*Pochonia chlamydosporia*	138.36	12	3.07:1	Insecticide	123.53	3.00:1
Groundnut												
Ariyalur	5	TNAU IDM	18.60	13	2.50:1	DGR IDM	20.81	27	2.86:1	Fungicide	16.40	2.13:1
Salem	5	TNAU IDM	20.95	26	1.93:1	DGR IDM	19.65	19	1.88:1	Fungicide	16.57	1.73:1
Virudhunagar	5	TNAU IDM	16.20	20	1.90:1	DGR IDM	15.35	14	1.82:1	Fungicide	13.50	1.6:1
Brinjal												
Cuddalore	5	Bio-inoculants	180	50	3.36:1	Arka microbial consortium	178	48	3.32:1	Fungicide	120	2.45:1

State, crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	BCR
Banana												
Cuddalore	5	TNAU Bio-inoculants for Panama Wilt	174	36	2.88:1	IIHR Bio-inoculants	163	27	2.76:1	Carbendazim and COC	128	2.35:1
Tiruchirappalli	5	*Pseudomonas fluorescens*	34.75	-3	1.59:1	*T. viride* + *Penicilium lilacinum*	31.44	-12	1.52:1	Fungicide	35.75	1.6:1
Mango												
Krishnagiri	5	TNAU IDM for Gummosis	52.69	17	2.72:1	IARI IDM	50.46	12	2.47:1	Pesticides	44.95	1.9:1
Tuberose												
Dindigul	5	*P. fluorescens* + *T. harzianum* for RKN	151.13	34	3.06:1	*Pochonia chlamydosporia*	146.34	30	2.98:1	Insecticide	112.38	2.04:1
Andhra Pradesh												
Paddy (Rice)												
Krishna (Garikapadu)	5	ANGRAU Organic for False Smut	59.82	7	1.83:1	IDM	57.35	2	1.80:1	FP	56.15	1.74:1
Krishna (Ghantasala)	6	ANGRAU Organic for False Smut	53.91	8	1.42:1	IDM	50.63	2	1.37:1	FP	49.69	1.24:1
Rastakuntubai	5	Alleyways + Chemicals for sheath blight, sheath rot and false smut	52.90	10	1.59:1	Chemicals alone	51.07	6	1.57:1	FP	48.00	1.55:1
Srikakulam	5	IIRR and ANGRAU IDM	58.90	13	2.28:1	Chemicals alone	55.60	7	2.12:1	FP	52.10	1.99:1
Visakhapatnam (BCT)	5	ANGRAU RARS IDM	24.60	12	1.62:1	Chemicals alone	24.50	11	1.60:1	FP	22.00	1.46:1
Blackgram												
Kadapa (Utukur)	3	ARS Ghantasala and Utukur IDM for Viral disease	26.75	35	3.84:1					FP	19.75	2.36:1
Bengal gram												
Kadapa (Utukur)	3	ANGRAU IDM for rust	10.25	11	1.64:1					FP	9.2	1.26:1
Kurnool (Yagantipalle)	6	Bio priming with *T. harzianum*	22.33	9	2.34:1	Bio priming with *T. viride*	21.63	6	2.27:1	FP	20.42	2.08:1
Red gram												
Kadapa (Utukur)	3	*T. asperillum* seed treatment	10.38	6	1.38:1					FP	9.8	1.23:1
Kurnool (Banavasi)	5	LRG 105 for Wilt and SMD	12.58	17	2.15:1	TRG 59	11.82	10	2.01:1	FP	10.74	1.81:1
Groundnut												

State, crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	%	BCR	Technology	Yield (q/ha)	BCR
Nellore (Nellore)	3	ANGRAU IDM for Tikka leaf spot and rust	40.87	17	1.59:1	AICRP IDM	39.24	12	1.56:1	FP	34.92	1.49:1
Mulberry												
Chittoor (RASS)	6	Cooling system of RSRS, CSB Salem	82	37	4.05:1	Cooling System of CSTRI	73	22	2.86:1	FP	60	2.51:1
Guava												
Kadapa (Vonipenta)	5	IIHR IDM for RKN	160	5	2.05:1	DrYSRHU IDM	182	19	2:1	FP	153	1.97:1
Papaya												
Srikakulam	6	DrYSRHU IDM for Viral diseases	638	9	4.57:1	ANGRAU IDM	602	3	4.21:1	FP	585	4.12:1
Pepper												
Visakhapatnam (BCT)	5	Bio-fungicides	1.94	131	4.68:1	Chemical Fungicides	1.69	101	4.28:1	FP	0.84	3.9:1
Telangana												
Mulberry												
Nalgonda (Gaddipally)	6	CSB Bengaluru Rot Fix	11.8	26	1.80:1					FP	9.4	1.52:1
Cotton												
Mahabubnagar (YFA)	10	IDM for cotton	20.88	50	2.31:1					FP	13.95	1.44:1
Acid lime												
Nalgonda (Gaddipally)	6	SKLTSHU IDM for dry root rot	17.81	43	2.50:1					FP	12.42	1.96:1
Turmeric												
Karimnagar (Jammikunta)	6	PJTSAU IDM for Turmeric	61.78	8	3.65:1	Crop Rotation	59.12	3	3.42:1	FP	57.15	3.28:1
Karimnagar (Ramagirikhilla)	5	*T. viridi* for Rhizome rot	58.00	23	1.93:1					FP	47.00	1.65:1
Ginger												
Medak (DSS)	3	*Trichoderma* and *Pseudomonas* for rhizome rot	227	6	1.91:1					FP	213	1.47:1

%=Increase in yield over Farmer's practice (%)

3.1.4. Livestock, Poultry and Fishery

Prosync nano cream and nano fibre were assessed for fertility management in cattle by seven KVKs. The Nano cream formulation had a success rate of 108.8 per cent higher and the success rate of nano fibre formulation was 38 per cent higher than natural estrus and other farmers practices. Mineral mixture supplements of various types to cattle, goat and sheet gave 54.2 per cent higher milk and meat yield than those animals that were not provided with mineral mixture supplements. Fodder sorghum varieties CoFS 29 and CoFS 31 gave on an average 83 per cent higher green fodder yield than farmers practice.

3.1.13. Performance of livestock, poultry and fishery breeds and technologies in Zone X

Theme and KVK	No. of Trials	Parameter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technology	Value	%	BCR	Technology	Value	%	BCR	Technology	Value	BCR
Tamil Nadu													
Cow													
Disease Management													
Perambalur	10	% Reduction of Infestation	Cypermethrin/ Deltamethrin/ Flumethrin	0.8	33	2.6:1	Ethno veterinary practices	0.85	42	2.76:1	Manual Removal	0.6	1.86:1
Fertility Management													
Ariyalur	3	Induction %	Prosync NCF	0.9	6	2.23:1	Prosync NC	0.95	12	2.23:1	GnRH, PGF2, Progesterone and Vitamin A	0.85	2.21:1
Karur	10	Pregnancy (%)	Prosync NC	40	100	2.06:1	Prosynch NF	30	50	1.74:1	Natural estrus.	20	1.3:1
Krishnagiri	5	Conception Rate (%)	Prosync NC	60	200	2.14:1	Prosync NCF	40	100	1.85:1	Natural estrus.	20	1.09:1
Salem	5	Conception (%)	Prosync NC	40	300		Prosync NCF	30	200		Natural estrus.	10	
Sivagangai	10	Induction (%)	Prosync NC	66.6	62	1.79:1	Prosync NF	58.3	42	1.75:1	Aloe vera feeding	41	1.59:1
Thiruvannamalai	5	Milk yield (L)	Prosync NF	3216	24	1.61:1	Prosync NC	3474	34	2.13:1	Local treatment	2584	1.2:1
Thiruvarur	10	Inter calving period (days)	Prosync NC	405	-10	1.23:1	Prosync NF	390	-13	1.28:1	Aloe Vera feeding / Repeated insemination	450	1.11:1
Goat													
Nutrition Management													
Dharmapuri	10	Weight gain (kg)	Mineral mixture with specific ingredients	27	50	1.63:1	Formulated mineral mixture	23	28	1.49:1	Normal grazing	18	1.52:1
Kancheepuram	10	Weight gain (kg)	AFTD salt lick	11.35	54	1.99:1	TANUVAS Salt lick	8.55	16	1.56:1	Normal grazing	7.35	1.26:1
Perambalur	10	Body weight (kg)	NIANP small ruminant mineral mixture	23	44	2.68:1	AFTD based mineralized salt	21	31	2.64:1	Normal grazing	16	1.85:1
Nagapattinam	6	Body weight (kg)	Specific mineral mixture	10.75	48	2.06:1	Spirulina film coated salt licks.	9.25	28	2.39:1	No Mineral mixture	7.25	1.91:1
Virudhunagar	10	Body weight (kg)	NIANP small ruminant mineral mixture	19.2	48	3.16:1	TANUVAS small ruminant mineral mixture	18.6	43	2.92:1	Normal grazing	13	1.93:1
Sheep													
Nutrition Management													

Theme and KVK	No. of Trials	Parameter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technology	Value	%	BCR	Technology	Value	%	BCR	Technology	Value	BCR
Tiruppur	5	Weight gain (kg)	Small ruminant mineral mixture (SheepMin)	27.5	12	2.57:1	Small ruminant mineral mixture Mineralized Salt lick	30	22	2.87:1	No supplement	24.5	2.45:1
Namakkal	10	Body weight (kg)	NIANP mineral mixture for sheep	18.41	5	4.58:1	Sheep and Goat mineral mixture	18.67	6	4.84:1	No supplement	17.61	4.42:1
Poultry													
Feed management													
Krishnagiri	5	Weight gain (kg)	Tree leaf incorporated concentrate feed	1.11	26	1.95:1	Concentrated Feed	1.004	14	1.79:1	Scavenging waste grains	0.884	1.48:1
Thiruvannamalai	5	Eggs (No/ Year)	Tree leaf incorporated concentrate feed	185	176	2.92:1	Concentrated Feed	156	133	2.74:1	Scavenging, waste grains	67	1.54:1
Tiruppur	5	Body weight (kg)	Supplementa-tion of fresh Azolla	2.2	26	4.63:1	Supplementa-tion of dried azolla	2.05	17	4.1:1	No Azolla	1.75	3.89:1
Production and Management													
Namakkal	10	Body weight (kg)	Heated and cooled water	260	24	2.43:1	Chlorinated water	230	10	2.28:1	Normal water	210	2.17:1
Japanese Quail													
Production and Management													
Nagapattinam	5	Surviva-bility	Panchakavya	240	13	1.27:1	Unique polymer based enteric coated probiotic beads	223	5	1.22:1	No supplement	212	1.17:1
Fish													
Production and Management													
Namakkal	3	q/ha	Composite Fish culture: Catla, Rohu, Amur carp	49.21	101	3.98:1	Catla, Rohu, Mrigal Amur carp	38.95	59	3.24:1	Catla: Rohu: Silver carp	24.54	2.63:1
Kancheepuram	5	q/ha	Carp polyculture with Murrel	36.03	45	2.35:1	Carp polyculture with Striped Murrel	39.28	58	2.56:1	Polyculture of carps	24.89	1.56:1
Evaluation of Breeds													
Sivagangai	3	kg/ha	Giant Murrel	3222	15	2.44:1	Stripped Murrel	3148	12	1.99:1	Carps	2809	1.67:1
Feed management													
Sivagangai	3	kg/ha	Sugarcane bagasse	3039	17	1.88:1	Bamboo poles	3373	29	2.31:1	No substratum	2606	1.68:1

Theme and KVK	No. of Trials	Parameter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technology	Value	%	BCR	Technology	Value	%	BCR	Technology	Value	BCR
Nagapattinam	2	t/acre	Floating pellet feeds for Seabass	1.8	64	2.62:1	Live tilapia feed for Seabass	1.6	45	2.6:1	Trash fish feed	1.1	2.4:1
Andhra Pradesh													
Buffalo													
Nutrition Management													
West Godavari (VR Gudem)	10	Milk (L/90 days)	Probiotics + Sodium bicarbonate	684	23	2.92:1	Probiotics	648	16	2.88:1	Regular fodder and feed	558	2.58:1
Cow													
Disease Management													
Visakhapatnam (BCT)	5	Calving to heat (days)	Balanced ration + Totavit bolus	40	-44	1.64:1	Balanced ration	21	-71	1.48:1	Feeding hay, green fodder, rice bran	72	1.42:1
Kadapa (Utukur)	46	Milk (L/ day)	SFMT reagent for Mastitis	6.7	26	2.44:1	TANUCHEK SCC kit	6.1	15	2.18:1	No screening	5.3	1.52:1
Feed and Fodder management													
Rastakuntubai	5	Fodder yield (q/ha)	CoFS31+ fodder Cowpea	324.4	260	1.7:1	CoFS29 + fodder Cowpea	304.5	238	1.69:1	Local sorghum	90	1.49:1
Kurnool (Banavasi)	5	Fodder Yield (q/ha)	CoFS31	425	136	2.89:1	CO FS29	200	11	2.42:1	FP	180	2.2:1
Nutrition Management													
East Godavari (Kalavacharla)	15	Milk (L)	Probiotic + Sodium Bicarbonate	640	10		Concentrate feed + Sodium Bicarbonate	610	5		Concentrate feed	580	
Fodder Production													
Kadapa (Utukur)	3	Fodder Yield (q/ha)	CoFS 31+FC-8	30.9	41	3.02:1	CoFS 29 + Russian Giant	26.7	22	2.72:1	SSG 59-3	21.9	2.54:1
Prakasam (Darsi)	5	Fodder yield (t/acre)	CoFS 31 and Hedge lucerne	190	192	2.73:1	CoFS 29 + Hedge lucerne	155	138	2.42:1	SSG 59-3	65	1.59:1
West Godavari (VR Gudem)	15	Fodder yield (t/ha)	Overlapping cropping system	145.1	84	1.6:1	CoFS 29 + fodder cowpea Co 9	132.77	69	1.52:1	Local sorghum	78.75	1.37:1
Sheep													
Nutrition Management													
Kurnool (Banavasi)			Creep feed supplementation for Lamb			4:1							2.85:1
Nellore (Periyavaram)			Small ruminant mineral mixture for Lamb			3.58:1							2.12:1
Piggery													
Evaluation of Breeds													
Guntur (Lam)	2	Body weight (kg)	SVVU T17 + Conc. Mix	70	56	4.27:1	SVVU T17 + Swill feeding	50	11	3.5:1	FP	45	3:1
Poultry													

Theme and KVK	No. of Trials	Parameter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technology	Value	%	BCR	Technology	Value	%	BCR	Technology	Value	BCR
Evaluation of Breeds													
Nellore (Periyavaram)	6	Eggs (No.)	Vanashree	170	183	4.21:1	Rajasree	120	100	3.03:1	Aseel	60	2.07:1
West Godavari (VR Gudem)	20	Eggs (No)	Vanashree	135	145	4.23:1	Aseel	82	49	3.61:1	Nondescrip-tive desi birds	55	3:1
Fish													
Evaluation of Breeds													
Nellore (Nellore)	4	Yield (kg/ ha)	Improved Jayanti rohu and Amur common carp	6823	27	1.55:1	Indian major carps + exotic carps	6070	13	1.41:1	Poly carp culture	5389	1.31:1
West Godavari (VR Gudem)	6	Yield (t/ha)	Improved amur common carp, Jayanthi rohu	2.2	10	2.47:1	Polyculture of IMC carps	2	0	2.43:1	Polyculture	2	2.31:1
Production and Management													
Nellore (Nellore)	5	Yield (kg/ ha)	Spawn rearing in 50-100 m x 1m depth	6505	26	1.5:1	Nursery ponds 80-100 m 0.5 to 1.0 ac 1m	5780	12	1.41:1	Stocking of fingerling size directly	5176	1.3:1
West Godavari (VR Gudem)	6	Cost of fish seed (Rs.)	Captive rearing of fish seed in net cages	7000		1.6:1	Nursery ponds 0.5 to 1.0 ac 1 m depth.	7500		1.48:1	Stocking of fingerling size directly		
West Godavari (VR Gudem)	6	Shrimp Yield (t/ acre)	Gut acting, water probiotics and soil probiotics	2	67	1.29:1	Water probiotics	1.5	25	1.23:1	No probiotics	1.2	1.15:1
Nellore (Nellore)	5	Yield (kg/ ha)	Bird fencing, crab fencing for Vannamei	4923	30	1.64:1	Crab fencing	4250	12	1.44:1	No fencing	3798	1.4:1
West Godavari (Undi)	6	Yield (q/ha)	Probiotics in shrimp ponds for Vannamei	43.8	10	1.39:1					No probiotics	39.8	1.32:1
Telangana													
Buffalo													
Feed and Fodder management													
Warangal (Mamnoor)	4	Fodder yield (t/ha)	CO FS 29	160	129	2.04:1					Single cut sorghum	70	1.96:1
Nutrition Management													
Warangal (Mamnoor)	4	Milk (L)	Yeast + sodium bicarbonate	3.5	17	1.70:1					Natural grazing	3	1.63:1
Cow													
Nutrition Management													
Ranga Reddy	25	Milk (L)	Area specific mineral mixture	4.5	22	5.50:1	Balanced ration	4	8	5:1	Natural grazing	3.7	4.70:1

Theme and KVK	No. of Trials	Parameter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technology	Value	%	BCR	Technology	Value	%	BCR	Technology	Value	BCR
Warangal (Mamnoor)	5	Milk (L)	Area specific mineral mixture	9	125	1.92:1					Natural grazing	4.0	1.83:1
Production and Management													
Ranga Reddy	5	Milk (L)	Yeast bolus	4.6	24	5.6:1	Sodium bicarbonate	4.4	19	5.4:1	Natural grazing	3.7	4.7:1
Fish													
Disease Management													
Karimnagar (Jammikunta)	3	Yield (q/ha)	Benzalkonium Chloride + Rock Salt (Comp. Culture -Myxobolus)	78.125	34	1.46:1	Rock Salt + Formalin	62.5	7	1.25:1	Rock Salt	58.5	1.23:1
Nalgonda (Gaddipally)	3	Yield (t/ha)	Benzalkonium chlorine	3.94	21	1.4:1					Common salt	3.26	1.3:1
Production and Management													
Karimnagar (Jammikunta)	3	Fish Seed (Lakhs/ha)	Integrated fish nursery mgt. (Comp. Culture)	67.5	528	3.79:1	Recommended Technology	26.0	142	1.86:1	FP	10.75	1.83:1
Warangal (Mamnoor)	3	Yield (q/ha)	Dyke + Bird fencing	290	383	1.33:1					FP	60	3.56:1
Nutrition Management													
Nalgonda (Gaddipally)	3	Yield (t/ha)	De-oiled rice bran + Groundnut & Cotton cake + MM for IF	4.35	38	1.44:1					De-oiled rice bran	3.15	1.19:1
Warangal (Mamnoor)	3	Yield (q/ha)	De-oiled rice bran + Groundnut & Cotton cake + MM for IF	40	100	4:1					De-oiled rice bran	20	2.77:1
Puducherry													
Cow													
Disease Management													
Karaikal	5	Milk (L/ lactation)	Tich shield	2100	40	1.48:1	Herbal extract bathing	2000	33	1.43:1	Manual picking	1500	1.36:1
Feed and Fodder management													
Puducherry	3	Milk (L/ day)	Hydroponic fodder (Bajra and Maize)	7.65	21	1.38:1	Cumbu Napier fodder	6.9	10	1.06:1	FP	6.3	1.23:1
Nutrition Management													
Karaikal	3	Milk (L/ lactation)	Concentrate feed with Tree leaf meal	2700	50	1.54:1	Concentrate feed	2400	33	1.46:1	Commercial feed	1800	1.39:1

Theme and KVK	No. of Trials	Parameter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technology	Value	%	BCR	Technology	Value	%	BCR	Technology	Value	BCR
Goat													
Nutrition Management													
Puducherry	3	Weight gain at 8 months (kg)	TANUVAS Small ruminant MM	8.26	107	1.66:1	NIANP Small ruminant MM	7.3	83	1.19:1	No Mineral mixture	4	1.18:1
Poultry													
Nutrition Management													
Karaikal	3	Weight at 100 days (kg)	Maize hydroponic fodder + concentrate feed	1.38	13	1.67:1	Bajra hydroponic fodder + concentrate feed	1.35	11	1.53:1	Concentrate feeding	1.22	1.37:1

%=Increase in yield over Farmer's practice (%), FP = Farmer's Practice

3.1.5 Women Empowerment and enterprises

Enterprises like Apiculture, backyard poultry, drudgery reduction tools, fish preservation (Pickling), Fruit and vegetable preservation, health mix, mango bar, mushroom production, nutri mix, nutri-garden, sericulture, silage making, value added millet cookies, Value added products from coconut and other value addition enterprises were assessed in terms of production and income. Mushroom varieties like Arka OM 1 and CO 2 were assesses for their potential to be promoted as an income generating enterprise for women. Nutrient mix prepared using Nendran banana, Grande Naine varieties were assessed in terms of additional income generated and taste as compared to direct sales. Value addition to millets in the form of cookies, flavored millet cookies with medicinal plants *etc*. were assessed for their potential as an enterprise for women. Candy making and other preserved fruit products were also assessed as potential enterprise for women. Health mix, ready to cook food, breakfast mix are some of the other technologies that were assessed as potential enterprises as well as healthy and nutritious food for children and adults.

3.1.14. Performance of Technologies for women empowerment and enterprises in Zone X

State, Technology, KVK	No. of Trials	Parameter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technology	Value	%	BCR	Technology	Value	%	BCR	Technology	Value	BCR
Tamil Nadu													
Mushroom production													
Coimbatore	5	kg/unit	Arka.OM 1	27.11	-37	3.29:1	APK 1	28.46	-34	3.45:1	CO 2	42.83	4.49:1
Dindigul	5	kg/bag	Arka OM1	1.70	6	2.27:1	APK 1	1.90	19	2.54:1	Florida	1.60	2.22:1
Erode	5	kg/250 beds	Arka OM1	1.20	20	2.44:1	CO 2	1.10	10	2.08:1	PFL	1.00	1.78:1
Krishnagiri	3	q	Arka OM 1	2.40	100	2.88:1	CO 2	1.80	50	2.5:1	Florida	1.20	1.77:1
Thoothukudi	5	kg/bag	Arka OM 1	1.20	60	4.97:1	CO 2	0.90	20	4.69:1	Florida	0.75	4.32:1
Health mix													
Tiruchirappalli	5	Health mix (g/kg)	Solar dried	257	18	1.87:1	Cabinet drier	331	52	1.53:1	Sun dried	218	1.53:1

State, Technology, KVK	No. of Trials	Parameter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technology	Value	%	BCR	Technology	Value	%	BCR	Technology	Value	BCR
Tapioca table variety													
Kanyakumari	5	Starch (%)	Hraswa (KAU)	29	32	1.61:1	Sree Vijaya (CTCRI)	27	23	1.56:1	Kariyillai poriyan	22	1.33:1
Watermelon rind candy													
Karur	3	hedonic scale	Jaggery	8	31	2.2:1	Country sugar	4.6	-25	1.42:1	White sugar	6.1	2:1
Banana based nutri mix													
Dindigul	5	Income	Nendran			2.22:1	Grande Naine			2.17:1	Traditional		2.12:1
Theni	5	Organoleptic Evaluation	Nendran	23		4.38:1	Grande Naine	21.5		3.33:1	Direct Sale		2.00:1
Thoothukudi	5	Income	Nendran			2.48:1	Mondhan			2.24:1	Traditional	0	1.92:1
Tiruppur	5	Rs/100 g	Nendran	50	43	2.79:1	Mondhan	45	29	2.38:1	Direct Sale	35	2.87:1
Krishnagiri	5	(Rs/kg)	Nendran	700	67	2.79:1	Yelaki	575	38	2.56:1	Direct Sale	418	2.29:1
Millet based cookies and other VAP													
Karur	3	hedonic scale	Solar drying	7.25	7	1.44:1	Cabinet drying	7	4	1.38:1	Sun drying	6.75	1.33:1
Perambalur	5	Finger millet consumer acceptability	GNN 7	8.2	4	2.60:1	Co 15	8.5	8	2.70:1	Co 9	7.9	2.00:1
Virudhunagar	5	sensory quality	Millet ice-cream	1800	50	1.9:1	Banana ice cream	1400	17	1.86:1	Milk ice cream	1200	1.79:1
Thiruvannamalai	5	Millet cookies kg	Palm Sugar	50	0	1.93:1	Country Sugar	50	0	3.21:1	Traditional	50	2.57:1
Perambalur	5	Maize Popping %	BPCH 6	86.5	23	1.92:1	Amber	81.25	15	1.86:1	Dent corn	70.5	1.68:1
Medicated millet cookies													
Thoothukudi	5	BCR	Thulasi			2.53:1	Thuthuvalai	0		2.37:1	Traditional	0	1.64:1
Sivagangai	5	Shelf life (days)	Thulasi	30	100	2.47:1	Thuthuvalai	35	133	2.22:1	Traditional	15	1.32:1
Tirunelveli	5	Shelf life (days)	Thulasi	60	50	3.9:1	Thuthuvalai	65	63	4.35:1	Traditional	40	3.1:1
Kancheepuram	5	Sensory Evaluation	Thulasi	0		1.76:1	Thuthuvalai	0		1.72:1	Traditional	0	1.67:1
Ramanathapu-ram	5	Production (kg)	Thulasi	10	0	1.35:1	Thuthuvalai	10	0	1.35:1	Traditional	10	1.3:1
Tiruchirappalli	5	g/kg	Thulasi	1100	22	5.09:1	Thuthuvalai	1200	33	5.81:1	Traditional	900	3.62:1
Karur	3	Hedonic scale	Thulasi	6	-27	1.78:1	Dry ginger	8.4	2	2.19:1	Traditional	8.2	1.57:1
Erode	5	Hedonic scale	Thulasi +	8.4	24	2.21:1	Moringa	7.9	16	1.92:1	Traditional	6.8	1.52:1
Scented rice Biriyani													
Tiruchirappalli	5	g/kg	VGD 1	3571	67	3.02:1	TKM 1	2714	27	2.36:1	Local variety	2143	2.04:1

State, Technology, KVK	No. of Trials	Parameter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technology	Value	%	BCR	Technology	Value	%	BCR	Technology	Value	BCR
Thiruvarur	5	g/kg	VGD 1	3000	-6	6:1	TKM 13	2800	-13	4.78:1	No special rice variety	3200	4.24:1
Preservation of Fruits and vegetables, VAP													
Vellore	5	Guava (BCR)	Sugar	25	25	2.66:1	Jaggery	22	10	1.71:1	Fresh	20	1.69:1
Karur	3	Dried banana (hedonic scale)	Solar drying	7.7	67	2.14:1	Cabinet drying	6.1	33	1.63:1	Sun drying	4.6	1.57:1
Thiruvarur	5	Banana (gram/kg)	Solar drying with pretreatment	260	53	3.78:1	Sun drying with pretreatment	200	18	3.22:1	Sun drying	170	2.22:1
Kanyakumari	5	Shelf life (days)	Osmotic dehydration	60	400	2.41:1	Solar drying	35	192	1.71:1	Fresh	12	1.17:1
Dharmapuri	10	Shelf life (days)	TNAU Fruity Fresh	18	260	1.85:1	ICAR-IINRG Fresh coat	14	180	1.78:1	Traditional	5	1.36:1
Theni	5	Shelf life (days)	TNAU Fruity Fresh	15	50		ICAR-IINRG Fresh coat	27	170		Traditional	10	
Tirunelveli	5	Shelf life (days)	TNAU Fruity Fresh	18	157		ICAR-IINRG Fresh coat	30	329		Traditional	7	
Krishnagiri	5	Rs/kg	TNAU Fruity Fresh	90	38	3:1	ICAR-IINRG Fresh coat	94	45	3.13:1	Traditional	65	2.17:1
Tiruppur	5	Rs/100 gm	TNAU Fruity Fresh	35	17	2.59:1	ICAR-IINRG Fresh coat	46	53	3:1	Traditional	30	2.5:1
Dehydrated coconut													
Ramanathapu-ram	5	BCR	Osmotic dehydration + Cabinet drying	10		1.92:1	Osmotic dehydration + Solar drying	10		1.94:1	Direct sale	10	1.2:1
Mango bar													
Krishnagiri	5	Mango bar Rs/kg	Alphonso	400	78	2.67:1	Totapuri	295	31	2.35:1	Direct sale	225	2.25:1
Fish preservation (Pickling)													
Nagapattinam	3	Pickle prawn yield (kg)	Prawn pickle with preservative	18	20	2.41:1	Prawn pickle without preservative	17.25	15	1.98:1	Traditional	15	1.4:1
Silage making													
Villupuram	10	Yield (kg/ha)	Sugarcane Top	50	67	1.85:1	CoBN 5	70	133	2.14:1	Paddy straw	30	1.4:1
Backyard poultry													
Kanyakumari	220	Eggs (Nos)	TANUVAS Japanese Quail Namakkal 1	120	20	1.8:1	TANUVAS Japanese Quai Namakkal Gold 1 variety	220	120	1.87:1	Local Breed	100	1.75:1

State, Technology, KVK	No. of Trials	Parameter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technology	Value	%	BCR	Technology	Value	%	BCR	Technology	Value	BCR
Andhra Pradesh													
Drudgery reduction													
Sugarcane leaf Stripper													
Krishna (Ghantasala)	5	Drudgery index	OUAT Sugarcane leaf stripper	47.33	-35		CIAE Bhopal Improved sickle	66.67	-9		Traditional sickle	73.33	
Wheel hoe													
Srikakulam	3	Cost of weeding	CRIJAF wheel hoe	2500	-50		CRIDA wheel hoe	3000	-40		Traditional	5000	
Health and nutrition													
Chittoor (Kalikiri)	200		Moringa millet biscuit	0		4.33:1	Millet biscuit	0		4.5:1	Refined flour biscuit	0	1.5:1
Rastakuntubai	5	Shelf life	Moringa millet biscuits	25	32	1.87:1	Millet biscuit	22	16	1.85:1	Normal biscuits	19	1.82:1
Nellore (Nellore)	5	Iron content	Moringa millet biscuit	2.9	2800		Millet biscuit	3.3	3200		Normal biscuits	0.1	
Krishna (Ghantasala)	5	Ca (mg)	Millet breakfast mix (ANGRAU)	364	3540		Wheat breakfast mix (IIMR)	40	300		Rice breakfast mix	10	
Chittoor (RASS)	16		Millet breakfast mix (ANGRAU)			2.60:1	Millet breakfast mix (IIMR)			2.65:1	Rice breakfast mix		2.92:1
Prakasam (Darsi)	10	kgs	Foxtail + blackgram dry breakfast mix	2660	90	1.57:1	Foxtail + Blackgram fresh mix	2260	61	1.44:1	Rice + blackgram fresh mix	1400	1.13:1
Nutri-garden													
Kadapa (Vonipenta)	5	0	APAU nutri garden			2.12:1	Reliance Nutri garden			1.67:1	Planting on farm bunds		1.34:1
Apiculture in rubber plantation													
East Godavari (Pandirimamidi)	3	Yield	*Apis cerana indica*	12.3	4	5.22:1	*Apis mellifera*	13.9	18	4.26:1	Rubber alone	11.8	4.27:1
Sericulture													
Chittoor (RASS)	6	Cocoon yield kg/crop	Disinfection with Nirmool	78.5	15	3.27:1	Disinfection with Serifit	79	16	3.73:1	Disinfection with Bleaching Powder	68	2.59:1
Mushroom production													
Visakhapatnam (BCT)	5	q	Sugarcane Bagasse	1.8	-28	3:1	Groundnut shells	1.74	-30	2:1	Paddy Straw	2.5	4.17:1
Ananthapuram (Reddipalli)	5	kg/day	Setaria/Cotton	0.82	-45		Banana pseudo stem	0.75	-50		Paddy straw	1.5	

State, Technology, KVK	No. of Trials	Parameter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technology	Value	%	BCR	Technology	Value	%	BCR	Technology	Value	BCR
East Godavari (Pandirimamidi)	3	kg	Milky mushroom	2.2		4.35:1	Oyster mushroom	1.5		2.56:1			
Value addition													
Nellore (Nellore)	5	Energy	Fish and prawn wafers	135.7	-6		Fish fillets	144.5			Fish and prawn	144.0	
Ananthapuram (Kalyandurg)	5	Pulp yield (g/kg)	Tomato Pulp production using Arka Apeksha	830	19		TNAU Tomato Hybrid Co 3	740	6		Local variety	700	
Fruit and vegetable preservation													
Srikakulam	3	Drying days	Electrical dryer for pineapple	2	-100		Solar drier	4.5			Sun drying.	4.5	
Ananthapuram (Reddipalli)	5	Shelf life (days)	ICAR-IINRG Fresh coat	8	54		TNAU fruity fresh	8.2	58		farmers practice (No coating)	5.2	
East Godavari (Kalavacharla)	10	Shelf life (days)	Solar dryer	90	100		Electric Dryer	66	47		Open drying	45	
Guntur (Lam)	5	g/kg	ICAR -IINRG Fresh coat	980	18	1.75:1	TNAU – Fruit fresh	870	5	1.63:1	Without edible coating	832	1.56:1
Telangana													
Health and nutrition													
Mahabubnagar (Palem)	6	BMI	Nutrient dense millet bar	15	15						Regular diet	13	
Medak (Tuniki)	6	Hemoglobin level	Millet bar	60	0	1.01:1	Cereal bar	60	0	1.01:1	Regular diet	60	
Mahabubnagar (YFA)	5	Consumer Acceptability	Defatted Ground Cake Products	50	233	3.64:1					Using as Cattle feed	15	2.5:1
Mushroom production													
Nalgonda (Gaddipally)	6	kg/year	Milky Mushroom	160	7	4.2:1					Oyster Mushroom	150	3:1
Fruit and vegetable preservation													
Mahabubnagar (YFA)	5	Shelf life (days)	Solar Drying	42.5	70	2.63:1	Electrical drying	54.5	118	1.74:1	Open Drying method	25	1.72:1
Medak (Tuniki)	6	BCR	Solar Drying			3.00:1	Electrical drying			2.60:1	sun drying		1.50:1
Puducherry													
Value addition													
Puducherry	3	Shelf life (days)	Millet cookies with Thulasi powder	35	17	1.60:1					Normal cookies	30	1.56:1

%=Increase in yield over Farmer's practice (%)

3.1.6. Drudgery reduction technologies

Drudgery reduction technologies like mechanized weeders, sowing machineries, harvesters, shredders, sprayers *etc.* were assessed against Farmer's practice in terms of time saved, additional yield obtained *etc*.

3.1.14. Performance of Drudgery Reduction Technologies in Zone X

State, Technology and KVK	No. of Trials	Parameter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technology	Value	%	BCR	Technology	Value	%	BCR	Technology	Value	BCR
Andhra Pradesh													
Weeder													
Visakhapatnam (BCT)	5	Yield (q/ha)	Mandwa Weeder	44.31	15	1.62:1	Cono Weeder	42.36	10	1.52:1	Manual weeding	38.6	1.37:1
Telangana													
Land preparation for fruit crop													
Mahabubnagar (YFA)	3	Fruit yield (t/ha)	Side Shift rotavator	7.52	23	1.84:1	Rotavator	6.7	10	1.46:1	Cultivator	6.11	1.23:1
Paddy Sowing													
Mahabubnagar (Palem)	5	Yield (q/ha)	Seed cum fertilizer drill	29.6	7	2.3:1					Manual Transplanting	27.6	2.07:1
Kammam (Wyra)	4	Drudgery index	Direct seeder	88.75	4	1.7:1					Manual Transplanting	85	1.56:1
Nizamabad	3	Yield (q/ha)	Seed drill	71.7	2	1.68:1					Manual Transplanting	70.0	1.51:1
Harvester - groundnut													
Mahabubnagar (YFA)	3	Yield (q/ha)	Groundnut digger cum shaker	9.61	27	1.77:1					Manual harvesting with women labor	7.55	1.45:1
Cotton stalk shredder													
Nalgonda (Kampasagar)	5	Yield (q/ha)	Stalk shredder	19.5	13	3.2:1					Burning of stalks	17.32	2.7:1
Puducherry													
Spraying													
Puducherry	2	Time (mins)	Drone sprayer	30	-80	2.11:1					Hand sprayer	150	2.02:1

%=Increase in yield over Farmer's practice (%)

Assessment of weed management in maize KVK Tiruppur (TN)

Assessment of paddy varieties ADT 53 and CO 51 KVK Karur (TN)

Assessment of pheromone traps for yellow stem borer management in paddy KVK Nalgonda (Kampasagar) (TS)

Assessment of organic farming package in paddy KVK Kurnool (Yagantipalle) (AP)

Assessment of Foxtail millet variety SIA 3223 KVK Kurnool (Banavasi) (AP)

Assessment of kodo millet variety ATL 1 KVK Cuddalore, (TN)

Assessment of blackgram variety VBN Bg 11 KVK Thoothukudi, (TN)

Assessment of groundnut variety K 1812 KVK Adilabad (TS)

Assessment of groundnut variety BSR 2
KVK Tiruchirappalli (TN)

Assessment of TNAU-Groundnut Rich foliar spray
KVK Virudhunagar (TN)

Assessment of sesamum variety Swetha
KVK Khammam (Kothagudam) (TS)

Assessment of IPM for pink boll worm in cotton
KVK Kurnool (Banavasi) (AP)

Assessment of intercropping onion in sugarcane
KVK Ariyalur (TN)

Assessment of hybrid Napier fodder grass
CO 4 KVK Namakkal (TN)

Assessment of microbial consortia for brinjal
KVK Tiruchirappalli (TN)

Assessment of ridge gourd variety Arka Vikram
KVK Karaikal (PY)

Assessment of tomato hybrid CO (TH) 4 KVK Ramanathapuram (TN)

Assessment of IDM for viral diseases in papaya KVK Srikakulam (AP)

Assessment of root knot nematode management technologies in tuberose - KVK Kanyakumari (TN)

Assessment of turmeric variety CO 2 KVK Karur (TN)

Assessment of polyherbal spray for the control tick in cattle - KVK Villupuram II (TN)

Assessment of Prosync-NC for oestrous synchronization in cattle - KVK Thiruvannamalai (TN)

Assessment of small ruminant mineral mixture on goat KVK Dharmapuri (TN)

Assessment of AMS beads for management of Coccidiosis in poultry - KVK Villupuram II (TN)

Assessment of murrel in carp polyculture
KVK Kancheepuram (TN)

Assessment of Amur Carp
KVK Namakkal (TN)

Assessment of solar drier for value addition of fruits and vegetables - KVK Kurnool (Yagantipalle) (AP)

Assessment of bed maker cum mulcher
KVK Mahabubnagar (Palem (TS)

Assessment of tractor drawn seed drill
KVK Karur (TN)

Assessment of seed drills for rice fallow blackgram
KVK Tiruchirappalli (TN)

Assessment of weeders for vegetables
KVK Srikakulam (AP)

Assessment of mushroom varieties Arka OM 1 and CO 1 KVK Erode (TN)

3.2 Frontline Demonstrations

Frontline Demonstrations were organized by the KVKs to demonstrate the potential of crop varieties, crop and animal husbandry technologies and agricultural implements at several location-specific farming and agro-ecological situations. Training programmes and field days were organized for extension workers and farmers for rapid dissemination of improved technologies.

A total of 12726 demonstrations were conducted in 3063.91 ha on field crops, horticultural crops, tools and implements, livestock, enterprises and women and children welfare by KVKs in Zone X (Table 3.2.1). In crops, 8328 demonstrations were conducted by 71 KVKs in Zone-X covering cereals, millets, pulses, oilseeds, commercial crops, fodder crops, vegetables, fruits, flowers, spices, plantation crops and medicinal plants in 2610.71 ha. Among the crops, 5210 demonstrations were conducted on field crops and 3118 on horticultural crops. A total of 520 demonstrations were conducted on hybrids, 626 on tools and implements, 1956 on livestock, 866 on various enterprises and 436 on women and children related demonstrations. Among agricultural crops, 1356 demonstrations were conducted on rice varieties and other production and protection technologies (Table 3.2.2). In millets out of 675 demonstrations, 220 were in Foxtail Millet, 160 on finger millet and 140 on sorghum. In pulses (other than CFLD), out of 746 demonstrations, 385 were in blackgram, 131 in redgram 110 in chickpea and 60 in greengram. Out of 443 demonstrations in oilseeds (other than CFLD), 325 were in groundnut and 65 in sesamum. Among the fibre and commercial crops, 318 were in cotton and 128 in sugarcane. Technologies and tools on ICT were demonstrated at 936 locations. Among 1666 demonstrations in vegetables, 307 were on brinjal, 265 on nutri-farm where multiple vegetable crops were demonstrated and 237 were on tomato. Green chilli was demonstrated at 186 locations. Out of 780 demonstrations in fruits, 269 were in mango and 181 were in banana. In total, 127 demonstrations were conducted on flowers including jasmine, tuberose, chrysanthemum, and marigold. Among 199 demonstrations on spices and condiments, 117 were on dry chillies and 48 on turmeric. Among plantation crops, 110 demonstrations were on coconut, 75 on cashew and 51 on oil palm.

a. Crops

In crops category, out of 4317 demonstrations in Tamil Nadu, 1020 were in cereals and 768 in vegetables (Table 3.2.2). In Andhra Pradesh, out of 2573 demonstrations on crops, 488 were in fruits, 468 in vegetables, 345 in millets, 298 in cereals and 270 in pulses. Out of 1303 demonstrations in Telangana, 410 in vegetables, 329 in Cereals and 137 in fruits. In Puducherry, out of 135 demonstrations on crops, 55 were in cereals and 30 in other horticultural crops.

b. Hybrids

A total of 520 demonstrations were conducted on crop hybrids, out of which 375 were by KVKs of Tamil Nadu, 99 by Andhra Pradesh, 16 by Telangana and 30 by Puducherry (Table 3.2.3). Among the crops, 101 demonstrations were in maize, 113 in tomato and 105 in bhendi/okra.

c. Tools and Implements

Out of 626 demonstrations conducted on tools and implements, 234 were by KVKs of Tamil Nadu, 233 by Andhra Pradesh, 147 by Telangana and 12 by Puducherry (Table 3.2.4).

d. Livestock, poultry and fishery

KVKs in the Zone conducted 1956 demonstrations on livestock, poultry and fishery involving 274095 animals, poultry birds and fish fingerlings (Table 3.2.5). Among them, 778 demonstrations were conducted by KVKs in Tamil Nadu, 647 by Andhra Pradesh, 491 by Telangana and 40 by Puducherry.

e. Enterprises

A total of 860 demonstrations were conducted on apiculture, drudgery reduction, nutri-garden, sericulture, storage bags, value addition and vermicompost production and 866 enterprise units were established by 39 KVKs in the Zone (Table 3.2.6).

f. Women empowerment

A total of 436 demonstrations on drudgery reduction, enterprise development, health and nutrition, storage techniques and value addition were conducted, and 526 enterprise units were established by 26 KVKs in the Zone for women empowerment (Table 3.2.7).

Table 3.2.1. Details of FLDs conducted by KVKs in Zone X

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs
Crops															
Field Crops	3120	799.55	30	1354	543.00	22	631	260.00	15	105	28.00	2	5210	1630.55	69
Horticultural Crops	1197	350.06	30	1219	396.40	21	672	225.70	16	30	8.00	2	3118	980.16	69
Total (Crops)	**4317**	**1149.61**	**30**	**2573**	**939.40**	**23**	**1303**	**485.70**	**16**	**135**	**36.00**	**2**	**8328**	**2610.71**	**71**
Hybrids	375	131.00	16	99	28.00	7	16	4.80	3	30	8.00	1	520	171.80	270
Tools and implements	234	79.40	14	233	118.00	8	147	79.00	8	12	5.00	2	626	281.40	49
Livestock	778	65599	26	647	123601	15	491	83135	6	40	1760	2	1956	274095	49
Enterprises	454	406	21	162	232	11	225	209	6	19	19	1	860	866	39
Women and Children	118	155	11	266	297	11	52	74	4	0	0	0	436	526	26
Grand Total	**6276**	**1360.01**	**30**	**3980**	**1085.40**	**23**	**2234**	**569.5**	**16**	**236**	**49**	**2**	**12726**	**3063.91**	**71**
Total No of animals/ Enterprises		**66160**			**124130**			**83418**			**1779**			**275487**	

Demos = No. of Demonstrations, KVKs = No. of KVKs

Table 3.2.2. Details of category wise FLDs on crops in Zone-X

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs
Field Crops															
Cereals															
Maize	145	54.00	12	130	53.00	12	61	15.60	5	10	1.00	1	**346**	**123.60**	**30**
Paddy (Rice)	875	335.80	29	168	67.00	11	268	117.60	13	45	14.00	2	**1356**	**534.40**	**55**
Total (Cereals)	**1020**	**389.80**	**29**	**298**	**120.00**	**16**	**329**	**133.20**	**13**	**55**	**15.00**	**2**	**1702**	**658.00**	**60**
Millets															
Barnyard millet	40	16.00	4										**40**	**16.00**	**4**
Finger millet	80	30.00	8	80	19.00	5	0	0.00	0	0	0.00	0	**160**	**49.00**	**13**
Foxtail millet	40	14.00	4	180	76.00	10	0	0.00	0	0	0.00	0	**220**	**90.00**	**14**
Kodo millet	30	12.00	3	0	0.00	0	0	0.00	0	0	0.00	0	**30**	**12.00**	**3**
Little millet	45	18.00	4	0	0.00	0	0	0.00	0	0	0.00	0	**45**	**18.00**	**4**
Pearl millet	10	4.00	1	20	9.00	2	0	0.00	0	10	4.00	1	**40**	**17.00**	**4**
Sorghum	50	20.00	5	65	26.20	6	25	8.00	3	0	0.00	0	**140**	**54.20**	**14**

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs
Total (Millets)	**295**	**114.00**	**19**	**345**	**130.20**	**16**	**25**	**8.00**	**3**	**10**	**4.00**	**1**	**675**	**256.20**	**39**
Pulses (Other than CFLD)															
Blackgram	280	81.50	15	85	34.00	7	0	0.00	0	20	6.00	2	**385**	**121.50**	**24**
Chickpea	0	0.00	0	70	28.00	4	40	16.00	2	0	0.00	0	**110**	**44.00**	**6**
Cowpea	20	8.00	2	10	4.00	1	0	0.00	0	0	0.00	0	**30**	**12.00**	**3**
Greengram	40	12.00	4	10	4.00	1	10	4.00	1	0	0.00	0	**60**	**20.00**	**6**
Horsegram	0	0.00	0	10	4.00	1	0	0.00	0	0	0.00	0	**10**	**4.00**	**1**
Rajmah	0	0.00	0	10	4.00	1	0	0.00	0	0	0.00	0	**10**	**4.00**	**1**
Redgram	15	6.00	2	65	29.00	5	51	21.80	9	0	0.00	0	**131**	**56.80**	**16**
Sunnhemp	0	0.00	0	10	4.00	1	0	0.00	0	0	0.00	0	**10**	**4.00**	**1**
Total (Pulses)	**355**	**107.50**	**18**	**270**	**111.00**	**15**	**101**	**41.80**	**9**	**20**	**6.00**	**2**	**746**	**266.30**	**44**
Oilseeds															
Castor	25	12.00	2	0	0.00	0	10	4.00	1	0	0.00	0	**35**	**16.00**	**3**
Groundnut	200	74.00	13	110	44.00	8	15	6.00	2	0	0.00	0	**325**	**124.00**	**23**
Sesamum	45	18.00	4	10	4.00	1	0	0.00	0	10	2.00	1	**65**	**24.00**	**6**
Soybean	0	0.00	0	0	0.00	0	8	3.20	2	0	0.00	0	**8**	**3.20**	**2**
Sunflower	0	0.00	0	0	0.00	0	10	4.00	1	0	0.00	0	**10**	**4.00**	**1**
Total (Oilseeds)	**270**	**104.00**	**16**	**120**	**48.00**	**8**	**43**	**17.20**	**5**	**10**	**2.00**	**1**	**443**	**171.20**	**30**
Fibre crops															
Cotton	79	29.60	7	123	50.20	10	116	52.80	12	0	0.00	0	**318**	**132.60**	**29**
Commercial Crops															
Mulberry	20	8.00	2	0	0.00	0	12	5.00	1	0	0.00	0	**32**	**13.00**	**3**
Sugarcane	45	18.00	5	78	29.20	7	5	2.00	1	0	0.00	0	**128**	**49.20**	**13**
Tobacco	0	0.00	0	90	50.00	1	0	0.00	0	0	0.00	0	**90**	**50.00**	**1**
Total (CC)	**65**	**26.00**	**7**	**168**	**79.20**	**8**	**17**	**7.00**	**2**	**0**	**0.00**	**0**	**250**	**112.20**	**17**
Fodder Crops															
Fodder Cowpea	10	4.00	1	0	0.00	0	0	0.00	0	10	1.00	1	**20**	**5.00**	**2**
Fodder sorghum	70	23.00	8	10	0.20	1	0	0.00	0	0	0.00	0	**80**	**23.20**	**9**
Mixed Fodder	20	1.40	2	0	0.00	0	0	0.00	0	0	0.00	0	**20**	**1.40**	**2**
Super Napier	0	0.00	0	20	4.20	2	0	0.00	0	0	0.00	0	**20**	**4.20**	**2**
Total (Fodder)	**100**	**28.40**	**11**	**30**	**4.40**	**2**	**0**	**0.00**	**0**	**10**	**1.00**	**1**	**140**	**33.80**	**14**
ICT	936	0.25	6	0	0.00	0	0	0.00	0	0	0.00	0	**936**	**0.25**	**6**
Total (Field Crops)	**3120**	**799.55**	**30**	**1354**	**543.00**	**22**	**631**	**260.00**	**15**	**105**	**28.00**	**2**	**5210**	**1630.55**	**69**
Horticultural Crops															
Vegetables															
Amaranthus	25	4.25	3	0	0.00	0	0	0.00	0	10	2.00	1	**35**	**6.25**	**4**

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs
Bhindi/Okra	45	9.00	4	10	4.00	2	38	12.20	5	0	0.00	0	**93**	**25.20**	**11**
Bitter melon	10	0.25	1	0	0.00	0	0	0.00	0	0	0.00	0	**10**	**0.25**	**1**
Bittergourd	10	0.00	1	0	0.00	0	40	16.00	3	0	0.00	0	**50**	**16.00**	**4**
Bottlegourd	50	16.00	4	0	0.00	0	0	0.00	0	0	0.00	0	**50**	**16.00**	**4**
Brinjal	154	47.00	11	93	25.60	5	50	16.40	4	10	2.00	1	**307**	**91.00**	**21**
Chilli (green)	95	25.25	6	61	24.10	5	30	15.00	4	0	0.00	0	**186**	**64.35**	**15**
Cluster Bean	10	2.00	1	0	0.00	0	0	0.00	0	0	0.00	0	**10**	**2.00**	**1**
Coriander leaf	10	2.00	1	0	0.00	0	0	0.00	0	0	0.00	0	**10**	**2.00**	**1**
Drumstick	19	7.60	4	0	0.00	0	0	0.00	0	0	0.00	0	**19**	**7.60**	**4**
French Bean	12	6.00	2	0	0.00	0	0	0.00	0	0	0.00	0	**12**	**6.00**	**2**
Lablab	20	6.00	2	0	0.00	0	0	0.00	0	0	0.00	0	**20**	**6.00**	**2**
Nutri-farm	20	0.01	2	165	12.20	6	80	1.40	4	0	0.00	0	**265**	**13.61**	**12**
Onion	55	19.00	6	30	12.00	3	15	6.00	2	0	0.00	0	**100**	**37.00**	**11**
Onion (Aggregatum)	103	34.40	10	0	0.00	0	0	0.00	0	0	0.00	0	**103**	**34.40**	**10**
Ridge gourd	0	0.00	0	33	11.00	4	56	13.20	6	0	0.00	0	**89**	**24.20**	**10**
Snake gourd	20	6.00	2	0	0.00	0	0	0.00	0	0	0.00	0	**20**	**6.00**	**2**
Solanum Nigrum	10	1.00	1	0	0.00	0	0	0.00	0	0	0.00	0	**10**	**1.00**	**1**
Spinach	0	0.00	0	0	0.00	0	10	4.00	1	0	0.00	0	**10**	**4.00**	**1**
Tomato	70	18.30	6	76	22.50	9	91	34.90	11	0	0.00	0	**237**	**75.70**	**26**
Vegetable Cowpea	10	4.00	1	0	0.00	0	0	0.00	0	0	0.00	0	**10**	**4.00**	**1**
Vegetables	20	0.00	1	0	0.00	0	0	0.00	0	0	0.00	0	**20**	**0.00**	**1**
Total (Vegetables)	**768**	**208.06**	**27**	**468**	**111.40**	**17**	**410**	**119.10**	**16**	**20**	**4.00**	**1**	**1666**	**442.56**	**61**
Tuber crops															
Tapioca (Cassava)	85	27.70	8	10	4.00	1	0	0.00	0	5	2.00	1	**100**	**33.70**	**10**
Fruits															
Acid lime	10	4.00	1	28	9.60	2	5	5.00	1	0	0.00	0	**43**	**18.60**	**4**
Avocado	10	4.00	1	0	0.00	0	0	0.00	0	0	0.00	0	**10**	**4.00**	**1**
Banana	75	28.80	9	96	29.00	7	5	2.00	1	5	2.00	1	**181**	**61.80**	**18**
Guava	0	0.00	0	30	5.00	3	10	4.00	2	0	0.00	0	**40**	**9.00**	**5**
Mango	35	14.00	2	150	71.00	6	84	34.00	9	0	0.00	0	**269**	**119.00**	**17**
Melons	0	0.00	0	10	4.00	1	0	0.00	0	0	0.00	0	**10**	**4.00**	**1**
Muskmelon	0	0.00	0	15	6.00	2	0	0.00	0	0	0.00	0	**15**	**6.00**	**2**
Orange	0	0.00	0	0	0.00	0	5	5.00	1	0	0.00	0	**5**	**5.00**	**1**

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs
Papaya	10	4.00	1	84	26.00	7	0	0.00	0	0	0.00	0	**94**	**30.00**	**8**
Pomegranate	0	0.00	0	40	18.00	3	0	0.00	0	0	0.00	0	**40**	**18.00**	**3**
Sweet Orange	0	0.00	0	35	14.50	2	0	0.00	0	0	0.00	0	**35**	**14.50**	**2**
Watermelon	10	4.00	1	0	0.00	0	28	9.40	3	0	0.00	0	**38**	**13.40**	**4**
Total (Fruits)	**150**	**58.80**	**12**	**488**	**183.10**	**17**	**137**	**59.40**	**12**	**5**	**2.00**	**1**	**780**	**303.30**	**42**
Flowers															
Chrysanthemum	0	0.00	0	15	6.00	2	0	0.00	0	0	0.00	0	**15**	**6.00**	**2**
Jasmine	65	19.20	7	5	2.00	1	0	0.00	0	0	0.00	0	**70**	**21.20**	**8**
Marigold	0	0.00	0	6	2.40	1	5	2.00	1	0	0.00	0	**11**	**4.40**	**2**
Tuberose	10	0.20	1	11	3.50	2	10	4.00	1	0	0.00	0	**31**	**7.70**	**4**
Total (Flowers)	**75**	**19.40**	**8**	**37**	**13.90**	**6**	**15**	**6.00**	**2**	**0**	**0.00**	**0**	**127**	**39.30**	**16**
Spices and Condiments															
Chilli (Red)	0	0.00	0	47	18.00	4	70	28.40	6	0	0.00	0	**117**	**46.40**	**10**
Coriander (seed)	4	1.60	1	10	4.00	1	0	0.00	0	0	0.00	0	**14**	**5.60**	**2**
Ginger	0	0.00	0	10	2.00	1	0	0.00	0	0	0.00	0	**10**	**2.00**	**1**
Pepper	10	1.50	1	0	0.00	0	0	0.00	0	0	0.00	0	**10**	**1.50**	**1**
Turmeric (Dry)	0	0.00	0	10	4.00	1	0	0.00	0	0	0.00	0	**10**	**4.00**	**1**
Turmeric (Raw)	10	1.00	1	13	4.00	2	15	6.00	3	0	0.00	0	**38**	**11.00**	**6**
Total (Spices)	**24**	**4.10**	**4**	**90**	**32.00**	**7**	**85**	**34.40**	**8**	**0**	**0.00**	**0**	**199**	**70.50**	**19**
Plantation Crops															
Cashew	5	2.00	1	70	28.00	4	0	0.00	0	0	0.00	0	**75**	**30.00**	**5**
Coconut	90	30.00	8	20	8.00	2	0	0.00	0	0	0.00	0	**110**	**38.00**	**10**
Coffee	0	0.00	0	10	4.00	1	0	0.00	0	0	0.00	0	**10**	**4.00**	**1**
Oil palm	0	0.00	0	26	12.00	3	25	6.80	2	0	0.00	0	**51**	**18.80**	**5**
Total (PC)	**95**	**32.00**	**8**	**126**	**52.00**	**6**	**25**	**6.80**	**2**	**0**	**0.00**	**0**	**246**	**90.80**	**16**
Total (HC)	**1197**	**350.06**	**30**	**1219**	**396.4**	**21**	**672**	**225.7**	**16**	**30**	**8**	**2**	**3118**	**980.16**	**69**
Grand Total	**4317**	**1149.61**	**30**	**2573**	**939.4**	**23**	**1303**	**485.7**	**16**	**135**	**36**	**2**	**8328**	**2610.71**	**71**

Demos = No. of Demonstrations, KVKs = No. of KVKs

Table 3.2.3. Details of category wise FLDs on crop hybrids in Zone-X

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs
Field Crops															
Cereals															
Maize	85	34	8	10	4	1	6	2.4	1	0	0	0	**101**	**40.4**	**10**
Finger millet	0	0	0	10	4	1	0	0	0	0	0	0	**10**	**4**	**1**

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs
Sorghum	0	0	0	5	2	1	0	0	0	0	0	0	**5**	**2**	**1**
Castor	5	4	1	0	0	0	0	0	0	0	0	0	**5**	**4**	**1**
Cotton	10	4	1	5	2	1	0	0	0	10	4	1	**25**	**10**	**3**
Horticultural crops															
Bhindi/Okra	95	26	9	0	0	0	0	0	0	10	2	1	**105**	**28**	**10**
Bittergourd	10	4	1	0	0	0	0	0	0	0	0	0	**10**	**4**	**1**
Chilli (green)	35	12	4	3	1.5	1	0	0	0	0	0	0	**38**	**13.5**	**5**
Ridgegourd	45	16	5	3	1	1	0	0	0	0	0	0	**48**	**17**	**6**
Snake gourd	10	4	1	0	0	0	0	0	0	10	2	1	**20**	**6**	**2**
Tomato	60	21	4	43	13.5	5	10	2.4	2	0	0	0	**113**	**36.9**	**11**
Marigold	10	2	1	0	0	0	0	0	0	0	0	0	**10**	**2**	**1**
Papaya	10	4	1	20	0	1	0	0	0	0	0	0	**30**	**4**	**2**
Total	**375**	**131**	**16**	**99**	**28**	**7**	**16**	**4.8**	**3**	**30**	**8**	**1**	**520**	**171.8**	**27**

Demos = No. of Demonstrations, KVKs = No. of KVKs

Table 3.2.4. Details of category wise FLDs on Tools and implements in Zone-X

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Demos	Area (ha)	KVKs
Land preparation	14	5	2	10	4.00	1	0	0.00	0	0	0.00	0	24	9.00	3
Sowing and Planting	115	38	8	150	57.00	4	55	22.00	5	10	4.00	1	330	121.00	18
Irrigation	0	0	0	0	0.00	0	10	10.00	2	0	0.00	0	10	10.00	2
Intercultural operations	26	6.4	4	10	10.00	1	15	10.00	2	0	0.00	0	51	26.40	7
Plant protection	0	0	0	10	4.00	1	0	0.00	0	0	0.00	0	10	4.00	1
Harvesting	60	17	4	53	43.00	4	0	0.00	0	2	1.00	1	115	61.00	9
Postharvest technology	14	8	2	0	0.00	1	12	15.00	1	0	0.00	0	26	23.00	4
Total Mechanization	5	5	1	0	0.00	0	45	18.00	3	0	0.00	0	50	23.00	4
Solar Fencing	0	0	0	0	0.00	0	10	4.00	1	0	0.00	0	10	4.00	1
Total	**234**	**79.4**	**14**	**233**	**118.00**	**8**	**147**	**79.00**	**8**	**12**	**5.00**	**2**	**626**	**281.40**	**49**

Demos = No. of Demonstrations, KVKs = No. of KVKs

Table 3.2.5. Details of category wise FLDs on Livestock, poultry and fisheries in Zone-X

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Demos	Nos.	KVKs	Demos	Nos.	KVKs	Demos	Nos.	KVKs	Demos	Nos.	KVKs	Demos	Nos.	KVKs
Cow	265	381	20	80	250	6	92	12285	2	0	0	0	437	12916	28
Buffalo	0	0	0	120	245	8	60	315	3	0	0	0	180	560	11
Goat	50	290	4	35	233	3	0	0	0	10	10	2	95	533	9
Sheep	30	230	3	42	132	5	68	355	3	0	0	0	140	717	11
Piggery	5	10	1	0	0	0	0	0	0	0	0	0	5	10	1
Rabbitry	5	15	1	0	0	0	0	0	0	0	0	0	5	15	1

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Demos	Nos.	KVKs	Demos	Nos.	KVKs	Demos	Nos.	KVKs	Demos	Nos.	KVKs	Demos	Nos.	KVKs
Poultry	220	3220	20	290	1941	9	242	5205	5	20	50	2	772	10416	36
Quail	39	1920	5	0	0	0	0	0	0	5	100	1	44	2020	6
Fish	164	59533	10	80	120800	3	29	64975	4	5	1600	1	278	246908	18
Total	**778**	**65599**	**26**	**647**	**123601**	**15**	**491**	**83135**	**6**	**40**	**1760**	**2**	**1956**	**274095**	**49**

Nos. = No. of animals/fish/fingerlings, KVKs = No of KVKs

Table 3.2.6. Details of category wise FLDs on enterprises in Zone-X

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Demos	Nos.	KVKs	Demos	Nos.	KVKs	Demos	Nos.	KVKs	Demos	Nos.	KVKs	Demos	Nos.	KVKs
Apiculture	0	0	0	0	0	0	5	10	1	0	0	0	5	10	1
Drudgery Reduction	10	100	1	20	20	1	0	0	0	0	0	0	30	120	2
Nutri Garden	50	37	5	30	30	3	160	160	2	10	10	1	250	237	11
Sericulture	0	0	0	30	30	1	0	0	0	0	0	0	30	30	1
Storage Bag	0	0	0	10	10	1	0	0	0	0	0	0	10	10	1
Value addition	394	269	21	68	138	8	60	39	4	9	9	1	531	455	34
Vermicompost	0	0	0	4	4	1	0	0	0	0	0	0	4	4	1
Total	**454**	**406**	**21**	**162**	**232**	**11**	**225**	**209**	**6**	**19**	**19**	**1**	**860**	**866**	**39**

Demos = No. of Demonstrations, Nos. = No. of enterprise units, KVKs = No. of KVKs

Table 3.2.7. Details of category wise FLDs on women empowerment in Zone-X

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Demos	Nos.	KVKs	Demos	Nos.	KVKs	Demos	Nos.	KVKs	Demos	Nos.	KVKs	Demos	Nos.	KVKs
Drudgery Reduction	10	10	1	22	30	3	16	24	2	0	0	0	48	64	6
Enterprise Development	5	5	1	10	10	1	0	0	0	0	0	0	15	15	2
Health and nutrition	73	65	7	228	241	9	36	50	4	0	0	0	337	356	20
Storage Technique	10	55	2	0	0	0	0	0	0	0	0	0	10	55	2
Value addition	20	20	2	6	16	2	0	0	0	0	0	0	26	36	4
Total	**118**	**155**	**11**	**266**	**297**	**11**	**52**	**74**	**4**	**0**	**0**	**0**	**436**	**526**	**26**

Demos = No. of Demonstrations, Nos. = No. of enterprise units, KVKs = No. of KVKs

3.2.1. Performance of Technologies in Frontline Demonstrations

A total number of 1356 FLDs on varieties, IPM and IDM technologies were conducted on rice crop with an average yield increase of 15% and BCR of 2.13:1 (Table 3.2.8). The average yield advantage in the 220 demonstrations on foxtail millet, 160 demonstrations on finger millet and 140 demonstrations on sorghum was 14, 13 and 14 per cent, respectively and the BCR was 1.88:1, 2.41:1 and 2.54:1, respectively. Among pulses, an average yield increase of 24 per cent was observed in 385 demonstrations on blackgram varieties and technologies while in the 110 demonstrations on redgram, the average yield increase was 16 per cent. Among the oilseeds, the average yield enhancement in 325 demonstrations on groundnut was 23 per cent and the BCR was 2.08:1. Cotton technologies were demonstrated at 318 locations with an average yield enhancement of 29 per cent. Among the vegetable crops, brinjal varieties and technologies were demonstrated at 307 locations with an average yield enhancement of 21 per cent, nutri-farm with multiple vegetables in 265 demonstrations with

an average yield enhancement of 12 per cent, tomato at 237 locations with an average yield increase of 26 per cent and green chillies at 186 locations with an average yield increase of 15 per cent. Among the fruit crops, mango varieties and technologies were demonstrated at 269 locations with an average yield increase of 17 per cent. Banana was demonstrated at 181 locations with an average yield enhancement of 18 per cent. Red chilli was demonstrated at 117 locations with an average yield increase of 10 per cent. Performance of crop varieties, technologies and hybrids in terms of yield, income and benefit cost ratio in Tamil Nadu, Andhra Pradesh, Telangana and Puducherry is furnished in Tables 3.2.9 to 3.2.13.

Tools and implements for sowing and planting, intercultural operations, harvesting equipment and post-harvest processing tool and equipment were demonstrated by 49 KVKs in the Zone at 626 locations. The performance of technologies in terms of improvement in performance, savings in time and manpower, income and benefit cost ratio is presented in Table 3.2.14.

KVKs in the Zone conducted 1956 demonstrations involving 274095 animals, birds and fish fingerlings on technologies like Mastiguard, Ketoquant, Ketocheck, Ethno Veterinary Medicines, evaluation of improved breeds in cattle, goat and sheep; improved fodder varieties, feed preparation technologies, area and animal specific mineral mixtures, improved poultry breeds like Aseel, Gramapriya, Nandanam D3, Nandanam IV, Rajasri, Vanasri, *etc*., Fish breeds, fish production and management, fish pond management, *etc* (Table 3.2.15). Performance of various tools and enterprises like ring harvester, nutri-garden, value addition to various crops like millets, vegetables and fruits, vermicomposting, silkworm rearing, apiculture, *etc*. were demonstrated and compared with farmers practice in terms of production, income, quality, benefit cost ratio *etc.* (Table 3.2.16.). Enterprises suitable for small business-like value-added products from millets, vegetables, mushroom, *etc*., drudgery reduction machines and tools like weeders, planters *etc*., were demonstrated to women farmers for their empowerment (Table 3.2.17).

Table 3.2.8. Performance of crop varieties and technologies in the FLDs of Zone X

Crop	Demos	Area (ha)	KVKs	Yield (q/ha)			Economics					
							Demonstration			Check		
				Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Field Crops												
Cereals												
Maize	346	123.60	30	57.81	49.09	18	51161	66084	2.29:1	49862	47573	1.95:1
Paddy (Rice)	1356	534.40	55	56.74	49.30	15	58045	65659	2.13:1	56814	46307	1.82:1
Millets												
Barnyard millet	40	16.00	4	19.47	15.03	30	26605	32590	2.22:1	24069	19740	1.82:1
Finger millet	160	49.00	13	24.81	17.90	39	28425	40156	2.41:1	27073	27646	2.02:1
Foxtail millet	220	90.00	14	21.84	15.51	41	49059	43347	1.88:1	37475	27433	1.73:1
Kodo millet	30	12.00	3	13.65	10.05	36	23073	34942	2.51:1	24026	23099	1.96:1
Little millet	45	18.00	4	12.82	10.43	23	21878	26954	2.23:1	21850	14000	1.64:1
Pearl millet	40	17.00	4	26.36	15.17	74	52480	44814	1.85:1	34583	18989	1.55:1
Sorghum	140	54.20	14	24.28	19.12	27	29412	45335	2.54:1	27980	34771	2.24:1

Crop	Demos	Area (ha)	KVKs	Yield (q/ha)			Economics					
							Demonstration			Check		
				Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Pulses												
Blackgram	385	121.50	24	10.12	8.48	19	30385	43827	2.44:1	29695	30135	2.01:1
Chickpea	110	44.00	6	18.23	14.84	23	57755	51529	1.89:1	51764	38381	1.74:1
Cowpea	30	12.00	3	57.83	51.57	12	14967	27367	2.83:1	14943	22623	2.51:1
Greengram	60	20.00	6	9.03	7.43	22	28718	32506	2.13:1	27586	22084	1.80:1
Rajmah	10	4.00	1	5.20	3.90	33	49400	38400	1.78:1	37050	26050	1.70:1
Redgram	131	56.80	16	9.46	8.10	17	40570	32553	1.80:1	37601	24207	1.64:1
Oilseeds												
Castor	35	16.00	3	14.98	11.37	32	25444	32793	2.29:1	24685	18505	1.75:1
Groundnut	325	124.00	23	23.10	19.06	21	67738	72827	2.08:1	68888	56124	1.81:1
Sesamum	65	24.00	6	8.16	6.81	20	29431	46981	2.60:1	26895	35719	2.33:1
Sunflower	10	4.00	1	21.65	19.80	9	134075	97875	1.73:1	122760	83135	1.68:1
Fibre crops												
Cotton	318	132.60	29	18.50	15.41	20	74576	84248	2.13:1	70874	58037	1.82:1
Commercial Crops												
Mulberry	32	13.00	3	323.50	273.01	18	125923	124838	1.99:1	110648	81374	1.74:1
Sugarcane	128	49.20	13	1053.00	922.13	14	154529	162092	2.05:1	155362	120591	1.78:1
Fodder Crops												
Fodder Cowpea	20	5.00	2	186.00	148.00	26	54250	75950	2.40:1	47550	56050	2.18:1
Fodder sorghum	80	23.20	9	346.13	234.61	48	31360	71098	3.27:1	26588	36539	2.37:1
Mixed Fodder	20	1.40	2	74.46	52.55	42	74630	115958	2.55:1	62104	74148	2.19:1
Super Napier	20	4.20	2	523.71	349.76	50	183770	151855	1.83:1	100354	82337	1.82:1
Horticultural Crops												
Vegetables												
Amaranthus	35	6.25	4	149.10	124.56	20	86981	179627	3.07:1	72967	125916	2.73:1
Bhindi/Okra	93	25.20	11	184.44	157.29	17	118198	142630	2.21:1	114966	103010	1.90:1
Bitter melon	10	0.25	1	150.00	100.00	50	35000	28000	1.80:1	26000	20000	1.77:1
Bittergourd	50	16.00	4	183.11	144.86	26	187706	284692	2.52:1	166736	199622	2.20:1
Bottlegourd	50	16.00	4	248.25	187.36	32	154501	211507	2.37:1	156884	145603	1.93:1
Brinjal	307	91.00	21	250.17	196.12	28	134177	242350	2.81:1	155044	160640	2.04:1
Chilli (green)	186	64.35	15	145.78	123.97	18	197420	290305	2.47:1	197704	241723	2.22:1
Cluster Bean	10	2.00	1	15.00	14.00	7	60000	100000	2.67:1	50000	62000	2.24:1
Drumstick	19	7.60	4	133.53	108.58	23	126329	148776	2.18:1	87303	87316	2.00:1
French Bean	12	6.00	2	157.33	113.00	39	221664	335533	2.51:1	246533	170960	1.69:1
Lablab	20	6.00	2	97.38	78.04	25	76870	157164	3.04:1	68672	107146	2.56:1
Nutri-farm	265	13.61	12	294.75	165.82	78	58841	208682	4.55:1	37246	39386	2.06:1

Crop	Demos	Area (ha)	KVKs	Yield (q/ha)			Economics					
							Demonstration			Check		
				Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Onion	100	37.00	11	147.13	119.07	24	127569	153888	2.21:1	126515	127976	2.01:1
Onion (Aggregatum)	103	34.40	10	131.21	89.89	46	108169	179957	2.66:1	81079	80879	2.00:1
Ridge gourd	89	24.20	10	225.22	192.93	17	123911	311476	3.51:1	134689	237322	2.76:1
Snake gourd	20	6.00	2	299.04	248.33	20	128583	193861	2.51:1	125933	123433	1.98:1
Solanum Nigrum	10	1.00	1	127.00	108.00	18	53500	73500	2.37:1	51000	57000	2.12:1
Spinach	10	4.00	1	100.00	90.00	11	131250	118750	1.90:1	115000	110000	1.96:1
Tomato	237	75.70	26	401.04	342.69	17	214643	277128	2.29:1	207629	226164	2.09:1
Vegetable Cowpea	10	4.00	1	230.00	210.00	10	170000	230000	2.35:1	215000	210000	1.98:1
Vegetables	20	0.00	1	51.00	51.00	0	56522	55556	1.98:1	52000	46000	1.88:1
Tuber crops												
Tapioca (Cassava)	100	33.70	10	321.91	252.20	28	137470	180936	2.32:1	126383	125041	1.99:1
Fruits												
Acid lime	43	18.60	4	204.92	167.21	23	197285	508668	3.58:1	200243	329756	2.65:1
Avocado	10	4.00	1	93.50	76.80	22	292000	935000	4.20:1	299800	768000	3.56:1
Banana	181	61.80	18	419.06	373.37	12	206447	331904	2.61:1	201356	260645	2.29:1
Guava	40	9.00	5	131.31	104.64	25	276889	422111	2.52:1	443111	497933	2.12:1
Mango	269	119.00	17	352.32	273.20	29	148997	208767	2.40:1	126773	125383	1.99:1
Melons	10	4.00	1	130.00	110.00	18	50000	54000	2.08:1	52000	36000	1.69:1
Muskmelon	15	6.00	2	82.63	67.90	22	237995	133302	1.56:1	170137	77986	1.46:1
Orange	5	5.00	1	332.00	283.30	17	962800	849650	1.88:1	807263	680263	1.84:1
Papaya	94	30.00	8	617.43	461.70	34	249455	398121	2.60:1	252928	282658	2.12:1
Pomegranate	40	18.00	3	99.20	89.38	11	296805	201499	1.68:1	251085	122446	1.49:1
Sweet Orange	35	14.50	2	120.00	106.26	13	145859	325714	3.23:1	166092	230667	2.39:1
Watermelon	38	13.40	4	158.66	118.73	34	166170	194487	2.17:1	146155	145342	1.99:1
Flowers												
Chrysanthemum	15	6.00	2	112.47	104.33	8	750347	686789	1.92:1	711629	623755	1.88:1
Jasmine	70	21.20	8	55.79	48.39	15	456118	399649	1.88:1	479290	264343	1.55:1
Marigold	11	4.40	2	89.04	76.73	16	134373	302173	3.25:1	136181	190914	2.40:1
Tuberose	31	7.70	4	78.74	46.93	68	537269	364606	1.68:1	284567	157569	1.55:1
Spices and Condiments												
Chilli (Red)	117	46.40	10	37.94	31.82	19	216447	294738	2.36:1	220269	192933	1.88:1
Coriander (seed)	14	5.60	2	6.17	3.47	78	48104	25553	1.53:1	47819	15219	1.32:1
Ginger	10	2.00	1	113.60	82.30	38	180000	340800	2.89:1	160000	246900	2.54:1
Pepper	10	1.50	1	10.45	7.87	33	75688	81062	2.07:1	67540	50510	1.75:1
Turmeric (Dry)	10	4.00	1	78.87	66.90	18	298101	239109	1.80:1	278118	174147	1.63:1
Turmeric (Raw)	38	11.00	6									

Crop	Demos	Area (ha)	KVKs	Yield (q/ha)			Economics					
							Demonstration			Check		
				Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Plantation Crops												
Cashew	75	30.00	5	10.91	6.31	73	32665	81252	3.49:1	24928	41244	2.65:1
Coconut (Nos)	110	38.00	10	11922	9350	28	67241	104712	2.56:1	70105	69925	2.00:1
Coffee	10	4.00	1	6.25	4.50	39	22300	52700	3.36:1	17650	36350	3.06:1
Oil palm	51	18.80	5	228.47	194.74	17	120912	287749	3.38:1	119234	230148	2.93:1

Demos = No. of Demonstrations, KVKs = No. of KVKs; Demo = Demonstration; Check = Farmer's Practice; % = Per cent increase in demonstration over check; BCR = Benefit-Cost Ratio

Table 3.2.9. Performance of crop varieties and technologies in the FLDs of Tamil Nadu

Crop	Demos	Area (ha)	KVKs	Yield (q/ha)			Economics					
							Demonstration			Check		
				Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Field crops												
Cereals												
Maize	145	54.00	12	49.74	36.77	35	42607	56466	2.33:1	41919	33307	1.79:1
Paddy (Rice)	875	335.80	29	54.31	44.98	21	52376	63715	2.22:1	51091	42319	1.83:1
Millets												
Barnyard millet	40	16.00	4	19.47	15.03	30	26605	32590	2.22:1	24069	19740	1.82:1
Finger millet	80	30.00	8	27.79	22.27	25	37605	47718	2.27:1	34942	31236	1.89:1
Foxtail millet	40	14.00	4	15.91	12.48	28	23269	28566	2.23:1	22669	17146	1.76:1
Kodo millet	30	12.00	3	13.65	10.05	36	23073	34942	2.51:1	24026	23099	1.96:1
Little millet	45	18.00	4	12.82	10.43	23	21878	26954	2.23:1	21850	14000	1.64:1
Pearl millet	10	4.00	1	29.00	15.50	87	110200	92200	1.84:1	58900	40900	1.69:1
Sorghum	50	20.00	5	21.48	16.61	29	27893	41082	2.47:1	27618	26458	1.96:1
Pulses												
Blackgram	280	81.50	15	8.51	7.13	19	24587	33638	2.37:1	23636	21925	1.93:1
Cowpea	20	8.00	2	84.75	75.85	12	21200	27300	2.29:1	20915	24185	2.16:1
Greengram	40	12.00	4	9.68	7.93	22	20778	29320	2.41:1	21888	18725	1.86:1
Redgram	15	6.00	2	9.26	6.56	41	23415	26560	2.13:1	29133	21827	1.75:1
Oilseeds												
Castor	25	12.00	2	16.62	13.05	27	23681	35915	2.52:1	23447	23605	2.01:1
Groundnut	200	74.00	13	24.31	19.50	25	55806	74871	2.34:1	61964	56627	1.91:1
Sesamum	45	18.00	4	8.23	7.07	16	25967	47592	2.83:1	25731	37331	2.45:1
Fibre crops												
Cotton	79	29.60	7	18.83	14.80	27	52327	72233	2.38:1	51863	50885	1.98:1
Commercial Crops												

Crop	Demos	Area (ha)	KVKs	Yield (q/ha)			Economics					
							Demonstration			Check		
				Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Mulberry	20	8.00	2	452.25	381.45	19	116500	133800	2.15:1	111678	90982	1.81:1
Sugarcane	45	18.00	5	1262.59	1072.82	18	134628	256859	2.91:1	132159	185942	2.41:1
Fodder Crops												
Fodder sorghum	70	23.00	8	346.13	234.61	48	31360	71098	3.27:1	26588	36539	2.37:1
Mixed Fodder	20	1.40	2	99.43	69.58	43	40438	60571	2.50:1	34179	35396	2.04:1
Horticultural Crops												
Vegetables												
Amaranthus	25	4.25	3	23.90	18.70	28	12094	15209	2.26:1	13022	13287	2.02:1
Bhindi/Okra	45	9.00	4	157.33	140.67	12	119323	112316	1.94:1	108310	91147	1.84:1
Bitter melon	10	0.25	1	150.00	100.00	50	35000	28000	1.80:1	26000	20000	1.77:1
Bittergourd	10	0.00	1	105.00	89.50	17	61500	127500	3.07:1	74500	82000	2.10:1
Bottlegourd	50	16.00	4	248.25	187.36	32	154501	211507	2.37:1	156884	145603	1.93:1
Brinjal	154	47.00	11	251.03	196.44	28	159772	233076	2.46:1	196976	170506	1.87:1
Chilli (green)	95	25.25	6	87.62	74.46	18	48014	76897	2.60:1	138946	146999	2.06:1
Cluster Bean	10	2.00	1	15.00	14.00	7	60000	100000	2.67:1	50000	62000	2.24:1
Drumstick	19	7.60	4	133.53	108.58	23	126329	148776	2.18:1	87303	87316	2.00:1
French Bean	12	6.00	2	157.33	113.00	39	221664	335533	2.51:1	246533	170960	1.69:1
Lablab	20	6.00	2	97.38	78.04	25	76870	157164	3.04:1	68672	107146	2.56:1
Onion	55	19.00	6	79.42	65.17	22	131895	164829	2.25:1	127964	147907	2.16:1
Onion (Aggregatum)	103	34.40	10	131.21	89.89	46	108169	179957	2.66:1	81079	80879	2.00:1
Snake gourd	20	6.00	2	299.04	248.33	20	128583	193861	2.51:1	125933	123433	1.98:1
Solanum Nigrum	10	1.00	1	127.00	108.00	18	53500	73500	2.37:1	51000	57000	2.12:1
Tomato	70	18.30	6	545.40	455.99	20	149175	201717	2.35:1	193313	193791	2.00:1
Vegetable Cowpea	10	4.00	1	230.00	210.00	10	170000	230000	2.35:1	215000	210000	1.98:1
Vegetables	20	0.00	1	51.00	51.00	0	56522	55556	1.98:1	52000	46000	1.88:1
Tuber crops												
Tapioca (Cassava)	85	27.70	8	320.87	251.24	28	138583	200518	2.45:1	122494	136241	2.11:1
Fruits												
Acid lime	10	4.00	1	140.80	122.61	15	152500	178560	2.17:1	142250	158720	2.12:1
Avocado	10	4.00	1	93.50	76.80	22	292000	935000	4.20:1	299800	768000	3.56:1
Banana	75	28.80	9	390.30	329.53	18	177706	432406	3.43:1	184937	343120	2.86:1
Mango	35	14.00	2	133.66	103.16	30	75244	141533	2.88:1	75577	89804	2.19:1
Papaya	10	4.00	1	1400.00	1050.00	33	150000	270000	2.80:1	130050	184700	2.42:1
Watermelon	10	4.00	1	40.00	35.00	14	80000	370000	5.63:1	70000	280000	5.00:1
Flowers												

Crop	Demos	Area (ha)	KVKs	Yield (q/ha)			Economics					
							Demonstration			Check		
				Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Jasmine	65	19.20	7	61.51	53.59	15	502541	445524	1.89:1	532412	295929	1.56:1
Tuberose	10	0.20	1	280.00	228.00	23	89000	140000	2.57:1	102000	115000	2.13:1
Spices and Condiments												
Coriander (seed)	4	1.60	1	6.00	2.95	103	72000	61000	1.85:1	71000	30500	1.43:1
Pepper	10	1.50	1	10.45	7.87	33	75688	81062	2.07:1	67540	50510	1.75:1
Turmeric (Dry)	0	0.00	0	92.30	73.60	25	102500	174400	2.70:1	100100	120700	2.21:1
Plantation Crops												
Cashew	5	2.00	1	4.00	2.80	43	15500	52500	4.39:1	17400	29400	2.69:1
Coconut (Nos)	90	30.00	8	11911	9624	24	74635	114132	2.53:1	78273	77237	1.99:1

Demos = No. of Demonstrations, KVKs = No. of KVKs; Demo = Demonstration; Check = Farmer's Practice; % = Per cent increase in demonstration over check; BCR = Benefit-Cost Ratio

Table 3.2.10. Performance of crop varieties and technologies in the FLDs of Andhra Pradesh

Crop	Demos	Area (ha)	KVKs	Yield (q/ha)			Economics					
							Demonstration			Check		
				Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Field Crops												
Cereals												
Maize	130	53.00	12	65.84	60.00	10	59428	75984	2.28:1	60778	62149	2.02:1
Paddy (Rice)	168	67.00	11	54.07	52.18	4	60561	54891	1.91:1	61123	42029	1.69:1
Millets												
Finger millet	80	19.00	5	20.73	11.92	74	15863	29808	2.88:1	16305	22734	2.39:1
Foxtail millet	180	76.00	10	24.08	16.66	45	58817	48940	1.83:1	43078	31325	1.73:1
Pearl millet	20	9.00	2	15.79	12.35	28	31777	26140	1.82:1	26506	14319	1.54:1
Sorghum	65	26.20	6	29.95	23.43	28	22661	46092	3.03:1	23181	39994	2.73:1
Pulses												
Blackgram	85	34.00	7	14.83	12.48	19	48691	74263	2.53:1	48467	55066	2.14:1
Chickpea	70	28.00	4	16.35	14.26	15	60296	41168	1.68:1	54536	29802	1.55:1
Cowpea	10	4.00	1	4.00	3.00	33	2500	27500	12.00:1	3000	19500	7.50:1
Greengram	10	4.00	1	7.34	6.04	22	53399	40898	1.77:1	43941	31541	1.72:1
Rajmah	10	4.00	1	5.20	3.90	33	49400	38400	1.78:1	37050	26050	1.70:1
Redgram	65	29.00	5	6.04	5.07	19	31702	17479	1.55:1	28251	10201	1.36:1
Oilseeds												
Groundnut	110	44.00	8	20.13	17.10	18	84549	62714	1.74:1	77502	49854	1.64:1

Crop	Demos	Area (ha)	KVKs	Yield (q/ha)			Economics					
							Demonstration			Check		
				Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Sesamum	10	4.00	1	6.69	4.86	38	47265	39397	1.83:1	33291	26112	1.78:1
Fibre crops												
Cotton	123	50.20	10	18.42	16.16	14	67616	66749	1.99:1	68460	50588	1.74:1
Commercial Crops												
Sugarcane	78	29.20	7	967.41	864.32	12	174497	111931	1.64:1	177381	85869	1.48:1
Tobacco	90	50.00	1	18.40	16.00	15	85800	58750	1.68:1	0	0	
Fodder Crops												
Super Napier	20	4.20	2	523.71	349.76	50	183770	151855	1.83:1	100354	82337	1.82:1
Horticultural Crops												
Vegetables												
Bhindi/Okra	10	4.00	2	105.56	81.96	29	158349	106340	1.67:1	122940	74340	1.60:1
Brinjal	93	25.60	5	220.84	153.58	44	93783	248052	3.64:1	95764	121047	2.26:1
Chilli (green)	61	24.10	5	202.58	177.86	14	262967	176297	1.67:1	217355	104395	1.48:1
Nutri-farm	165	12.20	6	294.75	165.82	78	58841	208682	4.55:1	37246	39386	2.06:1
Onion	30	12.00	3	156.67	114.24	37	96229	65111	1.68:1	105173	45193	1.43:1
Ridge gourd	33	11.00	4	192.87	172.45	12	109034	235536	3.16:1	117000	186891	2.60:1
Tomato	76	22.50	9	379.78	336.32	13	292324	298042	2.02:1	277440	227314	1.82:1
Tuber crops												
Tapioca (Cassava)	10	4.00	1	290.00	210.00	38	61000	78300	2.28:1	64000	52500	1.82:1
Fruits												
Acid lime	28	9.60	2	206.08	170.80	21	124688	349946	3.81:1	130783	262873	3.01:1
Banana	96	29.00	7	440.94	405.99	9	219071	248569	2.13:1	204131	187939	1.92:1
Guava	30	5.00	3	113.84	88.40	29	282000	590800	3.10:1	298760	461240	2.54:1
Mango	150	71.00	6	480.81	370.60	30	173554	174066	2.00:1	135415	93396	1.69:1
Melons	10	4.00	1	130.00	110.00	18	50000	54000	2.08:1	52000	36000	1.69:1
Muskmelon	15	6.00	2	82.63	67.90	22	237995	133302	1.56:1	170137	77986	1.46:1
Papaya	84	26.00	7	460.92	344.04	34	269346	423745	2.57:1	277504	302250	2.09:1
Pomegranate	40	18.00	3	99.20	89.38	11	296805	201499	1.68:1	251085	122446	1.49:1
Sweet Orange	35	14.50	2	120.00	106.26	13	145859	325714	3.23:1	166092	230667	2.39:1
Flowers												
Chrysanthemum	15	6.00	2	112.47	104.33	8	750347	686789	1.92:1	711629	623755	1.88:1
Jasmine	5	2.00	1	12.32	8.88	39	103303	50994	1.49:1	75565	24295	1.32:1

Crop	Demos	Area (ha)	KVKs	Yield (q/ha)			Economics					
							Demonstration			Check		
				Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Marigold	6	2.40	1	101.30	87.70	16	136250	354375	3.60:1	136250	304500	3.23:1
Tuberose	11	3.50	2	22.37	18.21	23	264219	207846	1.79:1	264219	198938	1.75:1
Spices and Condiments												
Chilli (Red)	47	18.00	4	26.72	20.22	32	157233	207878	2.32:1	151008	138703	1.92:1
Coriander (seed)	10	4.00	1	6.24	3.68	70	38546	11374	1.30:1	38546	9106	1.24:1
Ginger	10	2.00	1	113.60	82.30	38	180000	340800	2.89:1	160000	246900	2.54:1
Turmeric (Dry)	10	4.00	1	83.77	68.43	22	228629	250254	2.09:1	203717	185189	1.91:1
Plantation Crops												
Cashew	70	28.00	70	11.40	6.56	74	33891	83306	3.46:1	25466	42090	2.65:1
Coconut	20	8.00	20	11980	7983	50	30267	57613	2.90:1	29267	33367	2.14:1
Coffee	10	4.00	10	6.25	4.50	39	22300	52700	3.36:1	17650	36350	3.06:1
Oil palm	26	12.00	26	201.37	174.50	15	85833	264100	4.08:1	89983	215520	3.40:1

Demos = No. of Demonstrations, KVKs = No. of KVKs; Demo = Demonstration; Check = Farmer's Practice; % = Per cent increase in demonstration over check; BCR = Benefit-Cost Ratio

Table 3.2.11. Performance of crop varieties and technologies in the FLDs of Telangana

Crop	Demos	Area (ha)	KVKs	Yield (q/ha)			Economics					
							Demonstration			Check		
				Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Field Crops												
Cereals												
Maize	61	15.60	5	60.10	58.50	3	54633	67329	2.23:1	38846	49903	2.28:1
Paddy (Rice)	268	117.60	13	65.51	60.81	8	74175	79143	2.07:1	71170	62685	1.88:1
Millets												
Sorghum	25	8.00	3	14.92	12.56	19	47496	49628	2.04:1	39807	34336	1.86:1
Pulses												
Chickpea	40	16.00	2	21.52	15.86	36	53309	69660	2.31:1	46914	53396	2.14:1
Greengram	10	4.00	1	8.50	7.20	18	27000	34838	2.29:1	29062	23318	1.80:1
Redgram	51	21.80	9	13.74	12.28	12	56274	52873	1.94:1	51512	42207	1.82:1
Oilseeds												
Castor	10	4.00	1	10.03	6.32	59	30734	23427	1.76:1	28396	3204	1.11:1
Groundnut	15	6.00	2	31.53	28.55	10	75705	124508	2.64:1	81890	96563	2.18:1
Sunflower	10	4.00	1	21.65	19.80	9	134075	97875	1.73:1	122760	83135	1.68:1

Crop	Demos	Area (ha)	KVKs	Yield (q/ha)			Economics					
							Demonstration			Check		
				Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Fibre crops												
Cotton	116	52.80	12	18.40	15.04	22	93665	107620	2.15:1	83826	69130	1.82:1
Commercial Crops												
Mulberry	12	5.00	1	117.50	99.50	18	141000	110500	1.78:1	109000	66000	1.61:1
Sugarcane	5	2.00	1	416.20	410.00	2	42100	41540	1.99:1	42710	39370	1.92:1
Horticultural Crops												
Vegetables												
Bhindi/Okra	38	12.20	5	230.30	194.24	19	104205	176891	2.70:1	117262	121162	2.03:1
Bittergourd	40	16.00	3	192.88	151.78	27	203481	304341	2.50:1	178266	214325	2.20:1
Brinjal	50	16.40	4	299.15	263.90	13	125708	257977	3.05:1	137247	192049	2.40:1
Chilli (green)	30	15.00	4	123.95	98.83	25	236369	591437	3.50:1	220268	477921	3.17:1
Onion	15	6.00	2	348.84	296.19	18	155653	237612	2.53:1	150383	175240	2.17:1
Ridge gourd	56	13.20	6	252.18	210.00	20	136308	374760	3.75:1	149429	279348	2.87:1
Spinach	10	4.00	1	100.00	90.00	11	131250	118750	1.90:1	115000	110000	1.96:1
Tomato	91	34.90	11	338.44	287.21	18	201117	303787	2.51:1	172128	242430	2.41:1
Fruits												
Acid lime	5	5.00	1	254.00	196.00	30	372500	1077500	3.89:1	380000	595000	2.57:1
Banana	5	2.00	1	635.00	630.00	1	393700	112450	1.29:1	333900	75400	1.23:1
Guava	10	4.00	2	153.15	124.95	23	270500	211250	1.78:1	623550	543800	1.87:1
Mango	84	34.00	9	177.82	142.68	25	128808	307896	3.39:1	130060	205890	2.58:1
Orange	5	5.00	1	332.00	283.30	17	962800	849650	1.88:1	807263	680263	1.84:1
Watermelon	28	9.40	3	209.16	154.36	35	202838	119800	1.59:1	178561	88041	1.49:1
Flowers												
Marigold	5	2.00	1	74.33	63.57	17	132120	239530	2.81:1	136099	54611	1.40:1
Tuberose	10	4.00	1	118.00	63.00	87	798600	513000	1.64:1	311500	123500	1.40:1
Spices and Condiments												
Chilli (Red)	70	28.40	6	50.24	44.55	13	281437	390073	2.39:1	296287	252454	1.85:1
Turmeric (Dry)	0	0.00	0	70.09	63.75	10	423330	235033	1.56:1	406989	168332	1.41:1
Plantation Crops												
Oil palm	25	6.80	2	344.61	281.51	22	271250	389099	2.43:1	244593	292842	2.20:1

Demos = No. of Demonstrations, KVKs = No. of KVKs; Demo = Demonstration; Check = Farmer's Practice; BCR = Benefit-Cost Ratio

Table 3.2.12. Performance of crop varieties and technologies in the FLDs of Puducherry

Crop	Demos	Area (ha)	KVKs	Yield (q/ha)			Economics					
							Demonstration			Check		
				Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Field Crops												
Cereals												
Paddy (Rice)	45	14.00	2	52.68	40.72	29	44187	48615	2.10:1	50808	22508	1.44:1
Millets												
Pearl millet	10	4.00	1	47.52	21.19	124	41341	39443	1.95:1	28441	7586	1.27:1
Pulses												
Blackgram	20	6.00	2	8.53	6.73	27	17613	30045	2.71:1	18148	17010	1.94:1
Oilseeds												
Sesamum	10	2.00	1	10.50	8.40	25	24931	56648	3.27:1	24583	40433	2.64:1
Fodder Crops												
Fodder Cowpea	10	1.00	1	186.00	148.00	26	54250	75950	2.40:1	47550	56050	2.18:1
Horticultural Crops												
Vegetables												
Amaranthus	10	2.00	1	165.00	138.00	20	96492	200508	3.08:1	80580	140220	2.74:1
Brinjal	10	2.00	1	205.50	178.00	15	170375	240625	2.41:1	158250	197750	2.25:1
Tuber crops												
Tapioca (Cassava)	5	2.00	1	400.00	350.00	14	275000	115000	1.42:1	305000	115000	1.38:1
Fruits												
Banana	5	2.00	1	300.00	275.00	9	250000	312500	2.25:1	265000	312500	2.18:1

Demos = No. of Demonstrations, KVKs = No. of KVKs; Demo = Demonstration; Check = Farmer's Practice; % = Per cent increase in demonstration over check; BCR = Benefit-Cost Ratio

Table 3.2.13. Performance of hybrids in the FLDs of Zone X

Crop	Demos	Area (ha)	KVKs	Yield (q/ha)			Economics					
							Demonstration			Check		
				Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Tamil Nadu												
Maize	85	34	8	50.16	40.47	24	41827	56515	2.35:1	41590	37240	1.90:1
Castor	5	4	1	20.83	16.50	26	25500	57820	3.27:1	29000	37000	2.28:1
Cotton	10	4	1	16.90	8.40	101	34350	67050	2.95:1	41560	8850	1.21:1
Bhindi/Okra	95	26	9	173.06	137.57	26	64418	122990	2.91:1	63382	79976	2.26:1
Bittergourd	10	4	1	320.00	268.80	19	120800	263200	3.18:1	116500	206060	2.77:1
Chilli (green)	35	12	4	158.34	137.31	15	74883	151626	3.02:1	78942	120981	2.53:1
Ridge gourd	45	16	5	234.95	180.76	30	128038	260020	3.03:1	150816	155173	2.03:1

Crop	Demos	Area (ha)	KVKs	Yield (q/ha)			Economics					
							Demonstration			Check		
				Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Snake gourd	10	4	1	242.40	135.30	79	68696	173744	3.53:1	57339	66514	2.16:1
Tomato	60	21	4	655.96	498.53	32	196731	336688	2.71:1	184261	198209	2.08:1
Marigold	10	2	1	170.40	120.32	42	112355	194352	2.73:1	103315	113415	2.10:1
Papaya	10	4	1	1400.00	1050.00	33	150000	270000	2.80:1	130050	184700	2.42:1
Andhra Pradesh												
Maize	10	4	1	45.50	42.50	7	40200	78625	2.96:1	48200	30425	1.63:1
Finger millet	10	4	1	23.80	11.20	113	35200	72100	3.05:1	25500	25125	1.99:1
Sorghum	5	2	1	36.20	26.20	38	18075	18075	2.00:1	18075	47550	3.63:1
Cotton	5	2	1	18.50	15.50	19	40875	79375	2.94:1	47750	53000	2.11:1
Chilli (green)	3	1.5	1	10.00	9.00	11	250000	110000	1.44:1	225000	110000	1.49:1
Ridge gourd	3	1	1	450.00	375.00	20	145500	450000	4.09:1	140000	230000	2.64:1
Tomato	43	13.5	5	512.16	415.02	23	125407	342014	3.73:1	125943	221575	2.76:1
Papaya	20	0	1	769.50	582.50	32	75000	140000	2.87:1	80000	105000	2.31:1
Telangana												
Maize	6	2.4	1	55.58	53.50	4	103448	51391	1.50:1	93989	40639	1.43:1
Tomato	10	2.4	2	438.70	378.25	16	111708	256452	3.30:1	130917	186325	2.42:1
Puducherry												
Cotton	10	4	1	32.00	30.00	7	48000	102000	3.13:1	55000	95000	2.73:1
Bhindi/Okra	10	2	1	218.00	164.00	33	166392	269608	2.62:1	152751	175249	2.15:1
Snake gourd	10	2	1	285.00	178.00	60	149813	277687	2.85:1	116875	145625	2.25:1

Demos = No. of Demonstrations, KVKs = No. of KVKs; Demo = Demonstration; Check = Farmer's Practice; % = Per cent increase in demonstration over check; BCR = Benefit-Cost Ratio

Table 3.2.14. Performance of tools and implement in the FLDs of Zone X

Tool/ Implement/ Machinery	Crop	Demos	Area (ha)	KVKs	Parameter	Value			Economics					
									Demonstration			Check		
						Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Tamil Nadu														
Harvesting														
Deseeder	Tamarind	10	0	1	Efficiency (kg/ hr)	45	8	463	10000	26000	3.6:1	10000	16400	2.64:1
Harvester	Groundnut	10	4	1	Cost (Rs/ha)	4895	11856	142	54439	56341	2.03:1	70338	24387	1.35:1

Tool/ Implement/ Machinery	Crop	Demos	Area (ha)	KVKs	Parameter	Value			Economics					
									Demonstration			Check		
						Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Harvester	Turmeric	10	1	1	Efficiency(kg/ hr)	400	100	300	85800	140700	2.64:1	98650	140100	2.42:1
Intercultural operations														
Inter cultivator cum Ridger	Banana	4	1	1	Coverage (ha/ person)	0.072	0.028	157	10000	15000	2.50:1	18000	14000	1.78:1
Power Weeder	Banana	5	2	1	Cost (Rs/ha)	3125	9000	188	154830	444052	3.87:1	159700	411985	3.58:1
Power Weeder	Banana	5	2	1	Man-days/ha	2.5	30	1100	154830	444052	3.87:1	159700	411985	3.58:1
Power weeder	Vegetables	10	1	1	Cost (Rs/tonne)	400	4000	900	95000	496000	6.22:1	98600	496000	6.03:1
Seedling transplanter	Brinjal	2	0.4	1	Efficiency (Nos./min)	5	6	20	36000	44000	2.22:1	35000	45000	2.29:1
Land Preparation														
Stone remover	-	4	1	1	Coverage (ha/ person)	0.024	0.008	200	18000	22000	2.22:1	54000	9000	1.17:1
Plant Protection														
Agri Cannon	All Crops	5	5	1	Cost (Rs/ha)	12000	10500	14	42750	73150	2.71:1	46730	40800	1.87:1
Postharvest technology														
Groundnut stripper	Groundnut	10	4	1	Man-days/ha	25.92	96	270	45893	21014	1.46:1	50313	11073	1.22:1
Rotary Cob Sheller	Maize	4	4	1	Cost (Rs./tonne)	150	1200	700	336950	90000	1.27:1	38000	90000	3.37:1
Groundnut decorticator	Groundnut	10	4	1	Hrs	0.96	5	421	45893	21014	1.46:1	50313	11073	1.22:1
Sowing and Planting														
Drum Seeder	Paddy	20	8	1	"Yield (q/ha)	57.75	48.75	18	42500	46050	2.08:1	49650	25100	1.51:1
Seed drill	Groundnut	10	4	1	Labour charges (Rs)	1375	2200	60	45893	21014	1.46:1	50313	11073	1.22:1
Post Hole Digger	Banana	5	2	1	No. of pits/hr	47	20	135	154830	444052	3.87:1	159700	411985	3.58:1
Post Hole Digger	Banana	5	2	1	Cost/ha	4669	11025	136	154830	444052	3.87:1	159700	411985	3.58:1
Post Hole Digger	Banana	5	2	1	Man-days/ha	6.14	13.78	124	154830	444052	3.87:1	159700	411985	3.58:1

Tool/ Implement/ Machinery	Crop	Demos	Area (ha)	KVKs	Parameter	Value			Economics					
									Demonstration			Check		
						Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Sapling transplanter	Brinjal	5	1	1	Cost reduction (%)	25	19	32	186000	140000	1.75:1	158000	95000	1.60:1
Seed drill	Bengal gram	10	4	1	Cost (Rs/ha)	2470	5681	130	110760	33809	1.31:1	60547	11957	1.20:1
Seedling transplanter	Vegetables	5	0	1	Area efficiency (ha)	0.026	0.02	30	276500	166500	1.60:1	272000	152000	1.56:1
Andhra Pradesh														
Harvesting														
Harvester	Mango	30	34	1	Yield (q/ha)	850	680	25	258300	215000	1.83:1	206500	138000	1.67:1
Intercultural Operations														
Cycle weeder	Groundnut	10	10	1	Cost (Rs/ha)	1500	4500	200	1500	3000	3:1	4500	1500	1.33:1
Land Preparation														
Ridge Former	Sweet Potato	10	4	1	Yield (q/ha)	61.8	57.2	8	49194	68875	2.4:1	61407	42985	1.7:1
Plant Protection														
Mini Tractor operated HVS	Coconut	10	4	1	Pest control (%)	28	2	1300	71000	56800	1.8:1	98640	19728	1.2:1
Sowing and Planting														
Anantha planter	Groundnut	10	4	1	Yield (q/ha)	6.56	5.97	10	7540	6152	1.82:1	6400	2835	1.44:1
Ferti cum seed drill	Paddy	50	20	1	Yield (q/ha)	53.74	47.87	12	46500	55606	2.20:1	43000	47953	2.12:1
Ferti cum seed drill	Groundnut	10	4	1	Field Capacity (ha/hr)	0.2	0.05	300	53465	35287	1.66:1	48028	12487	1.26:1
Transplanter	Paddy	50	20	1	Yield (q/ha)	56.71	51.49	10	42250	65499	2.55:1	46000	51831	2.13:1
Intercultural operations														
Power Weeder	Pulses	10	5	1	Yield (q/ha)	9	6.5	38	55000	41000	1.75:1	75000	44000	1.59:1
Irrigation														
AWD Pipe	Paddy	5	5	1	Yield (q/ha)	6.8	5.1	33	11900	7350	1.62:1	89250	38750	1.43:1
Micro Sprinkler	Vegetables	5	5	1	Yield (q/ha)	8.6	6.5	32	60000	39000	1.65:1	91000	52000	1.57:1
Postharvest technology														
Stalk Slasher	Cotton	12	15	1	Yield (q/ha)	8	6.5	23	71000	44000	1.62:1	85000	60000	1.71:1
Solar Fencing														

Tool/ Implement/ Machinery	Crop	Demos	Area (ha)	KVKs	Parameter	Value			Economics					
									Demonstration			Check		
						Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Solar fencing	Maize and Jowar	10	4	1	Yield (q/ha)	68.5	58.75	17	68350	58375	1.85:1	64250	44437.5	1.69:1
Sowing and Planting														
Bed maker planter digger	Turmeric	5	2	1	Yield (q/ha)	74.25	72.6	2	445500	204250	1.46:1	435600	161225	1.37:1
Drum seeder	paddy	5	2	1	Yield (q/ha)	62.9	58.89	7	52534	60866	2.16:1	68858	38738	1.56:1
Manual Seed drill	Maize	10	4	1	Yield (q/ha)	63.75	55	16	60375	57562.5	1.95:1	67625	34125	1.50:1
Nine Row Planter	Redgram	25	10	1	Yield (q/ha)	14	9.5	47	50000	35000	1.70:1	75000	40000	1.53:1
Total Mechanization														
Various tools and machineries	Bengal gram	10	4	1	Yield (q/ha)	23	22.75	1	29655	82470	3.78:1	32834	78048	3.38:1
	Soybean	5	2	1	Yield (q/ha)	20.5	20	3	26750	75875	3.84:1	30051	69699	3.32:1
	Mango	5	2	1	Yield (q/ha)	82.2	71.8	14	73560	57530	1.78:1	88450	40350	1.46:1
	Groundnut	5	2	1	Yield (q/ha)	12.96	8.76	48	41680	27450	1.66:1	47670	12540	1.26:1
	Red gram	5	2	1	Yield (q/ha)	10.65	8.42	26	25250	23490	1.93:1	36500	13850	1.38:1
	Rice	15	6	2	Yield (q/ha)	64.88	55.92	16.5	50203	72517	2.44:1	66098	45750	1.69:1
Puducherry														
Harvesting														
Digger	Groundnut	2	1	1	Man days/ha	2	7	250	41080	46700	2.14:1	42500	45400	2.07:1
Sowing and planting														
TD seed drill	Rice	10	4	1	Yield (q/ha)	41.6	38.1	9	35500	39380	2.11:1	36500	32080	1.88:1

Demos = No. of Demonstrations, KVKs = No. of KVKs; Demo = Demonstration; Check = Farmer's Practice; % = Per cent increase in demonstration over check; BCR = Benefit-Cost Ratio

Table 3.2.15. Performance of livestock, poultry and fishery technologies in the FLDs of Zone X

Technology	Demos	Nos.	KVKs	Parameter	Value			Economics					
								Demonstration			Check		
					Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Tamil Nadu													
Cattle													
Disease Management													
Mastiguard teat protect	40	40	4	Milk (L/Cow)	1670	1365	22	30713	41788	2.36:1	34363	28163	1.82:1

Technology	Demos	Nos.	KVKs	Parameter	Value			Economics					
								Demonstration			Check		
					Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Mastiguard teat protect	20	60	2	Milk (L/Day)	9.42	7.99	18	36153	29657	1.82:1	35656	16801	1.47:1
Ketocheck	10	10	1	Healthy animals (%)	1	0.9	11	35000	27640	1.79:1	29500	7040	1.24:1
Ethno Veterinary Herbal medicine	20	40	1	Milk (L/Day)	5.8	4.1	41	91.75	83.63	1.91:1	91.75	31.25	1.34:1
Ethno Veterinary Herbal medicine	10	20	1	Milk (L/Cow)	3270	1860	76	87346	89234	2.02:1	89807	23593	1.26:1
KetoQuant	20	80	2	Milk (L/Day)	10.55	7.25	46	31032	38928	2.25:1	29728	20698	1.7:1
KetoQuant	10	15	1	Ketone bodies	0.05	0.1	100	38175	33825	1.89:1	36675	35325	1.96:1
KetoQuant	10	10	1	Ketosis detection (%)	85	40	113	21000	32200	2.53:1	20200	21700	2.07:1
Anthelmintics Wormolex HS Bolus	10	5	1	Milk (L/Day)	7.2	6.25	15	3250	2650	1.82:1	2800	1650	1.59:1
Feed and Fodder management													
Mixed fodder (10 cent)	10	10	1	Milk (L/Cow)	1260	1080	17	26100	30600	2.17:1	25000	23600	1.94:1
Mixed fodder (10 cent)	35	40	4	Milk (L/Day)	9.0	7.4	22	28470	35928	2.26:1	27814	21163	1.76:1
Least cost formulation	5	10	1	Milk (L)	499.2	453.6	10	7500	15000	3.00:1	8460	12660	2.50:1
Mixed fodder (10 cent)	10	0	1	Yield (q/ha)	4790	4020	19	118000	121500	2.03:1	115000	86000	1.75:1
Nutrition Management													
TANUVAS MM	10	20	1	Milk (L)	300	260	15	12000	5000	1.42:1	10400	4000	1.38:1
Roughage	10	10	1	Milk (L/Day)	8.2	6.8	21	15450	30250	2.96:1	19200	17900	1.93:1
Mineralized salt lick	10	1	1	Milk (L)	315	270	17	35000	46000	2.31:1	28000	24500	1.88:1
Goat													
Disease Management													
Target selective treatment Approach	10	40	1	Weight (kg)	17	11	55	14200	20150	2.42:1	20500	12350	1.60:1
Deworming, de-ticking and vaccination	10	100	1	Kids/Yr	12	7	71	16199	20149	2.24:1	13356	3764	1.28:1
Feed and Fodder management													
Mixed fodder	10	60	1	Weight (kg)	19.50	15.00	30	2106	4719	3.24:1	2250	3000	2.33:1
Nutrition Management													
Milk replacer	10	50	1	Weight (kg)	46.15	38.90	19	11535	18460	2.60:1	11670	15560	2.33:1
AFDT salt lick	10	40	1	Weight (kg)	49.80	47.78	4	12450	17430	2.40:1	12934	16723	2.29:1
Sheep													
Disease Management													
TST for helminthiasis	10	200	1	Weight (kg)	32.50	28.00	16	4000	9000	3.25:1	3800	7400	2.95:1
Piggery													
Evaluation of Breeds													

Technology	Demos	Nos.	KVKs	Parameter	Value			Economics					
								Demonstration			Check		
					Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
TANUVAS KPM Gold pigs	5	10	1	Weight (kg/3 months)	27.20	18.80	45	3035	2885	1.95:1	3020	1140	1.38:1
Rabbitry													
Disease Management													
TANUVAS snuffles vaccinated Soviet Chinchilla rabbit	5	15	1	Weight (kg)	1.418	0.9	58	1230	942	1.77:1	254	61	1.24:1
Poultry													
Disease Management													
Unique polymer based enteric coated probiotic beads	15	570	3	Survival %	94	83	13	10280	12920	2.26:1	14367	8800	1.61:1
Evaluation of Breeds													
Aseel	10	250	1	Egg (Nos.)	350	250	40	18000	48000	3.67:1	10000	12500	2.25:1
Gramapriya	10	25	1	Egg (Nos.)	120	102	18	36000	23000	1.64:1	18000	5800	1.32:1
TANUVAS Aseel	75	1050	7	Weight (kg)	1.27	0.95	33	6899	9677	2.40:1	6749	6388	1.95:1
TANUVAS Aseel	10	40	1	Egg (Nos)	1680	960	75	8000	12000	2.50:1	7500	7300	1.97:1
Nandhanam D3	15	75	1	Weight (kg)	1.5	1.0	48	1240	2161	2.74:1	1163	1433	2.23:1
Nandhanam IV	10	500	1	Weight (kg)	1.6	0.9	78	220	260	2.18:1	160	110	1.69:1
Nutrition Management													
Pro beads EC	10	200	1	Egg (Nos)	152	86	77	8750	17582	3.01:1	8456	12452	2.47:1
Shell grit Supplement	10	100	1	Hatchability	450	360	25	2025	4500	3.22:1	1800	3600	3.00:1
Production and Management													
Deworming, de-ticking and vaccination	10	250	1	Egg (Nos)	178	77	131	3230	7486	3.32:1	4110	1182	1.29:1
Quail													
Evaluation of Breeds													
Namakkal Gold Quail	19	900	3	Egg (Nos)	205	138	48	3717	5880	2.58:1	3625	3360	1.93:1
Production and Management													
Namakkal Gold Quail	10	1000	1	No/batch	95	66	44	1730	3016	2.74:1	1882	1393	1.74:1
Fish													
Evaluation of Breeds													
Jayanthi Rohu	11	14500	2	Yield (q/ha)	30.43	20.46	49	86835	138815	2.60:1	85611.5	64923.5	1.76:1
Jayanthi Rohu	10	3000	1	Mortality (%)	17.00	10.00	70	35000	315000	10.00:1	35000	350000	11.00:1
GIF Tilapia	10	5000	1	Yield (q/ha)	14.63	9.25	58	53500	56400	2.05:1	64700	32450	1.50:1
Nutrition Management													
Probiotics	3	30	1	Growth performance	4533	2585	75	654481	333446	1.51:1	336079	98079	1.29:1
Production and Management													

Technology	Demos	Nos.	KVKs	Parameter	Value			Economics					
								Demonstration			Check		
					Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Farmed Pacu (*Piaractus mesopotamicus*)	3	6000	1	Weight (kg)	2.911	1.809	61	178169	329992	2.85:1	195068	112309	1.58:1
BIOSAC in tilapia	3	3	1	Bio-floc	3996	2210	81	241232	229632	1.95:1	89520	21584	1.24:1
Freshwater prawn	5	20000	1	Yield (q/ha)	40.23	26.11	54	133605	228465	2.71:1	132202	76678	1.58:1
Sugarcane press mud	5	1000	1	Yield (q/ha)	31.47	26.28	20	204555	184227	1.90:1	144760	81999	1.57:1
Murrel	3	0	1	Yield (q/ha)	19.3	7.23	167	176220	347400	2.97:1	41675	72250	2.73:1
Polyculture of Grass carp (*Ctenopharyngodon idella*)	3	8000	1	Survival (Nos)	3758	2210	70	575148	342550	1.60:1	374883	107462	1.29:1
Andhra Pradesh													
Cattle													
Feed and Fodder management													
Multi crop 10 cent fodder production	10	20	1	Yield (q)	2.7	2	35	4050	9000	3.22:1	2028	5200	3.56:1
Sugar cane top silage	10	20	1	Milk(L)	540	415	30	6130	17280	3.82:1	6214	14400	3.32:1
Super Napier	10	10	1	Yield (q/ha)	473	364	30	110325	362675	4.29:1	107325	256425	3.39:1
Super Napier Drum silage	10	10	1	Milk (L)	12	8	50	500	1200	3.40:1	800	1100	2.38:1
Production and Management													
Green Fodder	10	80	1	Yield (q/ha)	540	360	50	192500	15600	1.08:1	10500	8400	1.8:1
Buffalo													
Feed and Fodder management													
Super Napier -4	10	35	1	Yield (q/ha)	457	398	15	120500	87465	1.73:1	93490	64500	1.69:1
Super Napier	2	10	1	Yield (q/ha)	400	350	14	4000	32000	9.00:1	4000	15000	4.75:1
Bypass fat supplementation	10	30	1	Milk (L/day/ animal)	9.23	8.71	6	103	690	7.70:1	150	260	2.73:1
Bypass fat supplementation	10	10	1	Milk (L/day/ animal)	11.5	9	28	177	478	3.70:1	150	272	2.81:1
Regional specific mineral mixture	1	30	1	Milk (L/90 days/animal)	546	463.6	18	300	1020	4.40:1	100	160	2.60:1
Nutrition Management													
Balanced nutrition	1	60	1	Milk (L/day/ animal)	10	6	67	1000	84000	85.00:1	1000	45000	46.00:1
Integrated health management	20	20	1	Survival (%)	95	75	27	2100	11200	6.33:1	1200	4800	5.00:1
Production and Management													
RSMM	30	30	1	Milk (L/ animal)	711	648	10	504	2016	5.00:1	500	1250	3.50:1
Goat													

Technology	Demos	Nos.	KVKs	Parameter	Value			Economics					
								Demonstration			Check		
					Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Disease Management													
Mineralized salt lick (minchat)	10	200	1	Weight (kg)	18	12	50	2000	1000	1.50:1	5400	3100	1.57:1
Evaluation of Breeds													
Osmanabadi goat	5	3	1	Weight (kg)	24	15	60	26850	15621	1.58:1	25750	1645	1.06:1
Nutrition Management													
UMMB	20	20	1	Weight (kg)	17.2	14.6	18	1500	3650	3.43:1	802	1445	2.8:1
Mineral supplement	10	10	1	Weight gain (kg)	0.62	0.39	59	28950	19450	1.67:1	23890	2920	1.12:1
Sheep													
Disease Management													
Herbal acaricide for ecto-parasite	10	10	1	Healthy animals (%)	95	65	46	650	6350	10.77:1	940	1534	2.63:1
Feed and Fodder management													
Supplementary concentrate	10	10	1	Weight (kg)	12.1	10.2	19	900	3600	5.00:1	129	260	3.02:1
Nutrition Management													
Supplementary concentrate	1	100	1	Weight (kg)	16	11	45	3500	11000	4.14:1	800	1000	2.25:1
Concentrate and creep feeding	10	10	1	Weight (kg)	9	6	50	1506	3150	3.09:1	1000	750	1.75:1
Creep feeding in lambs and flushing of ewes.	2	2	1	Weight (kg)	40	35	14	1000	40600	41.6:1	4000	37600	10.4:1
Poultry													
Disease Management													
Mortality management	10	110	1	Weight gain (kg)	0.27	0.225	20	14580	9050	1.62:1	11200	6800	1.61:1
Evaluation of Breeds													
Kaveri chicks	10	50	1	Weight (kg)	1.85	0.77	140	9000	5000	1.56:1	7000	4500	1.64:1
Rajasri	42	1500	2	Egg (Nos)	175	157.5	11	1112.5	4967.5	5.47:1	1360	4635	4.41:1
Vanashree	10	10	1	Weight (kg)	2.25	1.93	17	980	2200	3.24:1	1200	1400	2.17:1
Nutrition Management													
Azolla	10	1	1	Yield (q)	65.80	36.44	81	4123	2990	1.73:1	3933	980	1.25:1
Azolla	1	100	1	kg/day	20.00	13.00	54	2200	3300	2.50:1	1800	1400	1.78:1
Production and Management													
Kadaknath	70	10	1	Rs	7250	4120	76	4831	3910	1.81:1	4635	1148	1.25:1
Rajasri	10	10	1	Weight (kg)	1.052	0.895	18	4200	9850	3.35:1	3980	6420	2.61:1
Aseel	1	50	1	Weight (kg)	1.5	1.25	20	1500	2100	2.40:1	450	230	1.51:1
Fish													

Technology	Demos	Nos.	KVKs	Parameter	Value			Economics					
								Demonstration			Check		
					Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Disease Management													
CaO, bleaching powder, Benzalkonium chloride, Antibiotics	10	3000	1	Yield (q)	68.16	54.19	26	506059	250196	1.49:1	453135	112835	1.25:1
Deltamethrin, Ivermectin	10	3000	1	Yield (q)	68.02	53.56	27	497232	220691	1.44:1	423590	116523	1.28:1
Water sanitizers and antibiotics for red disease	10	4000	1	Survival %	2.3	2	15	230000	80000	1.35:1	250000	70000	1.28:1
Deltamethrin, Ivermectin	10	3800	1	Survival %	2.1	1.7	24	210000	60000	1.29:1	240000	50000	1.21:1
Nutrition Management													
Calcium, Magnesium and Potassium supplements	6	0	1	Yield (q)	43.8	39.8	10	788400	306600	1.39:1	756200	238800	1.32:1
Production and Management													
Pond and feed management	10	3000	1	Yield (q)	70.85	56.38	26	485131	231675	1.48:1	419047	113760	1.27:1
Integrated farming system	12	4000	1	Yield (q)	20	14	43	200000	120000	1.60:1	140000	50000	1.36:1
Minerals for shrimp culture	10	100000	1	Yield (q)	25	18	39	250000	100000	1.40:1	250000	50000	1.20:1
Telangana													
Cattle													
Evaluation of Breeds													
AI with sexed semen for Sahiwal breed	15	15	1	Milk (L/ animal)	1000	750	33	1150	850	1.74:1	750	505	1.67:1
Feed and Fodder management													
Sorghum (COFS-29), Hedge lucerne, Moringa	10	125	1	Yield (q/ha)	132.5	82.5	61	11500	6850	1.60:1	4850	2680	1.55:1
Total mixed ration	10	65	1	Milk (L/ animal)	255	190	34	152	85	1.56:1	265	82	1.31:1
Buffalo													
Feed and Fodder management													
Super Napier	11	255	1	Yield (q/ha)	115	95	21	10500	9250	1.88:1	1600	1250	1.78:1
Nutrition Management													
Area Specific Mineral Mixture	20	60	1	Milk (L/ animal)	5.81	5.23	11	1235	2235	2.81:1	6930	5308	1.77:1
Sheep													
Feed and Fodder management													

Technology	Demos	Nos.	KVKs	Parameter	Value			Economics					
								Demonstration			Check		
					Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Chaffed Hedge Lucerne	12	100	1	Weight (kg/ month)	1.81	1.425	27	1525	3150	3.07:1	1235	1850	2.50:1
Nutrition Management													
Molasses coated mineral licks	6	155	1	Weight gain (kg)	3.85	3.15	22	320	3670	12.47:1	475	3100	7.53:1
Poultry													
Evaluation of Breeds													
Rajasree	217	3155	3	Egg (Nos)	216	156	38	20887	19325	1.93:1	12887	9035	1.70:1
Fish													
Disease Management													
Red Disease management	3	2100	1	Yield (q)	7.5	4.25	76	86250	53750	1.62:1	42500	25000	1.59:1
Management of Fish Argulus infestation	3	22500	1	Yield (q/ha)	62.50	51.50	21	435000	283750	1.65:1	405000	84250	1.21:1
Control of Ecto - Parasites	2	0	1	Parasitic incidence	8000	6000	33	11500	18500	2.61:1	7200	5800	1.81:1
Processing and value addition													
Live Fish Transportation and Marketing System	5	375	1	Survival rate (%)	88.50	61.00	45	27500	49615	2.80:1	26125	36320	2.39:1
Puducherry													
Goat													
Nutrition Management													
Creep feeding	5	10	1	Survival (%)	90	65	38	1380	1100	1.80:1	1250	750	1.60:1
Poultry													
Nutrition Management													
Pro-bead EC	10	50	1	Survival (%)	97	88	10	340	165	1.49:1	330	104	1.32:1
Quail													
Production and Management													
Namakkal Gold	5	100	1	Egg (Nos)	225	170	32	420	255	1.61:1	380	130	1.34:1
Fish													
Production and Management													
Jayanti Rohu	3	800	1	Growth rate (g)	516.5	366.5	41	35000	58000	2.66:1	30000	36000	2.20:1
Integrated fish culture	2	800	1	Growth rate (g)	361	227	59	24000	41000	2.71:1	19000	22000	2.16:1

MM= Mineral mixture; Demos = No. of Demonstrations, Nos.=No. of animals/birds/fish; KVKs = No. of KVKs; Demo = Demonstration; Check = Farmer's Practice, % = Per cent increase in demonstration over check; BCR = Benefit Cost Ratio; ICF=Inland Fish Culture; CFC = Composite Fish Culture

Table 3.2.16. Performance of tools and enterprises in the FLDs of Zone X

Technology	Demos	Nos.	KVKs	Parameter	Value			Economics					
								Demonstration			Check		
					Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Tamil Nadu													
Drudgery Reduction													
Ring harvester	10	10	1	Net income (Rs/ha)	73900	68900	7	57000	73900	2.30:1	62000	68900	2.11:1
Nutri Garden													
Herbal Garden	10	10	1	Yield (q/ha)	65			50000	80000	2.60:1			
Nutri Garden	25	120	4	Yield (q/ha)	92	18	411	21412	35960	2.68:1	158	184	2.16:1
Organic Nutri-garden	5	5	1	Yield (q/ha)	136	93	46	60000	138300	3.31:1	54000	93000	2.72:1
Value addition													
Alternate sweetener cookies	1	25	1	Sensory evaluation	8.5	8.5	0	1240	1760	2.42:1	1170	830	1.71:1
Banana Fig	5	5	1	Hedonic scale	9	6.5	38	220	1000	5.55:1	180	450	3.50:1
Banana Fig	10	10	1	Shelf life (days)	90	7	1186	5000	20000	5.00:1	1000	500	1.50:1
Butter milk	10	10	1	Income (Rs.)	6820	3483	96	3542	6820	2.93:1	3152	3483	2.11:1
Cashew apple juice	10	10	1	Shelf life (days)	60	1	5900	2500	4700	2.88:1	1000	10	1.01:1
Cashew apple spiced candy	10	10	1	kg candy/kg cashew apple	0.1	0		6000	6500	2.08:1			
Coconut burfi	10	10	1	Yield (kg)	86	60	43	4300	13000	4.02:1	2500	5200	3.08:1
Coconut Copra	10	10	1	Income (Rs.)	12300	1419	767	19232	12300	1.64:1	11833	1419	1.12:1
Coir pith compost	5	5	1	Pulse yield (q/ha)	3.6	2.9	24	10500	9650	1.92:1	9650	16500	2.71:1
Cookies	5	5	1	Shelf life (days)	75	45	67	5700	6000	2.05:1	6500	5200	1.80:1
Dehydrated banana	3	3	1	Hedonic scale	8	6.5	23	280	200	1.71:1	230	110	1.48:1
Dehydrated betel leaf	3	3	1	Hedonic scale	7.2	6.9	4	240	140	1.58:1	210	110	1.52:1
Dehydrated jack fruit	10	10	1	Dehydrated amla	2000	1700	18	3000	5900	2.97:1	6000	7000	2.17:1
Dehydrated sapota	10	10	1	Yield (kg)	78	50	56	3000	10600	4.53:1	1500	3000	3.00:1
Dehydrated Tomato	20	20	2	Yield (kg)	135	8.5	1488	3500	10250	3.93:1	150	50	1.33:1
Dehydrated vegetables	10	10	1	Shelf life (Days)	180	75	140	600	1800	4.00:1	450	250	1.56:1
Dehydrated Tomato	3	3	1	(g/kg)	347	312	11	243	151	1.62:1	92	95	2.03:1
Flavored Malt	10	10	1	Yield (ml/kg)	4350	1050	314	177	366.75	3.07:1	110	47.5	1.43:1
Foxtail millet products	15	15	1	Price (Rs./kg)	320	120	167	15500	17500	2.13:1	15825	15500	1.98:1

Technology	Demos	Nos.	KVKs	Parameter	Value			Economics					
								Demonstration			Check		
					Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Herbal immunity booster	3	3	1	% incidence reduction	87.5	42.5	106	300	100	1.33:1	350	50	1.14:1
Jasmine products	10	10	1	Shelf life (days)	3	1	200	1292625	793887	1.61:1	1032500	363026	1.35:1
Milk peda	10	10	1	Sensory attributes (Score)	93	80	16	1540	5460	4.55:1	900	300	1.33:1
Millet based products	10	10	1	Shelf life (days)	120	60	100	7750	16000	3.06:1	2250	3600	2.60:1
Millet chikkies	10	10	1	Organoleptic Evaluation	24.5	18.5	32	7100	17000	3.39:1	2100	3600	2.71:1
Moringa flower products	5	5	1	Price Realized (Rs)	5000	3000	67	300	460	2.53:1	240	150	1.63:1
Multigrain mix	10	10	1	Yield (kg)	64	40	60	2500	6800	3.72:1	1800	3400	2.89:1
Multigrain mix	5	5	1	Yield (grams)	150	100	50	150	250	2.67:1	100	125	2.25:1
Multi-nutrient mix	10	10	1	Organoleptic Evaluation	24	21.5	12	21000	40200	2.91:1	10000	15200	2.52:1
Mushroom products	10	300	1	Income (Rs)	1000	300	233	300	700	3.33:1	150	150	2.00:1
Mushroom products	10	10	1	Production (kg)	300	160	88	200	300	2.50:1	100	60	1.60:1
Mushroom products	10	10	1	Income (Rs)	2045	42	4769	1682	2045	2.22:1	114	42	1.37:1
Mushroom products	5	5	1	Price Realized (Rs/kg)	860	500	72	9550	13500	2.41:1	9200	10250	2.11:1
Onion Flake and paste	3	3	1	Price Realized (Rs/kg)	770	480	60	13000	16250	2.25:1	11500	12500	2.09:1
Onion flakes	5	5	1	Price Realized (Rs)	4600	3100	48	240	480	3.00:1	220	110	1.50:1
Paneer	10	200	1	Income (Rs)	2250	875	157	500	1750	4.50:1	250	625	3.50:1
Poongar rice products	10	10	1	Consumer acceptability	8.6	7.6	13	14500	15200	2.05:1	8450	5250	1.62:1
Seaweed cookies	5	5	1	Income (Rs)	19725	7632	158	21236	19725	1.93:1	15635	7632	1.49:1
Tamarind products	15	15	1	Price Realized (Rs/kg)	750	350	114	10950	15000	2.37:1	9400	10500	2.12:1
Tapioca pearl	10	10	1	Shelf life (days)	2	2	0	5060	3500	1.69:1	1280	250	1.20:1
Tomato Soup Powder	3	3	1	Hedonic scale	9	8.5	6	200	160	1.80:1	240	120	1.50:1
Andhra Pradesh													
Drudgery Reduction													

Technology	Demos	Nos.	KVKs	Parameter	Value			Economics					
								Demonstration			Check		
					Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Lemon harvester	10	10	1	Fruits damaged per 10 plants	2	6	200						
Mango Harvester	10	10	1	Fruits damaged per 10 plants	2	8	300						
Nutri Garden													
Nutri Garden	30	30	3	Yield (kg)	406.7	199.3333	104	7042.5	5679	1.81:1	4123	1921.5	1.47:1
Sericulture													
Sericulture	30	30	2	Cocoon yield (kg)	78.5	65	21	7720	21705.5	3.81:1	7130	14607	3.05:1
Storage Bag													
Hermetic bags	10	10	1	Germination (%)	93	52	79						
Value addition													
Fruit preservation	10	50	1	Shelf life (days)	400	200	100	200	400	3.00:1	150	200	2.33:1
Mini rice mill	5	5	1	Labour cost (Rs.)	500	2500	400						
Moringa millet biscuits	10	50	1	Hedonic rating	7.9	8	1.3						
Tomato toffees	2	30	1	Shelf life (days)	9	5	80	1000	800	1.80:1	800	500	1.63:1
Vermicompost production													
Vermicompost	4	12	1	kg/unit	6000	2500	140	12000	15500	2.29:1	8000	4500	1.56:1
Telangana													
Apiculture													
Apiculture	5	5	1	Yield (kg)	126	120	5	87900	416100	5.73:1	102000	378000	4.71:1
Nutri Garden													
Nutri Garden	160	160	2	Yield (kg)	158.5	100	59	600	2500	5.17:1	125	75	1.60:1
Value addition													
Groundnut products	10	10	1	Income (Rs)	40250	4812	736	64750	40250	1.62:1	15925	4812	1.30:1
Nutri Garden	10	10	1	Yield (kg)	30	0		3000	1600	1.53:1			
Dehydrated Tomato	3	3	1	Shelf life (days)	30	10	200	1200	800	1.67:1			
Mushroom products	6	6	1	Shelf life (days)	40	4	900	5000	2000	1.40:1			

Demos = No. of Demonstrations, Nos.= No. of enterprise units, KVKs = No of KVKs, Demo = Demonstration, Check = Farmer's Practice, % = Per cent increase in demonstration over check; BCR = Benefit Cost Ratio

Table 3.2.17. Performance of enterprises on women empowerment in the FLDs of Zone X

Technology	Demos	Nos.	KVKs	Parameter	Value			Economics					
								Demonstration			Check		
					Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Returns (Rs.)	BCR
Tamil Nadu													
Enterprise Development													
Black Soldier Fly	5	5	1	kg larva/10 kg waste	0.65			5	15	4.00:1			
Health and nutrition													
Nutri garden	13	13	2	Yield (q)	2.18	0.54	304	4602	5676	2.23:1	1150	240	1.21:1
Organic Nutri Garden	10	10	1	Yield (kg)	217			2100	3108	2.48:1			
Nutri garden	5	5	1	Yield (kg)	168			2641	3175	2.20:1			
Nutri garden	10	10	1	Yield (q/ha)	56			63600	80600	2.27:1			
Storage Technique													
Storage pest management	5	5	1	Healthy seeds (%)	98	78	26	8250	10000	2.21:1			
Value addition													
Onion flakes	5	5	1	Value (Rs)	3300	2400	38	330	240	1.73:1	130	60	1.46:1
Moringa flower products	5	5	1	Value (Rs)	3000	2000	50	300	240	1.80:1	100	60	1.6:1
Mushroom products	10	10	1	Yield (g/kg)	2908	1200	142	900	996	2.11:1	90	30	1.33:1
Andhra Pradesh													
Children													
Health and nutrition													
Nutri garden	2	15	1	Yield (kg)	7	3	133	3000	7000	3.33:1	2000	3000	2.5:1
Women													
Drudgery Reduction													
Weeder	2	10	1	Drudgery index	70.5	55	28	900	600	1.67:1	900	200	1.22:1
Health and nutrition													
Nutri garden	30	30	3	Yield (kg)	256	134	91	3945	3043	1.77:1	1253	959	1.77:1
Telangana													
Children													
Health and nutrition													
Amylase supplementation	10	10	1	Weight (kg)	6.03	2.85	112	11500			10200		
Women													
Drudgery Reduction													
Finger guard for chillies harvest	10	10	1	Stress factor	4.61	3.56	29	12600			11500		

Demos = No. of Demonstrations, Nos.= No. of enterprise units, KVKs = No of KVKs, Demo = Demonstration, Check = Farmer's Practice, % = Per cent increase in demonstration over check BCR = Benefit Cost Ratio

Demonstration of Maize Fall Army Worm Management - KVK Cuddalore (TN)

Demonstration of Maize Fall Army Worm Management - KVK Srikakulam (AP)

Demonstration of Maize variety CO (H) M 6 KVK Madurai (TN)

Demonstration of alternate wetting and drying in rice-KVK Nalgonda (Kampasagar) (TS)

Demonstration of IPM in rice - KVK Karaikal (PY)

Demonstration of ecological engineering approaches for pest and disease management in rice KVK Kanyakumari (TN)

Demonstration of IPDM in paddy KVK Cuddalore (TN)

Demonstration of pheromone trap for stem borer management in rice - KVK Thiruvannamalai (TN)

Demonstration of paddy variety VGD 1
KVK Karur (TN)

Demonstration of paddy variety VGD 1
KVK Villupuram (TN)

Demonstration of paddy variety ADT 54
KVK Karaikal (PY)

Demonstration of barnyard millet variety MDU 1
KVK Ariyalur (TN)

Demonstration of finger millet variety ATL 1
KVK Virudhunagar (TN)

Demonstration of INM in groundnut
KVK Kurnool (Yagantipalle) (AP)

Demonstration of Soybean-Redgram Intercropping
KVK Adilabad (TS)

Demonstration of INM in Coconut
KVK Namakkal (TN)

Demonstration of INM in Bt Cotton
KVK Kurnool (Yagantipalle) (AP)

Demonstration of optimum row spacing in Cotton -
KVK Kurnool (Banavasi) (AP)

Demonstration of fodder sorghum CSV32F
KVK Namakkal (TN)

Demonstration of Cotton variety CO 17
KVK Theni (TN)

Demonstration of IPM for PBW management in
Cotton - KVK Nalgonda (Kampasagar) (TS)

Demonstration of HDPS in cotton variety NZ 2778
KVK Khammam (Kothagudem) (TS)

Demonstration of Super Napier fodder grass
KVK West Godavari (VR Gudem) (AP)

Demonstration of INM in sugarcane
KVK Erode (TN)

Demonstration of bio-repellent for wild boar management - KVK Kanyakumari (TN)

Demonstration of IPM in brinjal KVK Chittoor (RASS) (AP)

Demonstration of ICM in bhendi hybrid CO (Bh) 4 KVK Tiruchirappalli (TN)

Demonstration of foliar nutrition in brinjal KVK Thiruvannamalai (TN)

Demonstration of bottle gourd variety PLR 2 KVK Theni (TN)

Demonstration of ICM in brinjal KVK Coimbatore (TN)

Demonstration of Nutri-garden KVK Ramanathapuram (TN)

Demonstration of Nutri-garden KVK Kurnool (Yagantipalle) (AP)

Demonstration of bunch management in banana
KVK Kurnool (Yagantipalle) (AP)

Demonstration of ICM in mango
KVK Chittoor (RASS) (AP)

Demonstration of GA in chrysanthemum
KVK Kurnool (Yagantipalle) (AP)

Demonstration of ICM in Ixora
KVK Tiruchirappalli (TN)

Demonstration of ICM in Chilli
KVK Kurnool (Banavasi) (AP)

Demonstration of INM in Chilli
KVK Chittoor (RASS) (AP)

Demonstration of Cashew variety TMB 2
KVK Cuddalore (TN)

Demonstration of Tapioca variety YTP 2
KVK Erode (TN)

Demonstration of feed additive for enhancing milk yield and milk composition in cross bred dairy animals KVK Dharmapuri (TN)

Demonstration of poultry brooding KVK Perambalur (TN)

Demonstration of pro beads EC on performance of TANUVAS Aseel chicken - KVK Dharmapuri (TN)

Demonstration of Nandanam Broiler 3 poultry KVK Kancheepuram (TN)

Demonstration of Jayanti Rohu fish in low saline (2-4ppt) water based grow-out pond culture KVK Kancheepuram (TN)

Demonstration of inter-cultivator cum ridger for banana - KVK Erode (TN)

Demonstration of vegetable transplanter KVK Thiruvannamalai (TN)

Demonstration of improved drum seeder for paddy KVK Villupuram II (TN)

Demonstration of cotton picker
KVK Tiruchirappalli (TN)

Demonstration of Fertilizer cum seed drill for paddy KVK Nalgonda Kampasagar (TS)

Demonstration of Tamarind de-seeder
KVK Theni (TN)

Demonstration of value addition in groundnut
KVK Mahabubnagar (YFA) (TS)

Demonstration of paddy transplanter
KVK Mahabubnagar (Palem) (TS)

Demonstration of power weeder in paddy
KVK Krishnagiri (TN)

Demonstration of Sericulture
KVK Chittoor (RASS) (AP)

Demonstration of Cookie making
KVK Coimbatore (TN)

3.3. Trainings

Training is one of the important mandates of Krishi Vigyan Kendras which play a pivotal role in capacity development of farmers and extension personnel to update their knowledge and skills on improved agricultural technologies. Accordingly, KVKs assess the training needs, prioritize, and conduct various training programmes for farmers and farmwomen primarily focused on knowledge and skills, while it is entrepreneurship development for rural youth and knowledge on frontier areas of science and technology for extension personnel. During the reporting period, KVKs in Zone-X conducted 7849 training programmes to 282866 beneficiaries (Table 3.3.1) including farmers, rural youth extension functionaries, sponsored trainings, and vocational trainings.

A total of 6887 training programmes on agricultural and allied technologies to increase the production and productivity of crops, dairy and others were organized for 251601 farmers and farm women, rural youth, and extension functionaries by KVKs in the Zone. Sponsored trainings were conducted for 24618 beneficiaries and vocational training for 6647 beneficiaries through 723 and 239 programmes, respectively. Clientele wise details conducted by KVKs of different states in Zone X are furnished in Table 3.3.2.

Table 3.3.1. Details of client wise training programmes organized by KVKs in Zone-X

Category	Tamil Nadu		Andhra Pradesh		Telangana		Puducherry		Total	
	NC	NP	NC	NP	NC	NP	NC	NP	NC	NP
Need-based trainings										
Farmers and Farm Women	3225	111880	1203	41819	919	38443	58	2570	**5405**	**194712**
Rural Youth	394	12331	189	6701	157	4015	5	115	**745**	**23162**
Extension Personnel	323	11869	326	17282	84	4424	4	152	**737**	**33727**
Total need-based trainings	**3942**	**136080**	**1718**	**65802**	**1160**	**46882**	**67**	**2837**	**6887**	**251601**
Sponsored Trainings	597	19663	84	3531	38	1259	4	165	**723**	**24618**
Vocational Trainings	155	4052	52	1540	29	991	3	64	**239**	**6647**
Grand total	**4694**	**159795**	**1854**	**70873**	**1227**	**49132**	**74**	**3066**	**7849**	**282866**

NC = No. of courses *NP = No. of Participants*

Table 3.3.2. Details of client wise training programmes organized by KVKs in Zone-X

Clientele	No. of Courses	Other Beneficiaries			SC/ST Beneficiaries			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Tamil Nadu										
FFW	3225	57693	31436	89129	11688	11063	22751	69381	**42499**	**111880**
RY	394	5661	3728	9389	1152	1790	2942	6813	**5518**	**12331**
EF	323	5300	4856	10156	697	1016	1713	5997	**5872**	**11869**
Total	**3942**	**68654**	**40020**	**108674**	**13537**	**13869**	**27406**	**82191**	**53889**	**136080**
Sponsored	597	9453	6054	15507	1917	2239	4156	11370	**8293**	**19663**
Vocational	155	1704	1205	2909	349	794	1143	2053	**1999**	**4052**
Grand Total	**4694**	**79811**	**47279**	**127090**	**15803**	**16902**	**32705**	**95614**	**64181**	**159795**

Clientele	No. of Courses	Other Beneficiaries			SC/ST Beneficiaries			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Andhra Pradesh										
FFW	1203	18601	8698	27299	7906	6614	14520	**26507**	**15312**	**41819**
RY	189	2603	2025	4628	1155	918	2073	**3758**	**2943**	**6701**
EF	326	7287	5351	12638	2252	2392	4644	**9539**	**7743**	**17282**
Total	**1718**	**28491**	**16074**	**44565**	**11313**	**9924**	**21237**	**39804**	**25998**	**65802**
Sponsored	84	1406	556	1962	881	688	1569	**2287**	**1244**	**3531**
Vocational	52	493	450	943	318	279	597	**811**	**729**	**1540**
Grand Total	**1854**	**30390**	**17080**	**47470**	**12512**	**10891**	**23403**	**42902**	**27971**	**70873**
Telangana										
FFW	919	17050	6349	23399	9852	5192	15044	26902	**11541**	**38443**
RY	157	1840	530	2370	1071	574	1645	2911	**1104**	**4015**
EF	84	1737	1484	3221	537	666	1203	2274	**2150**	**4424**
Total	**1160**	**20627**	**8363**	**28990**	**11460**	**6432**	**17892**	**32087**	**14795**	**46882**
Sponsored	38	440	92	532	309	418	727	749	**510**	**1259**
Vocational	29	291	123	414	382	195	577	673	**318**	**991**
Grand Total	**1227**	**21358**	**8578**	**29936**	**12151**	**7045**	**19196**	**33509**	**15623**	**49132**
Puducherry										
FFW	58	1313	855	2168	207	195	402	1520	**1050**	**2570**
RY	5	57	40	97	13	5	18	70	**45**	**115**
EF	4	30	63	93	15	44	59	45	**107**	**152**
Total	**67**	**1400**	**958**	**2358**	**235**	**244**	**479**	**1635**	**1202**	**2837**
Sponsored	4	18	83	101	7	57	64	25	**140**	**165**
Vocational	3	33	20	53	7	4	11	40	**24**	**64**
Grand Total	**74**	**1451**	**1061**	**2512**	**249**	**305**	**554**	**1700**	**1366**	**3066**
Grand total for Zone -X										
FFW	5405	94657	47338	141995	29653	23064	52717	**124310**	**70402**	**194712**
RY	745	10161	6323	16484	3391	3287	6678	**13552**	**9610**	**23162**
EF	737	14354	11754	26108	3501	4118	7619	**17855**	**15872**	**33727**
Total	**6887**	**119172**	**65415**	**184587**	**36545**	**30469**	**67014**	**155717**	**95884**	**251601**
Sponsored	723	11317	6785	18102	3114	3402	6516	**14431**	**10187**	**24618**
Vocational	239	2521	1798	4319	1056	1272	2328	**3577**	**3070**	**6647**
Grand Total	**7849**	**133010**	**73998**	**207008**	**40715**	**35143**	**75858**	**173725**	**109141**	**282866**

FFW=Farmers and Farm Women, RY=Rural Youth, EF=Extension Functionaries

Thematic area wise trainings offered to farmers and farm women are furnished in Table 3.3.3. A total of 5405 training courses were organized for 194712 farmers in Tamil Nadu, Andhra Pradesh, Telangana, and Puducherry. Among the various thematic areas, 1315 courses were on crop production, 715 on horticulture, 520 on soil health, 481 on livestock, 765 on women empowerment, 135 on agricultural engineering, 819 on plant protection, 145 on fisheries, 250 on production of seeds and other inputs, 185 on capacity building and 75 on agro-forestry.

3.3.1. Farmers and Farm women

Table 3.3.3. Details of subject area wise training programmes conducted for farmers in Zone-X

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I. Crop production										
Crop diversification	108	3228	956	4184	941	543	1484	4169	1499	5668
Cropping systems	61	1117	461	1578	439	153	592	1556	614	2170
Integrated crop management	482	10046	2734	12780	2419	1171	3590	12465	3905	16370
Integrated farming	55	834	377	1211	266	117	383	1100	494	1594
Integrated nutrient management	137	2612	756	3368	749	402	1151	3361	1158	4519
Micro irrigation/irrigation	38	624	334	958	294	236	530	918	570	1488
Nursery management	19	349	80	429	87	32	119	436	112	548
Production of organic inputs	67	1392	776	2168	297	196	493	1689	972	2661
Resource conservation technologies	46	1333	335	1668	233	166	399	1566	501	2067
Seed production	60	1434	572	2006	215	161	376	1649	733	2382
Soil & water conservation	84	1659	495	2154	486	226	712	2145	721	2866
Weed management	43	851	187	1038	304	203	507	1155	390	1545
Others	115	3169	1255	4424	960	561	1521	4129	1816	5945
Total of crop production	**1315**	**28648**	**9318**	**37966**	**7690**	**4167**	**11857**	**36338**	**13485**	**49823**
II. Horticulture										
a) Vegetable crops										
Exotic vegetables	11	229	118	347	58	30	88	287	148	435
Export potential vegetables	13	157	157	314	36	31	67	193	188	381
Grading and standardization	9	211	42	253	30	47	77	241	89	330
Nursery raising	41	664	246	910	256	125	381	920	371	1291
Off-season vegetables	28	424	119	543	251	342	593	675	461	1136
Production of low value and high value crops	39	854	342	1196	131	160	291	985	502	1487
Protective cultivation	31	544	191	735	162	81	243	706	272	978
Others in vegetable crop	38	857	407	1264	274	182	456	1131	589	1720
Others	129	3214	1688	4902	741	339	1080	3955	2027	5982
Total of vegetable crops	**339**	**7154**	**3310**	**10464**	**1939**	**1337**	**3276**	**9093**	**4647**	**13740**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
b) Fruits										
Cultivation of fruit	80	1680	645	2325	397	171	568	2077	816	2893
Export potential fruits	1	16	2	18	2	0	2	18	2	20
Layout and management of orchards	8	227	41	268	60	24	84	287	65	352
Management of young plants/ orchards	17	363	76	439	138	56	194	501	132	633
Micro irrigation systems of orchards	19	616	175	791	97	82	179	713	257	970
Plant propagation techniques	8	134	33	167	53	30	83	187	63	250
Rejuvenation of old orchards	12	245	45	290	88	37	125	333	82	415
Training and pruning	14	201	95	296	93	47	140	294	142	436
Others	33	877	181	1058	331	77	408	1208	258	1466
Total of fruits	**192**	**4359**	**1293**	**5652**	**1259**	**524**	**1783**	**5618**	**1817**	**7435**
c) Ornamental plants										
Export potential of ornamental plants	14	239	82	321	22	58	80	261	140	401
Management of potted plants	1	4	7	11	2	1	3	6	8	14
Nursery management	6	93	15	108	24	23	47	117	38	155
Propagation techniques of ornamental plants	4	66	70	136	26	11	37	92	81	173
Others in ornamental plants	1	14	8	22	0	0	0	14	8	22
Others	5	74	20	94	12	2	14	86	22	108
Total in ornamental plants	**31**	**490**	**202**	**692**	**86**	**95**	**181**	**576**	**297**	**873**
d) Plantation crops										
Processing and value addition	6	126	92	218	45	44	89	171	136	307
Production and management technology	51	1298	235	1533	468	189	657	1766	424	2190
Others	12	378	109	487	157	70	227	535	179	714
Total of plantation crops	**69**	**1802**	**436**	**2238**	**670**	**303**	**973**	**2472**	**739**	**3211**
e) Tuber crops										
Processing and value addition	3	60	3	63	4	24	28	64	27	91
Production and management technology	18	435	249	684	65	54	119	500	303	803
Others	2	19	6	25	7	16	23	26	22	48
Total of tuber crops	**23**	**514**	**258**	**772**	**76**	**94**	**170**	**590**	**352**	**942**
f) Spices										
Processing and value addition	10	241	117	358	35	91	126	276	208	484

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Production and management technology	31	484	191	675	190	103	293	674	294	968
Others	2	31	14	45	0	0	0	31	14	45
Total of spices	**43**	**756**	**322**	**1078**	**225**	**194**	**419**	**981**	**516**	**1497**
g) Medicinal and Aromatic Plants										
Nursery management	4	91	14	105	14	4	18	105	18	123
Post-harvest technology and value addition	3	31	56	87	1	2	3	32	58	90
Production and management technology	10	132	47	179	26	18	44	158	65	223
Others	1	58	33	91	7	3	10	65	36	101
Total of medicinal plants	**18**	**312**	**150**	**462**	**48**	**27**	**75**	**360**	**177**	**537**
Grand total of horticulture	**715**	**15387**	**5971**	**21358**	**4303**	**2574**	**6877**	**19690**	**8545**	**28235**
III. Soil health and fertility management										
Balance use of fertilizers	57	1536	521	2057	310	162	472	1846	683	2529
Integrated nutrient management	85	1556	550	2106	294	165	459	1850	715	2565
Integrated water management	9	212	64	276	15	7	22	227	71	298
Management of problematic soils	19	480	163	643	121	66	187	601	229	830
Micronutrient deficiency in crops	16	226	119	345	36	17	53	262	136	398
Nutrient use efficiency	3	50	30	80	6	1	7	56	31	87
Production and use of organic inputs	161	673	218	891	341	147	488	1014	365	1379
Soil and water testing	65	1282	611	1893	615	497	1112	1897	1108	3005
Soil fertility management	66	1539	440	1979	550	312	862	2089	752	2841
Others	39	860	439	1299	243	140	383	1103	579	1682
Total of soil health	**520**	**8414**	**3155**	**11569**	**2531**	**1514**	**4045**	**10945**	**4669**	**15614**
IV. Livestock production and management										
Animal nutrition management	41	634	303	937	233	174	407	867	477	1344
Dairy management	93	1755	1113	2868	607	375	982	2362	1488	3850
Disease management	70	1169	746	1915	179	217	396	1348	963	2311
Feed & fodder technology	80	1135	507	1642	439	348	787	1574	855	2429
Piggery management	4	94	32	126	24	13	37	118	45	163
Poultry management	107	1449	1781	3230	543	1474	2017	1992	3255	5247
Production of quality animal products	17	228	219	447	60	69	129	288	288	576
Rabbit management	2	39	18	57	7	3	10	46	21	67
Goat farming	50	923	536	1459	259	281	540	1182	817	1999
Others	17	433	164	597	71	46	117	504	210	714

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Total of livestock	**481**	**7859**	**5419**	**13278**	**2422**	**3000**	**5422**	**10281**	**8419**	**18700**
V. Home Science/Women empowerment										
Design and development of low/ minimum cost diet	35	176	649	825	90	295	385	266	944	1210
Designing and development for high nutrient efficiency diet	30	177	424	601	33	273	306	210	697	907
Gender mainstreaming through SHGs	14	24	379	403	7	210	217	31	589	620
Household food security by kitchen gardening and nutrition gardening	113	608	1674	2282	268	1180	1448	876	2854	3730
Location specific drudgery reduction technologies	30	203	442	645	88	223	311	291	665	956
Minimization of nutrient loss in processing	19	204	228	432	54	204	258	258	432	690
Processing and cooking	33	351	682	1033	74	174	248	425	856	1281
Rural Crafts	6	6	107	113	0	74	74	6	181	187
Storage loss minimization techniques	24	278	312	590	51	77	128	329	389	718
Value addition	278	1767	3528	5295	637	1530	2167	2404	5058	7462
Women and childcare	64	148	1209	1357	112	756	868	260	1965	2225
Women empowerment	54	230	1346	1576	43	662	705	273	2008	2281
Others	65	422	1354	1776	328	864	1192	750	2218	2968
Total of Home Science	**765**	**4594**	**12334**	**16928**	**1785**	**6522**	**8307**	**6379**	**18856**	**25235**
VI. Agricultural engineering										
Farm machinery and its maintenance	50	782	297	1079	393	170	563	1175	467	1642
Installation and maintenance of micro irrigation systems	21	443	98	541	75	27	102	518	125	643
Post-harvest technology	29	233	207	440	59	184	243	292	391	683
Production of small tools and implements	2	61	23	84	18	9	27	79	32	111
Repair and maintenance of farm machinery and implements	9	186	32	218	60	16	76	246	48	294
Small scale processing and value addition	11	237	51	288	34	116	150	271	167	438
Use of plastics in farming practices	4	107	34	141	40	12	52	147	46	193
Solar powered farm devices	2	17	20	37	5	14	19	22	34	56
Others	7	123	85	208	21	11	32	144	96	240
Total of agricultural engineering	**135**	**2189**	**847**	**3036**	**705**	**559**	**1264**	**2894**	**1406**	**4300**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
VII. Plant protection										
Biocontrol of pests and diseases	82	1369	607	1976	422	219	641	1791	826	2617
Integrated disease management	206	3711	1251	4962	1513	559	2072	5224	1810	7034
Integrated Pest Management	410	8622	2455	11077	3371	1231	4602	11993	3686	15679
Production of biocontrol agents and bio pesticides	28	472	147	619	137	110	247	609	257	866
Seed treatment techniques	30	790	405	1195	268	135	403	1058	540	1598
Storage pest management	13	315	70	385	107	69	176	422	139	561
Others	50	1122	262	1384	437	161	598	1559	423	1982
Total of plant protection	**819**	**16401**	**5197**	**21598**	**6255**	**2484**	**8739**	**22656**	**7681**	**30337**
VIII. Fisheries										
Breeding and culture of ornamental fishes	7	60	82	142	16	23	39	76	105	181
Carp breeding and hatchery management	11	246	50	296	55	7	62	301	57	358
Carp fry and fingerling rearing	9	182	49	231	56	32	88	238	81	319
Composite fish culture	36	681	196	877	240	178	418	921	374	1295
Edible oyster farming	0	0	0	0	0	0	0	0	0	0
Fish processing and value addition	7	128	57	185	34	49	83	162	106	268
Hatchery management and culture of freshwater prawn	2	53	19	72	4	0	4	57	19	76
Integrated fish farming	26	458	130	588	205	98	303	663	228	891
Pearl culture	0	0	0	0	0	0	0	0	0	0
Pen culture of fish and prawn	2	30	4	34	11	1	12	41	5	46
Portable plastic carp hatchery	4	50	44	94	18	6	24	68	50	118
Shrimp farming	14	380	25	405	143	9	152	523	34	557
Others	27	408	120	528	208	77	285	616	197	813
Total of fisheries	**145**	**2676**	**776**	**3452**	**990**	**480**	**1470**	**3666**	**1256**	**4922**
IX. Production of inputs at site										
Apiculture	53	1039	563	1602	411	186	597	1450	749	2199
Bio-agents production	4	95	16	111	23	1	24	118	17	135
Bio-fertilizer production	0	0	0	0	0	0	0	0	0	0
Bio-pesticides production	7	144	35	179	75	13	88	219	48	267
Mushroom production	37	562	488	1050	106	98	204	668	586	1254
Organic manures production	21	547	292	839	127	18	145	674	310	984
Planting material production	3	58	12	70	12	4	16	70	16	86
Production of bee-colonies and wax sheets	2	14	0	14	24	3	27	38	3	41
Production of fish feed	1	59	13	72	20	17	37	79	30	109

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Production of fry and fingerlings	0	0	0	0	0	0	0	0	0	0
Production of livestock feed and fodder	2	43	55	98	17	18	35	60	73	133
Seed production	28	331	66	397	92	51	143	423	117	540
Small tools and implements	4	30	50	80	35	40	75	65	90	155
Vermicompost production	78	1064	761	1825	340	237	577	1404	998	2402
Others	10	152	48	200	40	12	52	192	60	252
Total of inputs	**250**	**4138**	**2399**	**6537**	**1322**	**698**	**2020**	**5460**	**3097**	**8557**
X. Capacity building and group dynamics										
Entrepreneurial development of farmers/youths	48	823	342	1165	153	201	354	976	543	1519
Formation and management of SHGs	18	212	108	320	48	63	111	260	171	431
Group dynamics	18	425	187	612	52	51	103	477	238	715
Leadership development	10	185	58	243	29	10	39	214	68	282
Mobilization of social capital	10	126	69	195	27	22	49	153	91	244
WTO and IPR issues	0	0	0	0	0	0	0	0	0	0
Others	81	1245	560	1805	720	376	1096	1965	936	2901
Total of capacity building	**185**	**3016**	**1324**	**4340**	**1029**	**723**	**1752**	**4045**	**2047**	**6092**
XI Agro-forestry										
Integrated Farming Systems	36	568	210	778	271	159	430	839	369	1208
Nursery management	0	0	0	0	0	0	0	0	0	0
Production technologies	18	414	146	560	80	30	110	494	176	670
Others in agroforestry	7	179	175	354	113	53	166	292	228	520
Others	14	174	67	241	157	101	258	331	168	499
Total of agroforestry	**75**	**1335**	**598**	**1933**	**621**	**343**	**964**	**1956**	**941**	**2897**
Grand total	**5405**	**94657**	**47338**	**141995**	**29653**	**23064**	**52717**	**124310**	**70402**	**194712**

Tamil Nadu

KVKs of Tamil Nadu organized 3225 training courses on crop production, horticulture, soil health and fertility management, livestock production and management, women empowerment, agricultural engineering, plant protection, fisheries, production of inputs, agroforestry, group dynamics, *etc*., in which 69381 men and 42499 women farmers participated (Table 3.3.4). In crop production 734 training courses were conducted by the KVKs of Tamil Nadu in which maximum number were on integrated crop management (273). Under horticulture 381 training courses were conducted and maximum trainings were on vegetable crops (193) followed by fruits (85) and plantation crops (31). A total of 383 training courses were organized under plant protection in the areas of integrated pest and disease management, biocontrol of pests and diseases, production of bio-control agents and bio-pesticides and others.

Table 3.3.4. Details of Training Programmes for Farmers in Tamil Nadu

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I. Crop production										
Crop diversification	24	795	349	1144	173	88	261	968	437	1405
Cropping systems	28	439	331	770	90	60	150	529	391	920
Integrated crop management	273	5729	1849	7578	983	596	1579	6712	2445	9157
Integrated farming	41	640	324	964	134	66	200	774	390	1164
Integrated nutrient management	80	1511	581	2092	262	214	476	1773	795	2568
Micro irrigation/irrigation	27	441	285	726	112	45	157	553	330	883
Nursery management	9	167	37	204	35	12	47	202	49	251
Production of organic inputs	45	1077	530	1607	115	48	163	1192	578	1770
Resource conservation technologies	22	552	170	722	49	49	98	601	219	820
Seed production	47	1178	530	1708	160	148	308	1338	678	2016
Soil & water conservation	45	958	329	1287	106	80	186	1064	409	1473
Weed management	16	287	119	406	62	68	130	349	187	536
Others	77	2335	975	3310	537	326	863	2872	1301	4173
Total of crop production	**734**	**16109**	**6409**	**22518**	**2818**	**1800**	**4618**	**18927**	**8209**	**27136**
II Horticulture										
a) Vegetable crops										
Exotic vegetables	4	103	35	138	12	1	13	115	36	151
Export potential vegetables	11	99	149	248	32	29	61	131	178	309
Grading and standardization	5	94	27	121	16	41	57	110	68	178
Nursery raising	18	281	126	407	60	29	89	341	155	496
Off-season vegetables	7	82	13	95	7	56	63	89	69	158
Production of low value and high value crops	34	737	291	1028	83	131	214	820	422	1242
Protective cultivation	20	387	150	537	44	49	93	431	199	630
Others in vegetable crop	18	468	298	766	72	90	162	540	388	928
Others	76	2363	1451	3814	195	211	406	2558	1662	4220
Total of vegetable crops	**193**	**4614**	**2540**	**7154**	**521**	**637**	**1158**	**5135**	**3177**	**8312**
b) Fruits										
Cultivation of fruit	52	1100	486	1586	195	75	270	1295	561	1856
Export potential fruits	1	16	2	18	2	0	2	18	2	20
Layout and management of orchards	2	161	25	186	10	4	14	171	29	200
Micro irrigation systems of orchards	10	499	127	626	24	48	72	523	175	698
Plant propagation techniques	5	88	26	114	11	7	18	99	33	132
Rejuvenation of old orchards	3	38	24	62	5	2	7	43	26	69
Training and pruning	3	34	24	58	5	5	10	39	29	68

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Others	9	359	80	439	29	20	49	388	100	488
Total of fruits	**85**	**2295**	**794**	**3089**	**281**	**161**	**442**	**2576**	**955**	**3531**
c) Ornamental plants										
Export potential of ornamental plants	12	216	70	286	19	52	71	235	122	357
Management of potted plants	1	4	7	11	2	1	3	6	8	14
Nursery management	2	6	0	6	6	12	18	12	12	24
Propagation techniques of ornamental plants	2	51	26	77	1	2	3	52	28	80
Others	4	62	20	82	7	2	9	69	22	91
Total in ornamental plants	**21**	**339**	**123**	**462**	**35**	**69**	**104**	**374**	**192**	**566**
d) Plantation crops										
Processing and value addition	3	84	54	138	21	25	46	105	79	184
Production and management technology	21	696	146	842	54	26	80	750	172	922
Others	7	330	99	429	24	8	32	354	107	461
Total of plantation crops	**31**	**1110**	**299**	**1409**	**99**	**59**	**158**	**1209**	**358**	**1567**
e) Tuber crops										
Processing and value addition	1	38	0	38	0	0	0	38	0	38
Production and management technology	16	423	241	664	48	33	81	471	274	745
Total of tuber crops	**17**	**461**	**241**	**702**	**48**	**33**	**81**	**509**	**274**	**783**
f) Spices										
Processing and value addition	4	127	81	208	5	2	7	132	83	215
Production and management technology	14	260	96	356	34	55	89	294	151	445
Others	2	31	14	45	0	0	0	31	14	45
Total of spices	**20**	**418**	**191**	**609**	**39**	**57**	**96**	**457**	**248**	**705**
g) Medicinal and Aromatic Plants										
Nursery management	1	11	3	14	0	0	0	11	3	14
Post-harvest technology and value addition	3	31	56	87	1	2	3	32	58	90
Production and management technology	9	130	43	173	10	6	16	140	49	189
Others	1	58	33	91	7	3	10	65	36	101
Total of medicinal plants	**14**	**230**	**135**	**365**	**18**	**11**	**29**	**248**	**146**	**394**
Grand total of horticulture	**381**	**9467**	**4323**	**13790**	**1041**	**1027**	**2068**	**10508**	**5350**	**15858**
III. Soil health and fertility management										
Balance use of fertilizers	29	992	313	1305	135	59	194	1127	372	1499

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Integrated nutrient management	60	1110	475	1585	147	117	264	1257	592	1849
Integrated water management	8	206	64	270	13	6	19	219	70	289
Management of problematic soils	14	252	100	352	78	49	127	330	149	479
Micronutrient deficiency in crops	10	118	110	228	7	15	22	125	125	250
Nutrient use efficiency	2	30	30	60	1	1	2	31	31	62
Production and use of organic inputs	134	309	105	414	87	27	114	396	132	528
Soil and water testing	16	315	99	414	43	27	70	358	126	484
Soil fertility management	37	1046	312	1358	206	138	344	1252	450	1702
Others	33	807	405	1212	199	106	305	1006	511	1517
Total of soil health	**343**	**5185**	**2013**	**7198**	**916**	**545**	**1461**	**6101**	**2558**	**8659**
IV. Livestock production and management										
Animal nutrition management	29	488	205	693	92	78	170	580	283	863
Dairy management	68	1294	793	2087	246	248	494	1540	1041	2581
Disease management	60	994	578	1572	129	166	295	1123	744	1867
Feed & fodder technology	56	917	386	1303	221	265	486	1138	651	1789
Piggery management	3	90	25	115	20	8	28	110	33	143
Poultry management	79	1229	1673	2902	354	1216	1570	1583	2889	4472
Production of quality animal products	15	214	208	422	47	57	104	261	265	526
Rabbit management	2	39	18	57	7	3	10	46	21	67
Goat farming	49	907	512	1419	251	269	520	1158	781	1939
Others	16	401	154	555	56	43	99	457	197	654
Total of livestock	**377**	**6573**	**4552**	**11125**	**1423**	**2353**	**3776**	**7996**	**6905**	**14901**
V. Home Science/Women empowerment										
Design and development of low/ minimum cost diet	13	38	274	312	11	35	46	49	309	358
Designing and development for high nutrient efficiency diet	14	106	152	258	12	113	125	118	265	383
Gender mainstreaming through SHGs	6	18	139	157	7	38	45	25	177	202
Household food security by kitchen gardening and nutrition gardening	51	182	554	736	136	366	502	318	920	1238
Location specific drudgery reduction technologies	15	145	166	311	32	69	101	177	235	412
Minimization of nutrient loss in processing	12	161	76	237	45	94	139	206	170	376
Processing and cooking	22	322	414	736	28	67	95	350	481	831
Rural Crafts	3	6	26	32	0	12	12	6	38	44
Storage loss minimization techniques	18	232	237	469	35	43	78	267	280	547
Value addition	219	1631	2461	4092	587	1009	1596	2218	3470	5688

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Women and childcare	29	114	492	606	55	181	236	169	673	842
Women empowerment	23	110	537	647	12	308	320	122	845	967
Others	32	155	901	1056	35	190	225	190	1091	1281
Total of Home Science	**457**	**3220**	**6429**	**9649**	**995**	**2525**	**3520**	**4215**	**8954**	**13169**
VI. Agricultural engineering										
Farm machinery and its maintenance	28	379	214	593	155	70	225	534	284	818
Installation and maintenance of micro irrigation systems	15	398	63	461	57	10	67	455	73	528
Post-harvest technology	28	215	207	422	59	184	243	274	391	665
Production of small tools and implements	1	61	23	84	0	0	0	61	23	84
Repair and maintenance of farm machinery and implements	5	79	19	98	10	6	16	89	25	114
Small scale processing and value addition	10	237	51	288	10	100	110	247	151	398
Use of plastics in farming practices	1	11	9	20	5	0	5	16	9	25
Solar powered farm devices	2	17	20	37	5	14	19	22	34	56
Others	4	84	57	141	6	4	10	90	61	151
Total of agricultural engineering	**94**	**1481**	**663**	**2144**	**307**	**388**	**695**	**1788**	**1051**	**2839**
VII. Plant protection										
Biocontrol of pests and diseases	36	612	422	1034	99	81	180	711	503	1214
Integrated disease management	112	1893	712	2605	650	246	896	2543	958	3501
Integrated Pest Management	171	3448	1333	4781	896	433	1329	4344	1766	6110
Production of biocontrol agents and bio pesticides	14	190	99	289	20	54	74	210	153	363
Seed treatment techniques	21	569	351	920	173	116	289	742	467	1209
Storage pest management	4	111	35	146	30	18	48	141	53	194
Others	25	688	142	830	140	43	183	828	185	1013
Total of plant protection	**383**	**7511**	**3094**	**10605**	**2008**	**991**	**2999**	**9519**	**4085**	**13604**
VIII. Fisheries										
Breeding and culture of ornamental fishes	7	60	82	142	16	23	39	76	105	181
Carp breeding and hatchery management	11	246	50	296	55	7	62	301	57	358
Carp fry and fingerling rearing	6	112	47	159	53	32	85	165	79	244
Composite fish culture	29	395	132	527	168	136	304	563	268	831
Fish processing and value addition	4	67	20	87	26	49	75	93	69	162
Hatchery management and culture of freshwater prawn	2	53	19	72	4	0	4	57	19	76

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Integrated fish farming	19	341	104	445	108	88	196	449	192	641
Pen culture of fish and prawn	1	16	1	17	8	1	9	24	2	26
Portable plastic carp hatchery	4	50	44	94	18	6	24	68	50	118
Shrimp farming	7	268	24	292	104	0	104	372	24	396
Others	11	146	91	237	37	26	63	183	117	300
Total of fisheries	**101**	**1754**	**614**	**2368**	**597**	**368**	**965**	**2351**	**982**	**3333**
IX. Production of inputs at site										
Apiculture	43	797	430	1227	253	138	391	1050	568	1618
Bio-agents production	3	77	14	91	17	1	18	94	15	109
Bio-pesticides production	1	15	2	17	0	0	0	15	2	17
Mushroom production	31	415	329	744	74	70	144	489	399	888
Organic manures production	19	503	290	793	116	17	133	619	307	926
Planting material production	2	38	12	50	2	2	4	40	14	54
Production of bee-colonies and wax sheets	1	0	0	0	12	3	15	12	3	15
Production of livestock feed and fodder	1	28	29	57	12	6	18	40	35	75
Seed production	28	331	66	397	92	51	143	423	117	540
Small tools and implements	4	30	50	80	35	40	75	65	90	155
Vermicompost production	57	825	669	1494	254	205	459	1079	874	1953
Others	9	134	45	179	39	12	51	173	57	230
Total of inputs	**199**	**3193**	**1936**	**5129**	**906**	**545**	**1451**	**4099**	**2481**	**6580**
X. Capacity building and group dynamics										
Entrepreneurial development of farmers/youths	31	638	224	862	71	70	141	709	294	1003
Formation and management of SHGs	11	152	84	236	16	46	62	168	130	298
Group dynamics	12	375	124	499	27	22	49	402	146	548
Leadership development	7	137	53	190	12	4	16	149	57	206
Mobilization of social capital	3	42	22	64	14	19	33	56	41	97
Others	39	686	390	1076	180	177	357	866	567	1433
Total of capacity building	**103**	**2030**	**897**	**2927**	**320**	**338**	**658**	**2350**	**1235**	**3585**
XI Agro-forestry										
Integrated Farming Systems	28	491	176	667	232	124	356	723	300	1023
Production technologies	18	414	146	560	80	30	110	494	176	670
Others in agroforestry	5	156	146	302	45	29	74	201	175	376
Others	2	109	38	147	0	0	0	109	38	147
Total of agroforestry	**53**	**1170**	**506**	**1676**	**357**	**183**	**540**	**1527**	**689**	**2216**
Grand total	**3225**	**57693**	**31436**	**89129**	**11688**	**11063**	**22751**	**69381**	**42499**	**111880**

Andhra Pradesh

In Andhra Pradesh 1203 trainings were organized for 26507 men and 15312 women farmers (Table 3.3.5). Under crop production, maximum number of trainings was organized on integrated crop management practices (125) followed by Integrated nutrient management (40). In horticulture 187 trainings were conducted including vegetables (91), fruits (40), Plantation crops (26) *etc*. Under soil health management 95 trainings were conducted for 3124 farmers and farm women, in which the highest were on INM (19). In livestock production and management, 74 trainings were conducted on feed and fodder management (19), dairy management and poultry management (17 each), *etc*., to a total number of 2639 farmers and farm women. Under home science 186 training programmes were conducted for 7292 farmers and rural women. On plant protection 208 trainings were conducted for 7737 farmers.

Table 3.3.5. Details of Training Programmes for Farmers in Andhra Pradesh

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I. Crop production										
Crop diversification	26	828	80	908	115	79	194	943	159	1102
Cropping systems	16	375	83	458	86	47	133	461	130	591
Integrated crop management	125	2348	538	2886	532	339	871	2880	877	3757
Integrated farming	9	85	30	115	85	44	129	170	74	244
Integrated nutrient management	40	823	136	959	225	117	342	1048	253	1301
Micro irrigation/irrigation	10	139	29	168	172	185	357	311	214	525
Nursery management	7	108	36	144	38	13	51	146	49	195
Production of organic inputs	3	82	25	107	12	3	15	94	28	122
Resource conservation technologies	14	381	111	492	69	81	150	450	192	642
Seed production	11	219	39	258	48	9	57	267	48	315
Soil & water conservation	24	293	123	416	192	135	327	485	258	743
Weed management	21	444	53	497	196	127	323	640	180	820
Others	26	352	99	451	211	113	324	563	212	775
Total of crop production	**332**	**6477**	**1382**	**7859**	**1981**	**1292**	**3273**	**8458**	**2674**	**11132**
II Horticulture										
a) Vegetable crops										
Exotic vegetables	7	126	83	209	46	29	75	172	112	284
Export potential vegetables	1	40	5	45	4	2	6	44	7	51
Grading and standardization	3	65	10	75	14	6	20	79	16	95
Nursery raising	16	226	64	290	142	70	212	368	134	502
Off-season vegetables	5	87	31	118	23	18	41	110	49	159
Production of low value and high value crops	3	70	22	92	9	3	12	79	25	104

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Protective cultivation	8	111	37	148	54	29	83	165	66	231
Others in vegetable crop	12	247	77	324	81	41	122	328	118	446
Others	36	613	132	745	214	98	312	827	230	1057
Total of vegetable crops	**91**	**1585**	**461**	**2046**	**587**	**296**	**883**	**2172**	**757**	**2929**
b) Fruits										
Cultivation of fruit	10	193	53	246	87	44	131	280	97	377
Layout and management of orchards	1	15	0	15	0	0	0	15	0	15
Management of young plants/ orchards	4	35	15	50	62	31	93	97	46	143
Micro irrigation systems of orchards	2	23	14	37	5	1	6	28	15	43
Plant propagation techniques	1	0	0	0	18	14	32	18	14	32
Rejuvenation of old orchards	2	39	1	40	8	0	8	47	1	48
Training and pruning	7	91	51	142	55	32	87	146	83	229
Others	13	287	52	339	65	29	94	352	81	433
Total of fruits	**40**	**683**	**186**	**869**	**300**	**151**	**451**	**983**	**337**	**1320**
c) Ornamental plants										
Export potential of ornamental plants	2	23	12	35	3	6	9	26	18	44
Nursery management	4	87	15	102	18	11	29	105	26	131
Others in ornamental plants	1	14	8	22	0	0	0	14	8	22
Others	1	12	0	12	5	0	5	17	0	17
Total in ornamental plants	**8**	**136**	**35**	**171**	**26**	**17**	**43**	**162**	**52**	**214**
d) Plantation crops										
Processing and value addition	3	42	38	80	24	19	43	66	57	123
Production and management technology	19	274	36	310	202	130	332	476	166	642
Others	4	20	8	28	128	60	188	148	68	216
Total of plantation crops	**26**	**336**	**82**	**418**	**354**	**209**	**563**	**690**	**291**	**981**
e) Tuber crops										
Processing and value addition	2	22	3	25	4	24	28	26	27	53
Production and management technology	2	12	8	20	17	21	38	29	29	58
Others	2	19	6	25	7	16	23	26	22	48
Total of tuber crops	**6**	**53**	**17**	**70**	**28**	**61**	**89**	**81**	**78**	**159**
f) Spices										
Processing and value addition	5	49	27	76	24	86	110	73	113	186

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Production and management technology	9	103	72	175	52	36	88	155	108	263
Total of spices	**14**	**152**	**99**	**251**	**76**	**122**	**198**	**228**	**221**	**449**
g) Medicinal and Aromatic Plants										
Nursery management	1	45	6	51	4	2	6	49	8	57
Production and management technology	1	2	4	6	16	12	28	18	16	34
Total of medicinal plants	**2**	**47**	**10**	**57**	**20**	**14**	**34**	**67**	**24**	**91**
Grand total of horticulture	**187**	**2992**	**890**	**3882**	**1391**	**870**	**2261**	**4383**	**1760**	**6143**
III. Soil health and fertility management										
Balance use of fertilizers	18	306	99	405	133	78	211	439	177	616
Integrated nutrient management	19	343	52	395	115	28	143	458	80	538
Integrated water management	1	6	0	6	2	1	3	8	1	9
Management of problematic soils	2	39	11	50	19	3	22	58	14	72
Micronutrient deficiency in crops	6	108	9	117	29	2	31	137	11	148
Nutrient use efficiency	1	20	0	20	5	0	5	25	0	25
Production and use of organic inputs	8	116	34	150	79	29	108	195	63	258
Soil and water testing	19	302	68	370	350	79	429	652	147	799
Soil fertility management	15	169	58	227	177	90	267	346	148	494
Others	6	53	34	87	44	34	78	97	68	165
Total of soil health	**95**	**1462**	**365**	**1827**	**953**	**344**	**1297**	**2415**	**709**	**3124**
IV. Livestock production and management										
Animal nutrition management	11	137	81	218	141	96	237	278	177	455
Dairy management	17	382	197	579	318	63	381	700	260	960
Disease management	8	141	138	279	30	32	62	171	170	341
Feed & fodder technology	19	151	73	224	207	71	278	358	144	502
Piggery management	1	4	7	11	4	5	9	8	12	20
Poultry management	17	90	33	123	84	134	218	174	167	341
Production of quality animal products	1	2	8	10	0	10	10	2	18	20
Total of livestock	**74**	**907**	**537**	**1444**	**784**	**411**	**1195**	**1691**	**948**	**2639**
V. Home Science/Women empowerment										
Design and development of low/ minimum cost diet	7	7	117	124	7	98	105	14	215	229
Designing and development for high nutrient efficiency diet	10	32	145	177	10	118	128	42	263	305

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Gender mainstreaming through SHGs	5	0	139	139	0	129	129	0	268	268
Household food security by kitchen gardening and nutrition gardening	46	394	769	1163	93	549	642	487	1318	1805
Location specific drudgery reduction technologies	8	23	134	157	28	73	101	51	207	258
Minimization of nutrient loss in processing	4	26	35	61	7	16	23	33	51	84
Processing and cooking	6	9	190	199	30	42	72	39	232	271
Rural Crafts	1	0	24	24	0	13	13	0	37	37
Storage loss minimization techniques	4	14	45	59	11	23	34	25	68	93
Value addition	33	111	620	731	46	279	325	157	899	1056
Women and childcare	29	28	634	662	57	398	455	85	1032	1117
Women empowerment	18	80	460	540	27	164	191	107	624	731
Others	15	140	295	435	176	427	603	316	722	1038
Total of Home Science	**186**	**864**	**3607**	**4471**	**492**	**2329**	**2821**	**1356**	**5936**	**7292**
VI. Agricultural engineering										
Farm machinery and its maintenance	10	161	45	206	104	70	174	265	115	380
Installation and maintenance of micro irrigation systems	3	10	31	41	6	15	21	16	46	62
Post-harvest technology	1	18	0	18	0	0	0	18	0	18
Production of small tools and implements	1	0	0	0	18	9	27	18	9	27
Small scale processing and value addition	1	0	0	0	24	16	40	24	16	40
Use of plastics in farming practices	1	49	0	49	0	0	0	49	0	49
Others	2	31	28	59	13	7	20	44	35	79
Total of agricultural engineering	**19**	**269**	**104**	**373**	**165**	**117**	**282**	**434**	**221**	**655**
VII. Plant protection										
Biocontrol of pests and diseases	25	481	112	593	205	78	283	686	190	876
Integrated disease management	55	1091	312	1403	384	185	569	1475	497	1972
Integrated Pest Management	97	1937	623	2560	624	344	968	2561	967	3528
Production of biocontrol agents and bio pesticides	6	174	25	199	37	19	56	211	44	255
Seed treatment techniques	3	101	40	141	40	10	50	141	50	191
Storage pest management	7	149	30	179	77	51	128	226	81	307
Others	15	286	85	371	131	106	237	417	191	608

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Total of plant protection	**208**	**4219**	**1227**	**5446**	**1498**	**793**	**2291**	**5717**	**2020**	**7737**
VIII. Fisheries										
Composite fish culture	2	100	6	106	27	17	44	127	23	150
Integrated fish farming	3	13	1	14	50	10	60	63	11	74
Shrimp farming	7	112	1	113	39	9	48	151	10	161
Others	7	123	8	131	47	16	63	170	24	194
Total of fisheries	**19**	**348**	**16**	**364**	**163**	**52**	**215**	**511**	**68**	**579**
IX. Production of inputs at site										
Apiculture	2	99	29	128	25	9	34	124	38	162
Mushroom production	5	147	138	285	32	22	54	179	160	339
Organic manures production	1	20	0	20	5	0	5	25	0	25
Vermicompost production	10	118	41	159	28	17	45	146	58	204
Total of inputs	**18**	**384**	**208**	**592**	**90**	**48**	**138**	**474**	**256**	**730**
X. Capacity building and group dynamics										
Entrepreneurial development of farmers/youths	11	105	85	190	37	107	144	142	192	334
Formation and management of SHGs	5	60	10	70	11	4	15	71	14	85
Group dynamics	3	46	37	83	6	21	27	52	58	110
Leadership development	2	29	5	34	5	6	11	34	11	45
Mobilization of social capital	5	19	47	66	7	3	10	26	50	76
Others	19	278	115	393	127	81	208	405	196	601
Total of capacity building	**45**	**537**	**299**	**836**	**193**	**222**	**415**	**730**	**521**	**1251**
XI Agro-forestry										
Integrated Farming Systems	8	77	34	111	39	35	74	116	69	185
Others	12	65	29	94	157	101	258	222	130	352
Total of agroforestry	**20**	**142**	**63**	**205**	**196**	**136**	**332**	**338**	**199**	**537**
Grand total	**1203**	**18601**	**8698**	**27299**	**7906**	**6614**	**14520**	**26507**	**15312**	**41819**

Telangana

In Telangana, 919 training courses were organized for 38443 farmers (Table 3.3.6). Trainings on crop production aspects were conducted for 10950 farmers in which the maximum number of trainings were on integrated crop management (77). On horticultural crops, 143 trainings were conducted for 5970 farmers and farm women. A total of 4585 farmers were trained on various aspects of home science and women empowerment through 116 training programmes. Under plant protection, maximum number of trainings were on integrated pest management (133) followed by integrated disease management (38) to 5755 and 1491 farmers, respectively.

Table 3.3.6. Details of Training Programmes for Farmers in Telangana

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I. Crop production										
Crop diversification	58	1605	527	2132	653	376	1029	2258	903	3161
Cropping systems	17	303	47	350	263	46	309	566	93	659
Integrated crop management	77	1760	291	2051	867	215	1082	2627	506	3133
Integrated farming	5	109	23	132	47	7	54	156	30	186
Integrated nutrient management	17	278	39	317	262	71	333	540	110	650
Nursery management	3	74	7	81	14	7	21	88	14	102
Production of organic inputs	19	233	221	454	170	145	315	403	366	769
Resource conservation technologies	10	400	54	454	115	36	151	515	90	605
Seed production	2	37	3	40	7	4	11	44	7	51
Soil & water conservation	15	408	43	451	188	11	199	596	54	650
Weed management	6	120	15	135	46	8	54	166	23	189
Others	9	352	161	513	183	99	282	535	260	795
Total of crop production	**238**	**5679**	**1431**	**7110**	**2815**	**1025**	**3840**	**8494**	**2456**	**10950**
II Horticulture										
a) Vegetable crops										
Export potential vegetables	1	18	3	21	0	0	0	18	3	21
Grading and standardization	1	52	5	57	0	0	0	52	5	57
Nursery raising	7	157	56	213	54	26	80	211	82	293
Off-season vegetables	16	255	75	330	221	268	489	476	343	819
Production of low value and high value crops	2	47	29	76	39	26	65	86	55	141
Protective cultivation	3	46	4	50	64	3	67	110	7	117
Others in vegetable crop	8	142	32	174	121	51	172	263	83	346
Others	13	81	24	105	314	22	336	395	46	441
Total of vegetable crops	**51**	**798**	**228**	**1026**	**813**	**396**	**1209**	**1611**	**624**	**2235**
b) Fruits										
Cultivation of fruit	18	387	106	493	115	52	167	502	158	660
Layout and management of orchards	5	51	16	67	50	20	70	101	36	137
Management of young plants/ orchards	13	328	61	389	76	25	101	404	86	490
Micro irrigation systems of orchards	7	94	34	128	68	33	101	162	67	229
Plant propagation techniques	2	46	7	53	24	9	33	70	16	86
Rejuvenation of old orchards	7	168	20	188	75	35	110	243	55	298

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Training and pruning	4	76	20	96	33	10	43	109	30	139
Others	11	231	49	280	237	28	265	468	77	545
Total of fruits	**67**	**1381**	**313**	**1694**	**678**	**212**	**890**	**2059**	**525**	**2584**
c) Ornamental plants										
Propagation techniques of ornamental plants	2	15	44	59	25	9	34	40	53	93
Total in ornamental plants	**2**	**15**	**44**	**59**	**25**	**9**	**34**	**40**	**53**	**93**
d) Plantation crops										
Production and management technology	11	328	53	381	212	33	245	540	86	626
Others	1	28	2	30	5	2	7	33	4	37
Total of plantation crops	**12**	**356**	**55**	**411**	**217**	**35**	**252**	**573**	**90**	**663**
e) Spices										
Processing and value addition	1	65	9	74	6	3	9	71	12	83
Production and management technology	8	121	23	144	104	12	116	225	35	260
Total of spices	**9**	**186**	**32**	**218**	**110**	**15**	**125**	**296**	**47**	**343**
f) Medicinal and Aromatic Plants										
Nursery management	2	35	5	40	10	2	12	45	7	52
Total of medicinal plants	**2**	**35**	**5**	**40**	**10**	**2**	**12**	**45**	**7**	**52**
Grand total of horticulture	**143**	**2771**	**677**	**3448**	**1853**	**669**	**2522**	**4624**	**1346**	**5970**
III. Soil health and fertility management										
Balance use of fertilizers	8	219	52	271	42	8	50	261	60	321
Integrated nutrient management	4	55	12	67	32	20	52	87	32	119
Management of problematic soils	2	38	8	46	5	8	13	43	16	59
Production and use of organic inputs	19	248	79	327	175	91	266	423	170	593
Soil and water testing	30	665	444	1109	222	391	613	887	835	1722
Soil fertility management	14	324	70	394	167	84	251	491	154	645
Total of soil health	**77**	**1549**	**665**	**2214**	**643**	**602**	**1245**	**2192**	**1267**	**3459**
IV. Livestock production and management										
Dairy management	5	65	51	116	41	26	67	106	77	183
Disease management	2	34	30	64	20	19	39	54	49	103
Feed & fodder technology	2	45	7	52	11	0	11	56	7	63
Poultry management	10	125	69	194	98	118	216	223	187	410
Production of quality animal products	1	12	3	15	13	2	15	25	5	30
Others	1	32	10	42	15	3	18	47	13	60

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Total of livestock	**21**	**313**	**170**	**483**	**198**	**168**	**366**	**511**	**338**	**849**
V. Home Science/Women empowerment										
Design and development of low/ minimum cost diet	15	131	258	389	72	162	234	203	420	623
Designing and development for high nutrient efficiency diet	6	39	127	166	11	42	53	50	169	219
Gender mainstreaming through SHGs	2	0	70	70	0	41	41	0	111	111
Household food security by kitchen gardening and nutrition gardening	16	32	351	383	39	265	304	71	616	687
Location specific drudgery reduction technologies	7	35	142	177	28	81	109	63	223	286
Minimization of nutrient loss in processing	3	17	117	134	2	94	96	19	211	230
Processing and cooking	4	18	62	80	15	58	73	33	120	153
Rural Crafts	2	0	57	57	0	49	49	0	106	106
Storage loss minimization techniques	2	32	30	62	5	11	16	37	41	78
Value addition	24	25	365	390	4	240	244	29	605	634
Women and childcare	6	6	83	89	0	177	177	6	260	266
Women empowerment	11	38	314	352	4	187	191	42	501	543
Others	18	127	158	285	117	247	364	244	405	649
Total of Home Science	**116**	**500**	**2134**	**2634**	**297**	**1654**	**1951**	**797**	**3788**	**4585**
VI. Agricultural engineering										
Farm machinery and its maintenance	11	228	38	266	134	30	164	362	68	430
Installation and maintenance of micro irrigation systems	1	11	4	15	9	2	11	20	6	26
Repair and maintenance of farm machinery and implements	3	95	13	108	48	10	58	143	23	166
Use of plastics in farming practices	2	47	25	72	35	12	47	82	37	119
Total of agricultural engineering	**17**	**381**	**80**	**461**	**226**	**54**	**280**	**607**	**134**	**741**
VII. Plant protection										
Biocontrol of pests and diseases	21	276	73	349	118	60	178	394	133	527
Integrated disease management	38	727	164	891	479	121	600	1206	285	1491
Integrated Pest Management	133	3024	464	3488	1822	445	2267	4846	909	5755
Production of biocontrol agents and bio pesticides	8	108	23	131	80	37	117	188	60	248
Seed treatment techniques	6	120	14	134	55	9	64	175	23	198

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Storage pest management	2	55	5	60	0	0	0	55	5	60
Others	10	148	35	183	166	12	178	314	47	361
Total of plant protection	**218**	**4458**	**778**	**5236**	**2720**	**684**	**3404**	**7178**	**1462**	**8640**
VIII. Fisheries										
Carp fry and fingerling rearing	3	70	2	72	3	0	3	73	2	75
Composite fish culture	4	107	58	165	29	25	54	136	83	219
Fish processing and value addition	3	61	37	98	8	0	8	69	37	106
Integrated fish farming	4	104	25	129	47	0	47	151	25	176
Pen culture of fish and prawn	1	14	3	17	3	0	3	17	3	20
Others	9	139	21	160	124	35	159	263	56	319
Total of fisheries	**24**	**495**	**146**	**641**	**214**	**60**	**274**	**709**	**206**	**915**
IX. Production of inputs at site										
Apiculture	7	143	29	172	133	39	172	276	68	344
Bio-agents production	1	18	2	20	6	0	6	24	2	26
Bio-pesticides production	6	129	33	162	75	13	88	204	46	250
Organic manures production	1	24	2	26	6	1	7	30	3	33
Planting material production	1	20	0	20	10	2	12	30	2	32
Production of bee-colonies and wax sheets	1	14	0	14	12	0	12	26	0	26
Production of fish feed	1	59	13	72	20	17	37	79	30	109
Production of livestock feed and fodder	1	15	26	41	5	12	17	20	38	58
Vermicompost production	8	75	20	95	54	14	68	129	34	163
Total of inputs	**27**	**497**	**125**	**622**	**321**	**98**	**419**	**818**	**223**	**1041**
X. Capacity building and group dynamics										
Entrepreneurial development of farmers/youths	6	80	33	113	45	24	69	125	57	182
Formation and management of SHGs	2	0	14	14	21	13	34	21	27	48
Group dynamics	3	4	26	30	19	8	27	23	34	57
Leadership development	1	19	0	19	12	0	12	31	0	31
Mobilization of social capital	2	65	0	65	6	0	6	71	0	71
Others	22	216	41	257	394	109	503	610	150	760
Total of capacity building	**36**	**384**	**114**	**498**	**497**	**154**	**651**	**881**	**268**	**1149**
XI Agro-forestry										
Others in agroforestry	2	23	29	52	68	24	92	91	53	144
Total of agroforestry	**2**	**23**	**29**	**52**	**68**	**24**	**92**	**91**	**53**	**144**
Grand total	**919**	**17050**	**6349**	**23399**	**9852**	**5192**	**15044**	**26902**	**11541**	**38443**

Puducherry

In Puducherry, a total of 58 trainings were organized for 1520 men and 1050 women farmers (Table 3.3.7). The highest number of trainings (11) was conducted on crop production in which 605 farmers participated and benefited.

Table 3.3.7. Details of Training Programmes for Farmers in Puducherry

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I. Crop production										
Integrated crop management	7	209	56	265	37	21	58	246	77	323
Micro irrigation/irrigation	1	44	20	64	10	6	16	54	26	80
Others	3	130	20	150	29	23	52	159	43	202
Total of crop production	**11**	**383**	**96**	**479**	**76**	**50**	**126**	**459**	**146**	**605**
II Horticulture										
a) Vegetable crops										
Vegetables	4	157	81	238	18	8	26	175	89	264
Total of vegetable crops	**4**	**157**	**81**	**238**	**18**	**8**	**26**	**175**	**89**	**264**
Grand total of horticulture	**4**	**157**	**81**	**238**	**18**	**8**	**26**	**175**	**89**	**264**
III. Soil health and fertility management										
Balance use of fertilizers	2	19	57	76	0	17	17	19	74	93
Integrated nutrient management	2	48	11	59	0	0	0	48	11	59
Management of problematic soils	1	151	44	195	19	6	25	170	50	220
Total of soil health	**5**	**218**	**112**	**330**	**19**	**23**	**42**	**237**	**135**	**372**
IV. Livestock production and management										
Animal nutrition management	1	9	17	26	0	0	0	9	17	26
Dairy management	3	14	72	86	2	38	40	16	110	126
Disease management	0	0	0	0	0	0	0	0	0	0
Feed & fodder technology	3	22	41	63	0	12	12	22	53	75
Poultry management	1	5	6	11	7	6	13	12	12	24
Goat farming	1	16	24	40	8	12	20	24	36	60
Total of livestock	**9**	**66**	**160**	**226**	**17**	**68**	**85**	**83**	**228**	**311**
V. Home Science/Women empowerment										
Gender mainstreaming through SHGs	1	6	31	37	0	2	2	6	33	39
Processing and cooking	1	2	16	18	1	7	8	3	23	26
Value addition	2	0	82	82	0	2	2	0	84	84
Women empowerment	2	2	35	37	0	3	3	2	38	40
Total of Home Science	**6**	**10**	**164**	**174**	**1**	**14**	**15**	**11**	**178**	**189**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
VI. Agricultural engineering										
Farm machinery and its maintenance	1	14	0	14	0	0	0	14	0	14
Installation and maintenance of micro irrigation systems	2	24	0	24	3	0	3	27	0	27
Repair and maintenance of farm machinery and implements	1	12	0	12	2	0	2	14	0	14
Others	1	8	0	8	2	0	2	10	0	10
Total of agricultural engineering	**5**	**58**	**0**	**58**	**7**	**0**	**7**	**65**	**0**	**65**
VII. Plant protection										
Integrated disease management	1	0	63	63	0	7	7	0	70	70
Integrated Pest Management	9	213	35	248	29	9	38	242	44	286
Total of plant protection	**10**	**213**	**98**	**311**	**29**	**16**	**45**	**242**	**114**	**356**
VIII. Fisheries										
Composite fish culture	1	79	0	79	16	0	16	95	0	95
Total of fisheries	**1**	**79**	**0**	**79**	**16**	**0**	**16**	**95**	**0**	**95**
IX. Production of inputs at site										
Apiculture	1	0	75	75	0	0	0	0	75	75
Mushroom production	1	0	21	21	0	6	6	0	27	27
Vermicompost production	3	46	31	77	4	1	5	50	32	82
Others	1	18	3	21	1	0	1	19	3	22
Total of inputs	**6**	**64**	**130**	**194**	**5**	**7**	**12**	**69**	**137**	**206**
X. Capacity building and group dynamics										
Others	1	65	14	79	19	9	28	84	23	107
Total of capacity building	**1**	**65**	**14**	**79**	**19**	**9**	**28**	**84**	**23**	**107**
Grand total	**58**	**1313**	**855**	**2168**	**207**	**195**	**402**	**1520**	**1050**	**2570**

3.3.2. Rural Youth

Various training programmes on entrepreneurship development, employment creation and income generation in agriculture and allied areas among rural youth were conducted by the KVKs in Zone-X. A total of 745 courses were organized for 23162 rural youth in Tamil Nadu, Andhra Pradesh, Telangana and Puducherry. The training areas included value addition in agriculture, dairy, fisheries, animal husbandry products, mushroom production, production of organic inputs, integrated farming, bee keeping, nursery management, dairying, poultry production, *etc*., (Table 3.3.8). KVKs in Tamil Nadu organized 394 trainings for 12331 rural youth (Table 3.3.9). KVKs in Andhra Pradesh conducted 189 training programmes for 6701 rural youth (Table 3.3.10). KVKs in Telangana conducted 157 trainings for 4015 participants (Table 3.3.11) and KVKs of Puducherry conducted 5 courses for 115 participants (Table 3.3.12).

Table 3.3.8. Details of training programmes for rural youth in Zone-X

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Beekeeping	62	911	406	1317	328	162	490	1239	568	1807
Commercial fruit production	13	212	113	325	41	22	63	253	135	388
Composite fish culture	18	299	69	368	91	45	136	390	114	504
Dairying	41	839	344	1183	156	206	362	995	550	1545
Fish harvest and processing technology	2	19	22	41	8	12	20	27	34	61
Fry and fingerling rearing	2	17	21	38	10	4	14	27	25	52
Integrated farming	33	583	246	829	190	143	333	773	389	1162
Mushroom production	54	676	573	1249	245	206	451	921	779	1700
Nursery management of horticulture crops	42	571	332	903	209	134	343	780	466	1246
Ornamental fisheries	2	17	13	30	6	46	52	23	59	82
Piggery	2	59	7	66	15	1	16	74	8	82
Planting material production	9	143	62	205	21	7	28	164	69	233
Post-harvest technology	18	201	119	320	155	85	240	356	204	560
Poultry production	41	527	255	782	173	230	403	700	485	1185
Production of organic inputs	28	325	238	563	111	114	225	436	352	788
Production of quality animal products	6	49	58	107	17	99	116	66	157	223
Protected cultivation of vegetable crops	21	280	169	449	77	38	115	357	207	564
Quail farming	5	11	68	79	7	49	56	18	117	135
Rabbit farming	3	87	20	107	16	4	20	103	24	127
Repair and maintenance of farm machinery and implements	10	160	50	210	46	20	66	206	70	276
Rural crafts	1	5	25	30	1	14	15	6	39	45
Seed production	21	360	78	438	97	39	136	457	117	574
Sericulture	12	150	52	202	41	39	80	191	91	282
Sheep and goat rearing	27	384	167	551	156	115	271	540	282	822
Shrimp farming	4	75	0	75	15	4	19	90	4	94
Small scale processing	7	99	116	215	11	55	66	110	171	281
Tailoring and Stitching	9	0	104	104	0	144	144	0	248	248
Training and pruning of orchards	8	143	102	245	91	40	131	234	142	376
Value addition	78	456	931	1387	112	483	595	568	1414	1982
Vermi-culture / Vermicomposting	43	754	371	1125	166	145	311	920	516	1436
SRI production technologies	21	389	198	587	61	92	153	450	290	740
Nutrient management in pandal cultivated crops	6	109	193	302	19	7	26	128	200	328
Biofloc fish farming	8	126	27	153	74	11	85	200	38	238
Others	88	1125	774	1899	625	472	1097	1750	1246	2996
Total	**745**	**10161**	**6323**	**16484**	**3391**	**3287**	**6678**	**13552**	**9610**	**23162**

Table 3.3.9. Details of training programmes for rural youth in Tamil Nadu

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Beekeeping	33	482	258	740	109	84	193	591	342	933
Commercial fruit production	4	50	69	119	8	3	11	58	72	130
Composite fish culture	10	256	62	318	38	15	53	294	77	371
Dairying	26	522	220	742	69	140	209	591	360	951
Fish harvest and processing technology	2	19	22	41	8	12	20	27	34	61
Fry and fingerling rearing	1	13	5	18	7	2	9	20	7	27
Integrated farming	22	375	163	538	129	124	253	504	287	791
Mushroom production	32	441	358	799	116	124	240	557	482	1039
Nursery management of horticulture crops	13	141	164	305	27	22	49	168	186	354
Ornamental fisheries	2	17	13	30	6	46	52	23	59	82
Piggery	2	59	7	66	15	1	16	74	8	82
Planting material production	4	83	24	107	10	2	12	93	26	119
Post-harvest technology	9	105	70	175	32	44	76	137	114	251
Poultry production	15	275	136	411	53	117	170	328	253	581
Production of organic inputs	11	208	96	304	31	44	75	239	140	379
Production of quality animal products	6	49	58	107	17	99	116	66	157	223
Protected cultivation of vegetable crops	11	122	135	257	8	27	35	130	162	292
Quail farming	5	11	68	79	7	49	56	18	117	135
Rabbit farming	3	87	20	107	16	4	20	103	24	127
Repair and maintenance of farm machinery and implements	5	74	24	98	13	3	16	87	27	114
Rural crafts	1	5	25	30	1	14	15	6	39	45
Seed production	11	144	36	180	39	14	53	183	50	233
Sericulture	8	102	45	147	32	37	69	134	82	216
Sheep and goat rearing	17	251	97	348	51	52	103	302	149	451
Shrimp farming	2	39	0	39	5	0	5	44	0	44
Small scale processing	6	88	98	186	8	46	54	96	144	240
Tailoring and Stitching	8	0	80	80	0	140	140	0	220	220
Training and pruning of orchards	3	41	19	60	11	5	16	52	24	76
Value addition	43	349	465	814	55	161	216	404	626	1030
Vermi-culture / Vermicomposting	16	262	164	426	52	31	83	314	195	509
SRI production technologies	13	234	119	353	31	57	88	265	176	441
Nutrient management in pandal cultivated crops	4	71	183	254	15	6	21	86	189	275
Biofloc fish farming	5	122	26	148	18	11	29	140	37	177
Others	41	564	399	963	115	254	369	679	653	1332
Total	**394**	**5661**	**3728**	**9389**	**1152**	**1790**	**2942**	**6813**	**5518**	**12331**

Table 3.3.10. Details of training programmes for rural youth in Andhra Pradesh

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Beekeeping	17	264	123	387	128	78	206	392	201	593
Dairying	12	305	121	426	78	48	126	383	169	552
Integrated farming	5	66	72	138	28	11	39	94	83	177
Mushroom production	17	207	186	393	93	76	169	300	262	562
Nursery management of horticulture crops	17	212	114	326	76	42	118	288	156	444
Planting material production	4	44	32	76	11	5	16	55	37	92
Post-harvest technology	3	43	14	57	18	6	24	61	20	81
Poultry production	7	170	88	258	85	82	167	255	170	425
Production of organic inputs	11	90	111	201	67	56	123	157	167	324
Protected cultivation of vegetable crops	6	91	21	112	32	4	36	123	25	148
Repair and maintenance of farm machinery and implements	3	58	20	78	18	14	32	76	34	110
Seed production	8	172	36	208	55	23	78	227	59	286
Sericulture	2	14	5	19	4	0	4	18	5	23
Sheep and goat rearing	6	93	54	147	79	43	122	172	97	269
Shrimp farming	2	36	0	36	10	4	14	46	4	50
Small scale processing	1	11	18	29	3	9	12	14	27	41
Tailoring and Stitching	1	0	24	24	0	4	4	0	28	28
Training and pruning of orchards	4	87	81	168	68	33	101	155	114	269
Value addition	23	66	397	463	55	154	209	121	551	672
Vermi-culture / Vermicomposting	16	210	158	368	82	92	174	292	250	542
SRI production technologies	4	112	69	181	23	24	47	135	93	228
Others	20	252	281	533	142	110	252	394	391	785
Total	**189**	**2603**	**2025**	**4628**	**1155**	**918**	**2073**	**3758**	**2943**	**6701**

Table 3.3.11. Details of training programmes for rural youth in Telangana

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Beekeeping	12	165	25	190	91	0	91	256	25	281
Commercial fruit production	9	162	44	206	33	19	52	195	63	258
Composite fish culture	8	43	7	50	53	30	83	96	37	133
Dairying	3	12	3	15	9	18	27	21	21	42

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Fry and fingerling rearing	1	4	16	20	3	2	5	7	18	25
Integrated farming	6	142	11	153	33	8	41	175	19	194
Mushroom production	3	5	9	14	30	4	34	35	13	48
Nursery management of horticulture crops	12	218	54	272	106	70	176	324	124	448
Planting material production	1	16	6	22	0	0	0	16	6	22
Post-harvest technology	6	53	35	88	105	35	140	158	70	228
Poultry production	18	74	31	105	32	31	63	106	62	168
Production of organic inputs	6	27	31	58	13	14	27	40	45	85
Protected cultivation of vegetable crops	4	67	13	80	37	7	44	104	20	124
Repair and maintenance of farm machinery and implements	2	28	6	34	15	3	18	43	9	52
Seed production	2	44	6	50	3	2	5	47	8	55
Sericulture	2	34	2	36	5	2	7	39	4	43
Sheep and goat rearing	4	40	16	56	26	20	46	66	36	102
Training and pruning of orchards	1	15	2	17	12	2	14	27	4	31
Value addition	11	28	53	81	2	167	169	30	220	250
Vermi-culture / Vermicomposting	11	282	49	331	32	22	54	314	71	385
SRI production technologies	4	43	10	53	7	11	18	50	21	71
Nutrient management in pandal cultivated crops	2	38	10	48	4	1	5	42	11	53
Biofloc fish farming	3	4	1	5	56	0	56	60	1	61
Others	26	296	90	386	364	106	470	660	196	856
Total	**157**	**1840**	**530**	**2370**	**1071**	**574**	**1645**	**2911**	**1104**	**4015**

Table 3.3.12. Details of training programmes for rural youth in Puducherry

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Mushroom production	2	23	20	43	6	2	8	29	22	51
Poultry production	1	8	0	8	3	0	3	11	0	11
Value addition	1	13	16	29	0	1	1	13	17	30
Others	1	13	4	17	4	2	6	17	6	23
Total	**5**	**57**	**40**	**97**	**13**	**5**	**18**	**70**	**45**	**115**

3.3.3. Extension Functionaries

Capacity Development Programmes for district level extension functionaries were organized by KVKs in Tamil Nadu, Andhra Pradesh, Telangana and Puducherry states. A total of 737 trainings were conducted in which 33727 Extension Functionaries participated and benefited (Table 3.3.13). Among various areas of training, the highest number of 116 trainings were conducted on integrated pest management followed by productivity enhancement in crops (100). KVKs of Tamil Nadu conducted 323 trainings for 11869 participants (Table 3.3.14). KVKs of Andhra Pradesh conducted 326 trainings for 17282 participants (Table 3.3.15). KVKs of Telangana organized 84 programmes for 4424 participants (Table 3.3.16) and KVKs of Puducherry conducted 4 programmes for 152 participants (Table 3.3.17).

Table 3.3.13. Details of trainings for Extension Functionaries in Zone-X

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Capacity building for ICT application	29	934	241	1175	282	155	437	1216	396	1612
Care & maintenance of farm machinery & implements	9	218	37	255	42	17	59	260	54	314
Formation and Management of SHGs	5	99	86	185	4	36	40	103	122	225
Gender mainstreaming through SHGs	3	33	60	93	0	18	18	33	78	111
Group Dynamics and farmers organization	15	606	200	806	215	81	296	821	281	1102
Household and Food Security	37	188	861	1049	55	353	408	243	1214	1457
Information networking among farmers	3	38	11	49	19	8	27	57	19	76
Integrated Nutrient management	72	1583	948	2531	386	242	628	1969	1190	3159
Integrated Pest Management	116	2326	1176	3502	677	454	1131	3003	1630	4633
Livestock feed and fodder production	21	388	168	556	83	60	143	471	228	699
Low cost and nutrient efficient diet designing	20	78	1317	1395	13	690	703	91	2007	2098
Management in farm animals	31	377	448	825	39	83	122	416	531	947
Production and use of organic inputs	22	405	168	573	169	101	270	574	269	843
Productivity enhancement in field crops	100	2108	1073	3181	425	283	708	2533	1356	3889
Protected cultivation technology	24	480	209	689	77	26	103	557	235	792
Rejuvenation of old orchards	5	121	22	143	10	13	23	131	35	166
Women and Childcare	44	63	1760	1823	14	545	559	77	2305	2382
Integrated farming system	42	610	593	1203	126	180	306	736	773	1509
Preparation of bankable projects	28	1074	385	1459	99	92	191	1173	477	1650
Cage fish culture	13	231	108	339	43	36	79	274	144	418
Others	98	2394	1883	4277	723	645	1368	3117	2528	5645
Total	**737**	**14354**	**11754**	**26108**	**3501**	**4118**	**7619**	**17855**	**15872**	**33727**

Table 3.3.14. Details of trainings for Extension Functionaries in Tamil Nadu

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Capacity building for ICT application	4	49	26	75	18	7	25	67	33	100
Care & maintenance of farm machinery & implements	5	63	22	85	13	5	18	76	27	103
Formation and Management of SHGs	5	99	86	185	4	36	40	103	122	225
Gender mainstreaming through SHGs	2	33	33	66	0	0	0	33	33	66
Group Dynamics and farmers organization	5	73	36	109	15	6	21	88	42	130
Household and Food Security	19	63	409	472	5	99	104	68	508	576
Information networking among farmers	3	38	11	49	19	8	27	57	19	76
Integrated Nutrient management	19	262	249	511	60	35	95	322	284	606
Integrated Pest Management	33	777	390	1167	105	52	157	882	442	1324
Livestock feed and fodder production	12	193	78	271	8	4	12	201	82	283
Low cost and nutrient efficient diet designing	5	14	109	123	4	96	100	18	205	223
Management in farm animals	28	312	427	739	27	83	110	339	510	849
Production and use of organic inputs	6	60	37	97	40	16	56	100	53	153
Productivity enhancement in field crops	37	612	444	1056	76	78	154	688	522	1210
Protected cultivation technology	18	400	177	577	33	8	41	433	185	618
Rejuvenation of old orchards	2	39	19	58	3	5	8	42	24	66
Women and Childcare	18	58	603	661	11	129	140	69	732	801
Integrated farming system	30	395	475	870	92	158	250	487	633	1120
Preparation of bankable projects	21	865	323	1188	59	40	99	924	363	1287
Cage fish culture	7	139	85	224	6	23	29	145	108	253
Others	44	756	817	1573	99	128	227	855	945	1800
Total	**323**	**5300**	**4856**	**10156**	**697**	**1016**	**1713**	**5997**	**5872**	**11869**

Table 3.3.15. Details of trainings for Extension Functionaries in Andhra Pradesh

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Capacity building for ICT application	20	684	154	838	214	127	341	898	281	1179
Care & maintenance of farm machinery & implements	2	108	12	120	12	11	23	120	23	143
Group Dynamics and farmers organization	9	519	164	683	200	75	275	719	239	958
Household and Food Security	14	125	381	506	50	214	264	175	595	770
Integrated Nutrient management	52	1311	689	2000	323	205	528	1634	894	2528
Integrated Pest Management	63	1064	540	1604	440	330	770	1504	870	2374
Livestock feed and fodder production	8	183	85	268	70	53	123	253	138	391

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Low cost and nutrient efficient diet designing	9	53	1028	1081	4	493	497	57	1521	1578
Management in farm animals	3	65	21	86	12	0	12	77	21	98
Production and use of organic inputs	14	306	126	432	94	74	168	400	200	600
Productivity enhancement in field crops	57	1235	554	1789	337	199	536	1572	753	2325
Protected cultivation technology	5	64	24	88	35	15	50	99	39	138
Rejuvenation of old orchards	3	82	3	85	7	8	15	89	11	100
Women and Childcare	19	0	730	730	0	298	298	0	1028	1028
Integrated farming system	10	188	108	296	26	19	45	214	127	341
Preparation of bankable projects	6	209	62	271	40	22	62	249	84	333
Cage fish culture	3	41	11	52	25	1	26	66	12	78
Others	29	1050	659	1709	363	248	611	1413	907	2320
Total	**326**	**7287**	**5351**	**12638**	**2252**	**2392**	**4644**	**9539**	**7743**	**17282**

Table 3.3.16. Details of trainings for Extension Functionaries in Telangana

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Capacity building for ICT application	5	201	61	262	50	21	71	251	82	333
Care & maintenance of farm machinery & implements	2	47	3	50	17	1	18	64	4	68
Gender mainstreaming through SHGs	1	0	27	27	0	18	18	0	45	45
Group Dynamics and farmers organization	1	14	0	14	0	0	0	14	0	14
Household and Food Security	4	0	71	71	0	40	40	0	111	111
Integrated Nutrient management	1	10	10	20	3	2	5	13	12	25
Integrated Pest Management	20	485	246	731	132	72	204	617	318	935
Livestock feed and fodder production	1	12	5	17	5	3	8	17	8	25
Low cost and nutrient efficient diet designing	3	11	121	132	5	60	65	16	181	197
Production and use of organic inputs	2	39	5	44	35	11	46	74	16	90
Productivity enhancement in field crops	6	261	75	336	12	6	18	273	81	354
Protected cultivation technology	1	16	8	24	9	3	12	25	11	36
Women and Childcare	7	5	427	432	3	118	121	8	545	553
Integrated farming system	2	27	10	37	8	3	11	35	13	48
Preparation of bankable projects	1	0	0	0	0	30	30	0	30	30
Cage fish culture	3	51	12	63	12	12	24	63	24	87
Others	24	558	403	961	246	266	512	804	669	1473
Total	**84**	**1737**	**1484**	**3221**	**537**	**666**	**1203**	**2274**	**2150**	**4424**

Table 3.3.17. Details of trainings for Extension Functionaries in Puducherry

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Low cost and nutrient efficient diet designing	3	0	59	59	0	41	41	0	100	100
Others	1	30	4	34	15	3	18	45	7	52
Total	**4**	**30**	**63**	**93**	**15**	**44**	**59**	**45**	**107**	**152**

3.3.4 Sponsored Trainings

KVKs conducted sponsored training programmes from ATMA, MANAGE and other agencies in addition to regular training programmes. A total of 723 sponsored training programmes were conducted for 24618 youth in Zone-X (Table 3.3.18). Maximum number of courses were conducted on crop production and management (242) followed by Agricultural Extension (150), Livestock and fisheries (124), Home science (73), production and value addition (64), *etc.* (Table 3.3.19). KVKs in Tamil Nadu organized 597 training programmes for 19663 participants (Table 3.3.20). KVKs in Andhra Pradesh conducted 84 trainings for 3531 participants (Table 3.3.21). KVKs of Telangana organized 38 trainings for 1259 participants (Table 3.3.22) and KVKs of Puducherry conducted 4 trainings for 165 participants (Table 3.3.23).

Table 3.3.18. Details of state wise sponsored training programmes in Zone-X

State	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Tamil Nadu	597	9453	6054	15507	1917	2239	4156	11370	8293	19663
Andhra Pradesh	84	1406	556	1962	881	688	1569	2287	1244	3531
Telangana	38	440	92	532	309	418	727	749	510	1259
Puducherry	4	18	83	101	7	57	64	25	140	165
Total	**723**	**11317**	**6785**	**18102**	**3114**	**3402**	**6516**	**14431**	**10187**	**24618**

Table 3.3.19. Details of sponsored training programmes in Zone-X

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management										
Commercial production of vegetables	34	626	566	1192	46	75	121	672	641	1313
Increasing production and productivity of crops	82	2185	844	3029	349	248	597	2534	1092	3626
Others	126	2534	1244	3778	672	791	1463	3206	2035	5241
Total crop production trainings	**242**	**5345**	**2654**	**7999**	**1067**	**1114**	**2181**	**6412**	**3768**	**10180**
Production and value addition										
Fruit plants	16	546	48	594	101	70	171	647	118	765

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Methods of protective cultivation	5	143	99	242	9	12	21	152	111	263
Production of Inputs at site	8	274	166	440	52	23	75	326	189	515
Soil health and fertility management	19	506	119	625	147	63	210	653	182	835
Others	16	339	98	437	99	83	182	438	181	619
Total Production and value Addition Trainings	**64**	**1808**	**530**	**2338**	**408**	**251**	**659**	**2216**	**781**	**2997**
Post-harvest technology and value addition										
Processing and value addition	40	350	507	857	88	187	275	438	694	1132
Others	22	315	186	501	80	85	165	395	271	666
Total PHT and VA	**62**	**665**	**693**	**1358**	**168**	**272**	**440**	**833**	**965**	**1798**
Farm Machinery										
Farm machinery, tools and implements	4	60	21	81	11	3	14	71	24	95
Others	4	66	28	94	12	45	57	78	73	151
Total FM	**8**	**126**	**49**	**175**	**23**	**48**	**71**	**149**	**97**	**246**
Livestock and fisheries										
Animal Disease Management	3	86	11	97	16	7	23	102	18	120
Animal Nutrition Management	19	498	169	667	100	62	162	598	231	829
Fisheries Management	18	299	68	367	192	81	273	491	149	640
Fisheries Nutrition	4	115	19	134	38	5	43	153	24	177
Livestock production and management	20	290	231	521	53	127	180	343	358	701
Integrated farming	20	264	175	439	128	143	271	392	318	710
Others	40	490	209	699	349	381	730	839	590	1429
Total LS and F	**124**	**2042**	**882**	**2924**	**876**	**806**	**1682**	**2918**	**1688**	**4606**
Home Science										
Drudgery reduction of women	5	28	67	95	6	31	37	34	98	132
Economic empowerment of women	19	101	163	264	20	226	246	121	389	510
Household nutritional security	30	46	157	203	170	206	376	216	363	579
Others	19	178	1079	1257	137	268	405	315	1347	1662
Total HS	**73**	**353**	**1466**	**1819**	**333**	**731**	**1064**	**686**	**2197**	**2883**
Agricultural Extension										
Capacity Building and Group Dynamics	109	212	95	307	37	21	58	249	116	365
Others	41	766	416	1182	202	159	361	968	575	1543
Total AE	**150**	**978**	**511**	**1489**	**239**	**180**	**419**	**1217**	**691**	**1908**
Grand Total	**723**	**11317**	**6785**	**18102**	**3114**	**3402**	**6516**	**14431**	**10187**	**24618**

Table 3.3.20. Details of sponsored training programmes in Tamil Nadu

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management										
Commercial production of vegetables	30	583	550	1133	32	67	99	615	617	1232
Increasing production and productivity of crops	76	1973	779	2752	284	234	518	2257	1013	3270
Others	101	2282	1156	3438	498	426	924	2780	1582	4362
Total crop production trainings	**207**	**4838**	**2485**	**7323**	**814**	**727**	**1541**	**5652**	**3212**	**8864**
Production and value addition										
Fruit plants	12	524	42	566	27	12	39	551	54	605
Methods of protective cultivation	4	130	99	229	7	12	19	137	111	248
Production of Inputs at site	6	250	160	410	37	13	50	287	173	460
Soil health and fertility management	11	268	107	375	34	13	47	302	120	422
Others	9	215	49	264	79	48	127	294	97	391
Total Production and value Addition Trainings	**42**	**1387**	**457**	**1844**	**184**	**98**	**282**	**1571**	**555**	**2126**
Post-harvest technology and value addition										
Processing and value addition	35	334	401	735	77	153	230	411	554	965
Others	17	230	173	403	65	73	138	295	246	541
Total PHT and VA	**52**	**564**	**574**	**1138**	**142**	**226**	**368**	**706**	**800**	**1506**
Farm Machinery										
Farm machinery, tools and implements	3	45	21	66	6	3	9	51	24	75
Others	4	66	28	94	12	45	57	78	73	151
Total FM	**7**	**111**	**49**	**160**	**18**	**48**	**66**	**129**	**97**	**226**
Livestock and fisheries										
Animal Disease Management	2	74	10	84	3	5	8	77	15	92
Animal Nutrition Management	18	498	169	667	43	19	62	541	188	729
Fisheries Management	8	165	67	232	32	32	64	197	99	296
Fisheries Nutrition	2	35	19	54	6	5	11	41	24	65
Livestock production and management	14	169	177	346	42	107	149	211	284	495
Integrated farming	18	248	170	418	107	130	237	355	300	655
Others	37	471	206	677	324	342	666	795	548	1343
Total LS and F	**99**	**1660**	**818**	**2478**	**557**	**640**	**1197**	**2217**	**1458**	**3675**
Home Science										
Drudgery reduction of women	5	28	67	95	6	31	37	34	98	132
Economic empowerment of women	17	92	82	174	19	207	226	111	289	400
Household nutritional security	28	35	150	185	130	144	274	165	294	459
Others	14	144	1061	1205	4	63	67	148	1124	1272
Total HS	**64**	**299**	**1360**	**1659**	**159**	**445**	**604**	**458**	**1805**	**2263**
Agricultural Extension										
Capacity Building and Group Dynamics	107	169	75	244	25	16	41	194	91	285
Others	19	425	236	661	18	39	57	443	275	718
Total AE	**126**	**594**	**311**	**905**	**43**	**55**	**98**	**637**	**366**	**1003**
Grand Total	**597**	**9453**	**6054**	**15507**	**1917**	**2239**	**4156**	**11370**	**8293**	**19663**

Table 3.3.21. Details of sponsored training programmes in Andhra Pradesh

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management										
Commercial production of vegetables	4	43	16	59	14	8	22	57	24	81
Increasing production and productivity of crops	4	166	59	225	31	12	43	197	71	268
Others	13	130	56	186	83	47	130	213	103	316
Total crop production trainings	**21**	**339**	**131**	**470**	**128**	**67**	**195**	**467**	**198**	**665**
Production and value addition										
Fruit plants	4	22	6	28	74	58	132	96	64	160
Methods of protective cultivation	1	13	0	13	2	0	2	15	0	15
Production of Inputs at site	1	12	6	18	12	10	22	24	16	40
Soil health and fertility management	8	238	12	250	113	50	163	351	62	413
Others	6	124	39	163	20	20	40	144	59	203
Total Production and value Addition Trainings	**20**	**409**	**63**	**472**	**221**	**138**	**359**	**630**	**201**	**831**
Post-harvest technology and value addition										
Processing and value addition	4	15	99	114	10	28	38	25	127	152
Total PHT and VA	**4**	**15**	**99**	**114**	**10**	**28**	**38**	**25**	**127**	**152**
Farm Machinery										
Farm machinery, tools and implements	1	15	0	15	5	0	5	20	0	20
Total FM	**1**	**15**	**0**	**15**	**5**	**0**	**5**	**20**	**0**	**20**
Livestock and fisheries										
Animal Disease Management	1	12	1	13	13	2	15	25	3	28
Animal Nutrition Management	1	0	0	0	57	43	100	57	43	100
Fisheries Management	3	120	0	120	49	0	49	169	0	169
Fisheries Nutrition	2	80	0	80	32	0	32	112	0	112
Livestock production and management	3	91	45	136	0	0	0	91	45	136
Integrated farming	1	0	0	0	18	12	30	18	12	30
Others	3	19	3	22	25	39	64	44	42	86
Total LS and F	**14**	**322**	**49**	**371**	**194**	**96**	**290**	**516**	**145**	**661**
Home Science										
Economic empowerment of women	1	9	8	17	1	2	3	10	10	20
Household nutritional security	2	11	7	18	40	62	102	51	69	120
Others	2	25	5	30	132	173	305	157	178	335
Total HS	**5**	**45**	**20**	**65**	**173**	**237**	**410**	**218**	**257**	**475**
Agricultural Extension										
Capacity Building and Group Dynamics	2	43	20	63	12	5	17	55	25	80
Others	17	218	174	392	138	117	255	356	291	647
Total AE	**19**	**261**	**194**	**455**	**150**	**122**	**272**	**411**	**316**	**727**
Grand Total	**84**	**1406**	**556**	**1962**	**881**	**688**	**1569**	**2287**	**1244**	**3531**

Table 3.3.22. Details of sponsored training programmes in Telangana

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management										
Increasing production and productivity of crops	2	46	6	52	34	2	36	80	8	88
Others	12	122	32	154	91	318	409	213	350	563
Total crop production trainings	**14**	**168**	**38**	**206**	**125**	**320**	**445**	**293**	**358**	**651**
Production and value addition										
Production of Inputs at site	1	12	0	12	3	0	3	15	0	15
Total Production and value Addition Trainings	**1**	**12**	**0**	**12**	**3**	**0**	**3**	**15**	**0**	**15**
Post-harvest technology and value addition										
Processing and value addition	1	1	7	8	1	6	7	2	13	15
Others	5	85	13	98	15	12	27	100	25	125
Total PHT and VA	**6**	**86**	**20**	**106**	**16**	**18**	**34**	**102**	**38**	**140**
Livestock and fisheries										
Fisheries Management	6	14	1	15	111	24	135	125	25	150
Livestock production and management	3	30	9	39	11	20	31	41	29	70
Integrated farming	1	16	5	21	3	1	4	19	6	25
Total LS and F	**10**	**60**	**15**	**75**	**125**	**45**	**170**	**185**	**60**	**245**
Home Science										
Others	3	9	13	22	1	32	33	10	45	55
Total HS	**3**	**9**	**13**	**22**	**1**	**32**	**33**	**10**	**45**	**55**
Agricultural Extension										
Others	4	105	6	111	39	3	42	144	9	153
Total AE	**4**	**105**	**6**	**111**	**39**	**3**	**42**	**144**	**9**	**153**
Grand Total	**38**	**440**	**92**	**532**	**309**	**418**	**727**	**749**	**510**	**1259**

Table 3.3.23. Details of sponsored training programmes in Puducherry

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management										
Others	1	0	10	10	0	15	15	0	25	25
Total Production and value Addition Trainings	**1**	**0**	**10**	**10**	**0**	**15**	**15**	**0**	**25**	**25**
Livestock and fisheries										
Fisheries Management	1	0	0	0	0	25	25	0	25	25
Total LS and F	**1**	**0**	**0**	**0**	**0**	**25**	**25**	**0**	**25**	**25**

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Home Science										
Economic empowerment of women	1	0	73	73	0	17	17	0	90	90
Total HS	**1**	**0**	**73**	**73**	**0**	**17**	**17**	**0**	**90**	**90**
Agricultural Extension										
Others	1	18	0	18	7	0	7	25	0	25
Total AE	**1**	**18**	**0**	**18**	**7**	**0**	**7**	**25**	**0**	**25**
Grand Total	**4**	**18**	**83**	**101**	**7**	**57**	**64**	**25**	**140**	**165**

3.3.5 Vocational Training

Krishi Vigyan Kendras in Tamil Nadu, Andhra Pradesh, Telangana, and Puducherry conducted vocational training courses for farmers, rural youth, school dropouts and women to create self-employment and income generation in the rural areas. A total of 239 vocational training courses were conducted in which 6647 farmers, women, rural youth, and extension functionaries participated (Table 3.3.24) in Zone X. Maximum number of courses were conducted on income generation activities (95) followed by crop production and management (57) post-harvest technologies value addition (44), *etc*. (Table 3.3.25). KVKs in Tamil Nadu conducted 155 courses for 4052 farmers and farm women (Table 3.3.26). KVKs in Andhra Pradesh organized 52 coursed in which 1540 participants (Table 3.3.27). In Telangana 29 courses were organized with the participation of 991 people (Table 3.3.28). In Puducherry 3 course were organized for 64 participants (Table 3.3.29).

Table 3.3.24. Details of state wise vocational training programmes in Zone-X

State	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Tamil Nadu	155	1704	1205	2909	349	794	1143	2053	1999	4052
Andhra Pradesh	52	493	450	943	318	279	597	811	729	1540
Telangana	29	291	123	414	382	195	577	673	318	991
Puducherry	3	33	20	53	7	4	11	40	24	64
Total	**239**	**2521**	**1798**	**4319**	**1056**	**1272**	**2328**	**3577**	**3070**	**6647**

Table 3.3.25. Details of vocational training programmes in Zone-X

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management										
Commercial floriculture	1	0	13	13	2	7	9	2	20	22
Commercial fruit production	7	77	10	87	1	0	1	78	10	88

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Commercial vegetable production	5	53	31	84	24	14	38	77	45	122
Integrated crop management	6	47	50	97	23	19	42	70	69	139
Organic farming	13	219	61	280	15	16	31	234	77	311
Others	25	263	140	403	122	152	274	385	292	677
Total CPM	**57**	**659**	**305**	**964**	**187**	**208**	**395**	**846**	**513**	**1359**
Post-harvest technology and value addition										
Value addition	35	172	583	755	47	306	353	219	889	1108
Others	9	97	120	217	72	92	164	169	212	381
Total PHT and VA	**44**	**269**	**703**	**972**	**119**	**398**	**517**	**388**	**1101**	**1489**
Livestock and fisheries										
Composite fish culture	7	46	11	57	62	13	75	108	24	132
Dairy farming	17	357	81	438	47	36	83	404	117	521
Poultry farming	5	69	62	131	8	10	18	77	72	149
Sheep and goat rearing	2	18	5	23	2	22	24	20	27	47
Others	9	0	5	5	44	179	223	44	184	228
Total LS and F	**40**	**490**	**164**	**654**	**163**	**260**	**423**	**653**	**424**	**1077**
Income generation activities										
Implements	1	14	4	18	2	0	2	16	4	20
Bio-fertilizers	3	37	24	61	13	17	30	50	41	91
Mushroom cultivation	20	240	134	374	50	67	117	290	201	491
Nursery, grafting	13	141	64	205	110	25	135	251	89	340
Production of bio-agents, bio-pesticides	5	43	68	111	11	15	26	54	83	137
Repair and maintenance of farm machinery	2	20	0	20	12	13	25	32	13	45
Seed production	5	117	30	147	59	28	87	176	58	234
Sericulture	6	88	11	99	40	14	54	128	25	153
Tailoring, stitching, embroidery, dying	6	0	80	80	0	86	86	0	166	166
Vermicomposting	19	272	140	412	151	59	210	423	199	622
Others	15	116	64	180	93	65	158	209	129	338
Total IGA	**95**	**1088**	**619**	**1707**	**541**	**389**	**930**	**1629**	**1008**	**2637**
Agricultural Extension										
Capacity building and group dynamics	2	15	7	22	29	4	33	44	11	55
Others	1	0	0	0	17	13	30	17	13	30
Total AE	**3**	**15**	**7**	**22**	**46**	**17**	**63**	**61**	**24**	**85**
Grand Total	**239**	**2521**	**1798**	**4319**	**1056**	**1272**	**2328**	**3577**	**3070**	**6647**

Table 3.3.26. Details of vocational training programmes in Tamil Nadu

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management										
Commercial floriculture	1	0	13	13	2	7	9	2	20	22
Commercial fruit production	7	77	10	87	1	0	1	78	10	88
Commercial vegetable production	4	53	31	84	6	7	13	59	38	97
Integrated crop management	5	47	50	97	7	10	17	54	60	114
Organic farming	13	219	61	280	15	16	31	234	77	311
Others	16	193	112	305	58	129	187	251	241	492
Total CPM	**46**	**589**	**277**	**866**	**89**	**169**	**258**	**678**	**446**	**1124**
Post-harvest technology and value addition										
Value addition	21	126	430	556	14	88	102	140	518	658
Others	4	22	46	68	3	34	37	25	80	105
Total PHT and VA	**25**	**148**	**476**	**624**	**17**	**122**	**139**	**165**	**598**	**763**
Livestock and fisheries										
Composite fish culture	5	46	11	57	4	11	15	50	22	72
Dairy farming	16	338	77	415	42	32	74	380	109	489
Poultry farming	4	56	45	101	8	10	18	64	55	119
Sheep and goat rearing	2	18	5	23	2	22	24	20	27	47
Others	8	0	5	5	18	175	193	18	180	198
Total LS and F	**35**	**458**	**143**	**601**	**74**	**250**	**324**	**532**	**393**	**925**
Income generation activities										
Implements	1	14	4	18	2	0	2	16	4	20
Bio-fertilizers	2	28	19	47	5	14	19	33	33	66
Mushroom cultivation	10	160	55	215	14	10	24	174	65	239
Nursery, grafting	2	22	17	39	9	9	18	31	26	57
Production of bio-agents, bio-pesticides	2	19	11	30	7	1	8	26	12	38
Repair and maintenance of farm machinery	2	20	0	20	12	13	25	32	13	45
Seed production	2	32	6	38	8	6	14	40	12	52
Sericulture	6	88	11	99	40	14	54	128	25	153
Tailoring, stitching, embroidery, dying	5	0	50	50	0	80	80	0	130	130
Vermicomposting	7	53	72	125	38	45	83	91	117	208
Others	9	58	57	115	31	61	92	89	118	207
Total IGA	**48**	**494**	**302**	**796**	**166**	**253**	**419**	**660**	**555**	**1215**

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Agricultural Extension										
Capacity building and group dynamics	1	15	7	22	3	0	3	18	7	25
Total AE	**1**	**15**	**7**	**22**	**3**	**0**	**3**	**18**	**7**	**25**
Grand Total	**155**	**1704**	**1205**	**2909**	**349**	**794**	**1143**	**2053**	**1999**	**4052**

Table 3.3.27. Details of vocational training programmes in Andhra Pradesh

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management										
Commercial vegetable production	1	0	0	0	18	7	25	18	7	25
Integrated crop management	1	0	0	0	16	9	25	16	9	25
Others	6	32	28	60	38	19	57	70	47	117
Total CPM	**8**	**32**	**28**	**60**	**72**	**35**	**107**	**104**	**63**	**167**
Post-harvest technology and value addition										
Value addition	7	33	98	131	21	77	98	54	175	229
Others	3	45	44	89	39	28	67	84	72	156
Total PHT and VA	**10**	**78**	**142**	**220**	**60**	**105**	**165**	**138**	**247**	**385**
Livestock and fisheries										
Dairy farming	1	19	4	23	5	4	9	24	8	32
Poultry farming	1	13	17	30	0	0	0	13	17	30
Total LS and F	**2**	**32**	**21**	**53**	**5**	**4**	**9**	**37**	**25**	**62**
Income generation activities										
Bio-fertilizers	1	9	5	14	8	3	11	17	8	25
Mushroom cultivation	9	65	73	138	36	53	89	101	126	227
Nursery, grafting	8	110	38	148	38	16	54	148	54	202
Production of bio-agents, bio-pesticides	3	24	57	81	4	14	18	28	71	99
Seed production	3	85	24	109	51	22	73	136	46	182
Tailoring, stitching, embroidery, dying	1	0	30	30	0	6	6	0	36	36
Vermicomposting	2	21	25	46	0	4	4	21	29	50
Others	4	37	7	44	27	4	31	64	11	75
Total IGA	**31**	**351**	**259**	**610**	**164**	**122**	**286**	**515**	**381**	**896**
Agricultural Extension										
Others	1	0	0	0	17	13	30	17	13	30
Total AE	**1**	**0**	**0**	**0**	**17**	**13**	**30**	**17**	**13**	**30**
Grand Total	**52**	**493**	**450**	**943**	**318**	**279**	**597**	**811**	**729**	**1540**

Table 3.3.28. Details of vocational training programmes in Telangana

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management										
Others	3	38	0	38	26	4	30	64	4	68
Total CPM	**3**	**38**	**0**	**38**	**26**	**4**	**30**	**64**	**4**	**68**
Post-harvest technology and value addition										
Value addition	7	13	55	68	12	141	153	25	196	221
Others	2	30	30	60	30	30	60	60	60	120
Total PHT and VA	**9**	**43**	**85**	**128**	**42**	**171**	**213**	**85**	**256**	**341**
Livestock and fisheries										
Composite fish culture	2	0	0	0	58	2	60	58	2	60
Others	1	0	0	0	26	4	30	26	4	30
Total LS and F	**3**	**0**	**0**	**0**	**84**	**6**	**90**	**84**	**6**	**90**
Income generation activities										
Nursery, grafting	2	0	0	0	60	0	60	60	0	60
Vermicomposting	9	189	38	227	109	10	119	298	48	346
Others	2	21	0	21	35	0	35	56	0	56
Total IGA	**13**	**210**	**38**	**248**	**204**	**10**	**214**	**414**	**48**	**462**
Agricultural Extension										
Capacity building and group dynamics	1	0	0	0	26	4	30	26	4	30
Total AE	**1**	**0**	**0**	**0**	**26**	**4**	**30**	**26**	**4**	**30**
Grand Total	**29**	**291**	**123**	**414**	**382**	**195**	**577**	**673**	**318**	**991**

Table 3.3.29. Details of vocational training programmes in Puducherry

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Income generation activities										
Mushroom cultivation	1	15	6	21	0	4	4	15	10	25
Nursery, grafting	1	9	9	18	3	0	3	12	9	21
Vermicomposting	1	9	5	14	4	0	4	13	5	18
Total IGA	**3**	**33**	**20**	**53**	**7**	**4**	**11**	**40**	**24**	**64**
Grand Total	**3**	**33**	**20**	**53**	**7**	**4**	**11**	**40**	**24**	**64**

Training on bee keeping
KVK West Godavari (Undi) (AP)

Training on bee keeping KVK Medak (DDS) (TS)

Training on Azolla production
KVK Nagapattinam (TN)

Training on preparation of bio-inputs
KVK Thiruvannamalai (TN)

Training on compost making using bio-mineralizer
KVK Thiruvallur (TN)

Training on bhendi ring cutter
KVK Madurai (TN)

Training on use of drone for spraying
KVK Tiruchirappalli (TN)

Training on management of dairy animals
KVK Ariyalur (TN)

Training on Fall Army Worm management in maize KVK Salem (TN)

Training on integrated nutrient management for coconut - KVK Virudhunagar (TN)

Training on vermicomposting KVK East Godavari (Kalavacharla) (AP)

Training on Integrated Nutrient Management for Pulses - KVK Tiruchirappalli (TN)

Training on goat rearing - KVK Ariyalur (TN)

Training on high-tech vegetable cultivation KVK Tiruppur (TN)

Training on Integrated Nutrient Management for Jasmine - KVK Coimbatore (TN)

Training on farm mechanization KVK Tiruchirappalli (TN)

Training on farm mechanization (seed drill)
KVK Coimbatore (TN)

Training on top working in mango
KVK Thiruvannamalai (TN)

Training on nutri-garden
KVK Krishnagiri (TN)

Training on nutri-garden
KVK Coimbatore (TN)

Training on organic farming
KVK Cuddalore (TN)

Training on IPDM in paddy
KVK Kanyakumari (TN)

Training on Poultry rearing
KVK Sivagangai (TN)

Training on poultry management
KVK Namakkal (TN)

Training on protective clothing
KVK Mahabubnagar (Palem) (TS)

Training on pro-tray nursery in shade-net
KVK Puducherry (PY)

Training on coir-pith composting
KVK Karaikal (PY)

Training on roof top gardening
KVK Villupuram (TN)

Training on soil health management
KVK Salem (TN)

Training on value added pro-biotic food
KVK Warangal (Mamnoor) (TS)

Training on dry fish production
KVK Nagapattinam (TN)

Training on value added cashew products
KVK Cuddalore (TN)

3.4. Extension Activities

KVKs organized 40863 extension activities for creating awareness about latest improved agricultural technologies in which 2463645 farmers and 49627 Extension Personnel participated and benefited (Table 3.4.1). The extension activities included advisory services, exposure visits, animal health camps, technology week, group discussions, method demonstrations, soil health camps, Kisan mela, Kisan ghosthi *etc*. (Table 3.4.2). KVKs in Tamil Nadu organized 21990 extension activities for 394356 farmers and Extension Personnel (Table 3.4.3). KVKs in Andhra Pradesh organized 10687 extension activities in which 446714 persons participated (Table 3.4.4). In Telangana, 6983 activities were organized for 1647138 participants (Table 3.4.5). In Puducherry 176 extension activities were organized for 2805 participants (Table 3.4.6).

Table 3.4.1. Details of state wise extension activities organized by KVKs in Zone-X

State	No. of programmes	No. of farmers	No. of Extension Personnel	Total
Tamil Nadu	21990	376175	18181	394356
Andhra Pradesh	10687	424981	21733	446714
Telangana	6983	1639351	7787	1647138
Puducherry	1203	23138	1926	25064
Total	**40863**	**2463645**	**49627**	**2513272**

Table 3.4.2. Details of Extension Activities organized by KVKs in Zone-X

Activities	No. of programmes to Farmers	No. of farmers	No. of programmes to Extension Personnel	No. of Extension Personnel	Total Programmes	Total Participants
Advisory Services	16477	1681175	2088	14907	18565	1696082
Attended as resource person	2452	106113	621	10841	3073	116954
Awareness programmes on PPV & FRA	74	3353	6	414	80	3767
Celebration of important days	701	39963	105	2881	806	42844
Diagnostic visits	3056	24702	586	1721	3642	26423
Exhibition	384	70995	107	3716	491	74711
Exposure visits	391	15243	83	979	474	16222
Ex-trainees Sammelan	19	609	0	23	19	632
Farm Science Club	144	4094	2	308	146	4402
Farmers' seminar/workshop	188	12293	14	469	202	12762
Field Day	514	15060	105	713	619	15773
Film Show	416	18095	26	703	442	18798
Group discussions	1218	26870	83	1196	1301	28066
Kisan Ghosthi	170	11154	24	552	194	11706
Kisan Mela	130	46662	27	1986	157	48648

Activities	No. of programmes to Farmers	No. of farmers	No. of programmes to Extension Personnel	No. of Extension Personnel	Total Programmes	Total Participants
Mana Telangana – Mana Vyavasayam	7	77	4	39	11	116
Method Demonstrations	1474	27448	245	1821	1719	29269
Plant/animal health camps	153	6640	32	195	185	6835
Scientists' visit to farmers field	5637	39605	313	1143	5950	40748
Self -help groups	139	3845	34	268	173	4113
Special day celebration	588	35543	84	2344	672	37887
Others	1831	274106	111	2408	1942	276514
Total	**36163**	**2463645**	**4700**	**49627**	**40863**	**2513272**

Table 3.4.3. Details of Extension Activities organized by KVKs in Tamil Nadu

Activities	No. of programmes to Farmers	No. of farmers	No. of programmes to Extension Personnel	No. of Extension Personnel	Total Programmes	Total Participants
Advisory Services	10605	110790	591	3222	11196	114012
Attended as resource person	1462	52160	405	4082	1867	56242
Awareness programmes on PPV & FRA	63	2651	2	61	65	2712
Celebration of important days	303	18320	77	1352	380	19672
Diagnostic visits	1122	7919	212	670	1334	8589
Exhibition	204	22424	58	1131	262	23555
Exposure visits	255	8556	56	286	311	8842
Ex-trainees Sammelan	14	455	0	23	14	478
Farm Science Club	119	2753	0	25	119	2778
Farmers' seminar/workshop	97	7036	8	302	105	7338
Field Day	238	7500	27	311	265	7811
Film Show	333	13236	11	501	344	13737
Group discussions	408	10762	13	549	421	11311
Kisan Ghosthi	78	4648	12	185	90	4833
Kisan Mela	51	7422	9	405	60	7827
Mana Telangana – Mana Vyavasayam	0	0	0	15	0	15
Method Demonstrations	871	16840	64	1204	935	18044
Plant/animal health camps	100	4310	12	115	112	4425
Scientists' visit to farmers field	2349	14216	75	570	2424	14786
Self -help groups	98	2499	0	46	98	2545
Special day celebration	246	18980	56	1794	302	20774
Others	1213	42698	73	1332	1286	44030
Total	**20229**	**376175**	**1761**	**18181**	**21990**	**394356**

Table 3.4.4. Details of Extension Activities organized by KVKs in Andhra Pradesh

Activities	No. of programmes to Farmers	No. of farmers	No. of programmes to Extension Personnel	No. of Extension Personnel	Total Programmes	Total Participants
Advisory Services	3456	272661	1039	9669	4495	282330
Attended as resource person	503	26383	147	4568	650	30951
Awareness programmes on PPV & FRA	7	127	3	295	10	422
Celebration of important days	226	10756	17	1148	243	11904
Diagnostic visits	1092	9664	281	641	1373	10305
Exhibition	143	29256	41	1691	184	30947
Exposure visits	65	2689	7	201	72	2890
Ex-trainees Sammelan	0	0	0	0	0	0
Farm Science Club	16	909	0	34	16	943
Farmers' seminar/workshop	54	2050	5	72	59	2122
Field Day	184	3497	71	344	255	3841
Film Show	30	1987	13	137	43	2124
Group discussions	479	8369	54	326	533	8695
Kisan Ghosthi	60	3351	6	172	66	3523
Kisan Mela	45	20149	5	848	50	20997
Mana Telangana – Mana Vyavasayam	0	0	0	0	0	0
Method Demonstrations	421	6519	168	449	589	6968
Plant/animal health camps	46	1864	2	63	48	1927
Scientists' visit to farmers field	1383	10495	183	314	1566	10809
Self -help groups	26	620	13	199	39	819
Special day celebration	176	9573	21	459	197	10032
Others	179	4062	20	103	199	4165
Total	**8591**	**424981**	**2096**	**21733**	**10687**	**446714**

Table 3.4.5. Details of Extension Activities organized by KVKs in Telangana

Activities	No. of programmes to Farmers	No. of farmers	No. of programmes to Extension Personnel	No. of Extension Personnel	Total Programmes	Total Participants
Advisory Services	1858	1296953	407	1965	2265	1298918
Attended as resource person	357	22885	67	2143	424	25028
Awareness programmes on PPV & FRA	4	575	1	58	5	633
Celebration of important days	164	10359	6	277	170	10636
Diagnostic visits	784	6990	83	391	867	7381
Exhibition	32	12277	6	144	38	12421
Exposure visits	65	3843	20	492	85	4335
Ex-trainees Sammelan	5	154	0	0	5	154

Activities	No. of programmes to Farmers	No. of farmers	No. of programmes to Extension Personnel	No. of Extension Personnel	Total Programmes	Total Participants
Farm Science Club	7	394	2	249	9	643
Farmers' seminar/workshop	34	2909	1	95	35	3004
Field Day	89	4007	7	58	96	4065
Film Show	21	2062	0	11	21	2073
Group discussions	314	7360	14	293	328	7653
Kisan Ghosthi	32	3155	6	195	38	3350
Kisan Mela	32	13775	11	405	43	14180
Mana Telangana – Mana Vyavasayam	7	77	4	24	11	101
Method Demonstrations	167	3839	13	168	180	4007
Plant/animal health camps	6	416	17	12	23	428
Scientists' visit to farmers field	1818	14719	40	238	1858	14957
Self -help groups	15	726	21	23	36	749
Special day celebration	158	6817	7	91	165	6908
Others	272	225059	9	455	281	225514
Total	**6241**	**1639351**	**742**	**7787**	**6983**	**1647138**

Table 3.4.6. Details of Extension Activities organized by KVKs in Puducherry

Activities	No. of programmes to Farmers	No. of farmers	No. of programmes to Extension Personnel	No. of Extension Personnel	Total Programmes	Total Participants
Advisory Services	558	771	51	51	609	822
Attended as resource person	130	4685	2	48	132	4733
Awareness programmes on PPV & FRA	0	0	0	0	0	0
Celebration of important days	8	528	5	104	13	632
Diagnostic visits	58	129	10	19	68	148
Exhibition	5	7038	2	750	7	7788
Exposure visits	6	155	0	0	6	155
Ex-trainees Sammelan	0	0	0	0	0	0
Farm Science Club	2	38	0	0	2	38
Farmers' seminar/workshop	3	298	0	0	3	298
Field Day	3	56	0	0	3	56
Film Show	32	810	2	54	34	864
Group discussions	17	379	2	28	19	407
Kisan Ghosthi	0	0	0	0	0	0
Kisan Mela	2	5316	2	328	4	5644
Mana Telangana – Mana Vyavasayam	0	0	0	0	0	0
Method Demonstrations	15	250	0	0	15	250

Activities	No. of programmes to Farmers	No. of farmers	No. of programmes to Extension Personnel	No. of Extension Personnel	Total Programmes	Total Participants
Plant/animal health camps	1	50	1	5	2	55
Scientists' visit to farmers field	87	175	15	21	102	196
Self -help groups	0	0	0	0	0	0
Special day celebration	8	173	0	0	8	173
Others	167	2287	9	518	176	2805
Total	**1102**	**23138**	**101**	**1926**	**1203**	**25064**

Table 3.4.7. Details of Other Extension Activities organized by KVKs in Zone-X

Activity	No. of Activities
Animal health camps (No. of animals treated)	6921
Bimonthly Newsletters (English, Tamil and Telugu)	137
Electronic Media (CD/DVD)	134
Exhibitions	491
Extension Literature	1261
Farmers visit to KVK	74219
Kisan melas	157
Lectures delivered as resource persons	2605
Newspaper coverage	5211
Popular articles	788
Radio Talks	569
Registration of farmers through AKPS	84081
Research articles	245
Success stories	2748
TV Talks	767
Others	341
Total	**180675**

Table 3.4.8. Details of Other Extension Activities organized by KVKs in Tamil Nadu

Activity	No. of Activities
Animal health camps (No. of animals treated)	4689
Bimonthly Newsletters (English, Tamil and Telugu)	73
Electronic Media (CD/DVD)	70
Exhibitions	262
Extension Literature	405
Farmers visit to KVK	36791
Kisan melas	60
Lectures delivered as resource persons	1300
Newspaper coverage	1176
Popular articles	384
Radio Talks	307
Registration of farmers through AKPS	22441
Research articles	106
Success stories	1627
TV Talks	311
Others	235
Total	**70237**

Table 3.4.9. Details of Other Extension Activities organized by KVKs in Andhra Pradesh

Activity	No. of Activities
Animal health camps (No. of animals treated)	2016
Bimonthly Newsletters (English, Tamil and Telugu)	44
Electronic Media (CD/DVD)	44
Exhibitions	184
Extension Literature	97
Farmers visit to KVK	18993
Kisan melas	50
Lectures delivered as resource persons	471
Newspaper coverage	2403
Popular articles	219
Radio Talks	135
Registration of farmers through AKPS	30170
Research articles	99
Success stories	698
TV Talks	239
Others	104
Total	**55966**

Table 3.4.10. Details of Other Extension Activities organized by KVKs in Telangana

Activity	No. of Activities
Animal health camps (No. of animals treated)	130
Bimonthly Newsletters (English, Tamil and Telugu)	19
Electronic Media (CD/DVD)	16
Exhibitions	38
Extension Literature	738
Farmers visit to KVK	18249
Kisan melas	43
Lectures delivered as resource persons	714
Newspaper coverage	1533
Popular articles	179
Radio Talks	111
Registration of farmers through AKPS	31470
Research articles	38
Success stories	404
TV Talks	203
Others	2
Total	**53887**

Table 3.4.11. Details of Other Extension Activities organized by KVKs in Puducherry

Activity	No. of Activities
Animal health camps (No. of animals treated)	86
Bimonthly Newsletters (English, Tamil and Telugu)	1
Electronic Media (CD/DVD)	4
Exhibitions	7
Extension Literature	21
Farmers visit to KVK	186
Kisan melas	4
Lectures delivered as resource persons	120
Newspaper coverage	99
Popular articles	6
Radio Talks	16
Registration of farmers through AKPS	0
Research articles	2
Success stories	19
TV Talks	14
Others	0
Total	**585**

Technology Week

Technology week celebrations were organized by KVKs in which 193662 farmers participated (Table 3.4.7). The activities include gosthies, lectures, exhibition, film shows, fairs, distribution of inputs etc.

Table 3.4.7. Details of technology week activities organized by KVKs in Zone X

Types of Activities	Tamil Nadu		Andhra Pradesh		Telangana		Total	
	No.	F	No.	F	No.	F	No.	F
Gosthies	30	2750	60	3416	17	984	107	7150
Lectures organized	426	7235	104	5319	80	3663	610	16217
Exhibition	90	13307	29	13743	31	3160	150	30210
Film show	132	5534	25	1795	35	2069	192	9398
Fair	15	3693	1	423	2	450	18	4566
Farm Visit	663	3893	942	7237	546	5356	2151	16486
Diagnostic Practical	286	1618	475	3293	263	3133	1024	8044
Distribution of Literature (No.)	211	23748	53	9270	559	7843	823	40861
Distribution of Seed (q)	626.367	2745	596.95	5318	670.25	1332	1894	9395
Distribution of Planting materials (No.)	82488	3378	806876	6241	228280	1787	1117644	11406
Bio Product distribution (Kg)	21391.1	2143	25252	2416	130378	1218	177021	5777
Bio Fertilizers (q)	1135.255	854	216	243	18783	1621	20134	2718
Distribution of fingerlings	141466	103	0	0	192003	109	333469	212
Apiculture								

Types of Activities	Tamil Nadu		Andhra Pradesh		Telangana		Total	
	No.	F	No.	F	No.	F	No.	F
IPM in Maize								
Farm implements and machinery								
Distribution of Livestock specimen (No.)	14245	914	4018	13122	3311	393	21574	14429
Total number of farmers visited the technology week	169	14515	1264	10683	102	4906	1535	30104
Others								
Total	**263374**	**86430**	**839912**	**82519**	**575060**	**38024**	**1678346**	**206973**

F = No of farmers

Kisan Mobile Advisories

To disseminate the latest technologies on crops and animals, knowledge on weather, market prices of various commodities *etc*. to the farmers, mobile advisories through Kisan Mobile portal and other sources were issued by KVKs through text and voice messages. During the year, KVKs have sent 36052 messages to 22610192 farmers (Table 3.4.8). Among them, 2528 messages were sent through Kisan Mobile portal to 11522697 farmers (Table 3.4.9) and 33524 messages were sent through other sources to 11087495 farmers (Table 3.4.10).

Table 3.4.8. Details of mobile advisories issued by KVKs in Zone X

Type of message	Tamil Nadu		Andhra Pradesh		Telangana		Puducherry		Total	
	NM	NF	NM	NF	NM	NF	NM	NF	NM	NF
Kisan Mobile Advisories	716	2318894	923	5737733	889	3466070			**2528**	**11522697**
Other Mobile Advisories	18292	6454646	8296	2538716	6031	2086918	905	7215	**33524**	**11087495**
Total	**19008**	**8773540**	**9219**	**8276449**	**6920**	**5552988**	**905**	**7215**	**36052**	**22610192**

NM = No. of Messages; *NF = No. of Farmers*

Table 3.4.9. Details of Kisan Mobile Advisories issued by KVKs in Zone X

Type of message	Tamil Nadu		Andhra Pradesh		Telangana		Total	
	NM	NF	NM	NF	NM	NF	NM	NF
Crop								
Text	191	1247792	411	4579642	784	3300612	1386	9128046
Voice	0	0	27	8317	97	7520	124	15837
Text and Voice	0	0	34	41180	6	6790	40	47970
Total	191	1247792	472	4629139	887	3314922	1550	9191853
Livestock								
Text	52	391970	17	20052	1	458	70	412480
Voice	0	0	4	610	0	0	4	610
Text and Voice	0	0	4	19355	0	0	4	19355
Total	52	391970	25	40017	1	458	78	432445
Agro Advisories								
Text	77	127824	160	511814	0	0	237	639638

Type of message	Tamil Nadu		Andhra Pradesh		Telangana		Total	
	NM	NF	NM	NF	NM	NF	NM	NF
Voice	0	0	0	0	0	0	0	0
Text and Voice	0	0	0	0	0	0	0	0
Total	77	127824	160	511814	0	0	237	639638
Critical Technology Inputs								
Text	12	85913	9	365	1	150690	22	236968
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
Total	12	85913	9	365	1	150690	22	236968
Farm Implements								
Text	4	55008	3	5500	0	0	7	60508
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
Total	4	55008	3	5500	0	0	7	60508
Awareness								
Text	26	117393	23	4119	0	0	49	121512
Voice	0	0	0	0	0	0	0	0
Text and Voice	0	0	0	0	0	0	0	0
Total	26	117393	23	4119	0	0	49	121512
KVK-Programmes								
Text	82	126713	24	42164	0	0	106	168877
Voice	0	0	0	0	0	0	0	0
Text and Voice	0	0	0	0	0	0	0	0
Total	82	126713	24	42164	0	0	106	168877
Weather								
Text	255	104638	149	447553	0	0	404	552191
	0	0	4	1275	0	0	4	1275
Text and Voice	0	0	3	19265	0	0	3	19265
Total	255	104638	156	468093	0	0	411	572731
Market								
Text	13	37383	15	34028	0	0	28	71411
	0	0	5	1645	0	0	5	1645
	0	0	0	0	0	0	0	0
Total	13	37383	20	35673	0	0	33	73056
Women and Children								
Text	2	12255	9	515	0	0	11	12770
	0	0	1	120	0	0	1	120
	0	0	0	0	0	0	0	0

Type of message	Tamil Nadu		Andhra Pradesh		Telangana		Total	
	NM	NF	NM	NF	NM	NF	NM	NF
Total	2	12255	10	635	0	0	12	12890
Others								
Text	2	12005	21	214	0	0	23	12219
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
Total	2	12005	21	214	0	0	23	12219
Grand Total								
Text	716	2318894	841	5645966	786	3451760	2343	11416620
Voice	0	0	41	11967	97	7520	138	19487
Text and Voice	0	0	41	79800	6	6790	47	86590
Total	716	2318894	923	5737733	889	3466070	2528	11522697

NM = No. of Messages; *NF = No. of Farmers*

Table 3.4.10. Details of other mobile advisories

Type of message	Tamil Nadu		Andhra Pradesh		Telangana		Puducherry		Total	
	NM	NF	NM	NF	NM	NF	NM	NF	NM	NF
Crop										
Text	3719	1025874	3520	1579548	2410	1224873	87	462	9736	3830757
Voice	312	12288	1048	76451	477	342151	190	525	2027	431415
Text and Voice	59	11329	184	84399	146	134523	39	679	428	230930
Total	4090	1049491	4752	1740398	3033	1701547	316	1666	12191	4493102
Livestock										
Text	1807	199943	431	73527	282	7882	40	276	2560	281628
Voice	124	6655	162	17940	187	2853	48	308	521	27756
Text and Voice	34	3928	17	5996	46	837	8	79	105	10840
Total	1965	210526	610	97463	515	11572	96	663	3186	320224
Agro Advisories										
Text	5887	2452185	1034	230250	322	251064	49	138	7292	2933637
Voice	63	13515	459	14647	61	2102	58	142	641	30406
Text and Voice	14	769	15	6152	15	6685	119	462	163	14068
Total	5964	2466469	1508	251049	398	259851	226	742	8096	2978111
Critical Technology Inputs										
Text	34	9283	12	8158	29	305	12	18	87	17764
Voice	8	794	19	5516	10	10	18	22	55	6342
Text and Voice	6	1023	3	5500	2	2	0	0	11	6525
Total	48	11100	34	19174	41	317	30	40	153	30631
Farm Implements										
Text	53	5882	10	9698	54	3706	0	0	117	19286
Voice	13	859	40	90	4	202	0	0	57	1151

Type of message	Tamil Nadu		Andhra Pradesh		Telangana		Puducherry		Total	
	NM	NF	NM	NF	NM	NF	NM	NF	NM	NF
Text and Voice	1	769	5	0	4	200	0	0	10	969
Total	67	7510	55	9788	62	4108	0	0	184	21406
Awareness										
Text	945	69233	152	30310	507	21885	5	1040	1609	122468
Voice	27	1613	109	7624	625	889	16	32	777	10158
Text and Voice	8	1189	7	7261	262	6428	10	181	287	15059
Total	980	72035	268	45195	1394	29202	31	1253	2673	147685
KVK-Programmes										
Text	567	39160	143	35780	100	10318	16	542	826	85800
Voice	3	780	51	8736	71	1293	21	823	146	11632
Text and Voice	16	769	36	5505	32	6204	12	263	96	12741
Total	586	40709	230	50021	203	17815	49	1628	1068	110173
Weather										
Text	3626	2554731	570	232222	254	50932	108	1040	4558	2838925
Voice	67	2575	160	12360	5	758	0	0	232	15693
Text and Voice	37	769	23	5610	4	6175	0	0	64	12554
Total	3730	2558075	753	250192	263	57865	108	1040	4854	2867172
Market										
Text	101	13276	7	5980	61	4190	0	0	169	23446
Voice	1	769	8	7157	10	10	0	0	19	7936
Text and Voice	3	769	1	5500	0	0	0	0	4	6269
Total	105	14814	16	18637	71	4200	0	0	192	37651
Women and Children										
Text	23	15522	13	3236	24	416	19	24	79	19198
Voice	78	673	7	5711	25	25	24	18	134	6427
Text and Voice	4	1195	0	0	0	0	6	141	10	1336
Total	105	17390	20	8947	49	441	49	183	223	26961
Others										
Text	649	5882	43	47524	2	0	0	0	694	53406
Voice	3	645	0	0	0	0	0	0	3	645
Text and Voice	0	0	7	328	0	0	0	0	7	328
Total	652	6527	50	47852	2	0	0	0	704	54379
Grand Total										
Text	17411	6390971	5935	2256233	4045	1575571	336	3540	27727	10226315
Voice	699	41166	2063	156232	1475	350293	375	1870	4612	549561
Text and Voice	182	22509	298	126251	511	161054	194	1805	1185	311619
Total	18292	6454646	8296	2538716	6031	2086918	905	7215	33524	11087495

NM = No. of Messages; *NF = No. of Farmers*

Diagnostic field visit to banana field
KVK Kurnool (Yagantipalle) (AP)

Diagnostic field visit to vegetable farm
KVK Kurnool (Yagantipalle) (AP)

Farmers field school on brinjal
KVK Cuddalore (TN)

Diagnostic field visit to brinjal field
KVK Nalgonda (Kampasagar) (TS)

Diagnostic field visit to coconut groove
KVK Karur (TN)

Diagnostic visit to freshwater shrimp farm
KVK Karimnagar (Jammikunta) (TS)

Diagnostic field visit to mango orchard
KVK Kurnool (Yagantipalle) (AP)

Diagnostic field visit to mango orchard
KVK Ariyalur (TN)

Exposure visit - demonstration of drone
KVK Kadapa (Utukur) (AP)

Method demonstration on drone
KVK Ariyalur (TN)

Method demonstration on drone
KVK Cuddalore (TN)

Method demonstration on drone
KVK Mahabubnagar (YFA) (TS)

Kisan mela exhibition
KVK Adilabad (TS)

Exhibition of iron rich nutritious food
KVK Thoothukudi (TN)

Exhibition of farm machineries and tools
KVK Tiruchirappalli (TN)

Exhibition of value-added packaged fish products
KVK Nagapattinam (TN)

Exposure visit to food processing unit
KVK Mancherial (TS)

Exposure visit to shade-net nursery
KVK Tiruchirappalli (TN)

Exposure visit to protected cultivation
KVK Nellore (AP)

Exposure visit to sericulture unit
KVK Karur (TN)

Field day on paddy variety ADT 53
KVK Karur (TN)

Field day on bhendi variety CO 4
KVK Thiruvannamalai (TN)

Field day on *Amaranthus* variety PLR 1
KVK Tiruppur (TN)

Field day on Banana Sakthi liquid formulation
KVK Karur (TN)

Group discussion on kitchen garden
KVK Mahabubnagar (YFA) (TS)

Tree plantation drive
KVK Mahabubnagar (YFA) (TS)

Method demonstration on INM in coconut
KVK Kanyakumari (TN)

Method demonstration on soil sampling
KVK Theni (TN)

Animal health camp
KVK Kurnool (Yagantipalle) (AP)

Animal health camp
KVK Perambalur (TN)

Animal health camp
KVK Thiruvannamalai (TN)

Awareness programme on Poshan Maah
KVK Karimnagar (Jammikunta) (TS)

3.5. Publications

The KVKs of Zone-X brought out 5182 publications, which include 696 popular articles, 1592 success stories, 321 technical reports, 240 Research Papers, 108 Books, *etc*. and provided to the farmers and other clientele. The details are given in Table 3.5.1.

Table 3.5.1. Details of Publications by KVKs

Category	Tamil Nadu	Andhra Pradesh	Telangana	Puducherry	Total
Research Papers	126	69	43	2	240
Popular Articles	390	141	159	6	696
Books Chapters	83	16	8	0	107
Books	77	28	3	0	108
Conference Papers	86	27	18	0	131
Seminar Papers	56	8	4	0	68
Posters	101	26	31	1	159
Workshop presentations	44	21	11	1	77
Folders	111	24	24	1	160
Leaflets	195	14	39	14	262
Pamphlets	210	22	38	0	270
Brochures	19	5	13	0	37
Pocket Cards & Dairy	3	2	0	0	5
Success Stories	1002	389	182	19	1592
Technical Bulletins	62	24	231	0	317
Technical Reports	102	144	75	0	321
Training Manuals	70	13	22	11	116
Proceedings	55	39	15	0	109
Others	403	0	1	3	407
Total	**3195**	**1012**	**917**	**58**	**5182**

Thirty-one KVKs in the Zone published monthly, quarterly, half yearly and annual newsletters in English and local languages and distributed to farmers and other stake holders (Table 3.5.2).

Table 3.5.2 Newsletters published

KVK	Name of Newsletter	Periodicity	No. of publications
Tamil Nadu			
Ariyalur	Seithi Malar	Quarterly	500
Coimbatore	Kovai Velanmai	Quarterly	500
Cuddalore	Yerkalam	Quarterly	150
Dharmapuri	Newsletter	Quarterly	100
Dindigul	Newsletter	Quarterly	4
Erode	Farm Newsletter	Quarterly	4
Erode	Reporter	Quarterly	4
Kancheepuram	Newsletter	Quarterly	300

KVK	Name of Newsletter	Periodicity	No. of publications
Kanyakumari	Seithi Madal -Newsletter	Half yearly	50
Karur	Technical news	Once in three months	1500
Krishnagiri	Uzhavar Thunaivan	Quarterly	100
Nagapattinam	TNJFU Newsletter	Monthly	12
Namakkal	Newsletter	Quarterly	500
Perambalur	E-Newsletter	June - December 2021	1
Ramanathapuram	Newsletter`	1	15
Sivagangai	Newsletter	Half yearly	2
Theni	Velan Ariviyal Malar	quarterly	800
Thiruvannamalai	Pasumai Kathir	Half yearly	200
Thiruvarur	Nerkalanjiyam and Voice of Delta	Quarterly	4
Tirunelveli	Newsletter	Quarterly	50
Tirunelveli	Newsletter English & Tamil	Half yearly	100
Villupuram II	KVK Activities	Half Yearly	100
Villupuram II	National Innovation Foundation	Half Yearly	100
Andhra Pradesh			
Chittoor (RASS)	Krishi e newsletter	Quarterly	4
East Godavari (Kalavacharla)	Newsletter	Half yearly	500
Guntur (Lam)	SVVU monthly reports	Monthly	12
Kadapa (Vonipenta)	Dr. YSRHU e-News letter	Fortnightly	24
Kurnool (Banavasi)	Monthly report of KVK	Monthly	12
Telangana			
Karimnagar (Jammikunta)	Newsletter	Monthly	6
Mahabubnagar (Palem)	E-Newsletter	quarterly	25
Mahabubnagar (YFA)	Newsletter	Quarterly	4

3.6 Critical Technology Products

KVKs produce seed of improved varieties/hybrids of crops, planting materials of selected material of plant species, bio products, improved livestock breeds and species to provide them to the farmers thereby facilitating rapid technology transfer.

3.6.1 Seed

KVKs produced and supplied 8062 quintals of seed of cereals and millets, 682 quintals of oilseeds, 4297 quintals of pulses and supplied to 15360, 2792 and 25025 farmers, respectively. Also 26 quintals of vegetables, 623 quintals of fodder seeds, 161 quintals of commercial crops 76 quintals of green manures and 18 quintals of other seeds were produced and supplied to 6279 farmers. (Table 3.6.1).

3.6.2 Planting material

Planting materials including 3405595 vegetable seedlings, 917315 fodder slips, 202601 fruit saplings, 151125 special planting materials, 151004 medicinal plants, 111954 flowers and ornamental plants, 61620 forestry and plantation crops *etc*., totaling 5022980 were supplied to 59982 farmers in the Zone. (Table 3.6.2)

3.6.3 Bio-products and bio-agents

A total of 37378 kg of bio fertilizers, 18638 kg of bio pesticides and 931018 kgs of bio-inputs including vermicompost were produced supplied to 32439 farmers (Table 3.6.3).

3.6.4 Livestock Species

A total of 2139064 livestock species, comprising of 2082065 fish spawn/seed, 49091 poultry chicks, 7465 dairy animals and 439 sheep and goat were produced and provided to 4542 farmers (Table 3.6.4).

3.6.5 Other inputs

A total of 83553 quintals of other inputs comprising of 49471 quintals of crop inputs, 27732 quintals of animal feed and 5450 quintals of other inputs have been produced and provided to 14423 farmers (Table 3.6.5).

Table 3.6.1. Production and supply of seed

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Q	V	F	Q	V	F	Q	V	F	Q	V	F	Q	V	F
Cereals and Millets	826	2735825	723	3237	11425347	6468	3897	13024198	7739	101	322950	430	**8062**	**27508319**	**15360**
Oil Seeds	224	2777693	819	427	4623960	1856	31	287154	117				**682**	**7688807**	**2792**
Pulses	1237	8967577	2711	2494	15068680	6676	566	1937901	15638				**4297**	**25974157**	**25025**
Vegetables	17	481554	1564	3	51000	351	3	207500	410	3	381970	42	**26**	**1122024**	**2367**
Fruits				1	3080	34	2	7500					**2**	**10580**	**34**
Flowers				9	45070	30	6	33400					**15**	**78470**	**30**
Spices				0	0	6							**0**	**0**	**6**
Fodder	620	22115914	3428	0	0	30	3	150000	160				**623**	**22265914**	**3618**
Special Planting Materials	1	46871	16										**1**	**46871**	**16**
Green manure	26	249642	63	51	113800	140							**76**	**363442**	**203**
Commercial crops	78	207040	0	80	24000	5	3	17370	0				**161**	**248410**	**5**
Total	**3029**	**37582116**	**9324**	**6301**	**31354937**	**15596**	**4511**	**15665022**	**24064**	**104**	**704920**	**472**	**13945**	**85306995**	**49456**

Q=Quantity (quintals), V = Value (Rs.), F = No. of Farmers

Table 3.6.2. Production and supply of planting material

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	No.	V	F	No.	V	F	No.	V	F	No.	V	F	No.	V	F
Vegetables	141835	114202	568	2279279	1306488	3536	943116	740057	1388	41365	37103	784	**3405595**	**2197850**	**6276**
Fruits	83685	4136722	23463	68778	1330600	2716	44583	3177705	1292	5555	192117	931	**202601**	**8837144**	**28402**
Flowers and ornamental plants	12810	383579	7603	57254	491985	1640	37634	151836	140	4256	73050	1224	**111954**	**1100450**	**10607**
Medicinal and aromatic plants	38277	128209	1927	111258	812900	43	644	12880	65	825	12375	426	**151004**	**966364**	**2461**
Forestry and plantation crops	55207	3331894	6542	200		200	4490	66775	3400	1723	66215	300	**61620**	**3464884**	**10442**

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	No.	V	F	No.	V	F	No.	V	F	No.	V	F	No.	V	F
Fodder slips	508303	716896	817	331712	149640	56	64000	32000	61	13300	10950	17	**917315**	**909486**	**951**
Spices	4	40	2	2010	300	101							**2014**	**340**	**103**
Special Planting materials	25	7930	22	150000	255000	0				1100	113100	283	**151125**	**376030**	**305**
Others	1752	24770	429				18000		6				**19752**	**24770**	**435**
Total	**841898**	**8844242**	**41373**	**3000491**	**4346913**	**8292**	**1112467**	**4181253**	**6352**	**68124**	**504910**	**3965**	**5022980**	**17877318**	**59982**

No. = Quantity (Numbers) V = Value (Rs.), F = No. of Farmers

Table 3.6.3. Production and supply of bio-products and bio-agents

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Q	V	F	Q	V	F	Q	V	F	Q	V	F	Q	V	F
Bio Fertilizers	17022	1078617	3914	1516	32380	592	18837	2080865	2467	3	85	3	37378	3191947	6976
Bio-inputs	203855	3985296	6384	353561	2569781	681	371816	2954040	9278	1786	37985	222	931018	9547102	16565
Bio-pesticides	12405	1833147	3843	1553	309200	733	283	5380	31	4398	1135945	4291	18638	3283672	8898
Total	**233282**	**6897059**	**14141**	**356630**	**2911361**	**2006**	**390936**	**5040285**	**11776**	**6186**	**1174015**	**4516**	**987035**	**16022720**	**32439**

Q=Quantity (kg), V=Value (Rs.), F = No. of Farmers

Table 3.6.4. Details of production of livestock, sheep and goat, poultry breed and fisheries

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	No.	V	F	No.	V	F	No.	V	F	No.	V	F	No.	V	F
Dairy cattle	6988	253017	534	347.3	45275	7	9	390000	9	120.7	4828	63	7465	693120	613
Goat and Sheep	285	2270438	193	66	443991	35	78	491000	35	10	65000	4	439	3270429	267
Poultry	30768	1935272	1598	3421	395175	450	12963	1485650	858	1939	33880	283	49091	3849977	3189
Piggery	4	38500	2										4	38500	2
Fishery	1724236	1437650	398				353250	545250	12	4579	30510	61	2082065	2013410	471
Total	**1762281**	**5934877**	**2725**	**3834.3**	**884441**	**492**	**366300**	**2911900**	**914**	**6648.7**	**134218**	**411**	**2139064**	**9865436**	**4542**

No.=Quantity (Nos.), V=Value (Rs.), F = No. of Farmers

Table 3.6.5. Details of other inputs produced and distributed

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Q	V	F	Q	V	F	Q	V	F	Q	V	F	Q	V	F
Crop inputs	16311	3678812	3071	2035	314800	2961	31125	657860	1495				49471	4651472	7527
Animal feed	942	121820	376	23100	132600	322				3690	7480	48	27732	261900	746
Poultry feed													0	0	0
Fish Feed													0	0	0
Others	3260	752055	932	167	178810	239	1305	883000	4237	718	179747	718	5450	1993612	6126
Total	**21413**	**4590167**	**4401**	**25302**	**626210**	**3522**	**32430**	**1541060**	**5734**	**4408**	**187227**	**766**	**83553**	**6944664**	**14423**

Q = Quantity (quintals), V = Value (Rs.), F = No. of Farmers

3.6.6 Soil and water testing

KVKs undertake soil and water testing primarily to ascertain the nutrient status of fields earmarked for technology assessment and refinement to make soil test based nutrient recommendations in various micro-farming situations in the district. A total number of 57613 samples including soil (52674), water (4696), plant (137), manure (26) and 80 other samples were analyzed by the KVKs benefitting 33488 farmers of 6175 villages (Table3.6.6.).

Table 3.6.6. Total Soil and water testing by KVKs of Zone-X

Details	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	N	F	V	N	F	V	N	F	V	N	F	V	N	F	V
Soil Samples analyzed using Mini Soil Testing Kit	20453	3817	921	3413	2926	600	4082	3902	295	0	0	0	27948	10645	1816
Soil Samples analyzed by traditional lab method	10027	8170	2265	12722	8894	488	1779	1779	69	198	119	40	24726	18962	2862
Total Soil Samples analyzed	**30480**	**11987**	**3186**	**16135**	**11820**	**1088**	**5861**	**5681**	**364**	**198**	**119**	**40**	52674	29607	4678
Water samples analyzed	3778	2887	1065	803	739	219	72	60	48	43	33	33	4696	3719	1365
Plant Samples analyzed	89	86	72							48	1	1	137	87	73
Manure samples analyzed	26	1	1										26	1	1
Others	80	74	58										80	74	58
Total	**34453**	**15035**	**4382**	**16938**	**12559**	**1307**	**5933**	**5741**	**412**	**289**	**153**	**74**	**57613**	**33488**	**6175**

N = Number of samples, F = No. of Farmers, V = No. of villages

3.7 Rainwater Harvesting

A total of 106 trainings and 114 demonstrations were conducted on rainwater harvesting technologies benefiting 5178 farmers. A total of 481 officials visited the demonstrations (Table 3.7.1).

Table 3.7.1 Activities on rainwater harvesting by KVKs of Zone-X

State	KVK	Details of the Activity	No. of Trainings	No. of Demos	No. of Farmers benefited	No. of Officials Visited
TN	Ariyalur	Rainwater harvesting technologies	4	4	780	26
TN	Cuddalore	Water conservation methods and rainwater harvesting	1	1	45	5
TN	Dharmapuri	Micro irrigation demonstration	12	12	782	25
TN	Dindigul	Rainwater harvesting and storage	4	4	237	5
TN	Namakkal	Drip irrigation for horticultural crops	2	3	24	6
TN	Namakkal	*In-situ* moisture conservation in rainfed land	3	4	112	22
TN	Namakkal	*In-situ* moisture conservation practices	3	2	107	42
TN	Namakkal	Laser drip micro irrigation for water saving	3	4	132	18
TN	Perambalur	Micro irrigation and farm pond management	2	2	82	4
TN	Perambalur	Rainwater harvesting and farm pond management	3	3	275	7
TN	Ramanathapuram	Harvesting of rainwater in farm pond and water recycling	15	15	230	11

State	KVK	Details of the Activity	No. of Trainings	No. of Demos	No. of Farmers benefited	No. of Officials Visited
TN	Sivagangai	Water conservation	6	4	280	55
TN	Theni	Exposure visits to leaching pond	1	0	25	2
TN	Theni	Rainwater harvesting technologies	2	1	48	5
TN	Thoothukudi	Importance of summer ploughing	2	1	66	3
TN	Thoothukudi	Irrigation management	1	2	84	2
TN	Thoothukudi	Micro irrigation system	2	2	44	2
TN	Thoothukudi	Mulching technology	1	3	36	1
TN	Thoothukudi	Soil moisture conservation techniques	2	1	56	3
TN	Thoothukudi	Water use efficiency	2	1	65	1
TN	Villupuram II	Rainwater harvesting technologies and structures for rainwater harvesting	1	1	32	7
AP	Ananthapuram (Kalyandurg)	Integrated water management	4	4	80	10
AP	Ananthapuram (Reddipalli)	Renovation and construction of check dams and farm ponds	3	3	135	18
AP	East Godavari (Kalavacharla)	Jal Shakthi Abhiyaan	0	6	120	5
AP	East Godavari (Pandirimamidi)	Rainwater harvesting	1	1	65	12
AP	Guntur (Lam)	Drip irrigation	2	2	30	5
AP	Guntur (Lam)	Farm pond	2	2	30	5
AP	Kadapa (Utukur)	Farm pond	2	0	36	12
AP	Kadapa (Utukur)	Rainwater harvesting pit	0	1	27	8
AP	Kurnool (Banavasi)	Rainwater harvesting management techniques	4	4	284	53
AP	Prakasam (Kandukur)	Jal Shakti Abhiyan	0	1	18	0
TS	Adilabad	Demonstration on BBF technology in Soybean	0	1	124	12
TS	Adilabad	Demonstration on raised bed technology in cotton + red gram	1	1	345	35
TS	Khammam (Wyra)	rainwater harvesting for improving ground water levels	1	1	103	15
TS	Mahabubnagar (YFA)	Rainwater harvesting techniques	1	1	63	12
TS	Medak (DSS)	Jal Shakti Abhiyan	5	12	22	15
TS	Medak (Tuniki)	Soil and water conservation technologies	5	2	150	10
PY	Karaikal	Jal shakti Abhiyan	2	1	0	0
PY	Puducherry	Rainwater conservation in agriculture	1	1	4	2
		Total	**106**	**114**	**5178**	**481**

3.8 Technological Backstopping

The directorates of extension of state agricultural, horticultural, veterinary and fishery universities of the zone and ATARI are vested with the responsibility of technology backstopping, capacity building, monitoring and review of activities of KVKs. A total of 48 events related to training programmes, meetings, seminars, workshops and HRD programmes were conducted by directorates of extension of universities and ICAR-ATARI during 2021-22 for the benefit of 3484 members of KVK Staff and the farmers in zone-10.

Table 3.8.1. Details of training programmes and meetings conducted by SAUs and ATARI

Sau/Atari	No. of meetings	No of participants
ANGRAU, Lam, Guntur	19	2115
PJTSAU, Hyderabad	13	618
Dr.YSRHU, V.R.Gudem	8	581
TNAU, Coimbatore	8	170
ATARI, Hyderabad	10	630
Total	**58**	**4114**

The officials of directorates of extension of universities made 84 visits to 36 KVKs to monitor and review the technological interventions and to take stock of the infrastructural facilities available and the constraints faced by the KVKs of respective universities and the NGO KVKs operating in their jurisdiction.

Table 3.8.2. Details of visit by officials of directorate of extension of SAUs to KVKs

Sau/Atari	No. of Visits	No of KVKs
ANGRAU, Lam, Guntur	31	17
PJTSAU, Hyderabad	9	6
Dr.YSRHU, V.R.Gudem	26	2
PVNRTU, Hyderabad	3	1
TNAU	15	10
Total	**84**	**36**

3.9 Agricultural Technology Information Centre (ATIC)

Three Agricultural Technology Information Centres (ATICs) are operational in the zone, two under agricultural universities, Professor Jayashankar Telangana State Agricultural University (PJTSAU) and Tamil Nadu Agricultural University (TNAU) and one veterinary university, Tamil Nadu University of Veterinary and Animal Sciences (TANUVAS). The ATICs are vested with the responsibility of providing farmers with enhanced access to sources of information related to agriculture and allied sectors and also critical technology products like seed, planting material, livestock material and bio-products and also provide technology services like soil and water analysis, plant and animal diagnostic visits, agro-veterinary advisory *etc*. The three ATICs provided technology information, technology products and agro-advisory to 3251, 9662 and 1331 farmers respectively. Two books were sold to 385 farmers and 2 DVDs on crop production technology was sold to 34 farmers. Two technical bulletins from PJTSAU were sold to 9140 farmers during 2021-22.

Table 3.9.1 Details of visit of farmers to ATICs

Nature of Visit	PJTSAU	TANUVAS	TNAU	Total
Technology Information	308	1093	1850	**3251**
Technology Products	23	8989	650	**9662**
Agro-advisory	152	579	600	**1331**

Critical technology products like seed, planting material, poultry birds and bioproducts were provided to 2267 beneficiaries. Technology services like soil and water testing, plant diagnostic visits and agro-veterinary advisory services were provided to 2081 farmers during 2021-22.

Table 3.9.2 Details of publications by ATICs

Details	PJTSAU	TANUVAS	Total
Books			
Number	1	1	2
Number of Copies	-	7689	7689
Revenue (Rs.)	3000	3,18,122.00	321122
No. of farmers	20	365	385
Technical bulletins			
Number	1	-	1
Number of Copies	9140	-	9140
Revenue (Rs.)	223000	-	223000
No. of farmers	9140	-	9140
CD/DVD and Video films			
Number	1	1	2
Number of Copies		115	115
Revenue (Rs.)	4000	4,600.00	8600
No. of farmers	10	24	34

Table 3.9.3 Technology products provided by ATICs

Technology products provided	Quantity/Number	No. of farmers benefitted
Seed (q)	3086.2	1367
Planting material (No.)	2857	90
Poultry birds (No.)	900	25
Mineral Mixture	1074	122
Bio-products (No.)	239.5	663

Table 3.9.4 Technology Services Provided by ATICs

Service rendered	No. of farmers
Soil and water testing	51
Agro/Veterinary Advisory Services	587
Farmers visited ATIC	1443

3.10 National Innovations in Climate Resilient Agriculture (NICRA)

National Innovations in Climate Resilient Agriculture (NICRA) is a multi-disciplinary and multi-institutional project launched by ICAR during 2011 to impart resilience to Indian agriculture and allied sectors through development of resilient technologies (Strategic research) and application of existing resilient technologies through demonstrations and building awareness (TDC-NICRA). After reorganization of districts into various risk categories by ICAR-CRIDA during 2021, TDC-NICRA has been implemented in 5 KVKs under ATARI, Hyderabad across the states of Andhra Pradesh (Srikakulam, Anantapur (Reddipalli) and Kurnool (Yagantipalli)), and Tamil Nadu (Ramanathapuram, and Villupuram). Among them, KVK Srikakulam addresses the climatic vulnerability of floods and the rest of the KVKs majorly deal with drought and heat stress as climatic vulnerability of the districts. As per the new format of TDC-NICRA in the new phase, the KVKs adopted 2-3 villages representing the climatic vulnerability of the district and each of these villages was divided into farming system typologies like rainfed with animals, rainfed without animals, irrigated with animals, irrigated without animals etc., From each of the farming system typology, 10 households were selected and technology package was assembled and demonstrated to address crop, soil , weather and technology constraints of the farming system typology. Attempts were made to saturate the rest of the village / villages with the chosen technology package through convergence. As during the first phase of TDC-NICRA, demonstrations are conducted by KVKs under four modules, Natural Resource Management (NRM), Crop production, livestock and institutional interventions (Village Climate Risk Management Committee (VCRMC), custom hiring centre, Seed bank, Fodder bank) along with capacity building and extension activities.

Demonstrations were organized in 64.7 ha benefiting 318 farmers under NRM interventions viz., water harvesting and recycling, in-situ moisture conservation, ground water recharge, improved drainage and various resource conservation techniques. Under crop production module various interventions such as drought tolerant, flood tolerant and short duration varieties, location specific intercropping systems, crop diversification, pest and disease management, nutrient management etc., were taken up on 210.6 ha area covering 727 farmers. Under livestock and fisheries interventions, 293 farmers were benefited on improved fodder production covering 30.5 ha. Silage making, breed upgradation, improved breeds of backyard poultry, vaccination, animal health camps, management of fishponds etc., were demonstrated involving 3015 animals. Under institutional interventions like custom hiring center, fodder bank and seed bank 148 farmers were benefited, and an area of 103 ha was covered. Through capacity building and extension activities, awareness on climate resilient technologies was brought about benefitting 663 and 1605 farmers through 21 and 34 activities respectively.

Natural Resource Management (NRM)

Demonstration of sub soiling with chisel plough in groundnut for drought mitigation-Anantapur, Andhra Pradesh

Sub soiling with chisel plough to a depth of 40-45cm at an interval of 2m distance before land preparation in rainfed groundnut crop at an interval of 1m distance at a depth of 10-25cm in Chamaluru and Chakrayapeta helped in conservation of rainwater and as a result 12.00 % pod yield increase was observed in rainfed groundnut with the variety Kadiri Lepakshi.

Subsoiling for breaking compact pan in groundnut

Table 3.10.1. Performance of groundnut under sub-soiling

Treatments	Pod yield (q/ha)	Haulm Yield (q/ha)	Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio
Farmer's practice	8.75	9.85	33750	48125	14375	1.4
Improved technology	9.8	1.09	35300	53900	18600	1.52

Crop Production

Popularization of short duration and drought tolerant rice varieties

The performance of short duration and drought tolerant rice varieties viz., TKM 13, RNR 15048, ADT 53, VGD 1 and Co 53 was compared against the farmers practice in Komboothi, Karukathi, Manjakollai villages of Ramnad district of Tamilnadu in the farming system typology of rainfed without animal. All the varieties demonstrated performed better than farmers practice and ensured higher BC ratio compared to farmers variety indicting their suitability to address the constraints faced by the farming system typology which is rainfed situation without animals in Ramnad district of Tamil Nadu.

Demonstration of short duration drought tolerant rice varieties in Ramnad district of Tamil Nadu

Table 3.10.2. Performance of short duration and drought tolerant varieties of rice in Ramnad district of Tamil Nadu

Treatments	Seed yield (kg/ha)	Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio
Farmers practice	3800	32500	52097	19597	1.603
TKM 13	5735	32500	78625	46125	2.419
RNR 15048	4650	32500	71250	38750	2.192
ADT 53	5850	32500	80202	47702	2.468
VGD 1	5425	32500	74375	41875	2.288
CO 53	5115	32500	70125	37625	2.158

Live stock and Fisheries

Calf registration, a success livestock intervention

Scientific rearing of dairy animals will keep the animals healthy as well as productive. It was noticed that newly born calves are not offered proper medication and feeding during the initial six months which results in poor growth and delayed maturity. (4-5years). To educate the farmers towards scientific practices in calf rearing "Calf registration and healthy calf programme" was initiated during 2011-12 under TDC-NICRA and continued afterwards. In this programme, the registered calves were provided with scientific feeding (Vitamin and mineral supplementation) and medication (Vaccination) up to six months age. The registered calves gain 82.24kg in 5 months of age where as control group gain 55.83kg only. AS the growth rate was more, the calves exhibited heat early at 2 years age. The programme created a great impact among the farmers about calf rearing.

Calf registration – KVK, Kurnool (Yagantipalli)

Deworming of registered calves

Schedule of medication to registered calves

Age of the calf	Medication
7th Day	Deworming
1 month	Dewoming + Vit. A
2 months	De worming + Vit.A, FMD Vaccination
3 months	Deworming + Vit A + B Complex
4 months	Deworming + Vit A + B Complex
5 months	Deworming + Vit A + B Complex
6 months	Deworming + Vit A + B Complex FMD vaccination

Performance of registered calves

Particulars	Registered calves	Control
Initial Body weight (mean) kg	31.37	32.15
Final Body weight (mean) kg	113.61	87.98
Body weight gain (in 150 days)	82.24	55.83
Mortality (%)	4%	12%

3.11. Attracting and Retaining Youth in Agriculture (ARYA)

Attracting and Retaining Youth in Agriculture (ARYA), a project launched by agricultural extension division of ICAR during March 2015 aims to create interest and confidence among rural youth in agriculture by demonstrating the potential of enterprises based on agriculture and allied sectors to be profitable and reliable sources of livelihood in rural areas. This endeavor is expected to result in rural youth being retained in villages and prevention of migration of youth to urban areas in search of livelihood realizing the importance of youth in agricultural development. The main objectives of the project are to attract rural youth to take up various agriculture, allied and service sector enterprises, to enable youth to establish net work groups to take up capital and resource intensive activities like processing, value addition and marketing and to demonstrate linkages with different stake holders for sustainable development of youth. This is envisioned to be achieved through imparting skill training to youth with the right aptitude to be self-reliant and facilitating establishment of enterprise units either singly or in groups by providing necessary critical inputs both general and capital. Skill development of rural youths will help in improving their confidence levels and encourage them to pursue farming as profession, generate additional employment opportunities to absorb under employed and unemployed rural youth in secondary agriculture service-related activities in rural areas. The concurrent monitoring, evaluation and mid-term correction will be an integral part of project implementation. ARYA has been implemented by three KVKs in Zone 10 *viz*., Nellore in Andhra Pradesh, Nalgonda (Kampasagar) in Telangana and Kanyakumari in Tamil Nadu since 2015-16 and additional seven KVKs *viz*., West Godavari (V R Gudem), Kadapa, Warangal (Malyal), Dharmapuri, Sivagangai, Erode and Puducherry were sanctioned during 2018-19.

A total of 111 trainings were conducted on various enterprises viz., Apiary, Bio-Inputs, Fishery, IFS, Mushroom production, Nursery, Poultry, Sheep and goat, Value addition and Vermicompost by ARYA KVKs in which 2361 youth were trained (Table 3.11.1). Out of them, 1151 youth have established 632 enterprise units. Nellore has trained 120 youth on vermicomposting, mushroom production and establishment of nursery (Table 3.11.1). State, KVK and enterprise wise trainings conducted, youth trained and enterprises established are furnished in Table 3.11.2. Maximum number of 702 youth were trained on value addition, which includes fruit and vegetable preservation and value-added products, millet based value added products, bakery, value added products from banana and coconut. A total of 308 youth have established 119 enterprises in value addition.

Table 3.11.1. Enterprise wise youth trained and enterprise established in ARYA project

Enterprise	No. of Trainings	No. of Youth trained	No of Youth established units	No. of enterprises established
Apiary	10	256	163	63
Bio-Inputs	5	126	12	1
Fishery	7	30	30	30
IFS	1	75	75	75
Mushroom production	10	241	69	24
Nursery	8	235	101	9
Poultry	12	204	175	130
Sheep and goat	3	110	94	94
Value addition	34	702	308	119
Vermicompost	21	382	124	87
Total	**111**	**2361**	**1151**	**632**

Table 3.11.2. KVK wise youth trained and enterprise established in ARYA project

State/KVK/Enterprise	No. of Trainings	No. of Youth trained	No of Youth established units	No. of enterprises established
Andhra Pradesh				
Nellore				
Mushroom production	2	60	19	3
Nursery	2	64	10	3
Value addition	4	120	6	1
Vermicompost	2	60	25	6
Total	**10**	**304**	**60**	**13**
West Godavari (VR Gudem)				
Apiary	3	91	42	42
Poultry	1	60	42	42
Sheep and goat	1	50	40	40
Value addition	6	122	15	15
Total	**11**	**323**	**139**	**139**
Kadapa (Utukur)				
Mushroom production	2	50	5	4
Nursery	2	50	6	2
Value addition	2	50	7	4
Vermicompost	2	50	5	3
Total	**8**	**200**	**23**	**13**
Total (AP)	**29**	**827**	**222**	**165**
Telangana				
Nalgonda (Kampasagar)				
IFS	1	75	75	75
Nursery	1	30	15	3
Value addition	1	30	11	1
Vermicompost	1	30	0	0
Total	**4**	**165**	**101**	**79**
Warangal (Malyal)				
Apiary	3	95	95	5
Nursery	2	70	70	1
Poultry	2	55	55	10
Value addition	3	90	90	4
Vermicompost	1	22	22	6
Total	**11**	**332**	**332**	**26**
Total (TS)	**15**	**497**	**433**	**105**
Tamil Nadu				
Dharmapuri				
Mushroom production	2	50	30	2
Sheep and goat	2	60	54	54
Value addition	2	50	3	2
Total	**6**	**160**	**87**	**58**

State/KVK/Enterprise	No. of Trainings	No. of Youth trained	No of Youth established units	No. of enterprises established
Sivagangai				
Fishery	7	30	30	30
Poultry	7	50	50	50
Value addition	7	80	80	80
Vermicompost	8	40	40	40
Total	**29**	**200**	**200**	**200**
Kanyakumari				
Apiary	3	38	12	12
Mushroom production	3	56	11	11
Value addition	2	34	34	3
Value addition	3	50	22	2
Vermicompost	3	54	20	20
Total	**14**	**232**	**99**	**48**
Erode				
Apiary	1	32	14	4
Bio-Inputs	5	126	12	1
Poultry	1	28	28	28
Value addition	3	55	38	5
Vermicompost	3	115	12	12
Total	**13**	**356**	**104**	**50**
Total (TN)	**62**	**948**	**490**	**356**
Puducherry				
Puducherry				
Mushroom production	1	25	4	4
Nursery	1	21	0	0
Poultry	1	11	0	0
Value addition	1	21	2	2
Vermicompost	1	11	0	0
Total	**5**	**89**	**6**	**6**
Grand Total	**111**	**2361**	**1151**	**632**

Trained youth with honeybee rearing boxes KVK West Godavari (VR Gudem (AP)

Training on honey extraction KVK Kanyakumari (TN)

Exposure visit to apiary
KVK Warangal (Malyal) (TS)

Value added honey
KVK West Godavari (VR Gudem (AP)

Bio-inputs production unit
KVK Erode (TN)

Training on mushroom production
KVK Kanyakumari (TN)

Mushroom enterprise unit
KVK Nellore (AP)

Training on shade net nursery
KVK Warangal (Malyal) (TS)

Training on protray nursery
KVK Puducherry (PY)

Training on vermicomposting
KVK Kanyakumari (TN)

Small scale poultry enterprise
KVK Kanyakumari (TN)

Kadaknath poultry enterprise
KVK Nalgonda (Kampasagar) (TS)

Coconut value addition enterprise unit
KVK Kanyakumari (TN)

Youth displaying their value added products
KVK Kadapa (Utukur)

Value added products from banana
KVK Erode (TN)

Value added products from fruits
KVK West Godavari (VR Gudem) (AP)

Training on vermicompost production
KVK Puducherry (PY)

Training on poultry enterprise
KVK Sivagangai (TN)

3.12 Farmer FIRST Programme (FFP)

The Farmer FIRST Programme (FFP) was conceived and implemented by Indian Council of Agricultural Research (ICAR) to involve the practicing farmers for research problem identification, prioritization and to conduct experiments in farmers field utilizing the resources available with the farmers to privilege the smallholder agriculture operating in complex, diverse and risk prone situations through enhancing farmers-scientists interface. It is a farmer centric approach for research problem identification, prioritization and conduct of experiments and their management in farmer's conditions. The focus is on Farmer, Farm Innovations, Resources, Science and Technology (FIRST). Two terms 'enriching knowledge' and 'integrating technology' qualify the meaning of Farmer FIRST in Indian context. The project is undertaken covering four major components *viz.,* Enhancing Farmer-Scientist Interface, Technology Assemblage, Application and Feedback, Partnership and Institution Building and Content Mobilization. Farmer FIRST Programme (FFP) has been implemented by Four ICAR institutes (IIMR, IIOPR, IIOR and CRIDA) and one University (TANUVAS, Chennai) under ATARI, Hyderabad.

FFP Centres in the Zone propagated 90 technologies including crop varieties and management technologies for agricultural and horticultural crops, livestock breeds and management technologies, natural resource management and enterprises in an area of 3444 ha and distributing 6615 animals including cattle, goat/ sheep and poultry reaching out to 4805 households (Table 3.12.1). A total of 13 trainings were conducted for 817 participants. New and improved technologies were demonstrated at 3330 locations benefitting 6105 farmers. A total of 680 animals including goat/sheep and poultry chicks were distributed under livestock and IFS demonstrations.

Table 3.12.1. Module wise achievements in Farmer FIRST Programme

Module	Technology Interventions			Trainings		Technology Demonstrations		
	No. of Technologies	Area (ha) / No. of animals	No. of households	No. of Trainings	No. of participants	No. of Demos	No. of Farm Families	No of Animals
Crops	36	1669	2088	2	300	655	1154	
Horticulture	12	156	477	2	150	113	363	
Livestock	26	6615	913	3	150	1208	305	232
NRM	13	1613	1163	4	187	1299	2904	
Enterprises	5	5	164	2	30	2	20	
IFS						16	26	
Extension Activities						37	1333	448
Total	**90**	**3444 ha 6615 animals**	**4805**	**13**	**817**	**3330**	**6105**	**680**

ICAR-CRIDA, Hyderabad

Micro sprinklers, drip systems with scheduled fertigation for vegetable crops and portable rain-gun for field crops were demonstrated for effective utilization of harvested rainwater for high value crops like Chilli and Tomato. Two water harvesting structures were developed in two villages for demonstration. Redgram variety PRG 176 was demonstrated in 200 ha for 300 households which gave an average yield of 15 q/ ha. Nine row planter was demonstrated for sowing maize + pigeon pea in 4:1 intercropping system in

45 ha. Sorghum variety CSV 15 was demonstrated in 10 ha to 25 households and the average yield was 12.5 q/ ha as compared to 8 q/ha in local variety. Soil test-based fertilizer recommendation for chickpea variety NBeG 47was demonstrated at 8 locations, which gave 43% higher yields than farmers practice. Backyard poultry farming using Srinidhi breed was demonstrated to fifty landless and small farmers which showed significant higher production performance over indigenous poultry birds and better support system to livelihood and nutritional security in dryland region. Goat farming, hybrid fodder production, mineral mix supplement for bovine, are some of the other interventions demonstrated.

ICAR-IIMR, Hyderabad

Crop varieties viz., Sorghum CSV 31 and CSH 41, Foxtail millet SiA-3156, Little millet GNV 3, Brown top millet AK 1, Barnyard millet VL 207, Kodo millet JK 41 and RL 309/25, Pearl millet PA-9285, Finger millet GPU 67, Redgram Asha, Rabi sorghum Phule Revathi and CSV-26R were demonstrated in about 111.18 ha covering 235 households. The new varieties gave 9 to 56 per cent higher yield and income over farmers practices. Poultry farming, sheep and goat rearing, millet processing and roti making are some of the other enterprises promoted among farmers.

ICAR-IIOPR, Pedavegi, Andhra Pradesh

To enhance the farmer-scientist interface, 21 demonstrations, interface meetings, field visits, awareness campaigns, exposure visits, training programmes were conducted in which 411 farmers participated. Farm innovators were identified and groomed on technologies like oil palm harvesters, biomass recycling, vermicomposting, fertigation and intercropping. Technological interventions like weather based irrigation scheduling in oil palm, nutrient application to oil palm through fertigation, integrated pest management of rhinoceros beetle, leaf eating caterpillar and bag worm in oil palm, integrated disease management of basal stem rot (Ganoderma sps.) in oil palm, mechanization of harvesting of bunches in oil palm, coconut and oil palm based cropping system, fodder grass for livestock, recycling of biomass obtained from oil palm plantation, introducing fish in farm ponds in coconut / oil palm cropping system were assessed and demonstrated.

ICAR-IIOR, Hyderabad

To enhance farmer-scientist interface, focussed group discussions, capacity building programmes, EDP *etc* were conducted. Integrated crop and nutrient management for groundnut, paddy and redgram and technologies for residue management were demonstrated. Rice variety KNM-118, castor varieties DCH 519 and ICH 66, sorghum varieties CSH 14 and Zaid 2018 were propagated and demonstrated. IFS with Rajshree bird, Production Nellore, Macherla and Bellary breed Ramlambs, redgram processing, groundnut value addition, rice milling are the other technologies propagated and demonstrated.

TANUVAS, Chennai

New and improved technologies on bio-fertilizers, bio-control agents, sesamum, groundnut, paddy drum seeder, power sprayer, drip irrigation and mulching, solar light traps, battery sprayer, power weeder, earth augur, brush cutter, apiculture, backyard poultry with Aseel, Kadakknath, Siruvidai breeds, turkey, Japanese quail, cattle feed, chicken brooder feed, chicken grower feed, chicken layer feed, fish feed, goat feed, NDV- Oral pellet Vaccine, Azolla production and units fodder crops were demonstrated and propagated.

Distribution of chicks for backyard poultry - ICAR-CRIDA, Hyderabad

Demonstration of water harvesting structure ICAR-CRIDA, Hyderabad`

Demonstration of mulching ICAR-CRIDA, Hyderabad

Demonstration of new crop varieties - ICAR-IIMR, Hyderabad

Training on value added millet products - ICAR-IIMR< Hyderabad

Distributio of soil health cards to oil palm farmers - ICAR-IIOPR, Pedavegi, Andhra Pradesh

Distribution of aluminium pole harvester to oil palm farmers - ICAR-IIOPR, Pedavegi, Andhra Pradesh

Demonstration of paddy drum seeder TANUVAS, Chennai

Demonstration of castor variety DCH 519 ICAR-IIOR, Hyderabad

Demonstration of Sorghum CSH 14 ICAR-IIOR, Hyderabad

Demonstration of groundnut variety K 6 ICAR-IIOR, Hyderabad

Demonstration of poultry breed Kadakhnath TANUVAS, Chennai

Demonstration of solar light trap TANUVAS, Chennai

Mr M Srinivas, a progressive farmer of FFP receiving 'Best farmer award 2021' during Foundation Day of ICAR CRIDA

3.13. Cereal Systems Initiative for South Asia (CSISA)

Cereal Systems Initiative for South Asia (CSISA) and Soil Intelligence System (SIS) projects led by CIMMYT in collaboration with ICAR, SAUs, DOAs, IFPRI and IRRI sponsored project on evaluation of crop response to Zn fertilizer application in Andhra Pradesh was implemented by nine KVKs viz., Guntur (LAM), Krishna (Gantasala), Prakasam (Darsi), Kurnool (Banavasi), Srikakumam, Ananthapuram (Reddipalli), West Godavari (Undi), Chittoor (Kalikiri) and Visakhapatnam (Kondempudi). To understand the intersection of site factors, crop management, and yield outcomes, open digital data collection (ODK based) on production practice was conducted from all the trials farmers during harvest. During the reporting year, studies were conducted with the aim of testing the effect of Zn fertilizer application on grain yield, profit, and grain quality in Kharif 2021 in Andhra Pradesh. Six villages were selected per district. In each village, two farms with low zinc status and two farms with medium to high zinc status were selected totaling 24 farmers fields per district and four treatments were imposed at each location. The treatments were, control, soil application of $ZnSO_4$@25kg/ha, foliar spray of zinc @ 0.5% and zincated fertilizers + foliar spray of zinc @ 0.5%.

In low zinc soils, the mean rice yield was 55.4q/ha. Soil application of $ZnSO_4$ @25kg/ha gave 5.94% higher yield than control while foliar spray of Zn @ 0.5% $ZnSO_4$ gave 4.87% higher yield. The highest yield of 59.7q/ha (7.74% higher than control) was obtained in the combination of soil application + foliar spray. In medium Zinc soils, the highest yield of 58.5 q/ha (10.29% higher than control) was recorded in soil application of zinc + foliar spray.

On-field data enumeration - KVK Krishna (Ghantasala)

Foliar spray of $ZnSO_4$ - KVK Kurnool (Banavasi)

Recording grain yield in zinc fertilized paddy - KVK West Godavari (Undi)

3.14. District Agro Met Units (DAMUs)

District AgroMet Units (DAMUs) have been set up under the Gramin Krishi Mausam Seva (GKMS) scheme in 28 Krishi Vigya Kendras of the zone as per the memorandum of understanding (MOU) entered by ICAR with Indian Meteorological Department (IMD) with an objective of preparing and disseminating sub-district (block) level agro-met advisory bulletins so as to cover maximum number of farmers in the district with the advisories. Among the 28 KVKs selected for setting up of DAMUs in zone x, 9 are in AP, 8 are in Telangana, 10 are in Tamil Nadu and 1 is in Puducherry. Through DAMUs, it was aimed to bring IMD and KVKs together in a structured matter to ensure better understanding of roles and responsibilities and to cater to the beneficiaries in a more effective manner. Two man power positions (SMS (Agrometeorology) and agromet observer) have been appointed at each DAMU with the responsibility of issuing block level agro-met advisories with the help of an expert panel, disseminate the same through different means like electronic, print and ICT platforms and to quantity the impact of the advisories in terms of benefits accrued to the recipients of the advisories. Both the members of staff under DAMUs also collect feed back of farmers at regular intervals on the extent to which the advisories issued were of use to them in terms of productivity gain and crop loss avoided during extreme weather events.

The review and action plan workshop of 28 DAMUs was taken up on August 26th 2021 to review the progress of the DAMUs during 2021-22 and to discuss the action plans for the year 2020-21 where in suggestions were given by experts from IMD, SAUs and ATARI on effective implementation of the project. Automatic weather stations (AWS) were also established by IMD in most of the KVKs in phase I for collecting weather data locally on a continuous basis which could be correlated with the weather bulletins issued by IMD before issuing advisories to the farmers.

In the state of Telangana, a total of 10068 block level agro-met advisory bulletins were generated and issued to the farmers and uploaded in Agromet – DSS portal. A total of 47 farmers' awareness programmes were conducted in the state on the use of agro-met advisories and also on the utility of Meghdoot App of IMD benefitting 2220 farmers. A total of 1463 SMSs related to weather were sent to 68247 farmers of the state during the year. Similarly in the state of Andhra Pradesh, 11951 advisories were given on agro-met DSS portal during 2021-22. During the year 77 farmers' awareness programmes were organized for the benefit of 2927 farmers. A total of 2512 SMSs related to weather based crop advisory were given to 56325 farmers during 2021-22 by the DAMUs of the state through m-kisan, Annapurna Krishi Prasar Seva (AKPS), mobile messages and emails. In Tamilnadu, 19618 agromet adivisories were issued by the 10 DAMU KVKs of the state during the year under report and 175 farmers' awareness programmes were conducted to bring awareness on the utility of weather based agro-advisories and Meghdoot app among 7261 farmers. Weather based advisory was given to 57976 farmers through 7372 SMSs during the year. In the UT of Pondicherry where there is only one DAMU 728 agro-met bulletins were issued in Agromet DSS. The KVKs conducted 29 FAPs benefitting 852 farmers. 108 SMSs were also given by the DAMU benefitting 2040 farmers. Besides issuing agro-met advisory twice a week on Agro-met DSS, the DAMU KVKs also utilized m-kisan, whatsapp, Annapurna Krishi Prasaar Seva (AKPS), SMSs, phone calls, emails, news articles etc. too for the dissemination of the weather based agro-advisory. The feed back that was gathered from the receivers of the advisory highlights that the farmers got benefited significantly in terms of timely sowing and planting of crops, scheduling of irrigation and fertilizer application, pest management and timely harvesting of crops avoiding post-harvest losses to a greater extent.

Table 3.14.1. Achievements of DAMU Centres during 2020-21

State and KVK	No. of AAS bulletins	Farmers' Awareness Programmes (FAP)		SMSs sent to farmers	
		No.	No. of farmers	No.	No. of farmers
Telangana					
Adilabad	1248	4	240	86	7175
Nalgonda (Kampasagar)	1144	5	220	208	5450
Khammam (Wyra)	624	4	170	272	5875
Warangal (Malyal)	1751	6	356	110	16300
Mahabubnagar (Palem)	1680	5	145	169	4560
Nizamabad	1352	11	586	284	9491
Mancherial	1040	7	283	152	4896
Khammam (Kothagudam)	1229	5	220	182	14500
Total (Telangana)	**10068**	**47**	**2220**	**1463**	**68247**
Andhra Pradesh					
Srikakulam	1036	24	871	134	6214
Vizianagaram	936	13	457	312	4578
East Godavari (Kalavacharla)	1964	4	160	96	3550
West Godavari (V.R. Gudem)	1463	3	180	1463	14600
Krishna (Garikapadu)	1352	2	100	120	5300
Prakasam (Darsi)	1352	4	125	43	4645
Nellore	1248	15	568	116	5860
Kadapa (Utukur)	1352	3	100	104	6790
Kurnool (Banavasi)	1248	9	366	124	4788
Total (Andhra Pradesh)	**11951**	**77**	**2927**	**2512**	**56325**
Tamil Nadu					
Dharmapuri	936	10	324	85	1356
Kanchipuram	2591	28	870	106	3046
Cuddalore	1456	3	132	205	2413
Trichy	1560	8	374	104	2764
Virudhunagar	2392	8	515	1144	1370
Pudukkottai	106	20	920	110	2400
Ramanathapuram	1182	5	152	6	29771
Salem	3910	39	1580	3928	10372
Tiruvallur	1575	21	1074	1579	2327
Vellore	3910	33	1320	105	2157
Total (Tamil Nadu)	**19618**	**175**	**7261**	**7372**	**57976**
Puducherry					
Puducherry	728	29	852	108	2040
Grand Total	**42365**	**328**	**13260**	**11455**	**184588**

No. of AAS bulletins = No. of block level AAS bulletins prepared using Agromet DSS

Farmers' Awareness Program (FAP)- KVK, Cuddalore

Awareness program on Meghdoot App- KVK, Nizamabad

3.15 Cluster Frontline Demonstrations on Pulses

CFLDs on pulses programme was implemented by 65 KVKs in the Zone during 2021-22 *kharif*, *rabi* and summer seasons in Tamil Nadu, Andhra Pradesh, Telangana and Puducherry. A total of 4297 demonstrations were conducted in 1865 ha on blackgram, greengram, redgram and Bengal gram (Table 3.16.1). The demonstrations were conducted in cluster approach with small and marginal farmers and weaker sections. Latest improved varieties released and notified by Central Varietal Release Committee within the past 10 years, crop production and protection technologies, bio-fertilizers, bio-pesticides, micro-irrigation were demonstrated. KVKs in Tamil Nadu conducted 1613 demonstrations on blackgram (200), greengram (250), redgram (75) in kharif, blackgram (641), greengram (224) and Bengal gram (98) in rabi; blackgram (50) and greengram (75) in summer seasons in 650 ha area. KVKs in Andhra Pradesh conducted 628 and 940 demonstrations in 270 and 440 ha, during kharif and rabi seasons, respectively. KVKs of Telangana conducted 561, 432 and 73 demonstrations in 261, 195 and 30 ha area during kharif, rabi and summer seasons, respectively while KVKs in Puducherry conducted 50 demonstrations in 20 ha. Season wise and Crop wise number of demonstrations and area are furnished in Table 3.16.1.

Table 3.15.1. Crop wise achievement of CFLDs on Pulses in 2021-22

Crop	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Zone		
	Area (ha)		Demo (No)	Area (ha)		Demo (No)	Area (ha)		Demo (No)	Area (ha)		Demo (No)	Area (ha)		Demo (No)
	T	A		T	A		T	A		T	A		T	A	
Kharif															
Blackgram	80	80	200	50	40	92	0	10	25	-	-	-	130	130	317
Greengram	100	100	250	90	80	198	40	40	82	-	-	-	230	220	530
Redgram	30	30	75	150	150	338	211	211	454	-	-	-	391	391	867
Total *Kharif*	**210**	**210**	**525**	**290**	**270**	**628**	**251**	**261**	**561**	**-**	**-**	**-**	**751**	**741**	**1714**
Rabi															
Blackgram	250	260	641	240	260	551	55	45	113	10	10	25	555	575	1330
Greengram	100	90	224	80	90	202	60	40	92	10	10	25	250	230	543
Bengal gram	40	40	98	90	90	187	110	110	227				240	240	512
Total *Rabi*	**390**	**390**	**963**	**410**	**440**	**940**	**225**	**195**	**432**	**20**	**20**	**50**	**1045**	**1045**	**2385**
Summer															
Blackgram	30	20	50	30			10	10	25				70	30	75
Greengram	10	30	75	0			10	20	48				20	50	123
Total Summer	**40**	**50**	**125**	**30**			**20**	**30**	**73**				**90**	**80**	**198**
Grand Total	**640**	**650**	**1613**	**730**	**710**	**1568**	**496**	**486**	**1066**	**20**	**20**	**50**	**1886**	**1865**	**4297**

T=Target, A=Achievement)

Performance of pulses varieties and technologies under CFLD Pulses (Tables 3.16.2 and 3.16.3)

Tamil Nadu

Blackgram

Blackgram varieties VBN 8, VBN 9, VBN 10, VBN 11 and KKM 1 were demonstrated during kharif, rabi and summer seasons (Table 3.16.2). The average yields recorded by VBN 8 in demo plots were 8.30 q/ha in kharif 7.77 q/ha in Rabi and 6.96 q/ha in summer wherein the increase in yield over check varieties were 29.95, 24.23 and 19.17 per cent, respectively. Varieties KKM 1, VBN 10 and VBN 11 were demonstrated during rabi season where the yield increase were 21.94, 28.80 and 26.52 per cent over check varieties, respective. Among the varieties, VBN 10 gave the highest yield of 12.50 q/ha in Tiruppur district (Table 3.16.3).

Greengram

Greengram varieties CO 8 and VBN 4 were demonstrated during *kharif* and *rabi* seasons. During *kharif* season CO 8 variety recorded an average yield of 8.45 q/ha as against 6.06 q/ha in check plots. In *rabi* season, the average yield recorded by CO 8 was 7.39 q/ha as compared to check yield of 5.95 q/ha. The highest yield of 11.30 q/ha was recorded in Dharmapuri district during kharif and 12.60 q/ha in Tiruvallur district during Rabi season. VBN 4 recorded average yield of 8.29 q/ha over 6.26 q/ha in check variety in during kharif and 5.97 q/ha as against 5.01 q/ha in check during rabi season. The highest yield of 9.20 q/ha was recorded in Salem district.

Redgram

Redgram variety CO 8 was demonstrated in Karur and Krishnagiri districts during kharif season where the average yield was 11.30 q/ha as against 9.57 q/ha in check. The highest yield of 15.28 q/ha was recorded in Krishnagiri district.

Bengal gram

Varieties NBeG 47 and NBeG 49 were demonstrated in Coimbatore, Dindigul and Tiruppur districts where the average yields were 15.77 and 16.04 q/ha, respectively (26.97 and 42.51 per cent higher than check varieties, respectively). The highest yield of 18.5 q/ha was recorded by NBeG 49 in Tiruppur district.

Andhra Pradesh

Blackgram

Varieties LBG 787, TBG 104 and VBN 8 were demonstrated during kharif. The average yields recorded in these varieties were 20.00, 18.81 and 7.62 q/ha as against 12.05, 15.25 and 6.15 q/ha in check varieties, respectively. Among the varieties, TBG 104 gave the highest yield of 21.25 q/ha in West Godavari district. In Rabi Season, varieties GBG1, LBG 752, LBG 787 and TBG 104 were demonstrated where in the yields were 34.98, 26.68, 25.34 and 29.24 per cent higher than the check varieties. The highest yield of 26.50 q/ha was recorded in Kurnool district.

Greengram

Greengram varieties IPM 2-14, LGG 607 and WGG 42 were demonstrated during kharif season where in the yields were 47.67, 38.11 and 29.75 per cent higher than check varieties and the highest yield of 23.75 q/ha was recorded in West Godavari district. During rabi season, varieties IPM 2-14 and WGG 42 were demonstrated. The average yields were 8.19 and 8.51 q/ha as against 6.11 and 6.30 q/ha in check varieties. The highest yield of 15.63 q/ha was recorded by WGG 42 in Chittoor district.

Redgram

Redgram varieties LRG 105, LRG 133-33, LRG 52 and PRG 176 were demonstrated during kharif season where in the yields were 10.55, 22.50, 8.57 and 11.63 q/ha as against 7.65, 7.50, 6.49 and 9.33 q/ha in check varieties, respectively. The highest yield in LRG 105 was 21 q/ha in Kurnool district, LRG 133-33 was 22.5 q/ha in Guntur district, LRG 52 was 21 q/ha in Kurnool district, PRG 176 was 12.13 q/ha in Kurnool district.

Bengal gram

Bengal gram varieties NBeG 452 and NBeG 49 were demonstrated during rabi season where in the average yields were 17.53 and 23.36 q/ha as

against 13.69 and 17.41 q/ha in check varieties. The highest yield of 28.75 q/ha was recorded by NBeG 49 in Guntur district.

Telangana

Blackgram

During kharif season, blackgram variety TBG 104 gave an average yield of 10.23 q/ha as against 9.57 q/ha in check and the highest yield recorded was12.6 q/ha in Medak district. During rabi season, Varieties GBG 1, LBG 787 and MBG 207 were demonstrated where in the yields were 12.12, 32.71 and 24.67 per cent higher than check varieties. The highest yields recorded by the three varieties were 17.01, 18.01 and 19.56 q/ha in Mahabubnagar, Karimnagar and Khammam districts, respectively.

Greengram

Varieties MGG 347 and WGG 42 were demonstrated during kharif season where the average yields were 8.92 and 6.6 and q/ha as against 7.66 and 5.48 q/ha in check. The highest yields of the two varieties were 11.25 and 11.02 q/ha recoded in Khammam and Mahabubnagar districts, respectively. During rabi season, varieties MGG 351 and WGG 42 were demonstrated where the yields were 33.15 and 28.45 per cent higher than the check varieties. The highest yields recorded were 12.5 and 15.62 q/ha respectively in Warangal and Mahabubnagar districts.

Redgram

Redgram varieties Hanuma, LRG 52, PRG 176, TDRG 4, Telangana Kandi 1, WRGe 93 and WRGe 97 were demonstrated by KVKs in Telangana where the average yields in demonstrations were 22.13 to 42.9 per cent higher than the check varieties. The highest yield of 23.75 q/ha was recorded by the variety PRG 176 in Nalgonda district.

Bengal gram

During rabi season, the average yields recorded in Bengal gram varieties NBeG 3, NBeG 47 and NBeG 49 were 20.21, 27.5 and 14.15 q/ha. The highest yield of 28.75 q/ha was recorded by NBeG 47 in Mahabubnagar district.

Puducherry

In Puducherry, blackgram variety VBN 8 and greengram variety VBN 4 were demonstrated during rabi season by KVK Karaikal where the average yields were 5.62 and 5.70 q/ha as against 3.83 and 3.95 q/ha in respective checks. The highest yields recorded were 6.4 q/ha in blackgram and 6.73 q/ha in greengram.

Table 3.15.2. Performance of pulses varieties and technologies under CFLD Pulses

State/ Season/ Crop	Variety	KVKs	Average Yield (q/ha)		% Increase
			Demo	Check	
Tamil Nadu					
Kharif					
Blackgram	VBN 8	Dharmapuri, Dindigul, Erode, Madurai, Namakkal, Tiruvannamalai	8.30	6.39	29.95
Greengram	CO 8	Dharmapuri, Dindigul, Erode, Madurai, Namakkal, Perambalur	8.45	6.06	39.44
Greengram	VBN 4	Salem	8.29	6.26	32.44
Redgram	CO 8	Karur, Krishnagiri	11.30	9.57	18.18
Rabi					
Blackgram	KKM 1	Theni	7.69	6.31	21.94
Blackgram	VBN 10	Cuddalore, Kancheepuram, Pudukkottai, Tiruppur	9.48	7.36	28.80
Blackgram	VBN 11	Pudukkottai, Salem, Vellore	7.48	5.91	26.52

State/ Season/ Crop	Variety	KVKs	Average Yield (q/ha)		% Increase
			Demo	Check	
Blackgram	VBN 8	Ariyalur, Kancheepuram, Nagapattinam, Perambalur, Salem, Sivagangai, Thoothukudi, Tirunelveli, Tiruvallur, Tiruvannamalai, Thiruvarur, Villupuram, Villupuram-II, Virudhunagar	7.77	6.25	24.23
Blackgram	VBN 9	Cuddalore	8.53	7.21	18.28
Greengram	CO 8	Kancheepuram, Thoothukudi, Tirunelveli, Tiruvallur, Thiruvarur, Virudhunagar	7.39	5.95	24.24
Greengram	VBN 4	Nagapattinam	5.97	5.01	19.06
Bengal gram	NBeG 47	Coimbatore	15.77	12.42	26.97
Bengal gram	NBeG 49	Dindigul, Tiruppur	16.04	11.25	42.51
Summer					
Blackgram	VBN 8	Karur, Tiruchirappalli	6.96	5.84	19.17
Greengram	CO 8	Cuddalore, Karur	7.07	6.18	14.35
Andhra Pradesh					
Kharif					
Blackgram	LBG 787	Guntur (Lam)	20.00	12.05	65.98
Blackgram	TBG 104	West Godavari (Undi)	18.81	15.25	23.36
Blackgram	VBN 8	Vizianagaram	7.62	6.15	23.99
Greengram	IPM 2 14	Anantapur (Kalyandurg), Guntur (Lam), Vizianagaram	11.60	7.85	47.67
Greengram	LGG 607	Krishna (Garikapadu)	2.62	1.90	38.11
Greengram	WGG 42	Anantapur (Kalyandurg), Anantapur (Reddipalli), Chittoor (RASS), Visakhapatnam (BCT), West Godavari (Undi)	8.16	6.29	29.75
Redgram	LRG 105	Anantapur (Kalyandurg), Kadapa (Utukur), Krishna (Garikapadu), Kurnool (Banavasi), Prakasam (Darsi)	10.55	7.65	37.96
Redgram	LRG 133-33	Guntur (Lam)	22.50	7.50	200.00
Redgram	LRG 52	Anantapur (Reddipalli), Chittoor (RASS), Krishna (Garikapadu), Kurnool (Banavasi), Kurnool (Yagantipalle), Visakhapatnam (BCT), Vizianagaram	8.57	6.49	32.02
Redgram	PRG 176	Kurnool (Yagantipalle)	11.63	9.33	24.66
Rabi					
Blackgram	GBG 1	East Godavari (Pandirimamidi), Kadapa (Utukur), Kurnool (Banavasi), Visakhapatnam (Kondempudi), Vizianagaram, West Godavari (Undi), West Godavari (VR Gudem)	14.60	10.81	34.98
Blackgram	LBG 752	Krishna (Ghantasala), Visakhapatnam (BCT)	13.75	10.86	26.68
Blackgram	LBG 787	Nellore (Periyavaram), Srikakulam, Visakhapatnam (BCT), Vizianagaram	8.73	6.97	25.34

State/ Season/ Crop	Variety	KVKs	Average Yield (q/ha)		% Increase
			Demo	Check	
Blackgram	TBG 104	Chittoor (RASS), Kadapa (Vonipenta), Kurnool (Banavasi), Kurnool (Yagantipalle), Nellore, Prakasam (Darsi), West Godavari (VR Gudem)	15.98	12.37	29.24
Greengram	IPM 2 14	Prakasam (Darsi), Srikakulam, Vizianagaram, West Godavari (Undi)	8.19	6.11	33.96
Greengram	WGG 42	Anantapur (Reddipalli), Chittoor (RASS), Visakhapatnam (BCT), Visakhapatnam (Kondempudi)	8.51	6.30	35.11
Bengal gram	NBeG 452	Anantapur (Reddipalli), East Godavari (Pandirimamidi), Kadapa (Utukur), Krishna (Garikapadu), Kurnool (Banavasi), Kurnool (Yagantipalle), Prakasam (Darsi)	17.53	13.69	28.10
Bengal gram	NBeG 49	Guntur (Lam), Krishna (Garikapadu), Kurnool (Yagantipalle)	23.36	17.41	34.19
Telangana					
Kharif					
Blackgram	TBG 104	Medak (DDS)	10.23	9.57	6.90
Greengram	MGG 347	Khammam (Wyra)	8.92	7.66	16.46
Greengram	WGG 42	Mahabubnagar (YFA), Medak (DDS), Warangal (Mamnoor)	6.60	5.48	20.48
Redgram	Hanuma	Karimnagar (Ramagirikhilla)	13.83	11.32	22.14
Redgram	LRG 52	Nalgonda (Gaddipally)	7.56	6.06	24.86
Redgram	PRG 176	Mahabubnagar (Palem), Mahabubnagar (YFA), Medak (Tuniki), Nalgonda (Kampasagar), Ranga Reddy, Warangal (Mamnoor)	11.75	9.63	22.13
Redgram	TDRG 4	Medak (Tuniki)	13.21	9.24	42.90
Redgram	Telangana Kandi 1	Khammam (Kothagudam)	20.78	12.70	63.62
Redgram	WRGe 93	Khammam (Wyra), Warangal (Malyal)	12.92	10.10	27.91
Redgram	WRGe 97	Adilabad, Karimnagar (Jammikunta), Mancherial (Bellampalli), Warangal (Mamnoor)	9.54	7.36	29.56
Rabi					
Blackgram	GBG 1	Mahabubnagar (Palem)	16.04	14.31	12.12
Blackgram	LBG 787	Karimnagar (Ramagirikhilla)	14.12	10.64	32.71
Blackgram	MBG 207	Khammam (Kothagudam), Warangal (Malyal)	13.37	10.72	24.67
Greengram	MGG 351	Warangal (Malyal)	10.88	8.17	33.15
Greengram	WGG 42	Mahabubnagar (Palem), Mahabubnagar (YFA)	13.01	10.13	28.45
Bengal gram	NBeG 3	Adilabad, Nizamabad	20.21	17.95	12.56
Bengal gram	NBeG 47	Mahabubnagar (YFA)	27.50	22.56	21.94
Bengal gram	NBeG 49	Karimnagar (Ramagirikhilla), Mahabubnagar (YFA), Medak (DDS), Medak (Tuniki), Ranga Reddy, Warangal (Mamnoor)	14.15	11.65	21.46

State/ Season/ Crop	Variety	KVKs	Average Yield (q/ha)		% Increase
			Demo	Check	
Summer					
Blackgram	LBG 752	Nalgonda (Gaddipally)	9.62	8.36	15.12
Greengram	WGG 42	Karimnagar (Jammikunta), Nalgonda (Gaddipally)	8.98	7.35	22.26
Puducherry					
Rabi					
Blackgram	VBN 8	Karaikal	5.62	3.83	46.74
Greengram	VBN 4	Karaikal	5.70	3.95	44.37

Table 3.15.3. Highest yield recorded under CFLD Pulses

State/ Season/ Crop	Variety	Highest yield recorded (q/ha)	KVK/Distraict
Tamil Nadu			
Kharif			
Blackgram	VBN 8	11.00	Dharmapuri
Greengram	CO 8	11.30	Dharmapuri
Greengram	VBN 4	9.20	Salem
Redgram	CO 8	15.28	Krishnagiri
Rabi			
Blackgram	KKM 1	8.20	Theni
Blackgram	VBN 10	12.50	Tiruppur
Blackgram	VBN 11	10.50	Pudukkottai
Blackgram	VBN 8	10.62	Salem
Blackgram	VBN 9	8.79	Cuddalore
Greengram	CO 8	12.60	Tiruvallur
Greengram	VBN 4	6.40	Nagapattinam
Bengal gram	NBeG 47	16.80	Coimbatore
Bengal gram	NBeG 49	18.50	Tiruppur
Summer			
Blackgram	VBN 8	9.83	Tiruchirappalli
Greengram	CO 8	8.90	Cuddalore
Andhra Pradesh			
Kharif			
Blackgram	LBG 787	20.00	Guntur (Lam)
Blackgram	TBG 104	21.25	West Godavari (Undi)
Blackgram	VBN 8	8.20	Vizianagaram
Greengram	IPM 2 14	17.50	Guntur (Lam)
Greengram	LGG 607	3.90	Krishna (Garikapadu)
Greengram	WGG 42	23.75	West Godavari (Undi)
Redgram	LRG 105	21.00	Kurnool (Banavasi)

State/ Season/ Crop	Variety	Highest yield recorded (q/ha)	KVK/Distraict
Redgram	LRG 133-33	22.50	Guntur (Lam)
Redgram	LRG 52	21.00	Kurnool (Banavasi)
Redgram	PRG 176	12.13	Kurnool (Yagantipalle)
Rabi			
Blackgram	GBG 1	26.50	Kurnool (Banavasi)
Blackgram	LBG 752	17.40	Krishna (Ghantasala)
Blackgram	LBG 787	12.01	Nellore (Periyavaram)
Blackgram	TBG 104	27.50	Kurnool (Banavasi)
Greengram	IPM 2 14	12.00	Prakasam (Darsi)
Greengram	WGG 42	15.63	Chittoor (RASS)
Bengal gram	NBeG 452	28.70	East Godavari (Pandirimamidi)
Bengal gram	NBeG 49	28.75	Guntur (Lam)
Telangana			
Kharif			
Blackgram	TBG 104	12.60	Medak (DDS)
Greengram	MGG 347	11.25	Khammam (Wyra)
Greengram	WGG 42	11.02	Mahabubnagar (YFA)
Redgram	Hanuma	18.00	Karimnagar (Ramagirikhilla)
Redgram	LRG 52	8.20	Nalgonda (Gaddipally)
Redgram	PRG 176	23.75	Nalgonda (Kampasagar)
Redgram	TDRG 4	15.75	Medak (Tuniki)
Redgram	Telangana Kandi 1	22.50	Khammam (Kothagudam)
Redgram	WRGe 93	19.50	Warangal (Malyal)
Redgram	WRGe 97	15.00	Mancherial (Bellampalli)
Rabi			
Blackgram	GBG 1	17.01	Mahabubnagar (Palem)
Blackgram	LBG 787	18.01	Karimnagar (Ramagirikhilla)
Blackgram	MBG 207	19.56	Khammam (Kothagudam)
Greengram	MGG 351	12.50	Warangal (Malyal)
Greengram	WGG 42	15.62	Mahabubnagar (YFA)
Bengal gram	NBeG 3	28.00	Adilabad
Bengal gram	NBeG 47	28.75	Mahabubnagar (YFA)
Bengal gram	NBeG 49	28.19	Mahabubnagar (YFA)
Summer			
Blackgram	LBG 752	10.30	Nalgonda (Gaddipally)
Greengram	WGG 42	11.10	Nalgonda (Gaddipally)
Puducherry			
Blackgram	VBN 8	6.40	Karaikal
Rabi			
Greengram	VBN 4	6.73	Karaikal

Demonstration of blackgram variety VBN 8
KVK Salem (TN)

Demonstration of blackgram variety VBN 8
KVK Villupuram II (TN)

Demonstration of blackgram variety VBN 4
KVK Namakkal (TN)

Demonstration of blackgram variety VBN 4
KVK Tiruchirappalli (TN)

Demonstration of blackgram variety VBN 8
KVK Karur (TN)

Demonstration of greengram variety CO 8
KVK Perambalur (TN)

Demonstration of greengram variety VBN 4
KVK Namakkal (TN)

Demonstration of greengram variety CO 8
KVK Cuddalore (TN)

Demonstration of greengram variety CO 8
KVK Thoothukudi (TN)

Demonstration of greengram variety VBN 4
KVK Nagapattinam (TN)

Demonstration of redgram variety CO 8
KV Krishnagiri (TN)

Demonstration of Bengal gram variety NBeG 49
KVK Tiruppur (TN)

Demonstration of blackgram variety TBG 104
KVK West Godavari (Undi) (AP)

Demonstration of blackgram variety GBG 1
KVK Kadapa (Utukur) (AP)

Demonstration of greengram variety WGG 42
KVK Chittoor (RASS) (AP)

Demonstration of greengram variety IPM 2-14
KVK West Godavari (Undi) (AP)

Demonstration of redgram variety LRG 133-33
KVK Guntur (LAM) (AP)

Demonstration of redgram variety LRG 105
KVK Anantapur (Kalyandurg) (AP)

Demonstration of Bengal gram variety NBeG 452
KVK Kurnool (Yagantipalle) (AP)

Demonstration of Bengal gram variety NBeG 452
KVK Prakasam (Darsi) (AP)

Demonstration of greengram variety WGG 42
KVK, Warangal (Mamnoor) (TS)

Demonstration of greengram variety MGG 351
KVK Warangal (Malyal) (TS)

Demonstration of greengram WGG 42
KVK Mahabubnagar (YFA) (TS)

Demonstration of redgram variety PRG 176
KVK Mahabubnagar (Palem) (TS)

3.16 Cluster Frontline Demonstrations (CFLDs) on Oilseeds

KVKs of the zone conducted cluster front line demonstrations on oilseeds under National Food Security Mission (NFSM) in 2021-2022 during *kharif, rabi* and *summer* seasons to demonstrate the production potential of newly released technologies on the farmer's fields at different locations. The crops covered are groundnut, sesame, sunflower, castor, safflower and niger. A total of 1550 hectares area was allotted to 45 KVKs in Andhra Pradesh, Tamil Nadu, Telangana states, union territory Puducherry and the programme was implemented in 1530 ha by organizing 3825 demonstrations.

Table 3.16.1. Cluster Frontline Demonstrations (CFLDs) on Oilseeds

Crop	State	Area (ha)		No. of Demonstrations	
		Target	Achievement	Target	Achievement
Kharif					
Groundnut	Andhra Pradesh	110	140	275	350
	Telangana	20	0	50	0
	Tamil Nadu	60	50	150	125
	Sub total	**190**	**190**	**475**	**475**
Sesame	Telangana	20	0	50	0
	Tamil Nadu	30	10	75	25
	Sub total	**50**	**10**	**125**	**25**
Castor	Andhra Pradesh	40	50	100	125
	Telangana	20	20	50	50
	Tamil Nadu	10	10	25	25
	Sub total	**70**	**80**	**175**	**200**
Niger	Andhra Pradesh	30	30	75	75
Total Kharif season		**340**	**310**	**850**	**775**
Rabi and Summer					
Groundnut	Andhra Pradesh	290	240	725	600
	Telangana	130	180	325	450
	Tamil Nadu	190	200	475	500
	Sub total	**610**	**620**	**1525**	**1550**
Sesame	Andhra Pradesh	260	250	650	625
	Telangana	70	90	175	225
	Tamil Nadu	70	80	175	200
	Puducherry	10	10	25	25
	Sub total	**410**	**430**	**1025**	**1075**
Sunflower	Andhra Pradesh	40	20	100	50
	Telangana	40	40	100	100
	Tamil Nadu	10	10	25	25
	Sub total	**90**	**70**	**225**	**175**

Crop	State	Area (ha)		No. of Demonstrations	
		Target	Achievement	Target	Achievement
Castor	Andhra Pradesh	10	10	25	25
	Telangana	20	20	50	50
	Tamil Nadu	10	10	25	25
	Sub total	**40**	**40**	**100**	**100**
Safflower	Andhra Pradesh	40	40	100	100
	Telangana	20	20	50	50
	Sub total	**60**	**60**	**150**	**150**
Total Rabi & Summer Season		**1210**	**1220**	**3025**	**3050**
Grand Total		**1550**	**1530**	**3875**	**3825**

Andhra Pradesh

A total of 1950 Cluster frontline demonstrations on oilseeds were implemented by 20 KVKs in Andhra Pradesh during 2021-2022 in groundnut, sesame, sunflower, castor, safflower and niger crops in an area of 780 ha.

Table 3.16.2. Performance of CFLDs on Oilseeds in Andhra Pradesh

Crop	Variety	Name of KVK/ District	Average yield (q/ha)		% increase over check
			Demo	Check	
Kharif					
Groundnut	Dharani	Kurnool, Chittoor	16.3	13.2	23.48
Groundnut	Kadiri Lepakshi	Anantapur, Kurnool, Guntur, Visakhapatnam, Vizianagaram	16.46	11.72	40.44
Groundnut	Dheeraj	Chittoor	16.7	13.35	25.09
Castor	ICH-66	Anantapur, Kurnool	13.24	10.75	23.16
Niger	KGN-2	Vizianagaram, Visakhapatnam	5.24	4.09	28.11
Niger	Utkal niger 150	Visakhapatnam	4.16	3.13	32.90
Rabi and Summer					
Groundnut	Dharani	Chittoor	34.6	27.25	26.60
Groundnut	Kadiri Lepakshi	Anantapur, Kurnool, Nellore, Visakhapatnam, Vizianagaram, Krishna	28	21.33	31.27
Groundnut	Dheeraj	Kadapa	33.81	30.87	9.52
Groundnut	K-9	Kadapa	29.8	22	35.45
Sesame	YLM-66	Nellore, Visakhapatnam, Vizianagaram, Krishna, Kadapa, Chittoor, West Godavari, East Godavari, Srikakulam	8.76	6.65	31.72
Sesame	JCS-1020	Kurnool	11.21	9.56	17.25
Castor	ICH-66	Prakasam	14	9.5	47.36
Sunflower	NDSH-1012	Prakasam, Chittoor	18.74	15.45	21.29
Sunflower	KBSH-53	Chittoor	21.85	17.4	25.57
Safflower	ISF-764	Anantapur, Kurnool	12.96	9.67	34.02

Groundnut: KVKs of Andhra Pradesh conducted 950 Cluster FLDs on groundnut covering an area of 380 ha in *kharif, rabi* and *summer* seasons in Andhra Pradesh. Technology demonstrated included improved variety with integrated crop management practices. During *kharif*, improved variety Kadiri Lepakshi increased the yields by 40.44% compared to check yield in Anantapur, Kurnool, Guntur, Visakhapatnam and Vizianagaram districts. During *rabi*, demonstrations were conducted with improved variety Dharani, Kadiri Lepakshi and Dheeraj of which Dheeraj recorded highest yield of 33.81q/ha in Kadapa district under irrigated conditions.

Sesame: A total of 625 Cluster frontline demonstrations on sesame were taken up in 250 ha in rabi and summer seasons together. In *rabi*, improved variety JCS-1012 along with other technological interventions resulted in average demonstration yield of 11.21q/ha which is 17.25% higher than the average check yield of 9.56q/ha in Kurnool district. During *rabi* and *summer* season varietal demonstration of YLM-66 with recommended package of practices resulted in 31.72% increase in yields compared to check yield in Krishi Vigyan Kendras of Nellore, Visakhapatnam, Vizianagaram, Krishna, Kadapa, Chittoor, West Godavari, East Godavari and Srikakulam districts.

Castor: A total of 150 cluster frontline demonstrations were conducted in 60 ha by KVKs of Kurnool, Prakasam, and Anantapur districts on castor during *kharif* and *rabi* seasons. Technology demonstrated included improved hybrid with integrated crop management practices. ICH-66 hybrid resulted in average demonstration yield of 13.24 q/ha with 23.16% increase against check yield of 10.75q/ha in *kharif* season. Highest yield of 14q/ha was recorded in case of ICH-66 in *rabi* season with 47.36% increase in yield against the check yield of 9.5q/ha in Prakasam district.

Sunflower: A total of 50 Cluster frontline demonstrations in 20 ha were conducted on sunflower by KVKs in Chittoor and Prakasam districts during *rabi* season. The technology demonstrated was improved hybrid with integrated crop management practices. Improved hybrid KBSH-53 resulted in 21.85 q/ha of average demo yield with 25.57% increase against check plot yield of 17.4 q/ha in Chittoor district. The hybrid NDSH-1012 resulted in an average yield of 18.74q/ha against 15.45q/ha of check with 21.29% increase in yield over the check yield in Prakasam and Chittoor districts.

Safflower: A total of 100 CFLDs in 40 ha were organized in Safflower in Kurnool and Anantapur districts during *rabi* season under irrigated situation. Safflower hybrid ISF-764 recorded highest average yield of 12.96 q/ha against check yield of 9.67q/ha with 34.02% increase in yield over check plot.

Niger: 75 Cluster frontline demonstrations were organized on niger crop in 30 ha on niger crop by KVKs of Vizianagaram and Visakhapatnam districts during *kharif* season. The technology demonstrated was varietal demonstration with integrated crop management practices. The variety KGN-2 resulted in average yield of 5.24q/ha against check yield of 4.09 q/ha with 28.11% increase in yield.

Diagnostic visit in Groundnut crop, KVK Chittoor (RASS)

Field visit in Sesame crop, KVK Kadapa (Utukur)

Field visit in Safflower crop, KVK Kurnool (Yagantipalli)

Field Visit in Sunflower crop, KVK Chittoor (RASS)

Tamil Nadu

Cluster frontline demonstrations on oilseeds were implemented by 21 KVKs in Tamil Nadu and one KVK in Puducherry during 2021-22 in groundnut, sesame, sunflower and castor crops in an area of 380 ha.

Groundnut: A total of 625 Cluster FLDs on groundnut were conducted by the KVKs of Tamil Nadu covering an area of 250 ha in *Kharif, rabi* and *summer* seasons. In *kharif*, the technology demonstrated included improved variety with integrated crop management practices under rainfed situation. The varieties demonstrated were Dharani, VRI-8 and Nitya Haritha. Highest average demonstration yield of 23.72 q/ha was recorded with Dharani variety with 20.16% increase in yield compared to check yield in Erode district. During *rabi*, groundnut demonstrations were conducted with improved variety Dharani, Kadiri Lepakshi and VRI-8 following integrated crop management practices. Dharani variety recorded highest average demonstration yield of 58.75q/ha, resulting in 95.83% increased yield compared to check yield of 30 q/ha in Kancheepuram district.

Sesame: A total of 250 cluster frontline demonstrations in 100 ha were conducted on sesame in both *kharif* and *rabi* seasons. In *kharif*, improved variety TMV-7 along with other technological interventions resulted in 60% increase in yields with a demonstration yield of 4.8 q/ha over the check yield of 3 q/ha in Karur district. Varietal demonstration of TMV-7 with recommended package of practices under irrigated conditions resulted in 33.73% increase in yields compared to local check during *rabi* season in Namakkal, Ariyalur and Karaikal districts.

Castor: KVK, Namakkal and Salem conducted 50 cluster frontline demonstrations on castor in 20 ha area during *kharif* and *rabi* season. The technology demonstrated was improved hybrid with integrated crop management practices. In *kharif* the hybrid YRCH-1 resulted in average yield of 15.06q/ha against 9.84q/ha of check yield with 53.04% increase in yield. In *rabi* the hybrid YRCH-1 resulted in average yield of 12.1 q/ha against 9.6 q/ha of check yield with 26.04% increase in yield

Sunflower: 25 Cluster frontline demonstrations in 10 ha on sunflower were conducted by KVK, Virudhunagar during *rabi* season. Technology demonstrated included improved hybrid with integrated crop management practices. The hybrid COH-3 recorded 48.48% increase in yields compared check yield.

Table 3.16.3. Performance of CFLDs on Oilseeds in Tamil Nadu

Crop	Variety	Name of KVK/ District	Average Yield (q/ha)		% increase over check
			Demo	Check	
Kharif					
Groundnut	Dharani	Dharmapuri, Namakkal, Erode	20.46	15.6	31.15
Groundnut	VRI 8	Tiruvannamalai	20.89	17.64	18.42
Groundnut	Nitya Haritha	Dindigul	15.8	10.2	54.90
Sesame	TMV-7	Karur	4.8	3.0	60.00
Castor	YRCH-1	Namakkal	15.06	9.84	53.04
Rabi and Summer					
Groundnut	Dharani	Coimbatore, Kancheepuram, Krishnagiri, Namakkal, Vellore, Tuticorin, Tirunelveli	29.35	20.6	42.47
Groundnut	Kadiri Lepakshi	Ariyalur, Karur, Tiruvannamalai, Villupuram	29.23	19.73	48.15
Groundnut	VRI-8	Cuddalore, Dindigul, Nagapattinam, Perambalur, Salem, Thiruvallur, Virudhnagar, Villupuram	29.4	22.44	31.01
Sunflower	COH-3	Virudhnagar	8.85	5.96	48.48
Sesame	TMV-7	Namakkal, Ariyalur, Karaikal	7.73	5.78	33.73
Sesame	VRI-3	Perambalur, Villupuram, Cuddalore	8.55	6.06	41.08
Castor	YRCH-1	Salem	12.1	9.6	26.04

Field visit in sunflower crop, KVK Virudhunagar

Field day in Castor crop, KVK Namakkal

Field day in Groundnut, KVK, Kancheepuram

Pheromone trap installation in Groundnut, KVK, Kancheepuram

Telangana

CFLDs on oilseeds programme was implemented by 13 KVKs in Telangana during *kharif, rabi* and *summer* seasons in groundnut, sesame, safflower, sunflower and castor crops in an area of 370 ha.

Groundnut: 450 Cluster FLDs on groundnut were conducted covering an area of 180 ha in *rabi* and *summer* seasons in Telangana. The varieties demonstrated were Kadiri Lepakshi, Kadiri Haritandhra and Kadiri Amaravathi. Kadiri Lepakshi along with integrated crop management practices resulted in 54.54% increase in yields over check yield in Karimnagar district with average demonstration yield of 34 q/ha.

Sesame: A total of 225 cluster frontline demonstrations on sesame in 90 ha were taken up in *rabi* and *summer* season with other technological interventions. The improved variety JCS-1020 resulted in 20% increase in yields with a demonstration yield of 9.6 q/ha over the check yield of 8 q/ha in Karimnagar district.

Castor: 100 Cluster frontline demonstrations on castor were conducted in 40 ha by KVK, Mahabubnagar during *Kharif* and *rabi* seasons. The technology demonstrated was improved hybrid with integrated crop management practices. During *kharif* the hybrid ICH-66 resulted in an average yield of 9.93 q/ha against 5.08 q/ha of check with 95.47% increase in yields. During *rabi,* the hybrid ICH-66 resulted in yield of 19.79 q/ha against 13.82 q/ha of check with 43.19% increase in yields.

Sunflower: 50 Cluster frontline demonstrations on sunflower were conducted in 20 ha by KVK, Nizamabad during *rabi* season. The technology demonstrated was improved hybrid with integrated crop management practices. The hybrid DRSH-1 resulted in average yield of 20.9 q/ha with 17.41% increase in yield over check plot.

Safflower: 50 Cluster frontline demonstrations on safflower were conducted in 20 ha by KVK, Medak during *rabi* season. The technology demonstrated was improved hybrid with integrated crop management practices. The hybrid ISF-764 resulted in average yield of 17.36 q/ha with 14.21% increase in yield over check plot.

Table 3.16.4. Performance of CFLDs on oilseeds in Telangana

Crop	Variety	Name of KVK/ District	Average Yield (q/ha)		% increase over check
			Demo	Check	
Kharif					
Castor	ICH-66	Mahabubnagar	9.93	5.08	95.47
Rabi and Summer					
Groundnut	Kadiri Lepakshi	Karimnagar, Warangal, Khammam, Nalgonda	29.18	21.87	33.42
Groundnut	Kadiri Harithandhra	Warangal	27.53	20.9	31.72
Groundnut	Kadiri Amaravathi	Nalgonda, Warangal	23.11	21.28	8.59
Groundnut	ICGV- 00350	Mancherial	8.5	6.5	30.76
Sunflower	DRSH-1	Nizamabad	20.9	17.8	17.41
Safflower	ISF-764	Medak	17.36	15.1	14.21
Sesame	JCS-1020	Karimnagar, Adilabad, Nalgonda	8.8	6.95	26.61
Castor	ICH-66	Mahabubnagar	19.79	13.82	43.19

Field day in Sunflower crop (DRSH-1), KVK Nizamabad (Rudrur)

Safflower (ISF-764), KVK, Medak (DDS)

Sesame (JCS 1020) KVK, Bellampalli

Ground nut Kadiri lepakshi (K-1812), KVK Jammikunta

Castor crop (ICH-66), KVK Mahabubnagar (YFA)

3.17. Seed Hubs

Twelve KVKs of the Zone (6 KVKs from Tamil Nadu, 2 KVKs from Telangana and 4 KVKs from Andhra Pradesh) are involved in the production of quality seed of pulses to augment the demand of quality seed from farmers. During 2021-22, a total of 6485.01 q of foundation and certified seed of pulses have been produced and distributed. In Tamil Nadu, 2613.64 q of certified and foundation seeds of blackgram (VBN 8, VBN 10, VBN 11, CO 8), greengram (VBN 4 and CO 8) and redgram (LRG 52) were produced. In Telangana, 734.33 q of certified and foundation seeds of newly released varieties of greengram (WGG 42), redgram (PRG 176, WRGE 97), blackgram (PU 31) and horse gram (CRHg 22) were produced. In Andhra Pradesh, 3137.04 q of certified and foundation seeds of blackgram (LBG 752, 787, TBG 104, VBN 8, GBG 1), redgram (PRG 176, LRG 52), greengram (WGG 42, IPM 2-14) and Bengal gram (NBeG 452, 49) were produced and distributed.

Table 3.17.1. Details of quality seed production under seed hub programme

State and KVK	Crop	Variety	Season	Area Sown (ha)	Target (q)	Production (q)	Category of Seed
Telangana							
Mahabubnagar (Palem)	Redgram	WRGE 97	*Kharif*	15	250	113.76	FS
	Blackgram	PU 31	*Rabi*	15	100	39.73	FS
	Greengram	WGG 42	*Rabi*	15	150	222.84	FS
	Total			**45**	**500**	**376.33**	
Ranga Reddy	Redgram	PRG 176	*Kharif*	16	300	338	FS
	Greengram	WGG 42	*Kharif*	1	10	5	CS
	Horse gram	CRHG 22	Late *kharif*	2	10	5.5	BS
	Greengram	WGG 42	*Rabi*	5	25	9.5	CS
	Total			**24**	**345**	**358**	
Total (Telangana)				**69**	**845**	**734.33**	
Andhra Pradesh							
Ananthapuram (Reddipalli)	Redgram	PRG 176	*Kharif*	30	300	32.34	CS
	Greengram	WGG 42	Summer	20	200	44.00	CS
	Bengal gram	NBeG 452	*Rabi*	10	200	-	-
	Total			**60**	**700**	**76.34**	
Kurnool (Yagantipalle)	Greengram	WGG 42	*Rabi*	4	10	30	CS
	Redgram	PRG 176	*Kharif*	38	290	538	FS
		LRG 52	*Kharif*				FS
	Blackgram	TBG 104	*Rabi*	35	250	560	CS
		VBN 8	*Rabi*				CS
	Bengal gram	NBeG 452	*Rabi*	65	450	1000	FS
		NBeG 49	*Rabi*				FS
	Total			**142**	**1000**	**2128**	

State and KVK	Crop	Variety	Season	Area Sown (ha)	Target (q)	Production (q)	Category of Seed
Krishna (Ghantasala)	Blackgram	LBG 752	*Rabi*	45.2	1000	380.09	CS
		LBG 787		10		41.73	CS
	Total			**55.2**	**1000**	**421.82**	
Srikakulam	Blackgram	LBG 787	*Rabi*	1.2	15	12.5	FS
		LBG 787	*Rabi*	30.8	200	161.42	CS
		GBG 1	*Rabi*	20	50	23.3	CS
		TBG 104	*Rabi*	2	10	6	TL
		TBG 104	*Rabi*	20	300	231.1	CS
	Greengram	IPM 2-14	Summer	13.6	200	76.56	CS
	Total			**87.6**	**775**	**510.88**	
Total (Andhra Pradesh)				**344.8**	**3475**	**3137.04**	
Tamil Nadu							
Madurai	Black gram	VBN 8	*Rabi*	44	500	230	F-II
		VBN 8	*Rabi*	1		6	CS-I
		CO 8	*Rabi*	2		8	F-I
	Green gram	CO 8	*Rabi*	16	500	100	CS-I
	Total			**63**	**1000**	**344**	
Virudhunagar	Black gram	VBN 8	*Kharif*	1.5	15	10.87	CS
		VBN 8	*Rabi*	2.0	485	17.75	C-I
		VBN 8	*Rabi*	10.0		65.7	F-II
		VBN 10	*Rabi*	6.0		39.33	C-I
		VBN 11	*Rabi*	15.0		77.47	F-I
	Green gram	VBN 4	*Rabi*	10.0	500	36	F-II
	Total			**44.5**	**1000**	**247.12**	
Salem	Green gram	CO 8	*Kharif*	15.2	300	139.01	FS
		CO 8	*Kharif*			30.43	CS
		CO 8	*Rabi*			20.74	CS
		VBN 4	*Rabi*			22.41	FS
		VBN 4	*Rabi*			22.48	CS
		VBN 4	*Rabi*			6.02	TFL
	Cowpea	VBN 3	*Kharif*	2.8	100	2.44	FS
		VBN 3	*Kharif*			14.82	CS
		VBN 3	*Rabi*			15.86	FS

State and KVK	Crop	Variety	Season	Area Sown (ha)	Target (q)	Production (q)	Category of Seed
	Blackgram	VBN 8	Summer	48.9	600	73.54	FS
		VBN 8	Summer			26.78	CS
		VBN 8	*Rabi*			600.56	FS
		VBN 8	*Rabi*			30.27	CS
		VBN 10	Summer			18.86	FS
		VBN 11	*Rabi*			32.23	FS
	Redgram	LRG 52	*Rabi*	0.8		15.28	FS
	Total			**67.7**	**1000**	**1071.73**	
Kancheepuram	Green gram	CO 8	*Rabi*	0.4	5	3.76	F-II
		CO 8	*Rabi*	1.2	10		
	Black gram	VBN 8	*Rabi*	0.8	10	3.28	F-I
		VBN 8	*Rabi*	2.0	16		
		VBN 8	*Rabi*	2.8	30		
		VBN 8	*Rabi*	1.6	16	5.84	CI
		VBN 8	*Rabi*	5.2	42		
		VBN 10	*Rabi*	0.4	4	1.44	F-II
		VBN 10	*Rabi*	1.6	10		-
	Total			**16**	**143**	**14.32**	
Villupuram	Black gram	VBN 8	*Rabi*	28.0	1000	178.12	C
		VBN 8	*Rabi*	30.0		257.81	F-II
		VBN 10	*Rabi*	0.8		9.93	F-II
		VBN 11	*Rabi*	2.0		30.5	F-I
		VBN 11	*Rabi*	10.8		130.7	F-II
	Green gram	CO 8	*Rabi*	0.4		4	F-I
	Total			**72**	**1000**	**611.06**	
Tiruchirappalli	Black gram	VBN 8	Summer	20	100	80.00	FS
	Black gram	VBN 8	Summer	40	900	245.41	CS
	Total			**60**	**1000**	**325.41**	
Total (Tamil Nadu)				**323.2**	**5143**	**2613.64**	
Grand Total				**737**	**9463**	**6485.01**	

Field inspection of redgram seed plot - KVK Mahabubnagar (Palem)

Field day of green gram seed production - KVK Tiruchirappalli

Seed processing and packing - KVK Kancheepuram

Seed processing unit - KVK Ranga Reddy (TS)

Off-campus training on pulses seed production & Certification - KVK Tiruchirappalli (TN)

Specific gravity separator seed grader - KVK Virudhunagar (TN)

Greengram seed farm - KVK Mahabubnagar (Palem) (TS)

Seed processing unit, KVK Salem

3.18 Scheduled Caste Sub Plan (SCSP)

The Schedule Cast Sub Plan (SCSP) has been implemented by all the KVKs of ATARI, Hyderabad mainly to meet the objectives of ensuring substantial reduction in poverty and unemployment and of creating income generating opportunities through providing training and critical inputs and creating productive assets in favour of SC population in the operational areas of KVKs. A total of 2568 training programs were conducted in agriculture and allied sector for the benefit of 43760 scheduled caste clientele who include farmers , farm women and extension personnel during 2021-22. Seed of high yielding varieties of crops to an extent of 2249041 q was supplied to 6633 scheduled caste farmers. The other achievements of the project are reflected in the following table.

Table 3.18.1.

Item	Unit	Name of the State / UT				Total of the zone
		AP	TS	TN	PDU	
Farmers, farm women and extension personnel trained	No. of trainings	315	225	1977	51	2568
	No. of beneficiaries	9649	7184	26398	529	43760
OFTs	No.	369	86	355	7	817
	No. of beneficiaries	650	309	764	7	1730
FLDs	No.	336	156	764	33	1289
	No. of beneficiaries	2636	1854	2958	132	7580
Seed produced	Quintals	336.38	289.47	1623.56	0	2249.41
	No. of beneficiaries	3298	1604	1731	0	6633
Planting material supplied	No.	1040132	172212	259427	29839	1501610
	No. of beneficiaries	2822	1072	114775	122	15491
Livestock strains / fish fingerlings supplied	No.	5462	17414	46468	20	69364
	No. of beneficiaries	551	542	1290	8	2391
Soil and water samples tested	No.	1813	2025	3687	9	7534
	No. of beneficiaries	1473	2315	2758	10	6556

3.19 Tribal Sub Plan (TSP)

The Tribal Sub Plan (TSP) which aims at improving the productivity of crop and animal sector in tribal areas and to provide livelihood security through imparting skill and establishing income generating opportunities among tribal youth has been implemented in zone X through 16 KVKs which have blocks/villages/clusters with predominant tribal population. This has been implemented in the states of Andhra Pradesh (7 KVKs), Telangana (7 KVKs) and Tamilnadu (2 KVKs) of the zone. The KVKs implementing tribal sub plan in A.P are Srikakulam, Vizinaganagarm, Visakhapatnam I (BCT), Visakhapatnam II (Kondempudi), West Godavari(V.R. Gudem), East Godavari (Pandirimamidi) and Prakasam (Darsi). In the state of Telangana the KVKs, Adilabad, Mancherial, Khammam (Wyra), Kothagudem, Nalgonda (Kampasagar), Warangal (Malyal) and Nizamabad have been included for implementing TSP in their operational mandals. The KVKs of Namakkal and Salem districts are included in TSP from the state of Tamil Nadu. It is ensured by these KVKs that the operational area of TSP has more than 40 per cent of tribal population and the interventions of the project ensure direct and quantifiable benefit to the tribal people only. The

interventions under TSP have been taken up under three major thematic areas, agro-services (KVK mandated activities), skill training of farmers, rural youth and tribal women and establishment of physical assets/micro-enterprises for sustainable livelihood security even during non-crop periods. The annual review and action plan meeting of KVKs implementing TSP was conducted on 20th July, 2021. The achievements of KVKs under TSP have been presented in the following tables.

KVKs conducted a total of 59 skill training programs benefitting 1478 tribal youth who were encouraged to take up enterprise units for income generation based on the skill imparted to them. A total of 5422 assets were supplied / created in the tribal villages benefitting 34453 youth for improving their livelihood security during non-crop period.

Table 3.19.1. Achievements of interventions undertaken by KVKs under TSP

Activity	Andhra Pradesh		Telangana		Tamil Nadu		Total	
	No	Farmers (No.)	No	Farmers (No.)	No	Farmers (No.)	No	Farmers (No.)
On- farm trials (Nos.)	60	331	41	170	6	30	107	531
Frontline demonstrations (Nos.)	99	1096	48	471	14	165	161	1732
Farmer's training (Nos.)	169	4644	67	2480	18	754	254	7878
Training of Rural Youth (Nos.)	38	1015	30	969	7	295	75	2279
Training of Extension Personnel (Nos.)	77	2534	14	600	2	60	93	3194
Skill Training (Nos.)	38	895	14	373	7	210	59	1478
Extension activities (Nos.)	350	8459	215	9136	31	3497	596	21092
Production of seed (q)	135.56	1570	478025	2258	8.5	620	622.31	4448
Planting material supplied (Nos.)	630309	5631	25581	1012	11000	1200	666890	7843
Live-stock strains and fish fingerlings (Nos.)	100992	445	3180	450	200	20	104372	915
Soil samples tested (Nos.)	1462	1461	966	966	410	410	2838	2837
Mobile agro- advisories (Nos.)	1589	10233	1067	66743	140	4587	2796	81563
Micro-enterprises (Nos.)	758	2564	4542	21969	122	9920	5422	34453

Minidal mill for income generation – KVK,Vizianagaram, AP

OFT on fall army worm- KVK, Malyal, Telangana

3.20 Swachhta Pakhwada

Krishi Vigyan Kendras of Zone-10 organized Swachhta activities during January to December 2021 by following COVID-19. Swachhta Pakhwada programme was implemented by 71 KVKs of the zone by organizing **'Swachhta Hi Seva'** during 2nd to 31st October 2021 and **'Swachhta Hi Suraksha'** from 16th to 31st December, Special National Swachhta Campaign on 12th October 2021 and celebration of Special day Kisan Diwas on 23rd December, 2021 in Andhra Pradesh, Telangana, Tamil Nadu and Puducherry. KVKs organized awareness programmes on swachhta and displayed the designed posters on significance of swachhta at the prominent places in the villages and official buildings including schools, colleges and gram panchayaths on treatment and safe disposal of bio-degradable waste, other activities including utilization of organic waste, generation of wealth from waste, polythene free status, etc., visited community waste disposal sites, compost pits, cleaning for creating awareness. KVK scientists, technical staff, VIPs, students and farmers were involved in this program conducted at KVK campuses, adopted villages, streets and nearby villages.

Activities of Krishi Vigyan Kendras organized under Swachhta during 2021

- Cleanliness and sanitation drive in KVK campus, schools and adopted villages.
- Tree plantation drive, cleanliness activities.
- Awareness programs, Rally with school children and competitions for school children.
- Awareness created on SOP in view of COVID 19, cleanliness and hygienic measures, pledge taking on Swachhta Pakhwada, cleaning of office premises, boundaries.
- Organized awareness campaigns and created awareness on disposal of biodegradable and non-biodegradable waste by involving farming community.
- Training cum awareness programmes on compost preparation.
- Demonstration on agricultural technologies for generation of wealth from waste.

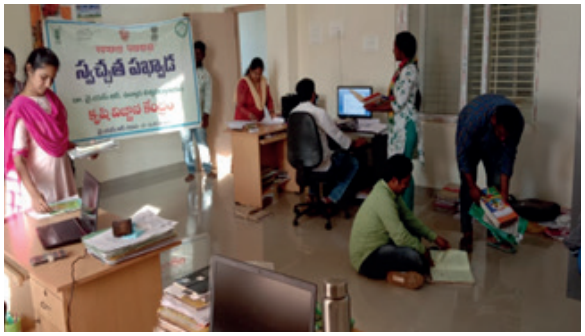
Table 3.20.1. Activities conducted under Swachhta Pakhwada programme

Sl. No.	Date	Activities	No. of Participants (Farmers/ Staffs/ other Participants	No. of VIPs Attended the program
1.	16.12.2021	Display of banner at prominent places, taking Swachhta pledge, Stock taking & briefing of the activities to be organized during the Pakhwada and plantation of trees.	5259	110
2.	17.12.2021	Stock taking on digitization of office records/ e-office implementation. Cleanliness drive including cleaning of offices, corridors and premises. Review of progress on weeding out old records, disposing of old and obsolete furniture, junk material and white washing/painting.	1242	12

Sl. No.	Date	Activities	No. of Participants (Farmers/ Staffs/ other Participants	No. of VIPs Attended the program
3.	18.12.2021	Sanitation and cleanliness and sanitation drive in the adopted villages. Reviewing the progress made under ongoing Swachhta activities including implementation of Swachhta Action Plan (SAP) & providing on the spot solutions.	1208	5
4.	19.12.2021	Cleanliness and sanitation drive within campuses and surroundings including residential colonies, common market places. Stock taking of biodegradable and non-biodegradable waste disposal status and providing on the spot solutions.	998	0
5.	20.12.2021	Stock taking of waste management & other activities including utilization of organic waste/ generation of wealth from waste, polythene free status, composting of kitchen and home waste. Promoting clean & green technologies and organic farming practices in kitchen gardens of residential colonies and nearby villages and proving on the spot technology solutions.	1558	6
6.	21.12.2021	Campaign on cleaning of sewerage & water lines, awareness on recycling of waste water, water harvesting for agriculture/ horticulture /kitchen gardens in residential colonies/ nearby villages.	702	**12**
7.	22.12.2021	Organizing Workshops, exhibitions, demonstrations on agricultural technologies for waste to wealth and safe disposal of all kinds of waste. Debate on Swachhta at the DARE/ICAR establishments, Seminars, awareness camps, rallies, street plays and expert talks.	1219	43
8.	23.12.2021	Celebration of Special Day- Kisan Diwas (Farmers Day) on 23rd December inviting farmers. Experience sharing on Swachhta initiatives by farmers and civil society officials. Felicitating farmers/ civil society officials for exemplary initiatives on Swachhta.	4977	105
9.	24.12.2021	Swachhta awareness at local level (organizing sanitation campaigns involving and with the help of the farmers, farm women and village youth in new villages not adopted under any scheme by institutes/ establishments.	2328	15

Sl. No.	Date	Activities	No. of Participants (Farmers/ Staffs/ other Participants	No. of VIPs Attended the program
10.	25.12.2021	Cleaning of public places, community market places, tourist places and selected spots.	788	2
11.	26.12.2021	Fostering healthy competition: Organizing webinars, online meetings, competition and rewarding best offices/ residential areas/ campuses on cleanliness. Quiz, assay & drawing competitions for school children and village youth.	1145	41
12.	27.12.2021	Awareness on waste management & other activities including utilization of organic waste/ generation of wealth from waste, polythene free status. Curb the use of Single Use plastic (SUP) and discourage the use of plastic in the office. Composting of kitchen and home waste, promoting clean & green technologies and organic farming practices in new areas.	1800	15
13.	28.12.2021	Campaign on cleaning of sewerage & water lines, awareness on recycling of wastewater, water harvesting for agriculture/ horticulture /kitchen gardens in residential colonies, nearby villages with the involvement of local/ village communities.	1945	11
14.	29.12.2021	Visits to community waste disposal sites/ compost pits, cleaning and creating awareness on treatment and safe disposal of bio-degradable/ non-bio-degradable waste by involving civil/ farming community.	2001	10
15.	30.12.2021	Involvement of VIP/VVIPs (Union Ministers, MPS and other dignitaries) in the Swachhta activities, involvement of print and electronic media.	1993	36
16.	31.12.2021	Organization of press conference for highlighting the activities of Swachh Bharat Pakhwada by involving all stake holders including farmers/ VIPs/ press and electronic media.	1720	35

Display of Banner- KVK Kandukur



Cleaning of offices and weeding out old records- KVK Vonipenta

Pledge and fostering healthy competiton- KVK Madanapuram

Explaining cleanliness in goat farm- KVK Vellore

Cleaning of public places near tourist spots- KVK Erode

Street Play on waste to wealth: KVK Puducherry

Sanittion drive: KVK Karaikal

Celebration of Kisan Diwas (Farmers Day)

Celebration of Kisan Diwas and cleaning of Parthenium and other weeds in farmers' fields: KVK Utukur

Celebration of Kisan Diwas: KVK Bellampalli

Celebration of Kisan Diwas: KVK Kancheepuram

Celebration of Kisan Diwas: KVK Puducherry

3.21 Mera Gaon Mera Gaurav

"Mera Gaon Mera Gaurav" (MGMG) is an innovative initiative of Indian Council of Agricultural Research (ICAR), planned to promote the direct interface of scientists with the farmers to hasten the lab to land process. The objective of this scheme is to provide farmers with required information, knowledge and advisories on regular basis by adopting villages. It was implemented by 10 ICAR- institutes in Andhra Pradesh, Telangana and Tamil Nadu states. 66 teams of scientists have adopted 306 villages and organized 1083 activities benefiting 16571 farmers and rural people.

Table:3.21.1. Details of institutes participating in MGMG programme

S. No.	Name of institute/ university	No of Teams	No of Scientists	No. of villages
Andhra Pradesh				
1	Indian Institute of Oilpalm Research, Pedavegi	3	14	4
2	Central Tobacco Research Institute, Rajahmundry	7	33	4
Telangana				
1	Indian Institute of Oilseeds Research, Hyderabad	8	33	40

S. No.	Name of institute/ university	No of Teams	No of Scientists	No. of villages
2	Indian Institute of Millets Research, Hyderabad	4	4	2
3	Directorate of Poultry Research, Rajendranagar, Hyderabad	5	18	6
4	National Research Centre on Meat, Hyderabad	3	13	9
5	Central research Institute for Dryland Agriculture, Hyderabad	8	57	40
Tamil Nadu				
1	Central Institute of Brackishwater Aquaculture, Chennai	5	52	10
2	Sugarcane Breeding Institute, Coimbatore	18	72	90
3	National Research Centre for Banana, Tiruchirappalli	5	10	21
	Total	66	**306**	**226**

About 306 scientists as 66 teams visited 226 villages and conducted various activities in the adopted villages involving the farmers. 52 training programmes were conducted on agriculture, fisheries, value addition and other related aspects benefitting 2369 farmers.130 Interface meetings/ Kisan Ghoshthies were organized with the participation of 2119 farmers. A total of 136 demonstrations were conducted on various aspects of agriculture, aquaculture, climate change, mechanization, water conservation, new crops, varieties etc. involving 1014 farmers. Mobile advisories (335 Nos.), literature (152 Nos.) and awareness (106 Nos.) on improved agricultural practices, soil health, pest and disease management, nutrition, value addition, government schemes etc. were provided to 16,571 farmers &rural women. The activities organized these ICAR-institutes resulted in employment generation, higher yields from the crops and income generation during off season thereby increasing the income levels of the farmers and rural people in the adopted villages under MGMG programme.

Table: 3.21.2. Details of activities conducted under MGMG programme

S. No.	Name of activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	172	4138
2.	Interface meeting/ *Goshthies*	130	2119
3.	Training organized	52	2369
4.	Demonstrations conducted	136	1014
5.	Mobile based advisories (No. of message)	335	1848
6.	Literature support provided (No)	152	824
7.	Awareness created (No)	106	3176
	Total	**1083**	**16571**

Distribution of kitchen garden sprinklers and Horsegram seed to the SC farmers

Scientists visit to Sugarcane fields

Supply of inputs to the beneficiaries

Monitoring of safflower seed production in farmers' fields

3.22 Kisan Sarathi

Kisan Sarathi is a System of Agri-information Resources Auto-transmission and Technology Hub Interface of ICAR powered by Interactive Information Dissemination System (IIDS). It is a joint initiative of Indian Council of Agricultural Research and Digital India Corporation (DIC), Ministry of Electronics & Information Technology (MeitY), Government of India.

It is an Information Communication and Technology (ICT) based interface solution with an ultimate goal of creating intelligent online platform for supporting agricultural extension services and agriculture at local niche with national perspective, which is intended to provide a seamless, multimedia, multi-ways connectivity to the farmers with the latest agricultural technologies, rich knowledge base of agriculture and the pool of large number of subject matter experts.

Kisan Sarathi was launched on July 16th, 2021, the 93rd foundation day of Indian Council Agricultural Research jointly by the honourable ministers Shri Narendra Singh Tomar (Agriculture and Farmers' Welfare) and Shri Ashwini Vaishnaw (Information and Communication Technology) Government of India in the presence of Shri Parshottam Rupala (Minister Fishries, Animal Husbandry and Dairying), Shri Kailash Choudhary (Minister of State for Agriculture and Farmers' Welfare)

and Smt. Shobha Karandlaje (Minister of State for Agriculture and Farmers' Welfare). Online sensitization workshops regarding ***"Services and Operations of Kisan Sarathi"*** were conducted to KVKs in coordination with ATARIs and IASRI under the chairmanship of Addl. Secretary, DARE and Secretary, ICAR.

Kisan Sarathi is a Pull and Push based Advisory system using Mobile Phones. This platform provides 'Right Information' at 'Right Time' in desired 'Mode and Language'. It provides Customizable and need based information delivery to Farmers and Know Your Farmers (KYF) facility to subject matter Experts which enhances the outreach of National Agricultural Research, Education and Extension System in the country.

Platform Features

- Personalized 'Advisory' Based on 'Farm and Farmers' Profile'.
- 'Live Interaction' in Local Language with Domain Experts.
- 'Anywhere Anytime Access' on Past Advisories.
- Dashboard & MIS for Monitoring and Evaluation.
- Call Facilities – Call on Mobile, Click to Call, Call Conferencing, Call Recording.
- Access to Knowledge & Farmer Database - Know Your Farmer (KYF)
- 'Push Alert Message' based on 'Location and Domain'.
- Facility to Register through Toll Free and Web.

Status of Kisan Sarathi implementation by KVKs of ICAR-ATARI, Hyderabad

ATARI, Hyderabad implemented Kisan sarathi involving total 71 KVKs, 13 DATT Centers from Andhra Pradesh, Telangana and Puducherry in which 330 experts, 37 KVK Executives and 683803 farmers have been registered.

Table 3.22.1. Status of Kisan Sarathi implementation by KVKs of ICAR-ATARI, Hyderabad

S. No.	State	No. of KVKs	No. of DATT centers registered in KS	No. of experts registered	KVK Executive	No. of farmers registered
1	Andhra Pradesh	23	4	92	12	255753
2	Telangana	16	9	66	6	198357
3	Tamil Nadu	30	0	161	18	226749
4	Puducherry	2	0	11	1	2944
Zone Total		**71**	**13**	**330**	**37**	**683803**

S. No.	State	No.of KVKs	No.of DATT centers in KS reg	No.of experts registered	KVK Executive	No.of farmers registered	Calls received	No.phone calls answered
1	Andhra Pradesh	23	4	78	6	90572	1564	281
2	Telangana	16	9	63	6	147302	1541	399
3	Tamil Nadu	30	0	155	17	141129	229	69
4	Puducherry	2	0	8	0	2635	23	7
Zone Total		**71**	**13**	**304**	**29**	**381638**	**3357**	**756**

3.23 Awards And Recognitions

Farmers

Pappammal alias Rangammal is an organic farmer from Tamil Nadu, India. At the age of 105, she is still active in the field. She is regarded as a pioneer in the agriculture field and is affiliated with ICAR KVK Coimbatore. She is the pioneer women involved in social engineering women in eco friendly agriculture development, farm mechanization & agriculture produce processing. She has got total leadership qualities with which, till today working on developing women leaders to empower and upgrade farm family status.

Mr. T. Malakondaiah, Progressive Farmer of KVK, Prakasam (Kandukur) received the Best Farmer award in National Horticulture Fair- 2021 at IIHR, Bangalore

Sri T. Bala Narasimha Reddy, Progressive Farmer of KVK Kadapa (Vonipenta) received Amit Udhyana Ratna award in Global Conference on Innovative Approaches for Enhancing Water Productivity, PJTSAU, Hyderabad

Mr.Savalam Bala Raju, Mr.Tellam Chinna Rao, Mrs. Tellam Ramana, Mr.Rava Basava Raju, Mr. Madakam Venkateswara Rao of KVK West Godavari (VR Gudem) received the Best Fisheries Farmer Awards during National Fish Farmers Day 2021.

Mrs. M. Prasanna, Entrepreneur, KVK Krishna (Ghantasala) received Women Entrepreneur award during International Women's Day

Smt Asi Dhanamma, of KVK West Godavari (VR Gudem) received the IARI Best Farmer Award during Krishi Vigyan Mela at IARI, New Delhi.

Smt. Vanka Krishna Veni of KVK West Godavari (VR Gudem) received the Best Women Farmer Award from Dr.T. Janakiram, Hon'ble VC, Dr.YSRHU

Ms. Madakam Venkayamma of KVK West Godavari (VR Gudem) received the Amit Udyan Ratna Award 2021, during the Global Conference on Innovative Approaches for Enhancing Water Productivity, PJTSAU, Hyderabad

Padmashree Mrs. Pappammal, Progressive Farmer of KVK Coimbatore was felicitated with Certificate of Appreciation by the Dr.N.Kumar, Hon'ble VC, TNAU, Coimbatore

Mr.Sucindaran, Contact Farmer of KVK Cuddalore received First Price for his Farm innovation on low cost paddy weeder at Farm Innovators Meet, Theni

Sri. Anantha Praveen Reddy and Sri. Mallela Krishna Reddy, contact farmers of KVK Mahabubnagar (Palem) received the University Best Farmers Award for following the best management practices in field & horticultural crops and CRI Pumps Best Farmer Award for utilization of farm mechanization in agriculture

Sri M.Mallikarjun Reddy, contact farmer of KVK Karimnagar (Jammikunta) received IARI Innovative Farmer Award for adopting innovative technologies and for achieving higher productivity and income in Agriculture.

Smt. Embadi Padma, contact farmer of KV Mancherial received Best Progressive Farmer Award of PJTSAU

Sri. Maddukuri Siddhaiah, Contact Farmer of KVK Nizamabad received Best Progressive Famer Award from PJTSAU

Sri Katuri Papa Rao, contact farmer of KVK Nizamabad received best farmer award from Dhanuka Agritech Ltd., and PJTSAU, Rajendranagar, Hyderabad

- Sri N. Nageswara Raju, Progressive Farmer of KVK Chittoor (RASS) received Mahindra Samriddhi Award
- Sri P. Karunakar, Progressive Farmer of KVK Chittoor (RASS) received Mahindra Samriddhi Award
- Smt. Suram Sreedevi, Progressive Farmers of KVK Kadapa (Utukur) received the best farmer of the year award from Dr. A. Vishnu Vardhan Reddy, Hon'ble VC, ANGRAU
- Mrs. Azhaku Dheeran of KVK Ariyalur received the Best Women Entrepreneur Award during Mahila Kisan Diwas and International Women's Day
- Mrs. R. Sujatha of KVK Ariyalur received the Best Women Entrepreneur Award during Mahila Kisan Diwas and International Women's Day
- Mr.V. Utharakannan, Mr.A.K. Soundararajan, and Mrs.E. Kavitha, Progressive Farmers of KVK Erode received Agri Business Ideathon Challenge Award

Scientists

Dr.Ganga Devi, SMS, KVK Guntur (LAM) received the Best Scientist Award from the District Collector, Guntur

Dr.G.Prasad Babu, SMS, KVK Kurnool Banavasi received certificate of commendation from District collector for best contribution to the farming community in Kurnool district.

Dr.T.Vijaya Nirmala, Scientist, KVK West Godavari (VR Gudem) received Young Scientist Award during 4th National Conference on Doubling Farmers Income for Sustainable & Harmonious Agriculture by Green Agri Professional Society, Sambodhi Retreat, Dhanbad, Jarkhand.

Mr. B. Nagendra Prasad, SMS, KVK Visakhapatnam (BCT) received Jai Kisan Award from Go Adharita Prakruti Vyavasayadarula Sangham, Andhra Pradesh

KVK Cuddalore received the Best Performance Award in Doubling Farmers Income from Dr.N.Kumar, Hon'ble VC, TNAU

Dr.A.Devivaraprasad Reddy, Scientist KVK West Godavari (VR Gudem) received Best Fisheries Scientist Award on the occasion of 5th International Conference on Advances in Agriculture Environment and Biosciences for Sustainable Development

KVK Karur received the Apollo Krishi Alert Award for Digital Technology Initiatives

KVK Kanyakumari received the Best KVK Award – 2021 for outstanding achievements made in the transfer of Banana related technologies from ICAR-NRCB, Tiruchirappalli


INNOVATIVE ARTICLE AWARD

Date awarded: 23-01-2021

This is to certify that Mr./Ms./Mrs./Dr. K. Ragu & K. Arunkumar is awarded with Innovative Article Award for article id 33083 entitled Waxing of Horticultural Crops which got published in Volume 02 - Issue 12 in Agriculture & Food: e-Newsletter

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ISSN: 2581 8317

Paritosh Halder, Technical Manager
Nityamanjari Mishra, Editor in Chief
Arghya Mani, Founder Editor

Mr.K.Ragu, SMS, KVK Nagapattinam received the Innovative Article Award from Agriculture & Food e-News Letter

KVK Madurai received Commendation for contribution in TNIAMP project


Ahmedabad
Adarsh Vidya Saraswati Rashtriya Puraskar
(National Award of Excellence 2020)
Presented To
Dr. S. Muthukumar
Subject Matter Specialist
Animal Husbandry,
ICAR- Krishi Vigyan Kendra,
Sikkal, Nagapattinam- Tamil Nadu.
rapatel
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AHMEDABAD
Adarsh Vidya Saraswati Rashtriya Puraskar
(National Award of Excellence 2020)
This is to certify that
Dr. S. Muthukumar
Subject Matter Specialist
Animal Husbandry,
ICAR- Krishi Vigyan Kendra,
Sikkal, Nagapattinam- Tamil Nadu.
has been conferred the Prestigious "Adarsh Vidya Saraswati Rashtriya Puraskar" by our council for valuable & noble work on 10th Day of December, 2020.

Dr.S.Muthukumar, SMS, KVK Nagapattinam received the Noble Work done Award from Global management Council

ICAR ATARI-Zone X Hyderabad Received Best Exhibition Stall Award (II Prize) during 5th International Agronomy Congress held at PJTSAU, Hyderabad on 26.11.2021.


GLOBAL NATURE FOUNDATION
EDUCATION • RESCUE • AWARENESS

Excellence in Extension Award

In the recognition of valuable contributions and achievements

Awarded to

Dr. K.PARAMESWARI
Assistant Professor (SS & T),
ICAR - Krishi Vigyan Kendra, TNAU, Tindivanam.

During the "10th Foundation Day and 500th Outreach Program Celebrations of Global Nature Foundation" held on 26th January 2022 at Naveen Garden, Trichy , Tamil Nadu.

K.Naveen M.Sc.,M.Ed.,M.Phil., President, Global Nature Foundation
Dr. K.C.Sivabalan Ph.D., Agri Coordinator, Global Nature Foundation

Dr. K.Parameswari, Assistant Professor, KVK Villupuram received Eminent Scientist Award in the field of Seed Science and Technology from Agro Environmental Development Society, Majhra Ghat, Rampur, Uttar Pradesh

Mr.S. Shrinivasan, Assistant, KVK Villupuram II received the Best Worker Award from TANUVAS, Chennai

KVK Khammam (Wyra) received the Best Stall award at the Fifth International Agronomy Congress on Agri-Innovations to Combat Food and Nutrition Challenges

Dr. V. Lakshmi Narayanamma of KVK Khammam (Kothagudem) received Outstanding Scientist Award at the in 12th International Conference on Agriculture, Horticulture and Food Science, Shimla, Himachal Pradesh

Dr.Afifa Jahan SMS of KVK Mahabubnagar (Palem) received "Young Scientist Award" at International Scientist Awards 2021 Organized by VDGood Technology Factory

Dr. V. Chaitanya, Scientist, KVK Khammam received the Young Scientist Award from VD GOOD Technology factory

- Dr.S.Sreenivasulu, Sr. Scientist and Head, KVK Chittoor (RASS) received the best KVK Scientist Award
- Smt. A. Padmaja, SMS, Sericulture, KVK Chittoor (RASS) received the Biodiversity Conserver Award 2021 and KVK Scientist Award
- Dr G Chitti Babu, SMS of KVK Srikakulam received Dr IV Subba Rao Rythu Nestam Award for Best Extension Scientist during Rythu Nestam Foundation Day at Guntur
- Dr K Bhagya Lakshmi, SMS, KVK Srikakulam received Best Extension Scientist award during Republic day celebrations
- Shri. Ch Balakrishna, SMS, KVK Srikakulam received Best Fisheries Scientist Award during 2nd National Conference of Advances in Sustainable Agriculture By Society of Krishi Vigyan
- Dr.P.Amara Jyothi, SMS, KVK Srikakulam received Excellence in Extension Award in the International Web Conference on Global Research Initiatives for Sustainable Agriculture & Allied Sciences by Society for Scientific Development in Agriculture & Technology, Meerut (U.P)
- Dr.G.Ramesh, SMS, KVK Prakasam (Darsi) received Best Scientist award during Republic Day Celebrations

- Dr. G. Alagukannan, Senior Scientist and Head, KVK Ariyalur received the Best Extension Professional Award from Society for Biotic and Environmental Research For transferring agricultural technology towards farmers prosperity
- Dr. G. Alagukannan, Senior Scientist and Head received the Best Senior Scientist cum Head Award from Society of Krishi Vigyan For commendable contribution towards team building and disseminating latest technologies
- Dr. P. Alagesan, Senior Scientist and Head, KVK Erode received the Best Senior Scientist Award from ….
- Mr. P. Pachiappan, Mrs. M. Siva, Mrs. Saravanakumar, Mr. R.D. Srinivasan, Mr. D. John Prabakaran and Dr. S. Vinothraj of KVK Erode received the Best KVK Scientist Award from
- Dr. V. Kannan, SMS, KVK Nagapattinam received the Best Extension Worker Award from TNJFU, Nagapattinam
- Dr. P. Balasubramaniam, KVK Ramanathapuram received the National award of Excellence from Global Management Council, Ahmadabad
- Dr. K. Elanchezhyan, KVK Ramanathapuram received Biodiversity Conservation award - 2021 from Dr. B. Vasantharaj David Foundation, Chennai
- Dr. G. Anand of KVK Tiruchirappalli received the Outstanding Extension Worker Award from ICFAI
- KVK Vellore received the Best Agricultural Extension Book Award (2nd Prize) for the Book "Communication Technologies in Agriculture" from MANAGE, Hyderabad
- Dr. K. Parameswari, Assistant Professor, KVK Villupuram received Excellence in Extension Award from Global Nature Foundation, Trichy; Best Social Scientist Award from GRABS Educational Charitable Trust, Chennai and MS Swaminathan Best Scientist Award from Boss Science Society, Pudukkottai
- Dr. K. Ravi Kumar, Scientist, KVK Khammam (Wyra) receive the Young Agricultural Scientist-Award from Dr. B. Vasantha Raj David Foundation during 3rd National Conference on Recent advances in Crop Protection including IPM and Environmental Sciences from GLP perspective

3.24 Important Events

Jai Kisan Jai Vigyan campaign 23-25 Dec. 2021

As a part of National Campaigns commemorating Azadi Ka Amrit Mahotsav, KVKs in the Zone organized Jai Kisan Jai Vigyan Campaign with the theme Uttam Kheti-Unnat Kisan during 23-25 December 2021. Seminars training programmes, gosthis, exhibitions, *etc* were conducted to showcase and demonstrate new technological advances for enhancing productivity and profitability of agriculture and allied sectors. A total of 193 activities were organized in the zone in which 9682 farmers participated.

16 December 2021 Vibrant Gujarat Summit

Swachhta Pakhwada 16-31 Dec., 2021

World Soil Day 2021

World soil day was observed on 5th December 2021 by KVKs in the Zone. Exhibitions, kisan goshtis, meetings and seminars were conducted to create awareness on importance of soil for food and nutrition security and methods for conserving and preserving sustainability of soils through various activities. Farmers (5581), Scientists (428) and students (1151) participated. KVKs distributed 3212 soil health cards to the farmers on which recommendation for balanced fertilizer use in major crops was mentioned based on soil test values.

Distribution of soil health cards to farmers by KVK Thiruvarur, Tamil Nadu

National Campaign on Agriculture and Environment: The Citizen face - 26 Oct. 2021:

National Campaign on Agriculture and Environment: The Citizen face was organized by KVKs on 26th October 2021 for school children as a part of *Aazadi ka amrit Mahotsav*. Orientation programmes on opportunities in agriculture for entrepreneurship and employment, exposure visits to demonstration plots, debate, quiz, drawing competition and exhibitions were conducted. A total of 197 activities were taken up by the KVKs of the zone with the participation of 9615 school children.

Exposure visit of school children to KVK activities - KVK, Mahabubnagar (Palem), Telangana

DDGs Visit 27.11.2021

Capacity Building of Farmers through Training Programmes on Profitable Dairying Farming and Livestock Management

Mahila Kisaan Diwas - 15 October 2021

The KVKs of the Zone organized 84 including Seminars, Training programmes, Ghoshtis and Exhibitions to celebrate of *Mahila Kisaan Diwas* on 15th October 2021 for 3269 women farmers. Innovative and progressive women farmers were facilitated.

Mahila Kisaan Diwas **organized by KVK, Krishna (Ghantasala), Andhra Pradesh**

Special National Swachhta Campaign 12th October 2021

World food day - 16 October 2021

World food day was observed on 16 October 2021 KVKs of the Zone in which 87 trainings, seminars, exhibitions *etc* were conducted for 4402 participants.

Exhibition of value-added products by KVK Salem, Tamil Nadu

Poshan Vatika Maha Abhiyan & Tree Plantation 17 September 2021

Poshan Vatika Maha Abhiyan & Tree Plantation drive was observed by KVKs in the Zone on 17 September 2021 in which 11458 farmers and school children participated, 50693 plants and 9183 packets of seeds were distributed.

Mass tree plantation - KVK, Thiruvarur, Tamil Nadu

Scientific beekeeping training programmes with funding support from National Bee Board

Familiarization programme for SMS (Agromet) and Agromet Observers in DAMU-1 September 2021

Kharif Advisory 2021

Rabi Advisory 2021

Zonal Monitoring Committee / Annual Workshop / Action Plan meetings of ARYA

Zonal Monitoring and Planning Committee meeting / Review and Action Plan Workshop of Farmer FIRST Project - 27 July 2021

Review and Action Plan meeting TSP 20 July 2021

ICAR Foundation Day & Awards Ceremony-16 April 2021

KVKs in the Zone participated in the 93rd ICAR Foundation Day & Awards Ceremony on 16.04.2021 with the theme Atma Nirbhar Krishi' as part of "Bharat ki Azadi Ka Amrut Mahotsav". Campaign on tree plantation and with the theme,

`Har Med Par Ped' was organized as part of the Celebration of India@75 -Azadi ka Amrut Mahotsav. A total of 108 activities were organized with 4899 participants.

Tree plantation drive - KVK Namakkal, Tamil Nadu

Review workshop of TDC-NICRA 7 June 2021

The annual review workshop of TDC-NICRA project was held on 7 June 2021. Director, ICAR-CRIDA, Dr. N. Sudhakar, chairman ZMC, director and Co-PI of the project from ICAR-ATARI and all the heads and nodal scientists of TDC-NICRA of the zone participated.

Demonstration / validation of IFFCO Nano Urea

Farmer's Awareness Campaign on 'Balance Use of Fertilizers' 18 June 2021

The awareness campaign was organized by KVKs in the Zone by conducting Farmers Gosthi with objectives of educating farmers on various aspects of balanced fertilization *viz*. (i) Role of fertilizers in supply plant essential nutrients; (ii) Role of soil testing in balanced use of fertilisers; (iii) Judicious use of fertilizers using 4R approach; (iv) Importance of organic fertilizers (compost, bio fertilizers etc.); (v) About Soil Health Card Scheme; (vi) Drip fertigation; and (vii) Crop residue management. A total of 4608 participants including 3600 farmers and 131 VIPs participated in the Zone.

Animal Health and productivity and World Milk Day on 1 June 2021

World Environment Day - 5 June 2021

World Bee Day - 20 May 2021

World bee day was observed by KVKs in zone in which 4571 farmers participated and benefited.

Demonstration of honey extraction on World bee day - KVK Vizianagaram

One Day Training Programme for Farmers on "Energy & Water Conservation" in Agriculture Pumping

One Day Training Programme for Farmers on "Energy & Water Conservation" in Agriculture Sector was conducted in 23 KVKs across Andhra Pradesh state. Around 1968 farmers and farm women, 201 students and 321 officials including resource persons, Public Representatives participated in this awareness programme.

Participants of the training programme - KVK Visakhapatnam (BCT)

International Women's Day 8 March 2021

International Women's Day was observed by KVKs in the Zone on 8 March 2021 to celebrate the social, economic, cultural and political achievements of women and to acknowledge the contribution of women force engaged in agriculture and allied sectors on thematic area "Women

Leadership in Agriculture: Entrepreneurship, Equity and Empowerment". Progressive women famers were felicitated, lectures, debates, essay & painting competitions highlighting the role of women farmers/ entrepreneurs in nation building, securing balanced nutrition for the family and providing source of income through value added products were organized in which 5285 Women farmers participated.

Felicitation of Women Farmer at KVK Kurnool (Banavasi)

Pre-Action Plan meeting

Acton Plan Meeting of KVKs of ICAR-ATARI-Zone X

Review Workshop on Attracting and Retaining Youth in Agriculture Project

Review and Action Plan Workshop of Farmers FIRST project

Inauguration of KVKs

Annual Zonal Workshop 2021 of KVKs of ICAR-ATARI, Hyderabad

Quinquennial Review Team meeting of KVKs of Tamil Nadu and Puducherry

Institute Research Council meeting of ICAR-ATARI-Hyderabad

Research Advisory Committee Meeting of ATARIs Hyderabad and Bengaluru

KVK Ananthapur (Kalyandurg) participated in State Level Ag - Tech - 2021 Conference and Exhibition on Latest Agricultural Technologies at Lam, Guntur. Hon'ble Agriculture Minister of Andhra Pradesh Sri.K.Kannababu visited the Exhibits

KVK _Karaikal_Review Meeting_Honb'le Minister for Agriculture & Farmers Welfare, Puducherry along with District Collector cum Chairman _at KVK, Karaikal

4. Human Resource Development

Three scientific and administrative staff of ICAR-ATARI underwent trainings on various topics while three trainings were organized by the institute to 180 participants (Table 4.1.1 and 4.1.2).

Table 4.1.1 Details of training attended by staff of ICAR-ATARI-Zone X

S.No.	Name	Designation	Title
1	Dr.A. Bhaskaran	Principal Scientist	MDP on PME in Agricultural Research Projects
2	Dr. B. Malathi	Scientist	Winter School on Advances in Social Science Research and Evaluation
3	Dr. B. Malathi	Scientist	Data Analysis in Social Sciences Research
4	Shri. V.V.Ramana	AAO	Budget Utilization Procedure
5	A. Prem Kumar	AFAO	Accrual Accounting
6	Shri.Venkatesh Poosa	Assistant	Budget Utilization Procedure
7	Shri.Venkatesh Poosa	Assistant	Administrative and Finance Management
8	Shri. Archana Nalbandu	UDC	Reservation in Service including Reservation Rosters

5. Staff Position in ICAR-ATARI, Zone X, Hyderabad

S.No.	Name	Designation
1	Vacant (from 10.09.2020)	Director
2	Dr. J.V. Prasad	Director (Acting) (From 10.10.2020) & Principal Scientist (Agril. Entomology)
3	Dr. A. Bhaskaran	Principal Scientist (Soil Science)
4	Vacant	Principal Scientist (Agricultural Extension)
5	Smt. B. Malathi	Scientist (Agricultural Economics)
6	Vacant	Scientist (Agricultural Extension)
7	Vacant	Scientist (Horticulture/Vegetable Sciences)
8	Shri. V.V. Ramana	Assistant Administrative Officer
9	Shri. S. Balakamesh	Assistant Finance and Accounts Officer
10	Vacant	Junior Accounts Officer
11	Vacant	Private Secretary
12	Shri P. Venkatesh	Assistant
13	Smt. N. Archana	Lower Division Clerk
14	Smt. G. Navneetha	Lower Division Clerk
15	Shri. N. Vijay Kumar	Lower Division Clerk
16	Shri. M. Sadanand	Senior Technical Officer
17	Smt. Subbalakshmi	Skilled Supporting Staff

6. List of KVKS in Zone-X

S. No.	KVK/ District	Name and Address of KVKs
Tamil Nadu		
1	Ariyalur	Krishi Vigyan Kendra, Cholamadevi Post, Jayamkondam, Udayarpalayam, Ariyalur - 612 902
2	Coimbatore	Krishi Vigyan Kendra, Vivekananduram, Seeliyur Via, Karamadai Block, Coimbatore - 641 113
3	Cuddalore	Krishi Vigyan Kendra, Vriddhachalam, Cuddalore - 606 001
4	Dharmapuri	Krishi Vigyan Kendra, Papparapatti, Dharmapuri - 636 809
5	Dindigul	Krishi Vigyan Kendra, Gandhigram Rural Institute, Gandhigram, Dindigul - 624 302
6	Erode	Krishi Vigyan Kendra ,272, Perumal Nagar, Puduvalliampalayam Road, Kalingiyam Post Gobichettipalayam Taluk, Erode - 638 453
7	Kancheepuram	Krishi Vigyan Kendra, Kattangulathur (P.O.), Kattupakkam, Kancheepuram - 603 203
8	Kanyakumari	Krishi Vigyan Kendra, Thirupathisaram, Kanyakumari - 629 901
9	Karur	Krishi Vigyan Kendra, Pulutheri, RT Malai Post, Kulithalai Taluk, Karur - 621313
10	Krishnagiri	Krishi Vigyan Kendra, Elumichangiri, Mallinayanalli Post, Krishnagiri - 635 120
11	Madurai	Krishi Vigyan Kendra, Agricultural College and Research Institute, Madurai - 625 104
12	Nagapattinam	Krishi Vigyan Kendra, Sikkal, Nagapattinam - 611 108
13	Namakkal	Krishi Vigyan Kendra, VC & RI Campus, Namakkal - 637 002
14	Perambalur	Krishi Vigyan Kendra, Valikanduram Distt. Perambalur - 621 115
15	Pudukkottai	Krishi Vigyan Kendra, Vamban Colony, Pudukkottai - 622 303
16	Ramanathapuram	Krishi Vigyan Kendra, Coastal Saline Research Centre Collectorate Complex, Ramanathapuram - 623 503
17	Salem	Krishi Vigyan Kendra, Sandhiyur, Via Mallur, Salem - 636 203
18	Sivagangai	Krishi Vigyan Kendra, Kundrakudi, Sivagangai - 630 206
19	Theni	ICAR Krishi Vigyan Kendra, Kamatchipuram (S.O) Theni - 625 520
20	Tirunelveli	Krishi Vigyan Kendra, Urmelalagian, Ayikudi Post, Tenkasi Taluk, Tirunelveli District, Tamil Nadu - 627 852
21	Tiruppur	Krishi Vigyan Kendra, TNAU Farm, Pongalur, Devanampalayam Post, Palladam Taluk, Tiruppur - 641 667
22	Tiruvallur	Krishi Vigyan Kendra, Tirur, Tiruvallur - 602 025
23	Tiruvannamalai	Krishi Vigyan Kendra, Kilnelli Village, Chithathur Post, Vembakkam Taluk, District Thiruvannamalai - 604 410
24	Thiruvarur	Krishi Vigyan Kendra, Needamangalam, Thiruvarur - 614 404
25	Tiruchirappalli	Krishi Vigyan Kendra, Sirugamani, Tiruchirappalli - 639 115
26	Tuticorin	Krishi Vigyan Kendra, Mudivaithanendal Vagaikulam, Thoothukudi - 628 102

S. No.	KVK/ District	Name and Address of KVKs
27	Vellore	Krishi Vigyan Kendra, Virinjipuram, Vellore - 632 104
28	Villupuram	Krishi Vigyan Kendra, Tindivanam, Villupuram - 604 002
29	Villupuram-II	Krishi Vigyan Kendra - Villupuram II, Avian Disease Laboratory, 345 D, Pattuthurai Road, Thalaivasal - 636 112
30	Virudhunagar	Krishi Vigyan Kendra, Kovilangulam, Aruppukkottai, Virudhunagar - 626 107
Andhra Pradesh		
1	Anantapur (Reddipalli)	Krishi Vigyan Kendra, Reddipalli (V), B.K. Samudram (Mdl), Ananthapuram (Dist) - 515 701
2	Anantapur (Kalyandurg)	Krishi Vigyan Kendra, Garudapuram (V), Kalyandurg (M), Anantapur - 515 761
3	Chittoor (Kalikiri)	Krishi Vigyan Kendra, CLRC Building, Madanapalle Road, Kalikiri. Chittoor District - 517 234
4	Chittoor (RASS)	Krishi Vigyan Kendra, RASS-KVK, Vanasthali, Karakambadi Post, Renigunta Mandal, Chittoor District - 517 520
5	East Godavari (Kalavacherla)	Krishi Vigyan Kendra, Kalavacharla, Rajanagram Mandal, East Godavari - 533 294
6	East Godavari (Pandirimamidi	Krishi Vigyan Kendra, Pandirimamidi, Rampachodavaram, East Godavari District - 533 288
7	Guntur (Lam)	Krishi Vigyan Kendra, Lam, Guntur - 520 034
8	Kadapa	Krishi Vigyan Kendra, Utukur, Kadapa, Y.S.R District - 516003
9	Kadapa-2	Krishi Vigyan Kendra, Vonipenta, YSR Kadapa district - 516173
10	Krishna (Garikapadu)	Krishi Vigyan Kendra, Garikapadu, Krishna District - 521 175
11	Krishna (Ghantasala)	Krishi Vigyan Kendra, Agricultural Research Station, Ghantasala Krishna - 521 133
12	Kurnool (Banavasi)	Krishi Vigyan Kendra, Near G.L.S. Farm, Banavasi, Yemmiganur Mandal, Kurnool District - 518 360
13	Kurnool (Yagantipalli)	Krishi Vigyan Kendra, Yagantipalle, Kurnool District - 518 124
14	Nellore	Krishi Vigyan Kendra, Mini Bypass Road, A.K. Nagar (Post), B.V. Nagar, Nellore District-524 004
15	Nellore (Periyavaram)	Krishi Vigyan Kendra, Periyavaram, Venkatagiri Post, SPSR Nellore District - 524 132
16	Prakasam (Darsi)	Krishi Vigyan Kendra, Agricultural Research Station, PO : Darsi, Prakasam District - 523 247
17	Prakasam (Kandukur)	Krishi Vigyan Kendra, Central Tobacco Research Institute, Research Station Premises, Kandukur, Prakasam District - 523 105
18	Srikakulam	Krishi Vigyan Kendra, Amadalavalasa, Srikakumal District - 532 185
19	Visakhapatnam	Krishi Vigyan Kendra, BCT, Haripuram, Rambilli Mandal, Visakhapatnam - 531 061
20	Visakhapatnam (Kondempudi)	Krishi Vigyan Kendra, C/o Jyothirmaya Trust, Amarapuri, Pottidorapalem Post, Butchayyapeta Mandal, Visakhapatnam -531 026

S. No.	KVK/ District	Name and Address of KVKs
21	Vizianagaram	Krishi Vigyan Kendra, Rastakuntabai, Vizianagaram - 535 523
22	West Godavari (VR Gudem)	Krishi Vigyan Kendra, Venkataramannagudem, West Godavari - 534 101
23	West Godavari (Undi)	Krishi Vigyan Kendra, Undi, West Godavari - 534 199
Telangana		
1	Adilabad	Krishi Vigyan Kendra, ARS premises, Ramnagar, Adilabad - 504 002
2	Mancherial (Bellampalli)	Krishi Vigyan Kendra, Bellampalli, Mancherial - 504 251
3	Karimnagar (Jammikunta)	Krishi Vigyan Kendra, Jammikunta, Karimnagar - 505122
4	Karimnagar (Ramagirikhilla)	Krishi Vigyan Kendra, Ramagirikhilla, Ratnapu, Ramagiri, Peddapalli District - 505 212
5	Khammam (Wyra)	Krishi Vigyan Kendra, ARS Wyra, Khammam - 507 165
6	Khammam (Kothagudem)	Krishi Vigyan Kendra, Garimellapadu Village, Kothagudem Mandal, Khammam - 507165
7	Mahabubnagar (Madanapuram)	Krishi Vigyan Kendra, Madanapuram (Vill. & Mdl), Wanaparthy, Mahabubnagar - 509 110
8	Mahabubnagar (Palem)	Krishi Vigyan Kendra, Palem, Mahabubnagar - 509 215
9	Medak (DDS)	Krishi Vigyan Kendra, Didgi Village, Zaheerabad, Medak - 502 220
10	Medak (Tuniki)	Krishi Vigyan Kendra, Tunki Village, Kowdipally, Mandal, Medak District - 502 316
11	Nalgonda (Gaddipally)	Krishi Vigyan Kendra, Gaddipalli, Garedapalli Mandal, Nalgonda -508 201
12	Nalgonda (Kampasagar)	Krishi Vigyan Kendra, Kampasagar, Babusaipet Post, Tripuraram Mandal, Nalgonda - 508 207
13	Nizamabad (Rudrur)	Krishi Vigyan Kendra, Farm Science Centre, Rudrur, Varmi Mandal, Nizamabad - 503 188
14	Ranga Reddy	Krishi Vigyan Kendra, Near Deer Park, Bhagyalatha Busstop, Hayathnagar Research Farm, Hyderabad - 501 505
15	Warangal (Malyal)	Krishi Vigyan Kendra, Malyal, Mahabubabad, Warangal - 506 101
16	Warangal (Mamnoor)	Krishi Vigyan Kendra, Mamnoor, Warangal, Telangana - 506 166
Puducherry		
1	Karaikal	Krishi Vigyan Kendra, Madur, Sellore Thirunallar, Karaikal - 609 607
2	Puducherry	Krishi Vigyan Kendra, Kurumbet, Puducherry - 605 009