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ANNUAL REPORT

2021

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भाकृअनुप-कृषि तकनीकी अनुप्रयोग अनुसंधान संस्थान (अटारी, क्षेत्र–10)
क्रीडा परिसर, संतोषनगर, हैदराबाद
ICAR-Agricultural Technology Application Research Institute (ATARI, Zone-X)
CRIDA Campus, Santoshnagar, Hyderabad
www.atari-hyderabad.icar.gov.in

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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
Y.G. Prasad
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 2020, KVKs assessed 1193 technologies through 4461 OFTs and conducted 10412 frontline demonstrations in farmers' fields, undertook 6329 training programmes covering 208714 participants including farmers, farm women, rural youth and extension functionaries. KVKs conducted 4690 number of cluster frontline demonstrations on pulses covering an area of 1886 ha under the National Food Security Mission (NFSM). Similarly, 5250 number of CFLDs were conducted on oilseeds covering an area of 2420 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 2020, seed hub KVK's produced 4175.18 q of seed for supply of quality seed of greengram, blackgram, redgram and Bengal gram. Three Ninety-Five (395) enterprise units were established empowering 979 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 105 adopted villages involving 58 teams comprising of 212 scientists. A total of 1205 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 3412 KVK staff in the Zone. About 8125 farmers were given direct access to institutional resources through three Agricultural Technology Information Centers in the Zone. A total of 6329 training courses were conducted to 208714 farmers, farm women and extension personnel. A number of extension activities were taken up by the KVKs with the participation of 3019230 farmers and extension personnel. All the KVKs were equipped with mini soil testing laboratories to provide soil testing service to farmers. A total of 33321 samples including soil (28607), water (2744) and other samples were analyzed benefiting 30109 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 अनुसंधान संस्थान (अटारी), हैदराबाद को क्षेत्र-X के लिए स्वीकृत 75 कृषि विज्ञान केंद्रों के समन्वय की जिम्मेदारी दी गई है। उनमें से 71, वर्ष 2020 के दौरान कार्यारत थे। वार्षिक रिपोर्ट वर्ष 2020 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 4461 खेतों पर परीक्षण कर 1193 तकनीकों का मूल्यांकन और परिशोधन किया। जाचं की गई प्रौद्योगिकियों में, 890 प्रौद्योगिकियां फसल संबंधी, 155 पशु संबंधी एवं 47 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 (1137), पशुओं (303) एवं ग्रामीण महिलाओं के सशक्तिकरण (20) पर, 1963 खेतों पर परीक्षण कर 530 प्रौद्योगिकियों की उपयुक्तता का मूल्यांकन किया। आंध्र प्रदेश के कृषि विज्ञान केंद्रों ने फसलों सहित बागवानी प्रजातियों (1195), पशुओं (129) एवं ग्रामीण महिलाओं के सशक्तिकरण (121) पर, 1474 खेतों पर परीक्षण कर 417 प्रौद्योगिकियों की उपयुक्तता का मूल्यांकन किया। तेलंगाना के कृषि विज्ञान केंद्रों ने फसलों सहित बागवानी प्रजातियों (626), पशुओं (88) एवं ग्रामीण महिलाओं के सशक्तिकरण (177) पर, 993 खेतों पर परीक्षण कर 232 प्रौद्योगिकियों की उपयुक्तता का मूल्यांकन किया। पुदुचेरी के कृषि विज्ञान केंद्रों ने फसलों सहित बागवानी प्रजातियों (15), पशुओं (8) एवं ग्रामीण महिलाओं के सशक्तिकरण (3) पर, 31 खेतों पर परीक्षण कर 14 प्रौद्योगिकियों का मूल्यांकन किया।

प्रौद्योगिकी प्रदर्शन

2520.9 हेक्टेयर क्षेत्र में फसलों (6685), पशुओं (1232) एवं कृषि उपकरणों (544) पर कुल 10412 अग्रिम प्रदर्शन कार्यान्वित किए गए। अनाजों पर किए गए 1342 प्रदर्शनों में चावल पर ही 1166 प्रदर्शन शामिल थे। दलहनों पर किए गए 1194 प्रदर्शनों में, उड़द पर 400 एवं अरहर पर 375 प्रदर्शन शामिल थे। तिलहनों पर किए गए 650 प्रदर्शनों में 376 प्रदर्शन मूंगफली पर ही थे। व्यावसायिक फसलों पर 87 प्रदर्शन गन्ने पर थे। तमिलनाडु में किए गए 2585 प्रदर्शनों में 451 सब्जियों पर एवं 699 प्रदर्शन अनाज पर थे। आंध्र प्रदेश में किए गए 2388 प्रदर्शनों में से, 346 तिलहनों पर, 531 दलहनों पर 341 फलों पर एवं 268 प्रदर्शन सब्जियों पर थे। तेलंगाना में प्रदर्शित किए गए 1662 प्रदर्शनों में, 328 दलहनों पर, 343 अनाजों पर एवं 366 सब्जियों पर थे। पुदुचेर्री में किए गए 50 प्रदर्शनों में 10 दलहनों पर, 30 अनाजों पर एवं 10 प्रदर्शन वृक्षारोपण फसल पर शामिल थे। पशुपालन और विभिन्न उद्यमों के विभिन्नन पहलुओं के अंतर्गत प्रौद्योगिकियों को लोकप्रिय बनाने के लिए 1232 प्रदर्शनों का आयोजन किया गया।

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 6329 प्रशिक्षण कार्यक्रमों का आयोजन किया, जिसमें 133333 किसान एवं कृषि महिलाएं, 18163 ग्रामीण युवा एवं 30588 प्रसार अधिकारी और 208714 प्रतिभागियों को शामिल किया गया।

तमिलनाडु के कृषि विज्ञान केंद्रों ने कृषि महिलाओं, ग्रामीण युवाओं और प्रसार अधिकारियों सहित 91937 किसानों की भागीदारी के साथ 3056 प्रशिक्षण पाठ्यक्रम आयोजित किए, जबकि आंध्र प्रदेश के कृषि विज्ञान केंद्रों ने 57344 किसानों की भागीदारी के साथ 1505 प्रशिक्षण पाठ्यक्रम आयोजित किए, जिसमें किसान के साथ-साथ कृषि महिलाएं, ग्रामीण युवा और प्रसार अधिकारी शामिल हुए। तेलंगाना के कृषि विज्ञान केंद्रों ने 30995 लाभार्थियों के लिए 923 पाठ्यक्रम संचालित किए। पुदुचेरी के कृषि विज्ञान केंद्रों ने 1808 लाभार्थियों के लिए 57 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 23081 किसानों और कृषि कार्य में शामिल महिलाएं और ग्रामीण युवाओं को शामिल करते हुए 578 प्रायोजित प्रशिक्षण कार्यक्रम आयोजित किए। उद्यमिता विकास, आय सृजन और स्वरोजगार की सुविधा के लिए, विशेष रूप से 3549 ग्रामीण युवाओं और स्कूल बीच में छोड़ने वाले जैसे लोगों के लाभ लिए, कृषि विज्ञान केंद्रों ने 210 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 3017316 किसानों, कृषि महिलाओं एवं प्रसार अधिकारियों की भागीदारी से क्षेत्र-x के कृषि विज्ञान केंद्रों में 42627 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 3302 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 10391 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 28607 नमूनों, पानी के 3744 नमूनों, पौधों के 321 नमूनों और उर्वरकों / खादों के 19 नमूनों सहित कुल 33321 नमूनों का विश्लेषण किया गया, जिससे तमिलनाडु, आंध्र प्रदेश, तेलंगाना और पुदुचेरी के 5659 गांवों के 30109 किसानों को लाभ हुआ।

तमिलनाडु (10358), आंध्र प्रदेश (6581), तेलंगाना (2071) और पुदुचेरी (200) के कृषि विज्ञान केंद्रों द्वारा किसानों को कुल 19210 मृदा स्वास्थ्य कार्ड वितरित किए गए। मृदा परीक्षण विश्लेषण के अनुसार पोषक तत्वों / उर्वरकों की फसलवार सिफारिशें, किसानों को उनके खेतों में उर्वरक के उपयोग को तर्कसंगत बनाने के लिए कार्ड में पूरा विवरण प्रदान किया गया, जिससे खेती की लागत कम हो, जिससे उर्वरक का उपयोग टिकाऊ फसल उत्पादन और मृदा स्वास्थ्य की दक्षता में वृद्धि हो सके।

कृषि विज्ञान केंद्रों ने 9232.84 क्विंटल बीज और 37.25 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 4175.18 क्विंटल बीज (मूंग, उड़द, अरहर और चना) का उत्पादन किया। कृषि विज्ञान केंद्रों ने 949.91 क्विंटल जैव उर्वरकों और 421.56 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 3412 कृषि विज्ञान केंद्रों के कर्मचारियों को लाभान्वित करने वाली कुल 68 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 11 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 (900), फसल उत्पादन (887), पशुधन और मत्स्य पालन (794) में 2822 प्रदर्शन किए। संस्थागत हस्तक्षेपों जैसे किराए केंद्र, चारा बैंक और बीज बैंक के तहत 241 किसान लाभान्वित हुए। क्षमता निर्माण और प्रसार गतिविधियों के माध्यम से, जलवायु समुत्थान तकनीकों पर जागरूकता चलाए गए 32 और 238 गतिविधियों से क्रमश: 893 और 994 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 79 प्रशिक्षण कार्यक्रमों के माध्यम से 1591 ग्रामीण युवाओं को कौशल प्रशिक्षण प्रदान किया गया। जीविकापार्जन सुरक्षा को सुनिश्चित करने एवं 1108 ग्रामीण युवाओं को लाभ पहुंचाने के लिए वर्ष 2020 के दौरान 395 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 1996 हेक्टेयर क्षेत्र में, 1649 घरों को शामिल करते हुए 34 फसल हस्तक्षेप अपनाए गए। 429 परिवारों को शामिल करते हुए 166 हेक्टेयर क्षेत्र में 8 बागवानी हस्तक्षेप कार्यन्वित किए गए। 1010 घरों को लाभान्वित करने के लिए 1602 हेक्टेयर क्षेत्र में 10 प्राकृतिक संसाधन प्रबंधन (NRM) हस्तक्षेप कार्यान्वित किए गए। 745 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 21 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 6.37% 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 28938 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 7848 किसानों के लाभ के लिए कुल 207 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 645013 किसानों को मौसम आधारित सलाह सेवाओं संबंधित लघु संदेश प्राप्त करने के लिए 8923 की संख्या दी गई।

नई प्रसार पद्धतियां एवं दृष्टिकोण (एनईएमए)

वर्ष 2019 के दौरान भाकृअनुप के कृषि प्रसार प्रभाग के अंतर्गत नई प्रसार पद्धतियां एवं दृष्टिकोण (एनईएमए) नामक नेटवर्क परियोजना आरंभ की गई। इस परियोजना में भाकृअनुप के सात संस्थान (आईएआरआई, काज़री, सीफा, एनडीआरआई, आईवीआरआई, एनआरआरआई) एवं 11 कृषि तकनीकी अनुप्रयोग संस्थान (अटारी) भागीदार हैं। भाकृअनुप-केंद्रीय मीठा जल मत्स्य पालन संस्थान (सीफा), पश्चिम बंगाल, उड़ीसा और आंध्र प्रदेश राज्यों में परियोजना को लागू करने के लिए अटारी, हैदराबाद के साथ साझेदारी करने वाला संस्थान है। प्रौद्योगिकी को अपनाने की सीमा, अपनाने में आने वाली अडचने और प्रौद्योगिकी के प्रभाव को समझने के लिए पश्चिम गोदावरी, पूर्वी गोदावरी और कृष्णा जिलों के 400 मछुआरों से प्रश्नावली के रूप में ली गई जानकारी का उपयोग कर केंद्रीय मीठा जल मत्स्य पालन संस्थान (सीफा) द्वारा समग्र मछली संस्कृति प्रौद्योगिकी का विकास किया गया।

दलहनों एवं तिलहनों पर केंद्र पर अग्रिम प्रदर्शन

वर्ष 2020 के तीन मौसमों के दौरान क्षेत्र-X में स्थित तमिलनाडु, आंध्र प्रदेश, तेलंगाना और पुडुचेरी के 60 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 1886 हेक्टेयर क्षेत्र को शामिल किया गया। इसी प्रकार, वर्ष 2020 के खरीफ और रबी के दौरान 47 कृषि विज्ञान केंद्रों द्वारा तिलहनी फसलों के लिए 2420 हेक्टेयर में 5250 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।

पोषक अनाजों पर अग्रिम प्रदर्शन (एफएलडी)

28 हेक्टेयर में पोषक-अनाज पर प्रदर्शन आयोजित किए गए जिसमें 50 बाजरा, ज्वार, बाजरा और रागी पर थे।

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 3828 परिसंपत्तियों/ सूक्ष्म-उद्यमों का निर्माण कर 11450 लाभार्थियों को आय सृजन का अवसर प्रदान किया गया। 1128 लाभार्थियों को कौशल विकास प्रशिक्षण (41) प्रदान किए गए।

स्वच्छ्ता ही सेवा

स्वच्छ्ता ही सेवा कार्यक्रम को 71 कृषि विज्ञान 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 2020 के दौरान केवीके द्वारा स्वच्छ्ता गतिविधियों का आयोजन किया गया जिसमें 534 वीआईपी सहित 30163 प्रतिभागी शामिल थे।

मेरा गाँव मेरा गौरव (एमजीएमजी)

मेरा गाँव मेरा गौरव कार्यक्रम के अंतर्गत, 8 भाकृअनुप के अनुसंधान संस्थानों ने 58 टीमों के माध्यम से कुल 212 वैज्ञानिकों ने 105 गाँवों को अपनाया और विभिन्न गतिविधियों को कार्यान्वित किया। 2350 किसानों और कृषि महिलाओं को शामिल करते हुए वैज्ञानिकों ने 200 इंटरफ़ेस बैठकें आयोजित की। कुल 231 जागरूकता व प्रदर्शन कार्यक्रम एवं कृषि, पशुपालन, मुर्गी पालन और उन्नत उपकरणों पर 26 प्रशिक्षण कार्यक्रम आयोजित किए।

मानव संसाधन विकास

भाकृअनुप-अटारी के तीन वैज्ञानिक और प्रशासनिक कर्मचारियों ने विभिन्न विषयों पर प्रशिक्षण लिया, जबकि संस्थान द्वारा 100 प्रतिभागियों के लिए 16 प्रशिक्षण आयोजित किए गए।

EXECUTIVE SUMMARY

ATARI, Hyderabad is vested with the mandate of coordination of 75 KVKs established in Zone-X. Among them 71 are functional during 2020. The Annual Report 2020 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 1193 technologies by laying out 4461 On-Farm Trials. Of these technologies tested, 890 technologies are related to crops, 155 are related to animals and 47 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 530 technologies by conducting 1963 OFTs covering crops including horticultural species (1137), animals (303) and empowerment of rural women (20). KVKs in Andhra Pradesh, assessed the suitability of 417 technologies by conducting 1474 OFTs covering crops including horticultural species (1195), animals (129) and empowerment of rural women (121). KVKs in Telangana, assessed the suitability of 232 technologies by conducting 993 OFTs covering crops including horticultural species (626), animals (88) and empowerment of rural women (177). KVKs in Puducherry, assessed 14 technologies by organizing 31 OFTs that include crops including horticultural species (15), animals (8) and women empowerment (3).

Technology demonstrations

KVKs in Zone X conducted 10412 frontline demonstrations on crops (6685), animals (1232) and farm implements (544) in an area of 2520.9 ha. Among the 1342 demonstrations in cereals, 1166 were on rice. Among the 1194 demonstrations on pulses, 400 were in blackgram and 375 in redgram. Among 650 demonstrations in oilseeds, 376 were in groundnut. In commercial crops 87 demonstrations were in sugarcane.

In Tamil Nadu, out of 2585 demonstrations, 699 were in cereals and 451 in vegetables. In Andhra Pradesh out of 2388 demonstrations, 531 were in pulses, 346 in oilseed, 341 in fruits and 268 in vegetables. Out of 1662 demonstrations in Telangana, 343 were in cereals, 328 in pulses and 366 in vegetables. In Puducherry, out of 50 demonstrations, 30 were in cereals, 10 in pulses and 10 in plantation crops. KVKs of the zone conducted 1232 demonstrations on livestock, poultry and fisheries involving 138104 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 6329 training programmes covering 208714 participants that include 133333 farmers, 18163 rural youth and 30588 extension functionaries.

KVKs in Tamil Nadu, organized 3056 training courses with a participation of 91937 farmers including farmwomen, rural youth and extension

functionaries, while KVKs in Andhra Pradesh organized 1505 training courses with a participation of 57344 farmers including farmwomen, rural youth and extension functionaries. KVKs in Telangana conducted 923 courses for 30995 beneficiaries. KVKs in Puducherry, conducted 57 courses for 1808 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 578 sponsored training programmes covering 23081 farmers and farmwomen and rural youth. In order to facilitate entrepreneurship development, income generation and self-employment, especially among rural youth and school dropouts, KVKs organized 210 vocational training programmes for 3549 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 42627 extension activities with the participation of 3017316 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 3302 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 10391 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 33321 samples including 28607 soil samples, 3744 water samples, 321 plant samples and 19 fertilizers/manures were analyzed by the KVKs that benefited 30109 farmers belonging to 5659 villages in Tamil Nadu, Andhra Pradesh, Telangana and Puducherry.

A total of 19210 Soil Health Cards were distributed to farmers by KVKs in Tamil Nadu (10358), Andhra Pradesh (6581), Telangana (2071) and Puducherry (200). Crop-wise recommendations of nutrients/ fertilizers as per soil test analysis were provided in the cards for adoption by farmers to rationalize fertilizer use in their farms, thereby reducing cost of cultivation, enhancing fertilizer use efficiency for sustainable crop production and soil health.

KVKs produced and supplied 9232.84 q of seed and 37.25 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 4175.18 q of seed (greengram, blackgram, redgram and Bengal gram) for supply of quality seed to farmers. KVKs also produced and supplied 949.91 q of bio-fertilizers, 6731.63 q of bio inputs and 421.56 q of bio-pesticides. KVKs distributed 16.8 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 68 HRD activities benefitting 3412 KVK staff in the Zone were jointly organized by the three directorates of extension and the Agricultural Technology Application Research Institute.

National Innovations in Climate Resilience Agriculture (NICRA)

Technology demonstration component of NICRA project in Zone-X implemented by 11 KVKs demonstrated climate resilient agricultural technologies and practices across the three states. Under the project, KVKs conducted 2822 demonstrations in four modules *viz*., NRM (900), crop production (887), livestock and fisheries (794). Under institutional interventions like custom hiring, seed bank and fodder bank 241 farmers were benefited. Through capacity building and extension activities, awareness on climate resilient technologies was brought about benefitting 893 and 994 farmers through 32 and 238 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 1591 rural youth through 79 training programmes for establishing enterprise units under the project. Enterprise units numbering 395 were established benefiting 979 rural youth during 2020 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 95 interventions covering 3764 ha area and 5389 households in the operational villages. Thirty-four crop-based technologies were demonstrated in 1996 ha benefiting 1649 households. Horticultural interventions on 8 technologies were demonstrated in 166 ha benefiting 429 households. In livestock module, 21 technologies were demonstrated involving 8479 animals benefiting 745 households. Ten NRM technologies were demonstrated in 1602 ha benefiting 1010 households. Eighteen enterprises were established for the benefit of 1556 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. On-farm evaluations showed an average yield enhancement of 6.37 % to Zn fertilization.

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 28938 agromet advisories on Agromet-DDS and disseminated weather related advisories through different means. A total of 207 farmers awareness programmes and meetings were conducted for the benefit of 7848 farmers on the utility of weather-based advisories and ways to access them. Short messages related to weather-based advisories numbering 8923 were given to 645013 famers for taking up timely farm operations and to prevent crop during extreme weather events.

New Extension Methodologies and Approaches (NEMA)

New Extension Methodologies and Approaches (NEMA), a network project under the Division of Agricultural Extension of ICAR was launched during 2019. Seven ICAR institutes (IARI, CAZRI, CIFA, NDRI, IVRI, NRRI) and 11 ATARIs are the partners in the project. ICAR-Central Institute of Freshwater Aquaculture (CIFA) is the partnering institute with ATARI, Hyderabad for implementing the project in the states of West Bengal, Orissa and Andhra Pradesh. Information on implementation of composite carp culture technology developed by CIFA was collected from 400 fish farmers in the districts of West Godavari, East Godavari and Krishna using a questionnaire to understand the extent of adoption, constraints in adoption and impact of adoption of the technology.

Cluster Frontline Demonstrations on Pulses and Oilseeds

Cluster Frontline Demonstrations on Pulses under NFSM were organized by 60 KVKs comprising of Tamil Nadu, Andhra Pradesh, Telangana and Puducherry in Zone-X during 2020 across three seasons. A total of 4690 FLDs were conducted covering an area of 1886 ha under pulses. Similarly, 5250 cluster frontline demonstrations covering 2420 ha were conducted under NFSM in oilseed crops by 47 KVKs during *kharif* and *rabi* 2020. Productivity of pulses and oilseeds realized in FLDs was higher than the district/ state averages indicating potential for bridging the yield gap.

Frontline Demonstrations on Nutri Cereals

FLDs on Nutri cereals were conducted in 28 ha by KVKs in which 50 demonstrations were conducted on pearl millet, sorghum, barnyard millet and finger millet crops.

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 3828 assets/ micro-enterprises and provided income generating opportunities to 11450 tribals. Skill development trainings (41) were imparted to 1128 beneficiaries.

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. During 16-31 December 2020, a series of Swachhta Pakhwada activities were organized by KVKs in which 30163 participants including 534 VIPs were involved.

Mera Gaon Mera Gaurav

Under *Mera Gaon Mera Gaurav* (MGMG) programme a total of 212 scientists through 58 teams from 8 ICAR research Institutes adopted 105 villages and implemented various activities. Scientists undertook 200 interface meetings covering 2350 farmers and farm women. A total of 231 awareness cum demonstration programmes and 26 training programmes on agriculture, animal husbandry, poultry and improved implements were conducted.

Human Resource Development

Three scientific and administrative staff of ICAR-ATARI underwent trainings on various topics while 16 trainings were organized by the institute to 100 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. 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), one with DU and twelve 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 2020
		SAU	ICAR	NGO	DU	SDA	Total	
Tamil Nadu	37	19	-	12	1	-	32	30
Andhra Pradesh	26	18	2	4	-	-	24	23
Telangana	33	10	1	5	-	-	16	16
Puducherry	4	-	-	-	-	3	3	2
Total	**100**	**47**	**3**	**21**	**1**	**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 825 (72.62%) positions are filled. Scientific staff strength is 426 out of which 321 (75.35%) are filled. In Tamil Nadu, 408 out of 480 positions are filled (85%), in Andhra Pradesh, 233 out of 368 positions are filled (63%), in Telangana, 166 out of 256 positions are filled (65%) 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	26	4	23	21	2	16	14	2	2	1	1	71	62	9
Subject Matter Specialists	180	158	22	138	95	43	96	62	34	12	6	6	426	321	105
Farm Managers	30	24	6	23	13	10	16	9	7	2	2	Nil	71	48	23
Programme Assistant (Computer)	30	24	6	23	11	12	16	11	5	2	2	Nil	71	48	23
Programme Assistant (Lab Tech)	30	23	7	23	10	13	16	8	8	2	1	1	71	42	29
Assistant	30	27	3	23	20	3	16	13	3	2	0	2	71	60	11
Stenographer (Grade-III)	30	23	7	23	17	6	16	9	7	2	1	1	71	50	21
Driver	60	49	11	46	23	23	32	19	13	4	2	2	142	93	49
SSS	60	54	6	46	23	23	32	21	11	4	3	1	142	101	41
Total	**480**	**408**	**72**	**368**	**233**	**135**	**256**	**166**	**90**	**32**	**18**	**14**	**1136**	**825**	**311**

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.

Table2.3.1. Details of infrastructure facilities available with KVKs in Tamil Nadu

KVK	Land area (ha)	Admin Building	Farm-ers Hostel	Staff Quar-ters	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	No	Yes	Yes	Yes	19
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	21
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	9
Karur	21.51	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	18
Krishnagiri	20.30	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	13
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	21
Namakkal	20.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	29
Perambalur	21.54	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	9
Pudukkottai	23.20	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	10
Ramanathapur-am	6.12	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes	10
Salem	9.95	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	24
Sivagangai	17.95	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	14
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	15
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	15
Tiruchirappalli	20.00	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	19
Tirunelveli	20.00	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	13
Tiruppur	15.62	No	No	No	No	No	No	No	Yes	Yes	10
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	13
Virudhunagar	16.00	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	6
Total	569.50	**28**	**25**	**22**	**25**	**27**	**18**	**28**	**30**	**30**	**467**

Table2.3.2. 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)	20.00	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	No	Yes	No	Yes	Yes	Yes	7
East Godavari (Kalavacharla)	14.37	Yes	Yes	Yes	No	Yes	No	No	Yes	No	14
East Godavari (Pandirimamidi)	19.40	Yes	Yes	No	No	Yes	No	Yes	Yes	No	25
Guntur (Lam)	23.96	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	13
Kadapa (Utukur)	10.00	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	11
Kadapa (Vonipenta)	17.14	Yes	Yes	No	No	No	No	Yes	No	Yes	9
Krishna (Garikapadu)	20.80	Yes	Yes	Yes	No	Yes	No	Yes	No	No	13
Krishna (Ghantasala)	15.18	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	6
Kurnool (Yagantipalle)	20.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	2
Kurnool (Banavasi)	20.00	Yes	Yes	No	Yes	Yes	no	Yes	Yes	No	18
Nellore	24.00	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	14
Nellore (Periyavaram)	23.00	Yes	No	No	No	Yes	No	Yes	No	Yes	11
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	9
Visakhapatnam (Haripuram)	40.00	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	15
Visakhapatnam (Kondempudi)	20.00	No	Yes	No	No	No	No	Yes	No	Yes	10
Vizianagaram	22.50	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	8
West Godavari (Undi)	50.00	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	11
West Godavari (VR Gudem)	20.00	Yes	Yes	No	No	Yes	No	Yes	Yes	No	19
Total	**506.57**	**22**	**20**	**10**	**10**	**20**	**6**	**21**	**18**	**13**	**278**

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	No	No	No	No	Yes	No	Yes	Yes	Yes	5
Kammam (Wyra)	13.38	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	13
Kammam (Kothagudam)	20.00	Yes	No	No	No	Yes	No	Yes	Yes	Yes	2
Karimnagar (Jammikunta)	26.50	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	23
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	5
Mahabubnagar (Palem)	21.26	Yes	Yes	No	No	Yes	No	Yes	Yes	No	19
Mancherial	20.00	No	No	No	No	Yes	Yes	Yes	Yes	Yes	6
Medak (DSS)	25.80	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	14
Medak (Tuniki)	13.20	Yes	No	No	No	Yes	No	Yes	Yes	No	11
Nalgonda (Gaddipally)	25.60	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	24
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	3
Ranga Reddy	20.00	yes	yes	No	yes	yes	No	No	Yes	Yes	9
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	**315.24**	**14**	**12**	**6**	**5**	**16**	**6**	**14**	**16**	**11**	**154**

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	No	No	Yes	12
Puducherry	58.00	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	13
Total	**82.38**	**2**	**0**	**0**	**1**	**2**	**1**	**1**	**1**	**2**	**25.00**

2.4. REVOLVING FUND

The total income generated through revolving fund by KVKs in the Zone-X is Rs.1178.23 lakhs of which Rs.345.90 lakhs is generated by KVKs in Tamil Nadu, Rs.432.11 lakhs by KVKs in Andhra Pradesh, Rs.393.25 lakhs by KVKs in Telangana and Rs.6.97 lakhs by KVKs in Puducherry (Table 2.4.1.). KVK wise status is given in Tables 2.4.2 to 2.4.5.

Table 2.4.1. Status of revolving fund

(Rs. in lakhs)

State	Balance on 31.03.2021
Tamil Nadu	345.90
Andhra Pradesh	432.11
Telangana	393.25
Puducherry	6.97
Total	**1178.23**

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	7.27	Ramanathapu-ram	2.25
Coimbatore	21.60	Salem	1.79
Cuddalore	7.72	Sivagangai	22.08
Dharmapuri	26.92	Theni	2.07
Dindigul	28.93	Thiruvallur	0.67
Erode	8.90	Thiruvannamalai	17.07
Kancheepuram	6.45	Thiruvarur	1.83
Kanyakumari	9.66	Thoothukudi	3.12
Karur	11.09	Tiruchirappalli	7.31
Krishnagiri	11.23	Tirunelveli	5.89
Madurai	3.77	Tiruappur	9.36
Nagapattinam	0.68	Vellore	23.41
Namakkal	65.47	Villupuram	7.26
Perambalur	24.88	Villupuram II	3.26
Pudukkottai	2.85	Virudhunagar	1.16
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)	13.10	Kurnool (Banavasi)	9.16
Ananthapuram (Kalyandurg)	8.76	Nellore (Nellore)	3.39
Chittoor (RASS)	72.64	Nellore (Periyavaram)	7.64
Chittoor (Kalikiri)	8.15	Prakasam (Darsi)	16.74
East Godavari (Kalavacharla)	20.57	Prakasam (Kandukur)	7.80
East Godavari (Pandirimamidi)	46.04	Srikakulam	16.26
Guntur (Lam)	16.45	Visakhapatnam (Haripuram)	81.35
Kadapa (Utukur)	1.84	Visakhapatnam (Kondempudi)	4.44
Kadapa (Vonipenta)	2.44	Vizianagaram	3.38
Krishna (Garikapadu)	9.05	West Godavari (Undi)	5.93
Krishna (Ghantasala)	28.85	West Godavari (VR Gudem)	23.01
Kurnool (Yagantipalle)	25.10	**Total**	**432.11**

Table2.4.4. Status of revolving fund in KVKs of Telangana (Rs. In lakhs)

KVK	Balance on 31.03.2021	KVK	Balance on 31.03.2021
Adilabad	26.46	Medak (DSS)	6.30
Kammam (Wyra)	93.85	Medak (Tuniki)	20.34
Kammam (Kothagudam)	6.47	Nalgonda (Gaddipally)	76.19
Karimnagar (Jammikunta)	41.88	Nalgonda (Kampasagar)	2.31
Karimnagar (Ramagirikhilla)	2.96	Nizamabad	20.25
Mahabubnagar (YFA)	19.32	Ranga Reddy	5.48
Mahabubnagar (Palem)	9.00	Warangal (Malyal)	52.18
Mancherial	4.53	Warangal (Mamnoor)	5.72
		Total	**393.25**

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

KVK	Balance on 31.3.2020
Karaikal	5.22
Puducherry	1.75
Total	**6.97**

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 70 Scientific Advisory Committee meetings were conducted by KVKs for the year 2020 (Table 2.5.1).

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	22
Telangana	16	16
Puducherry	2	2
Total	**71**	**70**

3. ACHIEVEMENTS

3.1. TECHNOLOGY ASSESSMENT

During the year, KVKs in Zone X assessed 1193 technologies in 4461 trials conducted at different locations on farmers' fields (Table 3.1.1) through On-farm Trials (OTF). The technologies included 890 on crops, 155 on animals 47 on women empowerment, 45 technologies on Enterprises and 56 on ICT. KVKs of Tamil Nadu and Andhra Pradesh assessed 351 and 350 technologies in 1137 and 1195 trials, respectively. A total of 890 technologies were on crops of which 318 were new and improved crop varieties (Table 3.1.2.). Among the other crop production and protection technologies, 130 were on IPM, 117 on INM and 105 on ICM. Out of 155 technologies assessed in animal category, 58 were on nutrition management and 41 on feed and fodder management. Women empowerment and enterprises were the other themes wherein 47 and 45 technologies were assessed, respectively.

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

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Tech.	Trials	KVKs	Tech.	Trials	KVKs	Tech.	Trials	KVKs	Tech.	Trials	KVKs	Tech.	Trials	KVKs
Crops	351	1137	30	350	1195	23	184	626	16	5	15	1	**890**	**2973**	**70**
Animals	92	303	15	32	129	10	25	88	5	6	8	2	**155**	**528**	**32**
Women empowerment	9	20	4	26	121	13	10	177	5	2	3	1	**47**	**321**	**23**
Enterprises	22	41	7	9	29	6	13	102	5	1	5	1	**45**	**177**	**19**
ICT	56	462	9										**56**	**462**	**9**
Total	**530**	**1963**	**30**	**417**	**1474**	**23**	**232**	**993**	**16**	**14**	**31**	**2**	**1193**	**4461**	**71**

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

In Tamil Nadu, 351 crop based technologies were assessed for their suitability in 1137 locations, 92 technologies on animals in 303 locations, 9 technologies on empowerment of women in 20 locations, 22 technologies on enterprises in 41 locations and 56 technologies on ICT and extension in 462 locations. The KVKs of Andhra Pradesh assessed the suitability of 350 crop-based technologies in 1195 locations, 32 animal-based technologies in 129 locations, 26 technologies for women empowerment in 121 locations and 9 technologies on enterprises in 29 locations. In Telangana, 184 crop-based technologies were assessed for their suitability in 626 locations, 25 animal-based technologies in 88 locations, 10 technologies for the empowerment of women in 177 locations and 13 technologies for enterprises in 102 locations. In Puducherry, five crop-based technologies were **assessed** for their suitability in 15 locations, in animals six technologies in eight locations and two women empowerment 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		
	Tech.	Trials	KVKs	Tech.	Trials	KVKs	Tech.	Trials	KVKs	Tech.	Trials	KVKs	Tech.	Trials	KVKs
Crops															
Cropping systems	4	10	2	12	39	5	9	26	5				**25**	**75**	**12**
Drudgery reduction				5	25	3	2	4	1				**7**	**29**	**4**
Enterprises	2	120	1	2	3	1							**4**	**123**	**2**

Thematic area	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Tech.	Trials	KVKs	Tech.	Trials	KVKs	Tech.	Trials	KVKs	Tech.	Trials	KVKs	Tech.	Trials	KVKs
Farm management	2	120	1				2	5	1				**4**	**125**	**2**
Farm mechanization				2	5	1	4	16	3				**6**	**21**	**4**
ICM	45	113	11	20	44	6	40	161	9				**105**	**318**	**26**
IDM	16	40	6	12	42	5	16	55	8				**44**	**137**	**18**
IFS				1	6	1							**1**	**6**	**1**
INM	49	112	18	43	135	13	23	80	9	2	5	1	**117**	**332**	**42**
IPDM	2	5	1	4	15	3	6	15	3				**12**	**35**	**7**
IPM	50	145	18	58	218	19	21	71	12	1	5	1	**130**	**439**	**49**
Post-harvest Processing	2	5	1	2	10	2							**4**	**15**	**3**
Resource conservation	9	17	4	17	72	10	17	47	8				**43**	**136**	**20**
Value addition	6	12	3	3	30	1							**9**	**42**	**4**
Varietal assessment	140	332	26	139	445	22	39	128	10				**318**	**905**	**57**
Weed management	2	5	1	21	70	7	2	6	1	2	5	1	**27**	**86**	**10**
Others	22	101	10	9	36	5	3	12	2				**34**	**149**	**17**
Total (Crops)	**351**	**1137**	**30**	**350**	**1195**	**23**	**184**	**626**	**16**	**5**	**15**	**1**	**890**	**2973**	**70**
Animals															
Disease management	6	53	2	7	37	3	4	10	3	2	2	1	**19**	**102**	**9**
Evaluation of breeds	6	20	2	7	24	5							**13**	**44**	**6**
Feed and fodder management	27	38	4	6	38	6	8	18	4				**41**	**94**	**13**
Nutrition management	45	169	8	5	15	3	4	50	2	4	6	2	**58**	**240**	**15**
Production and management	8	23	4	7	15	2	9	10	3				**24**	**48**	**9**
Total (Animals)	**92**	**303**	**15**	**32**	**129**	**10**	**25**	**88**	**5**	**6**	**8**	**2**	**155**	**528**	**32**
Women Empowerment															
Drudgery reduction				6	26	5	1	5	1				**7**	**31**	**6**
Enterprises	2	5	1	5	11	3				2	3	1	**9**	**19**	**5**
Health and nutrition	3	5	1	6	53	5	6	27	3				**15**	**85**	**8**
Value addition	4	10	2	9	31	5	3	145	2				**16**	**186**	**9**
Total (WE)	**9**	**20**	**4**	**26**	**121**	**13**	**10**	**177**	**5**	**2**	**3**	**1**	**47**	**321**	**23**
Enterprises															
Entrepreneurship Development	2	5	1	1	5	1	3	27	3				**6**	**37**	**5**
Health and nutrition				3	10	2	2	30	1				**5**	**40**	**3**
Organic farming	4	3	1										**4**	**3**	**1**
Processing and value addition	12	28	5	3	4	2	4	31	2	1	5	1	**20**	**68**	**9**
Small scale income generation	2	0	1	2	10	2	3	8	2				**7**	**18**	**5**
Storage techniques	2	5	1				1	6	1				**3**	**11**	**2**
Total (Enterprises)	**22**	**41**	**7**	**9**	**29**	**6**	**13**	**102**	**5**	**1**	**5**	**1**	**45**	**177**	**19**
ICT	**56**	**462**	**9**										**56**	**462**	**9**
Grand Total	**530**	**1963**	**30**	**417**	**1474**	**23**	**232**	**993**	**16**	**14**	**31**	**2**	**1193**	**4461**	**71**

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 ADT 53, TKM 13 and CR Dhan 205 were assessed by KVKs of Tamil Nadu and were found superior to Farmer's Practice with 10.82, 14.04 and 11.06 per cent higher yield. Varieties NLR 3354, NLR 34449 and NLR 3217 were found to be superior to Farmer's practice with 18.50, 16.36 and 11.45 per cent higher yield in Andhra Pradesh. In Telangana, rice variety JGL 24423 gave 6.97 per cent higher yield than MTU 1010.

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	NLR 34449	50.40	8.86	2.28:1	TKM 13	52.80	14.04	2.61:1	CO 43	46.30	2.17:1
Ariyalur	5	DRR Dhan 45	46.50	1.75	2.18:1					CO 43	45.70	1.83:1
Theni	5	ADT 53	61.20	10.82	2.09:1	CO 51	58.48	5.83	1.98:1	Goraknath 509	55.26	1.95:1
Thiruvallur	5	CO 53	49.40	6.12	1.73:1	CR Dhan 205	51.70	11.06	2.12:1	ADT 37	46.55	1.44:1
Andhra Pradesh												
East Godavari (Kalavacharla)	5	MTU-1172	45.00	9.76	1.71:1	MTU-1190	43.20	5.37	1.64:1	PL 1100	41.00	1.55:1
Kadapa (Utukur)	5	NLR 3354	48.00	9.09	1.71:1	NLR 34449	51.20	16.36	1.84:1	JGL 384	44.00	1.49:1
Nellore (Nellore)	5	NLR 3354	80.60	18.50	2.74:1	NLR 3217	75.80	11.45	2.01:1	MTU 1010	68.01	1.83:1
West Godavari (Undi)	6	MTU 1172	47.30	3.10	1.44:1	MTU 1140	46.73	1.92	1.24:1	MTU 7029	45.85	1.23:1
West Godavari (Undi)	6	MTU 1190	38.70	1.60	1.14:1	MTU 1224	38.50	1.10	1.13:1	BPT 5204	38.08	1.07:1
Telangana												
Nalgonda (Gad-dipally)	6	JGL 24423	56.50	6.97	2.07:1	KNM 118	55.68	5.45	1.99:1	MTU 1010	52.80	1.86:1

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

b. Millets

Barnyard millet varieties MDU 1, CO (KV) 2 and DHBM 93-3 gave 23.20, 22.09 and 27.26 per cent higher yield than local varieties in Tamil Nadu. Finger millet varieties ATL 1 (31.00%) CO 15 (19.54 %) KMR 204 (22.80%) and DHL TMV 14-1 (20.98%) gave higher yields than the local varieties and CO 4. Sorghum varieties K 12 (38.64%) and CSV 27 (25.76%) gave higher grain yield than local variety. In Andhra Pradesh, Foxtail millet varieties SIA 3223 (36.36%) and SIA 3156 (24.24%) gave higher yield than the variety Prasad.

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
Barnyard millet												
Sivagangai	5	MDU 1	11.95	15.91	2.12:1	DHBM 93-3	13.12	27.26	2.37:1	Paramakudi Local	10.31	1.95:1
Virudhunagar	5	MDU 1	23.20	34.88	2.07:1	CO (KV) 2	21.00	22.09	1.89:1	Local variety	17.20	1.67:1
Finger millet												
Perambalur	5	CO 15	19.54	10.83	1.70:1	KMR 204	21.65	22.80	1.82:1	Local variety	17.63	1.58:1
Ramanathapuram	5	ATL 1	13.86	31.00	1.73:1	D H L T M V 14-1	12.80	20.98	1.67:1	CO 4	10.58	1.58:1
Foxtail millet												
Kurnool (Banavasi)	5	S I A 3223	22.50	36.36	3.41:1	SIA 3156	20.50	24.24	3.11:1	Prasad	16.50	2.50:1
Sorghum												
Dindigul	5	K12	18.30	38.64	2.77:1	CSV 27	16.60	25.76	2.26:1	White Sorghum	13.20	1.94:1

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

c. Pulses

Blackgram varieties VBN 11 and VBN 8 were assessed by two KVKs each and TBG 104 was assessed by four KVKs and were found to yield up to 15.10 per cent higher than Farmer's practice with higher economic returns. Chickpea varieties NBeG 452 and VBN 3 yielded up to 26.86 per cent higher than the Farmer's practice with higher economic returns. Redgram variety LRG 105 gave 63.88 per cent higher yield than LRG 41 in 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												
Theni	5	VBN 11	10.27	34.25	3.50:1	TBG 104	9.18	20.00	3.15:1	VBN 4	7.65	2.32:1
Villupuram	5	VBN 11	13.35	78.00	3.95:1	TBG 104	8.85	18.00	2.62:1	VBN 5	7.50	2.51:1
Nellore (Nellore)	5	TBG 129	8.65	12.48	1.61:1	TBG 104	8.55	11.18	1.60:1	LBG 752	7.69	1.44:1
Prakasam (Darsi)	5	GBG 1	16.59	31.56	1.59:1	TBG 104	15.10	19.75	1.55:1	PU 31	12.61	1.45:1
Thiruvallur	5	VBN 8	7.50	30.43	3.00:1	ADT 6	6.75	17.39	2.70:1	T 9	5.75	2.48:1
Srikakulam	5	VBN 8	3.65	7.99	1.26:1	LBG 787	4.65	37.57	1.42:1	TBG 104	3.38	1.20:1
Thoothukudi	5	BGD 2	6.59	1.38	1.56:1	Dheera 47	7.34	12.92	1.66:1	CO 4	6.50	1.55:1
Krishna (Garikapadu)	5	GBG 12	17.75	46.21	5.51:1	GBG 1	15.15	24.79	4.64:1	PU 31	12.14	3.56:1

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
Chickpea												
Kurnool (Banavasi)	5	NBeG 452	22.70	21.07	2.85:1	NBeG 49	20.50	9.33	2.57:1	JG 11	18.75	2.35:1
Vellore	5	VBN 3	9.54	26.86	2.71:1	DC 15	8.50	13.03	2.59:1	CO (CP) 7	7.52	2.05:1
Ramanatha-puram	5	VBN 3	6.80	25.93	1.51:1	CO (CP) 7	6.10	12.96	1.35:1	T 85 F 2020	5.40	1.20:1
Virudhun-agar	5	VBN 3	11.00	23.6	2.21:1	DC 15	10.00	12.36	2.19:1	Local va-riety	8.90	1.65:1
Redgram												
Chittoor (Kalikiri)	6	LRG 105	3.75	150	1.50:1	B S M R 736	4.75	216	1.75:1	LRG 41	1.50	
Prakasam (Darsi)	5	LRG 105	9.03	63.88	1.42:1	B S M R 736	7.67	39.20	1.32:1	LRG 41	5.51	1.05:1
Kurnool (Yaganti-palle)	6	I C P L 11225	6.22	11.67	1.76:1	I C P L 20325	7.54	35.37	2.13:1	I C P L 87119	5.57	1.57:1
Srikakulam	5	ICP 7035	0.58	53.00	5.60:1	LRG 52	0.00	216		ICP 7035	0.38	4.18:1

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

d. Oilseeds

New groundnut varieties Co 7, TMV 7, VRI 8, TMV 14, Dharani, TCGS 1694 etc gave on an average 31.5 % higher yield than Farmer's practice. Castor varieties DCH 519 and ICH 66 yielded 28.31 and 26.25 per cent higher than GCH 4 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												
Ananthapur-am (Kalyan-durg)	6	DCH 519	13.10	28.31	1.47:1	ICH 66	12.89	26.25	1.51:1	GCH 4	10.21	1.25:1
Groundnut												
Karur	5	CO 7	12.53	16.02	1.73:1	ICGV 00350	15.97	47.87	2.21:1	Local variety	10.80	1.39:1
Perambalur	5	CO 7	21.56	10.22	1.97:1	ICGV 3043	24.78	26.69	2.27:1	TMV 7	19.56	1.79:1
Thiruvan-namalai	7	CO 7	21.65	30.58	2.61:1	TCGS 1043	24.59	48.31	2.92:1	VRI 2	16.58	1.98:1
Thoothukudi	5	CO 7	23.50	39.05	2.09:1	ICGV 00350	21.00	24.26	1.87:1	TMV 7	16.90	1.54:1
Perambalur	5	VRI 8	23.23	23.11	2.29:1	Dharani	21.78	15.42	2.18:1	TMV 7	18.87	1.82:1

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
Theni	5	VRI 8	23.62	21.13	2.84:1	BSR 2	26.62	36.51	2.97:1	JL 22	19.50	2.21:1
Nagapattinam	5	TMV 14	18.30	24.49	2.50:1	Kadiri 9	16.18	10.07	2.23:1	Western 44	14.70	2.04:1
Ramanatha-puram	5	TMV 14	12.70	30.26	1.51:1	GJG 32	14.65	50.26	1.68:1	TMV 7	9.75	1.17:1
Villupuram	5	Dharani	30.50	38.64	2.52:1	CO 6	26.00	18.18	2.15:1	VRI 2	22.00	1.79:1
Tiruchirap-palli	5	Dharani	22.60	39.08	3.72:1	BSR 2	22.55	38.77	3.77:1	VRI 2	16.25	2.83:1
Ananthapur-am (Kalyan-durg)	6	Dharani	6.21	21.29	1.19:1	Kadiri Amara-vathi	7.95	55.27	1.45:1	K 6	5.12	1.06:1
Chittoor (RASS)	3	TCGS 1694	11.67	33.37	1.29:1	Dheeraj	10.50	20.00	1.11:1	K 6	8.75	1.04:1
Kadapa (Utukur)	3	TCGS 1694	23.40	18.18	2.19:1	K 6	20.20	2.02	1.89:1	Narayani	19.80	1.85:1
Ananthapur-am (Kalyan-durg)	4	DGRMB 32	7.12	35.36	1.32:1	DGRMB 24	7.61	44.68	1.45:1	K 6	5.26	1.16:1
Kurnool (Banavasi)	3	K 1812	47.50	30.14	3.90:1	Nitya Haritha	39.20	7.40	3.16:1	Local variety	36.50	2.67:1
Srikakulam	5	TCGS 1694	14.60	87.18	1.40:1	TCGS 1157	16.80	115	1.48:1	Local variety	7.80	1.11:1
Visakhapat-nam (Kon-dempudi)	5	TCGS 1157	17.70	18.00	3.97:1	K 1535	16.80	12.00	3.77:1	Local variety	15.00	3.36:1
Nalgonda (Gaddipally)	6	ICGV 3043	18.09	25.71	2.20:1	K 9	17.07	18.62	2.11:1	K 6	14.39	1.82:1
Sesamum												
Tiruchirap-palli	5	VRI 3	8.10	19.12	2.88:1	TMV 7	8.38	23.16	2.29:1	TMV 4	6.80	1.96:1

%=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 highest yield increases of new hybrids were 29.37 and 26.63 per cent over the Farmer's practice, respectively. Bottle gourd variety PLR 2 was assessed by three KVKs and the maximum yield obtained was 300.9 t/ha which was 66.7 per cent higher than Farmer's practice with higher economic returns. Chilli (green) variety Arka Khyati gave the highest yield of 234.5 q/ha than the local variety while LCA 620 and CO (Ch) 1 gave 42.14 and 40.63 per cent higher yield than the local varieties. Onion variety

Arka Kalyan gave 28.85 % higher yield than the local variety with higher economic returns. Onion (aggregatum) varieties CO (On) 5 and CO (On) 6 were assessed against local varieties and were found to yield 44.22 to 92.38 per cent higher than the local varieties with higher economic returns. Ridge gourd varieties Arka Prasan, Arka Vikram and CH H 1 were found to yield up to 84 percent higher than the Farmer's varieties and hybrids. Tomato varieties Arka Abhed and Arka Samrat were assessed by 23 and 24 KVKs in the zone, respectively against local varieties. The average yield advantages were 29.22 and 27.84 percent with higher economic returns. The tomato hybrid CO TH 4 gave 53.23 per cent higher yield than the Farmer's practice with higher economic returns.

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
Bhindi/Okra												
Krishnagiri	5	CO Bh H 4	107.89	14.72	1.80:1	Arka Nikita	114.13	21.35	1.91:1	Private Hybrid	94.05	1.48:1
Nagapattinam	5	CO Bh H 4	276.00	21.05	2.69:1	Arka Nikita	264.00	15.79	2.31:1	Private Hybrid	228.00	1.94:1
Tiruchirappalli	5	CO Bh H 4	21.62	22.84	3.07:1	Arka Nikita	19.22	9.20	2.67:1	Local variety	17.60	2.39:1
Tirunelveli	5	CO Bh H 4	210.00	25.75	3.03:1	Arka Nikita	200.00	19.76	2.73:1	Local variety	167.00	2.18:1
Chittoor (RASS)	12	CO Bh H 4	12.15	16.60	2.30:1	Arka Nikita	9.11	-12.57	2.02:1	Radhika/ Samrat	10.42	2.25:1
East Godavari (Pandirimamidi)	3	CO Bh H 4	192.50	27.48	3.17:1	Arka Nikita	177.50	17.55	2.86:1	Private Hybrid	151.00	2.12:1
Vizianagaram	5	CO Bh H 4	132.60	29.37	2.57:1	Arka Nikita	129.80	26.63	2.52:1	Radhika	102.50	1.97:1
Nellore (Periyavaram)	6	CO Bh H 4	95.00	10.47	2.03:1	Arka Abhay	61.00	-29.07	1.36:1	Private Hybrid	86.00	1.76:1
West Godavari (VR Gudem)	5	Hybrid	11.90	3.48	1.93:1	Arka Nikita	13.80	20.00	2.36:1	Private Hybrid	11.50	1.87:1
Bottle gourd												
Cuddalore	5	PLR 2	300.90	66.70	1.61:1	Pusa Santhusti	210.30	16.51	1.45:1	Local variety	180.50	1.26:1
Ramanathapuram	5	PLR 2	23.00	27.78	4.70:1	Arka Bahar	21.00	16.67	4.20:1	Local variety	18.00	3.90:1
Theni	5	PLR 2	41.50	27.69	3.37:1	Arka Shreyas	38.50	18.46	3.16:1	Local variety	32.50	2.75:1
Chilli (green)												
Dindigul	5	Arka Khyati	210.96	13.19	2.63:1	CO(Ch) 1	221.72	18.97	2.92:1	Private Hybrid	186.37	2.35:1
Madurai	2	Arka Harita	234.50	15.80	3.74:1	Arka Harita	239.00	18.02	3.67:1	VNR G 277	202.50	2.60:1
Perambalur	5	CO (Ch) 1	214.60	40.63	3.12:1	Arka Khyati	192.20	25.95	2.68:1	Local variety	152.60	2.12:1
Ramanathapuram	5	CO (Ch) 1	16.76	30.63	3.04:1	Arka Meghana	13.26	3.35	2.35:1	Local variety	12.83	2.19:1

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
Kadapa (Vonipenta)	5	LCA 616	185.40	9.51	1.30:1	CA 960	176.20	4.08	1.23:1	Local variety	169.30	1.18:1
Visakhapatnam (Kondempudi)	5	LCA 620	55.05	42.14	1.72:1	LCA 625	50.05	29.23	1.69:1	Potti mirapa	38.73	1.62:1
Mahabubnagar (Palem)	6	Arka Kyathi	227.67	29.48	3.03:1	Arka Swetha	200.08	13.79	2.66:1	Private Hybrid	175.83	2.14:1
Onion												
Ananthapuram (Kalyandurg)	5	Arka Kalyan	22.33	28.85	1.62:1	Satara local	21.21	22.39	1.62:1	Local variety	17.33	1.42:1
Nalgonda (Gaddipally)	6	Arka Bheem	41.80	24.93	3.53:1	Arka Kalyan	41.00	22.53	3.48:1	Gaurang	33.46	2.88:1
Onion (Aggregatum)												
Namakkal	8	CO (On) 5	87.50	66.67	2.17:1	CO (On) 6	101.00	92.38	2.41:1	CO 4	52.50	1.53:1
Thiruvallur	5	CO (On) 5	154.60	44.22	3.73:1	CO (On) 6	174.20	62.50	3.94:1	Local Variety	107.20	2.00:1
Ridge gourd												
Ramanathapuram	5	CO H 1	138.00	84.00	1.59:1	Arka Vikram	135.00	80.00	1.58:1	Local Variety	75.00	1.42:1
Thiruvannamalai	8	CO H 1	419.57	28.07	2.97:1	Arka Vikram	377.23	15.14	2.50:1	Private Hybrid	327.62	2.26:1
East Godavari (Pandirimamidi)	6	Arka Prasan	222.00	3.26	3.65:1	Arka Vikram	217.00	0.93	3.47:1	Private Hybrid	215.00	3.15:1
Kurnool (Yagantipalle)	6	Arka Prasan	263.20	6.77	2.77:1	Arka Vikram	287.50	16.63	2.80:1	Saniya 4	246.50	2.38:1
Vizianagaram	5	Arka Prasan	254.50	41.23	3.76:1	Arka Vikram	228.60	26.86	3.38:1	Local Variety	180.20	2.62:1
West Godavari (VR Gudem)	3	Arka Prasan	30.75	30.85	4.86:1					Private Hybrid	23.50	3.56:1
Ranga Reddy	5	Arka Prasan	259.00	19.35	2.58:1					Naga	217.00	1.77:1
Tomato												
Dindigul	5	Arka Abhed	553.84	10.26	2.74:1	Arka Samrat	536.54	6.81	2.62:1	Private Hybrid	502.31	2.39:1
Krishnagiri	5	Arka Abhed	712.96	24.08	1.98:1	COTH 4	650.01	13.13	1.81:1	Private Hybrid	574.58	1.59:1
Perambalur	5	Arka Abhed	572.40	17.78	2.53:1	Arka Samrat	543.80	11.89	2.49:1	Local Variety	486.00	2.18:1
Perambalur	5	Arka Abhed	572.40	17.78	2.53:1	Arka Samrat	543.80	11.89	2.49:1	Local Variety	486.00	2.18:1
Chittoor (RASS)	7	Arka Abhed	305.00	4.81	2.67:1	Arka Samrat	320.00	9.97	2.79:1	PHS 448 Sweaker	291.00	2.64:1
Chittoor (Kalikiri)	6	Arka Abhed	620.00	1.64	1.28:1	Arka Samrat	590.00	-3.28	1.24:1	Private hybrid	610.00	1.33:1
East Godavari (Kalavacharla)	4	Arka Abhed	47.75	50.16	2.48:1	Arka Samrat	50.50	58.81	2.61:1	Sakata 914	31.80	1.51:1

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
East Godavari (Pandirima-midi)	5	Arka Abhed	742.00	63.08	3.62:1	Arka Samrat	707.00	55.38	3.33:1	Private Hybrid	455.00	2.10:1
Kadapa (Vonipenta)	5	Arka Abhed	644.20	35.56	2.45:1	Arka Samrat	697.50	46.78	2.58:1	Local Variety	475.20	1.53:1
Krishna (Garikapadu)	5	Arka Abhed	562.50	28.57	3.21:1	Arka Samrat	593.75	35.71	3.30:1	Saha	437.50	2.70:1
Kurnool (Ya-gantipalle)	6	Arka Abhed	361.00	26.89	2.33:1	Arka Samrat	375.00	31.81	2.42:1	PHS 448	284.50	1.46:1
Kurnool (Banavasi)	5	Arka Abhed	68.80	25.46	1.25:1	Arka Samrat	70.24	28.08	1.28:1	US 448	54.84	1.15:1
Prakasam (Darsi)	5					Arka Samrat	58.60	5.02	1.57:1	US 448	55.80	1.56:1
Srikakulam	5	Arka Abhed	545.00	12.84	3.48:1	Arka Samrat	523.00	8.28	3.30:1	Lakshmi	483.00	2.97:1
Visakhapat-nam (Haripu-ram)	5	Arka Abhed	540.20	30.93	2.76:1	Arka Samrat	560.80	35.92	2.87:1	Private Hybrid	412.60	2.15:1
Visakhapa-tnam (Kon-dempudi)	5	Arka Abhed	552.50	36.00	1.69:1	Arka Samrat	520.40	28.10	1.67:1	Local Variety	406.25	1.61:1
Vizianagaram	5	Arka Abhed	605.24	24.60	3.15:1	Arka Samrat	630.62	29.82	3.33:1	Lakshmi	485.76	2.63:1
West Goda-vari (Undi)	6	Arka Abhed	705.10	98.34	2.07:1	Arka Samrat	715.40	101.24	1.83:1	Lakshmi	355.50	1.66:1
West Goda-vari (VR Gudem)	10	Arka Abhed	52.25	36.07	4.33:1	Arka Samrat	58.24	51.67	4.82:1	Private hybrid	38.40	3.99:1
Kammam (Wyra)	6	Arka Abhed	684.80	23.83	2.11:1	Arka Samrat	638.00	15.37	2.27:1	US 440	553.00	2.01:1
Mahabub-nagar (Palem)	6	Arka Abhed	554.57	43.07	2.30:1	Arka Samrat	526.57	35.84	2.18:1	PHS-448/ US 440	387.63	2.00:1
Ranga Reddy	5	Arka Abhed	420.00	22.45	2.17:1	Arka Samrat	415.00	20.99	2.15:1	US 440	343.00	1.51:1
Ranga Reddy	5	Arka Abhed	420.00	22.45	2.17:1	Arka Samrat	415.00	20.99	2.15:1	US 440	343.00	1.51:1
Warangal (Malyal)	6	Arka Abhed	424.80	15.31	3.51:1	Arka Samrat	398.40	8.14	3.40:1	US 440	368.40	2.80:1
Salem	5	CO TH 4	95.00	53.23	3.81:1	Arka Vishesh	87.00	40.32	3.41:1	Private Hybrid	62.00	2.55:1
Theni	5	CO TH 4	88.50	29.39	3.25:1	Arka Apeksha	76.70	12.13	3.20:1	Private Hybrid	68.40	2.77:1
Thiruvallur	5	COTH 1	677.00	76.07	3.35:1	Arka Apeksha	608.70	58.31	2.94:1	Vaishali	384.50	1.85:1

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

b. Flowers

Marigold varieties Arka Bangara, Arka Bangara 2, Arka Agni and Maxima Yellow were assessed by five KVKs and were found to yield 14.85 to 62.75 per cent higher than Farmer's practice with higher economic returns.

Table 3.1.8. Performance of flower 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
Marigold												
Ariyalur	3	Arka Bangara	251.30	24.84	2.60:1	Arka Agni	231.20	14.85	2.39:1	Maxima yellow	201.30	2.20:1
Tirunelveli	10	Arka Bangara 2	220.00	37.50	3.62:1	Arka Agni	200.00	25.00	3.29:1	Local variety	160.00	2.63:1
Kadapa (Vonipenta)	5	Arka Bangara 2	116.20	62.75	2.59:1					Local variety	71.40	1.84:1
Krishna (Ghantasala)	5	Arka Bangara 2	285.00	7.14	2.50:1					Private hybrid	266.00	2.43:1
Nalgonda (Gaddipally)	6	Arka Bangara 2	151.60	36.82	3.00:1	Maxima Yellow	141.60	27.80	2.95:1	Local variety	110.80	1.94:1
Tuberose												
Ariyalur	3	Arka Prajwal	104.60	31.90	3.01:1	Arka Nirantra	89.80	13.24	2.70:1	Local variety	79.30	2.32:1

%=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, soil test based IPNS gave 40.74 per cent higher yield than farmer's practice. Spraying of Banana Sakthi yielded 42.0 per cent higher bunches than no micronutrient application. Spraying of pulse wonder gave 53.18 per cent higher red gram yield than farmer's practice of no micronutrient fertilization. Arka Citrus Special spray to sweet orange yielded 50.48 per cent higher than no micronutrient spraying.

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												
Villupuram II	5	STB-IPNS	76.00	40.74	2.19:1	RDF	64.50	19.44	1.88:1	FP	54.00	1.59:1
Rice												
Karur	5	Organics	39.00	-4.88	1.76:1	STBF	44.00	7.32	1.92:1	FP	41.00	1.82:1
Ramanathapuram	5	Organics	46.50	40.48	1.47:1	INM	49.80	50.45	1.50:1	FP	33.10	1.22:1
Thiruvarur	5	ZSB -ST	55.13	13.53	1.55:1	$ZnSO_4$	51.35	5.75	1.50:1	No Zinc	48.56	1.49:1
Finger millet												
Erode	3	$ZnSO_4$	2.90	14.62	2.86:1	ZSB	2.81	11.07	2.85:1	Fertilizers	2.53	2.26:1

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
Redgram												
Theni	3	Coir pith	7.80	16.42	2.12:1	Biochar	8.40	25.37	2.21:1	FP	6.70	1.85:1
Cotton												
Dindigul	5	FYM, Sunn-hemp	20.90	25.90	1.79:1	FYM, *Azospirillum*	19.50	17.47	1.71:1	Fertilizers	16.60	1.57:1
Madurai	2	SOP	9.30	4.85	1.37:1	SSP	9.15	3.16	1.34:1	No Sulphur	8.87	1.32:1
Ramanathapuram	5	Arka Banana special - IIHR	45.00	18.42	1.76:1	Banana Sakthi	42.00	10.53	1.75:1	No MN	38.00	1.71:1
Turmeric (Raw)												
Salem	5	TNAU MN mixture	6.80	25.93	3.67:1	IISR MN mixture	6.40	18.82	2.95:1	No MN	5.40	2.19:1
Tomato												
Dharmapuri	5	STB-NPK	632	6.40	2.76:1	RDF	516	-13.13	2.40:1	FP	594	2.55:1
Andhra Pradesh												
Rice												
Chittoor (Kalikiri)	5	STCR-F	59.50	5.50	2.08:1	STBF	58.70	4.08	2.06:1	FP	56.40	1.93:1
Chittoor (Kalikiri)	5	Seedling dip	35.30	-0.08	1.41:1	100% RDF	35.40	0.00	1.42:1	FP	35.40	1.43:1
Krishna (Garikapadu)	5	STBF	59.24	-3.19	1.99:1	100% RDF	58.04	-5.15	1.91:1	FP	61.19	1.89:1
Krishna (Garikapadu)	5	*Azospirillum*, PSB	56.65	-4.84	1.94:1	100% RDF	56.12	-5.73	1.82:1	FP	59.53	1.79:1
Krishna (Ghantasala)	6	RDF, Liquid BF	56.05	12.39	1.39:1	75% RDF, Liquid BF	52.25	4.77	1.34:1	FP	49.87	1.14:1
Kurnool (Yagantipalle)	6	Humic acid, RDF	47.06	4.12	1.37:1	FYM, RDF	46.84	3.63	1.30:1	FP	45.20	1.35:1
Nellore (Nellore)	3	Organic package	58.60	-21.02	1.59:1	INM Package	69.40	-6.47	1.69:1	FP	74.20	1.64:1
West Godavari (Undi)	6	*Azospirillum*, PSB	33.70	4.76	2.07:1	STBA	32.30	0.56	1.83:1	FP	32.10	1.66:1
West Godavari (VR Gudem)	5	25% Organics	70.00	7.69	2.21:1	100% RDF	72.00	10.77	2.11:1	FP	65.00	1.84:1

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
Redgram												
Kurnool (Banavasi)	5	RDF, Pulse wonder	13.25	53.18	2.72:1	100% RDF	11.00	27.17	2.63:1	Fertilizers	8.65	2.27:1
Chickpea												
Kurnool (Yagantipalle)	6	PSB consortia	17.73	-6.54	2.15:1	50% RDP, PSB	20.17	6.33	2.34:1	Fertilizers	18.97	2.10:1
Groundnut												
Kadapa (Utukur)	3	STCR-F	31.60	18.80	2.91:1	100% RDF	26.40	-0.75	2.77:1	FP	26.60	2.41:1
Sugarcane												
Visakhapatnam (BCT)	3	INM	675	50.00	1.56:1	Organic Farming	550	22.22	2.20:1	Farmers Practice	450	1.42:1
Kurnool (Yagantipalle)	6	Dr.YSRHU schedule	67.75	5.30	3.79:1	TNAU fertigation schedule	68.60	6.64	3.79:1	FP	64.30	2.82:1
Bhindi/Okra												
West Godavari (VR Gudem)	5	STBF	12.50	28.21	2.16:1	100% RDF	11.25	15.38	1.88:1	FP	9.75	1.57:1
Brinjal												
Chittoor (RASS)	12	75% RDF, Arka MC	55.30	20.74	1.81:1	75% RDF	52.50	14.63	1.80:1	FP	45.80	1.75:1
West Godavari (VR Gudem)	5	STCR-F	17.50	28.21	2.30:1	100% RDF	16.00	15.38	2.05:1	FP	14.50	1.75:1
Chilli (green)												
East Godavari (Pandirimamidi)	6	STBF	32.00	-9.86	3.39:1	100% RDF	34.80	-1.97	2.88:1	FP	35.50	2.84:1
Banana												
Kadapa (Vonipenta)	5	Dr.YSRHU schedule	75.50	9.58	2.95:1	100% RDF	72.00	4.50	2.63:1	FP	68.90	2.51:1
Telangana												
Rice												
Mahabubnagar (Palem)	6	RDF	63.70	11.17	2.24:1	STBF	73.10	27.57	2.58:1	FP	57.30	1.98:1
Mancherial	5	STCR-F	58.25	15.46	2.33:1	100% RDF	46.79	-7.25	1.97:1	FP	50.45	2.06:1
Medak (Tuniki)	3	Activated biochar, Daincha	78.00	10.17	2.94:1	Vermicompost, RDF	74.00	4.52	2.92:1	FP	70.80	2.66:1

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
Nalgonda (Gaddipally)	6	STCR-F	57.31	11.54	2.06:1	100% RDF	49.84	-3.00	1.77:1	FP	51.38	1.78:1
Nalgonda (Gaddipally)	6	Green manure, vermi-compost	46.81	-8.89	1.69:1	Dain-cha + fertiliz-ers	56.18	9.34	1.99:1	FP	51.38	1.78:1
Warangal (Malyal)	6	75% RDF	73.50	5.00	3.02:1	50% RDF	73.20	4.57	3.15:1	FP	70.00	2.59:1
Soybean												
Nizamabad	5	STBF	11.50	6.48	1.89:1	100% RDF	9.98	-7.59	1.34:1	FP	10.80	1.79:1
Bhindi/Okra												
Medak (Tuniki)	3	Activated Biochar, RDF	100.00	5.26	1.92:1	FYM, RDF	97.50	2.63	1.95:1	FP	95.00	1.92:1
Sweet Orange												
Nalgonda (Gaddipally)	6	Arka Citrus Special	28.20	50.48	3.83:1	$ZnSO_4$	24.65	21.54	3.53:1	FP	18.74	3.43:1

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

Seed hardening for rice with KCl and $CaCl_2$ was assessed by four KVKs of Tamil Nadu. On an average, the rice yields increased by 25.5 and 17.8 per cent, respectively. Pruning jasmine during November month gave 83.3 per cent higher yield. Fertigation to bhindi with mulching gave 34.41 per cent higher yield with higher 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	KCL seed hardening	71.93	56.98	2.85:1	$CaCl_2$ seed hardening	68.98	50.55	2.71:1	No seed hardening	45.82	1.50:1
Pudukkottai	5	KCL seed hardening	47.60	18.70	3.12:1	$CaCl_2$ seed hardening	45.20	12.72	3.01:1	No seed hardening	40.10	2.82:1
Salem	5	KCL seed hardening	12.60	18.87	1.91:1	$CaCl_2$ seed hardening	11.82	11.51	1.78:1	No seed hardening	10.60	1.63:1
Villupuram	5	KCL seed hardening	48.70	7.98	2.60:1	$CaCl_2$ seed hardening	46.60	3.33	2.54:1	No seed hardening	45.10	2.40:1
Madurai	5	Transplant-ing (Un puddled)	53.40	25.06	1.92:1	Drum seeding	47.30	10.77	2.34:1	Machine transplant-ing	42.70	1.85:1

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
Thoothukudi	1	Drip irrigation	63.61	12.48	1.55:1	Micro sprinkler rain hose	57.88	2.35	1.44:1	Flood irrigation	56.55	1.53:1
Blackgram												
Madurai	5	Dibbling	9.84	56.19	2.01:1	Seed drill	10.02	59.05	2.17:1	Broadcasting	6.30	1.66:1
Villupuram	5	KCl spray	7.98	18.22	2.04:1	PPFM spray	8.35	23.70	2.21:1	No treatment	67.50	1.77:1
Cotton												
Dharmapuri	5	Greengram intercrop	13.50	21.08	2.61:1	Cluster bean intercrop	12.25	9.87	2.49:1	Sole crop	11.15	2.41:1
Jasmine												
Ramanathapuram	5	November Pruning	16.50	83.33	1.72:1	September pruning	18.00	100.00	1.74:1	Manual pruning	9.00	1.56:1
Andhra Pradesh												
Banana												
Kadapa (Vonipenta)	5	Spraying of SOP	672	5.86	2.55:1	Covering bunches with flag leaf	641	0.85	2.41:1	FP	635	2.36:1
Chilli (Red)												
Chittoor (RASS)	8	December transplanting	28.50	-2.40	3.52:1	November transplanting	38.00	30.14	4.76:1	October broadcasting	29.20	3.53:1
Telangana												
Maize												
Kammam (Wyra)	6	Normal planting + drip irrigation	90.00	9.09	2.03:1	Paired row planting + drip irrigation	93.75	13.64	2.20:1	Normal planting	82.50	1.75:1
Warangal (Malyal)	6	Normal planting + drip irrigation	89.00	3.49	3.83:1	Paired row planting + drip irrigation	93.00	8.14	4.08:1	Normal planting	86.00	3.40:1
Paddy (Rice)												
Karimnagar (Jammikunta)	6	*Pseudomonas* seed treatment	44.25	-8.91	2.49:1	Carbendazim seed treatment	49.45	1.79	2.18:1	No seed treatment	48.58	2.07:1
Sugarcane												
Kammam (Wyra)	6	Normal planting + drip irrigation	1225	25.64	1.64:1	Paired row planting + drip irrigation	1250	28.21	1.67:1	Normal planting	975	1.39:1
Bhindi/Okra												
Kammam (Wyra)	6	Fertigation	235.60	27.08	2.21:1	Fertigation with mulching	249.20	34.41	2.02:1	Farmer's practice	185.40	1.71:1

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

3.1.3 Integrated Pest and Disease Management

a. Integrated Pest Management

IPM module for maize was assessed by 23 KVKs in the Zone where in the yield enhancement was 20.7 per cent as compared to Farmer's practice with higher economic returns. In Andhra Pradesh, Integrated Pest Management practices to rice resulted in 6.5 per cent higher yield and higher economic returns.

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												
Erode	5	IPM Modules	61.30	7.41	1.84:1					FP	57.07	1.43:1
Karur	5	Summer plough, ST	24.80	36.71	2.45:1					FP	18.14	1.53:1
Krishnagiri	5	Seed treatment	63.74	13.28	2.24:1					FP	56.27	1.86:1
Nagapattinam	5	Seed treatment	51.78	31.22	2.04:1					FP	39.46	1.43:1
Perambalur	3	Summer ploughing	4.82	23.27	1.85:1	Light trap + *M. anisoplae*	5.53	41.43	1.90:1	FP	3.91	1.66:1
Perambalur	3	Summer plough, light trap	4.85	21.55	1.90:1	*Metarhizium anisoplae*	5.38	34.84	1.93:1	FP	3.99	1.70:1
Ramanathapuram	5	Summer plough, ST	59.50	54.75	2.55:1					FP	38.45	1.82:1
Thiruvannamalai	5	Summer plough, ST	51.78	31.22	2.04:1					FP	39.46	1.43:1
Thoothukudi	5	Summer plough, ST	43.75	16.67	2.00:1					FP	37.50	1.61:1
Tiruppur	5	Pheromone traps	60.00	33.33	2.53:1	Neem spray, worm collection	55.00	22.22	2.71:1	FP	45.00	2.58:1
Rice												
Erode	5	Herboliv	45.26	8.36	2.16:1					Normal monitoring	41.77	1.72:1
Chilli (green)												
Ariyalur	3	Neem cake	201.00	21.82	3.01:1	Imidaclo-prid	188.00	13.94	3.08:1	FP	165.00	2.83:1
Thoothukudi	5	*Sesbania* inter crop	187.00	6.86	2.57:1	Chilli border crop	195.00	11.43	2.61:1	FP	175.00	2.24:1
Snake gourd												
Villupuram	5	Neem cake	243.00	16.83	3.19:1	*P. fluorescens*	251.00	20.67	3.26:1	FP	208.00	2.50:1
Mango												
Krishnagiri	5	*Metarhizium anisopliae*	51.90	10.78	2.58:1	Neem oil	49.38	5.4	2.47:1	FP	46.85	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
Tirunelveli	5	*Metarhizium anisopliae*	8.90	13.49	3.65:1	Neem oil	9.42	7.23	3.69:1	Insecticides	8.30	2.25:1
Tuberose												
Cuddalore	5	*Pseudomonas*	42.00	27.27	1.65:1					FP	33.00	1.32:1
Tapioca (Cassava)												
Namakkal	5	Herboloiv	38.50	17.38	2.16:1	Neelbo repellent	35.50	8.23	2.02:1	Poison bait	32.80	1.79:1
Coconut												
Erode	5	IPM Modules	120.00	26.32	2.35:1					Prophylactic+ Curative chemicals	95.00	2.09:1
Kanyakumari	10	*Encarsia* parasitoid	140.00	1.74	2.45:1					FP	137.00	2.41:1
Nagapattinam	5	Yellow sticky traps	116.00	78.46	4.09:1					FP	65.00	3.05:1
Krishnagiri	5	Yellow sticky traps	166.40	37.29	2.36:1					FP	121.00	2.10:1
Thiruvallur	5	IPM module	155.00	27.05	2.58:1	Insecticides	135.00	10.66	2.30:1	FP	122.00	2.17:1
Andhra Pradesh												
Maize												
East Godavari (Kalavacharla)	5	FAW management module	75.05	3.16	3.61:1	Neem oil	70.54	-3.04	3.40:1	FP	72.75	3.30:1
East Godavari (Pandirimamidi)	3	Cyantraniliprole ST	52.80	0.76	3.09:1					FP	52.40	2.58:1
Guntur (Lam)	15	Neem oil	43.00	10.26	2.57:1					FP	39.00	1.99:1
Kadapa (Utukur)	3	Fortenza duo ST	63.45	4.88	2.29:1					Emamectin benzoate	60.50	1.96:1
Krishna (Garikapadu)	5	Summer ploughing + ST	33.52	2.51	2.65:1					FP	32.70	2.20:1
Prakasam (Darsi)	5	IPM	71.10	20.10	1.52:1					FP	59.20	1.40:1
Srikakulam	5	Cyantraniliprole ST	68.90	10.24	3.20:1					FP	62.50	2.81:1
Visakhapatnam (Kondempudi)	5	Summer ploughing	75.50	58.95	4.00:1					FP	47.50	2.61:1
Vizianagaram	5	Cyantranilipole ST	68.50	11.84	1.68:1	Emamectin Benzoate	62.72	2.40	1.66:1	Chlorpyrifos	61.25	1.65:1
Paddy (Rice)												
Krishna (Ghantasala)	6	BIPM practices	55.13	1.38	1.30:1	IPM practices	57.75	6.2	1.24:1	FP	54.38	1.12:1

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
Kurnool (Yagantipalle)	5	IPM	63.44	2.79	1.68:1	Organic Package	55.31	-10.39	1.53:1	Carbofuron 3 G	61.72	1.58:1
Kurnool (Yagantipalle)	5	Fipronil	67.50	12.89	1.76:1			20		Carbofuron 3 G	56.25	1.42:1
Vizianagaram	6	Formation of Alleyways	59.18	10.72	1.62:1	Trifloxystrobin, Tebuconazole	56.24	5.22	1.60:1	Hexaconazole	53.45	1.58:1
West Godavari (Undi)	6	Increasing floral diversity	41.25	1.53	1.29:1	IPM	40.78	0.37	1.28:1	FP	40.63	1.15:1
West Godavari (Undi)	6	Trap barrier system	42.19	5.90	1.20:1	Bromadiolone bait	41.69	4.64	1.28:1	FP	39.84	1.16:1
Blackgram												
Krishna (Garikapadu)	5	Tolerant variety (TBG-104)	9.51	9.94	1.70:1	LBG-752, IPM practices	9.30	7.51	1.55:1	FP	8.65	1.37:1
Prakasam (Darsi)	5	IPM practices	9.88	33.33	1.54:1					FP	7.41	1.34:1
Redgram												
Kadapa (Utukur)	3	Dimethoate	6.13	-7.12	2.29:1	Lambda cyahalothrin	7.58	14.85	2.34:1	Emamectin benzoate	6.60	1.90:1
Groundnut												
Ananthapuram (Kalyandurg)	6	Chllorantranilliprole, Flubendimide	6.42	9.4	1.47:1	NSKE	7.12	16.39	1.54:1	FP	5.65	1.17:1
Sugarcane												
Krishna (Ghantasala)	6	De-trashing, Imidacloprid	445	5.95	1.39:1	Imidacloprid	430	2.38	1.34:1	FP	420	1.30:1
Srikakulam	3	Imidacloprid	879	3.18	2.22:1	Acephate	870	2.11	2.03:1	FP	852	1.92:1
Visakhapatnam (Kondempudi)	5	Stubble shaving	951	17.12	2.07:1	propiconazole	892	9.85	1.99:1	Monocrotophos	812	1.83:1
Cotton												
Kurnool (Banavasi)	5	Herboliv	24.90	23.39	1.76:1	GI wire	23.47	16.3	1.83:1	Sarees/ Bottle attached with Stones	20.18	1.62:1
Bhindi/Okra												
Ananthapuram (Reddipalli)	5	Imidachloprid ST	396.60	12.99	1.70:1					Pheromone traps	351.00	1.63:1

State, crop and KVK	No. of Trials	Technology Option 1				Technology Option 2				Farmers Practice		
		Technology	Yield (q/ha)	%	BCR	Technol-ogy	Yield (q/ha)	%	BCR	Tech-nology	Yield (q/ha)	BCR
Brinjal												
Vizianagaram (Rastakuntubai)	5	Installation of Wota	174.00	19.48	1.54:1	Profeno-phos, Fipronil	165.00	13.37	1.52:1	Mono-crotop-hous	145.00	1.62:1
Cabbage												
Visakhapatnam (BCT)	5	Trap crop, Phero-mone traps	632	10.1	2.27:1	IPM	630	9.76	2.36:1	FP	574.00	2.15:1
Ridge gourd												
Visakhapatnam (BCT)	5	Methyl eugenol lure traps @ 6-10/ acre	21.6	10.77	2.32:1					FP	195.00	2.17:1
Tomato												
Ananthapuram (Reddipalli)	5	Multiple disease resistance variety	314.33	6.25	1.52:1					FP	295.83	1.60:1
Guava												
West Godavari (Undi)	6	IPM	329.20	11.71	2.36:1	Marigold intercrop	314.30	6.65	2.16:1	FP	294.70	1.95:1
West Godavari (VR Gudem)	5	Inter crops	350.00	27.27	3.18:1	Cowpea trap crop	330.00	20.00	3.14:1	Carbo-furan granules	275.00	2.34:1
Pomegranate												
Chittoor (Kalikiri)	3	IPM	97.50	5.98	1.95:1	Bagging of fruits	118.00	28.26	2.36:1	Manual collec-tion	92.00	1.84:1
Chilli (Red)												
Ananthapuram (Reddipalli)	5	Imidacloprid ST	17.92	46.29	2.00:1					FP	12.25	2.00:1
Krishna (Ghan-tasala)	5	PM practices	27.58	16.13	1.99:1					FP	23.75	1.54:1
Telangana												
Maize												
Karimnagar (Ramagirikh-illa)	10	Summer plough-ing, sorghum border crop	72.00	12.5	2.40:1					FP	64.00	2.28:1
Mahabubnagar (Palem)	6	Cynatraniliprole ST	74.58	12.57	1.58:1					FP	66.25	1.48:1
Nalgonda (Gaddipally)	6	Pheromone traps	55.00	12.24	2.64:1					FP	49.00	2.52:1
Ranga Reddy	3	IPM	28.00	47.37	1.45:1					FP	19.00	1.11:1
Rice												
Medak (Tuniki)	5	*Trichoderma viride* ST	46.25	-19.57	2.38:1					FP	57.50	1.81:1
Nalgonda (Kampasagar)	3	Chlorantranilip-role	64.75	7.74	2.28:1					FP	60.10	2.13:1
Nalgonda (Kampasagar)	3	*Trichoderma viridae* ST	42.50	-36.94	3.29:1					FP	67.40	2.38:1

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
Warangal (Malyal)	6	Deep summer ploughing, IPM	61.00	10.91	2.99:1	Pymetrozine	61.50	11.82	3.08:1	FP	55.00	2.72:1
Warangal (Mamnoor)	6	Pheramone traps	61.25	16.67	1.92:1	Carbofuron granules	56.50	7.62	1.83:1	FP	52.50	1.67:1
Greengram												
Warangal (Malyal)	6	Imidacloprid ST	10.25	28.13	3.63:1					FP	8.00	3.07:1
Capsicum												
Kammam (Wyra)	6	Diafenthurion	559.16	12.16	1.79:1	Neem oil	594.81	19.32	1.91:1	FP	498.52	1.59:1
Tomato												
Medak (Tuniki)	5	FYM	14.50	-15.7	1.99:1					FP	17.20	1.68:1
Mango												
Warangal (Malyal)	6	Imidacloprid	67.50	12.5	1.85:1					FP	60.00	1.83:1

%=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. *Trichoderma harzianum, T.Viride, Pseudomonas fluorescens* were assessed alone or in combination with chemicals gave higher yields and economic returns than Farmer's 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												
Groundnut												
Villupuram	5	*T. harzianum*	24.56	12.20	2.89:1	Tebuconozole ST	23.75	8.50	2.60:1	Fungicides	21.89	2.34:1
Tomato												
Vellore	5	Arka actin plus	43.84	7.29	4.25:1	*Pseudomonas*	42.40	3.77	4.11:1	COC	40.86	3.92:1
Banana												
Kanyakumari	10	*P. fluorescens*	442	13.52	2.37:1	*T. viride*	450	15.68	2.41:1	FP	389	2.19:1
Tuberose												
Dindigul	5	*P. fluorescens*	152.13	34.21	3.07:1	*T. viride*	148.37	30.9	3.00:1	Fungicide	113.35	2.15:1
Kancheepuram	5	*P. fluorescens*	140.60	27.12	3.86:1	*T. viride*	132.30	19.62	3.64:1	Fungicide	110.60	2.70:1

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
Andhra Pradesh												
Rice												
Srikakulam	5	Azoxystrobin, Tebuconazole, Difenconazole	56.70	9.88	2.28:1	Trifloxystrobin, Tebuconazole	53.60	3.88	2.14:1	Propiconazole	51.60	2.04:1
Visakhapatnam (Kondempudi)	5	Formation of alleyways	59.35	30.44	2.57:1	Trifloxystrobin, Tebuconazole	53.50	17.58	2.38:1	FP	45.50	1.97:1
Blackgram												
Krishna (Ghantasala)	6	IDM package	18.96	12.32	3.58:1	Resistant variety LGB787	18.75	11.08	3.43:1	FP	16.88	2.72:1
Krishna (Ghantasala)	6	IDM practices	12.88	47.20	1.78:1	Tolerant variety Tutu Minumu	11.88	35.77	1.64:1	FP	8.75	1.18:1
Groundnut												
Nellore (Nellore)	5	Tebuconazole ST	38.28	19.20	2.65:1	Tebuconozole spray	39.79	13.43	2.85:1	FP	35.08	2.36:1
Guava												
Kadapa (Vonipenta)	5	Marigold intercrop	110.25	-10.37	2.53:1	Destruction of affected trees	140.50	14.23	1.31:1	Carbofuran	123.00	1.32:1
Pepper												
Visakhapatnam (Haripuram)	5	IDM package	1.92	123.26	4.64:1	Metalaxyl, Mancozeb	1.68	95.35	4.20:1	FP	0.86	3.94:1
Telangana												
Acid lime												
Nalgonda (Gaddipally)	6	Integrated dry root rot mgt	19.61	57.89	2.98:1	*Trichoderma viride*	17.81	43.4	2.50:1	Carbendazim Drenching	12.42	1.96:1

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

3.1.4. Livestock, Poultry and Fishery

Animal and area specific mineral mixture, formulated concentrate feed, pro-biotics, sodium bio-carbonate, are some of the nutrition management technologies assessed for cattle. Herbal extracts gave 30.77 per cent higher parasite control in cattle than Farmer's practice. Use of TNAU CHECK SSC kit resulted in 89.7 per cent less disease incidence than Farmer's practice. Prosync NC Progesterone use resulted in 100

to 200 per cent higher pregnancy rate than artificial insemination. Various formulations of Ethno-veterinary medicines were assessed for the disease management in cattle, goat and sheep and poultry. Improved hybrid poultry birds like Nandhanam B3, Gramapriya, Kadakhnadh, Vanashree, Srinidhi, Rajasri, Vanaraja were assessed for their performance as backyard poultry and found successful in terms of enhanced egg and meat production and higher economic returns. Improved fish breeds like Jayanti rohu gave 40.48 per cent higher yield and higher economic returns.

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
Buffalo													
Nutrition management													
Kadapa (Utukur)	3	Milk (l/day)	Area specific MM	4.4	12.82	2.58:1					No supplements	3.90	2.38:1
Kurnool (Yaganti-palle)	10	6%FCM (kg)/day	Conc. feed + Probiotic yeast +NaH-CO_3	9.5	16.56	4.26:1	Conc. feed + Probiotic yeast	9.97	22.33	4.48:1	Conc. feed	8.15	3.8:1
Cattle													
Disease management													
Vellore	10	Parasiticidal effect (%)	Megatex	95.00	46.15	1.64:1	Herbal extract	85.00	30.77	1.69:1	Water+neem +turmeric	65.00	1.54:1
Villupuram II	15	Milk (l/year)	TANUVAS-KetoQuant	1980	2.06	1.76:1	Porta milk BHB test strips	1982	2.16	1.76:1	Observation	1940	1.74:1
Chittoor (Kalikiri)	56	Incidence (%)	SFMT test	19.60	-62.31	2.60:1	TA-NUCHEK SCC kit	5.35	-89.71	2.52:1	No test	52.00	1.85:1
Kadapa (Utukur)	3	Milk (l/d/animal)	Surf Field Mastitis Test	4.60	12.20	4.15:1					No testing	4.10	3.08:1
Visakhapatnam (BCT)	5	Milk (l)	Surf Field Mastitis Test	1160	78.46	1.30:1					No diagnosis	650	1.19:1
Feed and fodder													
Thiruvarur	5	Milk fat (kg/cow)	Conventional feed	10.30	1.98	1.67:1	Conventional feed+NaH-CO_3	10.70	5.94	1.71:1	Conventional feed	10.10	1.64:1
Chittoor (Kalikiri)	5	Fodder yield (t/ha)	Guinea grass intercrop	97.80	63.00	4.15:1	Stylo intercrop	54.75	-8.75	3.98:1	Fodder as sole crop	60.00	3.76:1

Theme and KVK	No. of Trials	Parameter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technology	Value	%	BCR	Technology	Value	%	BCR	Technology	Value	BCR
West Godavari (VR Gudem)	15	Fodder yield (t/ha)	Over-lapping crops	95.10	55.27	3.17:1	Fodder sorghum	82.87	35.3	2.76:1	Local fodder variety	61.25	2.45:1
Nutrition management													
Dharma-puri	10	Fat (%)	FP + $NaHCO_3$	4.10	2.5	2.26:1	FP + $NaHCO_3$ + regular feeding	4.70	17.5	2.52:1	Green fodder	4.00	2.11:1
Namakkal	5	Milk (l/day)	GNC conc. Feed	8.20	15.49	1.81:1	Non-GNC conc. feed	7.40	4.23	1.74:1	Com-mercial feed	7.10	1.70:1
Salem	10	Fat (%)	FP + $NaHCO_3$	4.10	-10.87	2.26:1	FP + $NaHCO_3$ + regular feed	4.00	-13.04	2.11:1	Green fodder	4.60	2.47:1
Tiruppur	5	Milk (l/day)	Greens, Conc. Feed	9.15	20.39	1.70:1	Greens + $NaHCO_3$	8.25	8.55	1.52:1	Green and dry fodder	7.60	1.44:1
Vellore	20	Milk (l /month)	FP + $NaHCO_3$	248	19.68	1.87:1	FP + $NaHCO_3$ + regular feed	257	24.02	2.00:1	No feed additives	207	1.52:1
Karim-nagar (Jammi-kunta)	20	Milk (l/animal)	Area specific MM	5.76	9.71	1.90:1					Natural open grazing	5.25	1.77:1
Ranga Reddy	25	Fat (%)	Area specific MM	4.5	21.62	5.50:1	Balanced ration	4.0	8.11	5.00:1	Natural grazing	3.70	4.70:1
Karaikal	3	Milk (l/ lactation)	Conc Feed	1890	26.0	1.37:1	Balanced Ration	2040	36.0	1.52:1	Grazing and feeding	1500	1.22:1
Production management													
Karur	10	Pregnan-cy (%)	Prosync NC Pro-gesterone	40.00	100	2.06:1	Proges-terone vaginal sponge	30.00	50	1.74:1	Artificial insemi-nation	20.00	1.29:1
Krishn-agiri	6	Concep-tion rate (%)	Prosync NC Pro-gesterone	30.00	200	1.67:1	Controlled IDR	70.00	600	2.25:1	Repeated AI	10.00	1.08:1
Villupu-ram	20	Fat (%)	$NaHCO_3$ + concen-trates	4.46	22.9	1.22:1	$NaHCO_3$+ Conc.+ probiotic	5.39	47.67	1.24:1	Local feed	3.65	1.04:1
Ranga Reddy	5	Fat (%)	Yeast bolus	4.60	24.32	5.60:1	$NaHCO_3$	4.40	18.92	5.40:1	Natural grazing	3.70	4.70:1
Goat													

Theme and KVK	No. of Trials	Param-eter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technol-ogy	Value	%	BCR	Technol-ogy	Value	%	BCR	Technol-ogy	Value	BCR
Disease management													
Villupur-am II	18	Tick count	DST_NIF Poly herbal spray	21	16.67	4.73:1	Cyperme-thrin / Del-tamethrin / Flumethrin Poly	20	11.11	4.37:1	Manual	18	4.20:1
Vi-sakhapa-tnam (BCT)	5	Wt (kg)	EVM-Wormo-lex	12.5	22.55	1.81:1	Local made EVM	12.2	19.61	1.73:1	Neem	10.2	1.72:1
Vi-sakhapa-tnam (BCT)	5	Wt (kg)	Herbal anti ecto-par-asitic extract	10.5	2.94	1.56:1	Cyperme-thrin	11.9	16.67	1.54:1	Manual	10.2	1.63:1
Nutrition management													
Vellore	20	Wt (kg/year)	TANU-VAS SR MM 2019	19.02	17.05	2.04:1	NIANP SR MM 2018	18.38	13.11	1.75:1	No MM	16.25	1.51:1
Villupu-ram	20	Weight gain (kg)	NIANP SR MM	14.20	29.33	2.7:1	TANU-VAS SR MM	12.8	16.58	2.29:1	Open grazing	10.98	2.18:1
Thoothu-kudi	4	Tick Re-duction (%)	EVM	98	40.00	25.22:1	Lemon essential oil	90	28.57	16.25:1	Deltame-thrin, cyper-methrin	70	15.42:1
Poultry													
Disease management													
Karaikal	2	Disease Incidence (%)	Pan-chakavya, vaccina-tion	23	-42.5	2.32:1	Panchaka-vya	15	-62.5	2.15:1	No Pan-chaka-vya	40	2.05:1
Evaluation of breeds													
Sivagan-gai	5	Weight (kg)	Nandha-nam B3	1.65	83.33	2.99:1	Gramapri-ya	1.5	66.67	2.82:1	Desi bird	0.9	2.03:1
Anantha-puram (Kalyan-durg)	5	Eggs/year	Kadakhn-adh	110	57.14	2.39:1	Swarnad-hara	170	142.86	3.86:1	Local birds	70	1.75:1
Kurnool (Yaganti-palle)	5	Weight (kg/150 days)	Vanashree	1.23	-12.14	1.26:1	Srinidhi	1.49	6.43	1.08:1	Rajasri	1.4	1.29:1
Nellore (Periya-varam)	12	Eggs/year	Vanashree	185	208.33	3.64:1	Rajasri	170	183.33	3.43:1	Aseel	60	1.86:1
Kanchee-puram	5	Eggs/year	Nandha-nam B3	312	67.74	2.39:1	Gramapri-ya	420	125.81	3.08:1	Native bird	186	1.37:1

Theme and KVK	No. of Trials	Param-eter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technol-ogy	Value	%	BCR	Technol-ogy	Value	%	BCR	Technol-ogy	Value	BCR
Anantha-puram (Reddi-palli)	20	Eggs/bird	Kadakhn-adh	112	148.89	3.56:1	Vanaraja	138	206.67	2.84:1	Local birds	45	2.37:1
Feed management													
Ariyalur	3	Weight gain (kg/6 months)	BSF larvae	1.15	35.29	4.57:1					Ground-nut cake+ fish meal	0.85	3.75:1
Thiru-varur	5	Weight (kg/bird)	Conven-tional feed	1.2	60.00	1.53:1	Conven-tional feed + 8 % BSF larvae	1.4	86.67	1.65:1	No protein	0.75	1.58:1
Villupu-ram	5	Weight (kg)	Tree leaf meal	0.914	16.88	2.66:1	TERI nutrients	0.812	3.84	2.17:1	Free range scaveng-ing	0.782	1.93: 1
Fish													
Disease management													
Karim-nagar (Jammi-kunta)	3	Yield (q/ha)	Cu-SO_4+KM-nO_4 + Povidine Iodine	7.5	36.36	4.82:1					Turmeric + $CaCO_3$	5.5	3.94:1
Nalgonda (Gaddi-pally)	2	Yield (q/ha)	Water sanitizers	39.2	34.71	2.06:1					Salt+tur-meric + Lime	29.1	1.7:1
Evaluation of breeds													
West Godavari (VR Gudem)	5	Yield (kg/ha)	CFC Jayanti rohu, Amur CC	26	8.33	1.73:1	CFC - IMC + exotic carps	21	-12.50	1.4:1	PCC - Catla, rohu, mrigal	24	1.41:1
Kanchee-puram	10	Yield (q/ha)	Jayanti rohu - fresh water	37.62	40.48	2.17:1	Jayanti rohu -low saline water	43.15	61.13	2.49:1	Carp culture	26.78	1.54:1
Feed management													
Nalgonda (Gaddi-pally)	2	Yield (q/ha)	Rice bran + oilcake + MM	38.6	47.89	1.98:1					De-oiled Rice bran	26.1	1.44:1
Production management													
Namakkal	3	Yield (q/ha)	Catla, rohu Pacu	37.32	29.85	1.98:1	Catla, rohu, CC	34.61	20.42	1.74:1	Catla, CC, minor carp	28.74	1.33:1

Theme and KVK	No. of Trials	Parameter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technology	Value	%	BCR	Technology	Value	%	BCR	Technology	Value	BCR
West Godavari (VR Gudem)	5	Yield (q/ha)	Captive nursery	7500	15.38	2.25:1	Nursery pond	7000	7.69	1.63:1	Direct stocking	6500	1.38:1
Warangal (Mamnoor)	2	Yield (kg/acre)	Scientific Stocking	10000	100.00	1.58:1	New species	7000	40.00	1.4:1	Carp species	5000	1.17:1
Warangal (Mamnoor)	2	Yield (kg/acre)	Mechanical weeding	1700	142.86	1.69:1	Hand weeding	1500	114.29	1.64:1	Grass carp	700	1.24:1

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

3.1.5 Women Empowerment

Enterprises like mushroom production, residue management, value addition to millets, vegetables and fruits were assessed in terms of production and income. Value addition to millets in terms of preparing bakery products, substitution of cane sugar with of palm sugar and jaggery are some of the technologies that were assessed for their potential as an enterprise for women. Palm sugar and jaggery based bakery items scored higher sensory points, keeping quality, consumer acceptability and income than white sugar.

3.1.14. Performance of Value Addition Technologies 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													
Ariyalur	3	Yield (kg)	APK 1	0.75	-25.00	1.58:1	Arka OM 1	0.65	-35.00	1.68:1	*Pleurotus florida* -2	1.00	3.13:1
Erode	5	Yield (kg)	PET jar	10.31	2.59	2.07:1					Polypropylene	10.05	2.08:1
Residue management													
Erode	3	Tonnes	NCOF waste decomposer	0.72	10.77	2.75:1	TNAU bio mineralizer	0.69	6.15	2.45:1	Heap composting	0.65	1.30:1
Value addition													
Ramanathapuram	5	BC Ratio	Wheat + Ragi flour	2.42	41.00	2.42:1	Wheat + Ragi flour + Palm jaggery	2.20	28.00	2.20:1	White sugar + Shortening agent	1.71	1.71:1
Ramanathapuram	5	BC Ratio	Slicing of coconut	1.92	60.00	1.92:1	Osmotic dehydration	1.94	61.00	1.94:1	Direct selling	1.20	1.20:1
Ramanathapuram	5	BC Ratio	Millet+wheat	1.35	3.80	1.35:1	Millet+wheat +$NaHCO_3$	1.35	3.80	1.35:1	Maida	1.30	1.30:1
Madurai	5	Sensory evaluation	Palm sugar	8.00	29.00	2.20:1	Jaggery	8.00	41.50	2.42:1	White sugar	8.50	1.71:1

State, Technology, KVK	No. of Trials	Parameter	Technology Option 1				Technology Option 2				Farmers Practice		
			Technology	Value	%	BCR	Technology	Value	%	BCR	Technology	Value	BCR
Dharmapuri	5	Sensory evaluation	Jaggery	8.50	36.00	2.41:1	Palm sugar	8.40	21.00	2.14:1	White sugar	8.35	1.77:1
Kanyakumari	5	Shelf life	Palm sugar	82.00	-27.00	1.13:1	Jaggery	97.50	16.12	1.80:1	White sugar	91.00	1.55:1
Tiruppur	5	Cost/100g	Cabinet drier	46.00	53.33	3.00:1	Solar drier	35.00	16.67	2.59:1	Shade drying	30.00	2.50:1
Karur	3	Keeping quality (d)	Cookies with jaggery	48.00		2.40:1	Cookies with palm sugar	39.00	-18.75	2.33:1	Cookies with white sugar	48.00	1.83:1
Sivagangai	5	Shelf life	Cookies with Palm sugar	2620	127.23	2.48:1	Cookies with Jaggery	2350	103.82	2.20:1	Cookies with White sugar	1153	1.32:1
Thiruvannamalai	5	BC Ratio	Millet cookies + Thulasi	3.95	34.00	3.95:1	Millet cookies + Thuthuvalai	4.40	50.00	4.40:1	Normal cookies	2.94	2.94:1
Thoothukudi	5	Consumer acceptability	Bajra cookies with Jaggery	92	17.95	2.18:1	Bajra cookies - palm jaggery	83	6.41	1.30:1	Bajra cookies - white sugar	78	2.08:1
Krishnagiri	5	BC Ratio	Millet cookies + Thuthuvalai	2.32	3.10	2.32:1	Millet cookies + thulasi	2.33	3.56	2.33:1	Plain cookies	2.25	2.25:1
Andhra Pradesh													
Mushroom production													
Anantapuram (Kalyandurg)	5	Yield (g/bag)	Sorghum straw	720	-40.00	4.00:1	Groundnut shells	600	-50	3.00:1	Paddy straw	1200	6.33:1
Tomato Value Addition													
Kurnool (Banavasi)	5	Tomato powder (g/kg)	Electric dryer	80.00	23.08	3.43:1	Solar tunnel dryer	70.00	7.65	3.09:1	Sun drying	65.00	2.86:1
Nutri-garden													
Kadapa (Vonipenta)	30	Yield (q/ha)	Nutri-garden 1	127.00	164.58	1.83:1	Nutri-garden 2	105.00	118.75	1.77:1	Nutri-garden on farm bunds	48.00	1.48:1

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

3.1.6. Drudgery reduction technologies

Drudgery reduction technologies like mechanized weeders, seeders, straw collectors, groundnut digger, planters etc., were assessed against Farmer's practice. Three tined and cycle weeders had 57.14 and 28.57 per cent lesser drudgery than manual weeding.

3.1.15. 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
Tamil Nadu													
Thoothukudi	5	kg/hr	TNAU fruit harvester	1.45	-87.92	1.54:1	IIHR lemon harvester	9.20	-23.33	2.64:1	scoop/ hook	12.00	3.68:1
Andhra Pradesh													
Kurnool (Banavasi)	5	Pest incidence	Triple layer Storage bags	11.00	-60.71	2.55:1	Sand layer	13.00	-53.57	2.12:1	Gunny bags	28.00	1.78:1
Chittoor (RASS)	8	Drudgery reduction	Three tyned weeder	110.00	57.14	1.77:1	Cycle weeders	90.00	28.57	1.82:1	Manual weeding	70.00	1.78:1
Visakhapatnam (Kondempudi)	5	Drudgery	Seed dibbler	4.00	-33.33	1.05:1					Dibbling	6.00	1.02:1
Telangana													
Karimnagar (Ramagirikhilla)	25	Yield (q/ha)	Drum seeding	69.00	7.81	2.96:1					Transplanting	64.00	2.06:1
Medak (Tuniki)	6	Yield (q/ha)	Manual straw Collection	60.50	4.31	2.14:1	Mechanized collection	58.70	1.21	1.89:1	Labour usage	58.00	1.80:1
Warangal (Malyal)	6	Yield (q/ha)	Bed maker	60.05	18.33	1.96:1	Bed maker + machine sowing	66.25	30.54	2.17:1	Manual sowing	50.75	1.33:1
Mahabubnagar (Palem)	5	Yield (q/ha)	TD ferti-seed drill	25.70	8.9	2.15:1					Animal drawn gorru	23.60	1.91:1
Mahabubnagar (YFA)	3	Yield (q/ha)	Groundnut digger-shaker	9.81	30.96	1.76:1	Raised bed planter	10.22	18.11	1.36:1	Manual harvesting	7.85	1.27:1
Mahabubnagar (YFA)	3	Yield (q/ha)	Side shift rotavator	7.33	41.9	1.85:1	Rotavator	6.47	8.87	1.33:1	FP	6.01	1.22:1

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

Assessment of Organic Farming in rice
KVK Kammam (Wyra) (TS)

Assessment of Organic Farming in rice
KVK Kurnool (Yagantipalli) (AP)

Assessment of liquid biofertilizers in rice
KVK Chittoor (Kalikiri) (AP)

Assessment of bio-fortified rice varieties
KVK Ariyalur (TN)

Assessment of ecological engineering for rice
KVK West Godavari (Undi) (AP)

Assessment of FAW management module in Maize
KVK West Godavari (Undi), (AP)

Assessment of Zinc management in sorghum
KVK Kurnool (Yagantipalli), (AP)

Assessment of defoliant in greengram
KVK Warangal (Mamnoor) (TS)

Assessment of optimum time of sowing for Sesbania
KVK Warangal (Mamnoor) (TS)

Assessment of irrigation schedule for redgram
KVK Warangal (Mamnoor) (TS)

Assessment of drought management technology in blackgram-KVK Villupuram (TN)

Assessment of phosphate solubilizers for chickpea
KVK Kurnool (Yagantipalli) (AP)

Assessment of groundnut variety K 1812 KVK Kurnool (Banavasi) (AP)

Assessment of groundnut variety Kadiri Lepakshi KVK Chittoor (Kalikiri) (AP)

Assessment of groundnut variety ICGV 00350 for drought tolerance - KVK Karur (TN)

Assessment of INM for groundnut KVK Nalgonda (Gaddipally) (TS)

Assessment of groundnut variety TCGS 1694 KVK Chittoor (RASS) (AP)

Assessment of creeper weeds management technology in sugarcane - KVK Srikakulam (AP)

Assessment of yellow sticky trap for pest management in cotton - KVK Villupuram (TN)

Assessment of tomato varieties KVK Kadapa (Utukur) (AP)

Assessment of triple resistant variety in tomato KVK Kurnool (Banavasi) (AP)

Assessment of chilli varieties KVK Srikakulam (AP)

Assessment of bio-priming technology in bhindi KVK Villupuram (TN)

Assessment of high yielding varieties of cluster bean KVK Chittoor (RASS)

Assessment of disease resistant tomato varieties
KVK Chittoor (RASS)

Assessment of planting dates for chilli
KVK-Chittoor (RASS)

Assessment of YVMV resistant Bhendi varieties
KVK Chittoor (RASS)

Assessment of fertigation schedule for TC banana
KVK Kurnool (Yagantipalli)

Assessment of gummosis management technologies in mango - KVK Salem (TN)

Assessment of tuberose varieties
KVK Ariyalur (TN)

Assessment of tuberose variety Arka prajwal 2
KVK West Godavari (Undi) (AP)

Assessment of integrated fish nursery management technology - KVK Karimnagar (Jammikunta)

Assessment of floating feed for fish
KVK Warangal (Mamnoor)

Assessment of mineral mixture for goat
KVK Vellore (TN)

Assessment of polyherbal spray in goat
KVK Villupuram II (TN)

Assessment of Teat dip cup
KVK Villupuram II

Assessment of apiculture enterprise in rubber plantation - KVK East Godavari (Pandirimamidi)

Assessment of fertilizer applicator for cotton KVK Khammam (Wyra)

Assessment of weeder for drudgery reduction KVK Chittoor (RASS)

Assessment of mechanized planter for turmeric KVK Warangal (Malyal)

Assessment of value added products - millet cookies - KVK Karur

Assessment of mushroom production enterprise KVK Nalgonda (Gaddipalli)

Assessment of triple resistant variety in tomato
KVK Kurnool (Banavasi) (AP)

Assessment of rice transplanter
KVK West Godavari (Undi)

3.2 Frontline Demonstrations

Frontline Demonstrations were organized by the KVKs to demonstrate the production 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 10412 demonstrations were conducted in 2961.40 ha on field crops, horticultural crops, tools and implements and livestock by KVKs in Zone X (Table 3.2.1). In crops, 6685 demonstrations were conducted by 70 KVKs in Zone-X covering cereals, millets, pulses, oilseeds, commercial crops, fodder crops, vegetables, fruits, flowers, spices, plantation crops and medicinal plants in 2520.9 ha. Among the crops, 4214 demonstrations were conducted on field crops and 2471 on horticultural crops. A total of 604 demonstrations were conducted on hybrids, 544 on tools and implements, 1232 on livestock, 328 on various enterprises and 1019 on women and children related demonstrations. Among agricultural crops, 1166 demonstrations were conducted on rice varieties and other production and protection technologies (Table 3.2.2). In millets out of 406 demonstrations, 105 were in sorghum and 101 were in finger millet. In pulses (other than CFLD), out of 1194 demonstrations, 400 were in blackgram, 375 in redgram 221 in chickpea and 108 in greengram. Out of 650 demonstrations in oilseeds (other than CFLD), 376 were in groundnut and 135 in sesamum. Among the commercial crops, 445 were in cotton and 87 in sugarcane. Among 1085 demonstrations in vegetables, 215 were in tomato and 146 in green chillies. Out of 707 demonstrations in fruits, 266 were in mango and 156 were in banana. Among 285 demonstrations on spices and condiments, 105 were on dry chillies and 95 on turmeric. Among plantation crops, 102 demonstrations were on coconut.

a. Crops

In crops category, out of 2585 demonstrations in Tamil Nadu, 669 were in cereals and 451 in vegetables (Table 3.2.2). In Andhra Pradesh, out of 2388 demonstrations on crops, 531 were in pulses, 346 in oilseeds, 341 in fruits and 300 in cereals. Out of 1622 demonstrations in Telangana, 343 in Cereals, 328 in pulses, 366 in vegetables and 221 in fruits. In Puducherry, out of 50 demonstrations on crops, 30 were in rice.

b. Hybrids

A total of 604 demonstrations were conducted on crop hybrids, out of which 231 were by KVKs of Tamil Nadu, 132 by Andhra Pradesh, 231 by Telangana and 10 by Puducherry (Table 3.2.3).

c. Tools and Implements

Out of 544 demonstrations conducted on tools and implements, 219 were by KVKs of Tamil Nadu, 160 by Andhra Pradesh and 165 by Telangana (Table 3.2.4).

d. Livestock, poultry and fishery

KVKs in the Zone conducted 1232 demonstrations on livestock, poultry and fishery involving 138104 animals, poultry birds and fish fingerlings (Table 3.2.5).

e. Enterprises and women empowerment

Demonstrations on enterprises like value addition, vermicomposting, sericulture and vermicomposting were conducted to farmers in which a total of 282 enterprise units were established (Table 3.2.6). Demonstrations on nuitri-garden, value addition, drudgery reducing tools and implements and storage equipment were conducted at 1019 places and 938 enterprises were established 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		
	Dem-os	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Dem-os	Area (ha)	KVKs	Dem-os	Area (ha)	KVKs	Demos	Area (ha)	KVKs
Crops															
Field Crops	1661	629.75	30	1528	609.00	20	985	394.60	16	40	16.00	2	4214	1649.35	67
Horti-cultural Crops	924	274.90	28	860	323.70	21	677	268.95	15	10	4.00	1	2471	871.55	65
Total (Crops)	**2585**	**904.65**	**30**	**2388**	**932.70**	**22**	**1662**	**663.55**	**16**	**50**	**20.00**	**2**	**6685**	**2520.90**	**70**
Hybrids	231	74.20	18	132	53.90	5	231	104.60	4	10	4.00	1	604	236.70	28
Tools and imple-ments	219	71.50	11	160	49.10	5	165	83.20	6				544	203.80	22
Livestock	665	32808 (Nos)	25	408	103635 (Nos)	12	124	1611 (Nos)	5	35	50 (Nos.)	2	1232	138104 (Nos)	44
Enter-prises	192	176 (Units)	16	136	106 (Units)	6							328	282 (Units)	22
Women and Chil-dren	83	70 (Units)	10	776	776 (Units)	12	160	92 (Units)	3				1019	938 (Units)	25
Grand Total	**3975**	**1050.35**	**30**	**4000**	**1035.7**	**23**	**2342**	**851.35**	**16**	**95**	**24.00**	**2**	**10412**	**2961.40**	**71**

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		
	Dem-os	Area (ha)	KVKs	Dem-os	Area (ha)	KVKs	Dem-os	Area (ha)	KVKs	Dem-os	Area (ha)	KVKs	Dem-os	Area (ha)	KVKs
Field Crops															
Cereals															
Maize	130	52.00	12	20	6.00	2	26	10.40	3				**176**	**68.40**	**17**
Paddy (Rice)	539	209.20	23	280	109.00	10	317	122.60	13	30	12.00	2	**1166**	**452.80**	**48**
Total (Cereals)	**669**	**261.20**	**25**	**300**	**115.00**	**10**	**343**	**133.00**	**13**	**30**	**12.00**	**2**	**1342**	**521.20**	**50**
Millets															
Barnyard millet	20	8.00	2										**20**	**8.00**	**2**
Finger millet	60	24.00	5	41	16.00	2							**101**	**40.00**	**7**
Foxtail millet	50	19.00	5	20	8.00	2							**70**	**27.00**	**7**
Little millet	50	20.00	4										**50**	**20.00**	**4**
Pearl millet	35	14.00	3	25	11.00	3							**60**	**25.00**	**6**
Sorghum	50	20.00	5	45	18.00	2	10	4.00	1				**105**	**42.00**	**8**

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)	**265**	**105.00**	**16**	**131**	**53.00**	**8**	**10**	**4.00**	**1**				**406**	**162.00**	**25**
Pulses (Other than CFLD)															
Blackgram	240	97.00	10	135	52.00	6	25	10.00	1				**400**	**159.00**	**17**
Chickpea				146	59.00	6	75	30.00	2				**221**	**89.00**	**8**
Cowpea	20	8.00	2	20	8.00	2				10	4.00	1	**50**	**20.00**	**5**
Greengram	35	12.00	4	50	20.00	2	23	14.00	2				**108**	**46.00**	**8**
Horse gram	20	8.00	2										**20**	**8.00**	**2**
Rajmah				10	4.00	1							**10**	**4.00**	**1**
Redgram	10	4.00	1	160	67.00	9	205	85.00	8				**375**	**156.00**	**17**
Sunnhemp				10	4.00	1							**10**	**4.00**	**1**
Total (Pulses)	**325**	**129.00**	**16**	**531**	**214.00**	**17**	**328**	**139.00**	**9**	**10**	**4.00**	**1**	**1194**	**486.00**	**43**
Oilseeds															
Castor	40	16.00	4	25	10.00	1							**65**	**26.00**	**5**
Groundnut	125	47.00	10	231	93.00	9	20	8.00	2				**376**	**148.00**	**21**
Niger				10	4.00	1							**10**	**4.00**	**1**
Safflower				10	5.00	1							**10**	**5.00**	**1**
Soybean							44	14.60	2				**44**	**14.60**	**2**
Sesamum	65	26.00	5	70	28.00	3							**135**	**54.00**	**8**
Sunflower							10	4.00	1				**10**	**4.00**	**1**
Total (Oilseeds)	**230**	**89.00**	**14**	**346**	**140.00**	**10**	**74**	**26.60**	**4**				**650**	**255.60**	**28**
Fibre crops															
Cotton	80	32.00	6	135	56.00	10	230	92.00	13				**445**	**180.00**	**29**
Commercial Crops															
Sugarcane	12	4.80	2	75	29.00	6							**87**	**33.80**	**8**
Fodder Crops															
Cumbu Napier grass	10	0.05	1										**10**	**0.05**	**1**
Fodder sorghum	20	4.40	2										**20**	**4.40**	**2**
Mixed fodder	50	4.30	6	10	2.00	1							**60**	**6.30**	**7**
Total (Fodder)	**80**	**8.75**	**9**	**10**	**2.00**	**1**							**90**	**10.75**	**10**
Total (Field Crops)	**1661**	**629.75**	**30**	**1528**	**609.00**	**20**	**985**	**394.60**	**16**	**40**	**16.00**	**2**	**4214**	**1649.35**	**67**
Horticultural Crops															
Vegetables															
Bhindi/Okra	10	4.00	1	1	0.40	1	28	11.20	2				**39**	**15.60**	**4**
Bitter gourd	30	8.00	3	15	6.00	1	30	12.00	3				**75**	**26.00**	**7**
Bottle gourd	30	10.00	3										**30**	**10.00**	**3**
Brinjal	45	12.40	5	61	21.40	6	40	14.00	4				**146**	**47.80**	**15**

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
Cabbage				20	5.00	1							**20**	**5.00**	**1**
Chilli (green)	45	12.40	4	70	23.00	6	40	16.00	4				**155**	**51.40**	**15**
Cluster Bean	10	2.00	1										**10**	**2.00**	**1**
Cowpea	10	4.00	1										**10**	**4.00**	**1**
Drumstick	15	4.00	2				10	4.00	1				**25**	**8.00**	**3**
French Bean	15	4.00	2										**15**	**4.00**	**2**
Lablab	10	4.00	1										**10**	**4.00**	**1**
Manathakkali	10	4.00	1										**10**	**4.00**	**1**
Mixed Vegetables	10	2.00	1	5	2.00	1	10	0.15	1				**25**	**4.15**	**3**
Onion	40	17.00	5	40	16.00	2	10	4.00	1				**90**	**37.00**	**8**
Onion (Aggregatum)	70	19.00	6										**70**	**19.00**	**6**
Radish	10	4.00	1										**10**	**4.00**	**1**
Ridge gourd	10	4.00	1	30	12.00	3	60	20.00	6				**100**	**36.00**	**10**
Snake gourd	30	10.00	3										**30**	**10.00**	**3**
Tomato	51	20.00	4	26	10.40	3	138	53.20	9				**215**	**83.60**	**16**
Total (Vegetables)	**451**	**144.80**	**22**	**268**	**96.20**	**15**	**366**	**134.55**	**13**				**1085**	**375.55**	**50**
Tuber crops															
Coleus	10	2.00	1										**10**	**2.00**	**1**
Elephant Foot Yam	25	4.00	2										**25**	**4.00**	**2**
Sweet Potato	10	2.50	1										**10**	**2.50**	**1**
Tapioca (Cassava)	41	10.00	5										**41**	**10.00**	**5**
Total (Tuber crops)	**86**	**18.50**	**8**	**0**	**0.00**		**0**	**0.00**		**0**	**0.00**		**86**	**18.50**	**8**
Fruits															
Acid lime	10	2.00	1	50	16.00	4							**60**	**18.00**	**5**
Avocado	10	4.00	1										**10**	**4.00**	**1**
Banana	60	20.90	5	86	38.00	6	10	4.00	1				**156**	**62.90**	**12**
Citrus	10	0.40	1				10	4.00	1				**20**	**4.40**	**2**
Guava	5	2.00	1	15	6.00	2	5	2.00	1				**25**	**10.00**	**4**
Mango	20	8.00	2	120	48.00	6	126	60.40	11				**266**	**116.40**	**20**
Muskmelon				10	2.00	1							**10**	**2.00**	**1**
Papaya	10	4.00	1	20	8.00	2	20	8.00	1				**50**	**20.00**	**4**
Sweet Orange				10	5.00	1	20	8.00	2				**30**	**13.00**	**3**

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
Tenera							10	4.00	1				**10**	**4.00**	**1**
Watermelon	20	8.00	2	30	12.00	2	20	8.00	2				**70**	**28.00**	**6**
Total (Fruits)	**145**	**49.30**	**13**	**341**	**135.00**	**14**	**221**	**98.40**	**14**	**0**	**0.00**		**707**	**282.70**	**41**
Flowers															
Chrysanthemum	10	1.00	1	5	2.00	1							**15**	**3.00**	**2**
Marigold				6	2.50	1	10	4.00	1				**16**	**6.50**	**2**
Ixora	10	1.00	1										**10**	**1.00**	**1**
Jasmine	50	14.40	4										**50**	**14.40**	**4**
Tuberose	15	5.00	2				10	4.00	1				**25**	**9.00**	**3**
Total (Flowers)	**85**	**21.40**	**8**	**11**	**4.50**	**2**	**20**	**8.00**	**2**	**0**	**0.00**		**116**	**33.90**	**12**
Spices and Condiments															
Chilli (Red)	10	4.00	1	55	23.00	5	40	16.00	3				**105**	**43.00**	**8**
Coriander (seed)	10	2.00	1										**10**	**2.00**	**1**
Ginger				20	6.00	1							**20**	**6.00**	**1**
Pepper	45	4.50	2	10	4.00	1							**55**	**8.50**	**3**
Turmeric (Dried)	10	0.40	1				10	4.00	1				**20**	**4.40**	**3**
Turmeric (Raw)	5	2.00	1	60	22.00	4	10	4.00	1				**75**	**28.00**	**6**
Total (Spices and Condiments)	**80**	**12.90**	**7**	**145**	**55.00**	**8**	**60**	**24.00**	**4**	**0**	**0.00**		**285**	**91.90**	**19**
Plantation Crops															
Betelvine	10	1.00	1										**10**	**1.00**	**1**
Cashew				40	16.00	3							**40**	**16.00**	**3**
Coconut	67	27.00	7	25	7.00	2				10	4.00	1	**102**	**38.00**	**10**
Coffee				10	4.00	1							**10**	**4.00**	**1**
Oil palm				20	6.00	2	10	4.00	1				**30**	**10.00**	**3**
Total (Plantation Crops)	**77**	**28.00**	**8**	**95**	**33.00**	**6**	**10**	**4.00**	**1**	**10**	**4.00**	**1**	**192**	**69.00**	**16**
Total (Horticultural Crops)	**924**	**274.90**	**28**	**860**	**323.70**	**21**	**677**	**268.95**	**15**	**10**	**4.00**	**1**	**2471**	**871.55**	**65**
Grand Total	**2585**	**904.65**	**30**	**2388**	**932.70**	**22**	**1662**	**663.55**	**16**	**50**	**20.00**	**2**	**6685**	**2520.90**	**70**

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		
	Dem-os	Area (ha)	KVKs	Dem-os	Area (ha)	KVKs	Dem-os	Area (ha)	KVKs	Dem-os	Area (ha)	KVKs	Dem-os	Area (ha)	KVKs
Field Crops															
Cereals															
Maize	20	8.00	2				28	12.20	2				**48**	**20.20**	**4**
Rice										10	4.00	1	**10**	**4.00**	**1**
Finger millet							13	5.20	1				**13**	**5.20**	**1**
Sorghum	10	4.00	1										**10**	**4.00**	**1**
Castor	20	8.00	2										**20**	**8.00**	**2**
Cotton	30	12.00	3	20	7.00	1							**50**	**19.00**	**4**
Napier grass				20	8.00	1							**20**	**8.00**	**1**
Mixed Fodder	5	0.20	1										**5**	**0.20**	**1**
Horticultural crops															
Vegetables															
Bhendi/Okra	41	10.40	5				10	4.00	1				**51**	**14.40**	**6**
Bitter gourd							10	4.00	1				**10**	**4.00**	**1**
Bottle gourd							10	2.00	1				**10**	**2.00**	**1**
Brinjal	10	2.00	1	10	5.00	1							**20**	**7.00**	**2**
Chilli (green)	10	4.00	1	40	17.00	2							**50**	**21.00**	**3**
Ridge gourd	20	7.00	2										**20**	**7.00**	**2**
Tomato	25	6.40	3	16	6.40	2	20	8.00	1				**61**	**20.80**	**6**
Mango							10	4.00	1				**10**	**4.00**	**1**
Papaya				10	4.00	1							**10**	**4.00**	**1**
Watermelon	5	2.00	1				10	4.00	1				**15**	**6.00**	**2**
Crossandra	5	0.20	1										**5**	**0.20**	**1**
Marigold				6	2.50	1	10	4.00	1				**16**	**6.50**	**2**
Coconut	30	10.00	2										**30**	**10.00**	**2**
Others				10	4.00	2	110	57.20	4				**120**	**61.20**	**6**
Total	**231**	**74.2**	**18**	**132**	**53.9**	**5**	**231**	**104.6**	**4**	**10**	**4**	**1**	**604**	**236.7**	**28**

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		
	Dem-os	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Dem-os	Area (ha)	KVKs	Demos	Area (ha)	KVKs	Dem-os	Area (ha)	KVKs
Harvesting	85	26.50	6	40	2.10	3	20	8.00	1				**145**	**36.60**	**10**
Inter-cultural operations	55	19.00	3				10	5.00	1				**65**	**24.00**	**4**
Land prepara-tion	10	4.00	1				4	4.00	1				**14**	**8.00**	**2**
Post-har-vest tech-nology	49	17.00	6				12	15.00	1				**61**	**32.00**	**7**

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
Sowing and planting	20	5.00	2	120	47.00	2	49	19.60	4				**189**	**71.60**	**8**
Total mechanization							50	20.00	2				**50**	**20.00**	**2**
Others							20	11.60	2				**20**	**11.60**	**2**
Total	**219**	**71.50**	**11**	**160**	**49.10**	**5**	**165**	**83.20**	**6**				**544**	**203.80**	**22**

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	337	615	20	80	250	5	47	557	2	15	30	1	**479**	**1452**	**28**
Buffalo				104	180	6	33	375	3				**137**	**555**	**9**
Calf				20	20	1							**20**	**20**	**1**
Goat				5	3	1				10	10	1	**15**	**13**	**2**
Goat kid	11	70	2							10	10	1	**21**	**80**	**3**
Sheep	20	300	2	32	152	3	22	654	3				**74**	**1106**	**8**
Lamb				40	130	2							**40**	**130**	**2**
Desi Bird	253	3490	19	102	2600	6	5	25	1				**360**	**6115**	**26**
Layer				15	300	1							**15**	**300**	**1**
Japanese Quail	19	1800	3										**19**	**1800**	**3**
Fish	25	26533	5	10	100000	1	17	0	4				**52**	**126533**	**10**
Total	**665**	**32808**	**25**	**408**	**103635**	**12**	**124**	**1611**	**5**	**35**	**50**	**2**	**1232**	**138104**	**44**

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
Value addition	150	134	15	26	11	3							**176**	**145**	**18**
Nutri-garden	17	17	2	30	15	3							**47**	**32**	**5**
Sericulture				80	80	1							**80**	**80**	**1**
Vermicomposting	25	25	1										**25**	**25**	**1**
Total	**192**	**176**	**16**	**136**	**106**	**6**							**328**	**282**	**22**

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		
	Dem-os	Nos.	KVKs	Dem-os	Nos.	KVKs	Dem-os	Nos.	KVKs	Dem-os	Nos.	KVKs	Dem-os	Nos.	KVKs
Nutri-garden	57	53	6	492	508	10	40	40	3				**589**	**601**	**19**
Value addi-tion	26	17	4	77	75	5	20	12	2				**123**	**104**	**11**
Drudgery reduction				97	83	7	100	40	1				**197**	**123**	**8**
Storage technique				110	110	2							**110**	**110**	**2**
Total	**83**	**70**	**10**	**776**	**776**	**12**	**160**	**92**	**3**				**1019**	**938**	**25**

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 1166 FLDs on varieties, IPM and IDM technologies were conducted on rice crop with an average yield increase of 12.28% and BCR of 1.84:1 (Table 3.2.8). The average yield advantage in the 101 demonstrations on Finger millet and 105 demonstrations on sorghum were 38.59 and 18.28 per cent, respectively and the BCRs were 1.88:1 and 2.25:1, respectively. Among pulses, an average yield increase of 23.93 was observed in 400 demonstrations on blackgram varieties and technologies while in the 375 demonstrations on redgram, the average yield increase was 29.71%. Among the oilseeds, the average yield enhancement in 376 demonstrations on groundnut was 13.63 percent and the BCR was 1.65:1. Cotton technologies were demonstrated at 445 locations with an average yield enhancement of 15.25%. Among the vegetable crops, tomato varieties and technologies were demonstrated at 215 locations with an average yield enhancement of 15.96% and green chillies at 155 locations with an average yield increase of 11.04 per cent. Brinjal was demonstrated at 146 places with an average yield enhancement of 15.61%. Among the fruit crops, mango varieties and technologies were demonstrated at 266 locations with an average yield increase of 27.74%. Banana was demonstrated at 156 locations with an average yield enhancement of 10.93%. The average yield increase in red chilli was 16.57% in 105 demonstrations. Performance of crop varieties, technologies and hybrids in terms of yield, income and benefit cost ratio in Tamil Nadu, Andhra Pradesh, Telangana and Puducherry are 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 22 KVKs in the Zone at 544 locations. The performance of technologies in terms of improvement in performance, savings in time and manpower, income and benefit cost ratio are presented in Table 3.2.14.

KVKs in the Zone conducted 1232 demonstrations involving 138104 animals, birds and fish fingerlings on technologies loke Ethno Veterinary Medicines for cattle, sheep and goat, poultry and fish; Ketocheck and Mastiguard, TANUCHEK SCC for cattle; Metabolic disorder management, evaluation of improved breeds in cattle, goat and sheep; improved fodder varieties; feed preparation technologies; area and animal specific mineral mixtures; improved poultry breed like Kadakhnadh, Rajasri, Gramapriya, TANUVAS Aseel, etc.; Fish silage feed; ProBeads - EC; Probiotics; Ornamental birds; Namakkal Gold Quail, Nandhanam 3 Quail; inland fish culture with different breeds; feed management for inland fisheries; Duck cum fish farming; Seabass open pond culture; Pangasius catfish; Argulus management in Composite Fish Culture; Ecto-parasites management

in Inland Fish Culture; Red disease management in IFC; Nursery management in IFC; Transportation and Marketing of fish; Aquatic weeds management in CFC; Plankton density in IFC, *etc* (Table 3.2.15). Performance of various enterprises like nutri-garden, IFS, liquid jagger production, mushroom production and value addition, millets value addition, ready mix food products, value added products from fruits and vegetables, vermicomposting, silkworm rearing 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	176	68.4	17	88.55	74.82	18.34	46399	61726	2.33:1	47039	45577	1.97:1
Paddy (Rice)	1166	452.8	48	57.92	51.59	12.28	51526	57027	2.11:1	57696	48289	1.84:1
Millets												
Barnyard millet	20	8.0	2	11.23	9.21	21.94	17810	12940	1.73:1	16225	9078	1.56:1
Finger millet	101	40.0	7	20.38	14.70	38.59	22832	34823	2.53:1	23184	20470	1.88:1
Foxtail millet	70	27.0	7	14.64	11.47	27.64	21046	22600	2.07:1	24515	14278	1.58:1
Little millet	50	20.0	4	18.80	14.90	26.22	17010	23546	2.38:1	13277	15941	2.20:1
Pearl millet	60	25.0	6	21.95	15.97	37.45	22688	24027	2.06:1	23741	12732	1.54:1
Sorghum	105	42.0	8	28.96	24.48	18.28	24912	42166	2.69:1	24227	30176	2.25:1
Pulses												
Blackgram	400	159.0	17	11.61	9.37	23.93	51736	65113	2.26:1	50259	36392	1.72:1
Chickpea	221	89.0	8	21.88	18.37	19.11	44272	64531	2.46:1	44004	50310	2.14:1
Cowpea	50	20.0	5	13.55	9.99	35.68	23955	28310	2.18:1	23650	14830	1.63:1
Greengram	108	46.0	8	12.77	10.96	16.54	54953	48005	1.87:1	54475	31352	1.58:1
Horse gram	20	8.0	2	7.82	6.34	23.48	13111	11808	1.90:1	11022	7910	1.72:1
Rajmah	10	4.0	1	5.20	3.90	33.33	11000	38400	4.49:1	11000	26050	3.37:1
Redgram	375	156.0	17	16.00	12.34	29.71	34864	59371	2.70:1	73011	69209	1.95:1
Sunnhemp	10	4.0	1	15.00	6.20	141.94	14500	23000	2.59:1	16250	14750	1.91:1
Oilseeds												
Castor	65	26.0	5	20.80	13.89	49.70	31789	56960	2.79:1	35603	35107	1.99:1
Groundnut	376	148.0	21	24.52	21.58	13.63	60764	58390	1.96:1	61916	39976	1.65:1
Niger	10	4.0	1	19.00	15.00	26.67	4100	6200	2.51:1	5400	4100	1.76:1
Safflower	10	5.0	1	4.13	2.89	42.91	8750	6940	1.79:1	8850	2132	1.24:1
Soybean	44	14.6	2	15.10	13.91	8.57	28453	31762	2.12:1	31754	28211	1.89:1
Sesamum	135	54.0	8	10.23	7.70	32.83	30370	57812	2.90:1	30252	32277	2.07:1
Sunflower	10	4.0	1	21.63	19.80	9.22	36200	97875	3.70:1	39625	83135	3.10:1
Fibre crops												
Cotton	445	180.0	29	18.48	16.04	15.25	52305	48227	1.92:1	54122	32295	1.60:1

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
Commercial Crops												
Sugarcane	87	33.8	8	879	741	18.67	128375	132793	2.03:1	127330	97464	1.77:1
Fodder Crops												
Cumbu Napier grass	10	0.1	1	46.5	21.8	113.30	2250	26338	12.71:1	806	10906	14.53:1
Fodder sorghum	20	4.4	2	888	655	35.60	46500	71727	2.54:1	44655	50186	2.12:1
Mixed fodder	60	6.3	7	518	412	25.90	56495	53212	1.94:1	51959	28173	1.54:1
Horticultural Crops												
Vegetables												
Bhindi/Okra	39	15.6	4	146	116	26.45	111876	206761	2.85:1	115083	125205	2.09:1
Bitter gourd	75	26.0	7	307	261	17.69	264387	415284	2.57:1	264193	310952	2.18:1
Bottle gourd	30	10.0	3	257	209	23.01	60980	142000	3.33:1	65100	93660	2.44:1
Brinjal	146	47.8	15	282	244	15.61	129407	359313	3.78:1	139607	143411	2.03:1
Cabbage	20	5.0	1	536	412	30.07	102730	133862	2.30:1	92540	66928	1.72:1
Chilli (green)	155	51.4	15	87	78	11.04	276792	333246	2.20:1	265343	254775	1.96:1
Cluster Bean	10	2.0	1	15	14	7.14	60000	100000	2.67:1	50000	62000	2.24:1
Cowpea	10	4.0	1	119.8	114.6	4.54	33468	143772	5.30:1	44348	93172	3.10:1
Drumstick	25	8.0	3	441	281	56.85	303536	356531	2.17:1	186125	179790	1.97:1
French Bean	15	4.0	2	97	82	17.34	74269	186225	3.51:1	75847	129840	2.71:1
Lablab	10	4.0	1	92.5	76.3	21.23	68500	116500	2.70:1	59200	78140	2.32:1
Manathakkali	10	4.0	1	300	260	15.38	65500	175000	3.67:1	78000	130000	2.67:1
Mixed Vegetables	25	4.2	3	547	299	83.09	494130	716758	2.45:1	328915	444795	2.35:1
Onion	90	37.0	8	197	180	9.39	161310	262354	2.63:1	167957	196359	2.17:1
Onion (Aggregatum)	70	19.0	6	111	91	21.73	135406	234788	2.73:1	135227	171533	2.27:1
Radish	10	4.0	1	64	42	52.38	32400	44400	2.37:1	30200	20200	1.67:1
Ridge gourd	100	36.0	10	167	141	18.80	142391	269505	2.89:1	144611	164595	2.14:1
Snake gourd	30	10.0	3	216	159	35.61	96948	148032	2.53:1	96799	130529	2.35:1
Tomato	215	83.6	16	323	278	15.96	144909	197771	2.36:1	146836	143787	1.98:1
Tuber crops												
Coleus	10	2.0	1	210	170	23.53	65000	168000	3.58:1	68500	136000	2.99:1
Elephant Foot Yam	25	4.0	2	116	97	19.79	57032	120519	3.11:1	55694	93431	2.68:1
Sweet Potato	10	2.5	1	166	153	8.87	79299	150006	2.89:1	73390	109850	2.50:1
Tapioca (Cassava)	41	10.0	5	473	357	32.56	94711	181514	2.92:1	93004	138238	2.49:1
Fruits												
Acid lime	60	18.0	5	74	67	9.43	347537	259325	1.75:1	299890	202452	1.68:1
Avocado	10	4.0	1	90	75	20.00	300000	900000	4.00:1	350000	750000	3.14:1
Banana	156	62.9	12	491	442	10.93	244789	269264	2.10:1	244748	205707	1.84:1
Citrus	20	4.4	2	206	192	7.58	143409	144182	2.01:1	121227	88591	1.73:1
Guava	25	10.0	4	216	168	28.80	177590	358088	3.02:1	183288	279443	2.52:1
Mango	266	116.4	20	161	126	27.74	81057	153435	2.89:1	73242	98100	2.34:1
Muskmelon	10	2.0	1	11	10.5	4.76	170000	60000	1.35:1	240000	49000	1.20:1
Papaya	50	20.0	4	742	594	25.01	210710	360898	2.71:1	209948	256456	2.22:1
Sweet Orange	30	13.0	3	61	52	17.90	603981	202022	1.33:1	185425	119371	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
Tenera	10	4.0	1	380	307	24.05	155000	195000	2.26:1	125000	115000	1.92:1
Watermelon	70	28.0	6	276	228	21.07	160642	356906	3.22:1	141431	133364	1.94:1
Flowers												
Chrysanthemum	15	3.0	2	336	276	21.77	196592	287662	2.46:1	204984	183369	1.89:1
Marigold	16	6.5	2	93	79	16.66	376515	320902	1.85:1	189447	111021	1.59:1
Ixora	10	1.0	1	47	43	9.30	107890	221110	3.05:1	115390	185610	2.61:1
Jasmine	50	14.4	4	52	43	19.72	195872	396879	3.03:1	180794	246123	2.36:1
Tuberose	25	9.0	3	107	61	75.09	173211	343172	2.98:1	116740	101510	1.87:1
Spices and Condiments												
Chilli (Red)	105	43.0	8	61	53	16.57	178433	453740	3.54:1	185786	358403	2.93:1
Coriander (seed)	10	2.0	1	3	1.5	100.00	16500	11500	1.70:1	8250	4750	1.58:1
Ginger	20	6.0	1	131	106	23.27	351233	679983	2.94:1	320417	493917	2.54:1
Pepper	55	8.5	3	13	10	33.67	116905	303688	3.60:1	113511	200480	2.77:1
Turmeric (Dried)	20	4.4	3	80	65	22.64	190584	365211	2.92:1	196821	270675	2.38:1
Turmeric (Raw)	75	28.0	6	261	223	17.26	177903	226320	2.27:1	184279	152959	1.83:1
Plantation Crops												
Betelvine	10	1.0	1	204	201	1.44	163780	9450	1.06:1	164950	5815	1.04:1
Cashew	40	16.0	3	8	6	40.00	19875	69650	4.50:1	17125	45025	3.63:1
Coffee	10	4.0	1	7.4	5.02	47.41	22500	66900	3.97:1	18750	36470	2.95:1
Oil palm	30	10.0	3	255	208	22.63	89900	200354	3.23:1	90580	147234	2.63:1

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	130	52.0	12	88.85	73.28	21.25	44881	57741	2.29:1	45142	39810	1.88:1
Paddy (Rice)	539	209.2	23	53.35	45.14	18.19	43541	51839	2.19:1	44290	37283	1.84:1
Millets												
Barnyard millet	20	8.0	2	11.23	9.21	21.94	17810	12940	1.73:1	16225	9078	1.56:1
Finger millet	60	24.0	5	21.38	17.48	22.33	27881	26377	1.95:1	26521	17113	1.65:1
Foxtail millet	50	19.0	5	15.05	10.93	37.65	18183	27841	2.53:1	18095	16233	1.90:1
Little millet	50	20.0	4	19.07	14.96	27.48	18972	27014	2.42:1	14890	17964	2.21:1
Pearl millet	35	14.0	3	26.21	17.76	47.58	25819	28764	2.11:1	26078	14121	1.54:1
Sorghum	50	20.0	5	22.12	17.32	27.71	21430	22664	2.06:1	19884	13710	1.69:1
Pulses												
Blackgram	240	97.0	10	7.70	6.39	20.5	26018	29407	2.13:1	25386	19540	1.77:1
Cowpea	20	8.0	2	8.91	7.00	27.29	17550	24425	2.39:1	16875	15701	1.93:1

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
Greengram	35	12.0	4	5.21	4.70	10.91	17368	15469	1.89:1	17298	12553	1.73:1
Horse gram	20	8.0	2	7.82	6.34	23.48	13111	11808	1.90:1	11022	7910	1.72:1
Redgram	10	4.0	1	12.50	9.50	31.58	29464	60000	3.04:1	27916	17684	1.63:1
Oilseeds												
Castor	40	16.0	4	20.99	12.27	71.1	36033	50529	2.40:1	39918	28611	1.72:1
Groundnut	125	47.0	10	24.91	20.15	23.62	59941	78782	2.31:1	57075	54121	1.95:1
Sesamum	65	26.0	5	9.11	6.64	37.2	30853	56051	2.82:1	27891	33083	2.19:1
Fibre crops												
Cotton	80	32.0	6	20.85	16.27	28.15	55231	64414	2.17:1	57853	42072	1.73:1
Commercial crops												
Sugarcane	12	4.8	2	1239	1018	21.71	169956	144705	1.85:1	171808	89882	1.52:1
Fodder crops												
Cumbu Napier grass	10	0.1	1	46.50	21.80	113.3	2250	26338	12.71:1	806	10906	14.53:1
Fodder sorghum	20	4.4	2	1231	529	132.7	35700	66450	2.86:1	28700	31900	2.11:1
Mixed fodder	50	4.3	6	1006	786	28.04	76213	93640	2.23:1	66131	50502	1.76:1
Horticultural crops												
Vegetables												
Bhindi/Okra	10	4.0	1	145	84.26	72.56	120580	338761	3.81:1	111150	158546	2.43:1
Bitter gourd	30	8.0	3	272	229	19.01	159392	303966	2.91:1	164904	215892	2.31:1
Bottle gourd	30	10.0	3	245	200	22.54	61233	139167	3.27:1	66500	95550	2.44:1
Brinjal	45	12.4	5	341	283	20.49	103689	252931	3.44:1	119066	179998	2.51:1
Chilli (green)	45	12.4	4	104	94.59	10.36	43804	88647	3.02:1	47375	66436	2.40:1
Cluster Bean	10	2.0	1	15.00	14.00	7.14	60000	100000	2.67:1	50000	62000	2.24:1
Cowpea	10	4.0	1	120	115	4.54	33468	143772	5.30:1	44348	93172	3.10:1
Drumstick	15	4.0	2	323	222	45.12	437000	435500	2.00:1	239540	220185	1.92:1
French Bean	15	4.0	2	96.75	82.45	17.34	74269	186225	3.51:1	75847	129840	2.71:1
Lablab	10	4.0	1	92.50	76.30	21.23	68500	116500	2.70:1	59200	78140	2.32:1
Manathakkali	10	4.0	1	300	260	15.38	65500	175000	3.67:1	78000	130000	2.67:1
Mixed Vegetables	10	2.0	1	405	400	1.25	517500	682500	2.32:1	498750	716250	2.44:1
Onion	40	17.0	5	128	100	28.13	96345	173448	2.80:1	102318	116894	2.14:1
Onion (Aggregatum)	70	19.0	6	109	89.77	21.87	134121	229479	2.71:1	131065	170218	2.30:1
Radish	10	4.0	1	64.00	42.00	52.38	32400	44400	2.37:1	30200	20200	1.67:1
Ridge gourd	10	4.0	1	198	157	26.11	188000	307000	2.63:1	175000	217500	2.24:1
Snake gourd	30	10.0	3	270	209	29.34	126462	195475	2.55:1	127127	161786	2.27:1
Tomato	51	20.0	4	338	301	12.57	142194	209486	2.47:1	189150	183315	1.97:1
Tuber crops												
Coleus	10	2.0	1	210	170	23.53	65000	168000	3.58:1	68500	136000	2.99:1
Elephant Foot Yam	25	4.0	2	116	96.63	19.79	57032	120519	3.11:1	55694	93431	2.68:1
Sweet Potato	10	2.5	1	166	153	8.87	79299	150006	2.89:1	73390	109850	2.50:1
Tapioca (Cassava)	41	10.0	5	463	356	30.06	106823	188527	2.76:1	105296	144526	2.37:1
Fruits												
Acid lime	10	2.0	1	118	94.00	25.53	56900	85599	2.50:1	58400	60300	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
Avocado	10	4.0	1	90.00	75.00	20	300000	900000	4.00:1	350000	750000	3.14:1
Banana	60	20.9	5	297	251	18.33	165154	296570	2.80:1	156371	234278	2.50:1
Citrus	10	0.4	1	211	181	16.57	53500	155000	3.90:1	50500	131500	3.60:1
Guava	5	2.0	1	87.24	70.34	24.03	65450	112438	2.72:1	67941	70715	2.04:1
Mango	20	8.0	2	68.80	60.51	13.71	24423	57878	3.37:1	22248	40422	2.82:1
Papaya	10	4.0	1	1400	1050	33.33	150000	270000	2.80:1	130030	184790	2.42:1
Watermelon	20	8.0	2	167	134	25.08	81398	254199	4.12:1	80983	181306	3.24:1
Flowers												
Chrysanthemum	10	1.0	1	826	680	21.47	49775	135985	3.73:1	39953	96107	3.41:1
Ixora	10	1.0	1	47.00	43.00	9.3	107890	221110	3.05:1	115390	185610	2.61:1
Jasmine	50	14.4	4	46.78	39.64	18.02	179976	366865	3.04:1	170664	234337	2.37:1
Tuberose	15	5.0	2	94.55	63.80	48.2	91300	228110	3.50:1	67733	115918	2.71:1
Spices and Condiments												
Chilli (Red)	10	4.0	1	121	95.70	26.75	65505	79358	2.21:1	66000	48840	1.74:1
Coriander (seed)	10	2.0	1	3.00	1.50	100	16500	11500	1.70:1	8250	4750	1.58:1
Pepper	45	4.5	2	15.12	11.91	26.91	194048	385913	2.99:1	190210	258245	2.36:1
Turmeric (Dried)	10	0.4	1	147	149	-1.26	98471	220844	3.24:1	105150	187346	2.78:1
Turmeric (Raw)	5	2.0	1	319	276	15.57	164737	408591	3.48:1	154766	307549	2.99:1
Plantation Crops												
Betelvine	10	1.0	1	204	201	1.44	163780	9450	1.06:1	164950	5815	1.04:1

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	20	6.0	2	54.13	50.71	6.73	47263	51305	2.09:1	49325	43541	1.88:1
Paddy (Rice)	280	109.0	10	59.91	56.32	6.37	61190	59092	1.97:1	64304	45108	1.70:1
Millets												
Finger millet	41	16.0	2	19.48	11.99	62.43	18048	50888	3.82:1	20813	29748	2.43:1
Foxtail millet	20	8.0	2	13.29	12.51	6.28	27845	10814	1.39:1	39796	10109	1.25:1
Pearl millet	25	11.0	3	15.99	12.86	24.34	18499	14515	1.78:1	20126	9892	1.49:1
Sorghum	45	18.0	2	36.95	32.75	12.82	30613	55536	2.81:1	30023	42960	2.43:1
Pulses												
Blackgram	135	52.0	6	16.11	13.70	17.59	46868	67438	2.44:1	46020	47355	2.03:1
Chickpea	146	59.0	6	18.95	16.13	17.48	44552	46084	2.03:1	42843	34977	1.82:1
Cowpea	20	8.0	2	18.43	13.23	39.3	25650	35288	2.38:1	25650	16600	1.65:1
Greengram	50	20.0	2	12.30	10.17	20.89	47448	35428	1.75:1	49943	20523	1.41:1

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
Rajmah	10	4.0	1	5.20	3.90	33.33	11000	38400	4.49:1	11000	26050	3.37:1
Redgram	160	67.0	9	13.53	9.71	39.34	30882	39028	2.26:1	78960	52733	1.67:1
Sunnhemp	10	4.0	1	15.00	6.20	141.94	14500	23000	2.59:1	16250	14750	1.91:1
Oilseeds												
Castor	25	10.0	1	20.50	16.50	24.24	25000	67250	3.69:1	28700	45500	2.59:1
Groundnut	231	93.0	9	21.13	18.43	14.65	61695	55011	1.89:1	62831	41639	1.66:1
Niger	10	4.0	1	19.00	15.00	26.67	4100	6200	2.51:1	5400	4100	1.76:1
Safflower	10	5.0	1	4.13	2.89	42.91	8750	6940	1.79:1	8850	2132	1.24:1
Sesamum	70	28.0	3	8.89	7.07	25.74	21623	42890	2.98:1	21680	27830	2.28:1
Fibre crops												
Cotton	135	56.0	10	18.47	16.56	11.53	52742	47907	1.91:1	54416	35111	1.65:1
Commercial Crops												
Sugarcane	75	29.0	6	862	737	16.96	122103	140575	2.15:1	120525	108295	1.90:1
Fodder Crops												
Mixed fodder	10	2.0	1	91.70	68.80	33.28	4500	7720	2.72:1	3500	5600	2.60:1
Horticultural Crops												
Vegetables												
Bhindi/Okra	1	0.4	1	113	80.00	40.63	68250	156750	3.30:1	80500	79500	1.99:1
Bitter gourd	15	6.0	1	570	485	17.42	555600	526450	1.95:1	567000	354500	1.63:1
Brinjal	61	21.4	6	260	235	10.64	131629	184346	2.40:1	147360	122622	1.83:1
Cabbage	20	5.0	1	405	302	34.11	113425	187895	2.66:1	90650	82030	1.90:1
Chilli (green)	70	23.0	6	107	97.80	9.1	398039	331260	1.83:1	357438	249485	1.70:1
Mixed Vegetables	5	2.0	1	722	217	232.66	506220	801512	2.58:1	173539	199629	2.15:1
Onion	40	16.0	2	241	243	-0.47	233781	330206	2.41:1	247505	248553	2.00:1
Ridge gourd	30	12.0	3	137	127	8.56	135882	116872	1.86:1	148750	89417	1.60:1
Tomato	26	10.4	3	227	205	10.57	95852	178785	2.87:1	103576	129344	2.25:1
Fruits												
Acid lime	50	16.0	4	58.00	54.00	7.41	332094	311832	1.94:1	293061	229177	1.78:1
Banana	86	38.0	6	601	541	11.09	273964	257928	1.94:1	280914	190541	1.68:1
Guava	15	6.0	2	196	159	22.82	240000	465000	2.94:1	240000	435000	2.81:1
Mango	120	48.0	6	54.12	40.00	35.3	72645	136292	2.88:1	60453	91610	2.52:1
Muskmelon	10	2.0	1	11.00	10.50	4.76	170000	60000	1.35:1	240000	49000	1.2:1
Papaya	20	8.0	2	912	770	18.44	375575	670225	2.78:1	390605	484895	2.24:1
Sweet Orange	10	5.0	1	13.30	12.70	4.72	115850	242350	3.09:1	150670	157130	2.04:1
Watermelon	30	12.0	2	149	134	10.83	184733	474732	3.57:1	148633	62030	1.42:1
Flowers												
Chrysanthemum	5	2.0	1	90.50	73.50	23.13	270000	363500	2.35:1	287500	227000	1.79:1
Marigold	6	2.5	1	101	88.00	14.2	137500	213000	2.55:1	137500	168375	2.22:1
Spices and Condiments												
Chilli (Red)	55	23.0	5	34.68	31.33	10.69	153601	314892	3.05:1	160388	257287	2.60:1
Ginger	20	6.0	1	133	110	20.45	419350	619475	2.48:1	378125	451375	2.19:1
Pepper	10	4.0	1	11.20	7.85	42.68	38500	230300	6.98:1	34000	154400	5.54:1
Turmeric (Raw)	60	22.0	4	282	241	17.01	179534	213758	2.19:1	174578	147623	1.85:1

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
Plantation Crops												
Cashew	40	16.0	3	8.09	5.78	40	19875	69650	4.50:1	17125	45025	3.63:1
Coffee	10	4.0	1	7.40	5.02	47.41	22500	66900	3.97:1	18750	36470	2.95:1
Oil palm	20	6.0	2	241	194	24.36	64250	249750	4.89:1	64725	189075	3.92:1

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	26	10.4	3	87.63	81.82	7.11	50100	85620	2.71:1	52633	73277	2.39:1
Paddy (Rice)	317	122.6	13	61.76	57.61	7.20	59808	63796	2.07:1	78492	69827	1.89:1
Millets												
Sorghum	10	4.0	1	20.50	17.75	15.49	19500	64350	4.30:1	23150	46725	3.02:1
Pulses												
Blackgram	25	10.0	1	11.00	9.82	12.02	234700	329800	2.41:1	215400	142500	1.66:1
Chickpea	75	30.0	2	24.04	19.82	21.29	34953	116370	4.33:1	33482	94181	3.81:1
Greengram	23	14.0	2	27.38	24.00	14.06	88368	86388	1.98:1	70305	45305	1.64:1
Redgram	205	85.0	8	13.10	11.41	14.81	29186	53402	2.83:1	49383	57835	2.17:1
Oilseeds												
Groundnut	20	8.0	2	26.08	21.96	18.76	73926	74219	2.00:1	79293	45994	1.58:1
Soybean	44	14.6	2	15.28	14.25	7.23	29716	35720	2.20:1	32369	31964	1.99:1
Sunflower	10	4.0	1	21.63	19.80	9.24	36200	97875	3.70:1	39625	83135	3.10:1
Fibre crops												
Cotton	230	92.0	13	17.64	15.62	12.93	52010	42918	1.83:1	53584	27268	1.51:1
Horticultural Crops												
Vegetables												
Bhindi/Okra	28	11.2	2	146	126	15.25	110314	159027	2.44:1	118122	112795	1.95:1
Bitter gourd	30	12.0	3	194	162	19.42	199008	450242	3.26:1	190467	358367	2.88:1
Brinjal	40	14.0	4	219	188	16.49	158731	733759	5.62:1	151388	218044	2.44:1
Chilli (green)	40	16.0	4	52.00	43.30	20.09	231625	479245	3.07:1	256563	364303	2.42:1
Drumstick	10	4.0	1	560	340	64.51	170071	277561	2.63:1	132709	139394	2.05:1
Mixed Vegetables	10	0.2	1	108	38.40	181.25	21333	43466	3.04:1	136133	94267	1.69:1
Onion	10	4.0	1	355	299	18.82	159075	479718	4.02:1	153200	383955	3.51:1
Ridge gourd	60	20.0	6	160	132	21.56	138258	354813	3.57:1	135783	201961	2.49:1
Tomato	138	53.2	9	336	285	17.9	152744	197729	2.29:1	136087	129860	1.95:1

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
Fruits												
Banana	10	4.0	1	660	653	1.07	279360	123240	1.44:1	252200	90360	1.36:1
Citrus	10	4.0	1	206	193	6.74	152400	143100	1.94:1	128300	84300	1.66:1
Guava	5	2.0	1	227	150	51.33	112500	228000	3.03:1	118500	106500	1.90:1
Mango	126	60.4	11	146	112	30.41	87025	180700	3.08:1	86917	111017	2.28:1
Papaya	20	8.0	1	244	190	28.65	76200	97021	2.27:1	69250	63850	1.92:1
Sweet Orange	20	8.0	2	91.5	76.7	19.27	909063	176817	1.19:1	207148	95772	1.46:1
Tenera	10	4.0	1	380	307	24.05	155000	195000	2.26:1	125000	115000	1.92:1
Watermelon	20	8.0	2	574	461	24.39	203750	282875	2.39:1	191075	192425	2.01:1
Flowers												
Marigold	10	4.0	1	87.65	73.97	18.49	525900	388340	1.74:1	221914	75175	1.34:1
Tuberose	10	4.0	1	123	58.00	112.07	275600	487000	2.77:1	178000	83500	1.47:1
Spices and Condiments												
Chilli (Red)	40	16.0	3	79.43	68.93	15.23	246132	705918	3.87:1	257645	555905	3.16:1
Turmeric (Dried)	10	4.0	1	78.00	58.50	33.33	242500	413400	2.70:1	251000	310050	2.24:1
Turmeric (Raw)	10	4.0	1	60.50	50.75	19.21	256250	228150	1.89:1	303700	102300	1.34:1
Plantation Crops												
Oil palm	10	4.0	1	274	221	23.95	132500	107636	1.81:1	134000	59735	1.45:1

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												
Rice	30	12.0	2	53.60	46.58	15.07	45576	51735	2.14:1	45706	38931	1.85:1
Pulses												
Cowpea	10	4.0	1	13.10	9.50	37.89	33375	22125	1.66:1	33200	9550	1.29:1

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	20	8	2	52.66	47.23	11.50	40750	34633	1.85:1	41000	26578	1.65:1
Sorghum	10	4	1	17.50	13.00	34.62	22520	56230	3.50:1	21370	37130	2.74:1
Castor	20	8	2	14.33	10.78	32.95	24406	36069	2.48:1	22842	22234	1.97:1
Cotton	30	12	3	18.95	14.03	35.08	45205	53536	2.18:1	49919	23583	1.47:1
Mixed Fodder	5	0.2	1	2000	1600	25.00	80000	120000	2.50:1	75000	85000	2.13:1

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
Bhendi/Okra	41	10.4	5	156	119	31.46	101601	129588	2.28:1	80581	88836	2.10:1
Brinjal	10	2	1	228	192	19.22	73160	86615	2.18:1	74190	59860	1.81:1
Chilli (green)	10	4	1	222	183	21.31	112000	221000	2.97:1	107000	167500	2.57:1
Ridge gourd	20	7	2	136	122	11.09	144780	326385	3.25:1	155545	304885	2.96:1
Tomato	25	6.4	3	483	431	12.18	74064	137273	2.85:1	75805	106842	2.41:1
Watermelon	5	2	1	341	285	19.39	49705	18395	1.37:1	48641	8399	1.17:1
Crossandra	5	0.2	1	46.55	38.92	19.60	349232	304444	1.87:1	283587	223944	1.79:1
Coconut	30	10	2	9219	7409	24.43	51341	162385	4.16:1	53826	116362	3.16:1
Andhra Pradesh												
Cotton	20	7	1	26.17	24.40	7.23	49105	93346	2.90:1	54515	86169	2.58:1
Napier grass	20	8	1	198	145	36.55	9160	68950	8.53:1	7435	49085	7.60:1
Brinjal	10	5	1	146	135	8.01	97500	93700	1.96:1	100846	58754	1.58:1
Chilli (green)	40	17	2	164	153	7.18	176932	221419	2.25:1	179561	202569	2.13:1
Tomato	16	6.4	2	449	413	8.84	84240	111110	2.32:1	87535	90411	2.03:1
Papaya	10	4	1	395	363	8.82	225600	172000	1.76:1	235000	156000	1.66:1
Marigold	6	2.5	1	101	88	14.20	137500	213000	2.55:1	137500	168375	2.22:1
Telangana												
Maize	28	12.2	2	58.65	54.71	7.19	40159	48863	2.22:1	38501	39914	2.04:1
Finger millet	13	5.2	1	18.47	12.46	48.23	18745	35741	2.91:1	16116	18688	2.16:1
Bhendi/Okra	10	4	1	105	90	16.67	105000	210000	3.00:1	120000	180000	2.50:1
Bitter gourd	10	4	1	140	106	31.76	162500	350000	3.15:1	141250	265625	2.88:1
Bottle gourd	10	2	1	253	165	53.03	82500	106230	2.29:1	92000	56050	1.61:1
Tomato	20	8	1	324	262	23.40	300601	156776	1.52:1	194528	41664	1.21:1
Mango	10	4	1	90.00	73.75	22.03	115000	270000	3.35:1	131250	221250	2.69:1
Watermelon	10	4	1	350	238	47.37	152500	262500	2.72:1	121250	166250	2.37:1
Marigold	10	4	1	87.65	73.97	18.49	525900	388340	1.74:1	221914	75175	1.34:1
Puducherry												
Rice	10	4	1	48.04	40.97	17.26	48888	31156	1.64:1	57239	11008	1.19:1

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

Crop	Crop	Dem-os	Area (ha)	KVKs	Param-eter	Value			Economics					
									Demonstration			Check		
						Demo	Check	%	Gross Cost (Rs.)	Net Returns (Rs.)	BCR	Gross Cost (Rs.)	Net Re-turns (Rs.)	BCR
Tamil Nadu														
Harvesting														
Ring cutter	Bhendi	10	4.0	1	kg/per-son	26	21.5	20.93	71900	103700	2.44:1	79400	96200	2.21:1
Digger	Ground-nut	10	4.0	1	Man-hour/ha	16.72	14.7	13.74	44467	47503	2.07:1	63669	17162	1.27:1
Reaper	Paddy	10	4.0	1	Cost/ha	9250	15000	-38.33	33000	48412	2.47:1	48325	24862	1.51:1

Crop	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
Stubble cutter	Fodder	10	4.0	1	Man-hour/ha	4	96.8	-95.87	0	0		0	0	
Ring cutter	Bhendi	10	4.0	1	Man-hour/ha	0.125	0.08	56.25	2000	1000	1.5:1	2000	800	1.4:1
Ring Cutter	Bhendi	10	1.0	1	Manday/ha	0.125	0.08	56.25	92620	130600	2.41:1	121420	101800	1.84:1
Plucker	Cotton	15	1.5	1	Manday/ha	40	75	-46.67	41000	49000	2.2:1	47000	43000	1.91:1
Intercultural operations														
Power weeder	Vegetables	10	1.0	1	Cost/tonne	400	4000	-90	95000	496000	6.22:1	98600	496000	6.03:1
TD Check basin former	Groundnut	10	4.0	1	Man-hour/Ha	21.05	18.11	16.23	65381	50363	1.77:1	85017	14494	1.17:1
Weeder	Groundnut	10	4.0	1	Cost	3825	5850	-34.62	56893	68817	2.21:1	60943	60097	1.99:1
Power Weeder	Paddy	5	2.0	1	Cost	4866	14000	-65.24	56001	58515	2.04:1	66520	38094	1.57:1
Drip lateral winder	Vegetables	10	4.0	1	Man-days/ha	4	8	-50	800	1200	2.5:1	1600	2000	2.25:1
Postharvest technology														
De-husker	Arecanut	4	1.0	1	Man-days/ha	20	108	-81.48	439347	353074	1.8:1	447969	339055	1.76:1
Seed Drill, Harvester Stripper	Groundnut	4	1.0	1	Man-days/ha	25	48	-47.92	36122	45835	2.27:1	44122	32835	1.74:1
Dehuller & De-seeder	Tamarind	4	1.0	1	Man-days/ha	37	134	-72.39	242997	310534	2.28:1	250760	305013	2.22:1
TNAU Dhal Mill	Redgram	3	0	1	Recovery (%)	85	68	25	85	27	1.32:1	96	5	1.05:1
Decorticator	Groundnut	10	4.0	1	Man-hour/ha	16.31	14.47	12.72	45547	44114	1.97:1	58092	18516	1.32:1
Cob Sheller	Maize	4	4.0	1	Cost/tonne	150	1200	-87.5	336950	90000	1.27:1	38000	90000	3.37:1
Millet thresher	millets	5	2.0	1	kg/hr.	25	8	212.5	29375	23125	1.79:1	37500	9750	1.26:1
Sowing and Planting														
Transplanter	Vegetables	10	1.0	1	Manday/ha	0.1	0.0625	60	104000	425000	5.09:1	95200	385000	5.04:1
Andhra Pradesh														
Harvesting														

Crop	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
Harvesting bags and gloves	Castor	10	0	1	man-day/ac	1	0.6	66.67						
Harvester	mango	10	0	1	Mangoes/hr.	530	320	65.63						
Stripper	Groundnut	10	0.1	1	Cost	5000	2000	150	200	350	2.75:1	200	250	2.25:1
Easy planter	Mango	10	2.0	1	Fruits/hr.	539	428	25.93						
Sowing and Planting														
Seed dibbler	Maize	10	2.0	1	Cost	5000	3000	66.67						
Ferti cum seed drill	Rice	50	20.0	1	Yield (kg/ha)	5960	5190	14.84	41250	54110	2.31:1	40250	42790	2.06:1
Transplanter	Rice	50	20.0	1	Yield (kg/ha)	6820	5950	14.62	44250	64870	2.47:1	45000	50200	2.12:1
Ridger	Sweet Potato	10	5.0	1	Cost saving	62.4	58.4	6.85	50562	82038	2.62:1	80062	44038	1.55:1
Telangana														
Harvesting														
Seeder and harvester	Bengal gram	10	4.0	1	Yield (q/ha)	19.75	18.25	8.22	28964	96281	4.32:1	32787	88969	3.71:1
Seeder and harvester	Soybean	10	4.0	1	Yield (q/ha)	15.8	15.68	0.77	25975	35329	2.36:1	29104	31734	2.09:1
Intercultural operations														
Power Weeder	All crops	10	5.0	1	Yield (q/ha)	9	6.5	38.46	55000	41000	1.75:1	75000	44000	1.59:1
Land preparation														
BBF planter	Soybean	4	1.6	1	Yield (q/ha)	15.8	15.6	1.28	26855	34595	2.29:1	28075	32259	2.15:1
Solar fencing	Maize	10	4.0	1	Survival (%)	90	55	63.64	51993	68184	2.31:1	56686	52067	1.92:1
AWD Pipe	Tice	5	5.0	1	Yield (q/ha)	6.8	5.1	33.33	11900	7350	1.62:1	89250	38750	1.43:1
Micro Sprinkler	Leafy vegetables	5	5.0	1	Yield (q/ha)	8.6	6.5	32.31	60000	39000	1.65:1	91000	52000	1.57:1
Postharvest technology														
Stalk Slasher	cotton, redgram	12	15.0	1	Yield (q/ha)	8	6.5	23.08	71000	44000	1.62:1	85000	60000	1.71:1

Crop	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
Sowing and Planting														
Transplanter	Rice	5	2.0	1	Yield (kg/ha)	5815	5424	7.21	25968	46743	2.8:1	25765	39678	2.54:1
Transplanter	Rice	9	3.6	1	Yield (q/ha)	52.1	47.6	9.45	48580	50828	2.05:1	50560	38935	1.77:1
Seed drill	Maize and Jowar	10	4.0	1	FC (ac/hr.)	0.25	0.15	66.67	59651	61441	2.03:1	66813.5	38285	1.57:1
Nine Row Planter	Redgram	25	10.0	1	Yield (q/ha)	14	9.5	47.37	50000	35000	1.7:1	75000	40000	1.53:1
Total Mechanization														
Various tools and machineries	Mango	10	4.0	1	Yield (t/ha)	8.56	7.32	16.94	74250	58830	1.79:1	89650	42354	1.47:1
	Groundnut	10	4.0	1	Yield (q/ha)	14.6	12.99	12.39	42600	26450	1.62:1	48560	16540	1.34:1
	Redgram	10	4.0	1	Yield (q/ha)	11.3	8.54	32.32	26300	22457	1.85:1	35500	15125	1.43:1
	Rice	10	4.0	1	Yield (q/ha)	58.4	49.4	18.22	59640	55153	1.92:1	75570	32650	1.43:1
	Rice	10	4.0	1	Seed rate (kg/ac)	90	50	80	51994	68184	2.31:1	56686.5	52067	1.92:1

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													
EVM for bloat	10	50	1	Milk (l)	20.6	12.1	70.25	200	365	2.83:1	225	77.5	1.34:1
Ketocheck	10	20	1	Ketosis (%)	90	40	125.00	20500	31750	2.55:1	19700	20750	2.05:1
Mastiguard	10	10	1	Milk (l/animal)	8.6	7.4	16.22	22300	39600	2.78:1	24700	25550	2.03:1
Mastiguard	10	10	1	Healthy animals (%)	90	70	28.57	27749	29250	2.05:1	29500	15500	1.53:1
Mastiguard + TANUCHEK SCC	10	10	1	Milk (l/)	10.31	9.38	9.91	20827	30586	2.47:1	24232	20856	1.86:1
TANUVAS Ketocheck	10	10	1	Healthy animals (%)	100	90	11.11	35000	27640	1.79:1	29500	7040	1.24:1

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
Metabolic disorder management	10	10	1	Milk (l/day)	25.2	14	80.00	27950	35784	2.28:1	22733	20067	1.88:1
TANUVAS Teat Protect and SCC	20	20	1	Milk (l)	1980	1920	3.13	33760	25640	1.76:1	34640	24960	1.72:1
Teat protect	20	20	1	Healthy cow (%)	97.5	76.5	27.45	750	1050	2.40:1	250	100	1.40:1
Veterinary first aid kit	10	20	1	Survival (%)	90	75	20.00	11500	5000	1.43:1	7500	1500	1.20:1
Breed Evaluation			1										
Red Sindhi	20	20	1	Pregnancy (%)	65	50	30.00	20250	14114	1.70:1	20000	12446	1.62:1
Feed and fodder and nutrient													
Ten cent model Fodder plot	35	55	3	Milk (l)	8.45	7.44	13.62	7131	13258	2.86:1	8152	8684	2.07:1
Hydroponics	2	10	1	Milk (l)	10	7	42.86	11320	18680	2.65:1	9160	11840	2.29:1
K12 sorghum	20	0	1	Yield (q/ha)	2142	1645	30.21	24700	29000	2.17:1	24700	21655	1.88:1
Mixed fodder bank	10	40	1	Milk (l/day)	7.6	6.3	20.63	15450	30250	2.96:1	19200	17900	1.93:1
NDRI total mixed ration	20	20	1	Milk (l/month)	267	189	41.27	39000	50244	2.29:1	25500	32416	2.27:1
Rumen bypass fat	10	10	1	Milk (l.day)	13.45	12.45	8.03	108	282.05	3.61:1	100	261.05	3.61:1
Silage from sugarcane trash	10	10	1	Milk (l/day)	7	6.1	14.75	16000	17600	2.10:1	14700	14550	1.99:1
Area specific MM	10	10	1	Milk (l/day)	9.13	8.72	4.70	8252	11637	2.41:1	8235	11052	2.34:1
Mineralized salt lick	10	0	1	Milk (l)	315	270	16.67	3000	6450	3.15:1	0	0	
TANUVAS MM	30	30	2	Milk (l)	9.63	8.15	18.10	25785	20875	1.81:1	25435	13700	1.54:1
TANUVAS MM	10	200	1	Milk (l)	280	240	16.67	2800	400	1.14:1	2400	400	1.17:1
Yeast culture supplement	10	10	1	Milk (l/day)	9.42	8.72	8.03	8341	12843	2.54:1	8235	11052	2.34:1
Production management													
Nanopatch Prosynch NC +AI	20	20	1	Estrus synchronization %	80	1	7900.00	83692	15099	1.18:1	91492	7299	1.08:1
Goat													
Zinc fortification	10	60	1	Weight (kg)	13.86	13.68	1.32	3384.49	1466.51	1.43:1	3700.8	1087.2	1.29:1
Sheep													
Disease mgt-TST	10	100	1	Weight (kg)	3.4	2.85	19.30	20887	17133	1.82:1	20187	7813	1.39:1

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
Target Selective Treatment	10	200	1	Weight gain (kgs)	4.09	3.45	18.55	51050	43950	1.86:1	50200	19400	1.39:1
Poultry													
EVM	10	250	1	Meat yield (kg/bird)	2.861	2.672	7.07	1083	1019	1.94:1	10350	4350	1.42:1
IDM	10	200	1	Survival (%)	95	88	7.95	9756	18958	2.94:1	8756	13582	2.55:1
ProBeads EC Supplement	4	100	1	Survived birds	46250	35840	29.05	28675	17575	1.61:1	23296	12544	1.54:1
Pongamia oil for louse	5	30	1	Eggs/month	67	63	6.35	455.4	214.6	1.47:1	463.68	166.32	1.36:1
Backyard poultry	10	200	1	Eggs	152	58	162.07	8750	17582	3.01:1	8456	12452	2.47:1
Backyard poultry	10	200	1	Weight (kg)	1.92	1.02	88.24	9250	8414	1.91:1	7822	3882	1.50:1
Nandhanam - 4	10	200	1	Eggs	350	250	40.00	3500	2500	1.71:1	2700	500	1.19:1
Srinidhi breed	10	10	1	Weight (kg)	0.487	0.377	29.18	626	1312	3.10:1	422	800	2.90:1
TANUVAS Aseel	10	100	1	Weight gain (g)	475	250	90.00	11657	30843	3.65:1	11657	21093	2.81:1
TANUVAS Aseel	10	100	1	Weight gain (g)	116.85	85	37.47	2000	2574.4	2.29:1	2000	1690	1.85:1
TANUVAS Aseel	80	890	6	Weight (kg/bird)	1.81	1.34	35.42	1571	2495	2.59:1	1434	1667	2.16:1
Fish silage feed	10	10	1	Weight (kg)	1.05	0.8	31.25	150.5	112	1.74:1	102	98	1.96:1
ProBeads - EC	24	450	2	Weight (kg)	1.21	1.14	6.61	151.50	159.00	2.05:1	149.50	142.50	1.95:1
Probiotics	20	200	1	Healthy chicks (%)	93.7	68.9	35.99	500	900	2.80:1	500	600	2.20:1
Improved Aseel	5	150	1	Eggs	150	45	233.33	3150	3724	2.18:1	2550	2700	2.06:1
Kadakhnadh	10	100	1	Weight (g)	1000	800	25.00	5200	6000	2.15:1	4000	4500	2.13:1
Ornamental bird	5	20	1	Hatchability %	53	30	76.67	292	508	2.74:1	255	145	1.57:1
Namakkal Gold Quail	4	400	1	Weight (g)	153.7	135	13.85	5400	8700	2.61:1	5400	4530	1.84:1
Namakkal Gold Quail	5	900	1	Eggs	228	205	11.22	67368	89431	2.33:1	63388	32989	1.52:1
Nandhanam 3 Quail	10	500	1	Weight (kg/lot)	22.5	17.5	28.57	18500	4000	1.22:1	18500	1000	1.05:1
Fishery													
IC of GIFT Tilapia	3	5000	1	Yield (kg/ha)	3700	2800	32.14	212000	343000	2.62:1	182000	205000	2.13:1
Azolla for inland fish culture	3	3	1	Yield (kg/ha)	3250	2850	14.04	195000	292500	2.50:1	172500	135500	1.79:1

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
Floating diets for GIFT Tilapia	2	3000	1	Weight (g)	1563	900	73.67	123067	105701	1.86:1	76000	5000	1.07:1
Enriched fish waste + seaweed compost	3	0	1	C/N	15.2	8.5	78.82	207800	254500	2.22:1	294147	96725	1.33:1
Duck cum fish farming	3	3030	1	Yield (kg)	160.08	126	27.05	60830.4	99249.6	2.63:1	50400	75600	2.50:1
IFS	3	5000	1	Weight gain (g)	4207	2120	98.44	156533	388650	3.48:1	145000	95000	1.66:1
Seabass open pond culture	3	3000	1	Growth rate (g)	2592	1330	94.89	503403	430051	1.85:1	217247	134635	1.62:1
Pangasius catfish	5	7500	1	Yield (kg/ha)	5267	3733	41.09	168710	199980	2.19:1	172514	88796	1.51:1
Andhra Pradesh													
Cattle													
Feed, fodder and nutrition management													
Silage from sugarcane tops	10	20	1	Milk (l/month)	540	450	20.00	7500	17280	3.30:1	8000	14400	2.80:1
Super Napier fodder	40	190	3	Yield (q/ha)	482	302	59.71	64994	283046	5.35:1	61963	150461	3.43:1
Area specific MM	10	10	1	Milk (l/90 days)	501.3	404.8	23.84	6570	18495	3.82:1	6120	14120	3.31:1
Regional specific MM	10	20	1	Milk (l/unit)	711	648	9.72	16585	15584	1.94:1	14570	8564	1.59:1
UMMB licks	10	10	1	Digestibility and BCS	70	40	75.00	3750	5960	2.59:1	3000	4200	2.40:1
Buffalo													
Feed: 30% black bram haulms	10	20	1	6% FCM (kg/day)	8.35	6.7	24.63	4617	14430	4.13:1	4017	11249	3.80:1
Fodder sorghum CoFS-29	10	20	1	6% FCM (kg/day)	6.9	6.2	11.29	4900	14535	3.97:1	6200	14130	3.28:1
Bypass fat	10	10	1	Milk (l/day)	11.5	9	27.78	177.75	477.75	3.69:1	150	272.1	2.81:1
Bypass fat	10	10	1	6% FCM (kg/day)	6.64	5.29	25.52	3777	11363	4.01:1	2468	8895	4.60:1
Concentrate + PP supplement	2	20	1	Milk (l/day)	4.5	3	50.00	7200	75000	11.42:1	5000	45000	10.00:1
Regional Specific MM	15	30	1	Milk (l/90 days)	731	623	17.34	15620	31950	3.05:1	14100	28035	2.99:1
Regional specific MM	5	10	1	Milk (l/day)	8.1	5.45	48.62	16865	15702	1.93:1	14230	12155	1.85:1
SVVU android application	10	10	1	6% FCM (kg/day)	7.21	5.22	38.12	3174	13273	5.18:1	3992	7903	2.98:1
Urea molasses mineral block	10	10	1	Milk (l/day)	11.5	8.5	35.29	118	328.86	3.79:1	114	167.28	2.47:1

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
Urea molasses mineral blocks	20	30	2	Milk (l/90 days)	532	476	11.66	9577	20895	3.18:1	8370	18090	3.16:1
Double PGF2 ALPHA protocol.	2	10	1	Conception rate	8	4	100.00	8000	75000	10.38:1	4000	45000	12.25:1
IHM	20	20	1	Survival %	95	75	26.67	2100	11200	6.33:1	1200	4800	5.00:1
Goat													
Osmanabadi breed	5	3	1	Net Income (Rs.)	48000	25000	92.00	25000	48000	2.92:1	20000	25000	2.25:1
Sheep													
Concentrate feeding	30	30	1	Weight gain (kg)	12	5	140.00	1506	3600	3.39:1	1000	1500	2.50:1
Creep feeding	10	100	1	Weight gain (kg)	5.2	3.4	52.94	450	1350	4.00:1	100	900	10.00:1
Creep feeding +flushing	2	12	1	Weight (kg)	40	35	14.29	1000	40600	41.60:1	4000	37600	10.40:1
Urea Molasses mineral blocks	30	140	3	Weight (kg/animal)	19	16	13.73	4920	6663	2.35:1	4120	4877	2.18:1
Deworming and ND Vaccination	10	100	1	Weight gain (g)	1000	900	11.11	850	10000	12.76:1	850	9000	11.59:1
Poultry													
Kadakhnadh breed	20	200	2	Weight (kg/bird)	1.4	1.3	7.87	675	1818	3.69:1	675	1119	2.66:1
Rajasri breed	77	2500	4	Eggs/bird	153	85	79.47	10973	18829	2.72:1	7393	10329	2.40:1
Azolla feed	10	100	1	Weight (kg/bird)	1.8	1.5	20.00	100	200	3.00:1	100	150	2.50:1
Fish													
IFS	10	100000	1	Yield (kg)	356	260	36.92	45800	95000	3.07:1	35000	60000	2.71:1
Telangana													
Cattle													
Model fodder block	15	412	1	Yield (t/ha)	13000	8000	62.50	3000	10000	4.33:1	4500	3500	1.78:1
Total mixed ration	27	145	1	Milk (l/month)	225	180	25.00	145	80	1.55:1	250	70	1.28:1
Super Napier fodder	5	0	1	Yield (q/ha)	5000	2300	117.39	7500	6000	1.80:1	4000	1500	1.38:1
Buffalo													
Fodder grass - CO 5	2	0	1	Yield (q/ha)	1280	694	84.44	49500	82470	2.67:1	27000	40700	2.51:1
Super Napier fodder	11	325	1	Yield (q/ha)	1100	900	22.22	1500	9500	7.33:1	1500	7500	6.00:1
Area specific MM	20	50	1	Milk (l)	5.81	5.23	11.09	8444	7766	1.92:1	6930	5308	1.77:1

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
Sheep													
Molasses coated mineral licks	6	458	1	Weight (kg)	3.85	3.15	22.22	280	3570	13.75:1	450	2700	7.00:1
Stallfed Sheep/ goat Farming	12	96	1	Weight gain (kg/ month)	1.78	1.45	22.76	15250	31500	3.07:1	12350	22350	2.81:1
Integrated sheep Management	4	100	1	Lambing	125	112	11.61	22500	50000	3.22:1	20000	30000	2.50:1
Poultry													
Gramapriya breed	5	25	1	Weight (kg)	4000	4500	-11.11	6000	7500	2.25:1	6500	2000	1.31:1
Fishery													
Argulus management in CFC	3	0	1	Fish (q/ha)	55.5	42.75	29.82	195000	249000	2.28:1	176000	144625	1.82:1
Ecto-parasites management in IFC	2	0	1	Healthy 05 Fish	8000	6000	33.33	11500	18500	2.61:1	7200	5800	1.81:1
Red disease management in IFC	2	0	1	Healthy 05 Fish	21000	18000	16.67	2600	3000	2.15:1	1300	1500	2.15:1
Nursery management in IFC	2	0	1	Weight (kg)	12.32	9	36.89	6160	3160	1.51:1	6200	2400	1.39:1
Transportation and Marketing	3	0	1	Survival rate (%)	88.5	61	45.08	27595	8855	1.32:1	25300	3925	1.16:1
Aquatic weeds mgt. in CFC	3	0	1	Weed control	10000	8000	25.00	12500	37500	4.00:1	9500	10500	2.11:1
Plankton density in IFC	2	0	1	Yield (kg)	351	286	22.73	155000	217500	2.40:1	133200	160500	2.20:1
Puducherry													
Cattle													
Mastiguard	10	20	1	Mastitis free animals	9	5	80.00	41212.5	13237.5	1.32:1	42500	7000	1.16:1
Mixed fodder	5	10	1	Milk (litres/lactation)	2150	1500	43.33	44400	26550	1.60:1	40500	9000	1.22:1
Goat													
EVM for ecto and endo parasites	10	10	1	Healthy goats (%)	70	40	30.00	1950	2550	2.31:1	1800	2150	2.19:1
IDM	10	10	1	Survival Rate	90	10	80.00	991.6	1342.4	2.35:1	897	981	2.09:1

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 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													
Nutri garden	12	12	1	Yield (q/ha)	500	280	78.57	200	500	3.50:1	255	120	1.47:1
IFS	5	5	1	Income (Rs.)	306760	266000	15.32	146100	160660	2.10:1	140000	126000	1.90:1
Value addition													
Liquid jaggery	5	5	1	Recovery (%)	22.75	19	19.74	1440	1970	2.37:1	475	475	2:1
Mushroom pickle and soup mix	10	10	1	Shelf life (days)	110	2		2060	1940	1.94:1	1000	1500	2.50:1
Mushroom	10	10	1	Income (Rs.)	9766	2906	236	7916	9766	2.23:1	3115	2906	1.93:1
Multi grain mix laddu	10	10	1	Income (Rs.)	10270	1347	662	8863	10270	2.16:1	3222	1347	1.42:1
Tribal products	5	5	1	Honey (kg)	162.33	121	34.16	16233	28767	2.77:1	12122	16878	2.39:1
Milk protein enriched Noodles	5	5	1	Income (Rs.)	6838	2740	150	5662	6838	2.21:1	3260	2740	1.84:1
Green nutritious mix	10	5	1	Cost/kg (Rs)	28	10	180	56	135	3.41:1	10	20	3.00:1
Tamarind	10	10	1	Cost/kg (Rs)	35	22	59.09	65	165	3.54:1	35	80	3.29:1
Drumstick pulp powder	5	1	1	Shelf life (days)	65	2		150	400	3.67:1	5	10	3.00:1
Low glycemic index rice	3	5	1	Glycemic unit	68	75	-9.33	13200	24300	2.84:1	12300	11500	1.93:1
Watermelon	10	1	1	Rind	3000	1800	66.67	300	200	1.67:1	125	50	1.40:1
Mushroom convenience food	5	5	1	Shelf-life (days)	91	68.7	32.46	16750	25775	2.54:1	33240	4654	1.14:1
Moringa	1	1	1	Rehydration ratio	4.2	3.08	36.36	200	200	2.00:1	140	110	1.79:1
Tamarind	10	2	1	Income (Rs.)	9000	76100	-88.17	3500	9000	3.57:1	53600	76100	2.42:1
Tomato	10	2	1	Income (Rs.)	11000	50760	-78.33	4000	11000	3.75:1	72740	50760	1.70:1
Moringa	5	1	1	Dehydration (%)	25	10	150.00	750	1500	3.00:1	300	100	1.33:1
Nutri garden	10	10	1	Consumption (kg)	262	147	78.23	3673	6179	2.68:1	4034	2050	1.51:1
Multigrain mix	10	30	1	Cost (Rs.)	3300	2400	37.50	330	240	1.73:1	130	60	1.46:1
Ready to cook	1	1	1	Shelf life (days)	150	60	150.00	7800	10200	2.31:1	4750	3450	1.73:1
Enriched millet bars	10	10	1	Shelf life (days)	90	45	100.00	2900	1100	1.38:1	2580	920	1.36:1
Nutri-based millets	5	5	1	Cost (Rs.)	4600	3100	48.39	240	460	2.92:1	240	120	1.50:1

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
Vermicomposting													
NCOF decomposer	20	20	1	OM (%)	0.61	0.41	48.78	4000	10000	3.50:1	4000	5000	2.25:1
Vermicomposting fish waste	5	5	1	kg/year	2480	2200	12.73	11400	13400	2.18:1	12000	10000	1.83:1
Andhra Pradesh													
Nutri garden	10	10	1	Yield (kg/season)	675	420	60.71	7652	5373	1.70:1	5627	1848	1.33:1
Nutri garden	10	10	1	Revenue/ 2cents	8000	1000	700	500	8000	17.00:1	300	1000	4.33:1
Nutri garden	10	5	1	Savings/ month	270	220	22.73	678	404	1.60:1	451	274	1.61:1
Sericulture													
Mulberry production	40	40	1	Cocoon kg/100DFLs	71	65	9.23	7311	12650	2.73:1	6985	10606	2.52:1
Silkworm rearing	40	40	1	Cocoon kg/100DFLs	73	65	12.31	6744	15276	3.27:1	6390	12626	2.98:1
Value Addition													
Fruit toffee	10	3	1	Shelf life (days)	400	200	100	200	400	3.00:1	150	200	2.33:1
Tomato	10	3	1	Revenue (Rs/kg)	400	100	300	100	400	5.00:1	80	100	2.25:1
Vermicomposting	6	5	1	Income (Rs.)	17500	6500	169	4000	13500	4.38:1	3000	3800	2.27:1

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													
Nutri-garden	57	53	6	Yield (kg)	1493	340	339	7574	11668	2.54:1	975	870	1.89:1
Value addition													
Ragi based products	3	3	1	Income (Rs.)	20000	15100	32.45	9000	20000	3.22:1	8500	15100	2.78:1
Horse gram products	3	3	1	Income (Rs.)	21200	14200	49.30	9000	21200	3.36:1	8200	14200	2.73:1
Moringa leaves	5	5	1	Cost (Rs.)	3300	2400	37.50	330	240	1.73:1	130	60	1.46:1
Watermelon	10	1	1	Rind	3000	1800	66.67	300	200	1.67:1	125	50	1.40:1
Mushroom	5	5	1	Income (Rs.)	450	250	80.00	250	450	2.80:1	150	250	2.67:1

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
Andhra Pradesh													
Drudgery reduction													
Three-pronged wheel hoe	10	3	1	Weeding efficiency	0.32	0.11	190.91						
Sugarcane leaf stripper	10	10	1	Man days/ha	5	10	-50.00	1250			2500		
Mango harvester	10	10	1	Man days/ha	10	20	-50.00	5000	10000	3.00:1	10000	5000	1.50:1
Mango harvester	10	10	1	Mangoes/hr.	530	320	65.63						
Easy planter	10	2	1	Yield (kg)	714	482	48.19	111250	190250	2.71:1	113750	190250	2.67:1
Wheel hoe	15	20	1	ha/Man Day	1	0.8	25.00	144000	312500	3.17:1	152000	312500	3.06:1
Wheel hoe	10	10	1	Yield (q/ha)	22.5	17.5	28.57	15000	18500	2.23:1	20500	19300	1.94:1
Cycle weeder	10	3	1	Yield (kg)	769	455	69.23	116750	180340	2.54:1	120950	180340	2.49:1
Weeder	10	10	1	ac/Man Day	1	0.6	66.67						
Nutri-garden	339	355	7	Yield (kg)	738	366	102	6151	9191	2.49:1	3450	1744	1.51:1
Storage technique	100	100	1	Storage losses	2000	1000	100						
Storage technique	10	10	1	Germination (%)	98	77	27.27						
Value addition													
Tomato	10	10	1	Products (kg)	1.5	0.8	87.50	500	2500	6.00:1	500	1500	4.00:1
Preservation	10	10	1	Loss (%)	15	25	-40.00	5500	7500	2.36:1	1500	1600	2.07:1
Millets	40	40	1	Income (Rs.)	6000	500		4000	6000	2.50:1	300	500	2.67:1
Millet moringa	5	5	1	Acceptability	6.8	6.2	9.68						
Telangana													
Nutri-garden	20	20	2	Yield (kg)	760	490	55.1	1300	3350	1.27:1	1500	1650	2.10:1
Value addition													
Redgram	10	10	1	Income (Rs.)	16000	4000	300	45000	16000	1.36:1	36000	4000	1.11:1
Millets	10	2	1	Income (Rs.)	14000	1125		6625	14000	3.11:1	890	1125	2.26:1

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

Demonstration of rice variety TKM 13 - KVK Karur (TN)

Demonstration of rice variety VGD 1 - KVK Dharmapuri (TN)

Demonstration of rice variety CO 53 - KVK Ramanathapuram (TN)

Demonstration of weed management in rice variety DSR 2 - KVK Tiruvallur (TN)

Demonstration of rice variety ADT 53 - KVK Tiruvallur (TN)

Demonstration of rice variety ADT 54 - KVK Nagapattinam (TN)

Demonstration of Foxtail millet variety SiA 3156 - KVK Chittoor (Kalikiri)

Demonstration of Foxtail millet variety ATL 1 - KVK Chittoor (TN)

Demonstration of sorghum variety CSH 41 - KVK Karur (TN)

Demonstration of little millet - KVK Krishnagiri (TN)

Demonstration of finger millet under zero tillage - KVK Srikakulam (AP)

Demonstration of IPM for pod borer complex in redgram - KVK Warangal (Mamnoor) (TS)

Demonstration of Bengal gram variety NBeG 3 - KVK Nizamabad

Demonstration of seed treatment for pulses - KVK Srikakulam (AP)

Demonstration of seed treatment for groundnut wilt disease - KVK Srikakulam (AP)

Demonstration of rainfed castor variety YRCH 2 - KVK Vellore

Demonstration of sunflower hybrid DRSH 1 - KVK Nizamabad

Demonstration of IPM for Soybean - KVK Nizamabad

Demonstration of stem applicator for cotton - KVK Nizamabad

Demonstration of pink bollworm management in cotton - KVK Khammam (Wyra)

Demonstration of ICM for drumstick - KV Ariyalur (TN)

Demonstration of ICM for chilli - KVK Kurnool (Banavasi) (AP)

Demonstration of solar light trap for bitter gourd - KVK Khammam (Kothagudem)

Demonstration of stacking for tomato - KVK Nizamabad

Demonstration of IPDM for bhendi - KVK Salem (TN)

Demonstration of IPDM for onion (Aggregatum) - KVK Salem (TN)

Demonstration of drenching B. subtilis for wilt in Avocado - KVK Dindigul (TN)

Demonstration of sucker treatment for banana - KVK Nizamabad

Demonstration of tea mosquito bug management in guava - KVK Vellore

Demonstration of bunch covers for banana - KVK Nizamabad

Demonstration of multiple cropping in mango orchard - KVK Chittoor (RASS)

Demonstration of ICM in Tuberose - KVK Tiruvallur

Demonstration of urea molasses mineral mixture to cattle - KVK Chittoor (Kalikiri)

Demonstration of Mastiguard for Subclinical Mastitis in Dairy Cows - KVK Krishnagiri (TN)

Demonstration of sexed semen insemination for dairy cattle - KVK Warangal (Mamnoor)

Demonstration of silage making - KVK Ariyalur (TN)

Demonstration of mixed fodder cultivation KVK Krishnagiri (TN)

Demonstration of mineral mixture for sheep and goat - KVK Ranga Reddy

Demonstration of Osmanabadi goats KVK East Godavari (Pandirimamidi)

Demonstration of Nandhananm 1 Quail KVK Tiruvallur (TN)

Demonstration of TANUVAS Aseel poultry - KVK Villupuram II (TN)

Demonstration of Namakkal Gold quail - KVK Vellore

Demonstration of inland fish culture - KVK Warangal (Mamnoor)

Demonstration of Aquaponics technology - KVK Nagapattinam (TN)

Demonstration of Bhendi ring cutter - KVK Ariyalur (TN)

Demonstration of improved garden weeder - KVK Krishnagiri (TN)

Demonstration of solar cum electric drier - KVK Chittoor (Kalikiri)

Demonstration of power weeder - KVK Krishnagiri (TN)

Demonstration of easy planter for tomato - KVK Warangal (Mamnoor)

Demonstration of MSRI in rice - KVK Srikakulam

Demonstration of ferti cum seed drill - KVK Srikakulam

Demonstration of onion planter - KVK Vellore

Demonstration of zero tillage rice fallow seed drill - KVK Tiruvallur

Demonstration of ride-on rice transplanter - KVK Nizamabad

Demonstration of turmeric digger - KVK Nizamabad

Demonstration of mechanization in maize - KVK Karimnagar (Jammikunta)

Demonstration of mechanized nursery raising in rice - KVK Nalgonda (Kampasagar)

Demonstration of direct drum seeder in rice - KVK Nalgonda (Kampasagar)

Demonstration of soil moisture indicator - KVK Ariyalur

Demonstration of low-cost fruit and vegetable preservation - KVK Krishna (Gantasala)

Demonstration of vermicomposting enterprise - KVK Chittoor (Kalikiri)

Demonstration of thatched roof vermicompost enterprise - KVK Nagapattinam (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 6329 training programmes to 208714 beneficiaries (Table 3.3.1) including farmers, rural youth extension functionaries, sponsored trainings, and vocational trainings.

A total of 5541 training programmes on agricultural and allied technologies to increase the production and productivity of crops, dairy and others were organized for 182084 farmers and farm women, rural youth, and extension functionaries by KVKs in the Zone. Sponsored trainings were conducted for 23081 beneficiaries and vocational training for 3549 beneficiaries through 578 and 210 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	2459	73520	1058	35958	683	22222	48	1633	4248	133333
Rural Youth	326	8663	153	4536	145	4834	7	130	631	18163
Extension Personnel	271	9754	294	16850	95	3939	2	45	662	30588
Total need-based trainings	**3056**	**91937**	**1505**	**57344**	**923**	**30995**	**57**	**1808**	**5541**	**182084**
Sponsored Trainings	418	15591	118	5418	33	1360	9	712	578	23081
Vocational Trainings	151	1931	30	785	28	808	1	25	210	3549
Grand total	**3625**	**109459**	**1653**	**63547**	**984**	**33163**	**67**	**2545**	**6329**	**208714**

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	2459	37115	21288	58403	6479	8638	15117	43594	29926	73520
RY	326	4495	2345	6840	956	867	1823	5451	3212	8663
EF	271	4026	3911	7937	648	1169	1817	4674	5080	9754
Total	3056	45636	27544	73180	8083	10674	18757	53719	38218	91937
Sponsored	418	8904	3779	12683	1302	1606	2908	10206	5385	15591
Vocational	151	693	611	1304	199	428	627	892	1039	1931
Grand Total	**3625**	**55233**	**31934**	**87167**	**9584**	**12708**	**22292**	**64817**	**44642**	**109459**

Clientele	No. of Courses	Other Beneficiaries			SC/ST Beneficiaries			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Andhra Pradesh										
FFW	1058	15728	7517	23245	6983	5730	12713	22711	13247	35958
RY	153	1735	1508	3243	628	665	1293	2363	2173	4536
EF	294	7331	5618	12949	1854	2047	3901	9185	7665	16850
Total	**1505**	**24794**	**14643**	**39437**	**9465**	**8442**	**17907**	**34259**	**23085**	**57344**
Sponsored	118	1840	1280	3120	1000	1298	2298	2840	2578	5418
Vocational	30	152	372	524	147	114	261	299	486	785
Grand Total	**1653**	**26786**	**16295**	**43081**	**10612**	**9854**	**20466**	**37398**	**26149**	**63547**
Telangana										
FFW	683	9462	3552	13014	5877	3331	9208	15339	6883	22222
RY	145	1791	1574	3365	846	623	1469	2637	2197	4834
EF	95	1402	1412	2814	509	616	1125	1911	2028	3939
Total	**923**	**12655**	**6538**	**19193**	**7232**	**4570**	**11802**	**19887**	**11108**	**30995**
Sponsored	33	559	188	747	474	139	613	1033	327	1360
Vocational	28	362	184	546	110	152	262	472	336	808
Grand Total	**984**	**13576**	**6910**	**20486**	**7816**	**4861**	**12677**	**21392**	**11771**	**33163**
Puducherry										
FFW	48	1067	338	1405	127	101	228	1194	439	1633
RY	7	27	91	118	3	9	12	30	100	130
EF	2	18	25	43	1	1	2	19	26	45
Total	**57**	**1112**	**454**	**1566**	**131**	**111**	**242**	**1243**	**565**	**1808**
Sponsored	9	531	128	659	43	10	53	574	138	712
Vocational	1	9	8	17	3	5	8	12	13	25
Grand Total	**67**	**1652**	**590**	**2242**	**177**	**126**	**303**	**1829**	**716**	**2545**
Grand total for Zone -X										
FFW	4248	63372	32695	96067	19466	17800	37266	82838	50495	133333
RY	631	8048	5518	13566	2433	2164	4597	10481	7682	18163
EF	662	12777	10966	23743	3012	3833	6845	15789	14799	30588
Total	**5541**	**84197**	**49179**	**133376**	**24911**	**23797**	**48708**	**109108**	**72976**	**182084**
Sponsored	578	11834	5375	17209	2819	3053	5872	14653	8428	23081
Vocational	210	1216	1175	2391	459	699	1158	1675	1874	3549
Grand Total	**6329**	**97247**	**55729**	**152976**	**28189**	**27549**	**55738**	**125436**	**83278**	**208714**

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 4248 training courses were organized for 133333 farmers in Tamil Nadu, Andhra Pradesh, Telangana, and Puducherry. Among the various thematic areas, 987 courses were on crop production, 629 on horticulture, 342 on soil health, 367 on livestock, 648 on women empowerment, 97 on agricultural engineering, 625 on plant protection, 129 on fisheries, 173 on production of seeds and other inputs, 191 on capacity building and 60 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	44	700	351	1051	193	226	419	893	577	1470
Cropping systems	45	652	277	929	190	103	293	842	380	1222
Integrated crop management	372	6374	1872	8246	1824	716	2540	8198	2588	10786
Integrated farming	61	1202	329	1531	283	159	442	1485	488	1973
Integrated nutrient management	107	1852	575	2427	680	297	977	2532	872	3404
Micro irrigation/irrigation	29	504	102	606	132	96	228	636	198	834
Nursery management	23	311	76	387	89	38	127	400	114	514
Production of organic inputs	41	618	321	939	191	134	325	809	455	1264
Resource conservation technologies	38	870	356	1226	172	77	249	1042	433	1475
Seed production	81	1762	442	2204	166	125	291	1928	567	2495
Soil & water conservation	39	1127	529	1656	476	195	671	1603	724	2327
Weed management	36	626	185	811	247	131	378	873	316	1189
Others	71	1490	611	2101	311	246	557	1801	857	2658
Total of crop production	**987**	**18088**	**6026**	**24114**	**4954**	**2543**	**7497**	**23042**	**8569**	**31611**
II. Horticulture										
a) Vegetable crops										
Exotic vegetables	4	65	22	87	15	7	22	80	29	109
Export potential vegetables	5	137	31	168	21	2	23	158	33	191
Grading and standardization	5	67	59	126	9	10	19	76	69	145
Nursery raising	40	599	275	874	206	157	363	805	432	1237
Off-season vegetables	21	363	69	432	114	35	149	477	104	581
Production of low value and high-volume crops	60	1022	478	1500	200	92	292	1222	570	1792
Protective cultivation	37	768	200	968	117	120	237	885	320	1205
Others in vegetable crop	40	665	236	901	210	85	295	875	321	1196
Others	129	2303	979	3282	473	412	885	2776	1391	4167
Total of vegetable crops	**341**	**5989**	**2349**	**8338**	**1365**	**920**	**2285**	**7354**	**3269**	**10623**
b) Fruits										
Cultivation of fruit	51	984	220	1204	301	130	431	1285	350	1635
Export potential fruits	1	35	5	40	10	0	10	45	5	50

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Layout and management of orchards	10	109	16	125	150	69	219	259	85	344
Management of young plants/orchards	8	170	24	194	34	6	40	204	30	234
Micro irrigation systems of orchards	15	301	104	405	74	22	96	375	126	501
Plant propagation techniques	7	121	29	150	26	6	32	147	35	182
Rejuvenation of old orchards	12	142	27	169	173	44	217	315	71	386
Training and pruning	9	169	49	218	39	21	60	208	70	278
Others	21	423	81	504	95	13	108	518	94	612
Total of fruits	**134**	**2454**	**555**	**3009**	**902**	**311**	**1213**	**3356**	**866**	**4222**
c) Ornamental plants										
Export potential of ornamental plants	3	30	33	63	3	2	5	33	35	68
Management of potted plants	2	25	16	41	16	7	23	41	23	64
Nursery management	6	49	29	78	19	16	35	68	45	113
Propagation techniques of ornamental plants	5	14	90	104	15	21	36	29	111	140
Others in ornamental plants	1	0	22	22	0	3	3	0	25	25
Others	18	241	103	344	60	25	85	301	128	429
Total in ornamental plants	**35**	**359**	**293**	**652**	**113**	**74**	**187**	**472**	**367**	**839**
d) Plantation crops										
Processing and value addition	4	51	26	77	46	7	53	97	33	130
Production and management technology	34	343	88	431	484	195	679	827	283	1110
Others	6	79	32	111	22	16	38	101	48	149
Total of plantation crops	**44**	**473**	**146**	**619**	**552**	**218**	**770**	**1025**	**364**	**1389**
e) Tuber crops										
Processing and value addition	2	17	20	37	0	1	1	17	21	38
Production and management technology	14	302	96	398	82	27	109	384	123	507
Others	1	12	4	16	0	0	0	12	4	16
Total of tuber crops	**17**	**331**	**120**	**451**	**82**	**28**	**110**	**413**	**148**	**561**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
f) Spices										
Processing and value addition	2	47	6	53	9	0	9	56	6	62
Production and management technology	24	275	70	345	197	105	302	472	175	647
Others	7	54	24	78	53	40	93	107	64	171
Total of spices	**33**	**376**	**100**	**476**	**259**	**145**	**404**	**635**	**245**	**880**
g) Medicinal and aromatic plants										
Nursery management	0	0	0	0	0	0	0	0	0	0
Post-harvest technology and value addition	2	0	0	0	45	15	60	45	15	60
Production and management technology	13	158	63	221	90	6	96	248	69	317
Others	10	20	24	44	243	19	262	263	43	306
Total of medicinal plants	**25**	**178**	**87**	**265**	**378**	**40**	**418**	**556**	**127**	**683**
Grand total of horticulture	**629**	**10160**	**3650**	**13810**	**3651**	**1736**	**5387**	**13811**	**5386**	**19197**
III. Soil health and fertility management										
Balance use of fertilizers	35	492	180	672	159	72	231	651	252	903
Integrated nutrient management	84	1434	376	1810	343	150	493	1777	526	2303
Integrated water management	7	87	13	100	102	30	132	189	43	232
Management of problematic soils	11	112	46	158	53	46	99	165	92	257
Micronutrient deficiency in crops	16	269	24	293	88	12	100	357	36	393
Nutrient use efficiency	9	176	69	245	41	12	53	217	81	298
Production and use of organic inputs	28	364	72	436	153	115	268	517	187	704
Soil and water testing	51	644	337	981	190	239	429	834	576	1410
Soil fertility management	66	1469	383	1852	441	208	649	1910	591	2501
Others	35	665	216	881	186	80	266	851	296	1147
Total of soil health	**342**	**5712**	**1716**	**7428**	**1756**	**964**	**2720**	**7468**	**2680**	**10148**
IV. Livestock production and management										
Animal nutrition management	40	641	189	830	145	75	220	786	264	1050
Dairy management	57	994	498	1492	122	165	287	1116	663	1779
Disease management	41	471	168	639	125	63	188	596	231	827
Feed & fodder technology	43	707	283	990	155	83	238	862	366	1228

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Piggery management	4	26	10	36	29	10	39	55	20	75
Poultry management	90	1553	700	2253	320	310	630	1873	1010	2883
Production of quality animal products	11	175	73	248	31	49	80	206	122	328
Rabbit management	6	232	17	249	13	6	19	245	23	268
Others	75	857	1163	2020	116	1248	1364	973	2411	3384
Total of livestock	**367**	**5656**	**3101**	**8757**	**1056**	**2009**	**3065**	**6712**	**5110**	**11822**
V. Home science/women empowerment										
Design and development of low/minimum cost diet	34	51	833	884	9	351	360	60	1184	1244
Designing and development for high nutrient efficiency diet	63	164	988	1152	77	889	966	241	1877	2118
Gender mainstreaming through SHGs	9	4	197	201	2	101	103	6	298	304
Household food security by kitchen gardening and nutrition gardening	127	419	2707	3126	170	1481	1651	589	4188	4777
Location specific drudgery reduction technologies	16	19	129	148	72	148	220	91	277	368
Minimization of nutrient loss in processing	13	152	92	244	24	65	89	176	157	333
Processing and cooking	30	175	373	548	68	493	561	243	866	1109
Rural crafts	6	2	65	67	5	30	35	7	95	102
Storage loss minimization techniques	7	51	93	144	4	27	31	55	120	175
Value addition	187	746	2711	3457	294	1796	2090	1040	4507	5547
Women and childcare	79	120	1475	1595	51	988	1039	171	2463	2634
Women empowerment	35	60	601	661	39	340	379	99	941	1040
Others	42	260	685	945	64	272	336	324	957	1281
Total of home science	**648**	**2223**	**10949**	**13172**	**879**	**6981**	**7860**	**3102**	**17930**	**21032**
VI. Agricultural Engineering										
Farm machinery and its maintenance	47	729	234	963	117	95	212	846	329	1175
Installation and maintenance of micro irrigation systems	10	131	21	152	28	7	35	159	28	187
Post-harvest technology	9	93	75	168	14	28	42	107	103	210
Production of small tools and implements	3	23	15	38	0	0	0	23	15	38

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Repair and maintenance of farm machinery and implements	6	83	16	99	9	3	12	92	19	111
Small scale processing and value addition	4	39	45	84	13	23	36	52	68	120
Use of plastics in farming practices	2	15	4	19	33	0	33	48	4	52
Others	16	573	124	697	65	34	99	638	158	796
Total of agricultural engineering	**97**	**1686**	**534**	**2220**	**279**	**190**	**469**	**1965**	**724**	**2689**
VII. Plant protection										
Biocontrol of pests and diseases	57	1083	428	1511	383	176	559	1466	604	2070
Integrated disease management	153	2554	816	3370	912	477	1389	3466	1293	4759
Integrated pest management	331	5991	1556	7547	1902	809	2711	7893	2365	10258
Production of bio control agents and bio pesticides	28	473	116	589	145	114	259	618	230	848
Others	56	942	230	1172	478	129	607	1420	359	1779
Total of plant protection	**625**	**11043**	**3146**	**14189**	**3820**	**1705**	**5525**	**14863**	**4851**	**19714**
VIII. Fisheries										
Breeding and culture of ornamental fishes	6	48	15	63	17	57	74	65	72	137
Carp breeding and hatchery management	8	137	125	262	23	11	34	160	136	296
Carp fry and fingerling rearing	10	207	22	229	59	4	63	266	26	292
Composite fish culture	28	486	119	605	150	146	296	636	265	901
Fish processing and value addition	12	65	128	193	55	93	148	120	221	341
Hatchery management and culture of freshwater prawn	3	30	12	42	4	2	6	34	14	48
Integrated fish farming	23	324	129	453	104	71	175	428	200	628
Pen culture of fish and prawn	1	27	4	31	0	0	0	27	4	31
Portable plastic carp hatchery	3	27	22	49	10	0	10	37	22	59

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Shrimp farming	9	181	4	185	54	0	54	235	4	239
Others	26	363	26	389	309	3	312	672	29	701
Total of fisheries	**129**	**1895**	**606**	**2501**	**785**	**387**	**1172**	**2680**	**993**	**3673**
IX. Production of inputs at site										
Apiculture	25	648	168	816	179	80	259	827	248	1075
Bio-agents production	7	106	39	145	49	24	73	155	63	218
Bio-fertilizer production	7	114	9	123	52	2	54	166	11	177
Bio-pesticides production	8	195	17	212	57	0	57	252	17	269
Mushroom production	39	520	317	837	221	85	306	741	402	1143
Organic manures production	14	193	160	353	47	30	77	240	190	430
Planting material production	5	124	14	138	0	77	77	124	91	215
Production of livestock feed and fodder	3	23	17	40	12	4	16	35	21	56
Seed production	19	437	98	535	22	40	62	459	138	597
Vermicompost production	42	697	263	960	160	83	243	857	346	1203
Others	4	20	28	48	12	6	18	32	34	66
Total of inputs	**173**	**3077**	**1130**	**4207**	**811**	**431**	**1242**	**3888**	**1561**	**5449**
X. Capacity building and group dynamics										
Entrepreneurial development of farmers/youths	43	606	421	1027	166	250	416	772	671	1443
Formation and management of SHGs	12	102	185	287	62	83	145	164	268	432
Group dynamics	34	644	233	877	88	98	186	732	331	1063
Leadership development	5	72	27	99	6	2	8	78	29	107
Mobilization of social capital	18	269	304	573	44	33	77	313	337	650
Others	79	1236	368	1604	836	293	1129	2072	661	2733
Total of capacity building	**191**	**2929**	**1538**	**4467**	**1202**	**759**	**1961**	**4131**	**2297**	**6428**
XI. Agro-forestry										
Integrated farming systems	12	148	95	243	109	34	143	257	129	386
Production technologies	17	257	77	334	99	32	131	356	109	465
Others	31	498	127	625	65	29	94	563	156	719
Total of agroforestry	**60**	**903**	**299**	**1202**	**273**	**95**	**368**	**1176**	**394**	**1570**
Grand total	**4248**	**63372**	**32695**	**96067**	**19466**	**17800**	**37266**	**82838**	**50495**	**133333**

Tamil Nadu

KVKs of Tamil Nadu organized 2459 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 43594 men and 29926 women farmers participated (Table 3.3.4). In crop production 575 training courses were conducted by the KVKs of Tamil Nadu in which maximum number were on integrated crop management (194). Under horticulture 360 training courses were conducted and maximum trainings were on vegetable crops (213) followed by fruits (57) and ornamental crops (26). A total of 282 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	17	328	213	541	71	43	114	399	256	655
Cropping systems	23	365	183	548	48	26	74	413	209	622
Integrated crop management	194	3348	1143	4491	467	245	712	3815	1388	5203
Integrated farming	46	965	264	1229	169	119	288	1134	383	1517
Integrated nutrient management	45	886	330	1216	93	110	203	979	440	1419
Micro irrigation/irrigation	22	382	68	450	57	67	124	439	135	574
Nursery management	14	237	48	285	17	2	19	254	50	304
Production of organic inputs	25	385	207	592	74	56	130	459	263	722
Resource conservation technologies	24	487	250	737	75	25	100	562	275	837
Seed production	76	1672	431	2103	157	121	278	1829	552	2381
Soil and water conservation	24	817	480	1297	272	160	432	1089	640	1729
Weed management	10	131	68	199	27	33	60	158	101	259
Others	55	1269	431	1700	201	115	316	1470	546	2016
Total of crop production	**575**	**11272**	**4116**	**15388**	**1728**	**1122**	**2850**	**13000**	**5238**	**18238**
II. Horticulture										
a) Vegetable crops										
Exotic vegetables	1	9	12	21	0	1	1	9	13	22
Export potential vegetables	5	137	31	168	21	2	23	158	33	191
Grading and standardization	3	42	39	81	3	0	3	45	39	84
Nursery raising	21	312	206	518	59	58	117	371	264	635
Off-season vegetables	9	156	45	201	23	12	35	179	57	236
Production of low value and high-volume crops	49	845	453	1298	110	82	192	955	535	1490
Protective cultivation	25	564	156	720	62	106	168	626	262	888
Others in vegetable crop	23	467	187	654	80	42	122	547	229	776
Others	77	1274	697	1971	167	220	387	1441	917	2358
Total of vegetable crops	**213**	**3806**	**1826**	**5632**	**525**	**523**	**1048**	**4331**	**2349**	**6680**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
b) Fruits										
Cultivation of fruit	28	548	171	719	131	95	226	679	266	945
Export potential fruits	1	35	5	40	10	0	10	45	5	50
Layout and management of orchards	2	33	9	42	4	1	5	37	10	47
Management of young plants/ orchards	1	30	0	30	0	0	0	30	0	30
Micro irrigation systems of orchards	7	134	58	192	23	9	32	157	67	224
Plant propagation techniques	4	67	8	75	3	3	6	70	11	81
Rejuvenation of old orchards	3	61	19	80	9	5	14	70	24	94
Training and pruning	4	75	26	101	9	14	23	84	40	124
Others	7	116	54	170	15	2	17	131	56	187
Total of fruits	**57**	**1099**	**350**	**1449**	**204**	**129**	**333**	**1303**	**479**	**1782**
c) Ornamental plants										
Export potential of ornamental plants	3	30	33	63	3	2	5	33	35	68
Nursery management	6	49	29	78	19	16	35	68	45	113
Propagation techniques of ornamental plants	5	14	90	104	15	21	36	29	111	140
Others in ornamental plants	1	0	22	22	0	3	3	0	25	25
Others	11	165	58	223	12	8	20	177	66	243
Total in ornamental plants	**26**	**258**	**232**	**490**	**49**	**50**	**99**	**307**	**282**	**589**
d) Plantation crops										
Processing and value addition	2	25	26	51	0	2	2	25	28	53
Production and management technology	15	230	59	289	73	26	99	303	85	388
Others	2	29	8	37	3	0	3	32	8	40
Total of plantation crops	**19**	**284**	**93**	**377**	**76**	**28**	**104**	**360**	**121**	**481**
e) Tuber crops										
Processing and value addition	2	17	20	37	0	1	1	17	21	38
Production and management technology	11	264	89	353	48	16	64	312	105	417
Others	1	12	4	16	0	0	0	12	4	16
Total of tuber crops	**14**	**293**	**113**	**406**	**48**	**17**	**65**	**341**	**130**	**471**
f) Spices										
Production and management technology	14	129	42	171	99	67	166	228	109	337
Others	4	8	21	29	32	12	44	40	33	73
Total of spices	**18**	**137**	**63**	**200**	**131**	**79**	**210**	**268**	**142**	**410**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
g) Medicinal and Aromatic Plants										
Post-harvest technology and value addition	1	0	0	0	8	15	23	8	15	23
Production and management technology	10	132	58	190	27	6	33	159	64	223
Others	2	12	24	36	6	2	8	18	26	44
Total of medicinal plants	**13**	**144**	**82**	**226**	**41**	**23**	**64**	**185**	**105**	**290**
Grand total of horticulture	**360**	**6021**	**2759**	**8780**	**1074**	**849**	**1923**	**7095**	**3608**	**10703**
III. Soil health and fertility management										
Balance use of fertilizers	18	264	110	374	79	17	96	343	127	470
Integrated nutrient management	56	843	274	1117	117	78	195	960	352	1312
Integrated water management	3	47	11	58	3	1	4	50	12	62
Management of problematic soils	8	79	43	122	16	42	58	95	85	180
Micronutrient deficiency in crops	8	173	20	193	36	5	41	209	25	234
Nutrient use efficiency	4	81	54	135	10	9	19	91	63	154
Production and use of organic inputs	20	231	45	276	117	92	209	348	137	485
Soil and water testing	20	286	157	443	89	55	144	375	212	587
Soil fertility management	34	814	214	1028	166	82	248	980	296	1276
Others	33	539	196	735	153	72	225	692	268	960
Total of soil health	**204**	**3357**	**1124**	**4481**	**786**	**453**	**1239**	**4143**	**1577**	**5720**
IV. Livestock production and management										
Animal nutrition management	21	432	129	561	56	25	81	488	154	642
Dairy management	41	769	442	1211	69	150	219	838	592	1430
Disease management	22	221	123	344	48	35	83	269	158	427
Feed and fodder technology	28	455	226	681	86	57	143	541	283	824
Piggery management	3	18	6	24	20	3	23	38	9	47
Poultry management	69	1307	532	1839	230	234	464	1537	766	2303
Production of quality animal products	10	165	68	233	26	45	71	191	113	304
Rabbit management	5	225	12	237	6	2	8	231	14	245
Others	66	730	1146	1876	91	1231	1322	821	2377	3198
Total of livestock	**265**	**4322**	**2684**	**7006**	**632**	**1782**	**2414**	**4954**	**4466**	**9420**
V. Home Science/Women empowerment										
Design and development of low/ minimum cost diet	18	47	433	480	7	115	122	54	548	602
Designing and development for high nutrient efficiency diet	28	110	421	531	18	191	209	128	612	740
Gender mainstreaming through SHGs	5	4	124	128	0	43	43	4	167	171
Household food security by kitchen gardening and nutrition gardening	65	323	1607	1930	77	534	611	400	2141	2541

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Location specific drudgery reduction technologies	7	9	75	84	2	48	50	11	123	134
Minimization of nutrient loss in processing	11	150	76	226	18	49	67	168	125	293
Processing and cooking	17	164	200	364	17	68	85	181	268	449
Rural crafts	5	2	49	51	5	30	35	7	79	86
Storage loss minimization techniques	5	41	81	122	4	27	31	45	108	153
Value addition	131	695	1928	2623	282	910	1192	977	2838	3815
Women and childcare	29	63	657	720	23	487	510	86	1144	1230
Women empowerment	20	60	357	417	15	160	175	75	517	592
Others	20	156	282	438	20	32	52	176	314	490
Total of Home Science	**361**	**1824**	**6290**	**8114**	**488**	**2694**	**3182**	**2312**	**8984**	**11296**
VI. Agricultural engineering										
Farm machinery and its maintenance	33	416	202	618	44	77	121	460	279	739
Installation and maintenance of micro irrigation systems	7	77	12	89	15	4	19	92	16	108
Post-harvest technology	9	93	75	168	14	28	42	107	103	210
Production of small tools and implements	3	23	15	38	0	0	0	23	15	38
Repair and maintenance of farm machinery and implements	5	62	10	72	0	0	0	62	10	72
Small scale processing and value addition	3	39	32	71	13	16	29	52	48	100
Others	10	116	58	174	10	4	14	126	62	188
Total of agricultural engineering	**70**	**826**	**404**	**1230**	**96**	**129**	**225**	**922**	**533**	**1455**
VII. Plant protection										
Biocontrol of pests and diseases	22	393	150	543	50	48	98	443	198	641
Integrated disease management	76	1201	311	1512	206	163	369	1407	474	1881
Integrated pest management	132	1914	573	2487	340	231	571	2254	804	3058
Production of bio control agents and bio pesticides	13	231	68	299	24	16	40	255	84	339
Others	39	614	164	778	132	40	172	746	204	950
Total of plant protection	**282**	**4353**	**1266**	**5619**	**752**	**498**	**1250**	**5105**	**1764**	**6869**
VIII. Fisheries										
Breeding and culture of ornamental fishes	5	37	15	52	8	57	65	45	72	117
Carp breeding and hatchery management	7	114	125	239	15	11	26	129	136	265
Carp fry and fingerling rearing	6	84	20	104	13	2	15	97	22	119
Composite fish culture	14	174	88	262	25	130	155	199	218	417

Thematic area	No. of courses	Participants								
		Others			SC/ST			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Edible oyster farming	0	0	0	0	0	0	0	0	0	0
Fish processing and value addition	11	65	78	143	55	65	120	120	143	263
Hatchery management and culture of freshwater prawn	3	30	12	42	4	2	6	34	14	48
Integrated fish farming	13	125	91	216	34	61	95	159	152	311
Pen culture of fish and prawn	1	27	4	31	0	0	0	27	4	31
Portable plastic carp hatchery	3	27	22	49	10	0	10	37	22	59
Shrimp farming	3	45	0	45	2	0	2	47	0	47
Others	3	55	12	67	0	0	0	55	12	67
Total of fisheries	**69**	**783**	**467**	**1250**	**166**	**328**	**494**	**949**	**795**	**1744**
IX. Production of inputs at site										
Apiculture	18	504	125	629	70	37	107	574	162	736
Bioagents production	4	60	23	83	12	10	22	72	33	105
Biofertilizer production	3	54	4	58	3	0	3	57	4	61
Biopesticides production	3	45	17	62	2	0	2	47	17	64
Mushroom production	33	434	234	668	87	77	164	521	311	832
Organic manures production	10	133	136	269	29	24	53	162	160	322
Planting material production	4	124	14	138	0	7	7	124	21	145
Production of livestock feed and fodder	3	23	17	40	12	4	16	35	21	56
Seed Production	17	369	89	458	15	40	55	384	129	513
Vermicompost production	29	378	222	600	55	72	127	433	294	727
Others	4	20	28	48	12	6	18	32	34	66
Total of inputs	**128**	**2144**	**909**	**3053**	**297**	**277**	**574**	**2441**	**1186**	**3627**
X. Capacity building and group dynamics										
Entrepreneurial development of farmers/youths	30	388	310	698	99	203	302	487	513	1000
Formation and management of SHGs	9	51	177	228	14	80	94	65	257	322
Group dynamics	26	505	174	679	45	85	130	550	259	809
Leadership development	5	72	27	99	6	2	8	78	29	107
Mobilization of social capital	10	140	244	384	5	10	15	145	254	399
Others	18	281	83	364	122	55	177	403	138	541
Total of capacity building	**98**	**1437**	**1015**	**2452**	**291**	**435**	**726**	**1728**	**1450**	**3178**
XI Agro-forestry										
Integrated Farming Systems	10	129	93	222	55	34	89	184	127	311
Production technologies	17	257	77	334	99	32	131	356	109	465
Others	20	390	84	474	15	5	20	405	89	494
Total of agroforestry	**47**	**776**	**254**	**1030**	**169**	**71**	**240**	**945**	**325**	**1270**
Grand total	**2459**	**37115**	**21288**	**58403**	**6479**	**8638**	**15117**	**43594**	**29926**	**73520**

Andhra Pradesh

In Andhra Pradesh 1058 trainings were organized for 22711 men and 13247 women farmers (Table 3.3.5). Under crop production, maximum number of trainings was organized on integrated crop management practices (117) followed by Integrated nutrient management (42). In horticulture 139 trainings were conducted including vegetables (57), fruits (42), Plantation crops (25) *etc*. Under soil health management 61 trainings were conducted for 2054 farmers and farm women, in which the highest were on INM (17). In livestock production and management, 69 trainings were conducted on dairy management (16), dairy and animal nutrition management (12 each), disease management (10) *etc*., to a total number of 1734 farmers and farm women. Under home science 177 training programmes were conducted for 6542 farmers and rural women. On plant protection 226 trainings were conducted for 8548 farmers.

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

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I. Crop production										
Crop diversification	8	202	29	231	21	8	29	223	37	260
Cropping systems	9	109	22	131	66	21	87	175	43	218
Integrated crop management	117	2076	492	2568	693	263	956	2769	755	3524
Integrated farming	7	126	13	139	47	14	61	173	27	200
Integrated nutrient management	42	656	172	828	302	114	416	958	286	1244
Micro irrigation/irrigation	3	73	32	105	34	27	61	107	59	166
Nursery management	6	72	25	97	64	34	98	136	59	195
Production of organic inputs	9	143	88	231	45	48	93	188	136	324
Resource conservation technologies	8	233	79	312	57	34	91	290	113	403
Seed production	3	65	9	74	4	0	4	69	9	78
Soil and water conservation	8	204	43	247	61	22	83	265	65	330
Weed management	19	408	80	488	167	82	249	575	162	737
Others	14	210	160	370	108	119	227	318	279	597
Total of crop production	**253**	**4577**	**1244**	**5821**	**1669**	**786**	**2455**	**6246**	**2030**	**8276**
II. Horticulture										
a) Vegetable crops										
Grading and standardization	1	25	5	30	6	0	6	31	5	36
Nursery raising	4	72	12	84	45	6	51	117	18	135
Off-season vegetables	4	76	4	80	19	0	19	95	4	99
Production of low value and high-volume crops	5	98	21	119	28	10	38	126	31	157
Protective cultivation	5	79	18	97	24	4	28	103	22	125
Others in vegetable crop	2	10	0	10	21	0	21	31	0	31
Others	36	760	207	967	181	145	326	941	352	1293
Total of vegetable crops	**57**	**1120**	**267**	**1387**	**324**	**165**	**489**	**1444**	**432**	**1876**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
b) Fruits										
Cultivation of fruit	10	152	11	163	74	22	96	226	33	259
Layout and management of orchards	7	58	3	61	140	68	208	198	71	269
Management of young plants/ orchards	3	63	12	75	20	0	20	83	12	95
Micro irrigation systems of orchards	1	23	12	35	0	0	0	23	12	35
Plant propagation techniques	1	14	16	30	0	0	0	14	16	30
Rejuvenation of old orchards	8	54	5	59	153	36	189	207	41	248
Training and pruning	3	54	14	68	18	2	20	72	16	88
Others	9	233	16	249	58	2	60	291	18	309
Total of fruits	**42**	**651**	**89**	**740**	**463**	**130**	**593**	**1114**	**219**	**1333**
c) Ornamental plants										
Others	6	76	45	121	18	17	35	94	62	156
Total in ornamental plants	**6**	**76**	**45**	**121**	**18**	**17**	**35**	**94**	**62**	**156**
d) Plantation crops										
Processing and value addition	2	26	0	26	46	5	51	72	5	77
Production and management technology	19	113	29	142	411	169	580	524	198	722
Others	4	50	24	74	19	16	35	69	40	109
Total of plantation crops	**25**	**189**	**53**	**242**	**476**	**190**	**666**	**665**	**243**	**908**
e) Tuber crops										
Production and management technology	1	2	2	4	16	8	24	18	10	28
Total of tuber crops	1	2	2	4	16	8	24	18	10	28
f) Spices										
Processing and value addition	2	47	6	53	9	0	9	56	6	62
Production and management technology	3	38	0	38	43	9	52	81	9	90
Others	3	46	3	49	21	28	49	67	31	98
Total of spices	**8**	**131**	**9**	**140**	**73**	**37**	**110**	**204**	**46**	**250**
Grand total of horticulture	**139**	**2169**	**465**	**2634**	**1370**	**547**	**1917**	**3539**	**1012**	**4551**
III. Soil health and fertility management										
Balance use of fertilizers	8	157	19	176	56	8	64	213	27	240
Integrated nutrient management	17	333	35	368	117	17	134	450	52	502
Integrated water management	3	22	0	22	93	29	122	115	29	144
Management of problematic soils	1	21	0	21	10	0	10	31	0	31
Micronutrient deficiency in crops	4	66	0	66	20	0	20	86	0	86
Nutrient use efficiency	3	61	5	66	29	3	32	90	8	98

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Production and use of organic inputs	6	116	14	130	18	5	23	134	19	153
Soil and water testing	9	168	27	195	63	25	88	231	52	283
Soil fertility management	9	233	7	240	100	20	120	333	27	360
Others	1	99	20	119	30	8	38	129	28	157
Total of soil health	**61**	**1276**	**127**	**1403**	**536**	**115**	**651**	**1812**	**242**	**2054**
IV. Livestock production and management										
Animal nutrition management	12	129	42	171	58	40	98	187	82	269
Dairy management	12	191	45	236	39	9	48	230	54	284
Disease management	10	158	24	182	25	7	32	183	31	214
Feed & fodder technology	7	163	33	196	35	12	47	198	45	243
Piggery management	1	8	4	12	9	7	16	17	11	28
Poultry management	16	168	161	329	68	66	134	236	227	463
Production of quality animal products	1	10	5	15	5	4	9	15	9	24
Rabbit management	1	7	5	12	7	4	11	14	9	23
Others	9	127	17	144	25	17	42	152	34	186
Total of livestock	**69**	**961**	**336**	**1297**	**271**	**166**	**437**	**1232**	**502**	**1734**
V. Home Science/Women empowerment										
Design and development of low/minimum cost diet	14	2	342	344	2	227	229	4	569	573
Designing and development for high nutrient efficiency diet	17	22	204	226	29	404	433	51	608	659
Gender mainstreaming through SHGs	2	0	37	37	0	21	21	0	58	58
Household food security by kitchen gardening and nutri-tion gardening	33	66	734	800	58	497	555	124	1231	1355
Location specific drudgery reduction technologies	3	10	27	37	0	29	29	10	56	66
Minimization of nutrient loss in processing	1	2	6	8	6	16	22	8	22	30
Processing and cooking	7	0	144	144	0	310	310	0	454	454
Storage loss minimization techniques	1	10	0	10	0	0	0	10	0	10
Value addition	25	45	430	475	12	533	545	57	963	1020
Women and childcare	44	56	793	849	8	443	451	64	1236	1300
Women empowerment	11	0	175	175	24	150	174	24	325	349
Others	19	104	338	442	44	182	226	148	520	668
Total of Home Science	**177**	**317**	**3230**	**3547**	**183**	**2812**	**2995**	**500**	**6042**	**6542**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
VI. Agricultural engineering										
Farm machinery and its maintenance	5	79	19	98	13	0	13	92	19	111
Installation and maintenance of micro irrigation systems	1	19	0	19	5	0	5	24	0	24
Small scale processing and value addition	1	0	13	13	0	7	7	0	20	20
Others	1	0	10	10	0	6	6	0	16	16
Total of agricultural engineering	**8**	**98**	**42**	**140**	**18**	**13**	**31**	**116**	**55**	**171**
VII. Plant protection										
Biocontrol of pests and diseases	28	654	278	932	199	119	318	853	397	1250
Integrated disease management	54	933	425	1358	433	246	679	1366	671	2037
Integrated pest management	126	2406	694	3100	923	411	1334	3329	1105	4434
Production of biocontrol agents and bio pesticides	14	220	41	261	119	97	216	339	138	477
Others	4	71	9	80	218	52	270	289	61	350
Total of plant protection	**226**	**4284**	**1447**	**5731**	**1892**	**925**	**2817**	**6176**	**2372**	**8548**
VIII. Fisheries										
Carp breeding and hatchery management	1	23	0	23	8	0	8	31	0	31
Carp fry and fingerling rearing	1	18	2	20	16	2	18	34	4	38
Composite fish culture	8	168	16	184	66	10	76	234	26	260
Fish processing and value addition	1	0	50	50	0	28	28	0	78	78
Integrated fish farming	7	139	24	163	36	9	45	175	33	208
Shrimp farming	6	136	4	140	52	0	52	188	4	192
Others	8	140	6	146	31	0	31	171	6	177
Total of fisheries	**32**	**624**	**102**	**726**	**209**	**49**	**258**	**833**	**151**	**984**
IX. Production of inputs at site										
Apiculture	6	110	34	144	95	37	132	205	71	276
Bio-agents production	2	22	8	30	21	9	30	43	17	60
Bio-fertilizer production	4	60	5	65	49	2	51	109	7	116
Mushroom production	5	21	52	73	130	8	138	151	60	211
Organic manures production	2	15	24	39	6	6	12	21	30	51
Planting material production	1	0	0	0	0	70	70	0	70	70
Seed production	2	68	9	77	7	0	7	75	9	84
Vermicompost production	2	19	8	27	26	8	34	45	16	61
Total of inputs	**24**	**315**	**140**	**455**	**334**	**140**	**474**	**649**	**280**	**929**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
X Capacity building and group dynamics										
Entrepreneurial development of farmers/youths	6	121	39	160	24	16	40	145	55	200
Formation and management of SHGs	1	22	3	25	4	0	4	26	3	29
Group dynamics	6	86	52	138	31	8	39	117	60	177
Mobilization of social capital	6	84	50	134	30	18	48	114	68	182
Others	37	667	195	862	308	111	419	975	306	1281
Total of capacity building	**56**	**980**	**339**	**1319**	**397**	**153**	**550**	**1377**	**492**	**1869**
XI Agro-forestry										
Integrated farming systems	2	19	2	21	54	0	54	73	2	75
Others	11	108	43	151	50	24	74	158	67	225
Total of agroforestry	**13**	**127**	**45**	**172**	**104**	**24**	**128**	**231**	**69**	**300**
Grand total	**1058**	**15728**	**7517**	**23245**	**6983**	**5730**	**12713**	**22711**	**13247**	**35958**

Telangana

In Telangana, 683 training courses were organized for 22222 farmers (Table 3.3.6). Trainings on crop production aspects were conducted for 4858 farmers in which the maximum number of trainings were on integrated crop management (58). On horticultural crops, 126 trainings were conducted for 3792 farmers and farm women. A total of 3049 farmers were trained on various aspects of home science and women empowerment through 97 training programmes. Under plant protection, maximum number of trainings were on integrated pest management (71) followed by integrated disease management (23) to 2698 and 841 farmers, respectively.

Table 3.3.6. Details of Training Programmes for Farmers in Telangana

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I. Crop production										
Crop diversification	19	170	109	279	101	175	276	271	284	555
Cropping systems	13	178	72	250	76	56	132	254	128	382
Integrated crop management	58	876	217	1093	648	197	845	1524	414	1938
Integrated farming	8	111	52	163	67	26	93	178	78	256
Integrated nutrient management	20	310	73	383	285	73	358	595	146	741
Micro irrigation/irrigation	4	49	2	51	41	2	43	90	4	94
Nursery management	3	2	3	5	8	2	10	10	5	15
Production of organic inputs	7	90	26	116	72	30	102	162	56	218

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Resource conservation technologies	5	138	26	164	36	13	49	174	39	213
Seed production	2	25	2	27	5	4	9	30	6	36
Soil & water conservation	7	106	6	112	143	13	156	249	19	268
Weed management	5	71	10	81	47	14	61	118	24	142
Total of crop production	**151**	**2126**	**598**	**2724**	**1529**	**605**	**2134**	**3655**	**1203**	**4858**
II. Horticulture										
a) Vegetable crops										
Exotic vegetables	3	56	10	66	15	6	21	71	16	87
Grading and standardization	1	0	15	15	0	10	10	0	25	25
Nursery raising	15	215	57	272	102	93	195	317	150	467
Off-season vegetables	8	131	20	151	72	23	95	203	43	246
Production of low value and high-volume crops	6	79	4	83	62	0	62	141	4	145
Protective cultivation	7	125	26	151	31	10	41	156	36	192
Others in vegetable crop	15	188	49	237	109	43	152	297	92	389
Others	14	243	55	298	124	43	167	367	98	465
Total of vegetable crops	**69**	**1037**	**236**	**1273**	**515**	**228**	**743**	**1552**	**464**	**2016**
b) Fruits										
Cultivation of fruit	11	199	38	237	81	13	94	280	51	331
Layout and management of orchards	1	18	4	22	6	0	6	24	4	28
Management of young plants/orchards	4	77	12	89	14	6	20	91	18	109
Micro irrigation systems of orchards	7	144	34	178	51	13	64	195	47	242
Plant propagation techniques	2	40	5	45	23	3	26	63	8	71
Rejuvenation of old orchards	1	27	3	30	11	3	14	38	6	44
Training and pruning	2	40	9	49	12	5	17	52	14	66
Others	5	74	11	85	22	9	31	96	20	116
Total of fruits	**33**	**619**	**116**	**735**	**220**	**52**	**272**	**839**	**168**	**1007**
c) Ornamental plants										
Management of potted plants	2	25	16	41	16	7	23	41	23	64
Others	1	0	0	0	30	0	30	30	0	30
Total in ornamental plants	**3**	**25**	**16**	**41**	**46**	**7**	**53**	**71**	**23**	**94**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
d) Tuber crops										
Production and management technology	2	36	5	41	18	3	21	54	8	62
Total of tuber crops	**2**	**36**	**5**	**41**	**18**	**3**	**21**	**54**	**8**	**62**
f) Spices										
Production and management technology	7	108	28	136	55	29	84	163	57	220
Total of spices	**7**	**108**	**28**	**136**	**55**	**29**	**84**	**163**	**57**	**220**
g) Medicinal and aromatic plants										
Post-harvest technology and value addition	1	0	0	0	37	0	37	37	0	37
Production and management technology	3	26	5	31	63	0	63	89	5	94
Others	8	8	0	8	237	17	254	245	17	262
Total of medicinal plants	**12**	**34**	**5**	**39**	**337**	**17**	**354**	**371**	**22**	**393**
Grand total of horticulture	**126**	**1859**	**406**	**2265**	**1191**	**336**	**1527**	**3050**	**742**	**3792**
III Soil health and fertility management										
Balance use of fertilizers	9	71	51	122	24	47	71	95	98	193
Integrated nutrient management	9	207	59	266	107	55	162	314	114	428
Integrated water management	1	18	2	20	6	0	6	24	2	26
Management of problematic soils	2	12	3	15	27	4	31	39	7	46
Micronutrient deficiency in crops	4	30	4	34	32	7	39	62	11	73
Production and use of organic inputs	2	17	13	30	18	18	36	35	31	66
Soil and water testing	22	190	153	343	38	159	197	228	312	540
Soil fertility management	19	297	122	419	147	98	245	444	220	664
Others	1	27	0	27	3	0	3	30	0	30
Total of soil health	**69**	**869**	**407**	**1276**	**402**	**388**	**790**	**1271**	**795**	**2066**
IV. Livestock production and management										
Animal nutrition management	7	80	18	98	31	10	41	111	28	139
Dairy management	4	34	11	45	14	6	20	48	17	65
Disease management	7	71	18	89	47	9	56	118	27	145
Feed & fodder technology	7	82	19	101	33	13	46	115	32	147
Poultry management	3	47	5	52	22	9	31	69	14	83
Total of livestock	**28**	**314**	**71**	**385**	**147**	**47**	**194**	**461**	**118**	**579**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
V. Home Science/Women empowerment										
Design and development of low/minimum cost diet	2	2	58	60	0	9	9	2	67	69
Designing and development for high nutrient efficiency diet	18	32	363	395	30	294	324	62	657	719
Gender mainstreaming through shgs	2	0	36	36	2	37	39	2	73	75
Household food security by kitchen gardening and nutrition gardening	29	30	366	396	35	450	485	65	816	881
Location specific drudgery reduction technologies	6	0	27	27	70	71	141	70	98	168
Minimization of nutrient loss in processing	1	0	10	10	0	0	0	0	10	10
Processing and cooking	6	11	29	40	51	115	166	62	144	206
Rural crafts	1	0	16	16	0	0	0	0	16	16
Storage loss minimization techniques	1	0	12	12	0	0	0	0	12	12
Value addition	20	6	240	246	0	321	321	6	561	567
Women and childcare	4	1	25	26	20	58	78	21	83	104
Women empowerment	4	0	69	69	0	30	30	0	99	99
Others	3	0	65	65	0	58	58	0	123	123
Total of home science	**97**	**82**	**1316**	**1398**	**208**	**1443**	**1651**	**290**	**2759**	**3049**
VI. Agricultural engineering										
Farm machinery and its maintenance	9	234	13	247	60	18	78	294	31	325
Installation and maintenance of micro irrigation systems	2	35	9	44	8	3	11	43	12	55
Repair and maintenance of farm machinery and implements	1	21	6	27	9	3	12	30	9	39
Use of plastics in farming practices	1	3	0	3	29	0	29	32	0	32
Others	3	41	16	57	33	14	47	74	30	104
Total of agricultural engineering	**16**	**334**	**44**	**378**	**139**	**38**	**177**	**473**	**82**	**555**
VII. Plant protection										
Biocontrol of pests and diseases	6	10	0	10	134	9	143	144	9	153
Integrated disease management	23	420	80	500	273	68	341	693	148	841

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Integrated pest management	71	1614	284	1898	633	167	800	2247	451	2698
Production of biocontrol agents and bio pesticides	1	22	7	29	2	1	3	24	8	32
Others	13	257	57	314	128	37	165	385	94	479
Total of plant protection	**114**	**2323**	**428**	**2751**	**1170**	**282**	**1452**	**3493**	**710**	**4203**
VIII. Fisheries										
Breeding and culture of ornamental fishes	1	11	0	11	9	0	9	20	0	20
Carp fry and fingerling rearing	3	105	0	105	30	0	30	135	0	135
Composite fish culture	6	144	15	159	59	6	65	203	21	224
Integrated fish farming	2	60	0	60	34	0	34	94	0	94
Others	14	149	4	153	273	3	276	422	7	429
Total of fisheries	**26**	**469**	**19**	**488**	**405**	**9**	**414**	**874**	**28**	**902**
IX. Production of inputs at site										
Apiculture	1	34	9	43	14	6	20	48	15	63
Bio-agents production	1	24	8	32	16	5	21	40	13	53
Bio-pesticides production	5	150	0	150	55	0	55	205	0	205
Mushroom production	1	65	31	96	4	0	4	69	31	100
Organic manures production	2	45	0	45	12	0	12	57	0	57
Vermicompost production	11	300	33	333	79	3	82	379	36	415
Total of inputs	**21**	**618**	**81**	**699**	**180**	**14**	**194**	**798**	**95**	**893**
X. Capacity building and group dynamics										
Entrepreneurial development of farmers/youths	7	97	72	169	43	31	74	140	103	243
Formation and management of SHGs	2	29	5	34	44	3	47	73	8	81
Group dynamics	2	53	7	60	12	5	17	65	12	77
Mobilization of social capital	2	45	10	55	9	5	14	54	15	69
Others	22	244	88	332	398	125	523	642	213	855
Total of capacity building	**35**	**468**	**182**	**650**	**506**	**169**	**675**	**974**	**351**	**1325**
Grand total	**683**	**9462**	**3552**	**13014**	**5877**	**3331**	**9208**	**15339**	**6883**	**22222**

Puducherry

In Puducherry, a total of 48 trainings were organized for 1194 men and 439 women farmers (Table 3.3.7). The highest number of trainings (13) was conducted on women empowerment in which 145 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			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I. Crop production										
Integrated crop management	3	74	20	94	16	11	27	90	31	121
Resource conservation technologies	1	12	1	13	4	5	9	16	6	22
Weed management	2	16	27	43	6	2	8	22	29	51
Others	2	11	20	31	2	12	14	13	32	45
Total of crop production	**8**	**113**	**68**	**181**	**28**	**30**	**58**	**141**	**98**	**239**
II. Horticulture										
a) Vegetable crops										
Others	2	26	20	46	1	4	5	27	24	51
b) Fruits										
Cultivation of fruit	2	85	0	85	15	0	15	100	0	100
Grand total of horticulture	**4**	**111**	**20**	**131**	**16**	**4**	**20**	**127**	**24**	**151**
III. Soil health and fertility management										
Integrated nutrient management	2	51	8	59	2	0	2	53	8	61
Nutrient use efficiency	2	34	10	44	2	0	2	36	10	46
Soil fertility management	4	125	40	165	28	8	36	153	48	201
Total of soil health	**8**	**210**	**58**	**268**	**32**	**8**	**40**	**242**	**66**	**308**
IV. Livestock production and management										
Disease management	2	21	3	24	5	12	17	26	15	41
Feed & fodder technology	1	7	5	12	1	1	2	8	6	14
Poultry management	2	31	2	33	0	1	1	31	3	34
Total of livestock	**5**	**59**	**10**	**69**	**6**	**14**	**20**	**65**	**24**	**89**
V. Home Science/Women empowerment										
Value addition	11	0	113	113	0	32	32	0	145	145
Women and child-care	2	0	0	0	0	0	0	0	0	0
Total of home science	**13**	**0**	**113**	**113**	**0**	**32**	**32**	**0**	**145**	**145**
VI. Agricultural engineering										
Use of plastics in farming practices	1	12	4	16	4	0	4	16	4	20

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Others	2	416	40	456	22	10	32	438	50	488
Total of agricultural engineering	**3**	**428**	**44**	**472**	**26**	**10**	**36**	**454**	**54**	**508**
VII. Plant protection										
Biocontrol of pests and diseases	1	26	0	26	0	0	0	26	0	26
Integrated pest management	2	57	5	62	6	0	6	63	5	68
Total of plant protection	**3**	**83**	**5**	**88**	**6**	**0**	**6**	**89**	**5**	**94**
VIII. Fisheries										
Integrated fish farming	1	0	14	14	0	1	1	0	15	15
Others	1	19	4	23	5	0	5	24	4	28
Total of fisheries	**2**	**19**	**18**	**37**	**5**	**1**	**6**	**24**	**19**	**43**
X Capacity building and group dynamics										
Others	2	44	2	46	8	2	10	52	4	56
Grand total	**48**	**1067**	**338**	**1405**	**127**	**101**	**228**	**1194**	**439**	**1633**

3.3.2. Rural Youth

Various training programmes on entrepreneurship development, employment creation and income generation in agriculture and allied areas among rural youth courses were conducted by the KVKs in Zone-X. A total of 631 courses were organized for 18163 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 326 trainings for 8663 rural youth (Table 3.3.9). KVKs in Andhra Pradesh conducted 153 training programmes for 4536 rural youth (Table 3.3.10). KVKs in Telangana conducted 145 trainings for 4834 participants (Table 3.3.11) and KVKs of Puducherry conducted 7 courses for 130 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	39	601	191	792	229	122	351	830	313	1143
Commercial fruit production	4	57	19	76	20	19	39	77	38	115
Composite fish culture	8	177	52	229	31	7	38	208	59	267
Dairying	7	102	64	166	27	36	63	129	100	229

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Fish harvest and processing technology	1	13	0	13	2	0	2	15	0	15
Fry and fingerling rearing	2	29	0	29	9	0	9	38	0	38
Integrated farming	28	560	152	712	148	57	205	708	209	917
Mushroom production	62	596	396	992	188	146	334	784	542	1326
Nursery management of horticulture crops	25	319	137	456	127	47	174	446	184	630
Ornamental fisheries	2	21	4	25	7	2	9	28	6	34
Piggery	1	3	0	3	12	0	12	15	0	15
Planting material production	6	89	57	146	12	15	27	101	72	173
Post-harvest technology	5	27	58	85	22	5	27	49	63	112
Poultry production	28	429	267	696	75	88	163	504	355	859
Production of organic inputs	32	559	126	685	156	58	214	715	184	899
Production of quality animal products	2	26	3	29	3	25	28	29	28	57
Protected cultivation of vegetable crops	12	93	126	219	24	38	62	117	164	281
Quail farming	2	10	3	13	0	41	41	10	44	54
Rabbit farming	1	28	4	32	0	0	0	28	4	32
Repair and maintenance of farm machinery and implements	11	112	462	574	57	91	148	169	553	722
Rural crafts	5	10	98	108	1	18	19	11	116	127
Seed production	29	488	54	542	99	13	112	587	67	654
Sericulture	8	154	21	175	37	6	43	191	27	218
Sheep and goat rearing	18	310	126	436	51	52	103	361	178	539
Shrimp farming	4	42	3	45	16	0	16	58	3	61
Small scale processing	10	14	66	80	32	60	92	46	126	172
Tailoring and stitching	5	0	123	123	0	52	52	0	175	175
Training and pruning of orchards	7	97	21	118	28	7	35	125	28	153
Value addition	80	368	1234	1602	73	500	573	441	1734	2175
Vermiculture / vermicomposting	62	1002	340	1342	332	87	419	1334	427	1761
Others	125	1712	1311	3023	615	572	1187	2327	1883	4210
Total	**631**	**8048**	**5518**	**13566**	**2433**	**2164**	**4597**	**10481**	**7682**	**18163**

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	25	415	143	558	152	60	212	567	203	770
Commercial fruit production	3	35	17	52	18	17	35	53	34	87
Composite fish culture	5	102	31	133	9	7	16	111	38	149
Dairying	6	98	46	144	25	34	59	123	80	203
Fry and fingerling rearing	1	11	0	11	6	0	6	17	0	17
Integrated farming	19	438	94	532	86	28	114	524	122	646
Mushroom Production	29	289	166	455	73	54	127	362	220	582
Nursery Management of Horticulture crops	7	50	53	103	15	11	26	65	64	129
Ornamental fisheries	2	21	4	25	7	2	9	28	6	34
Piggery	1	3	0	3	12	0	12	15	0	15
Planting material production	1	30	3	33	0	0	0	30	3	33
Post-harvest Technology	2	5	16	21	11	5	16	16	21	37
Poultry production	19	300	180	480	45	65	110	345	245	590
Production of organic inputs	15	213	68	281	46	40	86	259	108	367
Production of quality animal products	2	26	3	29	3	25	28	29	28	57
Protected cultivation of vegetable crops	6	39	51	90	10	10	20	49	61	110
Quail farming	2	10	3	13	0	41	41	10	44	54
Rabbit farming	1	28	4	32	0	0	0	28	4	32
Repair and maintenance of farm machinery and implements	1	30	0	30	7	0	7	37	0	37
Rural Crafts	4	10	85	95	1	16	17	11	101	112
Seed production	21	332	39	371	43	5	48	375	44	419
Sericulture	6	123	19	142	29	5	34	152	24	176
Sheep and goat rearing	12	231	104	335	34	40	74	265	144	409
Small scale processing	9	14	66	80	8	54	62	22	120	142
Training and pruning of orchards	6	84	21	105	12	4	16	96	25	121
Value addition	35	281	324	605	64	160	224	345	484	829
Vermiculture / Vermicomposting	20	319	103	422	75	31	106	394	134	528
Others	66	958	702	1660	165	153	318	1123	855	1978
Total	**326**	**4495**	**2345**	**6840**	**956**	**867**	**1823**	**5451**	**3212**	**8663**

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	7	109	36	145	30	29	59	139	65	204
Composite fish culture	1	22	0	22	8	0	8	30	0	30
Dairying	1	4	18	22	2	2	4	6	20	26
Integrated farming	4	67	5	72	28	2	30	95	7	102
Mushroom Production	27	291	157	448	110	89	199	401	246	647
Nursery Management of Horticulture crops	12	181	68	249	52	28	80	233	96	329
Planting material production	4	59	18	77	12	6	18	71	24	95
Post-harvest Technology	2	8	42	50	0	0	0	8	42	50
Poultry production	5	65	57	122	14	8	22	79	65	144
Production of organic inputs	10	163	43	206	37	4	41	200	47	247
Protected cultivation of vegetable crops	2	34	26	60	9	6	15	43	32	75
Seed production	5	112	12	124	24	7	31	136	19	155
Sheep and goat rearing	1	24	7	31	11	8	19	35	15	50
Shrimp farming	4	42	3	45	16	0	16	58	3	61
Small scale processing	1	0	0	0	24	6	30	24	6	30
Training and pruning of orchards	1	13	0	13	16	3	19	29	3	32
Value addition	28	87	461	548	9	158	167	96	619	715
Vermiculture / Vermicomposting	11	182	82	264	81	14	95	263	96	359
Others	27	272	473	745	145	295	440	417	768	1185
Total	**153**	**1735**	**1508**	**3243**	**628**	**665**	**1293**	**2363**	**2173**	**4536**

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	7	77	12	89	47	33	80	124	45	169
Commercial fruit production	1	22	2	24	2	2	4	24	4	28
Composite fish culture	2	53	21	74	14	0	14	67	21	88
Fish harvest and processing technology	1	13	0	13	2	0	2	15	0	15

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	18	0	18	3	0	3	21	0	21
Integrated farming	5	55	53	108	34	27	61	89	80	169
Mushroom production	2	16	9	25	5	3	8	21	12	33
Nursery management of horticulture crops	6	88	16	104	60	8	68	148	24	172
Planting material production	1	0	36	36	0	9	9	0	45	45
Post-harvest technology	1	14	0	14	11	0	11	25	0	25
Poultry production	3	64	14	78	16	6	22	80	20	100
Production of organic inputs	7	183	15	198	73	14	87	256	29	285
Protected cultivation of vegetable crops	4	20	49	69	5	22	27	25	71	96
Repair and maintenance of farm machinery and implements	10	82	462	544	50	91	141	132	553	685
Rural crafts	1	0	13	13	0	2	2	0	15	15
Seed production	3	44	3	47	32	1	33	76	4	80
Sericulture	2	31	2	33	8	1	9	39	3	42
Sheep and goat rearing	5	55	15	70	6	4	10	61	19	80
Tailoring and stitching	5	0	123	123	0	52	52	0	175	175
Value addition	17	0	449	449	0	182	182	0	631	631
Vermiculture/Vermicomposting	30	489	151	640	176	42	218	665	193	858
Others	31	467	129	596	302	124	426	769	253	1022
Total	**145**	**1791**	**1574**	**3365**	**846**	**623**	**1469**	**2637**	**2197**	**4834**

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	4	0	64	64	0	0	0	0	64	64
Poultry production	1	0	16	16	0	9	9	0	25	25
Vermiculture / Vermicomposting	1	12	4	16	0	0	0	12	4	16
Others	1	15	7	22	3	0	3	18	7	25
Total	**7**	**27**	**91**	**118**	**3**	**9**	**12**	**30**	**100**	**130**

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 662 trainings were conducted in which 30588 Extension Functionaries participated and benefited (Table 3.3.13). Among various areas of training, the highest number of 107 trainings were conducted on integrated pest management followed by productivity enhancement in crops (105). KVKs of Tamil Nadu conducted 271 trainings for 9754 participants (Table 3.3.14). KVKs of Andhra Pradesh conducted 294 trainings for 16850 participants (Table 3.3.15). KVKs of Telangana organized 95 programmes for 3939 participants (Table 3.3.16) and KVKs of Puducherry conducted 2 programmes for 45 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	30	756	357	1113	0	0	0	756	357	1113
Care and maintenance of farm machinery and implements	7	149	47	196	182	20	202	331	67	398
Formation and management of SHGs	4	291	118	409	73	42	115	364	160	524
Gender mainstreaming through SHGs	5	30	146	176	7	32	39	37	178	215
Group dynamics and farmers organization	15	164	79	243	59	44	103	223	123	346
Household and food security	56	163	1487	1650	81	892	973	244	2379	2623
Information networking among farmers	4	47	26	73	19	15	34	66	41	107
Integrated nutrient management	50	1181	583	1764	349	218	567	1530	801	2331
Integrated pest management	107	2550	1591	4141	547	439	986	3097	2030	5127
Livestock feed and fodder production	16	316	103	419	48	45	93	364	148	512
Low cost and nutrient efficient diet designing	22	64	383	447	23	130	153	87	513	600
Management in farm animals	14	474	118	592	62	42	104	536	160	696
Production and use of organic inputs	22	288	174	462	128	99	227	416	273	689
Productivity enhancement in field crops	105	3561	1467	5028	781	489	1270	4342	1956	6298
Protected cultivation technology	22	475	240	715	85	72	157	560	312	872
Rejuvenation of old orchards	11	143	116	259	31	66	97	174	182	356
Women and childcare	58	48	2178	2226	10	790	800	58	2968	3026
Others	114	2077	1753	3830	527	398	925	2604	2151	4755
Total	**662**	**12777**	**10966**	**23743**	**3012**	**3833**	**6845**	**15789**	**14799**	**30588**

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	8	178	66	244	0	0	0	178	66	244
Care and maintenance of farm machinery and implements	3	43	30	73	17	16	33	60	46	106
Formation and management of SHGs	2	30	15	45	15	16	31	45	31	76
Gender mainstreaming through SHGs	1	30	3	33	7	5	12	37	8	45
Group dynamics and farmers organization	3	59	32	91	22	19	41	81	51	132
Household and food security	20	77	441	518	35	239	274	112	680	792
Information networking among farmers	4	47	26	73	19	15	34	66	41	107
Integrated nutrient management	15	290	107	397	51	32	83	341	139	480
Integrated pest management	34	530	221	751	111	49	160	641	270	911
Livestock feed and fodder production	8	114	63	177	22	21	43	136	84	220
Low cost and nutrient efficient diet designing	16	40	257	297	23	86	109	63	343	406
Management in farm animals	8	172	52	224	19	26	45	191	78	269
Production and use of organic inputs	7	49	103	152	39	71	110	88	174	262
Productivity enhancement in field crops	42	1076	470	1546	110	132	242	1186	602	1788
Protected cultivation technology	8	141	54	195	35	38	73	176	92	268
Rejuvenation of old orchards	1	4	4	8	6	11	17	10	15	25
Women and childcare	24	5	766	771	5	213	218	10	979	989
Others	67	1141	1201	2342	112	180	292	1253	1381	2634
Total	**271**	**4026**	**3911**	**7937**	**648**	**1169**	**1817**	**4674**	**5080**	**9754**

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	15	375	229	604	0	0	0	375	229	604
Care and maintenance of farm machinery and implements	2	58	8	66	144	0	144	202	8	210
Formation and management of SHGs	1	240	85	325	42	15	57	282	100	382

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Gender mainstreaming through SHGs	3	0	113	113	0	21	21	0	134	134
Group dynamics and farmers organization	12	105	47	152	37	25	62	142	72	214
Household and food security	27	79	854	933	42	523	565	121	1377	1498
Integrated nutrient management	31	825	450	1275	255	150	405	1080	600	1680
Integrated pest management	56	1752	1264	3016	380	312	692	2132	1576	3708
Livestock feed and fodder production	5	159	32	191	17	22	39	176	54	230
Low cost and nutrient efficient diet designing	3	24	52	76	0	11	11	24	63	87
Management in farm animals	6	302	66	368	43	16	59	345	82	427
Production and use of organic inputs	6	126	34	160	37	11	48	163	45	208
Productivity enhancement in field crops	54	2306	860	3166	576	276	852	2882	1136	4018
Protected cultivation technology	10	279	99	378	24	20	44	303	119	422
Rejuvenation of old orchards	6	116	39	155	22	21	43	138	60	198
Women and childcare	24	43	989	1032	5	493	498	48	1482	1530
Others	33	542	397	939	230	131	361	772	528	1300
Total	**294**	**7331**	**5618**	**12949**	**1854**	**2047**	**3901**	**9185**	**7665**	**16850**

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	7	203	62	265	0	0	0	203	62	265
Care and maintenance of farm machinery and implements	2	48	9	57	21	4	25	69	13	82
Formation and management of SHGs	1	21	18	39	16	11	27	37	29	66
Gender mainstreaming through SHGs	1	0	30	30	0	6	6	0	36	36
Household and food security	9	7	192	199	4	130	134	11	322	333
Integrated nutrient management	4	66	26	92	43	36	79	109	62	171
Integrated pest management	17	268	106	374	56	78	134	324	184	508
Livestock feed and fodder production	3	43	8	51	9	2	11	52	10	62

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	74	74	0	33	33	0	107	107
Production and use of organic inputs	9	113	37	150	52	17	69	165	54	219
Productivity enhancement in field crops	9	179	137	316	95	81	176	274	218	492
Protected cultivation technology	4	55	87	142	26	14	40	81	101	182
Rejuvenation of old orchards	4	23	73	96	3	34	37	26	107	133
Women and childcare	9	0	399	399	0	83	83	0	482	482
Others	13	376	154	530	184	87	271	560	241	801
Total	**95**	**1402**	**1412**	**2814**	**509**	**616**	**1125**	**1911**	**2028**	**3939**

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
Women and childcare	1	0	24	24	0	1	1	0	25	25
Others	1	18	1	19	1	0	1	19	1	20
Total	**2**	**18**	**25**	**43**	**1**	**1**	**2**	**19**	**26**	**45**

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 578 sponsored training programmes were conducted for 23081 youth in Zone-X (Table 3.3.18). Maximum number of courses were conducted on crop production and management (208) followed by home science (95), production and value addition (86), livestock and fisheries (73), agricultural extension (60), *etc*. (Table 3.3.19). KVKs in Tamil Nadu organized 418 training programmes for 15591 participants (Table 3.3.20). KVKs in Andhra Pradesh conducted 118 trainings for 5418 participants (Table 3.3.21). KVKs of Telangana organized 33 trainings for 1360 participants (Table 3.3.22) and KVKs of Puducherry conducted 9 trainings for 712 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	418	8904	3779	12683	1302	1606	2908	10206	5385	15591
Andhra Pradesh	118	1840	1280	3120	1000	1298	2298	2840	2578	5418
Telangana	33	559	188	747	474	139	613	1033	327	1360
Puducherry	9	531	128	659	43	10	53	574	138	712
Total	**578**	**11834**	**5375**	**17209**	**2819**	**3053**	**5872**	**14653**	**8428**	**23081**

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	29	660	222	882	185	75	260	845	297	1142
Increasing production and productivity of crops	90	2310	704	3014	399	219	618	2709	923	3632
Others	89	2129	711	2840	677	213	890	2806	924	3730
Total crop production trainings	**208**	**5099**	**1637**	**6736**	**1261**	**507**	**1768**	**6360**	**2144**	**8504**
Production and value addition										
Fruit Plants	13	341	33	374	40	6	46	381	39	420
Methods of protective cultivation	9	262	26	288	35	5	40	297	31	328
Production of Inputs at site	3	73	6	79	7	5	12	80	11	91
Soil health and fertility management	28	821	103	924	113	52	165	934	155	1089
Others	33	958	193	1151	277	152	429	1235	345	1580
Total Production and value addition trainings	**86**	**2455**	**361**	**2816**	**472**	**220**	**692**	**2927**	**581**	**3508**
Post-harvest technology and value addition										
Processing and value addition	33	452	315	767	113	104	217	565	419	984
Others	5	68	67	135	13	23	36	81	90	171
Total PHT and VA	**38**	**520**	**382**	**902**	**126**	**127**	**253**	**646**	**509**	**1155**
Farm machinery										
Farm machinery, tools and implements	7	97	59	156	21	14	35	118	73	191
Others	11	532	123	655	23	35	58	555	158	713
Total FM	**18**	**629**	**182**	**811**	**44**	**49**	**93**	**673**	**231**	**904**
Livestock and fisheries										
Animal disease management	3	101	31	132	13	4	17	114	35	149
Animal nutrition management	5	77	52	129	23	10	33	100	62	162
Fisheries management	11	181	36	217	73	18	91	254	54	308
Fisheries nutrition	2	23	43	66	3	31	34	26	74	100
Livestock production and management	19	327	96	423	77	86	163	404	182	586
Others	33	435	427	862	116	459	575	551	886	1437
Total LS and F	**73**	**1144**	**685**	**1829**	**305**	**608**	**913**	**1449**	**1293**	**2742**
Home Science										
Drudgery reduction of women	2	1	35	36	1	29	30	2	64	66
Economic empowerment of women	17	60	229	289	19	291	310	79	520	599

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Household nutritional security	10	128	352	480	65	109	174	193	461	654
Others	66	749	950	1699	168	935	1103	917	1885	2802
Total HS	**95**	**938**	**1566**	**2504**	**253**	**1364**	**1617**	**1191**	**2930**	**4121**
Agricultural extension										
Capacity building and group dynamics	12	309	160	469	65	26	91	374	186	560
Others	48	740	402	1142	293	152	445	1033	554	1587
Total AE	**60**	**1049**	**562**	**1611**	**358**	**178**	**536**	**1407**	**740**	**2147**
Grand total	**578**	**11834**	**5375**	**17209**	**2819**	**3053**	**5872**	**14653**	**8428**	**23081**

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	22	513	215	728	118	61	179	631	276	907
Increasing production and productivity of crops	83	2104	664	2768	376	205	581	2480	869	3349
Others	66	1783	636	2419	134	143	277	1917	779	2696
Total crop production trainings	**171**	**4400**	**1515**	**5915**	**628**	**409**	**1037**	**5028**	**1924**	**6952**
Production and value addition										
Fruit Plants	4	109	8	117	0	0	0	109	8	117
Methods of protective cultivation	8	247	26	273	35	5	40	282	31	313
Production of Inputs at site	2	61	2	63	7	5	12	68	7	75
Soil health and fertility management	27	821	103	924	92	43	135	913	146	1059
Others	21	398	76	474	59	46	105	457	122	579
Total production and value addition trainings	**62**	**1636**	**215**	**1851**	**193**	**99**	**292**	**1829**	**314**	**2143**
Post-harvest technology and value addition										
Processing and value addition	29	410	270	680	41	79	120	451	349	800
Others	1	33	7	40	0	0	0	33	7	40
Total PHT and VA	**30**	**443**	**277**	**720**	**41**	**79**	**120**	**484**	**356**	**840**
Farm machinery										
Farm machinery, tools and implements	3	49	16	65	2	4	6	51	20	71
Others	9	116	83	199	1	25	26	117	108	225
Total FM	**12**	**165**	**99**	**264**	**3**	**29**	**32**	**168**	**128**	**296**

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Livestock and fisheries										
Animal disease management	3	101	31	132	13	4	17	114	35	149
Animal nutrition management	4	77	27	104	23	10	33	100	37	137
Fisheries management	8	134	36	170	30	18	48	164	54	218
Fisheries nutrition	1	23	22	45	3	2	5	26	24	50
Livestock production and management	19	327	96	423	77	86	163	404	182	586
Others	27	355	420	775	91	458	549	446	878	1324
Total LS and F	**62**	**1017**	**632**	**1649**	**237**	**578**	**815**	**1254**	**1210**	**2464**
Home Science										
Drudgery reduction of women	2	1	35	36	1	29	30	2	64	66
Economic empowerment of women	8	50	189	239	14	108	122	64	297	361
Household nutritional security	4	53	105	158	15	48	63	68	153	221
Others	38	555	438	993	111	161	272	666	599	1265
Total HS	**52**	**659**	**767**	**1426**	**141**	**346**	**487**	**800**	**1113**	**1913**
Agricultural extension										
Capacity building and group dynamics	10	266	90	356	31	25	56	297	115	412
Others	19	318	184	502	28	41	69	346	225	571
Total AE	29	584	274	858	59	66	125	643	340	983
Grand total	**418**	**8904**	**3779**	**12683**	**1302**	**1606**	**2908**	**10206**	**5385**	**15591**

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	3	31	4	35	29	11	40	60	15	75
Increasing production and productivity of crops	6	190	38	228	22	13	35	212	51	263
Others	16	227	59	286	377	47	424	604	106	710
Total crop production trainings	**25**	**448**	**101**	**549**	**428**	**71**	**499**	**876**	**172**	**1048**
Production and value addition										
Fruit Plants	9	232	25	257	40	6	46	272	31	303
Soil health and fertility management	1	0	0	0	21	9	30	21	9	30
Others	8	350	27	377	81	38	119	431	65	496
Total Production and value addition trainings	**18**	**582**	**52**	**634**	**142**	**53**	**195**	**724**	**105**	**829**

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Post-harvest technology and value addition										
Processing and value addition	2	42	45	87	12	25	37	54	70	124
Others	2	4	60	64	1	23	24	5	83	88
Total PHT and VA	**4**	**46**	**105**	**151**	**13**	**48**	**61**	**59**	**153**	**212**
Farm machinery										
Farm machinery, tools and implements	1	8	13	21	4	5	9	12	18	30
Total FM	**1**	**8**	**13**	**21**	**4**	**5**	**9**	**12**	**18**	**30**
Livestock and fisheries										
Fisheries management	1	14	0	14	6	0	6	20	0	20
Others	1	20	0	20	5	0	5	25	0	25
Total LS and F	**2**	**34**	**0**	**34**	**11**	**0**	**11**	**45**	**0**	**45**
Home Science										
Economic empowerment of women	7	0	0	0	0	180	180	0	180	180
Household nutritional security	6	75	247	322	50	61	111	125	308	433
Others	24	182	474	656	53	768	821	235	1242	1477
Total HS	**37**	**257**	**721**	**978**	**103**	**1009**	**1112**	**360**	**1730**	**2090**
Agricultural extension										
Capacity building and group dynamics	2	43	70	113	34	1	35	77	71	148
Others	29	422	218	640	265	111	376	687	329	1016
Total AE	**31**	**465**	**288**	**753**	**299**	**112**	**411**	**764**	**400**	**1164**
Grand total	**118**	**1840**	**1280**	**3120**	**1000**	**1298**	**2298**	**2840**	**2578**	**5418**

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										
Commercial production of vegetables	2	34	3	37	20	3	23	54	6	60
Increasing production and productivity of crops	1	16	2	18	1	1	2	17	3	20
Others	7	119	16	135	166	23	189	285	39	324
Total crop production trainings	**10**	**169**	**21**	**190**	**187**	**27**	**214**	**356**	**48**	**404**
Production and value addition										
Methods of protective cultivation	1	15	0	15	0	0	0	15	0	15
Others	4	210	90	300	137	68	205	347	158	505
Total production and value addition trainings	**5**	**225**	**90**	**315**	**137**	**68**	**205**	**362**	**158**	**520**

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Post-harvest technology and value addition										
Processing and value addition	2	0	0	0	60	0	60	60	0	60
Others	2	31	0	31	12	0	12	43	0	43
Total PHT and VA	**4**	**31**	**0**	**31**	**72**	**0**	**72**	**103**	**0**	**103**
Farm machinery										
Farm machinery, tools and implements	3	40	30	70	15	5	20	55	35	90
Total FM	**3**	**40**	**30**	**70**	**15**	**5**	**20**	**55**	**35**	**90**
Livestock and fisheries										
Fisheries management	2	33	0	33	37	0	37	70	0	70
Fisheries nutrition	1	0	21	21	0	29	29	0	50	50
Others	4	45	0	45	17	1	18	62	1	63
Total LS and F	**7**	**78**	**21**	**99**	**54**	**30**	**84**	**132**	**51**	**183**
Home Science										
Economic empowerment of women	1	10	7	17	5	3	8	15	10	25
Others	3	6	19	25	4	6	10	10	25	35
Total HS	4	16	26	42	9	9	18	25	35	60
Grand total	**33**	**559**	**188**	**747**	**474**	**139**	**613**	**1033**	**327**	**1360**

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										
Commercial production of vegetables	2	82	0	82	18	0	18	100	0	100
Production and value addition										
Production of Inputs at site	1	12	4	16	0	0	0	12	4	16
Farm machinery										
Others	2	416	40	456	22	10	32	438	50	488
Total FM	2	416	40	456	22	10	32	438	50	488
Livestock and fisheries										
Animal nutrition management	1	0	25	25	0	0	0	0	25	25
Others	1	15	7	22	3	0	3	18	7	25
Total LS and F	**2**	**15**	**32**	**47**	**3**	**0**	**3**	**18**	**32**	**50**
Home Science										
Economic empowerment of women	1	0	33	33	0	0	0	0	33	33
Others	1	6	19	25	0	0	0	6	19	25
Total HS	**2**	**6**	**52**	**58**	**0**	**0**	**0**	**6**	**52**	**58**
Grand total	**9**	**531**	**128**	**659**	**43**	**10**	**53**	**574**	**138**	**712**

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 210 vocational training courses were conducted in which 3549 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 (139) followed by post-harvest technologies value addition (35) and crop production and management (25), *etc*. (Table 3.3.25). KVKs in Tamil Nadu conducted 151 courses for 1931 farmers and farmwomen (Table 3.3.26). KVKs in Andhra Pradesh organized 30 coursed in which 785 participants (Table 3.3.27). In Telangana 28 courses were organized with the participation of 808 people (Table 3.3.28). In Puducherry state 1 course was organized for 25 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	151	693	611	1304	199	428	627	892	1039	1931
Andhra Pradesh	30	152	372	524	147	114	261	299	486	785
Telangana	28	362	184	546	110	152	262	472	336	808
Puducherry	1	9	8	17	3	5	8	12	13	25
Total	**210**	**1216**	**1175**	**2391**	**459**	**699**	**1158**	**1675**	**1874**	**3549**

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 vegetable production	1	0	0	0	22	8	30	22	8	30
Integrated crop management	3	28	27	55	22	13	35	50	40	90
Organic farming	10	100	32	132	26	33	59	126	65	191
Others	11	66	77	143	47	63	110	113	140	253
Total CPM	**25**	**194**	**136**	**330**	**117**	**117**	**234**	**311**	**253**	**564**
Post-harvest technology and value addition										
Value addition	32	186	445	631	87	162	249	273	607	880
Others	3	47	36	83	2	10	12	49	46	95
Total PHT and VA	**35**	**233**	**481**	**714**	**89**	**172**	**261**	**322**	**653**	**975**
Livestock and fisheries										
Dairy farming	2	15	10	25	6	73	79	21	83	104
Poultry farming	5	54	41	95	16	21	37	70	62	132
Sheep and goat rearing	1	12	0	12	3	0	3	15	0	15
Others	2	9	8	17	3	35	38	12	43	55
Total LS and F	**10**	**90**	**59**	**149**	**28**	**129**	**157**	**118**	**188**	**306**

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Income generation activities										
Agril. para-workers, para-vet training	1	2	17	19	0	1	1	2	18	20
Implements	1	45	12	57	8	3	11	53	15	68
Biofertilizers	1	0	0	0	0	0	0	0	0	0
Mushroom cultivation	10	77	96	173	46	34	80	123	130	253
Nursery, grafting	3	19	14	33	8	39	47	27	53	80
Production of bioagents, biopesticides	1	7	7	14	1	0	1	8	7	15
Repair and maintenance of farm machinery	6	14	0	14	22	9	31	36	9	45
Rural crafts	2	1	45	46	0	10	10	1	55	56
Seed production	4	54	13	67	19	6	25	73	19	92
Tailoring, stitching, embroidery, dying	4	13	30	43	1	64	65	14	94	108
Vermicomposting	45	327	144	471	91	80	171	418	224	642
Others	61	121	103	224	23	30	53	144	133	277
Total IGA	**139**	**680**	**481**	**1161**	**219**	**276**	**495**	**899**	**757**	**1656**
Agricultural extension										
Capacity building and group dynamics	1	19	18	37	6	5	11	25	23	48
Grand Total	**210**	**1216**	**1175**	**2391**	**459**	**699**	**1158**	**1675**	**1874**	**3549**

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										
Integrated crop management	2	28	27	55	5	0	5	33	27	60
Organic farming	5	76	27	103	6	22	28	82	49	131
Others	7	42	36	78	39	53	92	81	89	170
Total CPM	**14**	**146**	**90**	**236**	**50**	**75**	**125**	**196**	**165**	**361**
Post-harvest technology and value addition										
Value addition	21	162	223	385	39	97	136	201	320	521
Others	3	47	36	83	2	10	12	49	46	95
Total PHT and VA	**24**	**209**	**259**	**468**	**41**	**107**	**148**	**250**	**366**	**616**
Livestock and fisheries										
Dairy farming	2	15	10	25	6	73	79	21	83	104
Poultry farming	5	54	41	95	16	21	37	70	62	132
Sheep and goat rearing	1	12	0	12	3	0	3	15	0	15
Others	1	0	0	0	0	30	30	0	30	30
Total LS and F	**9**	**81**	**51**	**132**	**25**	**124**	**149**	**106**	**175**	**281**

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Income generation activities										
Agril. para-workers, para-vet training	1	2	17	19	0	1	1	2	18	20
Bio-fertilizers	1	0	0	0	0	0	0	0	0	0
Mushroom cultivation	6	71	47	118	18	19	37	89	66	155
Nursery, grafting	1	11	12	23	5	7	12	16	19	35
Repair and maintenance of farm machinery	6	14	0	14	22	9	31	36	9	45
Rural crafts	1	1	13	14	0	2	2	1	15	16
Seed production	3	43	13	56	10	6	16	53	19	72
Tailoring, stitching, embroidery, dying	1	13	12	25	1	2	3	14	14	28
Vermicomposting	28	20	16	36	11	57	68	31	73	104
Others	55	63	63	126	10	14	24	73	77	150
Total IGA	**103**	**238**	**193**	**431**	**77**	**117**	**194**	**315**	**310**	**625**
Agricultural Extension										
Capacity building and group dynamics	1	19	18	37	6	5	11	25	23	48
Grand Total	**151**	**693**	**611**	**1304**	**199**	**428**	**627**	**892**	**1039**	**1931**

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	22	8	30	22	8	30
Integrated crop management	1	0	0	0	17	13	30	17	13	30
Organic farming	4	18	2	20	14	6	20	32	8	40
Others	2	0	40	40	0	2	2	0	42	42
Total CPM	**8**	**18**	**42**	**60**	**53**	**29**	**82**	**71**	**71**	**142**
Post-harvest technology and value addition										
Value addition	8	24	202	226	18	25	43	42	227	269
Income generation activities										
Implements	1	45	12	57	8	3	11	53	15	68
Mushroom cultivation	4	6	49	55	28	15	43	34	64	98
Nursery, grafting	1	8	2	10	3	2	5	11	4	15
Production of bio-agents, bio-pesticides	1	7	7	14	1	0	1	8	7	15
Seed production	1	11	0	11	9	0	9	20	0	20
Tailoring, stitching, embroidery, dying	1	0	18	18	0	12	12	0	30	30
Vermicomposting	1	0	0	0	18	12	30	18	12	30
Others	4	33	40	73	9	16	25	42	56	98
Grand Total	**30**	**152**	**372**	**524**	**147**	**114**	**261**	**299**	**486**	**785**

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										
Organic farming	1	6	3	9	6	5	11	12	8	20
Others	2	24	1	25	8	8	16	32	9	41
Total CPM	**3**	**30**	**4**	**34**	**14**	**13**	**27**	**44**	**17**	**61**
Post-harvest technology and value addition										
Value addition	3	0	20	20	30	40	70	30	60	90
Income generation activities										
Nursery, grafting	1	0	0	0	0	30	30	0	30	30
Rural crafts	1	0	32	32	0	8	8	0	40	40
Tailoring, stitching, embroidery, dying	2	0	0	0	0	50	50	0	50	50
Vermicomposting	16	307	128	435	62	11	73	369	139	508
Others	2	25	0	25	4	0	4	29	0	29
Total IGA	22	332	160	492	66	99	165	398	259	657
Grand Total	**28**	**362**	**184**	**546**	**110**	**152**	**262**	**472**	**336**	**808**

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
Livestock and fisheries	**1**	**9**	**8**	**17**	**3**	**5**	**8**	**12**	**13**	**25**

Training on mushroom cultivation - KVK Ananthapuram (Reddipalli)

Training on nutri-garden - KVK Krishnagiri

Training on operation and maintenance of machineries - KVK Vellore

Training on production and processing of millets - KVK East Godavari (Pandirimamidi)

Training on drip irrigation - KVK East Godavari (Pandirimamidi)

Training on handling of bees - KVk East Godavari (Pandirimamidi)

Training on value addition - KVK Vellore

Training on micro-irrigation - KVK Vellore

Training on value addition to amla - KVK Tirunelveli

Training on mechanical weed management in pulses - KVK Vellore

Training on BPH management in rice - KVK Nizamabad

Training on biocontrol agents production - KVK Salem

Training on Integrated Development of Small Ruminants and Rabbits - KVK Nagapattinam

Training on disaster management - KV Nagapattinam

Training on value addition - KVK Khammam (Kothagudem)

Training on creep ration to lambs and flushing ration for pregnant ewes - KVK Kadapa (Utukur)

Training on value added millets - KVK Tiruvallur (TN)

Vocational training on value added millets - KVK Chittoor (Kalikiri)

Vocational training on value added millets - KVK Ramanathapuram (TN)

EDP on bakery products - KVK Tiruvallur

3.4. Extension Activities

KVKs organized 45841 extension activities for creating awareness about latest improved agricultural technologies in which 2977732 farmers and 41498 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 26766 extension activities for 686853 farmers and Extension Personnel (Table 3.4.3). KVKs in Andhra Pradesh organized 12901 extension activities in which 1283923 persons participated (Table 3.4.4). In Telangana, 4992 activities were organized with 1015653 participants (Table 3.4.5). In Puducherry 1182 extension activities were organized with 32801 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	26766	671552	15301	686853
Andhra Pradesh	12901	1265182	18741	1283923
Telangana	4992	1008819	6834	1015653
Puducherry	1182	32179	622	32801
Total	**45841**	**2977732**	**41498**	**3019230**

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	21228	2389989	1105	9487	22333	2399476
Attended as resource person	1729	56581	392	9091	2121	65672
Awareness programmes on PPV & FRA	74	2813	4	90	78	2903
Celebration of important days	471	26894	130	2195	601	29089
Diagnostic visits	3280	25071	335	2582	3615	27653
Exhibition	228	123030	115	2868	343	125898
Exposure visits	232	7970	36	388	268	8358
Ex-trainees Sammelan	11	4551	1	18	12	4569
Farm Science Club	71	2759	3	129	74	2888
Farmers' seminar/workshop	158	7633	23	731	181	8364
Field Day	477	13802	101	810	578	14612
Film Show	398	16509	57	1130	455	17639
Group discussions	1024	15442	93	1608	1117	17050
Kisan Ghosthi	246	10198	12	568	258	10766
Kisan Mela	82	50813	19	1512	101	52325
Mana Telangana – Mana Vyavasayam	5	150	2	20	7	170
Method Demonstrations	1951	32502	169	1604	2120	34106

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	159	8921	18	409	177	9330
Scientists' visit to farmers field	5645	30558	325	1408	5970	31966
Self -help groups	138	3357	7	59	145	3416
Special day celebration	456	16929	54	1858	510	18787
Others	4565	131260	212	2933	4777	134193
Total	**42628**	**2977732**	**3213**	**41498**	**45841**	**3019230**

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	12887	316402	728	2113	13615	318515
Attended as resource person	997	20145	166	2091	1163	22236
Awareness programmes on PPV & FRA	28	1252	2	52	30	1304
Celebration of important days	193	11148	49	993	242	12141
Diagnostic visits	1438	10256	131	1235	1569	11491
Exhibition	136	90814	63	1025	199	91839
Exposure visits	171	6337	29	156	200	6493
Ex-trainees Sammelan	4	110	1	18	5	128
Farm Science Club	63	1927	1	65	64	1992
Farmers' seminar/workshop	46	4803	13	492	59	5295
Field Day	231	6458	53	284	284	6742
Film Show	351	13595	52	946	403	14541
Group discussions	308	4943	45	755	353	5698
Kisan Ghosthi	37	3706	2	135	39	3841
Kisan Mela	38	21449	2	563	40	22012
Mana Telangana – Mana Vyavasayam	0	0	1	15	1	15
Method Demonstrations	1269	22050	95	671	1364	22721
Plant/animal health camps	72	6264	7	187	79	6451
Scientists' visit to farmers field	2558	14279	193	395	2751	14674
Self -help groups	104	2180	4	25	108	2205
Special day celebration	118	5702	19	528	137	6230
Others	3918	107732	143	2557	4061	110289
Total	**24967**	**671552**	**1799**	**15301**	**26766**	**686853**

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	6080	1138257	196	5557	6276	1143814
Attended as resource person	442	22118	169	4764	611	26882
Awareness programmes on PPV & FRA	10	457	1	5	11	462
Celebration of important days	155	9255	48	801	203	10056
Diagnostic visits	1235	9341	102	907	1337	10248
Exhibition	67	11765	42	1528	109	13293
Exposure visits	32	871	4	154	36	1025
Ex-trainees Sammelan	7	4441	0	0	7	4441
Farm Science Club	7	792	2	64	9	856
Farmers' seminar/workshop	84	1209	7	146	91	1355
Field Day	173	4426	35	423	208	4849
Film Show	14	1434	3	104	17	1538
Group discussions	511	7078	39	622	550	7700
Kisan Ghosthi	186	4926	7	251	193	5177
Kisan Mela	32	15102	15	784	47	15886
Mana Telangana – Mana Vyavas-ayam	0	0	0	0	0	0
Method Demonstrations	520	7640	53	822	573	8462
Plant/animal health camps	52	2121	8	180	60	2301
Scientists' visit to farmers field	1765	9661	86	689	1851	10350
Self -help groups	28	1049	2	24	30	1073
Special day celebration	270	9025	23	821	293	9846
Others	338	4214	51	95	389	4309
Total	**12008**	**1265182**	**893**	**18741**	**12901**	**1283923**

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	1646	934280	162	1775	1808	936055
Attended as resource person	247	12223	51	2157	298	14380
Awareness programmes on PPV & FRA	36	1104	1	33	37	1137
Celebration of important days	118	6336	29	379	147	6715
Diagnostic visits	583	5405	95	428	678	5833
Exhibition	22	5379	9	312	31	5691
Exposure visits	27	722	3	78	30	800

Activities	No. of programmes to Farmers	No. of farmers	No. of programmes to Extension Personnel	No. of Extension Personnel	Total Programmes	Total Participants
Ex-trainees Sammelan	0	0	0	0	0	0
Farm Science Club	1	40	0	0	1	40
Farmers' seminar/workshop	25	1269	0	0	25	1269
Field Day	69	2831	9	86	78	2917
Film Show	28	1226	2	80	30	1306
Group discussions	198	3204	7	197	205	3401
Kisan Ghosthi	21	1151	3	182	24	1333
Kisan Mela	11	4262	2	165	13	4427
Mana Telangana – Mana Vyavas-ayam	5	150	1	5	6	155
Method Demonstrations	135	2353	18	63	153	2416
Plant/animal health camps	35	536	3	42	38	578
Scientists' visit to farmers field	1194	6344	21	225	1215	6569
Self -help groups	2	100	1	10	3	110
Special day celebration	68	2202	12	509	80	2711
Others	88	17702	4	108	92	17810
Total	**4559**	**1008819**	**433**	**6834**	**4992**	**1015653**

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	615	1050	19	42	634	1092
Attended as resource person	43	2095	6	79	49	2174
Awareness programmes on PPV & FRA	0	0	0	0	0	0
Celebration of important days	5	155	4	22	9	177
Diagnostic visits	24	69	7	12	31	81
Exhibition	3	15072	1	3	4	15075
Exposure visits	2	40	0	0	2	40
Ex-trainees Sammelan	0	0	0	0	0	0
Farm Science Club	0	0	0	0	0	0
Farmers' seminar/work-shop	3	352	3	93	6	445
Field Day	4	87	4	17	8	104
Film Show	5	254	0	0	5	254

Activities	No. of programmes to Farmers	No. of farmers	No. of programmes to Extension Personnel	No. of Extension Personnel	Total Programmes	Total Participants
Group discussions	7	217	2	34	9	251
Kisan Ghosthi	2	415	0	0	2	415
Kisan Mela	1	10000	0	0	1	10000
Mana Telangana – Mana Vyavasayam	0	0	0	0	0	0
Method Demonstrations	27	459	3	48	30	507
Plant/animal health camps	0	0	0	0	0	0
Scientists' visit to farmers field	128	274	25	99	153	373
Self -help groups	4	28	0	0	4	28
Special day celebration	0	0	0	0	0	0
Others	221	1612	14	173	235	1785
Total	**1094**	**32179**	**88**	**622**	**1182**	**32801**

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)	7181
Bimonthly Newsletters (English, Tamil and Telugu)	94
Electronic Media (CD/DVD)	136
Exhibitions	227
Extension Literature	8690
Farmers visit to KVK	70856
Kisan melas	99
Lectures delivered as resource persons	2275
Newspaper coverage	4323
Popular articles	686
Radio Talks	549
Registration of farmers through AKPS	68357
Research articles	284
Success stories	257
TV Talks	701
Others	7680
Total	**172395**

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)	5031
Bimonthly Newsletters (English, Tamil and Telugu)	60
Electronic Media (CD/DVD)	98
Exhibitions	114
Extension Literature	6952
Farmers visit to KVK	29386
Kisan melas	36
Lectures delivered as resource persons	1395
Newspaper coverage	942
Popular articles	244
Radio Talks	303
Registration of farmers through AKPS	8219
Research articles	151
Success stories	150
TV Talks	256
Others	7119
Total	**60456**

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)	2129
Bimonthly Newsletters (English, Tamil and Telugu)	21
Electronic Media (CD/DVD)	30
Exhibitions	78
Extension Literature	182
Farmers visit to KVK	14964
Kisan melas	32
Lectures delivered as resource persons	461
Newspaper coverage	2294
Popular articles	254
Radio Talks	122
Registration of farmers through AKPS	29621
Research articles	84
Success stories	54
TV Talks	256
Others	340
Total	**50922**

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)	21
Bimonthly Newsletters (English, Tamil and Telugu)	13
Electronic Media (CD/DVD)	8
Exhibitions	32
Extension Literature	1539
Farmers visit to KVK	25531
Kisan melas	31
Lectures delivered as resource persons	282
Newspaper coverage	1031
Popular articles	187
Radio Talks	115
Registration of farmers through AKPS	30517
Research articles	49
Success stories	50
TV Talks	184
Others	184
Total	**59774**

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

Activity	No. of Activities
Exhibitions	3
Extension Literature	17
Farmers visit to KVK	975
Lectures delivered as resource persons	137
Newspaper coverage	56
Popular articles	1
Radio Talks	9
Success stories	3
TV Talks	5
Others	37
Total	**1243**

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	1	1369	19	1397	6	130	26	2896
Lectures organised	40	3018	16	516	27	3420	83	6954
Exhibition	12	4081	14	10226	15	1005	41	15312
Film show	10	2064	7	615	14	1822	31	4501
Fair	1	830	4	165	1	35	6	1030
Farm Visit	122	1214	100	2494	171	3764	393	7472
Diagnostic Practical	26	1000	123	1544	146	666	295	3210
Distribution of Literature (No.)	123	4571	19	2056	38	835	180	7462
Distribution of Seed (q)	2	128	606.5	1596	5	163	613.5	1887
Distribution of Planting materials (No.)	12247	705	6	82660	4	2118	12257	85483
Bio Product distribution (Kg)	40	879	0	0	168506	5108	168546	5987
Bio Fertilizers (q)	8.5	282	0	0	452	539	460.5	821
Distribution of fingerlings	0	0	0	15500	14	130	14	15630
Apiculture	33	40	0	0	3	1	36	41
IPM in Maize	228	6770	19	1614	20	1263	267	9647
Farm implements and machinery	28	167	0	0	0	0	28	167
Distribution of Livestock specimen (No.)	1	1369	19	1397	6	130	26	2896
Total number of farmers visited the technology week	40	3018	16	516	27	3420	83	6954
Others	12	4081	14	10226	15	1005	41	15312
Total	**12974.5**	**35586**	**982.5**	**132522**	**169470**	**25554**	**183427**	**193662**

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 33780 messages to 14482230 farmers (Table 3.4.8). Amon them, 2243 messages were sent through Kisan Mobile portal to 11709361 farmers (Table 3.3.9) and 31537 messages were sent through other sources to 2772869 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	1119	5641790	723	2745391	401	3322180			2243	11709361
Other Mobile Advisories	14777	841112	7377	1149370	8729	778594	654	3793	31537	2772869
Total	**15896**	**6482902**	**8100**	**3894761**	**9130**	**4100774**	**654**	**3793**	**33780**	**14482230**

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	481	2306731	354	1523635	260	2113521	1095	5943887
Voice	0	0	15	13310	3	5420	18	18730
Text and Voice	0	0	54	26750	49	19004	103	45754
Total	**481**	**2306731**	**423**	**1563695**	**312**	**2137945**	**1216**	**6008371**
Livestock								
Text	98	701931	42	13316	6	957	146	716204
Voice	0	0	0	0	0	0	0	0
Text and Voice	0	0	6	0	4	47	10	47
Total	**98**	**701931**	**48**	**13316**	**10**	**1004**	**156**	**716251**
Agro Advisories								
Text	105	536183	93	351752	5	1030	203	888965
Voice	0	0	5	1260	0	0	5	1260
Text and Voice	0	0	8	3500	5	1030	13	4530
Total	**105**	**536183**	**106**	**356512**	**10**	**2060**	**221**	**894755**
Critical Technology Inputs								
Text	12	76463	5	8955	0	0	17	85418
Total	**12**	**76463**	**5**	**8955**	**0**	**0**	**17**	**85418**
Farm Implements								
Text	11	104025	5	15692	0	0	16	119717
Total	**11**	**104025**	**5**	**15692**	**0**	**0**	**16**	**119717**
Awareness								
Text	56	677621	39	82472	14	366491	109	1126584
Voice	0	0	1	3405	0	0	1	3405
Text and Voice	0	0	6	2400	11	10110	17	12510
Total	**56**	**677621**	**46**	**88277**	**25**	**376601**	**127**	**1142499**
KVK-Programmes								
Text	122	901728	19	13279	10	265721	151	1180728
Voice	0	0	3	650	0	0	3	650
Text and Voice	0	0	3	900	3	1030	6	1930
Total	**122**	**901728**	**25**	**14829**	**13**	**266751**	**160**	**1183308**
Weather								
Text	178	137261	52	674598	20	270982	250	1082841
Text and Voice	0	0	0	0	4	1030	4	1030
Total							**254**	**1083871**
Market								
Text	29	121240	3	6937	5	264691	37	392868
Total	**29**	**121240**	**3**	**6937**	**5**	**264691**	**37**	**392868**

Type of message	Tamil Nadu		Andhra Pradesh		Telangana		Total	
	NM	NF	NM	NF	NM	NF	NM	NF
Women and Children								
Text	5	36823	10	2580	2	1116	17	40519
Total	**5**	**36823**	**10**	**2580**	**2**	**1116**	**17**	**40519**
Others								
Text	22	41784	0	0	0	0	22	41784
Total	**22**	**41784**	**0**	**0**	**0**	**0**	**22**	**41784**
Grand Total								
Text	1119	5641790	622	2693216	322	3284509	2063	11619515
Voice	0	0	24	18625	3	5420	27	24045
Text and Voice	0	0	77	33550	76	32251	153	65801
Total	**1119**	**5641790**	**723**	**2745391**	**401**	**3322180**	**2243**	**11709361**

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	3363	237982	2370	622675	3165	367609	49	49	8947	1228315
Voice	2557	18926	1768	109724	656	143522	215	540	5196	272712
Text and Voice	57	10302	848	30198	894	149642	54	722	1853	190864
Total	**5977**	**267210**	**4986**	**762597**	**4715**	**660773**	**318**	**1311**	**15996**	**1691891**
Livestock										
Text	1040	150112	204	53669	393	4385	0	0	1637	208166
Voice	1427	6613	250	35800	333	1060	40	292	2050	43765
Text and Voice	40	3928	10	4285	399	713	3	80	452	9006
Total	**2507**	**160653**	**464**	**93754**	**1125**	**6158**	**43**	**372**	**4139**	**260937**
Agro Advisories										
Text	2069	52017	233	37540	108	9748	0	0	2410	99305
Voice	741	3329	266	5624	332	773	62	128	1401	9854
Text and Voice	4	769	22	1280	325	635	120	480	471	3164
Total	**2814**	**56115**	**521**	**44444**	**765**	**11156**	**182**	**608**	**4282**	**112323**
Critical Technology Inputs										
Text	68	5769	3	3405	24	856	0	0	95	10030
Voice	303	1086	14	14	16	16	16	15	349	1131
Text and Voice	9	982	0	0	27	27	0	0	36	1009
Total	**380**	**7837**	**17**	**3419**	**67**	**899**	**16**	**15**	**480**	**12170**
Farm Implements										
Text	52	4533	34	10912	450	450	0	0	536	15895
Voice	119	907	36	73	621	621	0	0	776	1601

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	271	271	0	0	277	1040
Total	**172**	**6209**	**75**	**10985**	**1342**	**1342**	**0**	**0**	**1589**	**18536**
Awareness										
Text	446	55994	167	16194	64	65240	0	0	677	137428
Voice	66	1384	170	9849	40	33	15	35	291	11301
Text and Voice	7	769	21	4965	33	33	10	181	71	5948
Total	**519**	**58147**	**358**	**31008**	**137**	**65306**	**25**	**216**	**1039**	**154677**
KVK-Programmes										
Text	197	43776	302	29628	39	9032	0	0	538	82436
Voice	99	3519	24	2219	33	25	24	839	180	6602
Text and Voice	3	769	37	5	32	32	12	263	84	1069
Total	**299**	**48064**	**363**	**31852**	**104**	**9089**	**36**	**1102**	**802**	**90107**
Weather										
Text	248	207111	223	111643	171	18284	0	0	642	337038
Voice	1524	2484	100	20	37	1473	0	0	1661	3977
Text and Voice	2	769	10	0	14	147	0	0	26	916
Total	**1774**	**210364**	**333**	**111663**	**222**	**19904**	**0**	**0**	**2329**	**341931**
Market										
Text	108	9859	30	4535	17	214	0	0	155	14608
Voice	44	2815	21	420	19	140	0	0	84	3375
Text and Voice	2	769	10	243	10	77	0	0	22	1089
Total	**154**	**13443**	**61**	**5198**	**46**	**431**	**0**	**0**	**261**	**19072**
Women and Children										
Text	44	4003	53	27300	75	3296	0	0	172	34599
Voice	87	1484	145	26800	37	100	26	22	295	28406
Text and Voice	3	1195	1	350	60	106	8	147	72	1798
Total	**134**	**6682**	**199**	**54450**	**172**	**3502**	**34**	**169**	**539**	**64803**
Others										
Text	44	5749	0	0	5	5	0	0	49	5754
Voice	3	639	0	0	12	12	0	0	15	651
Text and Voice	0	0	0	0	17	17	0	0	17	17
Total	**47**	**6388**	**0**	**0**	**34**	**34**	**0**	**0**	**81**	**6422**
Grand Total										
Text	7679	776905	3619	917501	4511	479119	49	49	15858	2173574
Voice	6970	43186	2794	190543	2136	147775	398	1871	12298	383375
Text and Voice	128	21021	964	41326	2082	151700	207	1873	3381	215920
Total	**14777**	**841112**	**7377**	**1149370**	**8729**	**778594**	**654**	**3793**	**31537**	**2772869**

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

Capacity building programme for Anganwadi Workers - KVK Khammam (Kothagudem)

Poshan Abhiyan programme - KVK Krishna (Gantasala)

Observation of World Soil Day - KVK Ananthapuram (Reddipalli)

Demonstration on soil sampling - KVK Kadapa (Utukur)

Awareness programme on Rugose Spiral Whitefly in oil palm - KVK Khammam (Kothagudem)

Awareness programme on nutrition - KVK Khammam (Kothagudem)

Animal health camp - KVK Krishnagiri

Exposure visit to machineries mela - KVK Salem

Demonstration on use of drones in agriculture - KVK Chittoor (RASS)

Farmers' day and Rabi kisan mela - KVK Chittoor (RASS)

Field day on greengram - KVK Warangal (Malyal)

Exposure visit to Centre for Excellence, Mulugu, Siddiet - KVK Warangal (Malyal)

Farmer Producer Company - KVK Ariyalur

Workshop on Community Radio - KVK Warangal (Mamnoor)

3.5. PUBLICATIONS

The KVKs of Zone-X brought out 3302 publications, which include 571 popular articles, 451 leaflets/ folders/pamphlets, 334 technical reports, 242 Research Papers, 87 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	141	66	35	0	242
Popular Articles	281	157	132	1	571
Books Chapters	38	15	5	0	58
Books	65	16	6	0	87
Conference Papers	34	35	7	1	77
Seminar Papers	47	9	2	1	59
Posters	75	24	16	0	115
Workshop presentations	46	24	21	1	92
Folders	116	40	48	1	205
Leaflets	79	33	32	4	148
Pamphlets	182	49	29	5	265
Brochures	11	12	15	0	38
Pocket Cards & Dairy	5	5	0	0	10
Success Stories	110	41	34	3	188
Technical Bulletins	54	12	139	2	207
Technical Reports	112	66	156	0	334
Training Manuals	61	12	26	9	108
Proceedings	80	37	14	0	131
Others	337	14	1	15	367
Total	**1874**	**667**	**718**	**43**	**3302**

Newsletters published

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	Uzhavarin erkalam	quarterly	4
Dhar mapuri	Seithi Madal	Quarterly	400
Dindigul	KVK Newsletter	Yearly	1
Erode	KVK Reporter	Quarterly	4
Erode	Uzhavar Malar	Quarterly	4
Kancheepuram	KVK Newsletter	Quarterly	4

KVK	Name of Newsletter	Periodicity	No. of publications
Karur	Technical News	Quarterly	4
Krishnagiri	Uzhavar Thunaivan	Quarterly	200
Namakkal	News Reporter	Annual	100
Namakkal	KVK Newsletter	Quarterly	500
Perambalur	E- Reporter	Monthly	50
Perambalur	Newsletter	Half yearly	300
Sivagangai	KVK Newsletter	Half yearly	200
Theni	Farm Science Newsletter	Quarterly	800
Thiruvallur	KVK Newsletter	Quarterly	400
Thiruvannamalai	Pasumai Kathir	Half Yearly	2
Thiruvarur	Voice of Delta	Quarterly	4
Thoothukudi	Velan Thunaivan	Quarterly	3
Tiruchirappalli	PASUMAI	Quarterly	4
Tirunelveli	Newsletter	Half Yearly	100
Tiruppur	e-newsletter	quarterly	50
Villupuram II	Vivasaya malar	Yearly	200
Andhra Pradesh			
East Godavari (Pandirimamidi)	KVK E newsletter	Half Yearly	
West Godavari (VR Gudem)	KVK Newsletter	Quarterly	
Chittoor (RASS)	Krishi E-newsletter	quarterly	
East Godavari (Kalavacharla)	CTRI Newsletter	Half Yearly	500
Krishna (Garikapadu)	e-news letter	Yearly	
Kurnool (Banavasi)	eNewsletter	Quarterly	
Srikakulam	eNewsletter	Quarterly	
Telangana			
Mahabubnagar (YFA)	Newsletter	Quarterly	
Mahabubnagar (Palem)	KVK Happenings	Quarterly	
Karimnagar (Jammikunta)	GNNS -KVK Newsletter	Monthly	

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 5364.02 quintals of seed of cereals and millets, 311.95 quintals of oilseeds, 2134 quintals of pulses and supplied to 20132 farmers, 687.97 quintals of vegetables, 143.95 quintals of fodder seeds, 236.68 quintals of special planting materials 329.22 quintals of green manures and 24.07 quintals of commercial crop seeds were produced and supplied to 84152 farmers. (Table 3.6.1).

3.6.2 Planting material

Planting materials including 2166338 vegetable seedlings, 1049469 fodder slips, saplings of fruit trees (217086), flowers and ornamental plants (113968), forestry and plantation crops (97415) etc., totaling 3725412 were supplied to 70498 farmers in the Zone. (Table 3.6.2)

3.6.3 Bio-products and bio-agents

A total of 94991 kg of bio fertilizers, 42156 kg of bio pesticides and 673163 kgs of bio-inputs including vermicompost were produced supplied to 228255 farmers (Table 3.6.3).

3.6.4 Livestock Species

A total of 1680442 livestock species, comprising of 1609219 fish spawn/seed, 58579 poultry chicks, 12070 dairy animals and 572 sheep and goat were produced and provided to 5697 farmers (Table 3.6.4).

3.6.5 Other inputs

A total of 399199 quintals of other inputs comprising of 318391 quintals of crop inputs, 22349 quintals of animal feed, 15750 quintals of poultry feed, 13200 quintals of fish feed and 29623 quintals of other inputs have been produced and provided to 115198 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	791.84	2080690	1538	1847.58	1193520	2408	2392.83	7623872	4909	331.77	1449680	653	5364.02	12347762	9508
Oil Seeds	157.42	2086682	997	140.73	1363175	795	13.80	52643	0				311.95	3502500	1792
Pulses	1034.28	4213187	1543	832.42	2839350	3054	268.28	828280	4235				2134.98	7880817	8832
Vegetables	686.33	456536	5607	1.14	79615	79	0.50	39000	35				687.97	575151	5721
Fodder	142.60	2529103	3079	0.75	0	20250	0.60	48000	38				143.95	2577103	23367
Special Planting Materials	236.68	10210800	24145										236.68	10210800	24145
Green manure	329.10	12115600	26669				0.12	1200	3				329.22	12116800	26672
Commercial crops	19.07	86940	4247							5.00	50000	0	24.07	136940	4247
Total	**3397.32**	**33779538**	**67825**	**2822.62**	**5475660**	**26586**	**2676.13**	**8592995**	**9220**	**336.77**	**1499680**	**653**	**9232.84**	**49347873**	**104284**

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

Table3.6.2. 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	81563	122913	885	1699246	926767	6018	359065	235492	521	26464	23636	153	2166338	1308808	7577
Fruits	141317	4255703	5308	46668	1212412	2305	27953	1544854	769	1148	82995	426	217086	7095964	8808
Flowers and ornamental plants	7226	133359	909	79746	277643	366	21970	93400	37	5026	112144	1404	113968	616546	2716
Medicinal and aromatic plants	19656	70189	359	23179	124925	96				3192	33840	841	46027	228954	1296
Forestry and plantation crops	36090	1625563	2252	57078	83067	384				4247	112005	381	97415	1820635	3017
Fodder slips	998957	964855	822	26302	61586	45027	5000	2500	2	19210	36310	291	1049469	1065251	46142
Spices	124	1255	13	0	0	0				23	455	6	147	1710	19
Special Planting materials	4368	255672	376	0	0	0							4368	255672	376
Others	7946	126743	456	22648	62320	91							30594	189063	547
Total	**1297247**	**7556252**	**11380**	**1954867**	**2748720**	**54287**	**413988**	**1876246**	**1329**	**59310**	**401385**	**3502**	**3725412**	**12582603**	**70498**

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	18554	1230879	5586	5390	652400	2661	70931	2024940	79812	116	2810	37	94991	3911029	88096
Bio-inputs	181048	2221398	75035	268105	143646	351	223053	355009	36251	957	9570	68	673163	2729623	111705
Bio-pesticides	15662	2440225	6054	4963	823250	1454	590	31140	143	20941	3815423	20803	42156	7110038	28454
Total	**215265**	**5892502**	**86675**	**278458**	**1619296**	**4466**	**294574**	**2411089**	**116206**	**22014**	**3827803**	**20908**	**810311**	**13750690**	**228255**

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	1885	256746	62	10182	165100	52	3	110000	1				12070	531846	115
Goat and Sheep	113	677233	86	216	1296646	96	243	1657500	117				572	3631379	299
Poultry	30108	2394201	2514	12256	1114101	637	16215	1568610	827				58579	5076912	3978
Piggery	2	15000	2										2	15000	2
Fishery	1208789	1050233	705	114700	57750	23	284143	379279	95	1586.5	166800	480	1609219	1654062	1303
Total	**1240897**	**4393413**	**3369**	**137354**	**2633597**	**808**	**300604**	**3715389**	**1040**	**1586.5**	**166800**	**480**	**1680442**	**10909199**	**5697**

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	294552	3203508	68449	19765	241311	503	4080	88540	627				318397	3533359	69579
Animal feed	22229	645170	38501	120	7800	40							22349	652970	38541
Poultry feed							15750	330750	49				15750	330750	49
Fish Feed	13200	137600	20										13200	137600	20
Others	24872	539007	1731	3819	329385	4558	220	44000	220	712	178000	500	29623	1090392	7009
Total	**354853**	**4525285**	**108701**	**23584**	**578496**	**5101**	**20050**	**463290**	**896**	**712**	**178000**	**500**	**399199**	**5745071**	**115198**

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 33321 samples including soil (28607), water (3744), plant (321), manure (19) and 630 other samples were analyzed by the KVKs benefitting 30109 farmers of 5696 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	5054	4462	1607	3365	2966	248	3205	2979	260	0	0	0	11624	10407	2115
Soil Samples analyzed by traditional laboratory method	8881	8133	1449	5833	5514	384	1829	1824	99	440	321	64	16983	15792	1996
Total Soil Samples analyzed	**13935**	**12595**	**3056**	**9198**	**8480**	**632**	**5034**	**4803**	**359**	**440**	**321**	**64**	**28607**	**26199**	**4111**
Water samples analyzed	2608	2316	990	987	892	254	76	68	19	73	41	41	3744	3317	1304

Details	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	N	F	V	N	F	V	N	F	V	N	F	V	N	F	V
Plant Samples analyzed	180	130	89	72	2	1	0	0	0	69	69	1	321	201	91
Manure samples analyzed	15	2	1	4	1	1	0	0	0	0	0	0	19	3	2
Others	630	389	188				0	0	0				630	389	188
Total	**17368**	**15432**	**4324**	**10261**	**9375**	**888**	**5110**	**4871**	**378**	**582**	**431**	**106**	**33321**	**30109**	**5696**

3.7 RAINWATER HARVESTING

A total of 85 trainings and 85 demonstrations were conducted on rainwater harvesting technologies benefiting 5065 farmers. A total of 522 officials visited the demonstrations (Table 3.7.1).

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	2	2	427	17
TN	Dharmapuri	Micro irrigation demonstration	12	12	782	25
TN	Namakkal	Micro sprinkler and Laser drip micro irrigation for water saving	5	6	314	26
TN	Namakkal	*In-situ* moisture conservation	1	1	98	11
TN	Namakkal	Drip irrigation for horticultural crops	3	0	57	2
TN	Perambalur	Rainwater harvesting and farm pond management	2	2	128	14
TN	Sivagangai	Water conservation	2	3	240	60
TN	Theni	Rainwater Harvesting	17	1	341	24
TN	Vellore	Importance of micro irrigation and rainwater harvesting	13	13	410	56
TN	Villupuram	Rainwater harvesting	1	1	20	0
TN	Villupuram	Disaster management	1	1	55	5
TN	Villupuram II	Micro irrigation	1	0	133	24
TN	Villupuram II	Drought mitigation and water conservation	2	2	168	12
AP	Ananthapuram (Kalyandurg)	Importance of Rainwater harvesting	4	4	80	10
AP	Ananthapuram (Reddipalli)	Training programme on energy efficiency and Water conservation measures	1	0	165	178
AP	Ananthapuram (Reddipalli)	Renovation and construction of check dams and farm ponds	0	1	135	18
AP	Kadapa (Utukur)	Farm pond	0	0	8	3
AP	Kurnool (Banavasi)	Recharge of dried bore wells	2	2	45	3
AP	Kurnool (Banavasi)	Capacity building on rainwater harvesting through farm ponds and percolation tanks	4	4	254	6
AP	Prakasam (Kandukur)	Demonstration on rainwater storage techniques	3	9	470	5
AP	Srikakulam	Water harvesting and water saving technologies	2	2	450	14
AP	Srikakulam	Drip irrigation and fertigation	2	2	75	6
AP	Srikakulam	Crop planning based water availability in tank fed areas	5	1	210	3
		Total	**85**	**69**	**5065**	**522**

3.8. Technology Backstopping

The responsibility of technology back stopping, capacity building, monitoring and review of activities of KVKs is vested with Directorates of Extension of Universities (Agricultural, Horticultural, Veterinary and Fishery) of the Zone and also with ATARI. A total of 68 meetings were conducted by Directorates of Extension of Agricultural, Horticultural, Veterinary and Fisheries Universities in the Zone in which 3412 KVK Staff participated. The Officials of Directorates of Extension of Universities made 94 visits to 48 KVKs to monitor and review the technological interventions and to take stock of the infrastructural facilities available and the constraints faced by the KVKs operating in the jurisdiction of their respective universities.

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

SAU/ATARI	No. of meetings	No of participants
TNAU, Tamil Nadu	20	373
ANGRAU, Lam, Guntur	19	2115
PJTSAU, Hyderabad	5	243
DrYSRHU, V.R. Gudem	8	581
ATARI	16	100
Total	**68**	**3412**

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
TNAU, Tamil Nadu	27	20
ANGRAU, Lam, Guntur	31	17
PJTSAU, Hyderabad	10	9
DrYSRHU, V.R. Gudem	26	2
Total	**94**	**48**

3.9 Agricultural Technology Information Centre (ATIC)

Agricultural Technology Information Centres (ATICs) are functioning in TNAU, PJTSAU and TANUVAS. The ATICs have 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 bioproducts. The ATICs provided technology information, technology products and agro-advisory to 1690, 576 and 8125 farmers, respectively. Two books were sold to 6909 farmers and 2 DVDs on crop production technology was sold to 418 farmers. Critical technology products like seed, planting material, livestock material, poultry and bioproducts were provided to 744 beneficiaries. Technology services like soil and water testing and agro-veterinary advisory services were provided to 92 and 162 farmers and 1515 farmers visited the ATICs.

Table 3.9.1 Details of visit of farmers to ATICs

Nature of Visit	TNAU	PJTSAU	TANUVAS	Total
Technology Information	880	424	1091	**2395**
Technology Products	460	48	6884	**7392**
Agro-advisory	350	104	150	**604**
Total	**1690**	**576**	**8125**	**10391**

Table 3.9.2 Details of publications by ATICs

Details	PJTSAU	TANUVAS	Total
Books			
Number	1	1	2
Number of Copies	365	6544	6909
Revenue	54750	264399	319149
No. of farmers	365	629	994
CD/DVD and Video films			
Number	1	1	2
Number of Copies	76	342	418
Revenue	3040	13680	16720
No. of farmers	76	106	182

Table 3.9.3 Technology products provided by ATICs

Technology products provided	Quantity/Number	No. of farmers benefitted
Seed (q)	1214	473
Planting material (No.)	2058	77
Poultry birds (No.)	650	15
Mineral Mixture	970	158
Bio-products (No.)	3	21
Total		**744**

Table 3.9.4 Technology Services Provided by ATICs

Service rendered	No. of farmers
Soil and water testing	92
Agro/Veterinary Advisory Services	162
Farmers visited ATIC	1515

PROJECTS

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). The TDC-NICRA has been implemented by 11 KVKs under ATARI, Hyderabad across the states of Andhra Pradesh (Srikakulam, West Godavari (Undi), Chittoor (RASS), Anantapur (Reddipalli) and Kurnool (Yagantipalli)), Telangana (Khammam, Nalgonda (Gaddipally)) and Tamil Nadu (Namakkal, Ramanathapuram, Thiruvarur and Villupuram). Among them, three KVKs (Srikakulam, West Godavari (Undi) and Thiruvarur address the climatic vulnerability of floods and the rest of the KVKs majorly deal with drought and heat stress as climatic vulnerability of the districts. 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. There has been a shift in the focus of implementing TDC-NICRA since 2017 since when the KVKs have been suggested to expand their activity under the project to nearby villages forming NICRA village clusters. The KVKs have been striving to saturate the adopted village clusters with a minimum of one successful resilient technology from each of the four modules preferably in convergence with ongoing government activities.

Demonstrations were organized in 412.7 ha benefiting 900 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 361.8 ha area covering 887 farmers. Under livestock and fisheries interventions, 794 farmers were benefited on improved fodder production covering 45.18 ha. Silage making, breed upgradation, improved breeds of backyard poultry, vaccination, animal health camps, management of fishponds etc., were demonstrated involving 2488 animals. Under institutional interventions like custom hiring center, fodder bank and seed bank 241 farmers were benefited, and an area of 147.2 ha was covered. Through capacity building and extension activities, awareness on climate resilient technologies was brought about benefitting 893 and 994 farmers through 32 and 238 activities respectively.

Natural Resource Management (NRM)

Demonstration of sub soiling and conservation furrows in groundnut for drought mitigation-Chittoor, Andhra Pradesh

Sub soiling to mdepth of 40-45cm at an interval of 2m distance using sub soiler before land preparation and formation of conservation furrows in rainfed groundnut crop at an interval of 1m distance at a depth of 10-25cm in the NICRA cluster villages helped in conservation of rainwater and as a result 11.18% yield increase was observed in rainfed groundnut.

Subsoiling for breaking compact pan in groundnut

Table 3.10.1. Performance of groundnut under sub-soiling and conservation furrows

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	7.60	27.40	41790	45220	3430	1.00
Improved technology	8.45	29.80	44415	50778	6363	1.02

Crop Production

Upscaling of flood tolerant paddy varieties RGL-2537 and MTU-1061 in flood prone areas of Srikakulam, Andhra Pradesh

The performance of flood tolerant varieties MTU-1061 and RGL 2537 was compared against the farmers varieties of MTU 1064 and MTU 7029 under low, medium and high inundation conditions in the flood affected areas of the operational village. In medium inundation conditions the varieties under test recorded an increased yield of 17.5% over check varieties thus the productivity loss due to inundation was reduced by 17.5%. Between the demonstrated varieties MTU-1061 yielded higher than RGL-2537 in both low and medium inundation situations . In low inundation areas improved varieties recorded higher yield of 18.9% over chech varieties ie., the loss due to floods was reduced by 18.9%. High inundation impacted yields almost equally both in improved and check varieties.

Demonstration of flood tolerant varieties MTU 1061 and RGL 2537- KVK, Srikakulam, Andhra Pradesh

Table 3.10.2. Performance of flood tolerant paddy varieties in Andhra Pradesh

Treatments2	Verities	Grain yield (q/ha)	Straw yield (q/ha)	Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	Remarks
Farmer's practice	MTU- 1064	51.36	60.25	40500	82176	41676	2.03	In medium and low inundation areas yields were higher with flood tolerant varieties
	MTU – 7029	49.60	58.20	40500	79360	38860	1.96	
Improved varieties	MTU-1061	62.30	68.30	40500	99680	59180	2.46	
	RGL- 2537	56.50	65.40	40500	90400	49900	2.23	

Table 3.10.3. Variety wise performance of flood tolerant paddy varieties under different flood situations

Flood situation	Yield (q/ha)			
	Flood tolerant paddy varieties		Check variety	
	MTU-1061	RGL-2537	MTU -1064	MTU7029
Low Inundation Area	63.4	57.95	52.5	51.5
Medium Inundation area	61.2	55	50.22	48.7
High inundation area	10.42	10.10	8.60	7.50

Inter Cropping systems for drought mitigation

Adverse weather conditions like delayed onset of monsoon and prolonged dry spells during the crop period are very common in rain fed situations of Kurnool district of Andhra Pradesh. Such situation results in economic losses to the farmers due to partial or total failure of the sole crops. In-order to utilize the bi-model distribution of rainfall and also to insure against crop failure due to drought during crop growth period, millet based inter cropping systems were demonstrated. Redgram + foxtail millet (1:5) inter cropping system was introduced in the NICRA adopted village, along with sole crop of Redgram / foxtail millet in order to increase cropping intensity and net returns of the farmers. Results of demonstration on intercropping of red gram + foxtail millet in row ratio of 1:5 indicated that the gross income was higher (Rs.92232.5) than sole crop of foxtail millet (Rs. 45175). Thus, the results on cropping system-oriented demonstrations against drought mitigation clearly indicate that inter cropping systems are economically advantageous than sole crops under rain fed situations. In the long run the fertility and microbial activity of the soil also increases with the addition of biomass of red gram.

Red gram + foxtail millet intercropping in Kurnool (Yagantipalli)

Crop residue management by silage making as livestock feed

Non availability of nutrient rich green and dry fodder in summer season, feeding poor quality dry roughage, reduced milk yield in summer season are major reasons for economic loss of livestock farmers during summer. To address this issue, silage making with crop residues of Co-FS 29 fodder was demonstrated in the NICRA village of Namakkal district. There was definite economic advantage of this practice compared to farmers practice as elaborated in the following table.

Table 3.10.4. Performance if crops residue-based silage in Namakkal district

Parameter with unit	Demo	Check
Milk yield (Litres/day)	8.0	7.5
SNF content (%)	8.1	8.1
Fat content (%)	4.1	4.2
Gross cost (Rs.)/peak lactation 100days	13700	16400
Gross return (Rs.)/ peak lactation 100days	28000	26250
Net return (Rs.)/ peak lactation 100days	14300	9850
BCR	2.0	1.6

Silage making with Co-FS 29 fodder in Namakkal, Tamil Nadu

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.

KVK Nellore has trained 120 youth on vermicomposting, mushroom production and establishment of nursery (Table 3.11.1). Eleven enterprise units have been established by 25 trained youth. Among the 246 trained youth in KVK West Godavari (VR Gudem), 168 youth have established 107 enterprise units on value addition, poultry rearing and sheep and goat rearing and apiary. In KVK-Kadapa (Utukur), 13 enterprises on vermicompost, mushroom production, nursery unit and value addition have been established by 35 youth among 165 trained youth. Twenty-four enterprises on nursery, vermicomposting and IFS have been established by 50 among 90 trained youth in Nalgonda (Kampasagar) while 67 youth have established 20 enterprises on vermicomposting, value addition, honey bee rearing in Warangal (Malyal). In Dharmapuri of Tamil Nadu, 84 enterprises on vermicomposting, mushroom production and goat rearing have been established by 120 youth. In Sivagangai, 73 enterprises on poultry, vermicomposting, fishery, and value addition have been established by 200 youth. In Kanyakumari, thirty-six enterprise units on value added products from banana and coconut, vermicomposting, beekeeping and back yard poultry have been established by 88 youth. In Erode, 196 youth have established 10 enterprise units on poultry. bio-inputs production, value added products from banana and honey production. KVK Puducherry has trained 20 youth on hydroponic green fodder production, millet processing and poultry rearing out of which 17 youth have established various enterprises.

Table 3.11.1. Youth trained and enterprise established by ARYA KVKs

KVK	Enterprise	No. of Trainings	No. of Youth trained	No of Youth established units	No. of enterprises established
Andhra Pradesh					
Nellore	Vermicompost	2	40	9	4
	Mushroom	2	40	8	4
	Shade Net (Nursery)	2	40	8	3
	Total	**6**	**120**	**25**	**11**

KVK	Enterprise	No. of Trainings	No. of Youth trained	No of Youth established units	No. of enterprises established
West Godavari (VR Gudem)	Value addition	1	60	60	51
	Poultry	1	50	50	13
	Sheep and goat	2	45	15	3
	Apiary	3	91	43	40
	Total	**7**	**246**	**168**	**107**
Kadapa (Utukur)	Vermicompost	1	40	12	4
	Mushroom	2	45	8	4
	Shade Net (Nursery)	2	40	6	2
	Value addition	2	40	9	3
	Total	**7**	**165**	**35**	**13**
Telangana					
Nalgonda (Kampasagar)	Nursery	1	30	30	4
	Vermicompost	1	30	10	10
	IFS	1	30	10	10
	Total	**4**	**90**	**50**	**24**
Warangal (Malyal)	Honey Bee Rearing	1	25	25	2
	Vermicompost	1	22	22	6
	Value addition	1	20	20	12
	Total	**3**	**67**	**67**	**20**
Tamil Nadu					
Dharmapuri	Vermicomposting	3	90	28	26
	Mushroom production	2	60	32	8
	Goat rearing	3	90	60	50
	Total	**8**	**240**	**120**	**84**
Sivagangai	Poultry	2	60	60	21
	Vermicompost	2	40	40	15
	Fishery	2	50	50	12
	Value addition	2	50	50	25
	Total	**8**	**200**	**200**	**73**
Kanyakumari	Value addition in Banana	2	34	21	2
	Value addition in Coconut	4	34	12	1
	Vermicomposting	3	79	5	1
	Beekeeping	2	30	20	2
	Backyard Poultry	3	43	30	30
	Total	**14**	**220**	**88**	**36**
Erode	Poultry	10	25	25	2
	Bio-Inputs	4	63	63	1
	Value addition in banana	3	48	48	3
	Honey production	2	60	60	4
	Total	**19**	**196**	**196**	**10**
Puducherry					
Puducherry	Hydroponic Green Fodder Production	1	20	20	7
	Millet processing	1	12	5	5
	Poultry	1	15	5	5
	Total	**3**	**47**	**30**	**17**
Grand Total		**79**	**1591**	**979**	**395**

Mr. P. Sathishkumar, ARYA-mushroom entrepreneur of Dharmapuri district in Tamil Nadu

Backyard poultry unit of ARYA Youth Ms K. Eshwari, Ravigudem village in West Godavari District

ARYA-Vermicompost unit in Nalgonda district of Telangana

Honey production unit established under ARYA project in Erode district, Tamil Nadu

Shade-net nursery established in Kampasagar, Telangana

Value added products unit by youth of Kanyakumari District Tamil Nadu

Fishery unit established in Sivagangai, Tamil Nadu

Distribution of Hydroponics equipment to the youth of Puducherry

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.*, a. Enhancing Farmer-Scientist Interface b. Technology Assemblage, Application and Feedback c. Partnership and Institution Building and d. 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.

The Farmer FIRST centers undertook 95 interventions covering 3764 ha area and 5389 households in the operational villages. Thirty-four crop-based technologies were demonstrated in 1996 ha benefiting 1649 households. Horticultural interventions on 8 technologies were demonstrated in 166 ha benefiting 429 households. In livestock module, 21 technologies were demonstrated involving 8479 animals benefiting 745 households. Ten NRM technologies were demonstrated in 1602 ha benefiting 1010 households. Eighteen enterprises were established for the benefit of 1556 households.

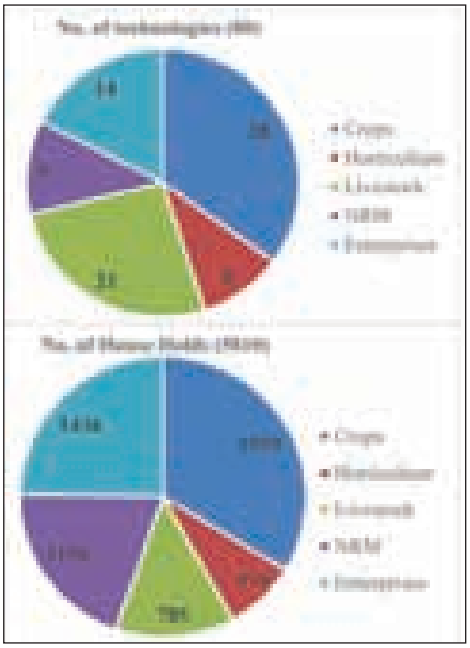
Improved sorghum variety CSV 27 (19% yield improvement), pearl millet variety ICMH 1201, redgram variety ICPL 87119 (Asha) (19% yield improvement), little millet variety GNV-3 (20% yield improvement), foxtail millet variety SiA 3085 (22% yield improvement), kodo millet variety JK 41 were demonstrated by IIMR, Hyderabad. CRIDA, Hyderabad demonstrated pigeon pea variety PRG 176 (33% increase in yield), Sorghum variety CSV 15, Chickpea variety NbeG-47(42% increase in yield), Backyard poultry variety Srinidhi, Sheep breeds Nellore and Deccani, Hybrid Napier fodder Co-4. Castor variety DCH 519, Rajasri birds, Macherla, Bellary sheep breed were demonstrated to farmers by IIOR, Hyderabad. Doubling farm income by introducing fish in farm ponds in coconut/oil palm cropping system was demonstrated by IIOPR gave higher net returns and BC ratio.

TANUVAS, Chennai demonstrated improved strains of backyard poultry (Aseel) and also supplementation of balanced poultry feed by farmer participatory mode resulting in an increased nutritional security of the farmers and their children by increased consumption of eggs by 50% and meat by 10%. Soil and Water conservation measures such as use of Gabion structures and Drip demonstrated by CRIDA, Hyderabad resulted in increased water use efficiency, reduced soil erosion and also checked the water flow. Value addition of Groundnut pods to table purpose kernels and paddy to rice and rice flakes demonstrated by IIOR, Hyderabad increased income by increase in the price of processed product. Demonstration on methods of recycling of biomass obtained from oil palm plantation by IIOPR, Pedavegi reduced the cost production as the farmers adopted the usage of biomass as mulching material.

Scientific rabbit rearing method demonstrated by TANUVAS, Chennai resulted in increased fertility rate and high body weight gain impacted necessary awareness about the importance of feeding of balanced feed for good body weight gain and improving the fertility rate. Demonstration by CRIDA, Hyderabad on backyard poultry production by srinidhi breeds reduced the protein deficiency by 73% in children and 7.8% in women and also generated additional income in some households in adopted villages. Fertigation method of nutrient application demonstrated by IIOPR resulted in substantial reduction in nutrient requirement and increased FFB yield and also improved net returns by 13.29%. Non shattering

variety of Paddy variety KNM-118 demonstrated by IIOR for replacing the locally cultivated BPT-5204 led to productivity enhancement of 15% over the prevailing cultivar resulting to additional net returns of Rs. 8640/ha.

Mrs. B. Parvathi of Zaheerabad, Telangana who received training and motivation support from IIMR under FFP on value addition of millets which became instrumental in strengthening millet food value-chain by preparing a innovative millet based product **"Milliovit-A Healthy Drink Mix"** which was currently under approval by FSSAI which recognized with **"Best Millet Machinery Fabricator Award"** by Society of Millet Research.



Millets android app developed by IIMR

Mrs. B. Parvathi Shetty receiving award from Mr. C. Parthasarathi IAS (SEC-Telangana State)

Dr.R.K.Mathur, Director, IIOPR distributing Aluminum poles along with sickles for harvesting of oil palm bunches

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). During the reporting year, on-farm evaluations were conducted on the response of rice to Zn fertilizer to provide new insights into the association between soil variability and crop response to Zn fertilizers. Villages with low soil Zn and medium soil Zn from each nine districts were identified using digital soil map (DSM) Effect of Zn application on grain yield, profit, grain quality and soil fertility were assessed in *Kharif* 2020. The average yield enhancement realized due to Zinc fertilization to rice was 6.37 %.

Zn applied rice field -KVK Krishna (Gantasala)

Demonstration of Zn fertilization to rice by KVK Kurnool (Banavasi)

3.14 District Agro Met Units (DAMUs)

Under the memorandum of understanding (MOU) entered by ICAR with Indian Meteorological Department (IMD), District Agro Met Units (DAMUs) have been set up under the Gramin Krishi Mausam Seva (GKMS) scheme in select Krishi Vigyan Kendras to prepare and disseminate sub-district (block) level agro-met advisory bulletins to cover maximum number of farmers in the district with the advisories. Under phase I, 24 KVKs have been selected for setting up of DAMUs in zone x (Nine in AP, four in Telangana, 10 in Tamil Nadu and one in Puducherry). An additional four DAMU centres were established in four KVKs of Telangana under the administrative control of PJTSAU in phase II. Through DAMU centres, 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. The SMS (Agrometeorology) and agromet observer appointed at each DAMU have 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. The staff under DAMUs also collect feedback 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 annual review workshop of DAMUs was conducted online on 23rd September 2020 in collaboration with IMD when the achievements of the centers were reviewed and 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

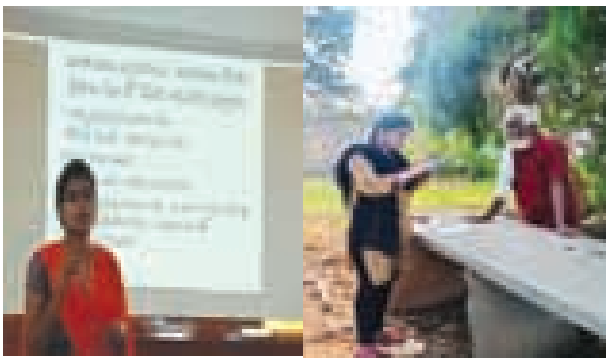
weather data locally on a continuous basis which will be correlated with the weather bulletins issued by IMD before issuing advisories to the farmers. In the state of Telangana, a total of 4575 block level agro-met advisory bulletins were generated and issued to the farmers and uploaded in Agromet – DSS portal. A total of 40 farmers' awareness programmes were conducted in the state on the use of agro-met advisories and on the utility of Meghdoot App of IMD benefitting 1400 farmers. A total of 1059 SMSs related to weather were sent to 36972 farmers of the state during the year. Similarly in the state of Andhra Pradesh, 8974 advisories were given on agro-met DSS portal during 2020-21. During the year 33 farmers' awareness programmes were organized for the benefit of 1424 farmers. A total of 1880 SMSs related to weather-based crop advisory were given to 536835 farmers during 2020-21 by the DAMUs of the state through m-kisan, Annapurna Krishi Prasar Seva (AKPS), mobile messages and emails. In Tamil Nadu, 15381 agromet advisories were issued by the 10 DAMU KVKs of the state during the year under report and 207 farmers' awareness programmes were conducted to bring awareness on the utility of weather based agro-advisories and Meghdoot app among 7848 farmers. Weather based advisory was given to 645013 farmers through 8923 SMSs during the year. In the state of Pondicherry where there is only one DAMU, 8 agro-met bulletins were issued in Agromet DSS as the recruitment of the staff took place only in the month of December. The KVK issued 15 SMSs benefitting 210 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 dissemination of the weather based agro-advisory. The feedback 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. The advisories given during extreme weather events could avoid crop losses significantly and the impact of the advisories was quantified by the staff of the DAMUs of the zone and reported.

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	672	5	155	156	4813
Nalgonda (Kampasagar)	780	2	60	150	5450
Khammam (Wyra)	618	11	448	196	7218
Warangal (Malyal)	1339	14	501	150	5012
Mahabubnagar (Palem)	384	2	42	135	6327
Nizamabad	222	2	54	94	3912
Mancherial	340	3	100	90	3000
Khammam (Kothagudam)	220	1	40	88	1240
Total (Telangana)	4575	40	1400	1059	36972
Andhra Pradesh					
Srikakulam	936	3	120	208	2784
Vizianagaram	832	2	122	312	1750
East Godavari (Kalavacharla)	1180	4	142	529	434947
West Godavari (V.R. Gudem)	1456	2	82	104	4192
Krishna (Garikapadu)	416	2	68	104	6589

State and KVK	No. of AAS bulletins	Farmers' Awareness Programmes (FAP)		SMSs sent to farmers	
		No.	No. of farmers	No.	No. of farmers
Prakasam (Darsi)	1573	3	70	264	3200
Nellore	985	6	223	124	41450
Kadapa (Utukur)	732	2	195	104	4324
Kurnool (Banavasi)	864	9	402	131	37599
Total (Andhra Pradesh)	8974	33	1424	1880	536835
Tamil Nadu					
Dharmapuri	1104	7	185	1118	5500
Kanchipuram	1456	11	554	104	1976
Cuddalore	1507	7	186	1510	676
Trichy	1560	10	328	104	6277
Virudhunagar	1616	15	642	0	850
Pudukkottai	1260	8	230	38	1500
Ramanathapuram	1260	11	440	1297	28228
Salem	2079	31	1388	43	7289
Tiruvallur	1456	20	705	1742	12700
Vellore	2083	14	366	13	6000
Total (Tamil Nadu)	15381	134	5024	5969	70996
Puducherry					
Puducherry	8	0	0	15	210
Grand Total	28938	207	7848	8923	645013

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



Farmers' awareness programme by KVK Prakasam (Darsi) &Impact assessment of advisory by Warangal (Malyal)

Collection of farmers feedback on the advisory by KVK Kadapa (Utukur)

3.15 New Extension Methodologies and Approaches (NEMA)

New Extension Methodologies and Approaches (NEMA), a network project under the division of Agricultural Extension of ICAR was launched during 2019 with an aim to achieve the objectives of a. Studying existing extension methodologies and develop new methodologies b. Developing technology map for different agro-ecosystems c. Studying the extent and determinants of adoption of selected improved NARS technologies. d. Assessing the impact of technologies in different agro-ecosystems e. Undertaking yield gap analysis and suggest suitable strategies to reduce gaps. Seven ICAR institutes (IARI, CAZRI, CIFA, NDRI, IVRI, NRRI) and 11 ATARIs are the partners in the project. Agricultural Extension division of ICAR is the overall implementing authority of the project and ICAR-IARI is the lead centre to technically coordinate the project. Successful technologies are identified by the partnering ICAR institutes for the study and schedules for collecting primary data developed by these institutes are utilized by ATARIs for collecting data with the help of data enumerators.

ICAR-Central Institute of Freshwater Aquaculture (CIFA) is the partnering institute with ATARI, Hyderabad for implementing the project in the states of West Bengal, Orissa and Andhra Pradesh. ICAR-CIFA selected composite carp culture technology for collecting primary data from fish farmers of the three leading states. The target sample size for Andhra Pradesh was 400. The data collection instrument developed by CIFA was used for collecting primary data from fish farmers of West Godavari, East Godavari, Nellore and Krishna districts of Andhra Pradesh. Data collection from 400 target fisheries farmers was completed. The data pertaining to the three states will be analyzed and documented by CIFA in due course of time.

Interaction of ICAR-CIFA scientists with fisheries farmers of West Godavari

Table 3.15.1. Details of data collected in Andhra Pradesh

District	No. of schedules to be filled	
	Target	Achievement
Krishna	150	150
West Godavari	150	150
East Godavari	50	50
Nellore	50	50
Total	**400**	**400**

3.16 Cluster Frontline Demonstrations on Pulses under NFSM

CFLDs on pulses programme was implemented by 60 KVKs in the Zone during 2020-21 *kharif*, *rabi* and summer seasons in Andhra Pradesh, Telangana, Tamil Nadu and Puducherry. A total of 4510 demonstrations were conducted in 1877 ha on blackgram, greengram, redgram and Bengal gram (Table 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. Financial assistance of Rs. 9000/ha was sanctioned to each crop for inputs, extension activities and monitoring of the programme.

Table 3.16.1. Crop wise achievement of CFLDs on Pulses in 2020-21

Crop	Telangana			Andhra Pradesh			Tamil Nadu			Puducherry			Zone		
	Area (ha)		Demo	Area (ha)		Demo	Area (ha)		Demo	Area (ha)		Demo	Area (ha)		Demo
	T	A	(No)	T	A	(No)	T	A	(No)	T	A	(No)	T	A	(No)
Kharif															
Blackgram	0	0	0	91	91	229	100	100	220	-	-	-	191	191	449
Greengram	60	60	110	100	90	243	90	90	225	-	-	-	250	240	578
Redgram	210	210	510	219	220	470	40	40	100	-	-	-	469	470	1080
Total *Kharif*	**270**	**270**	**620**	**410**	**401**	**942**	**230**	**230**	**545**	**-**	**-**	**-**	**910**	**901**	**2107**
Rabi															
Blackgram	30	30	75	176	176	420	280	280	700	10	10	25	496	496	1220
Greengram	30	30	63	60	60	150	96	96	240	10	10	25	196	196	478
Bengal gram	100	100	245	80	80	210	30	30	75	-	-	-	210	210	530
Total *Rabi*	**160**	**160**	**383**	**316**	**316**	**780**	**406**	**406**	**1015**	**20**	**20**	**50**	**902**	**902**	**2228**
Summer															
Blackgram	-	-	-	14	14	45	20	20	50	-	-	-	34	34	95
Greengram	20	20	50	-	-	-	-	-	-	-	-	-	20	20	50
Bengal gram	-	-	-	-	-	-	20	20	30	-	-	-	20	20	30
Total Summer	**20**	**20**	**50**	**14**	**14**	**45**	**40**	**40**	**80**	**-**	**-**	**-**	**74**	**74**	**175**
Grand Total	**450**	**450**	**1053**	**740**	**731**	**1767**	**676**	**676**	**1640**	**20**	**20**	**50**	**1886**	**1877**	**4510**

T=Target, A=Achievement)

Andhra Pradesh

A total of 1767 demonstrations on pulses were conducted in Andhra Pradesh by 20 KVKs in blackgram, greengram, redgram and Bengal gram in an area of 731 ha.

Blackgram

A total of 694 demonstrations were conducted on blackgram in 281 ha during *kharif*, *rabi* and summer seasons. The varieties demonstrated were TBG 104, LBG 787 and LBG 752. The technologies demonstrated included improved varieties, seed management, integrated pest and disease management. During *kharif* season TBG 104 recorded an average yield of 17.20 q/ha over 14.10 q/ha in check. The highest yield of 23.80 q/ha was recorded in West Godavari (VR Gudem). During *rabi* season TBG 104 recorded an average yield of 12.70 q/ha and the highest yield was 26.50 q/ha in Kurnool (Banavasi). LBG 787 recorded 7.70 q/ha over check yield of 6.00 q/ha. The highest yield of 8.30 q/ha was recorded in Srikakulam. During summer season TBG 104 recorded an average yield of 15.80 q/ha and the highest yield was 19.50 q/ha in West Godavari (VR Gudem). The increase in average yield of blackgram over check were 21.14, 20.24 and 33.77 per cent in *kharif*, *rabi* and summer seasons, respectively.

Greengram

Greengram varieties WGG 42 and IPM 2-14 were demonstrated in 150 ha and 393 demonstrations during *kharif* and *rabi* seasons. During *kharif* season IPM 2-14 recorded an average yield of 13.90 q/ha over 12.90 q/ha in control. The highest yield of 20.30 q/ha was recorded in Guntur (Lam). The variety WGG 42 recorded 3.71 q/ha over check yield of 2.71 q/ha and the highest yield of 9.30 q/ha was in Ananthapuram (Kalyandurg). During *rabi* season the variety IPM 2-14 recorded an average yield of 6.60 q/ha over 5.00 q/ha in control. The highest yield of 9.40 q/ha was recorded in West Godavari (Undi). The variety WGG 42 recorded 5.10 q/ha over check yield of 3.60 q/ha. The average increase in yield over check varieties were 13.36 and 35.29 per cent in *kharif* and *rabi* seasons, respectively.

Redgram

Redgram varieties LRG 52 and PRG 176 were demonstrated in 220 ha and 470 demonstrations during kharif. The average yield of LRG 52 was 12.60 q/ha against 9.60 q/ha in check wherein the highest yield of 30.00 q/ha was recorded in Guntur (Lam). PRG 176 yielded 7.60 q/ha against 5.60 q/ha in check. The average yield enhancement in the demonstrations was 34.65 per cent over check.

Bengal gram

A total of 210 demonstrations were conducted in 80 ha with varieties NBeG 49 and NBeG 47. The average yield in NBeG 49 was 21.20 q/ha over check yield of 18.10 q/ha wherein the highest yield of 27.20 q/ha was recorded in Guntur (Lam). The yield in NBeG 47 was 24.20 q/ha. The average yields were 16.01 per cent higher in demonstrations over check.

Table 3.16.2. Performance of pulses varieties and technologies under CFLD on Pulses in Andhra Pradesh

Crop	Variety	KVKs	Yield (q/ha)		% Increase over check
			Demo	Check	
Kharif					
Blackgram	TBG 104	Kurnool (Yagantipalli), West Godavari (Undi), West Godavari (VR Gudem), Prakasam (Darsi), Guntur (Lam)	17.20	14.10	21.99
Greengram	WGG 42	Anantapur (Kalyandurg), Anantapur (Reddipalli), Chittoor (RASS), Krishna (Garikapadu), West Godavari (Undi), Visakhapatnam (BCT)	3.71	2.71	36.90
	IPM-2 14	Prakasam (Darsi), Guntur (Lam), Vizianagaram	13.90	12.90	7.75
Redgram	PRG 176	Anantapur (Reddipalli), Visakhapatnam (BCT), Kurnool (Yagantipalli)	7.60	5.60	35.71
	LRG 52	Anantapur (Kalyandurg), Anantapur (Reddipalli), Chittoor (RASS), Krishna (Garikapadu), Kurnool (Banavasi), Kurnool (Yagantipalli), Prakasam (Darsi), Guntur (Lam), Kadapa (Utukur), Vizianagaram, West Godavari (VR Gudem)	12.60	9.60	31.25
Rabi					
Blackgram	TBG 104	Chittoor (RASS), Kadapa (Utukur), Kurnool (Banavasi), East Godavari (Pandirimamidi), Nellore (Periyavaram), Visakhapatnam (Kondempudi), Krishna (Garikapadu), West Godavari (Undi), West Godavari (VR Gudem)	12.70	10.40	22.12
	LBG 752	Krishna (Ghantasala) and Srikakulam	16.00	14.50	10.34
	LBG 787	Nellore	7.70	6.00	28.33
Greengram	WGG 42	Chittoor (RASS), Visakhapatnam (BCT), West Godavari (Undi)	5.10	3.60	41.67
	IPM-2 14	Srikakulam, Visakhapatnam (Kondempudi)	6.60	5.00	32.00
Bengal gram	NBeG 49	Anantapur (Reddipalli), East Godavari (Pandirimamidi), Guntur (Lam), Prakasam (Darsi), Kurnool (Banavasi), Kurnool (Yagantipalli), Kadapa (Utukur)	21.20	18.10	17.13
	NBeG 47	Guntur (Lam)	24.20	22.30	8.52
Summer					
Blackgram	TBG 104	West Godavari (VR Gudem)	15.80	11.80	33.90

Geo Tagging of CFLD black gram fields at KVK Kadapa (Utukur)

Erection of Yellow and Blue Sticky Traps in Black gram field at KVK West Godavari (Undi)

Field day in Blackgram (TBG 104) - KVK Kurnool (Banavasi)

Distribution of inputs-Pulse wonder to beneficiary farmers

Demonstration of YMV resistant greengram variety WGG 42 KVK Vizianagaram

Distribution of inputs to farmers

CFLD fields of redgram variety LRG 52 - KVK Ananthapuram

Field day on Bengal gram variety NBeG 49- KVK Prakasam (Darsi)

Field day of CFLD Bengal gram variety NBeG-49 -KVK Ananthapuram (Reddipalli)

Field visit in CFLD plots of Bengal gram variety NBeG 49 - KVK Guntur (Lam)

Telangana

In Telangana a total of 1053 demonstrations were organized on pulses by 16 KVKs in an area of 450 ha in *kharif, rabi* and summer seasons.

Blackgram

A Total of 75 demonstrations were conducted in 30 ha area during *rabi* season on varieties PU 31 and LBG 752. PU 31 recorded an average yield of 15.80 q/ha against 13.60 q/ha in check while LBG 752 recorded 12.80 q/ha over the check yield of 8.90 q/ha. The average yields were 23.03 per cent higher in demonstrations over check.

Greengram

In greengram, 223 demonstrations were conducted in 110 ha wherein the varieties WGG 42, MGG 347, MGG 351 and MGG 295 were demonstrated in *kharif, rabi* and summer seasons. During *kharif* season, variety MGG 347 recorded an average yield of 5.64 q/ha. WGG 42 recorded an average yield of 4.56 q/ha. During *rabi* season, WGG 42 recorded 9.51 q/ha against the check yield of 8.33 q/ha. MGG 295 gave 14.0 q/ha and MGG 351 yielded 15.0 q/ha. During summer, WGG 42 recorded 8.12 q/ha over check yield of 7.25 q/ha. The average yield increase in the demonstrations were 18.12, 18.23 and 13.21 per cent in *kharif, rabi* and summer seasons, respectively.

Redgram

Redgram varieties PRG 176, WRG 65, WRGE 93, LRG 52 and WRGE 97 were demonstrated in 210 ha area and 510 demonstrations. WRG 65 recorded an average yield of 14.12 q/ha as compared to check yield of 11.94 q/ha while highest yield of 15.50 q/ha was in Karimnagar (Ramagirikhilla). PRG 176 recorded an average yield of 10.44 q/ha against check yield of 8.10 q/ha. WRGE 93 along with integrated crop management practices recorded an average yield of 12.50 q/ha. Highest yield 14.40 q/ha recorded in Khammam (Kothagudem). LRG-52 recorded 10.80 q/ha in Nalgonda (Gaddipally) and WRGE 97 recorded 8.47 q/ha in Nalgonda (Kampasagar). On an average, the yields in demonstrations were 20.84 per cent higher than check yields.

Bengal gram

Bengal gram varieties NBeG 3 and NBeG 49 were demonstrated in 100 ha with 245 demonstrations. NBeG 3 recorded an average yield of about 21.13 q/ha over check yield of 18.95 q/ha while NBeG 49 recorded an average yield of 17.58 q/ha against check yield of 13.32 q/ha. The average yields in demonstrations were 17.34 per cent higher than the check.

Table 3.16.3. Performance of pulses varieties and technologies under CFLD on pulses in Telangana

Crop	Variety	Name of KVK	Yield (q/ha)		% Increase over check
			Demo	Check	
Kharif					
Green gram	WGG 42	Nalgonda (Gaddipally), Mahabubnagar (YFA)	4.56	3.50	30.29
	MGG 347	Khammam (Wyra), Warangal (Malyal)	5.64	4.98	13.25
Red gram	PRG 176	Medak (Tuniki), Mahabubnagar (Palem), Mahabubnagar (YFA), Ranga Reddy, Warangal (Mamnoor)	10.44	8.10	28.89
	WRG 65	Adilabad, Mancherial, Karimnagar (Jammikunta, Ramagirikhilla)	14.12	11.94	18.26
	WRGE 93	Warangal (Malyal), Khammam (Wyra), Khammam (Kothagudem)	12.50	10.17	22.91
	LRG 52	Nalgonda (Gaddipally)	10.80	9.25	16.76
	WRGE 97	Nalgonda (Kampasagar)	8.47	8.05	5.22
Rabi					
Blackgram	LBG 752	Khammam (Kothagudem)	12.80	8.90	43.82
	PU 31	Nalgonda (Gaddipally), Mahabubnagar (Palem)	15.80	13.60	16.18
Greengram	WGG 42	Warangal (Mamnoor)	9.51	8.33	14.13
	MGG 295	Karimnagar (Ramagirikhilla)	14.00	11.00	27.27
	MGG 351	Warangal (Malyal)	15.00	13.25	13.21
Bengal gram	NBeG 3	Adilabad, Mahabubnagar (Palem), Nizamabad, Warangal (Mamnoor)	21.13	18.95	11.50
	NBeG 49	Mahabubnagar (Madanapuram), Karimnagar (Ramagirikhilla) Medak (Tuniki), Medak (DDS)	17.58	13.32	31.98
Summer					
Greengram	WGG 42	Karimnagar (Jammikunta)	8.12	7.25	12

Demonstration of greengram variety WGG 42 - KVK Warangal (Malyal)

Field visit to CFLD redgram variety WRG 65 plots - KVK Adilabad

Field day and field visit of CFLD redgram variety PRG 176 - KVK Khammam (Wyra)

Field day on Bengal gram variety NBeG 3 - KVK-Mahabubnagar (YFA)

Field visit to CFLD blackgram plots with agriculture department officials

Field visit of Director of Extension, PJTSAU to Bengal gram variety NBeG 49 plots - KVK Nizamabad

Tamil Nadu

In Tamil Nadu, 24 KVK's conducted 1640 demonstrations in 676 ha on blackgram, greengram and redgram during *kharif* season and blackgram, greengram, and Bengal gram during *rabi* season and greengram and blackgram during summer season.

Blackgram

A total of 970 demonstrations were conducted on blackgram in 400 ha in *kharif*, *rabi* and summer seasons. Blackgram varieties VBN 6, VBN 8 and MDU 1 were demonstrated during *kharif* and *rabi* seasons. During kharif season VBN 8 recorded an average yield of 7.77 q/ha over 6.63 q/ha check yield with highest yield recorded in 9.40 q/ha in Dharmapuri district. During *rabi* season, the average yield of VBN 8 was 8.10 q/ha and the highest yield of 10.40 q/ha was recorded in Kancheepuram. During *rabi*, blackgram variety VBN 6 registered an average yield of 7.72 q/ha against 5.03 q/ha in check plot and the highest yield of 9.90 q/ha was recorded in Kancheepuram. The blackgram varieties and production technologies demonstrated gave 23.82, 22.07 and 21.10 per cent higher yields than check varieties during *kharif*, *rabi* and summer seasons, respectively.

Greengram

Greengram varieties CO 8 and VBN 4 were demonstrated in 186 ha and 465 farmer's fields during *kharif* and *rabi* seasons. During *kharif* season CO 8 variety recorded an average yield of 7.78 q/ha as against 7.06 q/ha in check plots. The highest yield of 9.50 q/ha was recorded in Dharmapuri district. In *rabi* season, the average yield recorded by CO 8 was 6.88 q/ha as compared to check yield of 5.61 q/ha. The highest yield of 9.70 q/ha was recorded in Kancheepuram district. VBN 4 recorded average yield of 10.45 q/ha over 8.75 q/ha in check variety in Kancheepuram district. The average increase in yield of demonstrated greengram varieties were 28.35 and 28.57 per cent over check varieties during kharif and rabi seasons.

Redgram

Redgram varieties CO 8 and Co (RG) 7 were demonstrated in 40 ha and 100 demonstrations during *kharif* season. CO 8 recorded an average yield of 12.84 q/ha against 10.55 q/ha in check variety while CO (RG) 7 recorded an average yield of 4.60 q/ha against 4.00 q/ha in check variety. The mean yield in the varieties demonstrated was 20.02 per cent higher than the check varieties.

Bengal gram

A total of 105 demonstrations were conducted in 50 ha during *rabi* and summer seasons with JAKI 9218, CO 4 and NBeG 47. During *rabi* season, NBeG 47 recorded 15.20 q/ha in Dindigul district against 11.30 q/ha in check variety while CO 4 recorded 15.50 q/ha against 13.00 q/ha in check variety in Tirupur district. During summer, the variety JAKI 9218 recorded an average yield of 12.28 q/ha over 10.28 q/ha check yield. The yield increase in the demonstrated varieties and technologies over check were 23.89 and 19.46 per cent in *rabi* and summer, respectively

PUDUCHERRY

In Puducherry, 50 demonstrations were conducted during rabi on blackgram variety VBN 8 and greengram variety CO 8 in 20 ha. Blackgram variety VBN 8 recorded an average yield of 5.81 q/ha over 3.70 q/ha in check while greengram variety CO 8 recorded 5.13 q/ha over 3.50 q/ha check yield. The average yield increase in demonstrations were 57.03 in blackgram and 47.57 per cent in greengram over their respective checks.

Table 3.16.4. Performance of pulses varieties and technologies under CFLD Pulses in Tamil Nadu

Crop	Variety	Name of KVK/ District	Average yield (q/ha)		% Increase over check
			Demo	Check	
Kharif					
Blackgram	VBN 6	Erode	8.14	7.40	10.00
	VBN 8	Dharmapuri, Dindigul, Thiruvannamalai, Madurai, Namakkal, Villupuram	7.77	6.63	17.19
Greengram	CO 8	Dharmapuri, Dindigul, Madurai, Namakkal, Villupuram	7.78	7.06	10.20
Redgram	CO 8	Karur	12.84	10.55	21.71
	CO (Rg) 7	Dharmapuri, Krishnagiri	4.60	4.00	15.00
Rabi					
Blackgram	VBN 8	Ariyalur, Kancheepuram, Erode, Nagapattinam, Sivaganga, Madurai, Pudukkottai, Thiruvannamalai, Thiruvarur, Tirunelveli, Tiruvallur, Villupuram, Villupuram II, Virudhunagar	8.10	6.67	21.44
	VBN 6	Kancheepuram, Theni, Karur	7.72	5.03	53.48
	MDU 1	Thoothukudi	6.44	4.96	29.84
Greengram	CO 8	Karur, Kancheepuram, Nagapattinam, Thiruvarur, Thoothukudi, Tiruvallur, Villupuram, Virudhunagar	6.88	5.61	22.63
	VBN 4	Kancheepuram	10.45	8.75	19.43
Bengal gram	NBeG 47	Dindigul	15.20	11.30	34.51
	CO 4	Tiruppur	15.50	13.00	19.23
Summer					
Blackgram	VBN 8	Tiruchirappalli	9.87	8.15	21.10
Bengal gram	Jaki 9218	Coimbatore	12.28	10.28	19.46

Demonstration of Blackgram variety VBN 8 at KVK Dindigul

Demonstration of blackgram variety VBN 8

Field visit to blackgram-KVK Ariyalur

Demonstration on pulse wonder foliar spray - KVK Thiruvannamalai

Performance of CFLD greengram variety CO 8 - KVK Kancheepuram

Field visit to CFLD redgram variety CO 8 (CO (RG) 8) - KVK Krishnagiri

Demonstrated plots of redgram variety CO 8 (CO(RG) 8)-KVK Dharmapuri

Demonstration of CFLD Bengal gram variety (NBeG 49)-KVK Dindigul

Table 3.16.5. Performance of pulses varieties and technologies under CFLD Pulses in Puducherry

Crop	Variety	Name of KVK/ District	Average yield (q/ha)		% Increase over check
			Demo	Check	
Rabi					
Blackgram	VBN 8	Karaikal	5.81	3.70	57.03
Greengram	CO 8	Karaikal	5.13	3.50	46.57

3.17 Cluster Frontline Demonstrations (CFLDs) on Oilseeds under NMOOP

Cluster Frontline Demonstrations (CFLDs) on oilseeds programme was organized during kharif, rabi and summer seasons to demonstrate the production potential of newly released technologies in farmer's fields at different locations under National Food Security Mission (NFSM). The crops covered are groundnut, sesame, sunflower, castor, safflower and niger. A total of 2420hectares area was allotted to Zone-X and the programme was implemented by organizing 5250 demonstrations in 2100 ha area by 47 KVKs in Andhra Pradesh, Tamil Nadu and Telangana states.

Andhra Pradesh

A total of 2675Cluster frontline demonstrations on oil seeds were implemented by 18 KVKs in Andhra Pradesh during 2019-20 in groundnut, sesame, sunflower, castor, safflower and niger crops in an area of 1070ha during kharif, rabi and summer seasons.

Groundnut

KVKsof Andhra Pradesh conducted 1275Cluster FLDs on groundnut crop covering an area of 510 ha in *kharif, rabi* and *summer* seasons. Technology demonstrated included improved variety with integrated crop management practices. During *kharif,* improved variety Kadiri Harithandhra increased the yields by 10%over check yield of 13 q/ha with demo yield of 14.3 q/ha in Anantapur district. During *rabi*, demonstrations were conducted with improved variety Dharani and K-9 of which Dharani recorded highest yield of 35q/ha in Nellore district under irrigated conditions.

Sesame

A total of 850 Cluster frontline demonstrations on sesame crop were taken up in340 ha together inrabiand summer seasons. In *rabi*, improved variety YLM-66 and JCS-1020 along with other technological interventions gave good yields to farmers. During *rabi* season varietal demonstration of YLM-66 with recommended package of practices gave demonstration yield of 10.19 q/ha with 4.6% increase in yield over demonstration yield of 9.7 q/ha in Kadapa district. Whereas variety JCS-1020 showed 30.68% increase in yield over check yield in Kurnool district.

Castor

A total of 125cluster frontline demonstrations were conducted in 50 ha by KVKs of Kurnool Anantapur and Prakasam districts on castor during *kharif* and *rabi* seasons. Technology demonstrated included improved hybrid with integrated crop management practices. DCH-519 hybrid resulted in average demonstration yield of 14.5 q/ha with 8.61% increase against check yield of 13.36q/ha in *kharif* season. Yield of 14.27q/ha was recorded in case of ICH-66 in *kharif* season with 39.36% increase in yield against the check yield of 10.24q/ha.

Sunflower

A total of 150 CFLDs in 60 ha were conducted on sunflower by KVKs in Chittoor, Prakasam and Visakhapatnam districts during *rabi* season. The technology demonstrated was improved hybrid with integrated crop management practices. Improved hybridKBSH-53 resulted in 15.23q/ha of average yield with 15.55% increase against check plot yield of 13.18q/ha in Chittoor district.

Safflower

A total of 200CFLDs in 80 ha were organized in safflower in Kurnool and Anantapur districts during *rabi* season under irrigated situation. Safflower hybrid ISF-764recorded highest average yield of 14.1q/ha against check yield of 9.65q/ha with 25.51% increase in yield over check plot in Kurnool district.

Niger

A total of 75 CFLDs on niger were conducted by KVK Visakhapatnam and Vizianagaram districts during *kharif* and *rabi*s eason in 30 ha area. The technology demonstrated was varietal demonstration with integrated crop management practices. The variety KBN-1 resulted in average yield of 6.31q/ha against check yield of 5.24 q/ha with 20.41% increase in yield during rabi season in Vizianagaram district.

Table 3.17.1. Cluster Frontline Demonstrations (CFLDs) on Oilseeds

Crop	State	Area (ha)		No. of Demonstrations	
		Target	Achievement	Target	Achievement
Kharif					
Groundnut	Andhra Pradesh	310	80	775	200
	Telangana	60	10	150	25
	Tamil Nadu	180	40	450	100
	Sub total	**550**	**130**	**1375**	**325**
Castor	Andhra Pradesh	120	40	300	100
	Telangana	20	20	50	50
	Sub total	**140**	**60**	**350**	**150**
Sunflower	Andhra Pradesh	20	0	50	0
	Tamil Nadu	20	10	50	25
	Sub total	**40**	**10**	**100**	**25**
Niger	Andhra Pradesh	40	20	100	50
Sesame	Andhra Pradesh	60	0	150	0
	Tamil Nadu	20	0	50	0
	Sub total	**80**	**0**	**200**	**0**
Soybean	Telangana	60	0	150	0
Total *Kharif* season		**910**	**220**	**2275**	**550**
Rabi and Summer					
Groundnut	Andhra Pradesh	300	430	750	1075
	Telangana	170	220	425	550
	Tamil Nadu	360	500	900	1250
	Sub total	**830**	**1150**	**2075**	**2875**
Sesame	Andhra Pradesh	280	340	700	850
	Telangana	80	80	200	200
	Tamil Nadu	100	110	250	275
	Sub total	**460**	**530**	**1150**	**1325**
Safflower	Andhra Pradesh	60	80	150	200
	Telangana	0	20	0	50
	Sub total	**60**	**100**	**150**	**250**
Castor	Andhra Pradesh	60	10	150	25
	Telangana	0	20	0	50
	Sub total	**60**	**30**	**150**	**75**
Niger	Andhra Pradesh	20	10	50	25
Sunflower	Andhra Pradesh	40	60	100	150
	Telangana	40	0	100	0
	Sub total	**80**	**60**	**200**	**150**
Total *Rabi* & Summer Season		**1510**	**1880**	**3775**	**4700**
Grand Total		**2420**	**2100**	**6050**	**5250**

Table 3.17.2. 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	K-9	Kurnool, Ananthapuram, Vizianagaram	13.79	12.04	14.53
Groundnut	Kadiri Harithandhra	Ananthapuram	14.30	13.00	10
Groundnut	Dheeraj	Chittoor	10.94	7.82	39.90
Castor	ICH-66	Kurnool	14.27	10.24	39.36
Castor	DCH-519	Anantapur	14.50	13.35	8.61
Niger	KBN-1	Vizianagaram	6.07	5.13	18.32
Niger	DNS-4	Visakhapatnam	4.79	3.30	45.15
Rabi and Summer					
Groundnut	Dharani	Guntur, Kadapa, Nellore, Kurnool, East Godavari, Chittoor, Krishna	22.97	18.54	23.89
Groundnut	K-9	Kadapa, Ananthapuram	25.90	20.70	25.12
Sesame	YLM-66	Guntur, Kadapa, Nellore, West Godavari, East Godavari, Vizianagaram, Visakhapatnam, Srikakulam	7.83	7.59	3.16
Sesame	JCS-1020	Kurnool	10.69	8.18	30.68
Niger	KBN-1	Vizianagaram	6.31	5.24	20.41
Sunflower	KBSH-53	Chittoor	15.23	13.18	15.55
Safflower	ISF-764	Kurnool, Anantapur	12.17	9.71	25.33
Safflower	PBNS-12	Kurnool	11.90	9.56	24.47

Demonstration in Niger, KVK Visakhapatnam (BCT)

Demonstration in Groundnut, KVK Krishna (Garikapadu)

Demonstration in safflower, KVK Kurnool (Yagantipalli)

Demonstration in Sunflower, KVK, Chittoor (RASS)

Tamil Nadu

In Tamil Nadu1650 Cluster Frontline Demonstrations on oilseeds were implemented by 17 KVKs during 2020-21in groundnut, sesame and sunflower crops in an area of 660ha.

Groundnut

A total of 1350 Cluster FLDs on groundnut were conducted by the KVKs of Tamil Nadu covering an area of 540 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 and TMV-14. Highest average demonstration yield of 24.03 q/ha was recorded with Dharani variety with 29.05% increase in yield compared to check yield in Tiruvannamalai district. During *rabi,* groundnut demonstrations were conducted with improved variety Dharani, CO-7, GJG-32 and VRI-8 following integrated crop management practices. VRI-8 variety recorded highest average demonstration yield of 30.07q/ha, resulting in 7.39% increased yield compared to check yield of 28q/ha in Tiruvallur district.

Sesame

During rabi season, 275 CFLDs in 110 ha were conducted on sesame crop. VRI-3 variety recorded highest increase in yield of 82.16% over check yield of 4.15 q/ha in Perambalur district during *rabi* season.

Sunflower

A total of 25 CFLDs in 10 ha on sunflower were conducted by KVK, Dindigul during *kharif* season. Technology demonstrated included improved hybrid with integrated crop management practices. The hybrid CO-SFV-5recorded 21.5% increase in yields compared check yield.

Table 3.17.3. 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	Tiruvannamalai, Dharmapuri, Namakkal	19.05	15.25	24.91
Groundnut	TMV-14	Dindigul	15.75	13.50	16.67
Sunflower	CO-SFV-5	Dindigul	11.30	9.30	21.50
Rabi and Summer					
Groundnut	Dharani	Perambalur, Tuticorin, Tiruvannamalai, Dharmapuri, Dindigul, Krishnagiri, Namakkal, Villupuram-I, Villupuram-II	23.06	18.24	26.42
Groundnut	CO-7	Karur	23.28	18.50	25.83
Groundnut	GJG-32	Ariyalur	21.97	18.10	21.38
Groundnut	VRI-8	Vellore, Tiruvallur	26.80	21.70	23.50
Sesame	VRI-3	Perambalur	7.56	4.15	82.16

Field visit in sunflower crop, KVK Dindigul

Demonstration of light trap in groundnut crop, KVK Karur

Demonstration of installation ofYellow Sticky Trap in Groundnut crop, KVK Namakkal

Telangana

CFLDs on oilseeds programme was implemented by 10 KVKs in Telangana during kharif, rabi and summer seasons in groundnut, sesame and castor crops in an area of370ha.

Groundnut

A total of 575 Cluster FLDs on groundnut were conducted covering an area of 230 ha in *Kharif, rabi* and *summer* seasons in Telangana. The varieties demonstrated were K-9, Kadiri Haritandhra, ICGV-00350 and Kadiri Amaravati. ICGV-00350 along with integrated crop management practices resulted in 23.06% increase in yields over check yield in Nalgonda district with average demonstration yield of 21.66 q/ha during *rabi* season.

Sesame

A total of 200 cluster frontline demonstrations in 80 ha were conducted on sesame in *rabi* and summer season.

Safflower

A total of 25 cluster frontline demonstrations on safflower in 20 ha were taken up in *rabi* season with other technological interventions. The improved variety ISF-764resulted in 32.53% increase in yields with demonstration yield of 14.91 q/ha over the check yield of 11.25 q/ha in Nizamabad district.

Castor

A total of 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 DCH-519 resulted in an average yield of 8.37 q/ha against 4.26 q/ha of check with 96.48% increase in yields. During *rabi,* the hybrid DCH-519 resulted in yield of 16.90 q/ha against 17.36 q/ha of check with 49.91% increase in yields.

Table 3.17.4. Performance of CFLDs on oilseeds in Telangana

Crop	Variety	Name of KVK/ District	Average Yield(q/ha)		% Increase over check
			Demo	Check	
Kharif					
Groundnut	Kadiri Harithandhra	Nalgonda	19.54	16.52	18.28
Castor	DCH-519	Mahabubnagar	8.37	4.26	96.48
Rabi and Summer					
Groundnut	ICGV-00350	Nalgonda	21.66	17.6	23.06
Groundnut	Kadiri Amar-avati	Karimnagar	23.00	20.00	15.00
Groundnut	K-9	Warangal, Nagar Kurnool	24.67	22.00	12.13
Safflower	ISF-764	Nizamabad	14.91	11.25	32.53
Castor	DCH-519	Mahabubnagar	17.36	11.58	49.91

Field day in Groundnut crop, KVK Nalgonda (Gaddipally)

Field day in Castor crop, KVK Mahabubnagar (YFA)

3.18. 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 2020-21, a total of 4175.18 q of foundation and certified seed of pulses have been produced under the seed hub programme in the zone.

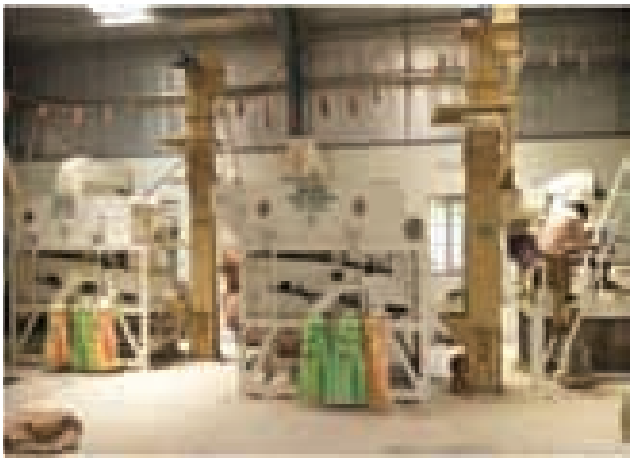
In Tamil Nadu, 1031.20 q of quality seed of black gram (VBN-6, VBN-8, VBN-10), green gram (VBN-4 and C0-8) and cow pea (VBN-3) was produced. The class of seed includes certified seed, and foundation seed during late kharif and rabi seasons. In Telangana, a total of 574.2 q of certified and foundation seed of newly released varieties of green gram (WGG-42), red gram (PRG-176), black gram (PU-31) and horse gram (CRHg-4 and 22) was produced. A total of 2570.29 q of certified and foundation seed of black gram (LBG-752, TBG-104, VBN-8), red gram (PRG-176, LRG-52), green gram (WGG-42, Sikha, Virat) and Bengal gram (NBeG-3, NBeG-47,49,119) have been produced by the KVKs of Andhra Pradesh under the seed hub programme.

Table 3.18.1. 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)	Red gram	PRG-176	*Kharif*	13.5	500	130	FS
	Black gram	PU-31	*Rabi*	20	200	20.5	FS
	Green gram	WGG-42	*Rabi*	13.5	300	301.7	FS
	Total				**1000**	**452.2**	
Ranga Reddy	Red gram	PRG-176	*Kharif*	40	200	100	FS
	Green gram	WGG-42	*Kharif*	6	50	10	FS
	Horse gram	CRHG-4, CRHG-22	*Kharif*	5	50	2	CS
	Green gram	WGG-42	*Rabi*	8	50	10	CS
	Total				**350**	**122**	
Total (Telangana)					**1350**	**574.2**	
Andhra Pradesh							
Ananthapuram (Reddipalli)	Red gram	LRG-52	*Kharif*	40	600	355.4	FS
		PRG-176					
	Green gram	WGG-42	*Kharif*	20	150	100	FS
		IPM-2-14					
	Bengal gram	NBeg-47 & 49	*Rabi*	10	250	20	FS
	Total				**1000**	**475.4**	
Kurnool (Yagantipalli)	Green gram	Sikha	*Kharif*	1.5	25	28.89	FS
		Virat	*Kharif*	1		7.10	FS
	Red gram	LRG-52	*Kharif*	14	300	187.61	FS
		PRG-176	*Kharif*	3		52.0	FS
		PRG-176	*Kharif*	7		104.0	FS
	Black gram	VBN-8	*Kharif*	2	200	55.86	CS
		GBG-1	*Kharif*	1		18.80	CS
		TBG-104	*Kharif*	9		178.44	CS

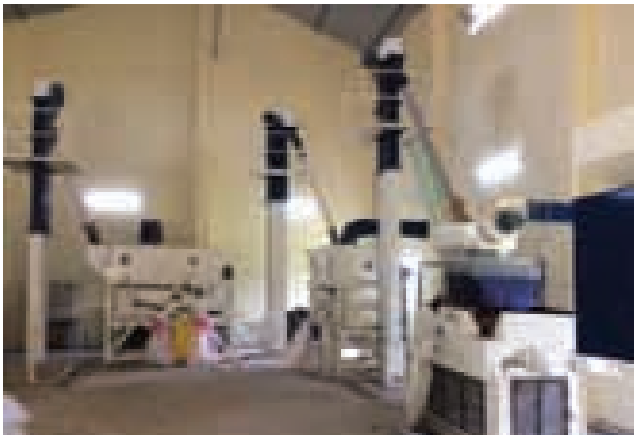
State and KVK	Crop	Variety	Season	Area Sown (ha)	Target (q)	Production (q)	Category of Seed
Kurnool (Yagantipalli)	Bengal gram	NBeG-3	*Rabi*	14	475	275.45	FS
		NBeG-47	*Rabi*	3		34.00	FS
		NBeG-49	*Rabi*	12		242.74	FS
		NBeG-119	*Rabi*	4		76.00	FS
		NBeG-452	*Rabi*	4		90.0	FS
	Total				**1000**	**1350.89**	
Krishna (Ghantasala)	Black gram	LBG 752	*Rabi*	34	1000	550	CS
		LBG 787	*Rabi*	10		150	CS
	Total				**1000**	**700**	
Srikakulam	Black gram	TBG-104	*Rabi*	20	100	34	FS
	Green gram	IPM-2-14	*Rabi*	10	125	10	CS
	Total				**225**	**44**	
Total (Andhra Pradesh)					**3225**	**2570.29**	
Tamil Nadu							
Madurai	Black gram	VBN-10	*Kharif*	15	100	0.44	FS/CS
	Green gram	CO-8	*Kharif*	10	550	27.48	CS
		VBN-8	*Kharif*	5.7		34.32	FS
	Blackgram	VBN-8	*Rabi*	40	125		
	Green gram	CO-8	*Summer*	5	100	38	CS
	Blackgram	VBN-8	*Summer*	11.5	125	70.55	CS
	Total				**1000**	**170.79**	
Virudhunagar	Black gram	VBN-8	*Rabi*	10.4	500	121.94	CS
		CO-6		10			CS
	Green gram	CO-8	*Rabi*	13	500	3.50	CS
	Total				**1000**	**125.44**	
Salem	Green gram	VBN-8	*Kharif*	18.30	300	82.1	CS
	Cowpea	VBN-3	*Rabi*	13.60	100	24.71	FS
	Blackgram	CO-8	*Summer*	29.20	600	120.93	CS
	Total				**1000**	**227.74**	
Kancheepuram	Black gram	VBN-8	*Rabi*	1.60	600	9.509	FS
		VBN-8	*Rabi*	4.0		6.0*	CS
		VBN-10	*Rabi*	0.80		2.0*	FS
	Green gram	VBN-4	*Rabi*	2.0	300	20.00**	FS
		Co-8	*Rabi*	0.4		4.00*	FS
	Black gram	VBN-8	*Summer*	1.2	100	6.54	CS
	Total				**1000**	**48.049**	

State and KVK	Crop	Variety	Season	Area Sown (ha)	Target (q)	Production (q)	Category of Seed
Villupuram	Black gram	VBN-8	*Rabi*	14.4	900	125.67	CS
		VBN-8		4			
	Green gram	CO-8	*Rabi*	1.6	100	10	CS
	Total				**1000**	**135.67**	
Tiruchirappalli	Black gram	VBN-8	*Rabi*	134	1000	323.51	FS& CS
	Total				**1000**	**323.51**	
Total (Tamil Nadu)					**6000**	**1031.20**	
Grand Total					**10575**	**4175.18**	



Field day in Groundnut crop, KVK Nalgonda (Gaddipally)

Field day in Castor crop, KVK Mahabubnagar (YFA)



Field day in Groundnut crop, KVK Nalgonda (Gaddipally)

Field day in Castor crop, KVK Mahabubnagar (YFA)

3.19. Frontline Demonstrations (FLDs) on Nutri Cereals

Frontline demonstrations on Nutri cereals programme was conducted through KVKs associated with ICAR-ATARI, Zone-10 during kharif 2020-21 in Andhra Pradesh, Telangana and Tamil Nadu states. A total of 28 ha has been allotted to this zone out of which 16 ha was implemented with 50 demonstrations on bajra, jowar, barnyard millet and ragi crops.

Table 3.19.1. State wise allotment of demonstrations under Nutri Cereals programme

State	KVKs (No)	Crop	Season	Area (ha)
Andhra Pradesh	1	Bajra	*Kharif*	4
Tamil Nadu	4	Jowar	*Kharif*	4
		Barnyard millet	*Kharif*	4
		Jowar	*Kharif*	4
		Jowar	*Kharif*	4
Telangana	1	Jowar	*Kharif*	4
		Ragi	*Kharif*	4
Total	**6**			**28**

Table 3.19.2. KVK wise Achievements during *Kharif* 2020-21

State and KVK	Crop	Season	Area (ha)		Demonstrations (No)	
			T	A	T	A
Andhra Pradesh						
Kurnool (Banavasi)	Bajra	*Kharif*	4	4	10	10
Tamil Nadu						
Coimbatore	Jowar	*Kharif*	4	0	10	0
Madurai	Barnyard millet	*Kharif*	4	4	10	10
Vellore		*Kharif*	4	0	10	0
Trichy	Jowar	*Kharif*	4	4	10	10
Telangana						
Mahabub-nagar (YFA)	Jowar	*Kharif*	4	0	10	0
	Ragi	*Kharif*	4	4	10	10
Total			**28**	**16**	**70**	**40**

T=Target, A=Achievement

Table 3.19.3. Varieties demonstrated in different states

State	Crop	Variety
Andhra Pradesh	Bajra	ABV-4
Telangana	Ragi	PRS-38
Tamil Nadu	Barnyard millet	MDU-1
	Jowar	Co-30

Andhra Pradesh

To promote Nutri cereals production in Andhra Pradesh, 10 demonstrations on bajra crop were conducted in an area of 4 ha during kharif season by KVK Kurnool (Banavasi) with improved Variety (ABV-4) along with recommended dose of fertilizers, weedicide and need based plant protection measures. These demonstrations recorded an average yield of 14.5 q/ha with an increase of 16% over check yield.

Telangana

KVK Mahabubnagar (YFA) conducted 10 demonstrations on ragi crop in 4 ha area in Mahabubnagar district. The demonstrations were organized during kharif season with improved variety (PRS 38) along with recommended package practices viz., timely weeding, spraying of micronutrients and need based plant protection measures. The average demonstration yield obtained was 18.47 q/ha recording 48.59% increase over check yield.

Tamil Nadu

A total of 20 demonstrations on nutria cereals were conducted in Tamil Nadu in an area of 16 ha on jowar and barnyard millet by KVK Madurai and KVK Trichy. The improved demonstrated variety barnyard millet (MDU-1) recorded an average yield 22.1q/ha with an increase of 22.7% over check yield in Madurai district. The improved jowar variety (Co-30) demonstrated by KVK Trichy recorded an average yield of 27.37q/ha with an increase of 33.05% over farmers' practice.

Table 3.19.4. Performance of Nutri-cereals in Zone X

State and KVK	Crop	Variety	Season	Demo (No)		Area (ha)		Yield (q/ha)		% Increase
				T	A	T	A	Demo	check	
Andhra Pradesh										
Kurnool (Banavasi)	Bajra	ABV-4	*Kharif*	10	10	4	4	14.5	12.5	16.00
Total (Andhra Pradesh)				**10**	**10**	**4**	**4**			
Telangana										
Mahabubnagar (YFA)	Ragi	PRS-38	Kharif	10	10	4	4	18.47	12.43	48.59
Total				**10**	**10**	**4**	**4**			
Tamil Nadu										
Madurai	Barnyard millet	MDU-1	Kharif	10	10	4	4	22.1	18	22.7
Trichy	Jowar	Co-30	Kharif	10	10	4	4	27.37	20.57	33.05
Total (Tamil Nadu)				**20**	**20**	**8**	**8**			

Demonstration of bajra by KVK Kurnool (Banavasi)

Distribution of inputs and demonstrations on finger millet by KVK Mahabubnagar (YFA)

3.20 Tribal Sub Plan (TSP)

The Tribal Sub Plan (TSP) has been implemented with an objective of 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. This has been implemented in the states of Andhra Pradesh (7 KVKs), Telangana (7 KVKs) and Tamil Nadu (2 KVKs) of the zone. The KVKs implementing tribal sub plan in Andhra Pradesh are Srikakulam, Vizianagaram, Visakhapatnam (BCT), Visakhapatnam (Kondempudi), West Godavari (V.R. Gudem), East Godavari (Pandirimamidi) and Prakasam (Darsi). In Telangana, the KVKs, Adilabad, Mancherial, Khammam (Wyra), Kothagudam, 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 Tamil Nadu. The KVKs under the project ensured that the operational area of TSP has more than 40 per cent of tribal population and the interventions of the project results in direct and measurable 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 achievements of KVKs under TSP have been presented in the following tables. KVKs conducted 41 skill training programmes benefitting 1128 tribal people and imparted skills required to establish and run micro-enterprises for income generation. A total of 3828 physical assets / micro-enterprises were established in the project benefitting 11450 tribal people.

Table 3.20.1. Achievements of interventions undertaken by KVKs under TSP

Activity	Andhra Pradesh		Telangana		Tamil Nadu		Total	
	Value	Farmers (No.)	Value	Farmers (No.)	Value	Farmers (No.)	Value	Farmers (No.)
On- farm trials (Nos.)	55	264	32	99	4	20	91	363
Frontline demonstrations (Nos.)	91	1313	60	531	15	167	151	1844
Farmer's training (Nos.)	168	4505	74	2260	14	477	242	6765
Training of Rural Youth (Nos.)	33	1279	27	831	8	231	60	2110
Training of Extension Personnel (Nos.)	46	1660	13	428	4	99	59	2088
Skill Training (Nos.)	23	597	18	531	10	310	41	1128
Extension activities (Nos.)	84	2959	82	6795	51	5375	166	9754
Production of seed (q)	259.97	1467	453.77	1744	2.89	70	713.74	3211
Planting material supplied (Nos.)	344878	649	29685	709	4413	450	374563	1358
Live-stock strains and fish finger-lings (Nos.)	273718	577	34855	283	40362	63	308573	860
Soil samples tested (Nos.)	1154	1144	1400	1400	400	400	2554	2544
Mobile agro- advisories (Nos.)	2245	27083	850	14238	77	4949	3095	41321
Micro-enterprises (Nos.)	1807	2685	2021	8765	48	614	3828	11450

Table 3.20.2. Skill training programmes conducted during 2020-21

State, KVK and title of training programme	Duration (Days)	No. of trainees
Andhra Pradesh		
Srikakulam		
Drudgery reduction implements for women	1	10
Bio fertilizer application	1	10
Farm mechanization	1	30
Vizianagaram		
Nursery management in vegetables	2	35
Plant propagation techniques in horticultural crops	3	25
Value addition to millets	3	25
Mushroom cultivation	5	25
Low-cost iron rich foods to prevent anemia	3	22
Azolla cultivation	2	25
Maintenance of backyard poultry	2	23
Importance of balanced diet and value addition to locally available foods	1	30
Visakhapatnam (BCT)		
Value addition to minor millets	3	28
Visakhapatnam (Kondempudi)		
Production of botanicals for pest and disease management	3	25
Raising of single node seedlings of sugarcane through protray technology	3	25
Raising of single node seedlings of ginger and turmeric through protray technology	3	25
Mushroom cultivation	3	25
East Godavari (Pandirimamidi)		
Low-cost vermicomposting techniques	2	34
Value addition in Jack fruit	3	25
Processing of Cashew nuts	3	50
Mushroom production technology	5	20
West Godavari (VR Gudem)		
Aquaculture Worker - RKVY - ASCI	5	25
Dry flower Technology	3	30
Processing and Value addition of Cashew Apple	2	30
Total (Andhra Pradesh)	**23**	**602**
Telangana		
Adilabad		
Raising of seedlings in pro-trays	2	30
Vermicomposting	2	30
Tomato Value addition	3	25

State, KVK and title of training programme	Duration (Days)	No. of trainees
Hands on training on dhal milling	3	25
Mancherial		
Fresh water aquaculture	3	30
Sensitization of rural youth on the use of ICT tools in agriculture	3	30
Micro irrigation and fertigation techniques	3	30
Khammam (Wyra)		
Training programme on homestead technologies-income generating activities	3	30
Khammam (Kothagudam)		
Apiculture and its management	3	30
Trellising method of tomato cultivation	3	30
Skill training on tailoring and garment construction	30	30
Skill training on production of organic fertilizers and pesticides	1	30
Warangal (Malyal)		
Honeybee rearing	1	31
Nizamabad		
Raising of seedlings in pro-trays	3	30
Soil and Water testing procedures & Importance	1	30
Skill Training on Vermicompost preparation	3	30
Tailoring and Embroidery	15	30
Value addition in Fishery (Fish Pickle, Prawn pickle)	1	30
Total (Telangana)	**29**	**871**
Tamil Nadu		
Namakkal		
Value addition in Fishery (Fish Pickle, Prawn pickle)	1	30
ICM practices, post-harvest techniques and value addition in Black pepper and Coffee	1	20
Minor millets production and value addition technology	1	60
Oyster Mushroom cultivation and honeybee rearing techniques	1	12
Importance of lime application on yield improvement in pepper	1	30
Integrated fish farming and cage culture	1	30
Profitable Desi chicken rearing	1	48
Pepper harvesting by using Aluminium unipole pepper ladder	1	18
Salem		
Value addition of minor millets	1	30
Desi poultry farming - EDP	1	32
Protected cultivation	1	30
Total (Tamil Nadu)	**11**	**340**
Grand Total	**63**	**1813**

FLD on soil test-based fertilizer application – KVK, Adilabad, Telangana

Method demonstration on lime application to pepper- KVK, Namakkal

Training program on IPM in cashew- KVK, Vizianagaram, Andhra Pradesh

Skill training on vermicompost making- KVK, Pandirimamidi, Andhra Pradesh

Table 3.20.3. Physical assets / micro-enterprises established in tribal areas during 2020-21

State, KVK and enterprise	No. of units	No. of beneficiaries
Andhra Pradesh		
Srikakulam		
Mini dhal mills	1	20
Mini rice mills	3	20
Biscuit cutters	1	20
Tarpaulins	20	20
Power sprayer	1	20
Four stroke engines	1	10
Chop cutter	1	10
Vermicompost beds	2	10
Vizianagaram		
Battery sprayers	30	30
Poly sheets	50	50
Crowbars	50	50
Spades	50	50
Soil and water conservation interventions	15	15

State, KVK and enterprise	No. of units	No. of beneficiaries
18 W LED based solar lighting systems at KVK	14	14
Visakhapatnam (BCT)		
Shade net (400 sqm)	3	353
Flour mill	4	67
Rice mill	3	28
Grain storage bins	80	80
Apiary units – *A. cerana indica*	30	10
Apiary units – *A. millifera*	15	5
Electric Oven	1	5
Tarpaulins	32	32
planter	1	23
Water transporting system	1	47
Power weeders	2	21
Visakhapatnam (Kondempudi)		
Honeybee boxes, face mask, Smoker	10	3
Microwave oven	1	10
Hermetic triple layer bags	53	15
Portrays	1400	14
Turmeric powder maker	2	10
Power operated paddy thresher	2	15
Power weeders	2	10
Sugarcane Juice making unit	2	20
Poly Tunnel Solar dryers	2	20
Jat Fire bill Hook	150	150
Hand Hoe Kurpi	150	150
Sickles	150	150
Power Sprayers	2	20
Foot Sprayers	6	30
Wheel hoes	5	25
Wheelbarrows	6	30
Biscuit dough mixture	1	10
Mixtures	5	25
East Godavari (Pandirimamidi)		
IFS unit	03	20
Apis cerana indica and *Apis mellifera* bee hives	01	12
Tarpaulins	100	100
Smoke chamber	01	42
Mushroom unit	01	05
Irrigation pipes	05	05
Agri Canon	01	01
Prakasam (Darsi)		
Backyard poultry (Kadakhnadh)	4	4
Tarpaulins	80	80

State, KVK and enterprise	No. of units	No. of beneficiaries
Vermicompost units	50	50
Battery operated knapsack sprayer	25	25
Monkey scarer device	25	25
West Godavari (V.R. Gudem)		
IFS units	10	10
Backyard poultry	40	80
Basket press	1	15
Sheep unit	18	12
Pulvulsier	2	30
Apiary units	20	10
Goat feeders	6	6
Water tanker	1	300
Trenching in cashew	50	100
Fish seed	12 ponds	36
Total (Andhra Pradesh)	**1807**	**2685**
Telangana		
Adilabad		
Portable Vermibeds	24	24
Tarpaulins	60	60
Cotton pullers	500	500
Irrigation pipes and sprinklers	309	200
Mulching	21	5
Kitchen garden kits	160	520
Bio acoustic device	4	40
Seed drill	4	40
Agro service centre (1 Cultivator, 1 Plough and 2 Seed drills)	3	150
Usha Battery sprayers	45	225
Multipurpose flour mills	4	800
9 tine Cultivator	1	10
Mancherial		
Value addition (Flour mills)	5	50
Small farm implements (Sprayers)	214	214
Farm produce cleaning /drying unit	206	206
Khammam (Wyra)		
Chilli grinding machine	4	1000
Flour mills	6	1000
Cotton stem applicators	300	300
Mobile vermin beds	18	18
Sickles	11	11
Tarpaulins	11	11
Community nutrition garden	10	10
Home stead nutrition garden	90	90

State, KVK and enterprise	No. of units	No. of beneficiaries
Khammam (Kothagudam)		
Millet processing unit	4	1000
Tarpaulins	19	100
Mini shade nets	7	250
Modified atmosphere vegetable storage bags	100	100
Power weeder	6	600
Digital Weighing machine	2	1
Bag closing machine	1	1
Hand operated wiping machine	1	1
Paper plate making machine (4 dies)	1	500
Warangal (Malyal)		
Apiary	5	25
Vermicomposting (portable vermibeds)	50	50
Primary processing (multi-purpose flour mill)	4	40
Tarpaulins	60	60
Small farm implements		
a) Hand weeders	50	50
Other enterprise/asset		
a) Embroider/ Stitching machine	12	12
b) Community Nutrition Garden	12	12
c) Homestead Nutrition Garden	100	100
Nalgonda (Kampasagar)		
Taiwan Sprayers	9	36
Tarpaulins	200	200
Shade nets	10	10
Mini shade nets	5	5
Backyard poultry units	170	170
Mini flour mills	4	8
Mini rice mill	1	2
Nizamabad		
Portable vermibeds	10	10
Multipurpose flour mills	3	15
Water transportation Pipes	25	25
Battery operated sprayers	18	18
Tailoring machines	5	5
Tarpaulins	15	15
Backyard poultry	20	20
Goatery	15	16
Total (Telangana)	**2021**	**8765**

State, KVK and enterprise	No. of units	No. of beneficiaries
Tamil Nadu		
Namakkal		
Minor millets primary processing unit	1	250
Primary processing and value addition unit for pepper coffee and cardamom	1	250
Oyster mushroom cultivation Unit	10	10
Honeybee rearing unit	10	10
Lime production unit	1	1
Fish culture	2	2
Goatery & Poultry unit	11	11
Salem		
Wet pulverizes and dry pulverizes	8	40
IIHR vertical garden structure.	1	10
TANUVAS Model Sheep unit –slatted floor	1	10
Hydroponics units	1	10
Biogas unit	1	10
Total (Tamil Nadu)	**48**	**614**

Grand Total	**3828**	**11450**

Cultivator supplied to needy tribal farmers- KVK, Adilabad, Telangana

Backyard poultry in a tribal village- KVK, Nalgonda (Kampasagar)

3.21. SWACHHTA HI SEWA PROGRAMME

Swachhta Pakhwada

Krishi Vigyan Kendras of ATARI-Zone-10, Hyderabad organized Swachhta Pakhwada during January to December 2020 by following instructions and guidelines issued by the Ministry of Home Affairs and Ministry of Health and Family Welfare, in situation of global Pandemic of COVID-19. 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 grama 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.

Swachhta activities of KVKs

- Disinfestation of KVK premises, establishment of thermal scanners, pedal operated sanitizer stands in the office. Provided face masks, sanitizers, disinfestation chemicals in the adopted villages.
- Awareness on COVID 19 at many blocks of different districts of Andhra Pradesh, Telangana, Tamil Nadu and Puducherry.
- Created awareness on social distancing, wearing mask and sanitization and distributed face masks.
- Painting the KVK premises for maintaining cleanliness.
- Awareness on non-plastic usage and cleanliness and sanitation in the KVK campus and in common places.
- Work shop on water recycling and conversion of waste to wealth.
- Planted different kinds of ornamental plants in the KVKs premises for clean and green.
- KVKs motivated local social institutions and officials to promote Swachhta in their premises.
- Explained farmers about the precautionary measures to be followed while attending the farm operations to avoid spread of COVID-19.
- KVK staff participated in cleaning of streets, drains, back yards, village streets and common places in the adopted villages and participation with line departments in creating door to door awareness camps.
- KVK programmes on dietary management against COVID-19 were telecasted in TV channels
- During 16-31 December 2020, a series of Swachhta Pakhwada activities were organized by KVKs in which 30163 participants including 534 VIPs were involved (Table 3.21.1).

Table 3.21.1. Participants in Swachhta Pakhwada activities during 16-31 December 2020

Date	Activities	No. of VIPs	No. of farmers	Others	Total
16-Dec	Display of banner at prominent places, Swachhta pledge, Stock taking & briefing of the activities organized during the Pakhwada, plantation of trees.	35	1149	1093	2277
17-Dec	Basic maintenance, 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 of old records, disposing of old and obsolete furniture, junk materials and white washing, painting.	86	631	772	1489
18-Dec	Cleanliness and sanitation drive in the villages adopted under Mera Gaon Mera Gaurav programme and other schemes by ICAR institutes and KVKs involving village community. Reviewing the progress made under ongoing Swachhta activities including implementation of SAP & providing on the spot solutions.	45	1376	505	1926

Date	Activities	No. of VIPs	No. of farmers	Others	Total
19-Dec	Cleanliness and sanitation drive within campuses and surroundings including residential colonies, common marketplaces. Stock taking of biodegradable and non-biodegradable waste disposal status and providing on the spot solutions.	15	660	879	1554
20-Dec	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 material. Promoting clean & green technologies and organic farming practices in kitchen gardens of residential colonies and at least one nearby village and providing on the spot technology solutions.	4	668	301	973
21-Dec	Campaign on cleaning of sewerage & water lines, awareness on recycling of wastewater, water harvesting for agriculture, horticulture, kitchen gardens in residential colonies in nearby villages.	27	929	615	1571
22-Dec	Organizing workshops, exhibitions, technology demonstrations on agricultural technologies for conversion of waste to wealth, safe disposal of all kinds of waste. Debate on Swachhta through seminars, awareness camps, rallies, street plays and expert talks.	46	1302	1200	2548
23-Dec	Celebration of Kisan Diwas (Farmer's Day) on 23 December inviting farmers. Felicitating and experience sharing on Swachhta initiatives by farmers and civil society officials.	118	2776	1024	3918
24-Dec	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 and any establishments.	9	1239	547	1795
25-Dec	Cleaning of public places, community marketplaces and nearby tourist and selected spots.	7	2195	439	2641
26-Dec	Fostering healthy competition: organizing competition and rewarding best offices, residential areas, campuses on cleanliness. Quiz, assay & drawing competitions for school children and village youth.	7	634	1078	1719
27-Dec	Awareness on waste management and other activities including utilization of organic waste, generation of wealth from waste, polythene free status. Composting of kitchen and home waste material, promoting clean and green technologies and organic farming practices in new area.	2	678	227	907
28-Dec	Campaign on cleaning of sewerage and water lines, awareness on recycling of wastewater, water harvesting for agriculture, horticulture, kitchen gardens in residential colonies of nearby villages.	5	935	643	1583
29-Dec	Visits to community waste disposal sites, compost pits, cleaning and creating awareness on treatment and safe disposal of biodegradable, non-biodegradable waste by involving civil and farming community.	17	1029	490	1536
30-Dec	Involvement of VIP, VVIPs in Swachhta activities, involvement of print and electronic media to ensure adequate publicity to Swachhta Pakhwada programme.	57	1267	736	2060
31-Dec	Organization of press conference for highlighting the activities of Swachhta Pakhwada by involving all stake holders including farmers, VIPs, press and electronic media.	54	961	651	1666
Total		**534**	**18429**	**11200**	**30163**

KVK Darsi, Andhra Pradesh

KVK Tirunelveli, Tamil Nadu

KVK Jammikunta, Telangana

KVK Palem, Telangana

3.22. MERE GAON MERA GAURAV (MGMG)

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 8 ICAR- institutes in Andhra Pradesh, Telangana and Tamil Nadu states. 58 teams of scientists have adopted 105 villages and organized 1205 activities benefiting 22311 farmers and rural people. About 212 scientists as 58 teams visited 105 villages and conducted various activities in the adopted villages involving farmers. They have conducted 26 training programmes on agriculture, fisheries, value addition and other related aspects benefitting 1673 farmers. About 200 Interface meetings/Kisan Ghoshtis were organized with the participation of 2350 farmers. A total of 231 Demonstration programmes were conducted on various aspects of agriculture, aquaculture, climate change, mechanization, water conservation, new crops, varieties etc. involving 1894 farmers. Mobile advisories (382 Nos.), literature (72 Nos.) provided and awareness created (101 Nos.) on improved agricultural practices, soil health, pest and disease management, nutrition, value addition, government schemes etc. to 13,424 farmers & rural women. These efforts made by the ICAR-institutes in Zone-10 increased the income levels of the farmers and rural people by generating higher yields and creating employment during off season.

Table:3.22.1. Details of institutes participating in MGMG programme

State and Institute/ University	No of Teams	No of Scientists	No. of villages
Andhra Pradesh			
Indian Institute of Oil palm Research, Pedavegi	3	14	4
Central Tobacco Research Institute, Rajahmundry	7	33	4
Telangana			
Indian Institute of Oilseeds Research, Rajendranagar, Hyderabad	8	33	40
Indian Institute of Millets Research, Rajendranagar, Hyderabad	9	36	18
Directorate of Poultry Research Centre, Rajendranagar, Hyderabad	5	18	6
Tamil Nadu			
Central Institute Brackish water Aquaculture, Chennai	14	67	6
Sugarcane Breeding Institute, Coimbatore	7	1	6
National Research Centre for Banana, Tiruchirappalli	5	10	21
Total	**58**	**212**	**105**

Table: 3.22.2. Details of activities conducted under MGMG programme

Name of activity	No. of activities	No. of farmers benefitted
Visit to village by teams	193	2970
Interface meeting/ *Goshthies*	200	2350
Training organized	26	1673
Demonstrations conducted	231	1894
Mobile based advisories (No. of message)	382	8183
Literature support provided (No)	72	2558
Awareness created (No)	101	2683
Total	**1205**	**22311**

Skill demonstration by IIOPR

MGMG activity of Directorate of Poultry Research team19

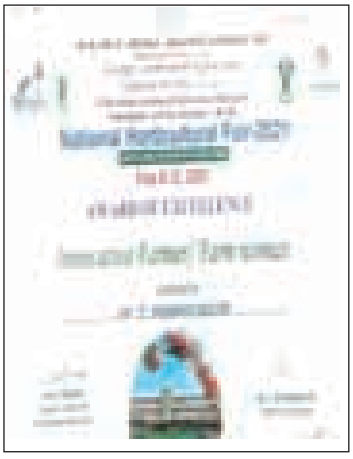
3.23 AWARDS AND RECOGNITIONS

Dr. P.G. Kavitha, SMS KVK Tiruppur received the award and gold medal for best contribution in 5th National Conference on Agricultural Scientific Tamil held between 09.10.2020-10.10.2020 in TNAU, Coimbatore

Dr.J.Narasimha, PC of KVK Warangal Mamnoor receives the Best Employee Commendation Award from the District collector, Warangal- Urban.

Dr. V. Hari Kumar, SMS Horticulture receives Meritorious Scientist award on 25.02.2020 at RARS, Chintapalli

Dr. Sendur Kumaran, Programme Coordinator of KVK Sivagangai receives Best Scientist Award 2020 from the District Collector, Sivaganga during Republic Day 2020



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Dr. Sendur Kumaran, Programme Coordinator of KVK Sivagangai receives Best Scientist Award 2020 from the District Collector, Sivaganga during Republic Day 2020

Dr. J.Diraviam, PC, KVK, Karur receives the Best KVK Award from ICAR - NRCB

Shri.Abraham, a contact farmer of KVK Sivagangai receives the Best Farmer Award 2020 for Integrated Farming System from the District Collector, Sivagangai during Republic Day 2020

Dr.V.Sumathi, Programme Coordinator, KVK, Nellore received "Best Krishi Vigyan Kendra" Award for the year 2019-20 for its outstanding contribution in agricultural extension and rendering timely services to the farmers

Dr.G.Alagukannan, PC of KVK Ariyalur received the Best Extension Professional award from SBER

Dr.G.Alagukannan, PC of KVK Ariyalur received the Best Scientist cum Head Award from the Society of Krishi Vigyan

Dr.P.Veeramani, SMS KVK Vellore was awarded the NESA Environmentalist of the Year Award 2020 by the National Environmental Science Academy

Shri.Kanniappan, a contact farmer of KVK Sivagangai receives the Best Farmer Award 2020 for Integrated Farming System from the District Collector, Sivagangai during Republic Day 2020

Dr.P.Veeramani, SMS KVK Vellore was awarded the NESA Environmentalist of the Year Award 2020 by the National Environmental Science Academy

KVK Khammam (Wyra) received the Pandit Deendayal Upadhyay Rashtriya Krishi Vigyan Protshahan Puraskar 2019 award from the ICAR

Dr.P.Veeramani of KVK Vellore received the Best KVK Scientist award from the Society of Krishi Vigyan

Dr.Marri Venkata Krishnaji, SMS of KVK West Godavari (Undi) received the Best Extension Worker Award from the Agricultural Technology Development Society

Sri.M.Yerraji Rao of KVK West Godavari (Undi) received the Meritorious Performance Award from ANGRAU

Sri. Radhamohan Singh, Former Union Minister for Agriculture & FW visited KVK Chittoor (RASS)

Dr. Sowmya Swaminathan, Chief Scientist, WHO visited the nutria-garden of KVK Tiruvallur

Hon'ble MP Sri Bandi Sanjay visited KVK Karimnagar (Jammikunta)

3.24. IMPORTANT EVENTS

Advisories to farmers during COVID 19 pandemic

During COVID-19 lockdown period, KVKs of ICAR-ATARI, Zone-X provided farm advisories to 7.65 lakh farmers through mass media, social media and MKISAN Portal. KVKs also supplied critical inputs to farmers *viz*., 1785 q of seed,1.06 Lakh planting material and 1294 livestock strains and fingerlings during the lockdown period. Other inputs like bio-inputs, bio-pesticides, poultry chicks, fodder slips, mushroom, vermicompost were also provided to farmers.

Virtual Review meeting of KVKs of Zone X

The virtual review meeting of KVKs was conducted on 17th April 2020 by the Director, ATARI, Hyderabad. Guidelines to be followed during the lockdown period for the safety of the Staff, activities to be planned and implemented to guide farmers during the pandemic, *etc*. were discussed and issued to the KVKs. Progress of the projects and mandated activities were reviewed. Scientists of ATARI and DEEs of State Universities in the Zone spoke on the progress of activities and expectations from KVKs. Programme Coordinators of the KVKs presented the physical and financial progress.

Virtual Pre-Action Plan meeting

The virtual pre-action plan meeting of KVKs of ATARI Zone X was conducted on 12th May 2020. The guidelines for the preparation of Action Plan for implementing the mandated activities of the KVKs were presented. Director and Scientists of ATARI, Directors of Extension of State Universities, Heads of KVKs participated. Action Plan summaries for the year 2020-21 were presented and discussed.

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

The Action Plan meeting of KVKs was conducted virtually from 13 to 21 May 2020 in which subject wise action plan of KVKs for 2020-21 were presented and discussed. The final action plan meeting was conducted on 12th June 2020. Directors of Extension, Director and Scientists of ATARI participated, discussed and approved the Action Plan for 2020-21. Subject wise technology inventories and technology writeups were prepared and communicated to the KVKs.

World Environment Day

KVKs observed World Environment Day on 5th June 2020. Awareness programmes, tree plantation drives were organized.

Virtual Review Workshop on Attracting and Retaining Youth in Agriculture Project

The Review Workshop of "Attracting and Retaining Youth in Agriculture Project" was organized on 16th June 2020 on virtual platform. Dr. Trilochan Mohapatra, Secretary (DARE) & Director General (ICAR), inaugurated the Workshop and appreciated the KVKs for successful implementation of ARYA project. Dr. A.K. Singh, Deputy Director General (Agricultural Extension) outlined the ARYA project activities. Dr. G. Trivedi, Former Vice-Chancellor, RAU, Pusa, Bihar, appreciated the ARYA Project as the enterprises pursued have given reasonable income to the youth. Dr. K. Narayana Gowda, Former Vice-Chancellor, UASB, Bengaluru participated and reviewed the progress of the project.

Review and Action Plan Workshop of Farmers FIRST project

The virtual annual review cum action plan workshop of Farmers FIRST project was organized on 17th and 18th June 2020. I coordinated with the Five Farmer FIRST Centers in the Zone and guided them in preparation of work done report, action plan for 2020-21 and presentations. PIs of FFP from CRIDA, IIOPR, IIOR, IIMR and TANUVAS participated and presented. Dr. Trilochan Mohapatra, Secretary (DARE) & DG (ICAR) inaugurated the workshop and stressed on documentation and economic analysis of the intervention under FFP. Dr. A.K. Singh, Deputy Director General (Agricultural Extension), ICAR briefed about the Farmer FIRST Programme. The work done and achievements of the FFP Centres were discussed. Action plan for 2020-21 were discussed and approved

Review and Interaction Workshop of Cluster Organic Demonstrations under PKVY in Zone X

The virtual workshop was conducted on 30th June 2020 to review the progress of the PKVY project. DEEs of ANGRAU, YSRHU, SVVU, PJTSAU, TNAU and TANUVAS participated. PC of KVK Erode shared the experience of registration of group registration. Resource persons from Key Stone Foundation interacted with the participants and clarified their doubts.

Inauguration of new Administration Buildings and Farmers Hostels of KVKs Prakasam (Darsi), Krishna (Ghantasala) and Chittoor (Kalikiri)

Dr Trilochan Mohapatra, Secretary, DARE and DG, ICAR virtually inaugurated new administration buildings and farmers hostel at three KVKs of ANGRAU located at Prakasam (Darsi), Krishna (Ghantasala) and Chittoor (Kalikiri) in Andhra Pradesh through an online meeting hosted by ICAR-ATARI, Hyderabad on 2nd July 2020. Dr Mohapatra appreciated the role of KVKs in reaching farmers through advisories in social media and digital platforms during the lockdown due to COVID 19. Shri Y. Madhusudhana Reddy, Spl Secretary (Marketing and Cooperation), Govt. of AP and Vice-Chancellor (FAC), ANGRAU, Guntur spoke on the occasion. Dr A.K. Singh, DDG (AE), ICAR appreciated the diversified efforts of KVKs in working with self-help groups and farmer producer organizations for enhancing the income of farmers.

Participants in the building inaugural function

Administrative building, KVK Prakasam (Darsi)

Administrative building, KVK Krishna (Gantasala)

Administrative building, KVK Krishna (Gantasala)

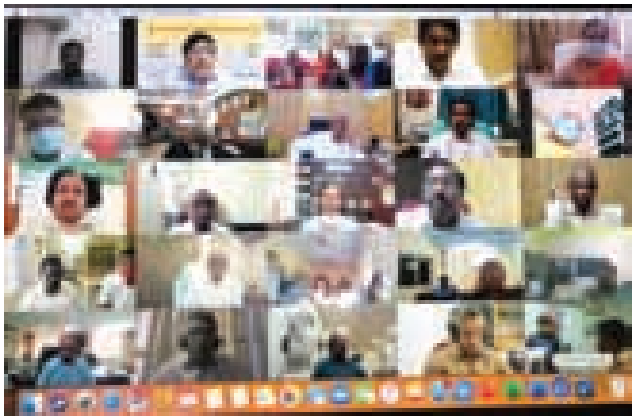
Annual Zonal Workshop 2020 of KVKs of ICAR-ATARI, Hyderabad

The three-day Virtual Annual Zonal Review Workshop of KVKs of ICAR-ATARI-Zone X, Hyderabad was inaugurated on 25th July 2020 by Hon'ble Minister of State, Ministry of Agriculture and Farmers Welfare Shri Kailash Choudhary ji. Dr Trilochan Mohapatra,

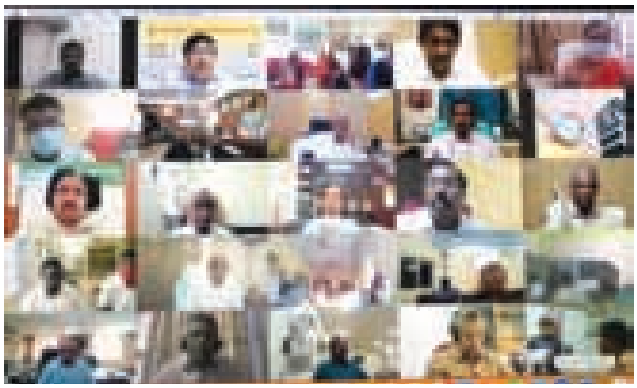
Secretary, DARE and DG, ICAR. Dr A.K. Singh, DDG (AE), ICAR, ADGs of Agricultural Extension Division, Director and Scientists of ATARI, Vice Chancellors and Directors of Extension of State Universities and KVK Staff Participated. Dr (Smt.) Poonam Malakaondaiah, Special Chief Secretary to Government of AP, Vice Chancellor of SVVU, Dr N. Kumar, Vice Chancellor of TNAU, Dr V. Praveen Rao, Vice Chancellor, PJTSAU spoke on the occasion.

Hon'ble Minister of State, Ministry of Agriculture and Farmers Welfare Shri Kailash Choudhary

Several publications were released and new website of ATARI, Hyderabad was inaugurated by Hon'ble Minister of State (https://atari- hyderabad.icar.gov.in)



A panel discussion was organized on technology backstopping and strengthening of KVKs to combat the challenges posed by COVID 19 pandemic by panelists Dr.C. Balachandra, VC, TANUVAS, Dr. T. Janakiram, VC, Dr. YSRHU, Dr.A. Srinivasan, VC, TNJFU, Dr. G. Ravindra Chary, Director, ICAR-CRIDA, Dr. D. Damodar Reddy, Director, ICAR-CTRI, Dr.A. Vishnu Vardhan Reddy, Director, ICAR-IIOR, Dr Ravi, PS, ICAR-CIBA, Dr. N. Kumar, VC, TNAU and Dr. V. Praveen Rao, VC, PJTSAU. Directors of Extension Education of 9 SAUs and ATARI nodal officers reviewed the work done and action plan presented by 71 Heads of KVKs. Dr. N. Kumar, VC, TNAU and Dr. S.N. Puri, former VC, CAU, Imphal and Chairman, QRT for southern zone awarded certificates to KVKs in 20 categories in the plenary session.



Quinquennial Review Team meeting of KVKs of Tamil Nadu and Puducherry

The virtual QRT meeting was organized during 12th to 14th August 2020 under the Chairmanship of Dr. Dr S.N. Puri, Former Vice-Chancellor, CAU, Imphal & Chairman, QRT. Dr Ashok Narula, Former Director, ICAR-ATARI, Ludhiana; Dr N. Sudharkar, Former ZPD, Zone V, Hyderabad; Dr H. Phillips, Former DEE, TNAU, Coimbatore; Dr N. Nagaraja, Former DEE, UAS, Bengaluru all member of the QRT; Dr B.T. Rayudu, Principal Scientist, ATARI, Bengaluru - Member Secretary, Dr.Y.G.Prasad, Director, ATARI, Dr M. Jawaharlal, DEE, TNAU; Dr Sudeep Kumar, DEE, TANUVAS; Dr M. Rajkumar, DEE, TNJFU and Scientists of ATARI participated. A virtual tour of few KVKs was organized on 14th August 2020 in which the KVKs showed the infrastructure facilities and demo units live. A stakeholders meeting was organized in which the Hon'ble Vice Chancellors of TNAU, TANUVAS, TNJFU, GRU, Chairpersons of Host Institutes (NGOs), Director of Agriculture,

Puducherry participated and expressed their views and requirements.

Institute Research Council meeting of ICAR-AT-ARI-Hyderabad

The IRC meeting was conducted on 28th August 2020 under the Chairmanship of Dr.YG Prasad, Director. All the Scientists participated and presented new project proposals. Three projects were approved and project numbers issued as per the guidelines. The second IRC meeting of ATARI Hyderabad was conducted on 22nd September 2020 and the revised project proposals were presented by the Scientists and discussed.

POSHAN MAAH celebrations

KVKs organized programmes of Poshan Maah 2020 and training programmes on Nutri-Garden, Nutri-Thali, Bio-fortified varieties and package of practices on vegetables cultivation for Anganwadi workers and farm women on 17th September 2021. Public Representatives, Department officials, farmers, school students participated in the programmes. KVK Scientists highlighted the role played by Anganwadi workers in securing the nutritional security of rural women and children. Vegetable seed kits for kitchen garden were supplied to the participants with the help of Indian Fertilizer and Farmer Cooperative Society (IFFCO).

Anganwadi Workers visiting the Nutri-garden at KVK Chittoor (RASS), Andhra Pradesh

Anganwadi Workers visiting the Nutri-garden at KVK Visakhapatnam (BCT), Andhra Pradesh

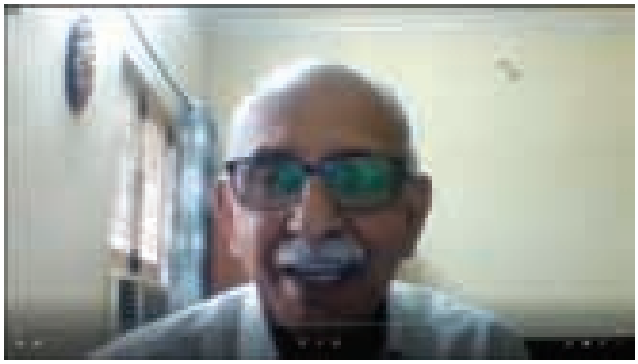
Research Advisory Committee Meeting of ATARIs Hyderabad and Bengaluru

First Virtual RAC meeting of ATARIs Bengaluru and Hyderabad was hosted by ATARI Hyderabad and conducted on 1st October 2020 under the chairmanship of Dr.P. Das, Former DDG (Agricultural Extension). Dr. K.M. Bujarbaruah, Former VC, AAU, Assam, Dr. R. Parshad, Former ADG (AE), ICAR, Dr. Pramod Kumar Joshi, Former Director-South Asia, IFPRI, Dr. Debi Prasad Ray, Former VC, OUAT, Bhubaneswar, Dr. Randhir Singh, ADG (AE), DDG Nominee; all members of RAC; Shri Ram Kumar Chilukuri, IMC Member, Dr. Chandre Gowda M.J., Principal Scientist and Member Secretary, RAC and Directors and Scientists of ATARIs participated. Dr. A.K. Singh, Deputy Director General (Agricultural Extension), ICAR indicated the important areas/issues that need to be addressed by taking up appropriate research projects. Three project proposals from ATARI Hyderabad and six project proposals from ATARI-Bengaluru were presented.

Celebration of 150th Birthday of Father of our Nation, Mahatma Gandhi Ji

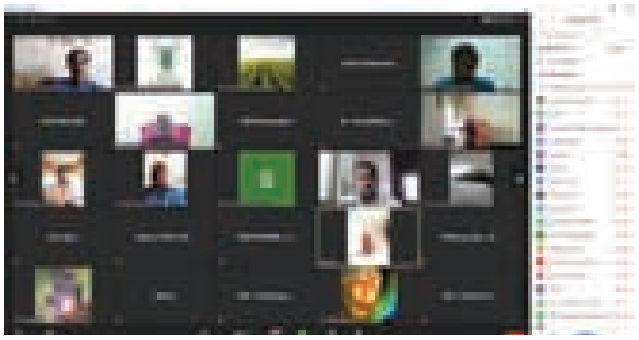
ICAR-ATARI, Hyderabad and KVKs in the Zone celebrated the 150th Birthday of Father of our Nation, Mahatma Gandhi Ji. Various events were organized by ATARI Hyderabad and its KVKs during the week-long celebration. Singing and painting competitions were organized for the children of staff of KVKs and ATARI.

Lectures were also organized. On 28th September Dr.N. Sudhakar, Former Director, ICAR ATARI Spoke on Gandhian Concept of Rural development.



Dr.N. Sudhakar, Former Director, ICAR-ATARI-Hyderabad speaking on Gandhian Concept of Rural development on 28th September 2020.

On 2nd October 2020 Dr S.N. Puri, Former Vice Chancellor, CAU and Chairman, QRT spoke on Gandhian Philosophy. Plantation drive and Swachtha Seva were carried out in the premises of ICAR-ATARI Hyderabad and KVKs.



Dr S.N. Puri, Former Vice Chancellor, CAU and Chairman, QRT addressing the sfatt of KVKs and ICAR-ATARI on Gandhian Philosophy on 2nd October 2020

75th Foundation Day of Food and Agriculture Organization

Hon'ble Prime Minister of India Launched the 75 Rupees coin and dedicated of 17 bio-fortified varieties to the Nation on the eve of 75th Foundation Day of Food and Agriculture Organization cum World Food Day on 16th October 2020. KVKs organized events in which the live cast of launching programme was screened. Farmers were sensitized about the bio-fortified varieties and their importance in nutrition. Awareness programmes were organized on the importance of World Food Day and Scientists explained the Hon'ble Prime Ministers speech to the farmers.

Mahila Kisan Diwas 2020

KVKs celebrated Mahila Kisan Diwas on 15th October 2020 in which 3204 women farmers participated. Lectures on Nutrition for women and income generating activities for women were delivered. Demonstrations and exhibitions on nutrition garden were organized.

Participants in the Mahila Kisan Diwas at KVK Coimbatore, Tamil Nadu

World Soil Day

KVKs celebrated World Soil Day on 5th December, 2020 to create awareness among the stakeholders on significance of healthy soil for healthy life with the slogan "Keep Soil Alive, Protect Soil Biodiversity" in which 6256 farmers and senior officials participated. Soil health cards were distributed.

Distribution of Soil Health Cards on the occasion of World Soil Health Day 05.12.2020 by KVK, Kalikiri, Chittoor District

Demonstration of Soil Sampling by KVK, Dharmapuri

4. Human Resource Development

Three scientific and administrative staff of ICAR-ATARI underwent trainings on various topics while 16 trainings were organized by the institute to 100 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. B. Malathi	Scientist	ABC of scientific writing
2	Dr. B. Malathi	Scientist	Research methodology for social sciences
3	Dr. B. Malathi	Scientist	Time series data management
4	Dr. B. Malathi	Scientist	Leadership development programme for women scientists
5	Mr. S.Bala Kamesh	AFAO	Treasury single accounts
6	Ms. G. Navneetha	LDC	e-Office
7	Ms. G. Navneetha	LDC	e-office-e-file module for master trainers
8	Ms. G. Navneetha	LDC	Issues of ICAR while procurement through GeM and custom bid

Table 4.1.2 Details of trainings conducted by ICAR-ATARI-Zone X

S.No.	Category of participants	No. of trainings	No. of participants		
			Male	Female	Total
1	Administrative & Finance	16	95	5	100

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

S.No.	Name	Designation
1	Vacant (from 10.09.2020)	Director
2	Dr. Y.G. Prasad	Director (till 09.10.2020)
3	Dr. J.V. Prasad	Director (Acting) (From 10.10.2020) & Principal Scientist (Agril. Entomology)
4	Dr. A. Bhaskaran	Principal Scientist (Soil Science)
5	Vacant	Principal Scientist (Agricultural Extension)
6	Smt. B. Malathi	Scientist (Agricultural Economics)
7	Vacant	Scientist (Agricultural Extension)
8	Vacant	Scientist (Horticulture/Vegetable Sciences)
9	Shri. V.V. Ramana	Assistant Administrative Officer
10	Shri. S. Balakamesh	Assistant Finance and Accounts Officer
11	Vacant	Junior Accounts Officer
12	Vacant	Private Secretary
13	Shri P. Venkatesh	Assistant
14	Smt. N. Archana	Lower Division Clerk
15	Smt. G. Navneetha	Lower Division Clerk
16	Shri. N. Vijay Kumar	Lower Division Clerk
17	Shri. M. Sadanand	Senior Technical Officer
18	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

S. No.	KVK/ District	Name and Address of KVKs
25	Tiruchirappalli	Krishi Vigyan Kendra, Sirugamani, Tiruchirappalli - 639 115
26	Tuticorin	Krishi Vigyan Kendra, Mudivaithanendal Vagaikulam, Thoothukudi - 628 102
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, Pat-tuthurai 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 (Pandirima-midi	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

S. No.	KVK/ District	Name and Address of KVKs
18	Srikakulam	Krishi Vigyan Kendra, Amadalavalasa, Srikakumal District - 532 185
19	Visakhapatnam	Krishi Vigyan Kendra, BCT, Haripuram, Rambilli Mandal, Visakhapatnam - 531 061
20	Visakhapatnam (Kondem-pudi)	Krishi Vigyan Kendra, C/o Jyothirmaya Trust, Amarapuri, Pottidorapalem Post, Butchayyapeta Mandal, Visakhapatnam -531 026
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, Kham-mam - 507165
7	Mahabubnagar (Madanapur-am)	Krishi Vigyan Kendra, Madanapuram (Vill. & Mdl), Wanaparthy, Mahabub-nagar - 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, Nizam-abad - 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

Notes

Notes

भाकृअनुप-कृषि तकनीकी अनुप्रयोग अनुसंधान संस्थान (अटारी, क्षेत्र–10)
क्रीडा परिसर, संतोषनगर, हैदराबाद
ICAR-Agricultural Technology Application Research Institute (ATARI, Zone-X)
CRIDA Campus, Santoshnagar, Hyderabad
www.atari-hyderabad.icar.gov.in

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