ICAR-ATARI

भाकृअनुप
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वार्षिक प्रतिवेदन

ANNUAL REPORT

2019-20

भकृ अनूप - कृषि तकनीकी अनुप्रयोग अनुसंधान संस्थान (अटारी)

(पहले क्षेत्रीय परियोजना निदेशालय) क्षेत्र - 10, हैदराबाद

ICAR-Agricultural Technology Application Research Institute (ATARI)

(Formerly Zonal Project Directorate) Zone -10, Hyderabad

An ISO 9001:2015 Certified Institute

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PREFACE

The 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 four states viz. Tamil Nadu, Andhra Pradesh, Telangana and Puducherry. At present there are 76 KVKs in the Zone including 32 in Tamil Nadu, 24 in Andhra Pradesh, 16 in Telangana and 2 in Puducherry. The ATARI is also vested with the responsibility of strengthening of agricultural extension research and knowledge management.

During 2019-20, KVKs assessed 1414 technologies and conducted 11,762 frontline demonstrations in farmers' fields, undertook 7,170 training programmes covering 2,58,602 participants including farmers, farm women, rural youth and extension functionaries. KVKs conducted 5525 number of cluster frontline demonstrations on pulses covering an area of 2210 ha under the National Food Security Mission (NFSM). Similarly, 2362 number of CFLDs were conducted on oilseeds covering an area of 944.8 ha.

Seed hubs for pulses started functioning at 12 KVKs in Zone-X in the states of Tamil Nadu (6), Andhra Pradesh (4) and Telangana (2). During 2019-20, seed hub KVKs produced 7195.5 q of seed for supply of quality seed of greengram, blackgram, redgram and bengalgram. Four seventy eight (478) enterprise units were established empowering 2135 youth under Attracting Rural Youth in Agriculture (ARYA) Project. Seventy eight (78) skill training programmes were conducted covering 1520 youth. Under the innovative programme of Mera Gaon Mera Gaurav (MGMG), 8 ICAR-research Institutes in the Zone implemented various activities in 237 adopted villages involving 63 teams comprising of 275 scientists. A total of 266 activities were undertaken during the year.

Human Resource Development (HRD) activities were jointly organized by the Directorates of Extension (SAUs) and ATARI benefiting 2403 KVK staff in the Zone. About 5276 farmers were given direct access to institutional resources through three Agricultural Technology Information Centers in the Zone. A number of extension activities were taken up by the KVKs with the participation of 22,01,981 farmers, farm women and extension personnel. All the KVKs were equipped with mini soil testing laboratories to provide soil testing service to farmers. A total of 30,531 Soil Health Cards were distributed to farmers by KVKs in Tamil Nadu (12,245), Andhra Pradesh (13,266), Telangana (3983) and Puducherry (1037).

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. Y. G. Prasad,

Director

कार्यकारी सारांश

कृषि तकनीकी अनुप्रयोग संस्थान (अटारी), हैदराबाद को क्षेत्र-X के लिए स्वीकृत 76 कृषि विज्ञान केंद्रों के समन्वय की जिम्मेदारी दी गई है। उनमें से 71, वर्ष 2019-20 के दौरान कार्यारत थे। वार्षिक रिपोर्ट वर्ष 2019-20 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 3626 खेतों पर परीक्षण कर 1414 तकनीकों का मूल्यांकन और परिशोधन किया। जाचं की गई प्रौद्योगिकियों में, 977 प्रौद्योगिकियां फसल संबंधी, 318 पशु संबंधी एवं 55 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 (845), पशुओं (70) एवं ग्रामीण महिलाओं के सशक्तिकरण (25) पर, 1031 खेतों पर परीक्षण कर 451 प्रौद्योगिकियों की उपयुक्तता का मूल्यांकन किया। आंध्र प्रदेश के कृषि विज्ञान केंद्रों ने फसलों सहित बागवानी प्रजातियों (1299), पशुओं (232) एवं ग्रामीण महिलाओं के सशक्तिकरण (115) पर, 1658 खेतों पर परीक्षण कर 626 प्रौद्योगिकियों की उपयुक्तता का मूल्यांकन किया। तेलंगाना के कृषि विज्ञान केंद्रों ने फसलों सहित बागवानी प्रजातियों (757), पशुओं (57) एवं ग्रामीण महिलाओं के सशक्तिकरण (74) पर, 911 खेतों पर परीक्षण कर 323 प्रौद्योगिकियों की उपयुक्तता का मूल्यांकन किया। पुदुचेरी के कृषि विज्ञान केंद्रों ने फसलों सहित बागवानी प्रजातियों (10), पशुओं (8) एवं ग्रामीण महिलाओं के सशक्तिकरण (8) पर, 26 खेतों पर परीक्षण कर 14 प्रौद्योगिकियों का मूल्यांकन किया।

प्रौद्योगिकी प्रदर्शन

3883 हेक्टेयर क्षेत्र में फसलों (9291), पशुओं (1484) एवं कृषि उपकरणों (987) पर कुल 11,762 अग्रिम प्रदर्शन कार्यान्वित किए गए। अनाजों पर किए गए 1666 प्रदर्शनों में चावल पर ही 1503 प्रदर्शन शामिल थे। दलहनों पर किए गए 2608 प्रदर्शनों में, उड़द पर 667 एवं अरहर पर 784 प्रदर्शन शामिल थे। तिलहनों पर किए गए 1412 प्रदर्शनों में 807 प्रदर्शन मूंगफली पर ही थे। व्यावसायिक फसलों पर किए 494 प्रदर्शनों में 408 प्रदर्शन कपास पर ही थे। तमिलनाडु में किए गए 2588 प्रदर्शनों में 544 सब्जियों पर एवं 566 प्रदर्शन अनाज पर थे। आंध्र प्रदेश में किए गए 3572 प्रदर्शनों में से, 664 तिलहनों पर, 1100 दलहनों पर 363 फलों पर एवं 287 प्रदर्शन सब्जियों पर थे। तेलंगाना में प्रदर्शित किए गए 3091 प्रदर्शनों में, 1110 दलहनों पर, 556 अनाजों पर एवं 328 सब्जियों पर थे। पुदुचेर्री में किए गए 40 प्रदर्शनों में 10 दलहनों पर, 15 अनाजों पर एवं 5 प्रदर्शन मसालों पर शामिल थे। पशुपालन और विभिन्न उद्यमों के विभिन्नन पहलुओं के अंतर्गत प्रौद्योगिकियों को लोकप्रिय बनाने के लिए नौ सौ सतासी (987) प्रदर्शनों का आयोजन किया गए।

प्रशिक्षण

प्रशिक्षण, कृषि विज्ञान केंद्रों की एक महत्वपूर्ण गतिविधि है, जो विभिन्न बेहतर तकनीकों के बारे में ज्ञान और कौशल को बढ़ाने में महत्वपूर्ण भूमिका निभाता है। वर्ष के दौरान क्षेत्र-X में कृषि विज्ञान केंद्रों ने फसलों, डेअरी एवं अन्य उत्पादन एवं उत्पादकता में वृद्धि करने के लिए कृषि एवं उससे संबंधित प्रौद्योगिकियों पर 7170 प्रशिक्षण कार्यक्रमों का आयोजन किया। जिसमें 2,10,478 किसान एवं कृषि महिलाएं, 23314 ग्रामीण युवा एवं 24,810 प्रसार अधिकारी और 2,58,602 प्रतिभागियों को शामिल किया गया।

तमिलनाडु के कृषि विज्ञान केंद्रों ने कृषि महिलाओं, ग्रामीण युवाओं और प्रसार अधिकारियों सहित 1,35,591 किसानों की भागीदारी के साथ 3861 प्रशिक्षण पाठ्यक्रम आयोजित किए, जबकि आंध्र प्रदेश के कृषि विज्ञान केंद्रों ने 672570 किसानों की भागीदारी के साथ 2025 प्रशिक्षण पाठ्यक्रम आयोजित किए, जिसमें किसान के साथ-साथ कृषि महिलाएं, ग्रामीण युवा और प्रसार अधिकारी शामिल हुए। तेलंगाना के

कृषि विज्ञान केंद्रों ने 52,749 लाभार्थियों के लिए 1183 पाठ्यक्रम संचालित किए। पुदुचेरी के कृषि विज्ञान केंद्रों ने 2592 लाभार्थियों के लिए 101 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 34,154 किसानों और कृषि कार्य में शामिल महिलाएं और ग्रामीण युवाओं को शामिल करते हुए 824 प्रायोजित प्रशिक्षण कार्यक्रम आयोजित किए। उद्यमिता विकास, आय सृजन और स्वरोजगार की सुविधा के लिए, विशेष रूप से 6762 ग्रामीण युवाओं और स्कूल बीच में छोड़ने वाले जैसे लोगों के लाभ लिए, कृषि विज्ञान केंद्रों ने 354 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।

एएससीआई द्वारा प्रायोजित छिहत्तर कौशल विकास प्रशिक्षण कार्यक्रमों में 36 कृषि विज्ञान केंद्रों, 1 राज्य कृषि विश्विविद्यालय (पीजेटीएसएयू) और 3 भाकृअनुप संस्थान (क्रीडा, डीपीआर और एनआरसीएम) द्वारा संचालित किया गया, जिससे 1520 युवाओं को 21 तरह के रोज़गार प्राप्त करने में सहायता मिली।

राष्ट्रीय मत्स्य विकास बोर्ड (एनएफडीबी) की सहायता से, 5 कृषि विज्ञान केंद्रों (तेलंगाना में 2 और आंध्र प्रदेश में 3) ने 49 मछली तालाबों में प्रदर्शन किया, जो 40 हेक्टेयर का क्षेत्र में फैला हुआ था, जिसमें 28 किसान शामिल किए गए। 7000 -16150 प्रति हेक्टेयर के भंडारण क्षमता वाले तालाबों में जयंती रोहू, अमूर कॉमन समूह और अन्य भारतीय प्रमुख कोर जैसी मछलियों के प्रजातियों का प्रदर्शन किया गया।

प्रौद्योगिकी प्रसार

उन्नत प्रौद्योगिकियों के बारे में जागरुकता प्रदान करने के लिए 22,01,981 किसानों, कृषि महिलाओं एवं प्रसार अधिकारियों की भागीदारी से क्षेत्र-x के कृषि विज्ञान केंद्रों में 49,487 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 3563 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 5276 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 32,029 नमूनों, पानी के 4409 नमूनों, पौधों के 129 नमूनों और उर्वरकों / खादों के 5 नमूनों सहित कुल 36, 603 नमूनों का विश्लेषण किया गया, जिससे तमिलनाडु, आंध्र प्रदेश, तेलंगाना और पुदुचेरी के 7822 गांवों के 32,765 किसानों को लाभ हुआ।

तमिलनाडु (12,245), आंध्र प्रदेश (13,266), तेलंगाना (3983) और पुदुचेरी (1037) के कृषि विज्ञान केंद्रों द्वारा किसानों को कुल 30,531 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 10165 क्विंटल बीज और 31.96 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 7195.5 क्विंटल बीज (मूंग, उड़द, अरहर और चना) का उत्पादन किया। कृषि विज्ञान केंद्रों ने 56.78 क्विंटल जैव उर्वरकों और 56.55 क्विंटल जैव कीटनाशकों का उत्पादन और आपूर्ति की।

कृषि विज्ञान केंद्रों के अधिकारियों का मानव संसाधन विकास

राज्य कृषि विश्वविद्यालयों और कृषि तकनीकी अनुप्रयोग संस्थान (अटारी) के प्रसार शिक्षा निदेशालय ने कृषि विज्ञान केंद्रों के वैज्ञानिकों को प्रशिक्षण, सेमिनार, कार्यशालाओं आदि के माध्यम से प्रौद्योगिकी की

अत्याधुनिक सूचना (Backstopping) और मानव संसाधन विकास की सुविधा प्रदान की है। क्षेत्र के 2403 कृषि विज्ञान केंद्रों के कर्मचारियों को लाभान्वित करने वाली कुल 57 मानव संसाधन विकास गतिविधियों को संयुक्त रूप से पाँच प्रसार निदेशालयों और कृषि तकनीकी अनुप्रयोग संस्थान द्वारा आयोजित किया गया।

दलहनों एवं तिलहनों पर केंद्र पर अग्रिम प्रदर्शन

वर्ष 2019-20 के तीन मौसमों के दौरान क्षेत्र-X में स्थित तमिलनाडु, आंध्र प्रदेश, तेलंगाना और पुडुचेरी के 55 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 2210 हेक्टेयर क्षेत्र को शामिल किया गया। इसी प्रकार, वर्ष 2019-20 के खरीफ और रबी के दौरान 46 कृषि विज्ञान केंद्रों द्वारा तिलहनी फसलों के लिए 944.8 हेक्टेयर में 2362 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।

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 (1931), फसल उत्पादन (2619), पशुधन और मत्स्य पालन (3894) में 8444 प्रदर्शन किए। संस्थागत हस्तक्षेपों जैसे किराए केंद्र, चारा बैंक और बीज बैंक के तहत 1263 किसान लाभान्वित हुए। क्षमता निर्माण और प्रसार गतिविधियों के माध्यम से, जलवायु समुत्थान तकनीकों पर जागरूकता चलाए गए 113 और 237 गतिविधियों से क्रमश: 3714 और 6206 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 88 प्रशिक्षण कार्यक्रमों के माध्यम से 2135 ग्रामीण युवाओं को कौशल प्रशिक्षण प्रदान किया गया। जीविकापार्जन सुरक्षा को सुनिश्चित करने एवं 1108 ग्रामीण युवाओं को लाभ पहुंचाने के लिए वर्ष 2019-20 के दौरान चार सौ अठत्तर (478) 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 1279 हेक्टेयर क्षेत्र में, 2790 घरों को शामिल करते हुए 29 फसल हस्तक्षेप अपनाए गए। 597 परिवारों को शामिल करते हुए 125 हेक्टेयर क्षेत्र में 12 बागवानी हस्तक्षेप कार्यन्वित किए गए। 921 घरों को लाभान्वित करने के लिए 698 हेक्टेयर क्षेत्र में नौ प्राकृतिक संसाधन प्रबंधन (NRM) हस्तक्षेप कार्यान्वित किए गए। 1682 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 24 हस्तक्षेप आरंभ किए गए। किसान पहले परियोजना (एफएफपी) केंद्रों ने लक्षित घरों के बीच फार्म मशीनरी किराए पर उपलब्ध करना, कड़ी मेहनत में कमी के लिए औजार, मोटे अनाजों का प्राथमिक प्रसंस्करण, सामुदायिक हैचरी इकाइयों को बढ़ावा दिया गया।

जनजाति उप योजना (टीएसपी)

12 कृषि विज्ञान केंद्रों (आंध्र प्रदेश में 6 और तेलंगाना में 6) द्वारा जनजाति समुदायों की सामाजिक-आर्थिक स्थितियों को उन्नत बनाने के उद्देश्य से जनजाति उप योजना (टीएसपी) को कार्यान्वित किया गया और 4127 परिसंपत्तियों/ सूक्ष्म-उद्यमों का निर्माण कर 5867 लाभार्थियों को आय सृजन का अवसर प्रदान किया गया। 1245 लाभार्थियों को कौशल विकास प्रशिक्षण (38) प्रदान किए गए।

परंपरागत कृषि विकास योजना (पीकेवीवाई) के अंतर्गत जैविक कृषि पर केंद्रों पर प्रदर्शन

परंपरागत कृषि विकास योजना (पीकेवीवाई) कृषि एवं किसान कल्याण मंत्रालय के राष्ट्रीय संधारणीय कृषि मिशन (एनएमएसएस) के अंतर्गत मृदा स्वास्थ्य प्रबंधन (एसएचएम) योजना का एक उप-घटक है। वर्ष 2019-20 के दौरान, पीजीएस-भारत के चुने गए क्षेत्रीय परिषद के अंतर्गत स्थानीय दलों के निर्माण द्वारा परंपरागत कृषि विकास योजना के अंतर्गत जैविक कृषि पर केंद्र में प्रदर्शनों कार्यान्वित करने के लिए

क्षेत्रx से 45 कृषि विज्ञान केंद्रों (आंध्र प्रदेश से 16, तेलंगाना से 10, तमिलनाडु से 18 और पुडुचेरी से 1 कृषि विज्ञान केंद्र) को चुना गया। 871 किसानों और 1730 एकड़ भूमि को शामिल करते हुए कुल 38 स्थानीय समूह बनाए गए। कार्यान्वित किए जा रहे कृषि विज्ञान केंद्रों द्वारा जागरूकता शिविर (46), किसान बैठकें (76), प्रशिक्षण कार्यक्रम (63) और प्रदर्शन दौरे (23) आयोजित किए गए जिसमें किसानों की भागीदारी क्रमश: 1235, 1816, 1692 और 490 थी।

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 24 कृषि-मौसम इकाइयों (डीएएमयु) (आंध्र प्रदेश में 9, तेलंगाना में 4, तमिलनाडु में 10 और पुडुचेरी में 1) स्थापना की गई। वर्ष के दौरान जिला कृषि-मौसमविज्ञान इकाइयों (डीएएमयु) केंद्रों ने कृषि-मौसमविज्ञान-डीएसएस पर 4740 कृषि-मौसमविज्ञान सलाहों को तैयार कर विभिन्न प्रसार साधनों के माध्यम से 4879 मौसम संबंधी सलाह का प्रसार किया। मौसम आधारित सलाह की उपयोगिता और उन्हें उपयोग करने के तरीकों पर 6346 किसानों के लाभ के लिए कुल 133 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 1400628 किसानों को मौसम आधारित सलाह सेवाओं संबंधित लघु संदेश प्राप्त करने के लिए 654 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 250 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।

पोषक अनाजों पर अग्रिम प्रदर्शन (एफएलडी)

राष्ट्रीय खाद्यन्न सुरक्षा मिशन (एनएफएसएम) के तहत भारत सरकार द्वारा महात्मा गांधी की 150 वीं जयंती के उपलक्ष्य में 150 जिलों में संधारणी कृषि प्रक्रियाओं (एसएपी) को बढ़ावा देने के लिए पोषक अनाज पर अग्रिम प्रदर्शन (एफएलडी) कार्यक्रम तैयार किया गया। क्षेत्र के तेरह कृषि विज्ञान केंद्र (आंध्र प्रदेश में 5, तमिलनाडु में 4 और तेलंगाना में 4) पोषक अनाजों के उत्पादन में शामिल थे। वर्ष 2019-20 के दौरान, कुल 140 एकड़ (56 हेक्टेयर) क्षेत्र आवंटित किया गया और रबी और गर्मियों के मौसम में 140 प्रदर्शनों के माध्यम से आंध्र प्रदेश, तेलंगाना और तमिलनाडु के कृषि विज्ञान केंद्रों द्वारा 120 एकड़ (48 हेक्टेयर) क्षेत्र शामिल किया गया।

जागरूकता का सृजन

स्वच्छ्ता ही सेवा कार्यक्रम को 69 कृषि विज्ञाान केंद्रों द्वारा लागू किया गया, जिसमें कृषि विज्ञान केंद्रों ने 257 गांवों में श्रमदान किया और अपनाए गए गांवों/सार्वजनिक स्थानों पर स्वच्छता और स्वास्थ्य-रक्षा के लिए योगदान दिया।

मेरा गाँव मेरा गौरव (एमजीएमजी) कार्यक्रम के अंतर्गत, 8 भाकृअनुप के अनुसंधान संस्थानों ने 63 टीमों के माध्यम से कुल 275 वैज्ञानिकों ने 237 गाँवों को अपनाया और विभिन्न गतिविधियों को कार्यान्वित किया। 2961 किसानों और कृषि महिलाओं को शामिल करते हुए वैज्ञानिकों ने 126 इंटरफ़ेस बैठकें आयोजित की। कुल 266 जागरूकता व प्रदर्शन कार्यक्रम एवं कृषि, पशुपालन, मुर्गी पालन और उन्नत उपकरणों पर 48 प्रशिक्षण कार्यक्रम आयोजित किए।

जल शक्ति अभियान (जेएसए), जल उत्पादकता के बारे में 91200 किसानों में जागरूकता पैदा करने के लिए 750 ब्लॉकों को शामिल करते हुए 53 कृषि विज्ञान केंद्रों द्वारा 114 बड़े किसान मेले आयोजित कर जल संरक्षण एवं वर्षा जल संचयन के बारे में किसानों के बीच जागरूकता पैदा करने के लिए जल संरक्षण अभियान आरंभ किया गया।

क्षेत्र के कृषि विज्ञान केंद्रों ने बड़ी संख्या में किसानों में जागरूकता पैदा करने के लिए राष्ट्रीय कार्यक्रमों जैसे कि कृषि कल्याण अभियान, बडे स्तर पर वृक्षारोपण अभियान, राष्ट्रीय पशु रोग नियंत्रण कार्यक्रम और उर्वरक जागरूकता कार्यक्रम को लागू किया।

EXECUTIVE SUMMARY

ATARI, Hyderabad is vested with the responsibility of coordination of 76 KVKs sanctioned in Zone-X. Among them 71 were functional during 2019-20. The annual report 2019-20 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 1414 technologies by laying out 3626 On-Farm Trials. Of these technologies tested, 977 technologies are related to crops, 318 are related to animals and 55 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 451 technologies by conducting 1031 OFTs covering crops (845), animals (70) and empowerment of rural women (25). KVKs in Andhra Pradesh, assessed the suitability of 626 technologies by conducting 1658 OFTs covering crops (1299), animals (232) and empowerment of rural women (115). KVKs in Telangana, assessed the suitability of 323 technologies by conducting 911 OFTs covering crops (757), animals (57) and empowerment of rural women (74). KVKs in Puducherry, assessed 14 technologies by organizing 26 OFTs that include crops (10), animals (8) and women empowerment (8).

Technology demonstrations

KVKs in Zone X conducted 11,762 frontline demonstrations on crops (9291), animals (1484) and farm implements (987) in an area of 3883 ha. Among the 1666 demonstrations on cereals, 1503 were on rice. Among the 2608 demonstrations on pulses, 667 were in blackgram and 784 in redgram. Among 1412 demonstrations on oilseeds 807 were in groundnut. Among the commercial crops, out of 494 demonstrations, 408 were in cotton. In Tamil Nadu, out of 2588 demonstrations, 566 were in cereals and 544 in vegetables. In Andhra Pradesh, out of 3572 demonstrations, 1100 were in pulses, 664 in oilseeds, 363 in fruits and 287 in vegetables. Out of the 3091 demonstrations in Telangana, 1110 were in pulses, 556 in cereals and 328 in vegetables. In Puducherry, out of 40 demonstrations, 15 were in cereals, 10 in pulses and five in spices. Licestock related enterprise technologies were demonstrated to 1305 farmers in the Zone.

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 7170 training programmes on agricultural and allied technologies to increase the production and productivity of crops, dairy and others for 2,58,602 participants including 2,10,478 farmers and farm women, 23,314 rural youth and 24,810 extension functionaries.

KVKs in Tamil Nadu, organized 3861 training courses with a participation of 1,35,591 farmers including farmwomen, rural youth and extension functionaries, while KVKs in Andhra Pradesh organized 2025 training courses with a participation of 67,670 farmers including farmwomen, rural youth and extension functionaries, KVKs in Telangana conducted 1183 courses for 52,749 beneficiaries. KVKs in Puducherry, conducted 101 courses for 2592 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 824 sponsored training programmes covering 34,154 farmers and farm women and rural youth. In order to facilitate entrepreneurship development, income generation and self-employment, especially among rural youth and school dropouts, KVKs organized 354 vocational training programmes for 6762 beneficiaries. The important thematic areas include crop production and management, post harvest technology and value addition, livestock and fisheries and income generation activities.

Seventysix skill development training programmes sponsored by ASCI were conducted by 36 KVKs, 1 SAU (PJTSAU) and three ICAR Institutes (CRIDA, DPR and NRCM) benefitting 1520 youth covering 21 job roles.

With the support of National Fisheries Development Board (NFDB), five KVKs (two in Telangana and three in Andhra Pradesh) conducted demonstrations in 49 fishponds covering an area of 40 ha involving 28 farmers. Performance of fish species such as Jayanthi Rohu, Amur common corp and other Indian major corps were demonstrated at a stocking density of 7000 to 16150/ha.

Technology dissemination

To create awareness on improved technologies the KVKs in Zone-X organized 49,350 extension activities with the participation of 22,01,981 farmers, farm women 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*. In order to accelerate rapid dissemination of information on improved farm technologies, KVKs in Zone-X brought out 3563 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 5276 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 36, 603 samples including 32,029 soil samples, 4409 water samples, 129 plant samples and 5 fertilizers/ manures were analyzed by the KVKs that benefited 32,765 farmers belonging to 7822 villages in Tamil Nadu, Andhra Pradesh, Telangana and Puducherry.

A total of 30,531 Soil Health Cards were distributed to farmers by KVKs in Tamil Nadu (12,245), Andhra Pradesh (13,266), Telangana (3983) and Puducherry (1037). 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 10,165 q of seed and 31.97 lakh saplings of elite material of field/ horticultural crops. Twelve seed hub KVKs for pulses (six in Tamil Nadu, four in Andhra Pradesh and two in Telangana) produced 7195.5 q of seed (greengram, blackgram, redgram and bengalgram) for supply of quality seed to farmers. KVKs also produced and supplied 567.86 q of bio-fertilizers, 6852.58 q of bio inputs and 565.54 q of bio-pesticides. KVKs distributed 11.97 lakh livestocks 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 57 HRD activities benefitting 2403 KVK Staff in the Zone were jointly organized by the five directorates of extension and the Agricultural Technology Application Research Institute.

Cluster Frontline Demonstrations on Pulses and Oilseeds

Cluster Frontline Demonstrations on Pulses under NFSM were organized by 55 KVKs comprising of Tamil Nadu, Andhra Pradesh, Telangana and Puducherry in Zone-X during 2019-20 across three seasons. A total of 5525 FLDs were conducted covering an area of 2210 ha under pulses by including technology package for higher productivity. Similarly, 2362 cluster frontline demonstrations covering 944.8 ha were conducted in oilseed crops by 46 KVKs during *kharif* and *rabi* 2019-20. Productivity of pulses and oilseeds realized in FLDs was higher than the district/ state averages indicating potential for bridging the yield gap.

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 8444 demonstrations in four modules *viz*., NRM (1931), crop production (2619), livestock and fisheries (3894). Under institutional interventions like custom hiring center, fodder bank and seed bank 1263 farmers were benefited. Through capacity building and extension activities, awareness on climate resilient technologies was brought about benefiting 3714 and 6206 farmers through 113 and 237 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 Pondicherry). Skill training was imparted to 2135 rural youth through 88 training programmes for establishing enterprise units under the project. Enterprise units numbering 478 were established benefiting 1108 rural youth during 2019-20 ensuring livelihood security.

Farmers FIRST Project (FFP)

Four ICAR Institutes (IIMR, IIOPR, IIOR and CRIDA) and one University (TANUVAS) implemented Farmers FIRST project. FFP Centers undertook 29 crop interventions covering 1279 ha area and 2790 households in operational villages. Twelve horticultural interventions were implemented in 125 ha covering 597 households. Nine natural resource management (NRM) interventions were implemented in 698 ha area benefiting 921 households. A total of 24 interventions related to introduction of superior fodder varieties, demonstration of backyard poultry breeds, introduction of mineral and nutrient mixtures, oestrous synchronization protocols, animal health camps, breed improvement in sheep and goats *etc*., were taken up under livestock covering 1682 households. The FFP centres promoted custom hiring of farm machinery, implements for drudgery reduction, primary processing of millets, community hatchery units among target households.

Tribal Sub Plan (TSP)

The Tribal Sub Plan (TSP) aimed at ameliorating the socio-economic conditions of tribal communities was implemented by 12 KVKs in the zone (6 in Andhra Pradesh and 6 in Telangana) and facilitated creation of 4127 assets/micro-enterprises and provided income generating opportunities to 5867 beneficiaries. Skill development trainings (38) were imparted to 1245 beneficiaries.

Cluster Demonstrations on Organic Farming under *Paramparagat Krishi Vikas Yojana* (PKVY)

Paramparagat Krishi Vikas Yojana (PKVY) is a sub-component of soil health management (SHM) scheme under National Mission on Sustainable Agriculture (NMSA) of ministry of agriculture and farmers welfare. During the year 2019-20, 45 KVKs in Zone X (16 from Andhra Pradesh, 10 KVKs from Telangana, 18 KVKs from Tamil Nadu and one from Puducherry) implemented cluster demonstrations on

organic farming under PKVY through formation of local groups under a chosen Regional Council of PGS-India. A total of 38 Local Groups were formed covering 871 farmers and 1730 acres of land. Awareness camps (46), farmers meetings (76), training programmes (63) and exposure visits (23) were conducted by the implementing KVKs with the participation of 1235, 1816, 1692 and 490 farmers respectively.

District Agro Met Units (DAMU)

Under Gramin Krishi Mausam Seva (GKMS) 24 District Agro Met Units (DAMUs) were established (Nine in Andhra Pradesh, four in Telangana, 10 in Tamil Nadu and one in Puducherry) in collaboration with IMD in phase I for issuing and disseminating agromet advisories to farmers at sub-district level. During the year, DAMU centers generated 4740 agromet advisories on Agromet-DSS and disseminated 4879 weather related advisories through different means. A total of 133 farmers awareness programmes and meetings were conducted for the benefit of 6346 farmers on the utility of weather-based advisories and ways to access them. Short messages related to weather-based advisories numbering 654 were given to 14,00,628 farmers for taking up timely farm operations and to prevent crop loss 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, Odisha and Andhra Pradesh. Information on implementing of composite fish culture technology developed by CIFA was collected from 250 fish farmers in the districts of West Godavari, East Godavari and Krishna using a questionnaire to understand the extent of adoption, contstraints in adoption and impact of adoption of the technology.

Frontline Demonstrations (FLDs) on Nutri Cereals

Frontline demonstrations (FLDs) programme on nutri cereals was formulated for the promotion of Sustainable Agriculture Practices (SAP) in 150 districts through KVKs to commemorate the 150th birth anniversary of Mahatma Gandhi by government of India under National Food Security Mission (NFSM). Thirteen KVKs of the Zone (Five KVKs in Andhra Pradesh, four KVKs each in Tamil Nadu and Telangana) are involved in the production of nutri cereals. During 2019-20, a total of 140 acres (56 ha) were allotted and 120 acres (48 ha) were covered by KVKs in Andhra Pradesh, Telangana and Tamil Nadu through 140 demonstrations in *rabi* and summer seasons.

Creation of awareness

Swachhta Hi Sewa programme was implemented by 69 KVKs in which KVKs performed *shramdhan* in 257 villages and contributed towards cleanliness and hygiene in adopted villages/ public places.

Under *Mera Gaon Mera Gaurav* (MGMG) programme, a total of 275 scientists through 63 teams from 8 ICAR research Institutes adopted 237 villages and implemented various activities. Scientists undertook 126 interface meetings covering 2961 farmers and farm women. A total of 266 awareness cum demonstration programmes and 48 training programmes on agriculture, animal husbandry, poultry and improved implements were conducted.

Jal Shakti Abhiyan (JSA), a water conservation campaign launched for creating awareness among farmers on water conservation and rainwater harvesting was implemented by conducting 114 large Kisan Melas by 53 KVKs covering 750 blocks for creating awareness in 91200 farmers on water producitivity.

KVKs of the zone implemented national programmes like Krishi Kalyan Abhiyan, Mass tree planting drive, national animal disease cotrol programme and fertilizer awarenns programme in a big way to create awareness among large number of farmers.

CONTENTS

1. INTRODUCTION

ICAR-Agricultural Technology Application Research Institute (ATARI)

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

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

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

Mandates of ATARI

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

b. Strengthening Agricultural Extension Research and Knowledge Management.

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

Krishi Vigyan Kendra

Krishi Vigyan Kendra (Farm Science Center) is a science/ technology led, farmer centric institution, established with the purpose of providing knowledge and skill training to the farmers, rural youth and field-level extension workers. Vocational training in agriculture and allied fields through KVK has become the need of the hour for ensuring livelihood security and enhancing farm income which is envisaged to be doubled by 2020. 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 presentday 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 76 out of which 71 are in operation during 2019-20. The state-wise established KVKs include 32 in Tamil Nadu, 24 in Andhra Pradesh, 16 in Telangana and two in Puducherry. Out of 32 KVKs in Tamil Nadu, 19 are with SAUs (14 with TNAU, four with TANUVAS and one with TNJFU), two with DU, eleven with NGOs among which two are non-functional. 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 of which one 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, both the KVKs are administered by State Department of Agriculture. Two KVKs in Puducherry are not established.

Table 2.1.1. Status of KVKs

State	No. of rural districts	No. of KVKs Sanctioned						Functional during 2019-20
		SAU	ICAR	NGO	DU	SDA	Total	
Tamil Nadu	38	19	-	11	2	-	32	30
Andhra Pradesh	13	18	2	4	-	-	24	23
Telangana	33	10	1	5	-	-	16	16
Puducherry	4	-	-	-	-	4	4	2
Total	**88**	**47**	**3**	**20**	**2**	**2**	**76**	**71**

2.2. Staff

The details of staff position of KVKs in different states as on 31st March 2020 is given in Table 2.2.1. The total sanctioned staff strength of KVKs in Zone-X stands at 1136, out of which 832 (73.24%) positions are filled. Scientific staff strength is 426 out of 310 (72.76%) are filled as on 31st March 2020.

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	10	6	2	2	Nil	71	59	12
Subject Matter Specialists	180	143	37	138	98	40	96	67	29	12	2	10	426	310	116
Farm Managers	30	27	3	22	11	11	16	7	9	2	2	Nil	70	47	23
Programme Assistant (Computer)	30	26	4	23	11	12	16	10	6	2	2	Nil	71	49	22
Programme Assistant (Lab Tech)	30	25	5	22	8	14	15	7	8	2	2	Nil	69	42	27
Assistant	30	29	1	23	18	5	16	13	3	2	0	2	71	60	11
Stenographer (Grade-III)	30	25	5	23	16	7	16	10	6	2	1	1	71	52	19
Driver	59	50	9	46	25	21	32	21	11	4	2	2	141	98	43
SSS	61	54	7	48	31	17	33	27	6	4	3	1	146	115	31
Total	**480**	**405**	**75**	**368**	**239**	**129**	**256**	**172**	**84**	**32**	**16**	**16**	**1136**	**832**	**304**

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, vehicle and other facilities at KVKs are presented in Tables 2.3.1 to 2.3.4. The other infrastructure such as rainwater harvesting structure and Integrated Farming System models are provided to some KVKs, while the buildings and vehicle are provided to all the KVKs by ICAR.

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

KVK	Land area (ha)	Admin Building	Farmers Hostel	Staff Quarters	Soil & Water Testing Lab	Mini Soil Testing Kit	Soil Testing lab	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	8
Dharmapuri	16.16	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	19
Dindigul	20.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	16
Erode	22.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	19
Kancheepuram	20.00	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	5
Kanyakumari	18.67	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	10
Karur	21.51	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	16
Krishnagiri	20.30	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	14
Madurai	21.81	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	10
Nagapattinam	22.67	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	16
Namakkal	20.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	25
Perambalur	21.54	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	9
Pudukkottai	23.20	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	10
Ramanathapuram	6.12	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	7
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	3
Theni	20.51	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	2
Thiruvallur	16.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	12
Thiruvannamalai	20.48	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	15
Thiruvarur	18.66	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	13
Thoothukudi	20.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	13
Tiruchirappalli	20.00	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	23
Tirunelveli	20.00	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	13
Tiruppur	15.62	No	No	No	No	No	No	No	No	No	6
Vellore	24.15	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	14
Villupuram-1	16.80	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	17
Villupuram-2	20.00	No	No	No	No	No	No	No	No	Yes	11
Virudhunagar	16.00	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	2
Total	**570.60**	**28**	**26**	**20**	**25**	**27**	**21**	**27**	**26**	**29**	**401**

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

KVK	Land area (ha)	Admin Building	Farm-ers Hostel	Staff Quar-ters	Soil & Water Testing Lab	Mini Soil Testing Kit	Soil Testing lab	Jeep	Tractor	Two wheeler	No. of Demo Units
Anantapur-1 (Reddipalli)	22.11	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	19
Anantapur-2 (Kalyandurg)	20.00	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	8
Chittoor-1 (RASS)	20.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	24
Chittoor-2 (Kalikiri)	20.22	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	7
East Godavari-1 (Kalavacherla)	14.37	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	15
East Godavari-2 (Pandirimamidi)	48.50	Yes	Yes	No	No	Yes	No	Yes	Yes	No	21
Guntur (Lam)	23.96	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	10
Kadapa-1 (Utukur)	10.00	Yes	Yes	Yes	No	Yes	No	No	No	Yes	6
Kadapa-2 (Vonipenta)	42.36	No	Yes	No	No	No	No	Yes	No	Yes	9
Krishna-1 (Garikapadu)	20.80	Yes	Yes	Yes	No	Yes	No	Yes	No	No	6
Krishna-2 (Ghantasala)	15.24	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	7
Kurnool-1 (Yagantipalli)	20.00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	17
Kurnool-2 (Banavasi)	20.00	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	18
Nellore-1	24.00	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	14
Nellore-2 (Periyavaram)	23.00	Yes	No	No	No	Yes	Yes	Yes	No	Yes	11
Prakasam-1 (Darsi)	20.23	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	11
Prakasam-2 (Kandukur)	20.00	No	No	No	No	Yes	No	Yes	Yes	No	1
Srikakulam	18.25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	13
Visakhapatnam-1 (BCT)	40.00	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	18
Vishakapatnam-2 (Buchayapet)	20.00	No	No	No	No	No	No	Yes	No	Yes	3
Vizianagaram	23.00	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	11
West Godavari-1 (Undi)	50.00	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	11
West Godavari-2 (Vrgudem)	50.00	Yes	Yes	No	Yes	No	0	Yes	Yes	No	11
Total	**586.0**	**20**	**18**	**9**	**8**	**20**	**14**	**20**	**18**	**14**	**271**

Table 2.3.3. Details of infrastructure available with KVKs in Telangana

KVK	Land area (ha)	Admin Building	Farmers Hostel	Staff Quarters	Soil & Water Testing Lab	Mini Soil Testing Kit	Soil Testing lab	Jeep	Tractor	Two wheeler	No. of Demo Units
Adilabad	5.60	No	No	No	No	Yes	Yes	Yes	Yes	Yes	2
Karimnagar (Jammikunta)	25.60	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	19
Peddapalli (Ramgirikilla)	25.60	Yes	Yes	No	No	Yes	No	Yes	Yes	No	2
Bhadradri (Kothagudem)	20.00	No	No	No	No	Yes	No	Yes	No	Yes	2
Khammam (Wyra)	13.38	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	13
Nagarkurnool (Palem)	21.26	Yes	Yes	No	No	Yes	No	Yes	Yes	No	0
Wanaparthy (Madanapuram)	20.00	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	5
Mancherial (Bellampalli)	20.00	No	No	No	No	No	No	Yes	No	Yes	3
Sangareddy (DDS)											
Medak (Tuniki)	13.20	No	No	No	No	Yes	No	Yes	No	No	7
Suryapet (Gaddipalli)	25.00	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	23
Nalgonda (Kampasagar)	16.00	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	6
Nizamabad (Rudrur)	20.00	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	3
Ranga Reddy (Hayathnagar)	25.00	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	10
Mahabubabad (Malyal)	18.30	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	6
Warangal Urban (Mamnoor)	20.00	Yes	Yes	No	No	Yes	No	Yes	Yes	No	7
Total	**288.94**	**11**	**11**	**5**	**3**	**14**	**7**	**13**	**10**	**8**	**108**

Table 2.3.4. Details of infrastructure available with KVKs in Puducherry

KVK	Land area (ha)	Admin Building	Farmers Hostel	Staff Quarters	Soil & Water Testing Lab	Mini Soil Testing Kit	Soil Testing lab	Jeep	Tractor	Two wheeler	No. of Demo Units
Karaikal	24.38	Yes	No	No	No	Yes	No	No	Yes	Yes	7
Puducherry	58.00	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	13
Total	82.38	2	0	0	1	2	1	1	2	2	20

2.4. Revolving Fund

The total revolving fund generated by KVKs in the Zone-X is Rs.1034.87 lakhs of which Rs.292.94 lakhs is generated by KVKs in Tamil Nadu, Rs.400.65 lakhs by KVKs in Andhra Pradesh, Rs.328.95 lakhs by KVKs in Telangana and Rs.12.33 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 31.03.2020
Tamil Nadu	292.94
Andhra Pradesh	400.65
Telangana	328.95
Puducherry	12.33
Total	**1034.87**

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

KVK	Balance on 31.03.2020	KVK	Balance on 31.03.2020
Ariyalur	5.58	Ramanathapuram	1.39
Coimbatore	20.13	Salem	4.28
Cuddalore	1.03	Sivagangai	14.48
Dharmapuri	13.80	Theni	1.01
Dindigul	12.57	Thiruvarur	5.86
Erode	7.18	Tirunelveli	11.85
Kancheepuram	7.93	Thiruvallur	2.93
Kanyakumari	8.50	Thiruvannamalai	11.15
Karur	16.00	Tiruchirappalli	4.95
Krishnagiri	6.33	Thoothukudi	3.63
Madurai	8.22	Vellore	4.26
Nagapattinam	3.56	Villupuram-1	20.19
Namakkal	55.49	Villupuram-2	8.46
Perambalur	22.59	Virudhunagar	2.73
Pudukkottai	4.62	**Total**	**2.25**

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

KVK	Balance on 31.03.2020	KVK	Balance on 31.03.2020
Anantapur-1 (Reddipalli)	4.99	Kurnool-1 (Yagantipalli)	15.50
Anantapur-2 (Kalyandurg)	17.12	Nellore-1	5.02
Chittoor-2 (Kalikiri)	5.21	Nellore-2 (Periyavaram)	8.23
Chittoor-1 (RASS)	60.59	Prakasam-1 (Darsi)	10.15
East Godavari-1 (Kalavacherla)	20.62	Prakasam-2 (Kandukur)	4.73
East Godavari-2 (Pandirimamidi)	37.70	Srikakulam	20.27
Guntur (Lam)	7.54	Vishakapatnam-1 (BCT)	67.56
Kadapa-1 (Utukur)	5.11	Vishakapatnam-2 (Kondempudi)	1.09
Kadapa-2 (Vonipenta)	2.84	Vizianagaram	7.64
Krishna-1 (Garikapadu)	31.05	West Godavari-1 (Undi)	4.73
Krishna-2 (Ghantasala)	9.66	West Godavari-2 (Vrgudem)	46.06
Kurnool-2 (Banavasi)	7.24	**Total**	**400.65**

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

KVK	Balance on 31.03.2020	KVK	Balance on 31.03.2020
Adilabad	22.11	Sangareddy (Zaheerabad)	
Karimnagar (Jammikunta)	33.57	Medak (Tuniki)	4.69
Peddapalli (Ramgirikilla)	0.71	Suryapet (Gaddipally)	75.70
Bhadradri (Kothagudem)	3.29	Nalgonda (Kampasagar)	4.12
Khammam (Wyra)	96.22	Nizamabad (Rudrur)	17.32
Nagarkurnool (Palem)	9.31	Ranga Reddy (Hayathnagar)	3.96
Mahaboobnagar (Madanapuram)	14.43	Mahabubabad (Malyal)	37.12
Mancherial (Bellampalli)	1.92	Warangal Urban (Mamnoor)	4.49
Total			**328.95**

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

KVK	Balance on 31.3.2020
Karaikal	5.13
Puducherry	7.19
Total	**12.33**

2.5 Scientific Advisory Committee (SAC) Meetings

A total of 61 Scientific Advisory Committee meetings were conducted by KVKs for the year 2019-20 (Table 2.4.6).

Table 2.4.6. Details of SAC meetings conducted in Zone-X

State	No. of operational KVKs	No. of SAC meetings conducted
Tamil Nadu	30	24
Andhra Pradesh	23	22
Telangana	16	15
Puducherry	2	0
Total	**71**	**61**

3. ACHIEVEMENTS

3.1. Technology Assessment

During the year, KVKs in Zone X assessed 1414 technologies in 3626 trials conducted at different locations on farmers' fields (Table 3.1.1). The technologies included 977 on crops, 318 on animals 55 on women empowerment, 46 technologies on Enterprises and 18 on ICT. KVKs of Andhra Pradesh assessed the highest number of 626 technologies in 1658 trials followed by 451 technologies in 1031 trials by KVKs of Tamil Nadu, 323 technologies in 911 trials by KVKs of Telangana and 14 technologies in 26 trials by KVKs of Puducherry (Table 3.1.2).

The major crop based technologies were in the thematic areas of varietal evaluation (362), Integrated Pest Management (IPM) (189), Integrated Nutrient Management (INM) (112), Integrated Disease Management (IDM) (69), resource conservation (54) and Integrated Crop Management (ICM) (44) (Table 3.1.3). In animals category, major technologies assessed were in the thematic areas of evaluation of breeds (113), feed and fodder management (82), production management (65), nutrition management (36) and disease management (21). Drudgery reduction (17) and health and nutrition (16) were the major thematic areas assessed under women empowerment. Entrepreneurship development (21) and value addition (18) were the major thematic areas assessed under enterprises category.

Table 3.1.1. Technologies assessed by KVKs

Category	No. of Technologies	No. of Trials
Crops	977	2911
Animals	318	367
Women Empowerment	55	222
Enterprises	46	74
ICT	18	52
Total	**1414**	**3626**

Table 3.1.2. Details of technologies assessed by KVKs in Zone X

Category	No. of Technologies	No. of Trials	No. of KVKs
Tamil Nadu			
Crops	354	845	30
Animals	43	70	14
Women Empowerment	11	25	6
Enterprises	25	39	7
ICT	18	52	5
Total (Tamil Nadu)	**451**	**1031**	
Andhra Pradesh			
Crops	443	1299	24
Animals	153	232	11
Women Empowerment	25	115	14
Enterprises	5	12	3
Total (Andhra Pradesh)	**626**	**1658**	
Telangana			
Crops	175	757	16
Animals	117	57	7
Women Empowerment	15	74	10

Category	No. of Technologies	No. of Trials	No. of KVKs
Enterprises	16	23	2
Total (Telangana)	**323**	**911**	
Puducherry			
Crops	5	10	1
Animals	5	8	2
Women Empowerment	4	8	2
Total (Puducherry)	**14**	**26**	
Grand Total	**1414**	**3626**	

In Tamil Nadu, 354 crop based technologies were assessed for their suitability in 845 locations, 43 technologies on animals in 70 locations, 11 technologies on empowerment of women in 25 locations, 25 technologies on enterprises in 39 locations and 18 technologies on ICT and extension in 52 locations (Table 3.1.4). The KVKs of Andhra Pradesh assessed the suitability of 443 crop-based technologies in 1299 locations, 153 animal based technologies in 232 locations, 25 technologies for women empowerment in 115 locations and 5 technologies on enterprises in 12 locations (Table 3.1.5). In Telangana, 175 crop-based technologies were assessed for their suitability in 757 locations, 117 animal-based technologies in 57 locations, 15 technologies for the empowerment of women in 74 locations and 16 technologies for enterprises in 23 locations (Table 3.1.6). In Puducherry, five crop-based technologies were assessed for their suitability in 10 locations, in animals five technologies in eight locations and four women empowerment technologies in eight locations (Table 3.1.7).

Table 3.1.3. Thematic area wise technologies assessed by KVKs in Zone X

Thematic Areas	No. of Technologies	No. of Trials	No. of KVKs
Crops			
Varietal evaluation	362	979	61
Integrated Nutrient Management	112	306	41
Integrated Crop Management	44	188	22
Integrated Pest Management	189	586	59
Integrated Disease Management	69	216	24
Weed management	24	71	10
Cropping systems	36	117	20
Farm management	8	34	4
Integrated Farming System	5	24	4
Seed/plant production	2	10	1
Resource conservation technology	54	137	22
Post-harvest technology/value addition	17	41	7
Storage technique	7	36	7
Farm mechanization	28	74	8
Drudgery reduction (General)	14	65	11
Small scale income generation enterprise	6	27	4
Total (Crops)	**977**	**2911**	

Thematic Areas	No. of Technologies	No. of Trials	No. of KVKs
Animals			
Disease management	21	37	9
Evaluation of breeds	113	101	17
Feed and fodder management	82	98	12
Nutrition management	36	52	9
Production and management	65	75	11
Processing and value addition	1	4	1
Total (Animals)	**318**	**367**	
Women empowerment			
Drudgery reduction (women specific)	17	70	13
Entrepreneurship development	3	15	3
Health and nutrition	16	55	12
Value addition	19	82	15
Total (Women empowerment)	**55**	**222**	
Enterprises			
Entrepreneurship development	21	28	4
Health and nutrition	2	5	1
Small scale income generation enterprise	4	9	2
Organic farming	1	2	1
Value addition	18	30	7
Total (Enterprises)	**46**	**74**	
ICT	**18**	**52**	**5**
Grand Total	**1414**	**3626**	

Table 3.1.4. Thematic area wise technologies assessed by KVKs of Tamil Nadu

Thematic Areas	No. of Technologies	No. of Trials	No. of KVKs
Crops			
Varietal evaluation	156	338	27
Integrated Nutrient Management	34	82	15
Integrated Crop Management	9	29	5
Integrated Pest Management	88	246	27
Integrated Disease Management	21	49	9
Weed management	6	10	2
Cropping systems	11	22	5
Farm management	3	15	1
Resource conservation technology	17	36	7
Post-harvest technology/value addition	6	13	3
Farm mechanization	1	5	1
Small scale income generation enterprise	2	0	1
Total (Crops)	**354**	**845**	

Thematic Areas	No. of Technologies	No. of Trials	No. of KVKs
Animals			
Disease management	5	5	2
Evaluation of breeds	20	37	7
Feed and Fodder management	10	10	2
Nutrition management	1	5	1
Production and Management	7	13	3
Total (Animals)	**43**	**70**	
Women empowerment			
Drudgery reduction (Women specific)	3	5	1
Entrepreneurship development	1	5	1
Health and nutrition	4	10	2
Value addition	3	5	1
Total (Women empowerment)	**11**	**25**	
Enterprises			
Entrepreneurship development	4	5	1
Health and nutrition	2	5	1
Small scale income generation enterprise	3	5	1
Organic farming	1	2	1
Value addition	15	22	5
Total (Enterprises)	**25**	**39**	
ICT and Extension	**18**	**52**	**5**
Grand Total	**451**	**1031**	

Table 3.1.5. Thematic area wise technologies assessed by KVKs of Andhra Pradesh

Thematic Areas	No. of Technologies	No. of Trials	No. of KVKs
Crops			
Varietal evaluation	181	506	24
Integrated Nutrient Management	56	138	15
Integrated Crop Management	14	64	9
Integrated Pest Management	60	184	17
Integrated Disease Management	26	77	7
Weed management	17	55	7
Cropping systems	15	59	9
Farm management	3	14	2
Integrated farming system	4	19	3
Seed/plant production	2	10	1
Resource conservation technology	25	49	10
Post-harvest technology/value addition	7	16	2
Storage technique	7	36	7

Thematic Areas	No. of Technologies	No. of Trials	No. of KVKs
Farm mechanization	14	19	2
Drudgery reduction (general)	11	48	8
Small scale income generation enterprise	1	5	1
Total (Crops)	**443**	**1299**	
Animals			
Disease management	13	25	4
Evaluation of breeds	31	55	7
Feed and fodder management	56	72	6
Nutrition management	6	32	4
Production and management	46	44	3
Processing and value addition	1	4	1
Total (Animals)	**153**	**232**	
Women empowerment			
Drudgery reduction (Women specific)	11	55	8
Entrepreneurship development	2	10	2
Health and nutrition	4	11	3
Value addition	8	39	8
Total (Women empowerment)	**25**	**115**	
Enterprises			
Entrepreneurship development	3	9	2
Value addition	2	3	1
Total (Enterprises)	**5**	**12**	
Grand Total	**626**	**1658**	

Table 3.1.6. Thematic area wise technologies assessed by KVKs in Telangana

Thematic Areas	No. of Technologies	No. of Trials	No. of KVKs
Crops			
Varietal evaluation	25	135	10
Integrated Nutrient Management	19	81	10
Integrated Crop Management	21	95	8
Integrated Pest Management	39	151	14
Integrated Disease Management	22	90	8
Weed management	1	6	1
Cropping systems	10	36	6
Farm management	2	5	1
Integrated farming system	1	5	1
Resource conservation technology	12	52	5
Post-harvest technology/value addition	4	12	2

Thematic Areas	No. of Technologies	No. of Trials	No. of KVKs
Farm mechanization	13	50	5
Drudgery reduction (general)	3	17	3
Small scale income generation enterprise	3	22	2
Total (Crops)	**175**	**757**	
Animals			
Disease management	2	5	2
Evaluation of breeds	62	9	3
Feed and fodder management	16	16	4
Nutrition management	28	12	3
Production and management	9	15	4
Total (Animals)	**117**	**57**	
Women empowerment			
Drudgery reduction (Women specific)	3	10	4
Health and nutrition	7	29	6
Value addition	5	35	5
Total (Women empowerment)	**15**	**74**	
Enterprises			
Entrepreneurship development	14	14	1
Small scale income generation enterprise	1	4	1
Value addition	1	5	1
Total (Enterprises)	**16**	**23**	
Grand Total	**323**	**911**	

Table 3.1.7. Thematic area wise technologies assessed by KVKs in Puducherry

Thematic Areas	No. of Technologies	No. of Trials	No. of KVKs
Crops			
Integrated Nutrient Management	3	5	1
Integrated Pest Management	2	5	1
Total (Crops)	**5**	**10**	
Animals			
Disease management	1	2	1
Nutrition management	1	3	1
Production and management	3	3	1
Total (Animals)	**5**	**8**	
Women empowerment			
Health and nutrition	1	5	1
Value addition	3	3	1
Total (Women empowerment)	**4**	**8**	
Grand Total	**14**	**26**	

Performance of Technologies

3.1.1. Varietal Evaluation

I. Field Crops

a. Cereals

Rice varieties TKM 13, Dhan 45, ADT 51, CR 1009 Sub 1, TRY 3, NLR 34449, NLR 3041, CO 43 Sub 1 and CSR 36 were assessed by KVKs Ariyalur, Cuddalore, Thiruvallur and Villuparam in Tamil Nadu (Table 3.1.8). TKM 13 performed better (52.8 q/ha) with high economic returns (2.61:1). The bio-fortified rice variety Dhan 45 gave higher yield of 46.5 q/ha than CO 43. The submergence tolerant varieties CR 1009 Sub 1 and CO 43 Sub 1 yielded higher with rice yield of 67.5 and 59.1 q/ha, respectively and higher economic returns of 2.40:1 and 1.95:1, respectively than the farmers practice (BPT 5204). The salt tolerant rice variety TRY 3 yielded higher (40.2 q/ha) than CSR 36 (39.6 q/ha) and ADT 37 (37.2 q/ha). In Andhra Pradesh, the rice variety MTU 1172 performed better in East Godavari-1 (Kalavacherla), West Godavari-1 (Undi) and West Godavari-2 (VR. gudem) with higher yields (45, 68 and 62 q/ha, respectively) (Table 3.1.8).

b. Millets

Finger millet varieties CO 15, ML 365 and ATL 1 were assessed by KVKs of Vellore, Perambalur and Ramanathapuram in Tamil Nadu (Table 3.1.9) and all three varieties performed better than farmers practice in terms of grain yield (27.2, 21.7 and 13.9 q/ha, respectively) with higher economic returns. In Andhra Pradesh, finger millet variety PPR 2700 yielded 30 q/ha with higher BCR of 2.53:1.

Sorghum varieties K 12 and CO 30 were assessed by KVKs Dindigul, Tirunelveli and Villupuram-1 in Tamil Nadu (Table 3.1.10). The variety K 12 gave higher grain yield of 26.8 q/ha in Tirunelveli and CO 30 gave higher yield of 21.0 q/ha in Villupuram-1 district with higher economic returns. In Andhra Pradesh, the variety NTJ 5 gave 36.5 q/ha with higher BCR of 5.01:1. The foxtail millet variety SiA 3222 yielded 30.0 q/ha in Visakhapatnam with a BCR of 2.52:1 (Table 3.1.11), while the pearl millet variety ABV 04 yielded 15.8 q/ha grain with a BCR of 2.39:1 (Table 3.1.12).

c) Pulses

The blackgram varieties GBG 1, GBG 12, LBG 787 and TBG 104 performed better in Andhra Pradesh than the farmers practice (Table 3.1.13). The highest grain yield of 21.7 q/ha was observed in GBG 1 at KVK-Kurnool-2 (Banavasi) with higher economic returns (4.26:1). The greengram varieties CO (Gg) 8 and DGG 1 were assessed by KVKs Coimbatore, Thiruvannamalai and Villupuram-1 wherein both the varieties performed better than the farmers practice. The highest yield of 12.7 q/ha was obtained in DGG 1 at KVK Thiruvannamalai with a BCR of 2.77:1 (Table 3.1.14). The redgram varieties TRG 59 (24.7 q/ha), ICPL 20325 (7.9 q/ha) and LRG 52 (8.7 q/ha) performed better at KVKs, Kurnool-2 (Banavasi), Kurnool-1 (Yagantipalli) and Srikakulam with higher economic returns in Andhra Pradesh (Table 3.1.15).

d) Oil seeds

The groundnut varieties ICGV 3043 (24.8 q/ha), ICGV 00350 (16.0/ha) and TCGS 1043 (24.6 q/ha) performed better in KVKs Perambalur, Karur and Thiruvannamalai with higher economic returns in Tamil Nadu (Table 3.1.16). The variety GJG 32 performed better in Pudukkottai (28.5 q/ha) and Salem (21.3 q/ha) with higher economic returns. In Andhra Pradesh, TCGS 1157 (Nitya Haritha) (23.5 q/ha) and K 9 (16.1 q/ha) performed better in Srikakulam and Vizianagaram while in Telangana, the groundnut variety ICGV 3043 (17.4 q/ha) performed better with higher economic returns.

e) Commercial Crops

The tapioca varieties Sree Pavithra (354 q/ha) and YTP 1 (497 q/ha) performed better in Kanyakumari and Thiruvallur districts of Tamil Nadu with higher economic returns (Table 3.1.17). In Andhra Pradesh, the tapioca varieties Sree Raksha 1 (267 q/ha) and PDPCMR 1 (335 q/ha) performed better with BCR of 2.29:1 and 2.33:1, respectively.

f. Fodder crops

The fodder variety Super Napier performed better than the farmers practice in Chittoor-2 (Kalikiri), Kadapa-1 (Utukur) and Kurnool-2 (Banavasi) of Andhra Pradesh with the highest yield of 4250 q/ha in Kurnool-2 (Banavasi) (Table 3.1.18).

Assessment of sorghum varieties K12 and CSV 23 by KVK Ariyalur

Assessment of sunflower varieties NDSH 1012 Prabhat by KVK Kurnool (Banavasi)

Table 3.1.8. Performance of rice varieties in Tamil Nadu and Andhra Pradesh

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Tamil Nadu										
Ariyalur	5	TKM 13	52.8	2.61:1	NLR 34449	50.4	2.28:1	CO 43	46.3	1.78:1
Ariyalur	3	Dhan 45	46.5	2.18:1				CO 43	45.7	1.83:1
Cuddalore	5	ADT 51	58.3	2.33:1	NLR 3041	50.5	2.09:1	BPT 5204	44.1	1.89:1
Thiruvallur	5	CR 1009 Sub 1	67.5	2.40:1	CO 43 Sub 1	59.1	1.95:1	BPT 5204	33.8	1.24:1
Villupuram-1	10	TRY 3	40.2	2.00:1	CSR 36	39.6	2.01:1	ADT 37	37.2	1.73:1
Andhra Pradesh										
East Godavari-1 (Kalavacherla)	4	MTU 1172	45.0	1.71:1	MTU 1190	43.0	1.49:1	BPT 5204	52.0	1.97:1
West Godavari-1 (Undi)	6	MTU 1172	68.0	2.23:1	MTU 1140	65.0	2.10:1	MTU 7029	63.0	1.91:1
West Godavari-2 (Vrgudem)	6	MTU 1172	62.0	1.93:1	MTU 1061	54.0	1.68:1	MTU 1064	65.0	2.01:1
East Godavari-2 (Pandirimamidi)	6	MTU 1153	49.0	2.73:1	MTU 1153	47.0	3.04:1	Farmers practice	47.0	2.62:1
Kadapa-1 (Utukur)	3	NLR 20104	56.0	2.30:1	NLR 33892	55.0	2.25:1	BPT 5204	52.0	2.16:1
West Godavari-1 (Undi)	6	MTU 1190	65.0	2.09:1	MTU 1224	63.0	2.02:1	BPT 5204	62.0	1.85:1

Table 3.1.9. Performance of Finger Millet varieties in Tamil Nadu and Andhra Pradesh

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Tamil Nadu										
Perambalur	5	CO 15	19.5	1.70:1	ML 365	21.7	1.82:1	Local cultivar	17.7	1.58:1
Vellore	10	CO 15	27.2	2.37:1	DHFM 78-3	24.7	2.14:1	ML 365	16.5	1.57:1
Ramanathapuram	5	ATL 1	13.9	1.73:1	DHLTMV 14-1	12.8	1.67:1	Local cultivar	10.6	1.58:1
Andhra Pradesh										
West Godavari-2 (VR Gudem)	6	PPR 2700	30.0	2.53:1	VR 936	28	2.36:1	PPR 1012	32	2.70:1

Table 3.1.10. Performance of sorghum varieties in Tamil Nadu, Andhra Pradesh and Telangana

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Tamil Nadu										
Dindigul	5	K 12	18.3	2.77:1	CSV 27	16.6	2.26:1	White Sorghum	13.2	1.94:1
Tirunelveli	5	K 12	26.8	2.39:1	CSV 27	23.7	2.18:1	K 10	18.5	1.78:1
Villupuram-1	10	CO 30	21.0	1.54:1	CSV 29	18.5	1.47:1	Local cultivar	16.0	1.37:1
Andhra Pradesh										
Kurnool-2 (Banavasi)	5	NTJ 5	36.5	5.01:1	NTJ 4	31.25	4.32:1	Local variety	21.5	3.63:1
Telangana										
Ranga Reddy	5	PYPS 2	10.5	1.98:1				Local Yellow	6.0	1.28:1

Table 3.1.11. Performance of Foxtail millet varieties in Andhra Pradesh

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Vishakapatnam-1 (BCT)	6	SiA 3222	30.0	2.52:1	SiA 3156	28.0	2.37:1	Local Variety	21.3	1.96:1
West Godavari-2 (VR Gudem)	6	SiA 3085	16.3	2.34:1	SiA 3088	20.0	2.88:1	SiA-3156	17.5	2.52:1

Table 3.1.12. Performance of pearl millet varieties in Andhra Pradesh

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Kurnool-2 (Banavasi)	5	ABV 04	15.8	2.39:1	ICTP 8203	13.8	2.09:1	Local variety	12.0	1.82:1

Table 3.1.13. Performance of blackgram varieties in Tamil Nadu and Andhra Pradesh

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Tamil Nadu										
Kanyakumari	5	VBN 8	4.9	2.20:1	ADT 6	4.7	2.04:1	VBN 5	4.3	1.79:1
Madurai	5	KKM1	4.7	3.40:1	ADT 6	4.3	3.11:1	Fallow		
Andhra Pradesh										
Guntur (Lam)	2	GBG 1	12.5	2.14:1	LBG 787	12.0	2.11:1	LBG 752	10.7	1.77:1
Krishna-1 (Garikapadu)	5	GBG 1	15.2	4.64:1	GBG 12	17.8	5.51:1	PU 31	12.1	3.56:1
Kurnool-2 (Banavasi)	5	GBG 1	21.7	4.26:1	TBG 104	20.8	4.16:1	PU 31	15.8	3.10:1

Table 3.1.14. Performance of greengram varieties in Tamil Nadu

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Coimbatore	5	CO (Gg) 8	8.9	1.36:1	DGG 1	8.7	1.33:1	Co 6	8.2	1.22:1
Thiruvannamalai	7	CO (Gg) 8	9.8	2.12:1	DGG 1	12.7	2.77:1	VRM (Gg) 1	7.4	1.56:1
Villupuram-2	5	CO (Gg) 8	8.5	2.33:1	DGG 1	9.3	2.50:1	Local variety	7.4	2.06:1

Table 3.1.15. Performance of redgram varieties in Andhra Pradesh

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Kurnool-2 (Banavasi)	5	TRG 59	24.7	3.25:1	LRG 52	23.9	3.15:1	LRG 41	20.2	2.65:1
Kurnool-1 (Yagantipalli)	6	ICPL 20325	7.9	1.97:1	ICPL 11225	7.0	1.73:1	Local variety	6.3	1.38:1
Srikakulam	5	LRG 52	8.7	3.58:1	LRG 41	5.0	2.04:1	ICP 1035	3.7	1.42:1

Table 3.1.16. Performance of groundnut varieties in Tamil Nadu, Andhra Pradesh and Telangana

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Tamil Nadu										
Perambalur	5	CO 7	21.6	1.97:1	ICGV 3043	24.8	2.27:1	TMV 7	19.6	1.79:1
Karur	5	CO 7	12.5	1.73:1	ICGV 00350	16.0	2.21:1	TMV 7	10.8	1.39:1
Thiruvannamalai	7	CO 7	21.7	2.61:1	TCGS 1043	24.6	2.92:1	VRI 2	16.6	1.98:1
Madurai	5	Dharani	23.0	1.54:1	GJG 32	21.0	1.42:1	TMV 7	15.0	1.25:1
Pudukkottai	5	TMV 14	26.9	1.82:1	GJG 32	28.5	1.93:1	VRI 2	21.3	1.45:1
Salem	5	TMV 14	18.8	1.72:1	GJG 32	21.3	1.94:1	VRI 2	17.0	1.62:1
Ramanathapuram	5	TMV 14	12.7	1.51:1	GJG 32	14.7	1.68:1	TMV 7	9.8	1.17:1
Nagapattinam	5	TMV 14	18.3	2.50:1	K 9	16.2	2.21:1	Western 44	14.7	2.04:1
Theni	5	VRI 8	19.5	2.35:1	BSR 2	23.6	2.70:1	JL 22	26.2	2.91:1
Andhra Pradesh										
Anantapur-1 (Reddipalli)	3	DGRMB 24 and DGRMB 32	16.4	2.72:1	TG 37A	15.4	2.56:1	K 6	14.1	2.30:1
Srikakulam	3	TCGS 1157 (Nitya Haritha)	23.5	1.10:1	K 1812	21.7	1.10:1	K 6	20.5	1.09:1
Vishakapatnam-2 (Buchayapet)	3	TCGS 1157 (Nitya Haritha)	17.5	3.93:1	K 9	16.2	3.63:1	K 6	15.6	3.50:1
Vizianagaram	5	Dheeraj	15.2	2.35:1	K 9	16.1	2.48:1	JL 24	14.2	2.18:1
Telangana										
Suryapet (Gaddipalli)	6	K 9	16.6	2.08:1	ICGV 3043	17.4	2.12:1	K 6	14.5	1.81:1

Table 3.1.17. Performance of tapioca varieties in Tamil Nadu and Andhra Pradesh

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Tamil Nadu										
Kanyakumari	2	Sree Vijaya	275	2.77:1	Sree Pavithra	347	3.48:1	Kariyilai porian	215	2.24:1
Kanyakumari	5	YTP 1	322	3.23:1	Sree Pavithra	354	3.57:1	Kariyiali poriyan	300	3.46:1
Thiruvallur	5	YTP 1	497	2.97:1	Sree Harsha	406	2.64:1	Local Type	345	2.28:1
Andhra Pradesh										
East Godavari-1 (Kalavacherla)	4	Sree Raksha 1	267	2.29:1	Sree Raksha 2	236	1.88:1	Pedhapuram local	265	1.00:1
East Godavari-2 (Pandirimamidi)	6	PDPCMR 1	335	2.33:1	Sree Athulya	303	2.12:1	Local variety	258	1.91:1

Table 3.1.18. Performance of fodder varieties in Andhra Pradesh

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Chittoor-2 (Kalikiri)	5	Super Napier	1200		APBN 1	1120		CO (CN) 4	1000	
Kadapa-1 (Utukur)	3	Super Napier	2300	3.29:1				APBN 1	1600	2.29:1
Kurnool-2 (Banavasi)	5	Super Napier	4250	3.73:1	CO (CN) 4	3600	3.5:1	APBN 1	2850	3.36:1

II Horticultural Crops

a. Vegetables

The vegetable cowpea varieties PKM 1 (195 q/ha in Salem, TN), Arka Garima (142 q/ha in Karimnagar-Jammikunta-TS) performed better with higher economic returns (Table 3.1.19). The ridge gourd varieties Arka Vikram (322 q/ha in Krishnagiri), COH 1 (339 q/ha in Pudukkottai) performed better in Tamil Nadu than the farmers practice (Table 3.1.20). Tomato varieties Arka Abedh was assessed by KVKs in Tamil Nadu, Andhra Pradesh and Telangana along with Arka Samrat, CO (TH) 3, Arka Laxmi and Arka Shreshta as technology option 2 against farmers practice. Arka Abedh gave the highest yield of 713 q/ha in Krishnagiri, CO (TH) 3 gave 810 q/ha in Salem and Arka Samrat gave 737 q/ha in Kurnool-2 (Banavasi) with higher economic returns (Table 3.1.21). Bhendi hybrid CO (BH) 4 was assessed along with Arka Nikita as technology option 2 by KVKs in Tamil Nadu and Andhra Pradesh (Table 3.1.22). The highest yield of 276 q/ha was observed in Nagapattinam of Tamil Nadu where the variety Arka Nikita yielded 264 q/ha with higher economic returns than the farmers variety.

Onion varieties Arka Kalyan (240 q/ha), Red 3 (210 q/ha), Bheema Kiran (425 q/ha), Arka Bheem (418 q/ha) and Bhima Shubra (334 q/ha) performed better in Anantapur-2 (Kalyandurg), Kadapa-1 (Utukur), Medak (Tuniki), Suryapet (Gaddipalli) and Mahabubabad (Malyal), respectively with higher economic returns (Table 3.1.23).

b. Flowers

In Andhra Pradesh, the marigold variety Arka Bangara 2 performed better than the alternate varieties and farmers practices wherein the highest yield of 305 q/ha was in KVK Krishna-1 (Garikapadu) (Table 3.1.24) and in Telangana, Ashta Ganda (146 q/ha) and Big Ball Yellow (152 q/ha) performed better with higher BCR. Tuberose variety Arka Shringar (46.4 q/ha) and Arka Prajwal (56.2 q/ha) performed better in Andhra Pradesh.

c. Spices and condiments

Chilli hybrid CO (CH) 1 was assessed by KVKs Dindigul, Kanyakumari, Madurai and Perambalur along with Arka Khyati and Arka Harita wherein the highest yield of 235 q/ha in CO (CH) 1 was observed in Madurai district with higher BCR of 3.74:1 (Table 3.1.26). In Andhra Pradesh, the chilli variety LCA 616 was assessed by seven KVKs and LCH 111 was assessed by two KVKs. The highest green chilli yield of 236 q/ha was observed in West Godavari-2 (Vrgudem) with a BCR of 2.80:1. Turmeric varieties Rajendra Sonali, Rajendra Sonia, Pragathi, Roma and ACC 48 were assessed by KVKs in Andhra Pradesh and Telangana wherein the highest yield of 150 q/ha was obtained in Rajendra Sonali at Kadapa-1 (Utukur) (Table 3.1.27)

Assessment of tomato varieties by KVK Salem

Assessment of tuberose varieties by KVK Ariyalur

Assessment of rapid multiplication of turmeric using single bud rhizome by KVK Krishna (Garikapadu)

Table 3.1.19. Performance of vegetable cowpea varieties in Tamil Nadu and Telangana

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Tamil Nadu										
Krishnagiri	5	PKM 1	151	1.89:1	Arka Garima	168	2.15:1	Local variety	131	1.69:1
Salem	5	PKM 1	195	3.04:1	Arka Mangala	125	2.72:1	Local variety	175	2.85:1
Telangana										
Karimnagar (Jammikunta)	6	Arka Garima	142	8.69:1				Local variety	110	6.50:1

Table 3.1.20. Performance of ridge gourd varieties in Tamil Nadu

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Krishnagiri	5	Arka Vikram	322	3.82:1	COH 1	276	3.25:1	Private hybrid	238	2.89:1
Pudukkottai	5	Arka Vikram	308	3.34:1	COH 1	339	3.64:1	Private hybrid	275	3.09:1
Ramanathapuram	5	Arka Vikram	135	1.58:1	COH 1	138	1.59:1	Local cultivar	75	1.42:1

Table 3.1.21. Performance of tomato varieties in Tamil Nadu, Andhra Pradesh and Telangana

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Tamil Nadu										
Dindigul	5	Arka Abedh	554	2.74:1	Arka Samrat	537	2.62:1	Private hybrid	502	2.39:1
Perambalur	5	Arka Abedh	572	2.53:1	Arka Samrat	544	2.49:1	Private hybrid	486	2.18:1
Krishnagiri	5	Arka Abedh	713	1.98:1	CO (TH) 3	650	1.81:1	Private hybrid	575	1.59:1
Salem	5	Arka Abedh	610	3.00:1	CO (TH) 3	810	3.94:1	Private hybrid	670	3.60:1
Andhra Pradesh										
Chittoor-1 (RASS)	9	Arka Abhed	435	1.51:1	Arka Samrat	458	1.59:1	PHS 448 (Sweaker)	415	1.42:1
East Godavari-1 (Kalavacherla)	4	Arka Abhed	310	1.82:1	Arka Laxmi	510	2.86:1	VNR 3357	402	2.70:1
Kadapa-2 (Vonipenta)	5	Arka Abhed	644	2.45:1	Arka Samrat	697	2.58:1	Private hybrid	475	1.53:1
Kurnool-2 (Banavasi)	5	Arka Abedh	680	2.05:1	Arka Samrat	737	2.18:1	US 448	522	1.83:1
Kurnool-1 (Yagantipalli)	6	Arka Abhed	616	2.25:1	Arka Samrat	663	2.38:1	PHS 448	558	1.80:1
Srikakulam	5	Arka Abhed	542	4.32:1	Arka Samrat	525	4.14:1	Lakshmi	483	1.73:1
Vishakapatnam-1 (BCT)	5	Arka Abhed	540	2.76:1	Arka Samrat	561	2.87:1	Private Hybrid	413	2.15:1
Vishakapatnam-2 (Buchayapet)	4	Akra Abhed	470	3.57:1	Arka Samrat	453	3.43:1	Lakshmi	341	2.59:1
Vizianagaram	5	Arka Abhed	604	3.18:1	Arka Samrat	633	3.33:1	Private hybrid	491	2.59:1
West Godavari-1 (Undi)	6	Arka Abhed	705	1.69:1	Arka Samrat	715	1.69:1	Private hybrid	356	1.64:1
West Godavari-2 (Vrgudem)	6	Arka Abhed	594	3.77:1	Arka Samrat	624	3.96:1	Private hybrid	384	3.42:1
Telangana										
Karimnagar (Jammikunta)	6	Arka Abhed	584	8.99:1	Arka Samrat	537	7.49:1	Private hybrid	663	7.05:1

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Khammam (Wyra)	6	Arka Abhed	685	2.26:1	Arka Samrat	638	2.13:1	US 440	553	2.01:1
Peddapalli (Ramgirikilla)	5	Arka Abhed	580	3.74:1	Arka Shreshta	620	4.00:1	Private hybrid	380	2.89:1
Medak (Tuniki)	6	Arka Abhed	406	2.50:1	Arka Samrat	413	2.37:1	US 440	388	2.30:1
Nalgonda (Kampasagar)	6	Arka Abedh	53	2.50:1	Arka Samrat	44	1.88:1	US 440, PHS 448	39.3	1.71:1
Mahabubabad (Malyal)	6	Arka Abhed	465	3.51:1	Arka Samrat	425	3.29:1	US 404	368	2.80:1

Table 3.1.22. Performance of bhendi varieties in Tamil Nadu and Andhra Pradesh

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Tamil Nadu										
Kanyakumari	5	Co (BH) 4	210	2.45:1	Arka Nikita	200	2.40:1	Local variety	135	2.16:1
Karur	5	Co (BH) 4	161	2.16:1	Arka Nikita	112	1.51:1	Private hybrid	146	1.97:1
Krishnagiri	5	Co (BH) 4	108	1.80:1	Arka Nikita	114	1.91:1	Private hybrid	94	1.48:1
Madurai	1	Co (BH) 4	225	3.56:1	Arka Nikita	213	3.45:1	Private hybrid	195	2.98:1
Nagapattinam	5	Co (BH) 4	276	2.69:1	Arka Nikita	264	2.31:1	Local variety	228	1.94:1
THENI	5	Co (BH) 4	185	2.43:1	Arka Nikita	197	2.56:1	Private hybrid	165	2.08:1
Villupuram-1	5	Co (BH) 4	237	3.02:1	Arka Nikita	225	2.92:1	Private hybrid	204	2.67:1
Andhra Pradesh										
Chittoor-2 (Kalikiri)	6	CO (BH) 4	236	1.72:1	Arka Nikita	199	1.63:1	Private hybrid	181	1.56:1
Chittoor-1 (RASS)	12	CO (BH) 4	91	2.02:1	Arka Nikita	122	2.30:1	Private hybrid	104	2.25:1
East Godavari-2 (Pandirimamidi)		CO (BH) 4	201	4.13:1	Arka Nikita	198	4.29:1	Private hybrid	153	3.14:1

Table 3.1.23. Performance of onion varieties in Andhra Pradesh and Telangana

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Andhra Pradesh										
Anantapur-2 (Kalyandurg)	2	Arka Kalyan	240	2.88:1				Sattara	180	1.80:1
Kadapa-1 (Utukur)	5	Red 3	210	1.59:1	Agri Found Rose	175	1.53:1	Krishnapuram	150	1.47:1
Telangana										
Medak (Tuniki)	6	Arka Bheem	390	3.36:1	Bheema Kiran	425	3.66:1	Gaurang	315	2.73:1
Suryapet (Gaddipalli)	6	Arka Kalyan	410	3.48:1	Arka Bheem.	418	3.53:1	Gaurang	335	2.88:1
Mahabubabad (Malyal)	6	Bhima Shwetha	301	3.52:1	Bhima Shubra	334	3.80:1	Gangajal	283	2.97:1

Table 3.1.24. Performance of marigold varieties in Andhra Pradesh and Telangana

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Andhra Pradesh										
Anantapur-2 (Kalyandurg)	2	Arka Bangara 2	104	4.66:1				Chitradurg	82.5	3.3:1
Kadapa-2 (Vonipenta)	5	Arka Bangara 2	116	2.59:1				Local varieties	71	1.84:1
Krishna-1 (Garikapadu)	3	Arka Bangara 2	305	1.79:1	Arka Agni	235	1.74:1	Yellow dollor	222	1.69:1
Krishna-2 (Ghantasala)	5	Arka Bangara 2	285	2.50:1	Private hybrid	263	2.35:1	Private hybrids	266	2.43:1
Kurnool-2 (Banavasi)	5	Arka Bangara	82	2.26:1	Yellow maxima	73	1.99:1	Local	69	1.93:1
Nellore-1	5	Arka Bangara 2	99	1.75:1	Yellow maxima	93	1.58:1	Ashoka Yellow	84	1.33:1
Srikakulam	5	Arka Bangara	123	1.94:1	Yellow Dollar	126	1.81:1	Seracol	84	1.75:1
Telangana										
Karimnagar (Jammikunta)	6	Ashta Ganda	146	4.94:1	Ashoka Yellow	132	5.2:1	Local Orange	95	4.69:1
Medak (Tuniki)	6	US-505	140	3.81:1	Maxima Yellow	150	4.05:1	Local variety	120	2.21:1
Suryapet (Gaddipalli)	6	Maxima yellow	142	2.95:1	Big Ball Yellow	152	3.00:1	Local variety	111	1.94:1

Table 3.1.25. Performance of tuberose varieties in Andhra Pradesh

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Anantapur-2 (Kalyandurg)	3	Arka Prajwal	41.3	2.02:1	Arka Shringar	46.4	2.27:1	Sugandhalu	35.0	1.71:1
Ranga Reddy	5	Arka Prajwal	56.2	2.27:1	Hyderabad Single	53.7	2.22:1	Chevella Local	31.2	1.46:1

Table 3.1.26. Performance of chilli varieties in Tamil Nadu andAndhra Pradesh

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Tamil Nadu										
Dindigul	5	CO (CH) 1	222	2.92:1	Arka Khyati	211	2.63:1	Private Hybrid	186	2.35:1
Kanyakumari	5	CO (CH) 1	211	3.33:1	Arka Khyati	226	3.50:1	Local variety	209	3.34:1
Madurai	1	CO (CH) 1	235	3.74:1	Arka Harita	239	3.67:1	VNR G 277	203	2.60:1
Perambalur	5	CO (CH) 1	215	3.12:1	Arka Khyati	192	2.68:1	Local variety	153	2.12:1
Andhra Pradesh										
Kadapa-1 (Utukur)	5	LCA 616	105	1.49:1	VNR 314	100	1.59:1	VNR 145	87.5	1.70:1
Kadapa-2 (Vonipenta)	5	LCA 616	185	1.30:1	CA 960	176	1.23:1	Private hybrids	169	1.18:1
Krishna-1 (Garikapadu)	3	LCA 616	40	1.70:1	CA 960	38	1.68:1	Local variety	30	1.33:1
Krishna-2 (Ghantasala)	5	LCA 616	169	1.15:1	Private hybrid	171	1.17:1	Private hybrid	295	1.42:1
Vishakapatnam-2 (Buchayapet)	4	LCA 616	195	3.09:1	CA 960	153	2.67:1	VNR 145	177	3.52:1
Vizianagaram	5	LCA 616	36	2.35:1	CA 960	30	1.98:1	Local Variety	28	1.88:1
West Godavari-2 (Vrgudem)	6	LCA 616	236	2.80:1	CA-960	216	2.57:1	Local variety	196	2.20:1
Chittoor-2 (Kalikiri)	6	LCH 111	32	1.51:1	Arka Haritha	27	1.39:1	Local hybrids	30	1.40:1
Kurnool-2 (Banavasi)	5	LCH 111	64	3.63:1	BSS 273	63	3.14:1	Teja	58	2.68:1
Nellore-2 (Periyavaram)	6				Arka Meghana	41	4.95:1	Local variety	35	4.12:1
West Godavari-2 (Vrgudem)	6	LAM	22	3.39:1	Arka Haritha	24	3.91:1	VNR 145	27	4.05:1

Table 3.1.27. Performance of turmeric varieties in Andhra Pradesh and Telangana

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Andhra Pradesh										
Kadapa-1 (Utukur)	5	Rajendra Sonali	150	1.45:1	Pragathi	113	1.20:1	Mydukur local	125	1.27:1
Vishakapatnam-1 (BCT)	5	Pragathi	117	2.68:1	Roma	119	2.74:1	Local Variety	88	1.79:1
Telangana										
Khammam (Wyra)	6	Rajendra Sonali	79	3.24:1	Rajendra Sonia	82	3.32:1	Duggirala	60	2.67:1
Mahabubabad (Malyal)	6	Rajendra Sonali.	74	1.41:1	ACC 48	68	1.33:1	Duggirala red	58	1.04:1

3.1.2. Crop production technologies

Performance of INM Technologies

The technologies on Integrated Nutrient Management practices for various crops were assessed by KVKs in Tamil Nadu, Andhra Pradesh and Telangana (Table 3.1.28). In rice, Soil Test Based NPK along with Green manure gave higher yield of 44 q/ha in Karur district while organic practices gave the highest yield of 62.8 q/ha in Theni district of Tamil Nadu. RDF with phohphate solubilizers gave higher grain yield in Maize (35.5 q/ha) in Tiruchirappalli with higher economic returns. Application of biochar along with soil test based NPK fertilizers to greengram gave higher grain yield of 8.6 q/ha in Virudhunagar district. INM with green manure and bio fertilizers yielded 17.6 q/ha of cotton kapas in Dharmapuri district and 20.9 q/ha in Dindigul district with higher economic returns. Citrus special performed batter (119 q/ha) than micronutrients mixture and NPK alone in Tirunelveli district. Sulphur fertilization to jasmine as sulphate of potash (9.3 q/ha) and SSP (9.2 q/ha) yielded higher than no sulphur practices of farmers. Application of vermicompost and biofertilizers along with NPK fertilizers yielded higher tuberose flowers (141 q/ha) than farmers practice in Dindigul. IISR Power mix along with NPK fertilizers to chilli gave higher yield of 16.7 q/ha than IIHR vegetable mix and KPK alone in Vellore district.

In Andhra Pradesh, INM practices performed better than straight fertilizers alone in rice with high grain yields of 58.6 q/ha in Krishna-2 (Ghantasala) and 55.2 q/ha in Vishakapatnam-2 (Buchayapet) KVKs (Table 3.1.29). In Blackgram, application of micronutrients along with humic acid gave higher grain yield of 25.1 q/ha than humic acid alone with higher BCR of 3.90:1. Micro nutrient application along with potassium and NPK fertilizers gave higher yields of 3.2 to 10.1 q/ha in redgram than farmers practice.Foliar spray of 19:19:19 fertilizer gave higher yield in groundnut than urea spray in Anantapur-1 (Reddipalli) (15.2 q/ha) and Chittoor-1 (RASS) (17.8 q/ha). STCR based fertilizer application gave higher groundnut yield of 31.6 q/ha with higher economic returns in Kadapa-1 (Utukur). Soil test based fertilizers along with bio fertilizers and FYM to Chilli gave higher yield of 34.8 q/ha of dry chilli yield in East Godavari-2 (Pandirimamidi) with a BCR of 3.39:1.

In Telangana, soil test based fertilizer application to rice gave higher grain yield in Nagarkurnool (Palem) (63.7 q/ha), Mancherial (Bellampalli) (66.0 q/ha), Suryapet (Gaddipalli) (56.3 q/ha), Mahabubabad (Malyal) (72.2 q/ha) than fertilizers alone and farmers practice (Table 3.1.30). Soil test based integrated nutrient management gave higher maize yield in Karimnagar (Jammikunta) (73.8 q/ha), Mancherial (Bellampalli) (58.1 q/ha), Medak (Tuniki) (53.8 q/ha) with higher economic returns.

Performance of ICM Technologies

Integrated crop management technologies like drum seeding in rice (2.34:1), drip fertigation in rice (1.55:1), seed drill sowing in blackgram (2.17:1), and pruning in jasmine (1.74:1) gave higher BCR in Tamil Nadu (Table 3.1.31). In Andhra Pradesh, thinning and early sowing in redgram (2.26:1 and 1.97:1), high density planting in cotton (1.83:1) and single bud seedling in sugarcane (1.61:1) gave higher BCR (Table 3.1.32). In Telangana, paired row planting in maize (4.85:1), closer spacing in cotton (2.49:1), drip fertigation with mulching for bhendi (2.44:1) gave higher BCR (Table 3.1.33). Performance of various cropping system technologies, intercropping, integrated weed management for various crops in Tamil Nadu and Andhra Pradesh are furnished in Tables 3.1.34 to 3.1.36.

Assessment of ICM technology for turmeric by KVK Karimnagar (Ramagirikilla)

Assessment of foxtail millet-chickpea cropping sequence in rainfed black soils by KVK Kurnool (Banavasi)

Table 3.1.28. Performance of INM technologies in Tamil Nadu

Crop and District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Rice										
Karur	5	Soil Test Based NPK, Green manure	44.0	1.92:1	Green manure, panchagavya, EFYM, rock phosphate, vermicompost	39.0	1.76:1	Green manure+ chemical fertilizer	41.0	1.82:1
Theni	5	Soil Test Based NPK, Green manure	59.4	1.9:1	Green manure, Panchagavya, FYM, rock phosphate + neem cake, vermicompost	62.8	2.19:1	Green manure + Chemical fertilizers	51.4	1.66:1
Maize										
Tiruchirappalli	5	RDF, Azospirillum and VAM	31.5	1.34:1	RDF, P solubilizers	35.5	1.37:1	FYM	30.0	1.33:1
Greengram										
Virudhunagar	5	Soil Test Based NPK, Biochar	8.6	2.23:1	Soil Test Based NPK, FYM	7.23	1.95:1	DAP	5.5	1.56:1

Crop and District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Cotton										
Dharmapuri	5	NPK, FYM, Green manure, Bio fertilizers	17.6	2.24:1	NPK, FYM, Bio fertilizers	17.4	2.02:1	DAP or Complex fertilizers	12.8	2:1
Dindigul	5	NPK, FYM, Green manure, Bio fertilizers, MN mixture	20.9	1.79:1	NPK, FYM, Bio fertilizers, TNAU MN mixture	19.5	1.71:1	Farmers practice	16.6	1.57:1
Citrus										
Tirunelveli	5	NPK, IIHR Citrus special	119	2.50:1	NPK, $ZnSO_4$, $FeSO_4$, $MnSO_4$	94.4	1.94:1	NPK	85.5	1.85:1
Jasmine										
Madurai	5	Sulphate of Potash	9.3	1.37:1	Single Super Phosphate	9.2	1.34:1	No Sulphur	8.9	1.32:1
Namakkal	1	NPK, Oil cake, $ZnSO_4$, $FeSO_4$, $MgSO_4$	74	3.00:1	NPK, bi-ofertilizers, panchakavi-yam, humic acid, $ZnSO_4$, $FeSO_4$, $MgSO_4$	82	3.20:1	Complex fertilizer (17:17:17)	71	2.89:1
Tuberose										
Dindigul	5	RDF (NPK), FYM, Ver-micompost, Azospirillum, PSB	141	2.82:1	RDF (NPK), FYM	138	2.88:1	Farmers practice	111	2.39:1
Chilli										
Vellore	10	NPK, IIHR Vegetable special	15	2.37:1	NPK, IISR Power Mix	16.7	2.57:1	NPK	12.4	2.24:1

Table 3.1.29. Performance of INM technologies in Andhra Pradesh

Crop and District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Rice										
Krishna-2 (Ghantasala)	6	RDF-NPK, liquid bio-fertilizers	58.6	1.72:1	75% RDF-NPK, liquid Bio-fertilizers	56.1	1.67:1	RDF-NPK	53.0	1.40:1
Vishakapatnam-2 (Buchayapet)	3	RDF-NPK, liquid bio-fertilizers	55.2	2.58:1	RDF-NPK	54.1	2.50:1	Farmers' practice	53.0	2.37:1
Blackgram										
Krishna-2 (Ghantasala)	6	Humic acid, Micronutrients	25.1	3.90:1	Humic acid	22.9	3.66:1	Farmer's practice	20.0	2.92:1

Crop and District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Redgram										
Anantapur-1 (Reddipalli)	5	Potassium + Zinc sulphate	7.8	2.42:1				Farmers practice	7.0	2.45:1
Anantapur-1 (Reddipalli)	5	Potassium + Zinc sulphate	7.8	2.42:1				Farmers practice	7.0	2.45:1
Kurnool-1 (Yagantipalli)	6	Potassium + Zinc sulphate	10.1	2.28:1	Basal Potassium	9.6	2.25:1	Farmers practice	9.1	2.34:1
Chittoor-2 (Kalikiri)	5	NPK + Zinc sulphate	3.2	1.29:1	N and P	3.1	1.25:1	Farmers practice	3.0	1.26:1
Kurnool-2 (Banavasi)	5	TNAU pulse Wonder	23.5	3.70:1	RDF	19.5	2.72:1	Farmers practice	18.8	2.32:1
Groundnut										
Anantapur-1 (Reddipalli)	10	Foliar spray of 19:19:19	15.2	2.67:1	Foliar spray of urea	12.2	2.20:1	No foliar spray	9.0	1.70:1
Chittoor-1 (RASS)	5	Foliar spray of 19:19:19	17.8	2.68:1	Foliar spray of urea	17.1	2.66:1	No foliar spray	16.8	2.65:1
Kadapa-1 (Utukur)	3	STCR based fertilizer application	31.6	2.91:1	RDF (20:40:50)	26.4	2.77:1	Farmers practice	26.6	2.41:1
Sugarcane										
Vishakapatnam-1 (BCT)	3	Integrated Nutrient Management	675	1.56:1	Organic farming package	550	2.20:1	Farmers Practice	450	1.42:1
Onion										
Kurnool-1 (Yagantipalli)	6	Soil test based fertilizer application	255	1.86:1				Farmers practice	242	1.7:1
Banana										
Kurnool-1 (Yagantipalli)	6	Fertigation schedule of Dr.YSRHU	65.4	2.86:1	Fertigation schedule of TNAU	64.4	2.85:1	Farmers practice	60.6	2.24:1
Chilli										
East Godavari-2 (Pandirimamidi)	6	Soil test based fertilizers, Bio-fertilizers, FYM	34.8	3.39:1	RDF (120:24:48)	32.0	2.88:1	Farmers practice	35.5	2.84:1
West Godavari-1 (Undi)	6	75% RDF (150:18:36), Bio-fertilizers	337	1.52:1	Soil test based fertilizer application	324	1.46:1	Farmers practice	322	1.40:1

Table 3.1.30. Performance of INM technologies in Telangana

Crop and District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Rice										
Nagarkurnool (Palem)	6	STCR based fertilizer application	63.7	2.25:1	RDF-NPK	73.1	2.57:1	Farmers Practice	57.3	1.98:1
Mancherial (Bellampalli)	5	STCR based fertilizer application	66.0	2.96:1	RDF (120:60:40)	52.0	2.50:1	Farmers Practice	57.0	2.58:1
Suryapet (Gaddipalli)	6	Soil test based fertilizer application	56.3	2.30:1	RDF (120:60:40)	54.8	2.20:1	Farmers Practice	53.5	2.10:1
Nalgonda (Kampasagar)	6	STCR Recommendation for 6t/ha targeted yield	65.2	2.07:1	STCR based fertilizer application	62.3	1.90:1	Farmers Practice	60.9	1.84:1
Mahabubabad (Malyal)	6	50% RDF of Phosphorous, PSB	72.2	6.56:1	75% RDF of Phosphorous.	71.5	6.15:1	Farmers Practice	70.0	5.18:1
Maize										
Karimnagar (Jammikunta)	6	PSB + Azospirillum + KMB + 75% RDF	73.8	3.42:1	DAP + urea + MOP	68.8	3.10:1	Farmers practice	66.3	2.73:1
Mancherial (Bellampalli)	5	STCR based fertilizer application	58.1	2.02:1	RDF (180:60:50)	52.7	1.91:1	Farmers Practice	53.7	1.92:1
Medak (Tuniki)	5	Soil test based fertilizer application	52.6	2.86:1	RDF (80:16:20)	51.5	2.76:1	Farmers Practice	50.1	2.63:1
Medak (Tuniki)	5	Soil test based fertilizer application	53.8	2.78:1	RDF (96:32:32)	53.0	2.67:1	Farmers Practice	52.4	2.55:1
Bengalgram										
Medak (Tuniki)	5	75% RD of Phosphorus, PSB	13.2	1.68:1	RDF (8:20:8:40)	12.4	1.54:1	Farmers practice	11.2	1.35:1
Soybean										
Nizamabad (Rudrur)	1	Soil test based fertilizer application	19.0	3.37:1	RDF (60:60:40)	18.6	3.22:1	Farmers Practice	17.7	2.81:1

Crop and District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Cotton										
Suryapet (Gaddipalli)	6	RDF + Foliar application of multi-K	19.6	1.67:1	RDF N:P:K 150:60:60	18.0	1.58:1	Farmers practice	18.0	1.55:1
Bitter gourd										
Ranga Reddy (Hayathnagar)	5	Soil test based fertilizer application	495	5.32:1				Farmers Practice	290	3.19:1
Chilli										
Wanaparthy (Madanapuram)	5	Soil test based fertilizer application	43.6	1.77:1	RDF	37.1	1.73:1	Farmers practice	31.6	1.64:1

Table 3.1.31. Performance of ICM technologies in Tamil Nadu

Crop and District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Rice										
Madurai	5	Machine transplanting in un-puddled soil	42.7	1.85:1	Drum Seeding	47.3	2.34:1	Machine transplanting	53.4	1.92:1
Thoothukudi	1	Drip irrigation	63.6	1.55:1	Micro sprinkler rain hose	57.9	1.44:1	Flood irrigation	56.6	1.53:1
Villupuram-1	10	Pusa hydrogel application	58.5	3.03:1	Pink-Pigmented Facultative Methylotrophs	56.9	3.11:1	Farmers practice - Nil	46.3	2.63:1
Blackgram										
Madurai	5	Dibbling	9.8	2.01:1	Seed drill sowing	10.0	2.17:1	Broadcasting	6.3	1.66:1
Jasmine										
Ramanathapuram	5	November pruning, humic acid spray	16.5	1.72:1	September pruning, CCC (Cycocel) and humic acid spray	18.0	1.74:1	Mannual pruning	9.0	1.56:1

Table 3.1.32. Performance of ICM technologies in Andhra Pradesh

Crop and District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Millet										
Kurnool-1 (Yagantipalli)	6	Brown top millet	25.1	2.76:1	Proso millet	12.7	1.95:1	Foxtail millet	18.6	2.05:1
Redgram										
Anantapur-1 (Reddipalli)	5	Thinning in redgram	7.2	2.26:1				No thinning	6.3	2.12:1
Guntur (Lam)	2	Early sowing of *rabi* LRG 105	22.5	1.97:1	Early sowing of *rabi* PRG 176	19.8	1.72:1	Late sowing of LRG 105	18.6	1.49:1
Cotton										
Kadapa-1 (Utukur)	3	High density planting of LHDP 1	23.9	1.83:1				Normal planting of BG-II	21.1	1.68:1
Sugarcane										
Srikakulam	3	Single bud seedling 120 cm x 30 cm	954	1.61:1	Single bud direct planting 120 cm X 30 cm	926	1.60:1	3 budded sets 90 cm	903	1.49:1
Banana										
Kadapa-2 (Vonipenta)	5	Sulphate of potash spraying	672	2.45:1	Covering bunches with flag leaf or boot leaf	641	2.41:1	Farmers practice	635	2.36:1
Chrysanthemum										
Chittoor-2 (Kalikiri)	6	GA3 and Boric Acid spraying	12.6	1.62:1				Farmers practice	10.3	1.52:1
Chilli										
Chittoor-1 (RASS)	9	Transplanting from 15th to 30th November	38.0	4.68:1	Transplanting from 1st to 15th December	28.5	3.58:1	Broadcasting	29.2	3.52:1

Table 3.1.33. Performance of ICM technologies in Telangana

Crop and District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Maize										
Khammam (Wyra)	6	Normal planting and drip irrigation	90	2.03:1	Paired row planting and drip fertigation	94	2.2:1	Normal planting	83	1.75:1
Mahabubabad (Malyal)	6	Normal planting with drip fertigation	89	4.48:1	Paired row planting	93	4.85:1	Normal planting	86	3.88:1
Cotton										
Peddapalli (Ramgirikilla)	5	In-situ incorporation of cotton stalks with rotary shredder	32	2.13:1	Incorporation of cotton stalks into soil with rotavator	31	2.07:1	Burning of cotton stalks	27	1.90:1
Mancherial (Bellampalli)	5	Closer spacing (90 cm x 30 cm) with RDF	24	2.49:1	Wider spacing 90 cm x 90 cm with RDF	18	1.91:1	Farmer's Practice	16	1.66:1
Sugarcane										
Khammam (Wyra)	6	Normal planting with drip irrigation	123	1.65:1	Paired row planting with drip fertigation	125	1.67:1	Normal planting	98	1.39:1
Bhendi										
Khammam (Wyra)	6	Fertigation with need based chemicals	231	2.41:1	Fertigation with mulching and need based chemicals	253	2.44:1	Conventional	172	1.97:1
Cabbage										
Bhadradri (Kothagudem)	5	Drip irrigation	24.3	1.92:1	ICM	29.5	2.02:1	Farmers practice	19.7	1.87:1
Chilli										
Bhadradri (Kothagudem)	5	Arka Khyati with ICM	37.3	1.9:1	Arka Meghana with ICM	44.7	2.22:1	Teja – Farmers practice	32.3	1.81:1

Table 3.1.34. Performance of cropping system technologies in Tamil Nadu

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Karur	5	Onion + chrysanthemum	97	2.29:1	Onion + chilli	100	2.47:1	Onion	78	2.21:1
Namakkal	1	Onion + chrysanthemum	108	3.25:1	Onion + chilli	40	2.75:1	Onion	110	2.32:1
Theni	5	Sugarcane + Bhendi	144	4.37:1	Sugarcane + onion	128	3.85:1	Sugarcane + greengram	123	3.84:1

Table 3.1.35. Performance of cropping system technologies in Andhra Pradesh

District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Anantapur-1 (Reddipalli)	5	Foxtail millet + Bengalgram	11.6	1.85:1				Bengalgram	9.9	1.90:1
Guntur (Lam)	3	Foxtail millet (SIA 3222) + Bengalgram	37.8	2.44:1	Foxtail millet (Suryanandi) + Bengalgram	34.3	2.28:1	Bengalgram	22.2	2.00:1
Kurnool-2 (Banavasi)	5	Foxtail millet (SIA-3222) + Bengalgram	22.7	2.91:1	Foxtail millet (Suryanandi) + Bengalgram	22.8	3.05:1	Bengalgram	11.3	1.99:1
Prakasam-1 (Darsi)	5	Brown top millet (BR-1)	17.3	1.47:1	Foxtail millet (Suryanandi)	18.8	1.61:1	Foxtail millet (Sree Lakshmi)	16.3	1.56:1
Vizianagaram	5	Paddy + sesame	5.1	2.59:1	Paddy + sunhemp	2.7	2.40:1	Local variety	51.3	2.14:1
Kurnool-1 (Yagantipalli)	6	Pearl millet + redgram	13.7	1.72:1	Pearl millet + castor	10.9	1.93:1	Castor	9.0	1.69:1
Prakasam-1 (Darsi)	5	Safflower (ISF-764)	10.3	1.56:1	Chickpea (NBeG-49)	15.0	1.22:1	Chickpea (JG-11)	12.5	1.07:1
Anantapur-1 (Reddipalli)	5	Precision farming in tomato	217	1.78:1				Farmers practice	169	1.62:1
Anantapur-1 (Reddipalli)	5	Precision farming in chilli	21.8	1.72:1				Farmers practice	19.4	1.57:1

Table 3.1.36. Performance of weed management technologies in Andhra Pradesh

Crop and District	Loca-tions	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Rice										
Krishna-2 (Ghantasala)	6	Oxadiargyl (PEH), Bis-pyribac sodium (PoEH)	56.8	1.67:1	Pyrazosulphuran	54.4	1.59:1	Manual weeding	52.1	1.41:1
Srikakulam	5	Pretilachlore (PEH), bispyribac sodium, Ethoxysulfuron and fenoxy prop ethyl with safener (PoEH)	63.3	1.58:1	Pretilachlore (PEH), Ethoxysulfuron + fenoxy prop ethyl with safener (PoEH)	64.2	1.61:1	Bispyriback sodium (PoEH)	61.0	1.52:1
Vishakapatnam-1 (BCT)	6	Oxadiargyl (PEH) and bispyribac sodium (PoEH)	50.4	1.83:1	Pyrazosulfuron ethyl (PEH) and bispyribac Sodium (PoEH)	50.6	2.03:1	Hand weeding	46.5	1.51:1
Vishakapatnam-2 (Buchayapet)	3	Pyrazosulfuron ethyl (PEH)	59.4	2.84:1	Pretilachlor and Bispyribac sodium	58.2	2.80:1	Manual weeding	56.3	2.47:1
Blackgram										
Chittoor-1 (RASS)	5	Pendimethalin (PEH) Cladinofp + Aceflorfen (PoEH)	11.9	3.32:1	Pendimethalin (PEH) + hand weeding	11.1	2.95:1	Hand weeding	10.3	2.64:1
Guntur (Lam)	3	Pendimethalin and Imazethapyr (PEH)	17.5	2.38:1	Imazepyr (PoEH)	17.2	2.17:1	Pendimethalin (PEH)	16.1	1.93:1
Krishna-1 (Garikapadu)	5	Pendimethalin (PEH) and Sodium aciflourfen + clodinofop propargyl (PoEH)	16.2	5.46:1	Pendimethalin (PEH) + Hand weeding	14.7	4.70:1	Hand weeding	11.7	3.52:1
Srikakulam	5	Pendimethalin (PEH) and imazethapyr PoEH), Paraquat spot application	4.1	1.28:1				Imazithphyr (PoEH)	3.8	1.17:1
Vishakapatnam-1 (BCT)	6	Sodium Salt of Aceflorofen + Cladonoprop propyrgel	6.5	3.03:1	Imazythapyr	5.6	2.68:1	No Weeding	3.8	2.48:1
Greengram										
Chittoor-1 (RASS)	5	Pendimethalin (PEH), Cladinofp + Aceflorfen (PoEH)	10.0	2.91:1	Pendimethalin (PEH), hand weeding	9.5	2.58:1	Hand weeding	8.8	2.30:1
Cotton										
Vishakapatnam-1 (BCT)	6	Pendimethalin (PEH)	15.3	1.86:1	Quizalofop ethyl + Pyrithiobac sodium (PoEH)	14.0	1.67:1	Hand weeding	12.3	1.24:1

3.1.3. Integrated Pest and Disease Management

Integrated Pest Management

Nematode management in tomato using *Pochonia chlamydosporia* gave the highest yield of 360 q/ha in Erode and 664 q/ha in Krishnagiri districts with higher BCR than insecticide (Table 3.1.37). IPM for the management of Fall Army Worm in maize resulted in an average grain yield of 57.7 q/ha as against 45.2 q/ha in farmers practice in Tamil Nadu (Table 3.1.38). In Andhra Pradesh, IPM technologies in rice, redgram, tomato and chilli gave higher yield and economic returns than farmers practice (Table 3.1.39). IPM for the management of Fall Army Worm in maize resulted in an average grain yield of 62.3 q/ha as against 58.5 q/ha in farmers practice in Andhra Pradesh (Table 3.1.40).

In Telangana, the IPM technologies in rice, maize, greengram, redgram, soybean, cotton, cucurbits, tomato, mango and chilli performed better than farmers practice with higher economic returns (Table 3.1.41).

Integrated Disease Management

In Tamil Nadu the IDM technologies for rice performed better with higher BCR of 2.10:1 in Dindigul and 2.20:1 in Thiruvallur (Table 3.1.42). IDM technology for tuberose gave the highest flower yield of 140.6q/ha in Kancheepuram with a BCR of 3.86:1. In Andhra Pradesh, IPDM for blackgram gave the highest BCR of 3.58:1 in Krishna-2 (Ghantasala) (Table 3.1.43). In Guntur (LAM), IPDM to groundnut gave 52.3 q/ha with higher economic returns than chemical management.

In Telangana, integrated disease management technology for rice yielded 71.8 q/ha with a BCR of 1.93:1 in Khammam (Wyra), while in Karimnagar (Jammikunta), the highest BCR of 2.52:1 was obtained with IDM (Table 3.1.44). In Wanaparthy (Madanapuram), IDM for castor gave higher BCR of 2.56:1. In Nagarkurnool (Palem), higher BCR of 2.00;1 in cotton was obtained with IDM technology.

Assessment of IPM for flower midge in chilli by KVK Krishna (Garikapadu)

Assessment of pheromone trap for FAW in maize by KVK Thiruvannamalai

Table 3.1.37. Performance of IPM technologies in Tamil Nadu

Crop and District	Loca-tions	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Tomato										
Erode	5	Pochonia chlamydosporia	360	2.86:1	Bio-nematicide	347	2.77:1	Insecticide	296	2.31:1
Krishnagiri	5	Pochonia chlamydosporia	664	2.08:1	*T. viride* + *P. fluorescens*	651	2.05:1	Carbofuran	590	1.83:1
Tuberose										
Dindigul	5	IPM	152	3.07:1	*P. fluorescens* & *T. viride*, *Pochonia chlamydosporia*	148	2.99:1	Pesticides	113	2.15:1
Theni	5	IPM	151	2.88:1	*Paecilomyces lilacinus*, Neem	169	2.65:1	FYM	130	1.90:1

TO1= Bulb treatment with *Pseudomonas* and *Trichoderma viride* each @ 10g/kg of bulb. *Paeciomyces lilacinus*, *P. fluorescens* and *T. viride* each 2kg/tonne of Farm yard manure for enrichment and applied before planting.

Table 3.1.38. Performance of IPM technologies for maize fall army worm management in Tamil Nadu

District	Locations	Technology Option 1			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Ariyalur	5	IPM	61.5	2.82:1	Farmers practice	50.5	2.44:1
Coimbatore	5	IPM	76.5	1.51:1	Farmers practice	62.9	1.25:1
Cuddalore	10	IPM	23.5	2.37:1	Farmers practice	18.8	1.71:1
Dharmapuri	5	IPM	64.9	2.40:1	Farmers practice	38.8	1.68:1
Dindigul	5	IPM	54.9	2.94:1	Farmers practice	52.7	2.61:1
Erode	5	IPM	61.3	1.84:1	Farmers practice	57.1	1.43:1
Karur	5	IPM	24.8	2.45:1	Farmers practice	18.1	1.53:1
Krishnagiri	5	IPM	63.7	2.24:1	Farmers practice	56.3	1.86:1
Madurai	5	IPM	68.0	2.52:1	Farmers practice	48.3	1.93:1
Namakkal	1	IPM	64.3	1.21:1	Farmers practice	62.0	1.10:1
Perambalur	5	IPM	59.7	2.69:1	Farmers practice	45.3	2.11:1
Pudukkottai	5	IPM	65.4	2.67:1	Farmers practice	47.8	2.05:1
Ramanathapuram	5	IPM	59.5	2.55:1	Farmers practice	38.4	1.82:1
Salem	5	IPM	80.3	2.08:1	Farmers practice	60.5	1.58:1
THENI	5	IPM	71.0	1.59:1	Farmers practice	53.1	1.51:1
Thiruvallur	5	IPM	37.5	2.82:1	Farmers practice	21.6	1.91:1
Thiruvannamalai	5	IPM	51.8	2.04:1	Farmers practice	39.5	1.43:1
Thoothukudi	5	IPM	43.8	2.00:1	Farmers practice	37.5	1.61:1
Tiruchirappalli	5	IPM	36.2	1.48:1	Farmers practice	30.0	1.33:1

District	Locations	Technology Option 1			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Tirunelveli	5	IPM	48.6	1.87:1	Farmers practice	42.3	1.45:1
Tiruppur	2	IPM	60.0	2.53:1	Farmers practice	45.0	2.58:1
Vellore	5	IPM	56.0	1.58:1	Farmers practice	38.0	1.45:1
Villupuram-1	5	IPM	71.1	2.32:1	Farmers practice	49.6	1.57:1
Villupuram-2	5	IPM	72.8	2.91:1	Farmers practice	64.7	2.40:1
Virudhunagar	3	IPM	64.7	2.75:1	Farmers practice	50.9	2.46:1
			57.67			45.19	

IPM= Seed treatment, border crop, Spray of *M. anisopliae* and need based application of insecticides

Table 3.1.39. Performance of IPM technologies in Andhra Pradesh

Crop and District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Rice										
Kadapa-1 (Utukur)	3	IPM	62.5	1.50:1				Farmers practice	60.8	1.37:1
Krishna-2 (Ghantasala)	3	IPM	59.3	1.21:1	BIPM	52.9	1.30:1	Farmers practice	56.3	1.15:1
Kurnool-1 (Yagantipalli)	6	IPM	48.9	1.94:1				Farmers practice	69.9	1.83:1
West Godavari-1 (Undi)	6	IPM	67.5	1.80:1	Ecological Engineering method in paddy	68.0	1.89:1	Farmers practice	68.9	1.72:1
West Godavari-1 (Undi)	3	IPM	99.4	2.82:1	Ecological Engineering method in paddy	102.1	2.96:1	Farmers practice	103.0	2.69:1
West Godavari-1 (Undi)	6	Trap Barrier system for rat control in paddy	68.4	1.64:1	Poisonous baiting with bromadiolone	64	1.7:1	Manual catch	64.2	1.69:1
West Godavari-1 (Undi)	6	Trap Barrier system for rat control in paddy	105.9	2.64:1	Poisonous baiting with bromadiolone	98.5	2.56:1	Manual catch	99.4	2.56:1
Redgram										
Anantapur-2 (Kalyandurg)	2	NSKE or Azadirachtin, Flubendiamide, Dimethoate and Chlorantra-niliprole	10.3	1.98:1	Chlorant-raniliprole, Flubendamide & Dimethoate	9.7	1.90:1	Farmers practice	8.1	1.46:1
Kadapa-1 (Utukur)	3	Neem oil and Novaluron	17.6	2.56:1	Chlorant-raniliprole, Flubendamide & Dimethoate	18.9	2.61:1	Farmers practice	16.3	1.98:1

Crop and District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR	Variety	Yield (q/ha)	BCR
Guava										
West Godavari-1 (Undi)	6	IPM for root knot nematode and fruit fly in Taiwan guava	329	1.58:1	Marigold as inter crop + cowpea as trap crop + *Purpureocillium lilacinum* + Neem cake	314	1.54:1	Carbofuran	295	1.49:1
Chilli										
Krishna-1 (Garikapadu)	5	Prophylactic spraying with neemoil, triazophos, carbosulfan	35.8	1.59:1	Prophylactic spraying of neem oil, chlorpyrifos, dichlorvos, acephate	37.4	1.50:1	Farmers practice	35.4	1.43:1
Krishna-2 (Ghantasala)	5	IPM	276	1.99:1				Farmers practice	238	1.54:1
Nellore-2 (Periyavaram)	6	IPM	172	3.28:1				Farmers practice	163	2.83:1

Table 3.1.40. Performance of IPM technologies for maize fall army worm management in Andhra Pradesh

District	Locations	Technology Option 1			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Anantapur-2 (Kalyandurg)	3	IPM	52.5	2.39:1	Farmers practice	47.4	2.00:1
Anantapur-1 (Reddipalli)	5	IPM	25.3	1.08:1	Farmers practice	32.4	1.31:1
East Godavari-1 (Kalavacherla)	5	IPM	75.1	3.62:1	Farmers practice	73.5	3.08:1
East Godavari-2 (Pandirimamidi)	3	IPM	59.5	3.17:1	Farmers practice	60.8	2.33:1
Guntur (Lam)	2	IPM	42.0	2.61:1	Farmers practice	37.5	1.94:1
Kadapa-1 (Utukur)	3	IPM	63.5	2.29:1	Farmers practice	60.5	1.96:1
Kadapa-2 (Vonipenta)	5	IPM	66.2	2.23:1	Farmers practice	52.5	1.59:1
Krishna-1 (Garikapadu)	5	IPM	31.7	1.80:1	Farmers practice	31.9	1.68:1
Kurnool-2 (Banavasi)	5	IPM	74.0	2.90:1	Farmers Practice	70.5	2.65:1
Kurnool-1 (Yagantipalli)	6	IPM	69.2	2.21:1	Farmers practice	61.7	1.90:1
Nellore-1	5	IPM	115.1	3.21:1	Farmers practice	89.3	2.66:1
Prakasam-1 (Darsi)	5	IPM	30.0	1.27:1	Farmers practice	25.6	1.02:1
Srikakulam	5	IPM	70.1	3.16:1	Farmers practice	65.9	3.07:1
Srikakulam	5	IPM	79.5	2.96:1	Farmers practice	76.7	2.84:1
Vishakapatnam-2 (Buchayapet)	5	IPM	68.5	1.22:1	Farmers practice	63.0	3.08:1
West Godavari-2 (Vrgudem)	3	IPM	75.0	2.01:1	Farmers practice	87.5	2.10:1

Table 3.1.41. Performance of IPM technologies in Telangana

Crop and District	Loca-tions	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Rice										
Peddapalli (Ramgirikilla)	5	IPM package	65.0	1.75:1	Recommended pesticides	62.0	1.73:1	Farmers practice	57.5	1.39:1
Suryapet (Gaddipalli)	6	Panicle mite: Dichofal + propiconazole	68.0	2.19:1				Farmers practice	61.0	1.89:1
Suryapet (Gaddipalli)	6	BPH: *Beaveria bassiana*, *Metarhizim, verticillium* lecani, NSKE, IPM practices	67.0	2.19:1				Farmers practice	62.0	2.00:1
Warangal Urban (Mamnoor)	6	Pheramone traps, cartophydrochloride or acephate, fetera orcartophydrochloride, chlorantraniliprole	61.3	1.92:1	Carbofuron, cartophhydrochloride, chlorantraniliprole or chloropyriphos	56.5	1.83:1	Farmers practice	52.5	1.67:1
Maize										
Adilabad	3	IPM package	80.3	1.98:1				Farmers practice	72.5	1.60:1
Bhadradri (Kothagudem)	5	IPM package	71.0	2.78:1				Farmers practice	63.5	2.42:1
Kammam (Wyra)	6	Emamectin benzoate, Chlorantraniliprole, spinetoram	93.1	2.27:1	Bt, *M. anisopliae*	82.8	2.04:1	Farmers practice	73.5	1.73:1
Karimnagar (Jammikunta)	6	Spinitorum or Thiodicarb poison bait	87.5	4.29:1	*Metarhigium*, *Bevaria bassiana*	82.0	3.95:1	Farmers practice	80.0	3.81:1
Peddapalli (Ramgirikilla)	5	IPM package	87.5	2.37:1	Recommended pesticides	83.5	2.1:1	Farmers practice	75.0	1.60:1
Nagarkurnool (Palem)	6	IPM	24.7	3.87:1				Farmers practice	21.0	2.81:1
Wanaparthy (Madanapuram)	7	IPM	61.9	2.70:1				Farmers practice	50.1	1.79:1
Mancherial (Bellampalli)	5	IPM package	58.8	2.06:1				Farmers practice	52.6	2.02:1
Medak (Tuniki)	5	Intensive integrated pest management module	68.3	2.44:1	IPM Module	70.5	2.56:1	Farmers practice	63.3	2.12:1
Suryapet (Gaddipalli)	6	IPM Module	5.8	1.65:1				Farmers practice	5.2	1.64:1
Nizamabad (Rudrur)	5	IPM Practices	70.9	2.84:1				Farmers practice	64.6	2.13:1

Crop and District	Loca-tions	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Ranga Reddy (Hayathnagar)	3	IPM Module	25.0	1.35:1				Farmers practice	18.0	1.07:1
Mahabubabad (Malyal)	6	IPM Module	50.2	2.20:1				Farmers practice	47.5	2.02:1
Warangal Urban (Mamnoor)	6	IPM Module	70.0	2.73:1	BIPM Module	68.0	2.78:1	Farmers practice	63.5	2.38:1
Greengram										
Mahabubabad (Malyal)	6	Imidacloprid, yellow sticky traps need based chemicals, Neem oil, Triazophas, Acetamiprid, Thiomethaxam	10.3	2.80:1				Farmers practice	8.0	2.40:1
Redgram										
Nalgonda (Kampasagar)	6	NSKE, quinalphos and DDVP	14.7	1.77:1	Flubendamide, Chlorantraniliprole	15.9	1.62:1	Farmers practice	13.8	1.62:1
Soybean										
Nizamabad (Rudrur)	5	IPM Practices	18.8	2.99:1				Farmers practice	17.0	2.24:1
Cotton										
Peddapalli (Ramgirikilla)	5	IPM package	35.0	2.33:1	Recommended pesticides	33.0	2.26:1	Farmers practice	27.5	1.72:1
Suryapet (Gaddipalli)	6	IPM for pink boll worm	22.5	2.53:1				Farmers practice	19.5	2.13:1
Nalgonda (Kampasagar)	6	Pheromone traps, removal of rosette flowers, thiodicarb	18.4	1.58:1	Pheromone traps, *Trichogrammatoidea bactrae*, NSKE, Thiodicarb	16.6	1.69:1	Farmers practice	16.1	1.63:1
Mahabubabad (Malyal)	6				IPM package	23.9	2.36:1	Farmers practice	18.8	2.25:1
Warangal Urban (Mamnoor)	6	Pheromone traps, Neem oil, quinalphos or Emamectin benzoate or chlorantraniliprole	25.7	1.87:1	Pheromone traps, quinalphos or chloropyriphos or profenophos	24.0	1.72:1	Farmers practice	21.5	1.51:1
Cucurbits										
Medak (Tuniki)	5	Neem, vermicompost with Pseudomonas fluorescens + *Trichoderma harzianum* + *P. lilacinus*	97.5	2.68:1	Drenching waste decomposer, neem cake, *Paecilomyces lilacinus*	99.2	2.79:1	Farmers practice	95.9	2.54:1

Crop and District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Tomato										
Nalgonda (Kampasagar)	6	Pheromone traps, Azadirachtin, Chlorantraniliprole, Cyantraniliprole, Flubendiamide	407	3.10:1	Pheromone traps, Azadirachtin, NSKE, Pongamia soap, Neem soap, spinosad	372	2.59:1	Farmers practice	356	2.38:1
Mango										
Mahabubabad (Malyal)	6	Imidacloprid, Thiamethoxam	67.5	1.85:1				Farmers practice	60.0	1.83:1
Chilli										
Khammam (Wyra)	6	Neem oil, Spiromesifen, imidacloprid, emamaectin benzoate	595	1.91:1	Diafenthurion and Spinosad	559	1.79:1	Farmers practice	499	1.59:1

Table 3.1.42. Performance of IDM technologies in Tamil Nadu

Crop and District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Rice										
Dindigul	5	CO 51, *P. fluorescens*, Azoxystrobin	49.2	2.10:1	DRR Dhan 44, Tricyclazole, Isoprothiolane	46.6	1.98:1	Carbendazim	34.24	1.63:1
Thiruvallur	5	Cyanobiocon - A (biofilm formulation)	46.5	2.20:1	Cyanofort-AT (biofilm formulation)	44.5	2.11:1	P. fluorescens	40.25	1.75:1
Tuberose										
Dharmapuri	5	TO 1	91.4	2.02:1	TO 2	74.3	1.59:1	Farmers practice	68.5	1.31:1
Kancheepuram	4	TO 1	140.6	3.86:1	TO 2	132.3	3.64:1	Farmers practice	110.6	2.70:1
Villupuram-1	5	TO 1	77.7	2.86:1	TO 2	78.1	2.89:1	Farmers practice	65.1	2.42:1

TO 1: Bulb treatment with *P.fluorescense* & *T. Viride* each @ 10g/ kg and *T.harzianum* or *T.Viride* + *P.fluorescens*+*Paecilomyces* @2kg/ tonnes of FYM for enrichment

TO 2: Bulb treatment with *P.fluorescense* & *T. Viride* each @ 10g/ kg and Application *Pochonia clamydosporia*@2kg/ac

Table 3.1.43. Performance of IDM and IPDM technologies in Andhra Pradesh

Crop and District	Loca-tions	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Rice										
Krishna-2 (Ghantasala)	6	Azoxystrobin or hexaconazole	62.63	1.30:1	Trifloxistrobin + tebuconazole	62.06	1.29:1	Hexaconazole	56.25	1.21:1
Kurnool-1 (Yagantipalli)	6	Psueodomonas	66.72	1.64:1	Carbendazim	65	1.60:1	No seed treatment	61.88	1.53:1
Blackgram (IPDM)										
Krishna-1 (Garikapadu)	5	TBG 104, IPDM	9.68	1.60:1	LBG 752 with IPM	9.57	1.49:1	Farmers Practice	9.61	1.47:1
Krishna-2 (Ghantasala)	6	IPDM	18.96	3.58:1	TBG 104, LBG 787	18.75	3.43:1	Farmers Practice	16.88	2.72:1
Chickpea										
Kadapa-1 (Utukur)	3	GBG 1	16.25	2.64:1	TBG 104	14.15	2.23:1	LBG 752	11.25	1.56:1
Kurnool-1 (Yagantipalli)	6	Trichoderma harzianum	17.42	1.56:1	Trichoderma viride	17.04	1.53:1	Carbendazim + Mancozeb	15.54	1.39:1
Groundnut										
Guntur (Lam)	2	Neem oil + pheromone traps + thiodicarb + Emamectin Benzoate + Poison baiting	52.3	1.87:1				Carbendazim	45.0	1.45:1
Srikakulam	5	Tebuconazole + *Trichoderma viride* + Need based hexaconazole	28.3	3.01:1				Carbendazim	23.8	2.64:1
Guava										
Kadapa-2 (Vonipenta)	5	Marigold, cowpea, *Purpureocillium lilacinum*, neem cake	110	1.89:1	Marigold, enriched FYM, *Pseudomonas fluorescens*	140	1.31:1	Carbofuran	123	1.32:1
Turmeric										
Guntur (Lam)	1	Mancozeb, *Trichoderma viride*, enriched FYM	365.6	1.95:1				Farmers practice	292.5	1.63:1
Kadapa-2 (Vonipenta)	5	Mancozeb, Monocrotophos, *Trichderma viride* enriched FYM, neemcake, Ridomil	387.2	2.92:1				Farmers practice	361.3	2.42:1

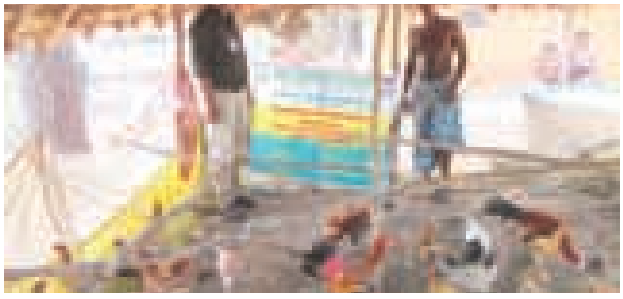
Table 3.1.44. Performance of IDM technologies in Telangana

Crop and District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Rice										
Bhadradri (Kothagudem)	5	Propiconazole	69.9	2.30:1	Validamycin/ Trifloxystrobin +Tebuconazole	63.8	2.07:1	Farmers practice	70.4	2.48:1
Khammam (Wyra)	6	Carbendazim, propiconazole	71.8	1.93:1	Validamycin A	68.4	1.83:1	Farmers practice	64.7	1.70:1
Karimnagar (Jammikunta)	6	Carbendazim + Mancozeb, *Trichoderma or Pseudomonas*	65.0	2.52:1				Farmers practice	57.5	2.13:1
Nagarkurnool (Palem)	6	Sunhemp, Validamycin, Propiconazole, Trifloxystrobin +Tebuconazole	70.3	1.99:1				Farmers practice	66.9	1.80:1
Nagarkurnool (Palem)	6	Spiromesifen, Dicofol + Propiconazole	67.5	1.98:1				Farmers practice	63.6	1.77:1
Groundnut										
Nagarkurnool (Palem)	6	Tebuconazole, *T. viridae*	24.4	1.70:1	Thiram+ Carboxin, *T. viride*, Hexaconazole			Farmers practice	22.2	1.48:1
Castor										
Wanaparthy (Madanapuram)	10	IDM	12.8	2.56:1				Farmers practice	8.6	1.69:1
Cotton										
Bhadradri (Kothagudem)	5	*Pseudomonas fluorescence*, Propiconazole, Trifloxystrobin +Tebuconazole	18.1	1.95:1	Pyraclostrobin + Metiram, COC	16.3	1.48:1	Farmers practice	17.9	1.78:1
Khammam (Wyra)	6	*P.fluorescence*, Propiconazole, Pyraclostrobin + Metiram	24.5	1.65:1	Trifloxystrobin +Tebuconazole, COC	26.2	1.77:1	Farmers practice	22.7	1.49:1
Nagarkurnool (Palem)	6	Trifloxystrobin +Tebuconazole/ Pyraclostrobin + Metiram, COC	26.8	2.00:1	*Pseudomonas fluorescence*, propiconazole			Farmers practice	22.3	1.55:1
Acid Lime										
Suryapet (Gaddipalli)	6	Dry root rot mgt: FYM, green manure, COC, *T. viride*	178	2.50:1	COC, *T. viride*	196	2.98:1	Farmers practice	124	1.96:1

Crop and District	Locations	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
		Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR	Technology	Yield (q/ha)	BCR
Watermelon										
Nalgonda (Kampasagar)	6	Chlorothalonil	51.0	1.63:1	Hexaconazole	47.9	1.72:1	Farmers practice	44.8	1.50:1
Chilli										
Karimnagar (Jammikunta)	6	Imidacloprid, yellow sticky traps, neem oil and need based chemicals	85.0	2.05:1				Farmers Practice	75.7	1.78:1
Turmeric										
Peddapalli (Ramgirikilla)	5	IDM package	62.5	1.63:1	Disease free rhizomes, Mefenoxam and mancozeb or Captan	55.0	1.35:1	Farmers practice	52.5	1.21:1

3.1.4. Livestock, Poultry and Fishery

In Tamil Nadu, fertility enhancing technologies like Prosync Nano fibre progesterone, progesterone impregnated intra-vaginal sponge, Controlled Internal Drug Release and PGF2a increased the conception rate in cattle than artificial insemination with higher economic returns (Table 3.1.45). Poultry breeds TANUVAS Aseel and Gramapriya performed better than local birds in terms of egg and meat yields. Jayanti rohu fish performed better in low saline water with a yield of 43.2 q/ha. GIFT Tilapia gave higher yield of 31.6 q/ha with higher economic returns than IMC. In Andhra Pradesh, SFMT reagent enhanced the milk yield in buffalo than treating after clinical symptoms. Area specific mineral mixture, and other animal nutrition management technologies assessed gave higher milk yield than farmers practice. Kadaknath bird had the lowest mortality rate of 5% in Kurnool-2 (Banavasi), Rajashri bird gave higher egg yield of 170 per year than local breed, Vanaraja breed gave higher egg of 138 per year than Kadaknath and local breed while Swarnadhara breed gave the highest meat yield of 1.73 kgs in 6 months in Kurnool-1 (Yagantipalli) (Table 3.1.46). Improved breeds of fish and production mnanagement technologies gave higher fish yield and economic returns than traditional breeds and technologies followed by farmers. Feeding balanced nutrients and mineral mixture to buffalo in Telangana gave higher economic returns as high as 6.50:1(BCR) than farmers practice (Table 3.1.47). Improved fish breeds, balanced nutrition and disease management technologies gave higher fish yield and economic returns.



Assessment of oral pellet vaccine for backyard poultry by KVK Ariyalur

Assessment of desibirds for backyard poultry by KVK Salem

3.1.5. Gender Specific Technologies

In Tamil Nadu, preparation of cookies using alternate sugars like palm sugar and jaggery gave higher BCR of up to 2.47:1 than white sugar (Table 3.1.48). Palm sugar-based cookies had higher consumer preference of 88%. Cookies prepared with Basil and *Solanum trilobatum* (Tuduvalai) gave higher BCR of 3.95:1 and 4.40:1 than plain cookies. KVKs of Telangana assessed drudgery reduction technologies like paddy transplanter, raised bed planter for maize, fertilizer applicator and harvester for redgram, seed drills for groundnut, cotton picker, mulching machine for tomato, harvesting machine for turmeric and found that mechanization gave higher BC ratio than manual operations (Table 3.1.49).

Table 3.1.45. Performance of livestock, poultry and fisheries technologies in Tamil Nadu

Livestock and District	Loca-tions	Parameter/ Unit	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
			Technology	Value	BCR	Technology	Value	BCR	Technology	Value	BCR
Cattle											
Vellore	10	Conception (No.) at first insemination	Prosync Nano fibre Progesterone	6	1.74:1	Progesterone Impregnated Intra-vaginal Sponge	7	1.72:1	Artificial insemination	0	1.52:1
Erode	5	Time taken to heat	Progesterone Nano patch	18	1.46:1	Progesterone impregnated intra-vaginal device	12	1.58:1	Artificial insemination	0	
Krishnagiri	6	Conception Rate %	Prosync NC Nano cream	30	1.67:1	Controlled Internal Drug Release (CIDR) and PGF2a	70	2.25:1	Artificial insemination	10	1.08:1
Villupuram-2	30	Incidence of subclinical mastitis	TANUCHECK SCC Kit	1250	1.38:1	California mastitis Kit	1500	1.39:1	Manual	1200	1.36:1
Poultry											
Dharmapuri	5	No of eggs	TANUVAS Aseel	154	1.37:1	Gramapriya	162	1.44:1	Desi bird	54	1.28:1
Kanyakumari	3	No of eggs	TANUVAS Aseel	143	3.81:1	Gramapriya	175	4.28:1	Desi bird	75	3.35:1
Dindigul	5	kg meat	TANUVAS Aseel	1.38	1.50:1	Gramapriya	1.54	1.54:1	Desi bird	1.24	1.51:1
Krishnagiri	3	kg meat	TANUVAS Aseel	1.36	3.28:1	Gramapriya	1.48	2.69:1	Desi bird	1.04	2.19:1
Salem	5	kg meat	TANUVAS Aseel	0.92	2.71:1	Gramapriya.	0.91	2.55:1	Desi bird	0.98	3.02:1
Sivagangai	2	kg meat	Nandhanam B3	1.65	2.99:1	Gramapriya	1.50	2.82:1	Desi bird	0.90	2.03:1
Fish											
Kancheepuram	5	q/ha	Jayanti rohu in fresh water	37.6	2.17:1	Jayanti rohu in low saline water	43.2	2.49:1	Carp culture	26.8	1.54:1
Nagapattinam	2	q/ha	GIFT Tilapia	18.9	1.89:1	Red Tilapia	10.2	1.72:1	Tilapia	6.7	1.59:1
Sivagangai	3	q/ha	GIFT Tilapia	31.6	2.49:1	Milk Fish	29.4	2.01:1	Indian Major Carps	26.5	1.77:1

Table 3.1.46. Performance of livestock, poultry and fisheries technologies in Andhra Pradesh

Livestock and District	Locations	Parameter/ Unit	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
			Technology	Value	BCR	Technology	Value	BCR	Technology	Value	BCR
Buffalo											
Kurnool-2 (Banavasi)	5	Sub clinical mastitis management: milk yield (kg/ animal)	SFMT reagent	1.5	5.67:1				Treatment after onset of clinical mastitis	0.5	2.11:1
Kadapa-1 (Utukur)	3	Nutrition: milk yield (kg/day)	Area specific mineral mixture	3.9	2.58:1				No mineral mixture	4.4	2.38:1
Kurnool-1 (Yagantipalli)	10	Nutrition: milk yield (kg/day)	Rice bran + bypass fat	8.3	4.11:1				Rice bran	6.7	3.80:1
Kurnool-1 (Yagantipalli)	10	Nutrition: milk yield (kg/day)	Balanced feeding using SVVU App	8.2	2.61:1				Imbalanced feeding	5.72	2.44:1
West Godavari-2 (Vrgudem)	20	Nutrition: milk production (L/90 days)	Roughages + Concentrate feed + Bypass fat	590	5.04:1				Roughages + concentrate feeding	459	4.74:1
Cow											
Kadapa-1 (Utukur)	3	Mastitis management: Morbidity	Surf Mastitis test	7	3.15:1				No testing	6.1	3.08:1
West Godavari-2 (Vrgudem)	20	Nutrition: milk yield (L/90 days)	Area specific mineral mixture - 100 g/animal/ day for 90 days	501	3.82:1				No mineral mixture	405	3.31:1
West Godavari-2 (Vrgudem)	15	Green fodder production: q/ha	CoFS29 + cowpea + Super Napier	1926	2.17:1				CoFS29	1628	1.97:1
Poultry											
Kurnool-2 (Banavasi)	5	Mortality rate (%)	Rajashri	12	1.57:1	Kadaknath	5	1.68:1	Desi bird	13	1.84:1
Nellore-2 (Periyavaram)	10	eggs/year	Rajashri	170	3.5:1				Desi bird	60	1.93:1
Anantapur-2 (Kalyandurg)	5	eggs/year	Swarnadhara	110	2.39:1	Kadaknath	170	3.86:1	Desi bird	70	1.75:1
Anantapur-1 (Reddipalli)	2	eggs/year	Vanaraja	138	2.84:1	Kadaknath	112	3.56:1	Desi bird	45	2.37:1
Kurnool-1 (Yagantipalli)	5	Wt. at 6 months (kg)	Swarnadhara	1.73	2.31:1	Srinidhi	1.35	1.81:1	Rajashri	1.49	1.98:1
Fish											
West Godavari-2 (Vrgudem)	5	q/ha	Amur common carp and Jayanthi rohu	32.0	1.48:1				Rohu and common carp	27.0	1.43:1
West Godavari-2 (Vrgudem)	17	q/ha	Murrel with composite fish culture (IMC)	27.0	1.55:1				Composite fish culture (IMC)	25.0	1.48:1

Livestock and District	Locations	Parameter/ Unit	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
			Technology	Value	BCR	Technology	Value	BCR	Technology	Value	BCR
Guntur (Lam)	4	q/ha	Murrel with composite fish culture	60.0	1.58:1				Composite fish culture	51.0	1.22:1
Nellore-1	3	q/ha	Production Management: Salt + Formalin + balanced formulated pelleted shrimp feed	65.8	1.47:1				Chemicals after noticing incidence of disease	55.2	1.26:1
West Godavari-2 (Vrgudem)	5	q/ha	Management of myxobolous disease in carp culture	24.0	1.40:1				Antibiotics after incidence of disease	21.0	1.32:1
West Godavari-2 (Vrgudem)	5	q/ha	Management of red disease in carp culture	29.4	1.37:1				Antibiotics after incidence of disease	24.6	1.23:1

Table 3.1.47. Performance of livestock, poultry and fisheries technologies in Telangana

Livestock and District	Locations	Parameter/ Unit	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
			Technology	Value	BCR	Technology	Value	BCR	Technology	Value	BCR
Buffalo											
Ranga Reddy (Hayathnagar)	3	Milk yield (L /animal/ day)	Balanced nutrients	5.5	6.50:1	Natural grazing, unbalanced ration	4.2	5.20:1	Natural grazing	3.8	4.80:1
Karimnagar (Jammikunta)	5	SNF (%)	Area specific mineral mixture	8.8	1.90:1				Natural open grazing with supplementary feeding	7.5	1.77:1
Ranga Reddy (Hayathnagar)	3	Milk yield (L/animal/ day)	Natural grazing + Complete balanced ration with area specific mineral mixtures	4.8	5.80:1	Complete balanced ration	4.0	5.00:1	Natural grazing	3.7	4.70:1
Fish											
Mancherial (Bellampalli)	3	q/ha	Improved Jayanthi Rohu and Amur Carp	188	2.15:1				IMC	159	2.08:1
Nalgonda (Kampasagar)	4	q/ha	Improved Amur common carp	220	1.63:1				Common carp	190	1.54:1
Nalgonda (Kampasagar)	3	q/ha	IMC, Grass carp and common carp	300	1.62:1	IMC, Grass carp	180	1.48:1	IMC	160	1.47:1
Mancherial (Bellampalli)	3	q/ha	Integrated Aqua Culture	125	2.94:1				Fresh Water Carps	120	2.23:1

Livestock and District	Loca-tions	Parameter/ Unit	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
			Technology	Value	BCR	Technology	Value	BCR	Technology	Value	BCR
Nalgonda (Kampasagar)	2	q/ha	Aqua-Agri- Horti culture System	180	1.55:1	Aquaculture and horticulture	150	1.53:1	Agriculture	0	
Warangal Urban (Mamnoor)	2	Stock/acre	Scientific Stocking density 15000/acre	2500	1.58:1	New species introduce to culture	1750	1.40:1	Only carp species farming	1250	1.17:1
Karimnagar (Jammikunta)	2	q/ha	Balanced diet with proteins, fats, minerals and vitamins	488	3.18:1				De-oiled rice bran and ground nut oil cake	298	3.2:1
Mancherial (Bellampalli)	3	q/ha	Chemical management of aquatic weeds	113	2.75:1				No weed management	87	2.69:1
Warangal Urban (Mamnoor)	2	q/ha	Weed eradication by mechanical method	425	1.69:1	Manual weeding	375	1.64:1	Grass carp	175	1.24:1
Karimnagar (Jammikunta)	3	q/ha	Copper sulphate, Potassium Permanganate and Providine Iodine	75	4.95:1				Turmeric powder and Agriculture lime	55	4.03:1

Table 3.1.48. Performance of value addition technologies (Cookies) in Tamil Nadu

District	Loca-tions	Parameter/ unit	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
			Technology	Value	BCR	Technology	Value	BCR	Technology	Value	BCR
Pudukkottai	5	Yield (kg)	Palm sugar	80	2.49:1	Jaggery	80	2.57:1	White sugar	80	2.29:1
Thiruvarur	5	Yield (kg)	Palm sugar	80	2.49:1	Jaggery	80	2.55:1	White sugar	80	2.43:1
Dindigul	5	Yield (kg)	Palm sugar	35	1.60:1	Jaggery	37	1.50:1	White sugar	30	1.47:1
Kanyakumari	5	Yield (kg)	Palm sugar	82	1.13:1	Jaggery	98	1.80:1	White sugar	91	1.55:1
Karur	3	Yield (kg)	Palm sugar	39	2.33:1	Jaggery	48	2.40:1	White sugar	48	1.83:1
Ramanathapuram	5	Shelf life (days)	Palm sugar	8	2.20:1	Jaggery	8	2.42:1	White sugar	8	1.71:1
Theni	5	Shelf life (days)	Palm sugar	5		Jaggery	4.5		White sugar	4	
Thoothukudi	5	Acceptability score	Palm sugar	0.92		Jaggery	0.78		White sugar	0.83	
Madurai	5	Sensory evaluation (No.)	Palm sugar	8	2.20:1	Jaggery	8	2.42:1	white sugar	8.5	1.71:1
Coimbatore	5	Consumer preference (%)	Palm sugar	88	2.12:1	Jaggery	9	1.97:1	White sugar	3	1.68:1
Thiruvannamalai	5	Shelf life (days)	Basil	50	3.95:1	*Solanum trilobatum* (Tuduvalai)	50	4.40:1	Plain	50	2.94:1

Table 3.1.49. Performance of drudgery reduction technologies in Telangana

Crop and District	Loca-tions	Parameter/ unit	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
			Technology	Value	BCR	Technology	Value	BCR	Technology	Value	BCR
Rice											
Nizamabad (Rudrur)	1	Yield (q/ha)	Paddy transplanter	72.5	2.89:1				Manual transplanting	66.0	2.43:1
Maize											
Nizamabad (Rudrur)	1	Yield (q/ha)	Raised bed planter	70.4	3.07:1				Manual Dibbling	64.2	2.51:1
Medak (Tuniki)	6	Yield (q/ha)	Fencing with circular chain link	73.3	2.56:1	Solar Fencing	80.4	2.94:1	Fencing with Barbed Wire	70.8	2.33:1
Ranga Reddy (Hayathnagar)	3	Yield (q/ha)	CRIDA variable Raised bed planter cum herbicide applicator	62	1.68:1				Manual planting and Herbicide application	59	1.51:1
Redgram											
Nagarkurnool (Palem)	6	Acres/ day	Fertilizer applicator	1.0	1.33:1	Fertilizer applicator	16	2.00:1	Manual	1.0	1.14:1
Wanaparthy (Madanapuram)	3	Yield (q/ha)	BBF Planter	16.3	3.37:1	Seed drill	14.1	2.46:1	Sowing behind plough	11.7	1.83:1
Khammam (Wyra)	6	Yield (q/ha)	Mechanical harvesting	21.0	2.85:1				Manual harvesting	20.0	2.18:1
Groundnut											
Nagarkurnool (Palem)	6	Yield (q/ha)	Ferti cum seed drill	23.6	1.91:1	Manual gorru	25.7	2.15:1	Manual	23.6	1.91:1
Wanaparthy (Madanapuram)	3	Yield (q/ha)	Raised bed planter	22.3	2.09:1	Seed drill	18.0	1.55:1	Sowing behind plough	13.8	1.06:1
Wanaparthy (Madanapuram)	3	Yield (q/ha)	Digger cum shaker on raised bed	22.8	2.23:1	Manual picking on raised bed	19.3	1.63:1	manual picking on plan fields	13.0	1.08:1
Nalgonda (Kampasagar)	6	Yield (q/ha)	Ferti cum seed drill for sowing	26.2	2.16:1	Manual zig zag sowing			Bullock drawn gorru	24.1	1.9:1
Cotton											
Medak (Tuniki)	6	q/day	Pneumatic picking machine	25.1	1.83:1	Cotton picking machine	26.5	2.02:1	Manual picking	24.0	1.65:1
Medak (Tuniki)	6	Yield (q/ha)	Tractor operated rotavator	25.2	1.83:1	Tractor drawn power harrow	27.2	2.04:1	Manual ploughing	24.2	1.66:1
Bhendi											
Ranga Reddy (Hayathnagar)	5	Yield (q/ha)	CRIDA BBF with drip pipe manual laying	51.0	1.72:1				Manual planting	36.0	1.55:1

Crop and District	Locations	Parameter/ unit	Technology Option 1			Technology Option 2			Farmers Practice (Check)		
			Technology	Value	BCR	Technology	Value	BCR	Technology	Value	BCR
Tomato											
Ranga Reddy (Hayathnagar)	6	Yield(q/ha)	Multipurpose plastic mulch sheet laying machine	240	1.62:1				Manual sheet cum drip pipe laying	160	1.62:1
Chilli											
Khammam (Wyra)	6	Coverage (acres/day)	Fertilizer applicator	6		Pocket method	3		Broadcasting	2	
Turmeric											
Nizamabad (Rudrur)	3	Yield(q/ha)	Bed maker + sowing machine + turmeric digger	74.3	1.58:1	Bed maker, manual sowing and harvesting	78.8	1.66:1	Manual sowing and harvesting	71.9	1.45:1

3.2. Frontline Demonstrations (FLDs)

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 11762 demonstrations were conducted in 4129.1 ha of land on field crops, horticultural crops, tools and implements and livestock by KVKs in Zone X (Table 3.2.1). In crops, 9291 demonstrations were conducted on crops by KVKs in Zone-X covering cereals, millets, pulses, oilseeds, commercial crops, fodder crops, vegetables, fruits, flowers, spices, plantation crops and medicinal plants in 3883 ha (Table 3.2.2). Among the crops, maximum demonstrations were conducted in rice (1503). In millets out of 437 demonstrations, 200 were in sorghum and 104 were in finger millet. In pulses, out of 2608 demonstrations, 784 were in redgram, 667 in blackgram 593 in greengram and 441 in chickpea. Out of 1412 demonstrations in oilseeds, 807 were in groundnut and 246 in sesamum. Among the commercial crops, out of 494 demonstrations, 408 were in cotton. Among 1159 demonstrations in vegetables, 279 were in tomato. Out of 662 demonstrations in fruits, 224 were in mango and among 470 demonstrations in spices and condiments, 337 were in chillies. In Tamil Nadu, out of 2588 demonstrations, 566 were in cereals and 544 in vegetables. In Andhra Pradesh, out of 3572 demonstrations, 1100 were in pulses, 664 in oilseeds, 529 in cereals, 363 in fruits and 287 in vegetables. Out of the 3091 demonstrations in Telangana, 1110 were in pulses, 556 in cereals and 501 in oilseeds and 328 in vegetables. In Puducherry, out of 40 demonstrations, 15 were in rice, 10 in pulses 10 in oilseeds and 5 in chillies.

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

Category and Crop	Tamil Nadu		Andhra Pradesh		Telangana		Puducherry		Total	
	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)
Crops										
Field Crops	1571	572.0	2599	1305.0	2502	1097.6	35	14	6707	2988.6
Horticultural Crops	1017	272.3	973	393.2	589	227.4	5	2	2584	894.9
Crops Total	2588	844.2	3572	1698.2	3091	1325.0	40	16.0	9291	3883.4
Tools and implements	271	75.4	558	97.6	158	72.6	0	0	987	245.6
Livestock	719		489		236		40		1484	
Grand Total	3578	919.7	4619	1795.8	3485	1397.6	80	16	11762	4129.1

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

Category and Crop	Tamil Nadu		Andhra Pradesh		Telangana		Puducherry		Total	
	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)
Cereals										
Maize			45	18.0	98	39.2	15	6.0	158	63.2
Rice	561	218.4	484	425.6	458	187.2			1503	831.2

Category and Crop	Tamil Nadu		Andhra Pradesh		Telangana		Puducherry		Total	
	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)
Wheat	5	2.0							5	2.0
Cereals Total	566	220.4	529	443.6	556	226.4	15	6	1666	896.4
Millets										
Barnyard millet	25	10							25	10.0
Finger millet	45	18.0	59	23.0					104	41.0
Kodo millet	15	6.0							15	6.0
Little millet	60	24.0							60	24.0
Pearl millet	20	8.0	13	6.0					33	14.0
Sorghum	20	8.0	45	18.0	135	54			200	80.0
Millets Total	185	74.0	117	47.0	135	54.0	0	0.0	437	175.0
Pulses										
Blackgram	220	86.0	384	149.4	63	30.0			667	265.4
Chickpea	10	4.0	243	97.2	188	75.2			441	176.4
Cowpea	60	17.0	20	8.0			10	4.0	90	29.0
Greengram	78	27.6	125	50.0	390	174.0			593	251.6
Horsegram	20	8.0							20	8.0
Moth bean			3	2.0					3	2.0
Rajmah			10	4.0					10	4.0
Redgram			315	127	469	196.0			784	323.0
Pulses Total	388	142.6	1100	437.6	1110	475.2	10	4.0	2608	1059.4
Oil Seeds										
Castor	55	22.0	25	10	81	42.0			161	74.0
Groundnut	137	52.5	280	124	390	208.0			807	384.5
Niger			25	10					25	10.0
Safflower			53	45					53	45.0
Sesamum	30	12.0	206	84.2			10	4.0	246	100.2
Soybean					20	8.0			20	8.0
Sunflower	15	6.0	75	30	10	4.0			100	40.0
Oil Seeds Total	237	92.5	664	303.2	501	262	10	4	1412	661.7
Commercial Crops										
Cotton	55	20.0	153	57.6	200	80.0			408	157.6
Sugarcane	15	6.0	26	14					41	20.0
Tapioca	45	5.0							45	5.0
Commercial Crops Total	115	31	179	71.6	200	80	0	0	494	182.6
Fodder crops										
Fodder crops	10	0.4							10	0.4

Category and Crop	Tamil Nadu		Andhra Pradesh		Telangana		Puducherry		Total	
	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)
Mixed fodder	70	11.1							70	11.1
Sorghum (fodder)			10	2					10	2.0
Fodder crops Total	80	11.5	10	2	0	0	0	0	90	13.5
Vegetables										
Amaranthus	10	2.0							10	2.0
Annual Moringa	5	1.0							5	1.0
Bhendi	94	23.9	20	8.0	30	10.0			144	41.9
Bitter gourd	30	8.0	31	12.4	50	20.0			111	40.4
Bottle gourd	55	15.2			10	2.0			65	17.2
Brinjal	50	12.0	41	8.8	58	21.4			149	42.2
Cabbage			20	5.0					20	5.0
Cluster bean	15	5.0							15	5.0
Colocasia	10	2.0							10	2.0
Coriander	10	4.0							10	4.0
Cucumber	10	2.0							10	2.0
Cucurbits			10	4.0					10	4.0
Drumstick	20	6.0							20	6.0
Elephant Foot Yam	10	2.0	10	4.0					20	6.0
French bean	15	4.0							15	4.0
Lab lab			10	0.4					10	0.4
Lab Lab bush type	5	1.0							5	1.0
Nutri-garden vegetables			20	8.0					20	8.0
Onion	30	8.3	10	4.0					40	12.3
Onion (Aggregatum)	65	13.0							65	13.0
Radish	10	4.0							10	4.0
Ridge gourd	20	4.0	20	8.0	46	17.6			86	29.6
Snake gourd	30	6.0							30	6.0
Tomato	50	20.0	95	36.4	134	48.6			279	105.0
Vegetables Total	544	143.4	287	99	328	119.6	0	0.0	1159	362.0
Fruits										
Acid lime			44	16.0					44	16.0
Avocado	10	4.0							10	4.0
Banana	85	26.3	69	29.5	10	1.0			164	56.8
Citrus					20	8.0			20	8.0
Grapes	10	4.0							10	4.0

Category and Crop	Tamil Nadu		Andhra Pradesh		Telangana		Puducherry		Total	
	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)
Guava	10	0.5			10	4.0			20	4.5
Mango	20	8.0	150	84.0	54	28.0			224	120.0
Musk melon	10	2.0	5	1.0					15	3.0
Papaya			10	4.0	10	4.0			20	8.0
Pomegranate			25	7.4					25	7.4
Sweet Orange			30	13.0	10	4.0			40	17.0
Water melon	30	8.7	30	13.0	10	4.0			70	25.7
Fruits total	175	53.5	363	167.9	124	53	0	0	662	274.4
Flowers										
Chrysanthemum	15	6.0							15	6.0
Crossandra	5	0.2							5	0.2
Ixora	10	1.0							10	1.0
Jasmine	90	22.2							90	22.2
Marigold					5	2.0			5	2.0
Rose	10	2.5							10	2.5
Tuberose	15	0.9							15	0.9
Flowers Total	145	32.8	0	0.0	5	2.0	0	0.0	150	34.8
Spices and condiments										
Ajwain			10	4.0					10	4.0
Chilli	80	26.0	170	67.4	82	32.8	5	2	337	128.2
Coriander	20	4.0							20	4.0
Ginger			20	6.0					20	6.0
Pepper			5	2.0					5	2.0
Turmeric	10	2.4	48	18.4	20	8.0			78	28.8
Spices and condiments Total	110	32.4	253	97.8	102	40.8	5	2.0	470	173
Plantation Crops										
Betelvine	10	1.0							10	1.0
Cashew			55	22.5					55	22.5
Coconut	23	8.0	15	6.0					38	14.0
Melia dubia	10	1.2							10	1.2
Oil palm					30	12.0			30	12.0
Plantation Crops Total	43	10.2	70	28.5	30	12	0	0	143	50.7
Grand Total	**2588**	**844.2**	**3572**	**1698.2**	**3091**	**1325.0**	**40**	**16.0**	**9291**	**3883.4**

A total number of 1666 FLDs on varieties, IPM and IDM technologies were conducted in cereal crops. In rice, the average yield increase in the technologies demonstrated ranged from 7% in Andhra Pradesh to 19% in Puducherry while in maize it ranged from 10% in Telangana to 12% in Andhra Pradesh. The yield enhancement in wheat was 28% in Tamil Nadu (Table 3.2.3). The BCR in the demonstrations ranged from 2.07:1 in rice (Andhra Pradesh) to 2.77:1 in rice (Puducherry).

In Tamil Nadu, 185 FLDs were conducted on six millets and the average yield increase in demonstration plots ranged from 23% in barnyard millet to 27% in pearl millet (Table 3.2.4). The highest BCR of 2.43 was in little millet. In Andhra Pradesh 117 FLDs were conducted on millets in which 59 were on finger millet with an average yield increase of 39% and 45 FLDs were on sorghum with an average yield increase of 16%. In Telangana, 135 demonstrations were conducted on sorghum with an average yield increase of 34%.

In Tamil Nadu, out of 388 demonstrations on pulses, 220 were on blackgram with an average yield increase of 24%, 78 demonstrations on greengram with an average yield increase 24% and 60 on cowpea with an average yield increase of 29%. The highest average BCR of 2.40:1 was in greengram (Table 3.2.5). In Andhra Pradesh, 1100 demonstrations were conducted on pulses in 437.6 hectares and the results revealed an average increase in yield of 19% in redgram to 39% in cowpea over the check. The highest BCR of 2.68 was in moth bean. In Telangana, the average yield increase registered in the demonstration plots ranged from 18% in blackgram to 27% in greengram over the check. In Puducherry, the average yield advantage was 38% in cowpea over check.

In Tamil Nadu out of 237 demonstrations, 137 were on groundnut with an average yield increase of 19% over check. The highest average yield increase of 30% was in castor and the highest BCR of 3.30:1 was in sesamum (Table 3.2.6). In Andhra Pradesh, out of 664 demonstrations on oilseeds, 280 were on groundnut with an average yield increase of 15% over check and 206 demonstrations were on sesamum with an average yield increase of 40% over check. The highest BCR of 4.20:1 was in castor followed by 3.04:1 in sesamum. In Telangana, 390 out of 501 demonstrations on oil seeds was in groundnut with an average yield increase of 17% over check. The highest BCR of 3.09:1 was in sunflower. In Puducherry, 10 demonstrations were conducted on sesamum with an average yield increase of 19%.

A total of 494 demonstrations were conducted on cotton, sugarcane and tapioca (Table 3.2.7). In cotton, 408 demonstrations were conducted with an average yield advantage of 17%, 15% and 14% in Tamil Nadu, Andhra Pradesh and Telangana, respectively in the demonstration plots over checks. Sugarcane gave an average yield increase of 23% in the demonstration plots over the checks in Tamil Nadu. Tapioca was demonstrated at 45 locations in Tamil Nadu with an average yield increase of 17% over the check. A total of 90 FLDs were conducted in 13.5 ha area to demonstrate the varieties and agro-technologies in fodder crops in the region (Table 3.2.8). The average yield increase in the demonstrations ranged from 21% to 46% in Tamil Nadu.

A total of 1159 FLDs were conducted in vegetables by KVKs in Zone-X (Table 3.2.9) out of which 544 demonstrations were in Tamil Nadu on 20 vegetable crops, 287 in Andhra Pradesh on 11 vegetables, 328 in Telangana on six vegetables. In Tamil Nadu, 95 FLDs were on bhendi with an average yield increase of 28% over check followed by 65 on onion with an average yield increase of 33% over check. In Andhra Pradesh 95 demonstrations were on tomato with an average yield increase of 14% and in Telangana, 134 were on tomato with an average yield increase of 26% over check. The other major vegetables were brinjal (210) and tomato (190).

In fruits, out of the 662 FLDs in the Zone, 175 were in Tamil Nadu among which 85 were on banana with an average yield increase of 18% and a BC ratio on 3.55:1 (Table 3.1.10). In Andhra Pradesh, out of 363 demonstrations on fruits, 150 were on mango with an average yield increase of 15% and BCR of 3.18:1. In Telangana, 54 out of 124 demonstrations were on manga with an average yield increase of 32%. Out of

150 FLDs on flower crops, 145 were in Tamil Nadu and among them, 90 were on jasmine with an average yield increase of 19% over check (Table 3.1.11).

A total of 470 FLDs were conducted in spices and condiments in which 337 were in chillies with an average yield increase of 23% in Tamil Nadu, 10% in Andhra Pradesh, 16% in Telangana and 20% in Puducherry (Table 3.2.12). Out of 78 FLDs on turmeric 10 were in Tamil Nadu with an average yield increase of 6%, 48 in Andhra Pradesh (15% yield increase) and 20 in Telangana (30% yield increase). There were 20 demonstrations on coriander in Tamil Nadu. Out of the 143 demonstrations on 5 plantation crops in Zone-X, 55 were on cashew in Andhra Pradesh with an average yield increase of 28% over check; 38 on coconut and 30 on oil palm in Telangana with an average yield increase of 16% over check (Table 3.2.13). Ten demonstrations were conducted by the KVKs of Tamil Nadu on *Melia dubia*, which is used by the plywood industries.

Demonstration of rice variety ADT 50 by KVK Ariyalur

Demonstration of IPDM for rice by KVK Thiruvannamalai

Demonstration of sorghum variety K 12 by KVK Tiruchirappalli

Demonstration of finger millet variety ML365 by KVK Erode

Demonstration of fingermillet variety Co (Ra) 15 by KVK Ariyalur

Demonstration of little millet by KVK Krishnagiri

Demonstration of greengram variety VBN 3 by KVK Kancheepuram

Demonstration of greengrm variety CO 8 by KVK Sivaganga

Demonstration of Bengalgram by KVK Kurnool (Yagantipalli)

Demonstration of groundnut variety ICGV 00350 by KVK Kurnool (Banavasi)

Demonstration of groundnut variety VRI 8 by KVK Cuddalore

Demonstration of sunflower variety COHS3 by KVK Salem

Demonstration on cotton by KVK Krishnagiri

Demonstration of mass trapping of pink boll worm through pheromone traps in cotton by KVK Krishna (Garikapadu)

Demonstration of INM in coconut by KVK Thiruvannamalai

Demonstration of ICM in ridge gourd by KVK Karimnagar (Ramagirikilla)

Demonstration f ICM in tomoato by KVK Karimnagar (Ramagirikilla)

Demonstration of protray vegetable seedling production by KVK Karimnagar (Jammikunta)

Demonstration of IPDM in brinjal KVK Karimnagar (Ramagirikilla)

Demonstration of vegetable grading by KVK Thiruvannamalai

Demonstration of pheromone trap for fruit fly in bitter gourd by KVK Thiruvannamalai

Demonstrationo f pheromone trap in snake gourd by KVK Perambalur

Demonstration of *Dolichos* bean in *rabi* season by KVK Kurnool (Yagantipalli)

Demonstration of IPM in chilli by KVK Krishna (Garikapadu)

Demonstration of stem injection for stem weevil management in banana by KVK Thiruvannamalai

Demonstration on chrysanthemum by KVK Kurnool (Yagantipalli)

Demonstration of tuberrose variety Prajwal by KVK Ariyalur

Demonstration on chilli by KVK Kurnool (Yagantipalli)

Table 3.2.3. Performance of cereal crops in the FLDs of Zone-X

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Tamil Nadu											
Rice	561	218.4	54.0	46.2	17.0	42526	52108	2.23:1	42920	51508	2.20:1
Wheat	5	2.0	31.3	24.5	28.0	29500	39250	2.33:1	32000	21900	1.68:1
Total	566	220.4									
Andhra Pradesh											
Maize	45	18	67.6	60.1	12.0	43977	49363	2.12:1	44271	36644	1.83:1
Rice	484	425.6	61.5	57.6	7.0	52073	55493	2.07:1	57375	44006	1.77:1
Total	529	443.6									
Telangana											
Maize	98	39.2	78.3	70.9	10.0	50648	89294	2.76:1	53554	73159	2.37:1
Rice	458	187.2	66.9	62.0	8.0	52260	70025	2.34:1	56679	56807	2:1
Total	556	226.4									
Puducherry											
Rice	15	6.0	61.7	52.0	19.0	37988	67304	2.77:1	42565	45959	2.08:1
Total	15	6.0									
Total Cereals	**1666**	**896.4**									

Table 3.2.4. Performance of millet varieties and agro-technologies in FLDs of Zone-X

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Tamil Nadu											
Barnyard millet	25	10	12.6	10.2	23.0	20206	24250	2.20:1	18900	17466	1.92:1
Finger millet	45	18.0	26.9	21.6	25.0	29974	37172	2.24:1	29380	23337	1.79:1
Kodomillet	15	6.0	13.8	11.2	23.0	17329	16034	1.93:1	16567	10641	1.64:1
Little millet	60	24.0	15.2	12.2	25.0	17130	24556	2.43:1	16477	16206	1.98:1
Pearl millet	20	8.0	14.1	11.1	27.0	17481	12345	1.71:1	17635	5093	1.29:1
Sorghum	20	8.0	17.1	13.6	26.0	22482	25832	2.15:1	22232	13975	1.63:1
Total	185	74.0									
Andhra Pradesh											
Finger millet	59	23.0	33.9	24.3	39.0	36573	48884	2.34:1	31027	31212	2.01:1
Pearl millet	13	6.0	14.5	12.6	16.0	16383	9360	1.57:1	16968	5242	1.31:1
Sorghum	45	18.0	31.6	27.3	16.0	29421	49011	2.67:1	29693	38143	2.28:1
Total	**117**	**47.0**									

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Telangana											
Sorghum	135	54	19.7	14.7	34.0	18472.25	44281	3.4:1	17126	28380.75	2.66:1
Total	135	54									
Total Millets	**437**	**175**									

Table 3.2.5. Performance of pulses in the FLDs of Zone-X

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Tamil Nadu											
Blackgram	220	86.0	7.9	6.4	24.0	25979	35680	2.37:1	25048	24543	1.98:1
Bengalgram	10	4.0	10.3	8.4	22.0	13750	32465	3.36:1	14240	23605	2.66:1
Cowpea	60	17.0	9.5	7.4	29.0	23606	31246	2.32:1	20982	18495	1.88:1
Greengram	78	27.6	7.5	6.0	24.0	22110	30847	2.40:1	21916	21524	1.98:1
Horsegram	20	8.0	7.8	6.3	23.0	13111	11808	1.90:1	11022	7910	1.72:1
Total	388	142.6									
Andhra Pradesh											
Blackgram	384	149.4	14.4	11.7	24.0	32096	51863	2.62:1	37314	35600	1.95:1
Bengalgram	243	97.2	26.3	20.8	26.0	46002	35115	1.76:1	42558	23486	1.55:1
Cowpea	20	8.0	18.4	13.2	39.0	25650	35288	2.38:1	13151	16600	2.26:1
Greengram	125	50.0	9.1	7.6	20.0	23506	29722	2.26:1	23126	20161	1.87:1
Mothbean	3	2.0	6.8	5.3	29.0	12600	21150	2.68:1	11000	15250	2.39:1
Rajmah	10	4.0	9.2	7.0	31.0	21900	33300	2.52:1	19200	22800	2.19:1
Redgram	315	127	12.5	10.5	19.0	26672	37611	2.41:1	26550	27189	2.02:1
Total	1100	437.6									
Telangana											
Blackgram	63	30.0	12.5	10.6	18.0	37757	38945	2.03:1	37317	24387	1.65:1
Bengalgram	188	75.2	21.5	17.3	24.0	32670	67582	3.07:1	32182	49253	2.53:1
Greengram	390	174.0	9.6	7.5	27.0	27218	41622	2.53:1	27045	27186	2.01:1
Redgram	469	196.0	12.4	10.4	19.0	31329	42236	2.35:1	31134	32727	2.05:1
Total	1110	475.2									
Puducherry											
Cowpea	10	4.0	13.1	9.5	38.0	33375	22125	1.66:1	33200	9550	1.29:1
Total	10	4.0									
Total Pulses	**2608**	**1059.4**									

Table 3.2.6. Performance of oil seeds in the FLDs of Zone-X

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Tamil Nadu											
Castor	55	22.0	17.8	13.7	30.0	29467	52398	2.78:1	29885	35196	2.18:1
Groundnut	137	52.5	23.7	19.8	19.0	51284	76583	2.49:1	46282	47384	2.02:1
Sesamum	30	12.0	8.4	6.5	29.0	25043	57676	3.30:1	24515	36722	2.50:1
Sunflower	15	6.0	13.7	10.7	29.0	37650	40950	2.09:1	34300	28700	1.84:1
Total	237	92.5									
Andhra Pradesh											
Castor	25	10.0	19.0	16.8	13.0	21350	68400	4.20:1	20545	60300	3.94:1
Groundnut	280	124.0	23.1	20.1	15.0	50277	58766	2.17:1	50655	43221	1.85:1
Niger	25	10.0	8.1	3.1	159.0	12375	7935	1.64:1	10375	3687	1.36:1
Safflower	53	45.0	6.4	4.8	34.0	12813	13408	2.05:1	12481	7080	1.57:1
Sesamum	206	84.2	6.7	4.8	40.0	19354	39465	3.04:1	19706	22425	2.14:1
Sunflower	75	30.0	15.0	10.5	43.0	16400	31600	2.93:1	16250	17350	2.07:1
Total	664	303.2									
Telangana											
Castor	81	42.0	16.1	12.8	26.0	30806	24703	1.80:1	24081	19494	1.81:1
Groundnut	390	208.0	20.5	17.5	17.0	50580	52734	2.04:1	52685	35215	1.67:1
Soybean	20	8.0	20.6	18.4	12.0	25459	50062	2.97:1	26692	40664	2.52:1
Sunflower	10	4.0	20.5	19.5	5.0	15016	31382	3.09:1	15888	28385	2.79:1
Total	501	262									
Puducherry											
Sesamum	10	4.0	8.8	7.4	19.0	21763	55377	3.54:1	21156	41889	2.98:1
Total	10	4.0									
Total Oilseeds	**1412**	**661.7**									

Table 3.2.7. Performance of commercial crops in the FLDs of Zone-X

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Tamil Nadu											
Cotton	55	20.0	18.3	15.6	17.0	47620	49088	2.03:1	48603	32051	1.66:1
Sugarcane	15	6.0	1089.7	882.6	23.0	114770	147448	2.28:1	115525	99438	1.86:1
Tapioca	45	5.0	278.3	237.2	17.0	132902	267999	3.02:1	132604	218356	2.65:1
Total	115	31.0									

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Andhra Pradesh											
Cotton	153	57.6	25.3	22.1	15.0	53266	68196	2.28:1	55226	50427	1.91:1
Sugarcane	26	14	900.9	730.0	23.0	121998	112744	1.92:1	115063	75506	1.66:1
Total	179	71.6									
Telangana											
Cotton	200	80.0	22.5	19.7	14.0	53458	62012	2.16:1	57367	44524	1.78:1
Total	200	80									
Total Commercial crops	**494**	**182.6**									

Table 3.2.8. Performance of fodder crops in the FLDs of Zone-X

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Tamil Nadu											
Fodder Crops	10	0.4	1800.0	1486.0	21.0	40200	82875	3.06:1	35500	65582	2.85:1
Mixed Fodder	70	11.1	1137.5	781.5	46.0	55177	118565	3.15:1	48674	67523	2.39:1
Total	80	11.5									
Andhra Pradesh											
Fodder sorghum	10	2	326.0	264.0	23.0	38250	26950	1.7:1	34750	18050	1.52:1
Total	10	2									
Total Fodder crops	**90**	**13.5**									

Table 3.2.9. Performance of vegetable varieties and agro-technologies in the FLDs of Zone-X

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Tamil Nadu											
Amaranthus	10	2.0	489.0	408.0	20.0	265000	616900	3.33:1	237000	360500	2.52:1
Annual Moringa	5	1.0	537.7	410.9	31.0	86500	124500	2.44:1	78650	11760	1.15:1
Bhendi	94	23.9	197.4	153.8	28.0	92878	144787	2.56:1	81499	103756	2.27:1
Bitter gourd	30	8.0	270.1	224.6	20.0	162192	306816	2.89:1	169804	214626	2.26:1

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Bottle gourd	55	15.2	307.4	224.9	37.0	49090	106439	3.17:1	49139	68516	2.39:1
Brinjal	50	12.0	328.0	267.2	23.0	98104	263086	3.68:1	98716	188459	2.91:1
Cluster bean	15	5.0	65.5	49.5	32.0	25975	39170	2.51:1	23700	28950	2.22:1
Colocasia	10	2.0	332.8	257.5	29.0	278115	657470	3.36:1	276375	467001	2.69:1
Coriander	10	4.0	110.0	80.0	38.0	26500	23500	1.89:1	34000	6800	1.20:1
Cucumber	10	2.0	405.0	400.0	1.0	517500	682500	2.32:1	498750	716250	2.44:1
Drumstick	20	6.0	327.0	215.6	52.0	478125	518400	2.08:1	272813	221563	1.81:1
Elephant Foot Yam	10	2.0	154.5	131.3	18.0	98663	179437	2.82:1	91688	144562	2.58:1
French bean	15	4.0	96.5	82.5	17.0	74269	141957	2.91:1	75847	86493	2.14:1
Lab Lab bushtype	5	1.0	85.4	63.7	34.0	17590	13420	1.76:1	16530	11800	1.71:1
Onion	30	8.3	206.4	176.4	17.0	108400	261770	3.41:1	113700	199243	2.75:1
Onion (Aggregatum)	65	13.0	131.1	98.5	33.0	115673	233405	3.02:1	109490	168236	2.54:1
Raddish	10	4.0	64.0	42.0	52.0	32400	44400	2.37:1	30200	20200	1.67:1
Ridge gourd	20	4.0	208.5	167.0	25.0	90335	209478	3.32:1	92450	166422	2.80:1
Snake gourd	30	6.0	324.9	251.3	29.0	121886	210688	2.73:1	126336	146610	2.16:1
Tomato	50	20.0	415.9	358.4	16.0	104681	218410	3.09:1	185276	286317	2.55:1
Total	544	143.4									
Andhra Pradesh											
Bhendi	20	8.0	91.0	64.5	41.0	56160	111520	2.99:1	51535	65570	2.27:1
Bitter gourd	31	12.4	269.5	223.3	21.0	241767	291167	2.20:1	244650	200050	1.82:1
Brinjal	41	8.8	373.7	335.0	12.0	115615	199073	2.72:1	135102	151464	2.12:1
Cabbage	20	5.0	417.0	321.0	30.0	114925	219275	2.91:1	93250	108900	2.17:1
Cucurbits	10	4.0	112.5	83.0	36.0	84450	89550	2.06:1	79200	45300	1.57:1
Elephant Foot Yam	10	4.0	418.0	381.3	10.0	306500	81516	1.27:1	311250	39500	1.13:1
Lab lab	10	0.4	129.1	413.6	-69.0	53564	243412	5.54:1	102682	104133	2.01:1
Nutrigarden vegetables	20	8.0	37.5	29.5	27.0	20870	35516	2.70:1	19225	28135	2.46:1
Onion	10	4.0	115.0	90.5	27.0	168025	452975	3.70:1	162075	153775	1.95:1
Ridge gourd	20	8.0	189.8	150.0	27.0	86475	196875	3.28:1	73325	151675	3.07:1
Tomato	95	36.4	422.9	370.9	14.0	323783	258265	1.8:1	261131	174249	1.67:1
Total	287	99									

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Telangana											
Bhendi	30	10.0	47.9	40.9	17.0	144035	219312	2.52:1	150400	132813	1.88:1
Bitter gourd	50	20.0	161.6	118.9	36.0	167890	330636	2.97:1	156950	240387	2.53:1
Bottle gourd	10	2.0	252.5	165.0	53.0	82500	106230	2.29:1	92000	56050	1.61:1
Brinjal	58	21.4	211.7	167.3	27.0	171818	300642	2.75:1	171507	213482	2.24:1
Ridge gourd	46	17.6	195.2	170.5	14.0	164870	413754	3.51:1	163860	270184	2.65:1
Tomato	134	48.6	446.0	352.9	26.0	123744	237539	2.92:1	112220	149832	2.34:1
Total	328	119.6									
Total Vegetables	**1159**	**362.0**									

Table 3.2.10. Performance of fruit varieties and agro-technologies in the FLDs of Zone-X

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Tamil Nadu											
Avacado	10	4.0	90.0	75.0	20.0	300000	900000	4.00:1	350000	750000	3.14:1
Banana	85	26.3	343.2	290.9	18.0	164219	419466	3.55:1	156514	327523	3.09:1
Grapes	10	4.0	240.9	205.0	18.0	475000	970400	3.04:1	425000	682000	2.60:1
Guava	10	0.5	136.4	100.4	36.0	46550	157450	4.38:1	41550	108450	3.61:1
Mango	20	8.0	68.1	59.7	14.0	23335	57981	3.48:1	21460	40337	2.88:1
Musk melon	10	2.0	219.8	181.4	21.0	57877	52033	1.90:1	55822	34873	1.62:1
Water melon	30	8.7	249.0	198.6	25.0	114842	148832	2.30:1	106068	97686	1.92:1
Total	175	53.5									
Andhra Pradesh											
Acid lime	44	16.0	218.7	182.9	20.0	78527	191941	3.44:1	76177	157193	3.06:1
Banana	69	29.5	589.5	545.0	8.0	211891	263179	2.24:1	211803	207836	1.98:1
Mango	150	84.0	79.8	69.5	15.0	70225	153163	3.18:1	64947	120864	2.86:1
Musk melon	5	1.0	520.0	412.9	26.0	172000	296000	2.72:1	148200	223050	2.51:1
Papaya	10	4.0	396.0	368.0	8.0	198000	277200	2.40:1	201500	257600	2.28:1
Pomegranate	25	7.4	155.7	129.4	20.0	495665	570944	2.15:1	416609	444979	2.07:1
Sweet Orange	30	13.0	89.8	84.4	6.0	198061	281598	2.42:1	152914	200852	2.31:1
Water melon	30	13.0	279.6	219.7	27.0	158584	135316	1.85:1	131295	68538	1.52:1
Total	363	167.9									

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Telangana											
Banana	10	1.0	375.0	328.0	14.0	251000	199600	1.80:1	282000	111600	1.40:1
Citrus	20	8.0	88.7	78.9	12.0	126010	211750	2.68:1	129873	157350	2.21:1
Guava	10	4.0	215.0	187.5	15.0	172250	472750	3.74:1	168750	393750	3.33:1
Mango	54	28.0	189.3	142.9	32.0	114694	217112	2.89:1	99962	122659	2.23:1
Papaya	10	4.0	241.8	183.8	32.0	234700	329800	2.41:1	215400	142500	1.66:1
Sweet Orange	10	4.0	300.0	250.0	20.0	250000	200000	1.80:1	360000	180000	1.50:1
Water melon	10	4.0	350.0	237.5	47.0	152500	110000	1.72:1	121250	45000	1.37:1
Total	124	53.0									
Total Fruits	**662**	**274.4**									

Table 3.2.11. Performance of flower varieties and agro-technologies in the FLDs of Zone-X

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Tamil Nadu											
Chrysanthemum	15	6.0	170.0	135.0	26.0	215000	237500	2.1:1	245000	122500	1.5:1
Crossandra	5	0.2	46.6	38.9	20.0	349232	304444	1.87:1	283587	223944	1.79:1
Ixora	10	1.0	47.0	43.0	9.0	107890	221110	3.05:1	115390	185610	2.61:1
Jasmine	90	22.2	74.0	62.3	19.0	165459	404543	3.44:1	162432	240843	2.48:1
Rose	10	2.5	35.3	32.3	9.0	140000	390460	3.79:1	150000	333840	3.23:1
Tuberose	15	0.9	23.5	21.5	10.0	55000	63541	2.16:1	50000	55588	2.11:1
Total	145	32.8									
Telangana											
Marigold	5	2.0	99.1	83.7	18.0	140000	148653	2.06:1	148653	102447	1.69:1
Total	5	2.0									
Total Flowers	**150**	**34.8**									

Table 3.2.12. Performance of spices varieties and technologies in the FLDs of Zone-X

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Tamil Nadu											
Chilli	80	26.0	145.1	117.8	23.0	88027	138415	2.57:1	86137	90240	2.05:1
Coriander	20	4.0	34.7	20.2	72.0	16663	16978	2.02:1	10712	8428	1.79:1
Turmeric	10	2.4	282.4	267.7	6.0	127413	184309	2.45:1	128928	156786	2.22:1
Total	110	32.4									
Andhra Pradesh											
Ajwain	10	4.0	7.3	6.4	14.0	20750	81268	4.92:1	20750	69018	4.33:1
Chilli	170	67.4	120.7	109.6	10.0	273999	289481	2.06:1	272235	233197	1.86:1
Ginger	20	6.0	110.8	82.4	34.0	80288	163250	3.03:1	89177	106875	2.2:1
Pepper	5	2.0	9.5	7.0	36.0	32000	118750	4.71:1	30000	87500	3.92:1
Turmeric	48	18.4	294.9	257.1	15.0	151825	264067	2.74:1	171151	185032	2.08:1
Total	253	97.8									
Telangana											
Chilli	82	32.8	61.1	52.9	16.0	240885	474199	2.97:1	266590	348194	2.31:1
Turmeric	20	8.0	75.3	58.0	30.0	235000	171075	1.73:1	254500	58650	1.23:1
Total	102	40.8									
Puducherry											
Chilli	5	2	98.0	82.0	20.0	40800	58200	2.43:1	36000	16000	1.44:1
Total	5	2									
Total Spices and Condiments	**470**	**173**									

Table 3.2.13. Performance of plantation crop varieties and technologies in the FLDs of Zone-X

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Tamil Nadu											
Betelvine	10	1.0	203.8	200.9	1.0	163780	9450	1.06:1	164950	5815	1.04:1
Coconut	23	8.0	658.3	205.1	221.0	49264	112471	3.28:1	49907	84529	2.69:1
Melia dubia	10	1.2	88.0	88.0	0.0	22800	39300	2.72:1	20800	40100	2.93:1
Total	43	10.2									
Andhra Pradesh											
Cashew	55	22.5	6.4	5.0	28.0	18975	58379	4.08:1	16017	41579	3.60:1
Coconut	15	6.0	8410.0	7385.0	14.0	10700	60765	6.68:1	9725	41950	5.31:1
Total	70	28.5									

Crop	No. of Demos	Area (ha)	Yield (q/ha)			Demonstration			Check		
			Demo	Check	Increase (%)	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR	Gross cost (Rs/ha)	Net returns (Rs/ha)	BCR
Telangana											
Oil palm	30	12.0	311.0	267.6	16.0	151333	205479	2.36:1	142533	123823	1.87:1
Total	30	12.0									
Total Plantation crops	**143**	**50.7**									

3.2.3. Tools and implements

In Zone-X, 987 FLDs were conducted in 245.6 ha to demonstrate technologies on tools and implements in various crops among which 271 were in Tamil Nadu, 558 in Andhra Pradesh and 158 in Telangana (Table 3.2.14). The demonstrations included tools and implements for preparatory cultivation, sowing and planting, intercultural operations, harvesting, post-harvest technology and total mechanization (Table 3.2.15). The maximum demonstrations of 278 were on tools and implements for post-harvest operations followed by 274 for harvesting, 200 for sowing and planting and 156 for intercultural operations. The list of various tools and implements demonstrated in the Zone are furnished in Table 3.2.16. Performance of various tools and implements in the Demonstrations conducted in Tamil Nadu and Andhra Pradesh are furnished in Tables 3.2.17 and 18.

Demonstration of manual drum seeder in paddy by KVK Tiruchirappalli

Demonstration of machine transplanting of rice by KVK Tiruchirappalli

Demonstration of mechanized SRI planting in rice by KVK Visakhapatnam (BCT)

Demonstration of rice transplanterby KVK Thiruvarur

Demonstration of tractor drawn seed drill by KVK Visakhapatnam (BCT)

Demonstration of tractor drawn groundnut seed drill by KVK Krishnagiri

Demonstration of groundnut mannual decordicator by KVK Tiruchirappalli

Demonstration of knitted gloves for harvesting bhendi by KVK Kurnool (Banavasi)

Demonstration of onion de-topper by KVK Erode

Demonstrationo f mango harvester by KVK Krishna (Garikapadu)

Demonstration of coconut tree climber by KVK Thiruvannamalai

Demonstration of wheel hoe by KVK Krishna (Garikapadu)

Table 3.2.14. Crop wise technologies on tools and implements demonstrated in Zone-X

Crop	Tamil Nadu		Andhra Pradesh		Telangana		Total	
	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)
Arecanut	4	1.0					4	1.0
Banana	10	0.0					10	0.0
Bhendi	60	8.0					60	8.0
Blackgram	10	0.0	60	0.8			70	0.8
Bengalgram					10	4.0	10	4.0
Brinjal	5	0.4					5	0.4
Castor			10	0.0			10	0.0
Coconut	20	8.0					20	8.0
Cotton					10	4.0	10	4.0
Flowers			5	0.4			5	0.4
Fodder	10	4.0					10	4.0
Greengram			70	0.8			70	0.8
Groundnut	44	17.0	20	6.0	10	4.0	74	27.0
Maize	4	4.0	10	1.0	10	4.0	24	9.0
Mango			30	8.0			30	8.0
Millets	5	2.0					5	2.0
Redgram			60	0.8	28	13.0	88	13.8
Rice	65	24.0	83	48.0	44	24.4	192	96.4
Soybean					15	6.0	15	6.0
Tamarind	4	1.0					4	1.0
Tomato			92	0.8	10	0.2	102	1.0
Vegetables	30	6.0	118	31.0	6	4.0	154	41.0
Miscellaneous					15	9.0	15	9.0
Grand Total	**271**	**75.4**	**558**	**97.6**	**158**	**72.6**	**987**	**245.6**

Table 3.2.15. Field operation wise technologies on tools and implements demonstrated in Zone-X

Name of the operation	Tamil Nadu		Andhra Pradesh		Telangana		Total	
	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)
Harvesting	124	32.0	140	16.4	10	4.0	274	52.4
Intercultural operations	20	5.0	110	30.0	26	14.0	156	49.0
Post-harvest technology	58	16.0	210	2.4	10	4.0	278	22.4
Preparatory cultivation	20	8.0			5	3.0	25	11.0
Sowing and Planting	35	9.4	98	48.8	67	31.6	200	89.8
Total mechanization	14	5.0			40	16.0	54	21.0
Grand Total	**271**	**75.4**	**558**	**97.6**	**158**	**72.6**	**987**	**245.6**

Table 3.2.16. List of tools and implements demonstrated in the FLDs of Zone-X

Tool/implement/machinery	No. of Demos	Area (ha)
BBF Planter (Soybean)	5	2
Cob Sheller (Maize)	4	4
Comb/hand Cutter (Banana)	10	0
Combine Harvester (Rice)	10	4
Combined Harvester (Soybean)	10	4
Cotton hand gloves (Vegetables)	10	4
Cycle weeder	2	0.4
Decorticator (Groundnut)	10	4
De-huller & De-seeder (Tamarind)	4	1
Dehusker (Arecanut)	4	1
Dehusker cum sheller (Maize)	10	4
Dhal mill (TNAU-Improved)	10	0
Digger (Groundnut)	10	4
Drum Seeder (Rice)	20	8
Easy planter	15	2.4
Ferti cum seed drill	50	26
Guntaka (Groundnut)	10	4
Harvester (Groundnut)	4	1
Harvester (Mango)	30	8
Harvester (Rice)	10	4
Harvesting bags and gloves (Castor)	10	0
Knitted hand gloves (Tomato)	90	0.4
Leveler (Groundnut)	10	4
Mechanical harvester (Redgram)	10	4
Micor Sprinkler	6	4
Mini Power weeder (Vegetables)	10	4
Nine row planter (CRIDA)	18	9
Pod Stripper (Groundnut)	4	1
Power Sprayer (Groundnut)	10	4
Power sprayer (Redgram)	10	4
Power Weeder	20	10
Power weeder (Redgram)	10	4
Power weeder (Rice)	20	8
Power weeder (Vegetable)	10	4
Power weeder (Vegetables)	10	1
Reaper (Rice)	30	12
Ring cutter (Bhendi)	60	8
Rotavator	5	3
Roto-puddler (Rice)	10	4
Rotovator (Groundnut)	10	4
Rotovator (Redgram)	10	4
Rotovator (Rice)	10	4
Seed drill (Groundnut)	24	9
Seed drill (Redgram)	10	4
Seed drill (Soybean)	10	4
Seedling transplanter (Vegetables)	15	1.4
Shredder (Coconut)	20	8
Solar sprayer (Vegetables)	10	4
Stripper (Groundnut)	10	4
Stubble cutter (Fodder)	10	4
Super bag (IRRI)	5	0
Three pronged wheel hoe	40	10
Thresher (Groundnut)	10	4
Thresher (Millet)	5	2
Transplanter (Rice)	59	34.4
Transplanter (Vegetables)	10	0.2
Triple later hermetic bags	200	2.4
Vaibhav Sickle (Rice)	10	4
Wheel hoe	20	5
Wheel Hoe (CRIDA)	28	6.6
Grand Total	**1117**	**293.2**

3.2.17. Performance of Tools and Implements in the FLDs of Tamil Nadu

Name of the tool/ machinery	No. of Demos	Area (ha)	Parameter and unit	Demo	Check	Demo			Check		
						Gross Cost (Rs)	Net Income (Rs.)	BCR	Gross Cost (Rs)	Net Income (Rs.)	BCR
Cob Sheller (Maize)	4	4	Rs/tonne	150	1200	35375	90000	3.54:1	38000	90000	3.37:1
Decorticator (Groundnut)	10	4	hrs/tonne	0.98	4	38848	39702	2.02:1	40363	22840	1.57:1
Dehuller & Deseeder (Tamarind)	4	1	Man days/ ha	37	134	242997	310534	2.28:1	250760	305013	2.22:1
Dehusker (Arecanut)	4	1	Man days/ ha	20	108	439347	353074	1.80:1	447969	339055	1.76:1
Digger (Groundnut)	10	4	Man hour/ ha	4.3	220.5	18003	22317	2.24:1	25777	9983	1.39:1
Mini Power weeder (Vegetables)	10	4	Rs/ha	69000	45000	27325	52675	2.93:1	24380	17620	1.72:1
Power weeder (Vegetables)	10	1	Rs/ha	400	4000	95000	496000	6.22:1	98600	496000	6.03:1
Reaper (Rice)	30	12	Rs/ha	9250	15000	33000	48412	2.47:1	48325	24862	1.51:1
Ring cutter (Bhendi)	30	3	Man days/ ha	0.08	0.125	92620	130600	2.41:1	121420	101800	1.84:1
Ring cutter (Bhendi)	30	2	kg/hr	20	16	74383	114423	2.54:1	81250	107557	2.32:1
Roto-puddler (Rice)	10	4	Man days/ ha	1	4	47089	45413	1.96:1	66412	37688	1.57:1
Seed drill (Groundnut)	10	4	Rs/ha	1450	2000	38848	39702	2.02:1	40363	22840	1.57:1
Seed Driller, Harvester & Pod Stripper (Groundnut)	4	1	Man days/ ha	25	48	36122	45835	2.27:1	44122	32835	1.74:1
Seedling transplanter (Vegetables)	10	1	Man days/ ha	0.06	0.1	104000	425000	5.09:1	95200	385000	5.04:1
Stripper (Groundnut)	10	4	Man hour/ ha	25.3	96	38848	39702	2.02:1	40363	22840	1.57:1
Transplanter, Power weeder and Combine Harvester (Rice)	10	4	Man days/ ha	2	7	36500	47000	2.29:1	35200	35000	1.99:1
Comb/hand Cutter (Banana)	10	0	No./hr	25	12	250	250	2:1	500		

Name of the tool/ machinery	No. of Demos	Area (ha)	Parameter and unit	Demo	Check	Demo			Check		
						Gross Cost (Rs)	Net Income (Rs.)	BCR	Gross Cost (Rs)	Net Income (Rs.)	BCR
Dhal mill (TNAU)	10	0	Rs/kg	85	70	700	300	1.43:1	1600	200	1.13:1
Drum Seeder (Rice)	10	4	Yield (q/ ha)	62.5	54.1	38250	58500	2.53:1	39500	44200	2.12:1
Thresher (Millet)	5	2	kg/hr	25	8	29375	23125	1.79:1	37500	9750	1.26:1

Table 3.2.18. FLDs on farm implements conducted by KVKs of Andhra Pradesh

Name of the tool/ machinery	No. of Demos	Area (ha)	Parameter and unit	Demo	Check	Demo			Check		
						Gross Cost (Rs)	Net Income (Rs.)	BCR	Gross Cost (Rs)	Net Income (Rs.)	BCR
Cycle weeders	2	0.4	ODR and DI	9.6	6.5	132800	268600	3.02:1	136200	269200	2.98:1
Ferti cum seed drill	50	26	Yield (q/ha)	60.7	52.4	46414	38476	1.83:1	51671	17901	1.35:1
Harvester (Mango)	30	12	No./day	1500	600	500	750	2.50:1	1250		
Knitted hand gloves (Tomato)	90	0.4	ODR	6.2	0.8	130600	290800	3.23:1	133700	291600	3.18:1
Power weeder (Vegetable)	10	4	Net income	31500	22000	64500	31500	1.49:1	74000	22000	1.30:1
Solar sprayer (Vegetables)	10	4	Net income	29980	26720	62000	29980	1.48:1	65000	26720	1.41:1
Three Pronged Wheel hoe	10	1	Yield (q/ha)	40	38	55000	120000	3.18:1	60000	120000	3.00:1
Transplanter (Rice)	23	20	Yield (q/ha)	66.7	59.4	51250	54350	2.06:1	48750	45650	1.94:1
Triple later hermetic bags	105	1.2	Germination (%)	85	56	13667	14333	2.05:1	17333	11233	1.65:1
Wheel hoe	10	4	Man days/ha	5	25	143750	312500	3.17:1	151750	312500	3.06:1
Wheel Hoe (CRIDA)	3	0.2	Rs/ha	2000	1100	2300	2000	1.87:1	1700	1100	1.65:1

3.2.4. Livestock and other enterprises

A total of **1484** demonstrations on 128 technologies were organized by KVKs in Zone-X to popularize the technologies under different aspects of livestock and other enterprises wherein the number of animals distributed were 15115 (Table 3.2.19). Out of 719 demonstrations in Tamil Nadu, 386 were on poultry and 225 were on Cattle. In Andhra Pradesh, out of 489 demonstrations, 175 were on poultry and 114 were on fishery. In Telangana, out of 236 demonstrations, 125 were on poultry. The enterprise wise technologies demonstrated in Tamil Nadu, Andhra Pradesh, Telangana, and Puducherry are presented in Table 3.2.20.

Demonstration of Ketocheck in detection of metabolic disorder in cow by KVK Perambalur

Demonstration of Avikesil goat management by KVK Erode

Demonstration of backyard poultry by KVK Kancheepuram

Demonstration of poultry rearing on cage by KVK Sivaganga

Demonstration of fowl pox vaccination by KVK Salem

Demonstration of stunted fingerlings of IMC by KVK Sivaganga

Table 3.2.19. Details of number of technologies and FLDs conducted on livestock and other enterprises in Zone-X

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	T	D	A	T	D	A	T	D	A	T	D	A	T	D	A
Buffalo				11	79	220	2	12	35				13	91	255
Cow	21	225	385	6	85	135	3	31	99	2	15	30	32	356	649
Goat	4	36	315	2	6	15				2	20	20	8	62	350
Sheep	2	20	300	4	30	178	3	29	540				9	79	1018
Poultry	20	386	2714	9	175	975	4	125	504				33	686	4193
Quail	4	29	1050							1	5	50	5	34	1100
Fish	6	23	7503	8	114	6	14	39	41				28	176	7550
Total	57	719	12267	40	489	1529	26	236	1219	5	40	100	128	1484	15115

T = No. of Technologies; D = No. of Demonstrations; A= No. of Animals

Table 3.2.20. Details of state wise livestock enterprise and technologies demonstrated in Zone-X

Technology	No. of Farmers
Tamil Nadu	
Cattle	
Disease Management	135
Feed and Fodder management	30
Nutrition Management	30
Production and Management	30
Total (Cattle)	225
Goat	
Disease Management	11
Production and Management	25
Total (Goat)	36
Sheep	
Disease management	10
Production management	10
Total (Sheep)	20
Poultry	
Disease Management	30
Evaluation of Breeds	110
Nutrition Management	10
Production and Management	49
Total (Poultry)	199
Quail	
Evaluation of Breeds	14
Housing management	10
Production and Management	5
Total (Quail)	29
Fish	
Feed and Fodder management	3
Production and Management	20
Total (Fish)	23
Total (Tamil Nadu)	532
Buffalo	
Disease Management	4
Evaluation of Breeds	4
Feed and Fodder management	48
Nutrition Management	9
Disease Management	4
Production and Management	10
Total (Buffalo)	79
Cow	
Disease Management	30
Evaluation of Breeds	4
Feed and Fodder management	10
Nutrition Management	30

Technology	No. of Farmers
Total (Cow)	74
Goat	
Evaluation of Breeds	5
Feed and Fodder management	1
Total (Goat)	6
Sheep	
Feed and fodder management	13
Production and management	10
Total (Sheep)	23
Poultry	
Evaluation of Breeds	95
Nutrition Management	10
Production and Management	10
Evaluation of Breeds	60
Total (Poultry)	175
Fish	
Disease Management	15
Production and Management	79
Water quality management	20
Total (Fish)	114
Total (Andhra Pradesh)	471
Telangana	
Buffalo	
Feed and Fodder management	12
Total (Buffalo)	12
Cow	
Feed and Fodder management	31

Technology	No. of Farmers
Total (Cow)	31
Sheep	
Nutrition management	15
Production and management	4
Total (Sheep)	19
Poultry	
Evaluation of breeds	10
Production and management	151
Total (Poultry)	161
Fish	
Disease Management	10
Feed and Fodder management	3
Nutrition Management	10
Processing and value addition	2
Production and Management	14
Total (Fish)	39
Total (Telangana)	262
Puducherry	
Cow	
Disease management	10
Feed and Fodder management	5
Total (Cow)	15
Goat	
Disease management	20
Evaluation of breeds	5
Total (Puducherry)	40
Grand Total	**1305**

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 2019-20, KVKs in Zone-X conducted 8348 training programmes to 299518 beneficiaries (Table 3.3.1) including farmers, rural youth extension functioneries, sponsored trainings and vocational trainings. A total of 7170 training programmes on agricultural and allied technologies to increase the production and productivity of crops, dairy and others were organized for farmers and farm women, rural youth and extension functioneries by KVKs in the Zone. There were 258602 participants including 210478 farmers and farm women, 23314 rural youth and 24810 extension functionaries. Clientele wise details conducted by KVKs oif 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	3159	111853	1588	51217	974	45247	84	2161	5805	210478
Rural Youth	455	13390	191	5650	132	3977	12	297	790	23314
Extension Personnel	247	10348	246	10803	77	3525	5	134	575	24810
Total need-based trainings	3861	135591	2025	67670	1183	52749	101	2592	7170	258602
Sponsored Trainings	416	18135	322	10339	77	5410	9	270	824	34154
Vocational Trainings	196	3804	101	1637	51	1221	6	100	354	6762
Grand total	**4473**	**157530**	**2448**	**79646**	**1311**	**59380**	**116**	**2962**	**8348**	**299518**

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	3159	54968	33608	88576	10707	12570	23277	65675	46178	111853
RY	455	5857	4004	9861	1419	2110	3529	7276	6114	13390
EF	247	5856	2883	8739	888	721	1609	6744	3604	10348
Total	**3861**	**66681**	**40495**	**107176**	**13014**	**15401**	**28415**	**79695**	**55896**	**135591**
Andhra Pradesh										
FFW	1588	22935	11059	33994	9073	8150	17223	32008	19209	51217
RY	191	2298	1509	3807	897	946	1843	3195	2455	5650
EF	246	4193	3048	7241	1463	2099	3562	5656	5147	10803
Total	**2025**	**29426**	**15616**	**45042**	**11433**	**11195**	**22628**	**40859**	**26811**	**67670**

Clientele	No.of Courses	Other Beneficiaries			SC/ST Beneficiaries			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Telangana										
FFW	974	22723	7625	30348	10214	4685	14899	32937	12310	45247
RY	132	1355	1113	2468	936	573	1509	2291	1686	3977
EF	77	1603	1130	2733	322	470	792	1925	1600	3525
Total	**1183**	**25681**	**9868**	**35549**	**11472**	**5728**	**17200**	**37153**	**15596**	**52749**
Puducherry										
FFW	84	950	813	1763	171	227	398	1121	1040	2161
RY	12	122	122	244	14	39	53	136	161	297
EF	5	2	116	118	0	16	16	2	132	134
Total	**101**	**1074**	**1051**	**2125**	**185**	**282**	**467**	**1259**	**1333**	**2592**
Grand total for Zone -X										
FFW	5805	101576	53105	154681	30165	25632	55797	131741	78737	210478
RY	790	9632	6748	16380	3266	3668	6934	12898	10416	23314
EF	575	11654	7177	18831	2673	3306	5979	14327	10483	24810
Total	**7170**	**122862**	**67030**	**189892**	**36104**	**32606**	**68710**	**158966**	**99636**	**258602**

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

Thematic area wise trainings offered to farmers and farm women are furnished in Table 3.3.3. A total of 4627 training courses were organized for 169562 farmers in Tamil Nadu, Andhra Pradesh, Telangana and Puducherry (Table 3.3.3). Among the various thematic areas, 1044 courses were on crop production, 672 on horticulture, 643 on women empowerment, 679 on plant protection and 419 courses were on live stock production and management were conducted by the KVKs for the farmers and farm women.

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			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I Crop Production										
Weed Management	55	1134	332	1466	300	137	437	1434	469	1903
Resource Conservation Technologies	66	1528	569	2097	422	170	592	1950	739	2689
Cropping Systems	42	937	265	1202	265	96	361	1202	361	1563
Crop Diversification	36	636	167	803	148	56	204	784	223	1007
Integrated Farming	51	940	379	1319	321	177	498	1261	556	1817

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Micro Irrigation/ Irrigation	48	956	327	1283	160	119	279	1116	446	1562
Seed Production	49	1212	395	1607	218	127	345	1430	522	1952
Nursery management	31	606	249	855	157	79	236	763	328	1091
Integrated Crop Management	319	6060	2030	8090	2111	789	2900	8171	2819	10990
Soil & Water Conservation	113	7059	3669	10728	1427	919	2346	8486	4588	13074
Integrated Nutrient Management	102	1920	611	2531	692	335	1027	2612	946	3558
Production of Organic inputs	48	732	308	1040	149	94	243	881	402	1283
Others	84	1795	444	2239	801	252	1053	2596	696	3292
Total of Crop Production	1044	25515	9745	35260	7171	3350	10521	32686	13095	45781
II Horticulture										
a) Vegetable Crops										
Production of low value and high volume crops	70	1553	345	1898	407	106	513	1960	451	2411
Off-season vegetables	24	465	91	556	195	55	250	660	146	806
Nursery raising	37	616	161	777	207	44	251	823	205	1028
Exotic vegetables	6	75	46	121	35	17	52	110	63	173
Export potential vegetables	14	159	37	196	78	26	104	237	63	300
Grading and standardization	3	64	41	105	9	10	19	73	51	124
Protective cultivation	28	718	177	895	210	93	303	928	270	1198
Others in vegetable crop	23	387	131	518	91	60	151	478	191	669
Others	102	2447	1203	3650	963	667	1630	3410	1870	5280
Total of vegetable crops	307	6484	2232	8716	2195	1078	3273	8679	3310	11989
b) Fruits										
Training and Pruning	16	312	48	360	54	17	71	366	65	431
Layout and Management of Orchards	5	72	25	97	35	27	62	107	52	159
Cultivation of Fruit	65	1281	366	1647	378	157	535	1659	523	2182
Management of young plants/ Orchards	10	232	56	288	83	24	107	315	80	395
Rejuvenation of old orchards	3	28	23	51	4	2	6	32	25	57
Export potential fruits	2	33	25	58	9	8	17	42	33	75

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Micro irrigation systems of orchards	18	578	258	836	191	106	297	769	364	1133
Plant propagation techniques	9	121	40	161	53	23	76	174	63	237
Others	30	546	228	774	232	98	330	778	326	1104
Total of fruits	158	3203	1069	4272	1039	462	1501	4242	1531	5773
c) Ornamental Plants										
Nursery Management	8	139	69	208	53	12	65	192	81	273
Management of potted plants	2	10	19	29	19	2	21	29	21	50
Export potential of Ornamental Plants	7	101	35	136	34	7	41	135	42	177
Propagation techniques of Ornamental Plants	7	105	39	144	11	5	16	116	44	160
Others in Ornamental Plants	7	80	2	82	0	0	0	80	2	82
Others	23	321	102	423	59	46	105	380	148	528
Total in Ornamental Plants	54	756	266	1022	176	72	248	932	338	1270
d) Plantation crops										
Production and Management technology	49	683	238	921	494	236	730	1177	474	1651
Processing and value addition	16	233	252	485	68	114	182	301	366	667
Others	8	184	51	235	35	23	58	219	74	293
Total of Plantation crops	73	1100	541	1641	597	373	970	1697	914	2611
e) Tuber crops										
Production and Management technology	13	218	67	285	84	42	126	302	109	411
Processing and value addition	6	80	60	140	18	7	25	98	67	165
Total of tuber crops	19	298	127	425	102	49	151	400	176	576
f) Spices										
Production and Management technology	31	1525	570	2095	527	222	749	2052	792	2844
Processing and value addition	5	73	54	127	60	37	97	133	91	224
Others	6	26	6	32	91	10	101	117	16	133
Total of spices	42	1624	630	2254	678	269	947	2302	899	3201

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
g) Medicinal and Aromatic Plants										
Production and management technology	7	91	31	122	6	0	6	97	31	128
Post harvest technology and value addition	9	20	49	69	43	25	68	63	74	137
Others	3	32	8	40	2	0	2	34	8	42
Total of medicinal plants	19	143	88	231	51	25	76	194	113	307
Grand Total of Horticulture	672	13608	4953	18561	4838	2328	7166	18446	7281	25727
III Soil Health and Fertility Management										
Soil fertility management	72	1427	407	1834	330	122	452	1757	529	2286
Integrated Water management	26	687	1420	2107	232	67	299	919	1487	2406
Integrated Nutrient Management	58	1048	334	1382	207	65	272	1255	399	1654
Production and use of organic inputs	35	562	202	764	184	63	247	746	265	1011
Management of Problematic soils	26	442	111	553	92	50	142	534	161	695
Micro nutrient deficiency in crops	25	417	125	542	41	20	61	458	145	603
Nutrient Use Efficiency	14	532	129	661	140	65	205	672	194	866
Balance use of fertilizers	33	1242	373	1615	252	152	404	1494	525	2019
Soil and Water Testing	125	1461	376	1837	405	244	649	1866	620	2486
Others	7	153	91	244	40	11	51	193	102	295
Total of Soil Health	421	7971	3568	11539	1923	859	2782	9894	4427	14321
IV Livestock Production and Management										
Dairy Management	79	1243	564	1807	349	308	657	1592	872	2464
Poultry Management	104	1363	1228	2591	532	1357	1889	1895	2585	4480
Piggery Management	11	132	44	176	30	10	40	162	54	216
Rabbit Management	6	57	39	96	7	8	15	64	47	111
Animal Nutrition Management	28	590	198	788	318	56	374	908	254	1162
Disease Management	56	1109	478	1587	401	340	741	1510	818	2328
Feed & fodder technology	48	665	256	921	210	143	353	875	399	1274
Production of quality animal products	17	258	258	516	62	114	176	320	372	692

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Others	70	833	1033	1866	183	843	1026	1016	1876	2892
Total of livestock	419	6250	4098	10348	2092	3179	5271	8342	7277	15619
V Home Science/ Women empowerment										
Household food security by kitchen gardening and nutrition gardening	95	440	1525	1965	101	1151	1252	541	2676	3217
Design and development of low/ minimum cost diet	24	64	323	387	30	192	222	94	515	609
Designing and development for high nutrient efficiency diet	21	125	529	654	21	199	220	146	728	874
Minimization of nutrient loss in processing	12	41	119	160	8	111	119	49	230	279
Processing and cooking	33	152	384	536	58	171	229	210	555	765
Gender mainstreaming through SHGs	10	37	239	276	8	74	82	45	313	358
Storage loss minimization techniques	17	118	174	292	44	132	176	162	306	468
Value addition	250	1056	4029	5085	473	2198	2671	1529	6227	7756
Women empowerment	53	103	1200	1303	21	628	649	124	1828	1952
Location specific drudgery reduction technologies	37	321	423	744	81	192	273	402	615	1017
Rural Crafts	15	48	176	224	10	37	47	58	213	271
Women and child care	42	172	843	1015	59	586	645	231	1429	1660
Others	34	63	587	650	67	308	375	130	895	1025
Total of Home Science	643	2740	10551	13291	981	5979	6960	3721	16530	20251
VI Agricultural Engineering										
Farm Machinery and its maintenance	60	985	221	1206	344	84	428	1329	305	1634
Installation and maintenance of micro irrigation systems	26	397	139	536	82	62	144	479	201	680
Use of Plastics in farming practices	3	44	5	49	64	39	103	108	44	152
Production of small tools and implements	6	151	9	160	0	0	0	151	9	160
Repair and maintenance of farm machinery and implements	12	220	59	279	80	27	107	300	86	386

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Small scale processing and value addition	19	264	242	506	122	155	277	386	397	783
Post Harvest Technology	11	143	123	266	76	72	148	219	195	414
Others	13	205	80	285	62	55	117	267	135	402
Total of Agricultural Engineering	150	2409	878	3287	830	494	1324	3239	1372	4611
VII Plant Protection										
Integrated Pest Management	395	8815	2101	10916	2253	747	3000	11068	2848	13916
Integrated Disease Management	119	2177	508	2685	565	294	859	2742	802	3544
Bio-control of pests and diseases	57	1034	232	1266	263	123	386	1297	355	1652
Production of bio control agents and bio pesticides	28	540	157	697	214	146	360	754	303	1057
Others	80	2269	479	2748	412	113	525	2681	592	3273
Total of plant protection	679	14835	3477	18312	3707	1423	5130	18542	4900	23442
VIII Fisheries										
Integrated fish farming	32	394	291	685	207	140	347	601	431	1032
Carp breeding and hatchery management	7	106	25	131	29	9	38	135	34	169
Carp fry and fingerling rearing	11	226	15	241	67	4	71	293	19	312
Composite fish culture	34	649	116	765	179	48	227	828	164	992
Hatchery management and culture of fresh water prawn	1	19	1	20	4	1	5	23	2	25
Breeding and culture of ornamental fishes	6	51	9	60	17	13	30	68	22	90
Portable plastic carp hatchery	6	77	17	94	27	6	33	104	23	127
Pen culture of fish and prawn	3	51	0	51	15	0	15	66	0	66
Shrimp farming	4	68	0	68	11	0	11	79	0	79
Fish processing and Value addition	15	51	256	307	13	40	53	64	296	360
Others	23	363	81	444	81	39	120	444	120	564
Total of Fisheries	142	2055	811	2866	650	300	950	2705	1111	3816
IX Production of Inputs at site										
Seed Production	20	280	128	408	116	74	190	396	202	598

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Planting material production	6	111	24	135	29	7	36	140	31	171
Bio-agents production	2	36	5	41	1	0	1	37	5	42
Bio-pesticides production	1	20	0	20	27	0	27	47	0	47
Bio-fertilizer production	12	138	27	165	51	17	68	189	44	233
Vermi compost production	54	801	260	1061	297	217	514	1098	477	1575
Organic manures production	10	100	62	162	27	10	37	127	72	199
Production of fry and fingerlings	0	0	0	0	0	0	0	0	0	0
Production of Bee colonies and wax sheets	5	39	27	66	15	21	36	54	48	102
Small tools and implements	1	28	3	31	5	0	5	33	3	36
Production of livestock feed and fodder	4	26	17	43	38	26	64	64	43	107
Mushroom Production	46	478	322	800	106	170	276	584	492	1076
Apiculture	26	310	125	435	62	265	327	372	390	762
Others	2	16	8	24	13	6	19	29	14	43
Total of inputs	189	2383	1008	3391	787	813	1600	3170	1821	4991
X Capacity Building and Group Dynamics										
Leadership development	15	212	75	287	77	47	124	289	122	411
Group dynamics	49	626	434	1060	303	263	566	929	697	1626
Formation and Management of SHGs	32	148	270	418	72	245	317	220	515	735
Mobilization of social capital	6	105	25	130	31	22	53	136	47	183
Entrepreneurial development of farmers/ youths	47	646	512	1158	251	253	504	897	765	1662
Others	56	1917	652	2569	892	272	1164	2809	924	3733
Total of Capacity Building	205	3654	1968	5622	1626	1102	2728	5280	3070	8350
XI Agroforestry										
Production Technologies	25	800	343	1143	159	54	213	959	397	1356
Nursery Management	1	7	6	13	5	5	10	12	11	23
Integrated Farming Systems	19	339	193	532	89	48	137	428	241	669

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Others in Agroforestry	4	45	20	65	55	31	86	100	51	151
Others	14	153	166	319	85	50	135	238	216	454
Total of Agroforestry	63	1344	728	2072	393	188	581	1737	916	2653
GRAND TOTAL of Farmers and Farm Women	**4627**	**82764**	**41785**	**124549**	**24998**	**20015**	**45013**	**107762**	**61800**	**169562**

Tamil Nadu

KVKs of Tamil Nadu organized 2547 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*., during 2019-20, in which 52451 farmers and 37463 farm women participated (Table 3.3.4). In crop production 570 training courses were conducted by the KVKs of Tamil Nadu in which maximum number were on integrated crop management (173). Under horticulture 361 training courses were conducted and maximum trainings were on vegetable crops (149) followed by fruits (80) and plantation crops (45). A total of 307 training courses were organized under plant protection in the areas of integrated pest and disease management, bio-control 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			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I Crop Production										
Weed Management	16	380	147	527	60	30	90	440	177	617
Resource Conservation Technologies	29	571	303	874	58	80	138	629	383	1012
Cropping Systems	23	529	162	691	74	41	115	603	203	806
Crop Diversification	23	299	111	410	30	27	57	329	138	467
Integrated Farming	29	494	311	805	168	103	271	662	414	1076
Micro Irrigation/ Iirrigation	37	682	277	959	96	88	184	778	365	1143
Seed production	45	1057	376	1433	177	118	295	1234	494	1728
Nursery management	8	131	136	267	13	27	40	144	163	307
Integrated Crop Management	173	3123	1349	4472	576	442	1018	3699	1791	5490
Soil & Water conservation	73	5695	2996	8691	703	532	1235	6398	3528	9926
Integrated Nutrient Management	45	883	361	1244	166	135	301	1049	496	1545

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Production of Organic inputs	29	392	209	601	83	73	156	475	282	757
Others	40	882	227	1109	41	71	112	923	298	1221
Total of Crop Production	570	15118	6965	22083	2245	1767	4012	17363	8732	26095
II Horticulture										
a) Vegetable Crops										
Production of low value and high volume crops	35	810	201	1011	138	39	177	948	240	1188
Off season vegetables	4	68	17	85	3	1	4	71	18	89
Nursery raising	15	225	87	312	32	18	50	257	105	362
Exotic vegetables	3	29	24	53	10	15	25	39	39	78
Export potential vegetables	2	26	5	31	7	6	13	33	11	44
Grading and standardization	2	23	31	54	1	7	8	24	38	62
Protective cultivation	17	398	109	507	36	19	55	434	128	562
Others in vegetable crops	12	193	54	247	33	23	56	226	77	303
Others	59	815	788	1603	127	328	455	942	1116	2058
Total of vegetable crops	149	2587	1316	3903	387	456	843	2974	1772	4746
b) Fruits										
Training and Pruning	11	219	38	257	23	5	28	242	43	285
Cultivation of Fruits	33	595	246	841	152	76	228	747	322	1069
Management of young plants/ Orchards	4	42	46	88	7	8	15	49	54	103
Rejuvenation of old orchards	3	28	23	51	4	2	6	32	25	57
Export potential fruits	1	10	18	28	0	6	6	10	24	34
Micro irrigation systems of orchards	11	180	64	244	32	15	47	212	79	291
Plant propagation techniques	3	45	4	49	4	2	6	49	6	55
Others	14	329	139	468	55	32	87	384	171	555
Total of Fruits	80	1448	578	2026	277	146	423	1725	724	2449
c) Ornamental Plants										
Nursery Management	5	100	54	154	49	7	56	149	61	210
Management of Potted plants	1	5	13	18	0	1	1	5	14	19
Export potential of ornamental plants	5	60	35	95	18	5	23	78	40	118

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Propagation techniques of Ornamental Plants	4	28	34	62	1	2	3	29	36	65
Others in Ornamental Plants	2	80	2	82	0	0	0	80	2	82
Others	23	321	102	423	59	46	105	380	148	528
Total in Ornamental Plants	40	594	240	834	127	61	188	721	301	1022
d) Plantation crops										
Production and Management technology	23	424	129	553	91	27	118	515	156	671
Processing and value addition	15	227	248	475	56	110	166	283	358	641
Others	7	120	39	159	27	21	48	147	60	207
Total of Plantation crops	45	771	416	1187	174	158	332	945	574	1519
e) Tuber crops										
Production and Management technology	11	180	65	245	66	37	103	246	102	348
Processing and Value addition	4	50	53	103	2	4	6	52	57	109
Total of tuber crops	15	230	118	348	68	41	109	298	159	457
f) Spices										
Production and Management technology	14	190	47	237	33	28	61	223	75	298
Processing and Value addition	2	22	36	58	4	20	24	26	56	82
Others	4	7	1	8	55	8	63	62	9	71
Total of spices	20	219	84	303	92	56	148	311	140	451
g) Medicinal and Aromatic Plants										
Production and Management technology	5	65	20	85	2	0	2	67	20	87
Post Harvest Technology and value addition	4	11	33	44	38	17	55	49	50	99
Others	3	32	8	40	2	0	2	34	8	42
Total of Medicinal Plants	12	108	61	169	42	17	59	150	78	228
Grand Total of Horticulture	361	5957	2813	8770	1167	935	2102	7124	3748	10872
III Soil Health and Fertility Management										
Soil Fertility management	43	740	336	1076	128	85	213	868	421	1289
Integrated Water Management	23	622	1415	2037	210	67	277	832	1482	2314

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Integrated Nutrient Management	38	643	288	931	61	46	107	704	334	1038
Production and use of organic inputs	21	305	169	474	86	39	125	391	208	599
Management of Problematic soils	15	202	64	266	24	24	48	226	88	314
Micro nutrient deficiency in crops	18	278	121	399	18	19	37	296	140	436
Nutrient Use Efficiency	9	311	83	394	25	11	36	336	94	430
Balance use of fertilizers	17	627	173	800	50	23	73	677	196	873
Soil and Water Testing	33	784	224	1008	140	130	270	924	354	1278
Others	4	84	67	151	32	8	40	116	75	191
Total of Soil Health	221	4596	2940	7536	774	452	1226	5370	3392	8762
IV Livestock Production and Management										
Dairy Management	50	615	441	1056	143	227	370	758	668	1426
Poultry Management	78	1048	1065	2113	273	1137	1410	1321	2202	3523
Piggery Management	8	100	33	133	28	10	38	128	43	171
Rabbit Management	6	57	39	96	7	8	15	64	47	111
Animal Nutrition Management	15	367	107	474	234	30	264	601	137	738
Disease Management	31	488	299	787	169	191	360	657	490	1147
Feed & fodder technology	35	467	194	661	148	121	269	615	315	930
Production of quality Animal products	13	175	256	431	48	114	162	223	370	593
Others	62	697	1008	1705	140	832	972	837	1840	2677
Total of Livestock	298	4014	3442	7456	1190	2670	3860	5204	6112	11316
V Home Science/ Women Empowerment										
Household food security by kitchen gardening and nutrition gardening	41	354	774	1128	38	316	354	392	1090	1482
Design and development of low/ minimum cost diet	9	63	88	151	24	33	57	87	121	208
Designing and development for high nutrient efficiency diet	8	70	148	218	13	37	50	83	185	268
Minimization of nutrient loss in processing	4	41	17	58	8	22	30	49	39	88
Processing and Cooking	20	138	211	349	50	58	108	188	269	457
Gender mainstreaming through SHGs	5	37	105	142	8	40	48	45	145	190

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Storage loss minimization techniques	6	47	66	113	10	45	55	57	111	168
Value addition	131	920	1980	2900	437	894	1331	1357	2874	4231
Women empowerment	28	87	728	815	16	323	339	103	1051	1154
Location specific drudgery reduction technologies	15	79	202	281	11	48	59	90	250	340
Rural Crafts	9	48	76	124	10	17	27	58	93	151
Women and Child care	16	169	368	537	14	264	278	183	632	815
Others	8	18	145	163	0	8	8	18	153	171
Total of Home Science	300	2071	4908	6979	639	2105	2744	2710	7013	9723
VI Agricultural Engineering										
Farm Machinery and its maintenance	33	476	181	657	80	46	126	556	227	783
Installation and maintenance of Micro irrigation systems	20	282	125	407	39	55	94	321	180	501
Production of small tools and implements	5	81	9	90	0	0	0	81	9	90
Repair and maintenance of farm machinery and implements	8	144	58	202	54	24	78	198	82	280
Small scale Processing and Value addition	15	227	194	421	87	123	210	314	317	631
Post Harvest Technology	11	143	123	266	76	72	148	219	195	414
Others	13	205	80	285	62	55	117	267	135	402
Total of Agricultural Engineering	105	1558	770	2328	398	375	773	1956	1145	3101
VII Plant Protection										
Integrated Pest Management	162	2922	1037	3959	548	285	833	3470	1322	4792
Integrated Disease Management	62	853	318	1171	205	173	378	1058	491	1549
Bio-control of pests and diseases	39	618	172	790	139	70	209	757	242	999
Production of bio control agents and bio pesticides	18	320	138	458	59	48	107	379	186	565
Others	26	604	260	864	23	42	65	627	302	929
Total of Plant Protection	307	5317	1925	7242	974	618	1592	6291	2543	8834
VIII Fisheries										
Integrated Fish farming	21	242	260	502	128	130	258	370	390	760

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Carp breeding and Hatchery management	5	62	15	77	6	5	11	68	20	88
Carp fry and fingerling rearing	4	73	3	76	9	3	12	82	6	88
Composite Fish culture	11	104	69	173	15	28	43	119	97	216
Hatchery management and culture of Freshwater prawn	1	19	1	20	4	1	5	23	2	25
Breeding and culture of Ornamental fishe	6	51	9	60	17	13	30	68	22	90
Portable Plastic carp hatchery	5	47	16	63	25	6	31	72	22	94
Pen culture of fish and prawn	1	5	0	5	2	0	2	7	0	7
Shrimp farming	1	8	0	8	0	0	0	8	0	8
Fish processing and value addition	9	49	113	162	12	8	20	61	121	182
Others	15	141	76	217	35	37	72	176	113	289
Total of Fisheries	79	801	562	1363	253	231	484	1054	793	1847
IX Production of Inputs at site										
Seed Production	18	265	125	390	89	61	150	354	186	540
Planting material production	6	111	24	135	29	7	36	140	31	171
Bio agents production	2	36	5	41	1	0	1	37	5	42
Bio Fertilizer production	7	59	21	80	4	1	5	63	22	85
Vermi Compost production	34	503	188	691	130	154	284	633	342	975
Organic Manures production	8	86	57	143	15	9	24	101	66	167
Production of Bee colonies and Wax sheets	5	39	27	66	15	21	36	54	48	102
Small tools and implements	1	28	3	31	5	0	5	33	3	36
Production of Livestock feed and fodder	2	19	11	30	12	18	30	31	29	60
Mushroom Production	39	445	243	688	102	138	240	547	381	928
Apiculture	24	288	125	413	59	265	324	347	390	737
Others	1	7	8	15	2	6	8	9	14	23
Total of Inputs	147	1886	837	2723	463	680	1143	2349	1517	3866

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										
Leadership development	12	133	63	196	58	39	97	191	102	293
Group dynamics	30	279	365	644	130	231	361	409	596	1005
Formation and Management of SHGs	20	49	180	229	48	121	169	97	301	398
Mobilization of social capital	2	46	2	48	0	0	0	46	2	48
Entrepreneurial development of Farmers/ Youth	35	551	444	995	99	155	254	650	599	1249
Others	14	235	81	316	66	44	110	301	125	426
Total of Capacity Building	113	1293	1135	2428	401	590	991	1694	1725	3419
XI Agroforestry										
Production technologies	25	800	343	1143	159	54	213	959	397	1356
Nursery management	1	7	6	13	5	5	10	12	11	23
Integrated Farming Systems	15	205	173	378	43	30	73	248	203	451
Others in agroforestry	3	45	20	65	21	10	31	66	30	96
Others	2	41	85	126	10	17	27	51	102	153
Total of Agroforestry	46	1098	627	1725	238	116	354	1336	743	2079
Grand Total of Farmers and Farm Women	**2547**	**43709**	**26924**	**70633**	**8742**	**10539**	**19281**	**52451**	**37463**	**89914**

Andhra Pradesh

In Andhra Pradesh 1165 trainings were organized for 26291 farmers and 12950 farm women (Table 3.3.5). Under crop production, maximum number of trainings was organized on integrated crop management practices (109) followed by Integrated nutrient management (43). In horticulture 187 trainings were conducted including vegetables (89), fruits (52), Plantation crops (26) etc. In fruits, the highest number of trainings was on cultivation of fruits (26) for 910 farmers. Under soil health management 79 trainings were conducted for 2610 farmers and farm women, in which the highest were on soil and water testing (17) followed by soil fertility management (15) and integrated nutrient management (14). In livestock production and management, 17 trainings were conducted on dairy management for 635 farmers, followed by poultry management (16) in which 623 farmers participated. Under home science 215 training programmes were conducted for 6124 farmers and rural women. About 95 trainings were conducted on value addition to agricultural, dairy and other products in which 2694 men and women were participated. On plant protection 174 trainings were conducted for 6032 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										
Weed Management	22	498	113	611	142	64	206	640	177	817
Resource Conservation Technologies	28	766	201	967	246	85	331	1012	286	1298
Cropping Systems	11	228	65	293	101	36	137	329	101	430
Crop Diversification	10	293	52	345	77	22	99	370	74	444
Integrated Farming	11	263	44	307	79	55	134	342	99	441
Micro Irrigation/ Irrigation	8	244	43	287	32	9	41	276	52	328
Seed production	3	119	4	123	35	5	40	154	9	163
Nursery management	15	332	87	419	90	27	117	422	114	536
Integrated Crop Management	109	2203	537	2740	909	282	1191	3112	819	3931
Soil & Water conservation	24	410	111	521	220	91	311	630	202	832
Integrated nutrient management	43	802	171	973	353	126	479	1155	297	1452
Production of organic inputs	14	238	83	321	34	18	52	272	101	373
Others	13	234	52	286	255	81	336	489	133	622
Total of Crop Production	311	6630	1563	8193	2573	901	3474	9203	2464	11667
II Horticulture										
a) Vegetable Crops										
Production of low value and high volume crops	26	590	67	657	206	55	261	796	122	918
Off season vegetables	10	209	17	226	85	20	105	294	37	331
Nursery raising	13	242	41	283	94	12	106	336	53	389
Exotic vegetables	2	27	12	39	20	0	20	47	12	59
Export potential vegetables	2	21	3	24	19	12	31	40	15	55
Protective cultivation	8	208	68	276	83	24	107	291	92	383
Others in vegetable crop	8	140	67	207	37	16	53	177	83	260
Others	20	330	78	408	151	76	227	481	154	635
Total of vegetable crops	89	1767	353	2120	695	215	910	2462	568	3030
b) Fruits										
Training and Pruning	3	62	10	72	22	8	30	84	18	102
Layout and Management of Orchards	5	72	25	97	35	27	62	107	52	159
Cultivation of Fruits	26	542	106	648	186	76	262	728	182	910
Management of young plants/ Orchards	2	39	0	39	17	0	17	56	0	56

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Micro irrigation systems of orchards	3	64	3	67	32	4	36	96	7	103
Plant Propagation techniques	5	63	29	92	46	21	67	109	50	159
Others	8	56	62	118	59	45	104	115	107	222
Total of Fruits	52	898	235	1133	397	181	578	1295	416	1711
c) Ornamental Plants										
Nursery Management	2	21	15	36	2	5	7	23	20	43
Export potential of ornamental plants	1	21	0	21	6	2	8	27	2	29
Propagation techniques of Ornamental Plants	2	62	2	64	7	1	8	69	3	72
Total in Ornamental Plants	5	104	17	121	15	8	23	119	25	144
d) Plantation Crops										
Production and Management technology	24	234	107	341	374	194	568	608	301	909
Processing and Value addition	1	6	4	10	12	4	16	18	8	26
Others	1	64	12	76	8	2	10	72	14	86
Total of Plantation Crops	26	304	123	427	394	200	594	698	323	1021
e) Tuber crops										
Production and Management technology	1	22	2	24	11	3	14	33	5	38
Processing and Value addition	1	19	2	21	9	1	10	28	3	31
Total of Tuber Crops	2	41	4	45	20	4	24	61	8	69
f) Spices										
Production and Management technology	9	183	40	223	116	51	167	299	91	390
Processing and Value addition	2	8	1	9	43	8	51	51	9	60
Others	1	19	5	24	6	2	8	25	7	32
Total of Spices	12	210	46	256	165	61	226	375	107	482
g) Medicinal and Aromatic Plants										
Post Harvest technology and value addition	1	9	16	25	5	8	13	14	24	38
Total of Medicinal Plants	1	9	16	25	5	8	13	14	24	38
Grand Total of Horticulture	187	3333	794	4127	1691	677	2368	5024	1471	6495
III Soil Health and Fertility Management										
Soil fertility management	15	311	16	327	81	13	94	392	29	421
Integrated water management	2	33	0	33	20	0	20	53	0	53

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Integrated Nutrient Management	14	292	18	310	103	14	117	395	32	427
Production and use of organic inputs	8	160	10	170	47	6	53	207	16	223
Management of Problematic soils	1	19	0	19	6	0	6	25	0	25
Micro nutrient deficiency in crops	6	113	0	113	23	1	24	136	1	137
Nutrient Use Efficiency	2	21	0	21	39	21	60	60	21	81
Balance use of fertilizers	12	405	106	511	113	30	143	518	136	654
Soil and Water Testing	17	333	38	371	112	37	149	445	75	520
Others	2	44	14	58	8	3	11	52	17	69
Total of Soil Health	79	1731	202	1933	552	125	677	2283	327	2610
IV Livestock Production and Management										
Dairy Management	17	450	54	504	99	32	131	549	86	635
Poultry Management	16	169	87	256	192	175	367	361	262	623
Piggery Management	3	32	11	43	2	0	2	34	11	45
Animal Nutrition Management	9	191	19	210	51	20	71	242	39	281
Disease Management	19	509	106	615	185	128	313	694	234	928
Feed & fodder technology	4	49	23	72	22	2	24	71	25	96
Production of quality animal products	4	83	2	85	14	0	14	97	2	99
Others	5	77	17	94	29	10	39	106	27	133
Total of Livestock	77	1560	319	1879	594	367	961	2154	686	2840
V Home Science/ Women Empowerment										
Household food security by kitchen gardening and nutrition gardening	43	40	557	597	48	725	773	88	1282	1370
Design and development of low/ minimum cost diet	8	0	107	107	4	80	84	4	187	191
Designing and development for high nutrient efficiency diet	3	0	44	44	0	38	38	0	82	82
Minimization of nutrient loss in processing	5	0	35	35	0	59	59	0	94	94
Processing and Cooking	6	14	93	107	8	46	54	22	139	161
Gender mainstreaming through SHGs	3	0	78	78	0	28	28	0	106	106

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Storage loss minimization techniques	6	16	40	56	26	61	87	42	101	143
Value addition	95	78	1491	1569	26	1099	1125	104	2590	2694
Women empowerment	11	0	160	160	0	117	117	0	277	277
Location specific drudgery reduction technologies	14	65	109	174	44	107	151	109	216	325
Rural Crafts	3	0	80	80	0	15	15	0	95	95
Women and Child care	14	0	340	340	0	103	103	0	443	443
Others	4	13	55	68	9	66	75	22	121	143
Total of Home Science	215	226	3189	3415	165	2544	2709	391	5733	6124
VI Agricultural Engineering										
Farm Machinery and its maintenance	5	82	10	92	59	14	73	141	24	165
Small scale Processing and Value addition	2	10	30	40	14	14	28	24	44	68
Total of Agricultural Engineering	7	92	40	132	73	28	101	165	68	233
VII Plant Protection										
Integrated Pest Management	103	2317	579	2896	541	167	708	2858	746	3604
Integrated Disease Management	32	727	123	850	180	80	260	907	203	1110
Bio control of pests and diseases	13	321	46	367	85	25	110	406	71	477
Production of bio control agents and bio pesticides	6	153	5	158	49	17	66	202	22	224
Others	20	450	78	528	63	26	89	513	104	617
Total of plant protection	174	3968	831	4799	918	315	1233	4886	1146	6032
VIII Fisheries										
Integrated Fish farming	6	66	4	70	54	8	62	120	12	132
Carp breeding and Hatchery management	1	22	7	29	18	4	22	40	11	51
Carp fry and fingerling rearing	3	55	0	55	19	0	19	74	0	74
Composite Fish culture	5	102	0	102	28	0	28	130	0	130
Shrimp farming	2	30	0	30	0	0	0	30	0	30
Fish Processing and Value addition	4	2	98	100	1	19	20	3	117	120
Total of Fisheries	21	277	109	386	120	31	151	397	140	537

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
IX Production of Inputs at site										
Seed Production	1	0	0	0	21	9	30	21	9	30
Bio fertilizer production	4	68	2	70	41	12	53	109	14	123
Vermi Compost production	19	280	72	352	165	63	228	445	135	580
Organic manures production	2	14	5	19	12	1	13	26	6	32
Production of Livestock feed and fodder	2	7	6	13	26	8	34	33	14	47
Mushroom Production	3	10	47	57	4	22	26	14	69	83
Apiculture	2	22	0	22	3	0	3	25	0	25
Total of inputs	33	401	132	533	272	115	387	673	247	920
X Capacity Building and Group Dynamics										
Leadership development	3	79	12	91	19	8	27	98	20	118
Group dynamics	6	47	47	94	43	21	64	90	68	158
Formation and Management of SHGs	12	99	90	189	24	124	148	123	214	337
Mobilization of social capital	4	59	23	82	31	22	53	90	45	135
Entrepreneurial development of Farmers/ Youth	8	75	56	131	24	47	71	99	103	202
Others (Specify)	14	275	61	336	99	12	111	374	73	447
Total of capacity building	47	634	289	923	240	234	474	874	523	1397
XI Agroforestry										
Integrated Farming Systems	1	0	0	0	20	10	30	20	10	30
Others in Agroforestry	1	0	0	0	34	21	55	34	21	55
Others	12	112	81	193	75	33	108	187	114	301
Total of Agroforestry	14	112	81	193	129	64	193	241	145	386
Grand Total of Farmers and Farm Women	**1165**	**18964**	**7549**	**26513**	**7327**	**5401**	**12728**	**26291**	**12950**	**39241**

Telangana

In Telangana, 846 training courses were organized for 38616 farmers. The highest number of trainings was conducted on women empowerment including value addition, income generation, women and child care, etc., in which 3747 women participated (Table 3.3.6). Under horticulture 122 training programmes on vegetable crops, fruits, ornamental crops, spices, plantation crops and medicinal crops were organized for 8260 farmers and farm women. In crop production 160 trainings and under soil health and fertility management 114 courses were conducted. In plant protection 190 training courses were organized on integrated pest and disease management (123) and integrated disease management (25) bio control of pests and diseases (5) and production of bio control agents, bio pesticides (2) and others (34).

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										
Weed Management	17	256	72	328	98	43	141	354	115	469
Resource Conservation Technologies	9	191	65	256	118	5	123	309	70	379
Cropping Systems	8	180	38	218	90	19	109	270	57	327
Crop Diversification	3	44	4	48	41	7	48	85	11	96
Integrated Farming	8	120	11	131	73	15	88	193	26	219
Micro Irrigation/irrigation	3	30	7	37	32	22	54	62	29	91
Seed production	1	36	15	51	6	4	10	42	19	61
Nursery management	8	143	26	169	54	25	79	197	51	248
Integrated Crop Management	37	734	144	878	626	65	691	1360	209	1569
Soil & Water conservation	16	954	562	1516	504	296	800	1458	858	2316
Integrated Nutrient Management	14	235	79	314	173	74	247	408	153	561
Production of Organic inputs	5	102	16	118	32	3	35	134	19	153
Others	31	679	165	844	505	100	605	1184	265	1449
Total of Crop Production	160	3704	1204	4908	2352	678	3030	6056	1882	7938
II Horticulture										
a) Vegetable Crops										
Production of low value and high volume crops	9	153	77	230	63	12	75	216	89	305
Off season vegetables	10	188	57	245	107	34	141	295	91	386
Nursery raising	9	149	33	182	81	14	95	230	47	277
Exotic vegetables	1	19	10	29	5	2	7	24	12	36
Export potential vegetables	10	112	29	141	52	8	60	164	37	201
Grading and Standardization	1	41	10	51	8	3	11	49	13	62
Protective Cultivation	3	112	0	112	91	50	141	203	50	253
Others in Vegetable crops	3	54	10	64	21	21	42	75	31	106
Others	23	1302	337	1639	685	263	948	1987	600	2587
Total of Vegetable Crops	69	2130	563	2693	1113	407	1520	3243	970	4213
b) Fruits										
Training and Pruning	2	31	0	31	9	4	13	40	4	44
Cultivation of Fruits	4	62	14	76	22	5	27	84	19	103

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Management of young plants/ Orchards	4	151	10	161	59	16	75	210	26	236
Export potential fruits	1	23	7	30	9	2	11	32	9	41
Micro irrigation systems of orchards	4	334	191	525	127	87	214	461	278	739
Plant Propagation techniques	1	13	7	20	3	0	3	16	7	23
Others	8	161	27	188	118	21	139	279	48	327
Total of Fruits	24	775	256	1031	347	135	482	1122	391	1513
c) Ornamental Plants										
Nursery Management	1	18	0	18	2	0	2	20	0	20
Management of Potted plants	1	5	6	11	19	1	20	24	7	31
Export potential of ornamental plants	1	20	0	20	10	0	10	30	0	30
Propagation techniques of Ornamental Plants	1	15	3	18	3	2	5	18	5	23
Others in Ornamental Plants	5	0	0	0	0	0	0	0	0	0
Total in Ornamental Plants	9	58	9	67	34	3	37	92	12	104
d) Plantation Crops										
Production and Management technology	2	25	2	27	29	15	44	54	17	71
Total of Plantation Crops	2	25	2	27	29	15	44	54	17	71
e) Tuber Crops										
Production and Management technology	1	16	0	16	7	2	9	23	2	25
Processing and Value addition	1	11	5	16	7	2	9	18	7	25
Total of Tuber Crops	2	27	5	32	14	4	18	41	9	50
f) Spices										
Production and Management technology	8	1152	483	1635	378	143	521	1530	626	2156
Processing and Value addition	1	43	17	60	13	9	22	56	26	82
Others	1	0	0	0	30	0	30	30	0	30
Total of spices	10	1195	500	1695	421	152	573	1616	652	2268

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
g) Medicinal and Aromatic Plants										
Production and Management t-echnology	2	26	11	37	4	0	4	30	11	41
Post harvest technology and Value addition	4	0	0	0	0	0	0	0	0	0
Total of Medicinal Plants	6	26	11	37	4	0	4	30	11	41
Grand Total of Horticulture	122	4236	1346	5582	1962	716	2678	6198	2062	8260
III Soil Health and Fertility Management										
Soil fertility management	12	324	41	365	109	21	130	433	62	495
Integrated Nutrient Management	5	76	16	92	35	5	40	111	21	132
Production and use of Organic inputs	5	82	18	100	49	18	67	131	36	167
Management of Problematic soils	10	221	47	268	62	26	88	283	73	356
Micro nutrient deficiency in crops	1	26	4	30	0	0	0	26	4	30
Nutrient Use Efficiency	3	200	46	246	76	33	109	276	79	355
Balance use of fertilizers	3	126	63	189	76	95	171	202	158	360
Soil and Water Testing	75	344	114	458	153	77	230	497	191	688
Total of Soil Health	114	1399	349	1748	560	275	835	1959	624	2583
IV Livestock Production and Management										
Dairy Management	10	164	64	228	98	47	145	262	111	373
Poultry Management	8	130	62	192	66	43	109	196	105	301
Animal Nutrition Management	4	32	72	104	33	6	39	65	78	143
Disease Management	5	104	48	152	47	21	68	151	69	220
Feed & fodder technology	8	136	24	160	38	10	48	174	34	208
Others	2	48	8	56	13	1	14	61	9	70
Total of livestock	37	614	278	892	295	128	423	909	406	1315
V Home Science/ Women Empowerment										
Household food security by kitchen gardening and nutrition gardening	10	46	177	223	15	105	120	61	282	343
Design and development of low/ minimum cost diet	4	1	64	65	2	57	59	3	121	124
Designing and development for high nutrient efficiency diet	9	55	314	369	8	122	130	63	436	499

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Minimization of nutrient loss in processing	3	0	67	67	0	30	30	0	97	97
Processing and Cooking	5	0	55	55	0	62	62	0	117	117
Gender mainstreaming through SHGs	2	0	56	56	0	6	6	0	62	62
Storage loss minimization techniques	5	55	68	123	8	26	34	63	94	157
Value addition	23	51	542	593	10	205	215	61	747	808
Women empowerment	13	16	292	308	5	185	190	21	477	498
Location specific drudgery reduction technologies	8	177	112	289	26	37	63	203	149	352
Rural Crafts	3	0	20	20	0	5	5	0	25	25
Women and Child care	12	3	135	138	45	219	264	48	354	402
Others (Specify)	5	32	66	98	58	107	165	90	173	263
Total of Home Science	102	436	1968	2404	177	1166	1343	613	3134	3747
VI Agricultural Engineering										
Farm Machinery and its maintenance	19	388	28	416	200	24	224	588	52	640
Installation and maintenance of micro irrigation systems	3	69	14	83	32	7	39	101	21	122
Use of Plastics in farming practices	3	44	5	49	64	39	103	108	44	152
Production of small tools and implements	1	70	0	70	0	0	0	70	0	70
Repair and maintenance of farm machinery and implements	2	43	1	44	17	3	20	60	4	64
Small scale processing and value addition	2	27	18	45	21	18	39	48	36	84
Total of Agricultural Engineering	30	641	66	707	334	91	425	975	157	1132
VII Plant Protection										
Integrated Pest Management	123	3458	483	3941	1139	295	1434	4597	778	5375
Integrated Disease Management	25	597	67	664	180	41	221	777	108	885
Bio control of pests and diseases	5	95	14	109	39	28	67	134	42	176
Production of bio control agents and bio pesticides	3	63	12	75	106	81	187	169	93	262

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Others	34	1215	141	1356	326	45	371	1541	186	1727
Total of Plant Protection	190	5428	717	6145	1790	490	2280	7218	1207	8425
VIII Fisheries										
Integrated Fish farming	4	86	13	99	25	1	26	111	14	125
Carp breeding and Hatchery management	1	22	3	25	5	0	5	27	3	30
Carp fry and fingerling rearing	3	89	12	101	28	1	29	117	13	130
Composite Fish culture	18	443	47	490	136	20	156	579	67	646
Portable plastic carp hatchery	1	30	1	31	2	0	2	32	1	33
Pen culture of fish and prawn	2	46	0	46	13	0	13	59	0	59
Shrimp farming	1	30	0	30	11	0	11	41	0	41
Fish processing and value addition	2	0	45	45	0	13	13	0	58	58
Others	7	200	5	205	45	2	47	245	7	252
Total of Fisheries	39	946	126	1072	265	37	302	1211	163	1374
IX Production of Inputs at site										
Seed Production	1	15	3	18	6	4	10	21	7	28
Bio pesticides production	1	20	0	20	27	0	27	47	0	47
Bio fertilizer production	1	11	4	15	6	4	10	17	8	25
Vermi Compost production	1	18	0	18	2	0	2	20	0	20
Total of inputs	4	64	7	71	41	8	49	105	15	120
X Capacity Building and Group Dynamics										
Group dynamics	13	300	22	322	130	11	141	430	33	463
Entrepreneurial development of Farmers/ Youth	4	20	12	32	128	51	179	148	63	211
Others	28	1407	510	1917	727	216	943	2134	726	2860
Total of Capacity Building	45	1727	544	2271	985	278	1263	2712	822	3534
XI Agroforestry										
Integrated Farming Systems	3	134	20	154	26	8	34	160	28	188
Total of Agroforestry	3	134	20	154	26	8	34	160	28	188
Grand Total of Farmers and Farm Women	**846**	**19329**	**6625**	**25954**	**8787**	**3875**	**12662**	**28116**	**10500**	**38616**

Puducherry

In Puducherry, a total of 69 trainings were organized for 904 farmers and 887 farm women (Table 3.3.7). The highest number of trainings (26) was conducted on women empowerment in which 657 farmers participated followed by soil health and fertility management (7) trainings with 366 farmers and farmwomen and livestock production management (7) with 148 farmers.

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 Farming	3	63	13	76	1	4	5	64	17	81
Total of Crop Production	3	63	13	76	1	4	5	64	17	81
II Horticulture										
b) Fruits										
Cultivation of Fruits	2	82	0	82	18	0	18	100	0	100
Total of fruits	2	82	0	82	18	0	18	100	0	100
Grand Total of Horticulture	2	82	0	82	18	0	18	100	0	100
III Soil Health and Fertility Management										
Soil fertility management	2	52	14	66	12	3	15	64	17	81
Integrated Water management	1	32	5	37	2	0	2	34	5	39
Integrated Nutrient Management	1	37	12	49	8	0	8	45	12	57
Production and use of Organic inputs	1	15	5	20	2	0	2	17	5	22
Balance use of fertilizers	1	84	31	115	13	4	17	97	35	132
Others (Specify)	1	25	10	35	0	0	0	25	10	35
Total of Soil Health	7	245	77	322	37	7	44	282	84	366
IV Livestock Production and Management										
Dairy Management	2	14	5	19	9	2	11	23	7	30
Poultry Management	2	16	14	30	1	2	3	17	16	33
Disease Management	1	8	25	33	0	0	0	8	25	33
Feed & fodder technology	1	13	15	28	2	10	12	15	25	40
Others	1	11	0	11	1	0	1	12	0	12
Total of Livestock	7	62	59	121	13	14	27	75	73	148
V Home Science/ Women Empowerment										
Household food security by kitchen gardening and nutrition gardening	1	0	17	17	0	5	5	0	22	22

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Design and development of low/ minimum cost diet	3	0	64	64	0	22	22	0	86	86
Designing and development for high nutrient efficiency diet	1	0	23	23	0	2	2	0	25	25
Processing and cooking	2	0	25	25	0	5	5	0	30	30
Value addition	1	7	16	23	0	0	0	7	16	23
Women empowerment	1	0	20	20	0	3	3	0	23	23
Others (Specify)	17	0	321	321	0	127	127	0	448	448
Total of Home Science	26	7	486	493	0	164	164	7	650	657
VI Agricultural Engineering										
Farm Machinery and its maintenance	3	39	2	41	5	0	5	44	2	46
Installation and maintenance of micro irrigation systems	3	46	0	46	11	0	11	57	0	57
Repair and maintenance of farm machinery and implements	2	33	0	33	9	0	9	42	0	42
Total of Agricultural engineering	8	118	2	120	25	0	25	143	2	145
VII Plant Protection										
Integrated Pest Management	7	118	2	120	25	0	25	143	2	145
Production of bio control agents and bio pesticides	1	4	2	6	0	0	0	4	2	6
Total of Plant Protection	8	122	4	126	25	0	25	147	4	151
VIII Fisheries										
Integrated Fish farming	1	0	14	14	0	1	1	0	15	15
Carp fry and fingerling rearing	1	9	0	9	11	0	11	20	0	20
Others	1	22	0	22	1	0	1	23	0	23
Total of Fisheries	3	31	14	45	12	1	13	43	15	58
IX Production of Inputs at site										
Mushroom Production	4	23	32	55	0	10	10	23	42	65
Others	1	9	0	9	11	0	11	20	0	20
Total of Inputs	5	32	32	64	11	10	21	43	42	85
Grand Total of Farmers and Farm Women	**69**	**762**	**687**	**1449**	**142**	**200**	**342**	**904**	**887**	**1791**

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 790 courses were organized for 23314 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 Tamilnadu organized 455 trainings for 13390 rural youth (Table 3.3.9). KVKs in Andhra Pradesh conducted 191 training programmes for 5650 rural youth (Table 3.3.10). KVKs in Telangana conducted 132 trainings for 3977 participants (Table 3.3.11) and KVKs of Puducherry conducted 12 courses for 297 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
Nursery Management of Horticulture crops	27	415	132	547	167	65	232	582	197	779
Training and Pruning of Orchards	16	287	47	334	115	55	170	402	102	504
Protected cultivation of Vegetable crops	21	299	136	435	99	35	134	398	171	569
Commercial Fruit production	10	171	43	214	31	24	55	202	67	269
Integrated farming	35	581	246	827	127	51	178	708	297	1005
Seed production	29	507	118	625	153	43	196	660	161	821
Production of Organic inputs	45	620	189	809	253	99	352	873	288	1161
Planting material production	7	139	71	210	36	24	60	175	95	270
Vermiculture	41	570	155	725	274	136	410	844	291	1135
Mushroom Production	61	574	495	1069	160	235	395	734	730	1464
Beekeeping	35	490	177	667	194	126	320	684	303	987
Sericulture	9	164	47	211	19	18	37	183	65	248
Repair and maintenance of farm machinery and implements	17	318	50	368	83	24	107	401	74	475
Value addition	103	602	1504	2106	191	744	935	793	2248	3041
Small scale processing	13	146	177	323	17	41	58	163	218	381
Post harvest Technology	27	122	495	617	187	125	312	309	620	929
Tailoring and Stitching	12	0	176	176	0	133	133	0	309	309
Rural Crafts	7	12	54	66	14	58	72	26	112	138
Production of quality animal products	7	45	61	106	6	36	42	51	97	148
Dairying	23	363	243	606	91	125	216	454	368	822

Area of Training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Sheep and Goat rearing	29	340	389	729	117	320	437	457	709	1166
Quail farming	1	3	10	13	0	14	14	3	24	27
Piggery	1	11	1	12	12	15	27	23	16	39
Rabbit farming	2	33	14	47	15	18	33	48	32	80
Poultry production	43	606	613	1219	146	575	721	752	1188	1940
Ornamental fisheries	4	30	4	34	5	0	5	35	4	39
Composite fish culture	6	123	23	146	29	11	40	152	34	186
Freshwater prawn culture	3	55	20	75	13	0	13	68	20	88
Shrimp farming	2	4	2	6	0	0	0	4	2	6
Fish harvest and processing technology	9	74	75	149	33	36	69	107	111	218
Fry and fingerling rearing	4	73	7	80	18	5	23	91	12	103
Others	141	1855	974	2829	661	477	1138	2516	1451	3967
Total Youth Trainings	**790**	**9632**	**6748**	**16380**	**3266**	**3668**	**6934**	**12898**	**10416**	**23314**

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
Nursery Management of Horticulture crops	6	68	14	82	15	6	21	83	20	103
Training and Pruning of orchards	3	57	0	57	18	12	30	75	12	87
Protected cultivation of Vegetable crops	10	96	77	173	21	13	34	117	90	207
Commercial Fruit production	6	101	22	123	14	4	18	115	26	141
Integrated farming	19	285	107	392	70	25	95	355	132	487
Seed production	23	402	104	506	113	41	154	515	145	660
Production of Organic inputs	15	193	77	270	39	70	109	232	147	379
Planting material production	2	47	9	56	4	6	10	51	15	66
Vermiculture	10	82	68	150	66	41	107	148	109	257
Mushroom Production	31	330	239	569	90	136	226	420	375	795
Beekeeping	25	327	151	478	77	78	155	404	229	633
Sericulture	7	135	47	182	17	16	33	152	63	215
Repair and maintenance of farm machinery and implements	10	184	43	227	40	9	49	224	52	276
Value addition	54	509	637	1146	148	262	410	657	899	1556

Area of Training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Small scale processing	11	131	140	271	15	35	50	146	175	321
Post harvest Technology	12	101	223	324	58	46	104	159	269	428
Tailoring and Stitching	2	0	33	33	0	8	8	0	41	41
Rural Crafts	6	12	54	66	14	30	44	26	84	110
Production of quality animal products	4	41	25	66	1	25	26	42	50	92
Dairying	21	286	237	523	65	111	176	351	348	699
Sheep and Goat rearing	22	263	380	643	52	280	332	315	660	975
Quail farming	1	3	10	13	0	14	14	3	24	27
Piggery	1	11	1	12	1	0	1	12	1	13
Rabbit farming	1	26	3	29	3	0	3	29	3	32
Poultry production	34	549	578	1127	112	522	634	661	1100	1761
Ornamental fisheries	3	17	4	21	5	0	5	22	4	26
Composite fish culture	5	101	15	116	24	11	35	125	26	151
Fresh water prawn culture	1	2	3	5	0	0	0	2	3	5
Shrimp farming	2	4	2	6	0	0	0	4	2	6
Fish harvest and processing technology	6	58	56	114	31	7	38	89	63	152
Fry and fingerling rearing	1	18	0	18	3	0	3	21	0	21
Others	101	1418	645	2063	303	302	605	1721	947	2668
TOTAL Youth Trainings	**455**	**5857**	**4004**	**9861**	**1419**	**2110**	**3529**	**7276**	**6114**	**13390**

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
Nursery Management of Horticulture crops	12	187	91	278	52	31	83	239	122	361
Training and Pruning of orchards	11	159	47	206	71	43	114	230	90	320
Protected cultivation of Vegetable crops	6	106	54	160	43	22	65	149	76	225
Commercial Fruit production	3	65	18	83	13	18	31	78	36	114
Integrated farming	13	238	128	366	41	20	61	279	148	427
Seed production	3	49	12	61	32	2	34	81	14	95
Production of Organic inputs	18	312	108	420	68	19	87	380	127	507
Vermiculture	22	378	78	456	138	90	228	516	168	684

Area of Training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Mushroom Production	25	227	166	393	65	82	147	292	248	540
Beekeeping	5	93	23	116	10	15	25	103	38	141
Sericulture	1	13	0	13	0	0	0	13	0	13
Repair and maintenance of farm machinery and implements	2	45	0	45	2	0	2	47	0	47
Value addition	32	71	452	523	38	348	386	109	800	909
Post harvest Technology	7	5	69	74	127	28	155	132	97	229
Tailoring and Stitching	1	0	17	17	0	8	8	0	25	25
Production of quality animal products	3	4	36	40	5	11	16	9	47	56
Dairying	2	77	6	83	26	14	40	103	20	123
Sheep and Goat rearing	6	69	2	71	63	31	94	132	33	165
Piggery	0	0	0	0	11	15	26	11	15	26
Rabbit farming	0	0	0	0	11	18	29	11	18	29
Poultry production	7	36	16	52	34	43	77	70	59	129
Fish harvest and processing technology	1	3	12	15	0	21	21	3	33	36
Others	11	161	174	335	47	67	114	208	241	449
TOTAL Youth Trainings	**191**	**2298**	**1509**	**3807**	**897**	**946**	**1843**	**3195**	**2455**	**5650**

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
Nursery Management of Horticulture crops	9	160	27	187	100	28	128	260	55	315
Training and Pruning of orchards	2	71	0	71	26	0	26	97	0	97
Protected cultivation of Vegetable crops	5	97	5	102	35	0	35	132	5	137
Commercial Fruit production	1	5	3	8	4	2	6	9	5	14
Integrated farming	3	58	11	69	16	6	22	74	17	91
Seed production	3	56	2	58	8	0	8	64	2	66
Production of organic inputs	11	101	2	103	146	10	156	247	12	259
Planting material production	5	92	62	154	32	18	50	124	80	204
Vermiculture	9	110	9	119	70	5	75	180	14	194
Mushroom Production	3	10	37	47	5	10	15	15	47	62

Area of Training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Beekeeping	5	70	3	73	107	33	140	177	36	213
Sericulture	1	16	0	16	2	2	4	18	2	20
Repair and maintenance of farm machinery and implements	3	50	5	55	36	13	49	86	18	104
Value addition	16	18	401	419	5	132	137	23	533	556
Small scale processing	2	15	37	52	2	6	8	17	43	60
Post harvest Technology	8	16	203	219	2	51	53	18	254	272
Tailoring and Stitching	9	0	126	126	0	117	117	0	243	243
Rural Crafts	1	0	0	0	0	28	28	0	28	28
Ornamental fisheries	1	13	0	13	0	0	0	13	0	13
Composite fish culture	1	22	8	30	5	0	5	27	8	35
Freshwater prawn culture	2	53	17	70	13	0	13	66	17	83
Fish harvest and processing technology	2	13	7	20	2	8	10	15	15	30
Fry and fingerling rearing	3	55	7	62	15	5	20	70	12	82
Others	27	254	141	395	305	99	404	559	240	799
Total Youth Trainings	**132**	**1355**	**1113**	**2468**	**936**	**573**	**1509**	**2291**	**1686**	**3977**

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
Production of Organic inputs	1	14	2	16	0	0	0	14	2	16
Mushroom Production	2	7	53	60	0	7	7	7	60	67
Repair and maintenance of farm machinery and implements	2	39	2	41	5	2	7	44	4	48
Value addition	1	4	14	18	0	2	2	4	16	20
Sheep and goat rearing	1	8	7	15	2	9	11	10	16	26
Rabbit farming	1	7	11	18	1	0	1	8	11	19
Poultry production	2	21	19	40	0	10	10	21	29	50
Others	2	22	14	36	6	9	15	28	23	51
Total Youth Trainings	**12**	**122**	**122**	**244**	**14**	**39**	**53**	**136**	**161**	**297**

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 575 trainings were conducted in which 24810 extension functionaries were participated. In Integrated pest and disease management 97 trainings were taken up with the participation of 4604 personnel (Table 3.3.13) on integrated nutrient management (76) followed by productivity enhancement in field crops (59), women and childcare (38), livestock feed and fodder (26) low cost and nutrient effective diet (23), Capacity building for ICT application (21), etc. Out of 24810 participants, 10483 were women extension functionaries. KVKs of Tamilnadu conducted 247 trainings for 10348 participants (Table 3.3.14). KVKs of Andhra Pradesh conducted 246 for 10803 participants (Table 3.3.15). KVKs of Telangana organized 77 programmes for 3525 participants (Table 3.3.16) and KVKs of Puducherry conducted 5 programmes for 134 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
Productivity enhancement in field crops	59	1540	580	2120	292	152	444	1832	732	2564
Integrated Pest Management	97	2610	969	3579	681	344	1025	3291	1313	4604
Integrated Nutrient management	76	1690	799	2489	395	242	637	2085	1041	3126
Rejuvenation of old orchards	13	266	113	379	62	24	86	328	137	465
Protected cultivation technology	16	315	147	462	81	44	125	396	191	587
Production and use of organic inputs	18	294	121	415	83	30	113	377	151	528
Care & maintenance of farm machinery & implements	10	187	69	256	52	26	78	239	95	334
Gender mainstreaming through SHGs	2	0	49	49	0	17	17	0	66	66
Formation and Management of SHGs	2	41	27	68	0	6	6	41	33	74
Women and Child care	38	92	1550	1642	77	1114	1191	169	2664	2833
Low cost and nutrient efficient diet designing	23	121	648	769	23	180	203	144	828	972
Group Dynamics and farmers organization	10	246	37	283	52	27	79	298	64	362
Information networking among farmers	9	403	66	469	70	17	87	473	83	556
Capacity building for ICT application	21	483	174	657	188	69	257	671	243	914
Management in farm animals	13	237	167	404	81	57	138	318	224	542
Livestock feed and fodder production	26	444	227	671	79	82	161	523	309	832
Others	142	2685	1434	4119	457	875	1332	3142	2309	5451
Total Extension Functionaries	575	11654	7177	18831	2673	3306	5979	14327	10483	24810

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
Productivity enhancement in field crops	37	953	438	1391	146	102	248	1099	540	1639
Integrated Pest Management	45	1192	501	1693	225	126	351	1417	627	2044
Integrated Nutrient management	20	472	247	719	56	49	105	528	296	824
Rejuvenation of old orchards	1	23	11	34	7	8	15	30	19	49
Protected cultivation technology	3	93	39	132	17	11	28	110	50	160
Production and use of organic inputs	5	67	40	107	8	0	8	75	40	115
Care & maintenance of farm machinery & implements	3	82	34	116	19	8	27	101	42	143
Formation and Management of SHGs	1	41	7	48	0	0	0	41	7	48
Women and Child care	3	0	134	134	0	34	34	0	168	168
Low cost and nutrient efficient diet designing	6	37	97	134	3	16	19	40	113	153
Group Dynamics and farmers organization	4	122	23	145	10	6	16	132	29	161
Information networking among farmers	5	175	37	212	0	0	0	175	37	212
Capacity building for ICT application	6	197	53	250	21	22	43	218	75	293
Management in farm animals	10	223	157	380	69	48	117	292	205	497
Livestock feed and fodder production	14	256	190	446	46	58	104	302	248	550
Others	84	1923	875	2798	261	233	494	2184	1108	3292
Total Extension Functionaries	**247**	**5856**	**2883**	**8739**	**888**	**721**	**1609**	**6744**	**3604**	**10348**

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
Productivity enhancement in field crops	19	522	130	652	124	42	166	646	172	818
Integrated Pest Management	34	730	259	989	366	174	540	1096	433	1529
Integrated Nutrient management	53	1193	541	1734	325	183	508	1518	724	2242
Rejuvenation of old orchards	11	234	100	334	53	15	68	287	115	402
Protected cultivation technology	11	202	101	303	49	30	79	251	131	382
Production and use of organic inputs	11	179	78	257	71	27	98	250	105	355
Care & maintenance of farm machinery & implements	6	77	35	112	21	18	39	98	53	151

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	1	0	29	29	0	11	11	0	40	40
Women and Child care	27	43	984	1027	73	903	976	116	1887	2003
Low cost and nutrient efficient diet designing	10	10	391	401	8	81	89	18	472	490
Group Dynamics and farmers organization	3	34	0	34	30	11	41	64	11	75
Information networking among farmers	4	228	29	257	70	17	87	298	46	344
Capacity building for ICT application	10	188	108	296	120	32	152	308	140	448
Management in farm animals	3	14	10	24	12	9	21	26	19	45
Livestock feed and fodder production	11	180	37	217	31	24	55	211	61	272
Others	32	359	216	575	110	522	632	469	738	1207
Total Extension Functionaries	**246**	**4193**	**3048**	**7241**	**1463**	**2099**	**3562**	**5656**	**5147**	**10803**

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
Productivity enhancement in field crops	3	65	12	77	22	8	30	87	20	107
Integrated Pest Management	18	688	209	897	90	44	134	778	253	1031
Integrated Nutrient management	3	25	11	36	14	10	24	39	21	60
Rejuvenation of old orchards	1	9	2	11	2	1	3	11	3	14
Protected cultivation technology	2	20	7	27	15	3	18	35	10	45
Production and use of organic inputs	2	48	3	51	4	3	7	52	6	58
Care & maintenance of farm machinery & implements	1	28	0	28	12	0	12	40	0	40
Gender mainstreaming through SHGs	1	0	20	20	0	6	6	0	26	26
Formation and Management of SHGs	1	0	20	20	0	6	6	0	26	26
Women and Child care	7	49	408	457	4	176	180	53	584	637
Low cost and nutrient efficient diet designing	6	72	128	200	12	83	95	84	211	295
Group Dynamics and farmers organization	3	90	14	104	12	10	22	102	24	126

Area of Training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Capacity building for ICT application	5	98	13	111	47	15	62	145	28	173
Livestock feed and fodder production	1	8	0	8	2	0	2	10	0	10
Others	23	403	283	686	86	105	191	489	388	877
Total Extension Functionaries	**77**	**1603**	**1130**	**2733**	**322**	**470**	**792**	**1925**	**1600**	**3525**

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 Child care	1	0	24	24	0	1	1	0	25	25
Low cost and nutrient efficient diet designing	1	2	32	34	0	0	0	2	32	34
Others	3	0	60	60	0	15	15	0	75	75
Total Extension Functionaries	**5**	**2**	**116**	**118**	**0**	**16**	**16**	**2**	**132**	**134**

3.3.1. Sponsored Trainings

KVKs conducted sponsored training programmes from ATMA, MANAGE and other agencies in addition to regular training programmes. A total of 824 sponsored training programmes were conducted for 34154 youth in Zone-X (Table 3.3.18). Maximum number of courses were conducted on crop production and management (248) followed by production and value addition (181), livestock and fisheries (96), home science (142), agricultural extension (39), *etc.* (Table 3.3.19). KVKs in Tamil Nadu organized 416 training programmes for 18135 participants (Table 3.3.20). KVKs in Andhra Pradesh conducted 322 trainings for 10339 participants (Table 3.3.21). KVKs of Telangana organized 77 for 5410 participants (Table 3.3.22) and KVKs of Puducherry conducted 9 trainings for 270 participants (Table 3.3.23) respectively.

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	416	9367	5630	14997	1641	1497	3138	11008	7127	18135
Andhra Pradesh	322	3258	3027	6285	1525	2529	4054	4783	5556	10339
Telangana	77	3079	581	3660	1270	480	1750	4349	1061	5410
Puducherry	9	144	92	236	22	12	34	166	104	270
Total	824	15848	9330	25178	4458	4518	8976	20306	13848	34154

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										
Increasing production and productivity of crops	103	1922	604	2526	752	240	992	2674	844	3518
Commercial production of vegetables	22	566	237	803	94	40	134	660	277	937
Others	123	3511	902	4413	968	342	1310	4479	1244	5723
Total Crop Production trainings	248	5999	1743	7742	1814	622	2436	7813	2365	10178
Production and Value addition										
Fruit Crops	9	182	68	250	72	34	106	254	102	356
Ornamental plants	2	19	17	36	3	1	4	22	18	40
Spice crops	8	36	30	66	163	29	192	199	59	258
Soil health and fertility management	29	1227	505	1732	394	195	589	1621	700	2321
Production of Inputs at site	19	304	211	515	44	85	129	348	296	644
Methods of protective cultivation	36	582	115	697	40	52	92	622	167	789
Others	78	3203	1508	4711	785	450	1235	3988	1958	5946
Total Production and Value Addition Trainings	181	5553	2454	8007	1501	846	2347	7054	3300	10354
Post harvest technology and Value addition										
Processing and value addition	70	244	758	1002	62	736	798	306	1494	1800
Others	17	217	294	511	27	49	76	244	343	587
Total Post harvest technology and Value addition	87	461	1052	1513	89	785	874	550	1837	2387
Farm Machinery										
Farm machinery, tools and implements	14	357	61	418	127	56	183	484	117	601
Others	17	560	208	768	100	28	128	660	236	896
Total Farm Machinery	31	917	269	1186	227	84	311	1144	353	1497
Livestock and Fisheries										
Livestock production and management	31	616	532	1148	80	114	194	696	646	1342
Animal Nutrition Management	5	128	43	171	19	9	28	147	52	199
Animal Disease Management	11	265	118	383	135	94	229	400	212	612
Fisheries Nutrition	6	102	44	146	65	11	76	167	55	222
Fisheries Management	8	80	67	147	18	40	58	98	107	205

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Others	35	725	233	958	162	55	217	887	288	1175
Total Livestock and Fisheries	96	1916	1037	2953	479	323	802	2395	1360	3755
Home Science										
Household nutritional security	49	34	956	990	12	581	593	46	1537	1583
Economic empowerment of women	32	15	516	531	0	109	109	15	625	640
Drudgery reduction of women	3	21	32	53	3	25	28	24	57	81
Others	58	185	704	889	80	927	1007	265	1631	1896
Total Home Science	142	255	2208	2463	95	1642	1737	350	3850	4200
Agricultural Extension										
Capacity Building and Group Dynamics	17	219	236	455	107	126	233	326	362	688
Others	22	528	331	859	146	90	236	674	421	1095
Total Agricultural Extension	39	747	567	1314	253	216	469	1000	783	1783
Grand total of sponsored trainings	**824**	**15848**	**9330**	**25178**	**4458**	**4518**	**8976**	**20306**	**13848**	**34154**

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										
Increasing production and productivity of crops	43	1074	396	1470	203	144	347	1277	540	1817
Commercial production of vegetables	18	461	215	676	77	40	117	538	255	793
Others	62	1306	493	1799	255	102	357	1561	595	2156
Total crop production trainings	123	2841	1104	3945	535	286	821	3376	1390	4766
Production and value addition										
Fruit Plants	6	171	39	210	32	9	41	203	48	251
Ornamental plants	2	19	17	36	3	1	4	22	18	40
Spices crops	4	0	0	0	84	4	88	84	4	88
Soil health and fertility management	14	541	290	831	72	90	162	613	380	993
Production of Inputs at site	13	202	177	379	28	82	110	230	259	489

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Methods of protective cultivation	33	512	107	619	31	50	81	543	157	700
Others	39	2346	1289	3635	304	258	562	2650	1547	4197
Total Production and Value Addition Trainings	111	3791	1919	5710	554	494	1048	4345	2413	6758
Postharvest technology and value addition										
Processing and value addition	29	200	353	553	50	144	194	250	497	747
Others	13	176	261	437	23	37	60	199	298	497
Total Post harvest technology and Value addition	42	376	614	990	73	181	254	449	795	1244
Farm Machinery										
Farm machinery, tools and implements	8	188	38	226	46	17	63	234	55	289
Others	12	205	191	396	29	3	32	234	194	428
Total Farm Machinery	20	393	229	622	75	20	95	468	249	717
Livestock and Fisheries										
Livestock production and management	24	565	480	1045	68	94	162	633	574	1207
Animal Nutrition Management	4	125	41	166	14	2	16	139	43	182
Animal Disease Management	6	154	102	256	41	79	120	195	181	376
Fisheries Nutrition	3	15	35	50	15	7	22	30	42	72
Fisheries Management	6	64	46	110	14	11	25	78	57	135
Others	23	563	165	728	60	28	88	623	193	816
Total Livestock and Fisheries	66	1486	869	2355	212	221	433	1698	1090	2788
Home Science										
Household nutritional security	10	31	198	229	12	49	61	43	247	290
Economic Empowerment of women	4	5	62	67	0	16	16	5	78	83
Drudgery reduction of women	3	21	32	53	3	25	28	24	57	81
Others	14	97	249	346	24	41	65	121	290	411
Total Home Science	31	154	541	695	39	131	170	193	672	865

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Agricultural Extension										
Capacity Building and Group Dynamics	13	119	227	346	74	110	184	193	337	530
Others	10	207	127	334	79	54	133	286	181	467
Total Agricultural Extension	23	326	354	680	153	164	317	479	518	997
Grand total of sponsored trainings	**416**	**9367**	**5630**	**14997**	**1641**	**1497**	**3138**	**11008**	**7127**	**18135**

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										
Increasing production and productivity of crops	56	690	207	897	516	96	612	1206	303	1509
Commercial production of vegetables	2	22	20	42	3	0	3	25	20	45
Others	23	506	144	650	75	32	107	581	176	757
Total Crop Production trainings	81	1218	371	1589	594	128	722	1812	499	2311
Production and Value addition										
Fruit crops	2	11	29	40	0	5	5	11	34	45
Spice crops	4	36	30	66	79	25	104	115	55	170
Soil health and fertility management	14	561	180	741	227	60	287	788	240	1028
Production of Inputs at site	5	88	32	120	16	3	19	104	35	139
Methods of protective cultivation	3	70	8	78	9	2	11	79	10	89
Others	32	604	121	725	321	119	440	925	240	1165
Total Production and Value Addition Trainings	60	1370	400	1770	652	214	866	2022	614	2636
Postharvest technology and value addition										
Processing and value addition	38	38	339	377	12	585	597	50	924	974
Others	4	41	33	74	4	12	16	45	45	90
Total Post Harvest Technology and Value Addition	42	79	372	451	16	597	613	95	969	1064

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Farm Machinery										
Farm machinery, tools and implements	5	57	1	58	6	6	12	63	7	70
Others	2	19	15	34	6	5	11	25	20	45
Total Farm Machinery	7	76	16	92	12	11	23	88	27	115
Livestock and Fisheries										
Livestock production and management	4	16	26	42	8	10	18	24	36	60
Animal Nutrition Management	1	3	2	5	5	7	12	8	9	17
Animal Disease Management	3	111	16	127	39	10	49	150	26	176
Others	7	102	59	161	85	22	107	187	81	268
Total Livestock and Fisheries	15	232	103	335	137	49	186	369	152	521
Home Science										
Household nutritional security	38	3	734	737	0	526	526	3	1260	1263
Economic empowerment of women	28	10	454	464	0	93	93	10	547	557
Drudgery reduction of women	0	0	0	0	0	0	0	0	0	0
Others	40	74	405	479	53	877	930	127	1282	1409
Total Home Science	106	87	1593	1680	53	1496	1549	140	3089	3229
Agricultural Extension										
Capacity Building and Group Dynamics	2	79	4	83	24	8	32	103	12	115
Others	9	117	168	285	37	26	63	154	194	348
Total Agricultural Extension	11	196	172	368	61	34	95	257	206	463
Grand Total Sponsored Trainings	**322**	**3258**	**3027**	**6285**	**1525**	**2529**	**4054**	**4783**	**5556**	**10339**

Table 3.3.22. Details of Sponsored Training Programmes in Telangana

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management										
Increasing production and productivity of crops	2	76	1	77	15	0	15	91	1	92
Commercial production of vegetables	2	83	2	85	14	0	14	97	2	99
Others	38	1699	265	1964	638	208	846	2337	473	2810
Total Crop Production trainings	42	1858	268	2126	667	208	875	2525	476	3001
Production and value addition										
Fruit Crops	1	0	0	0	40	20	60	40	20	60
Soil health and fertility management	1	125	35	160	95	45	140	220	80	300
Others	7	253	98	351	160	73	233	413	171	584
Total Production and Value Addition Trainings	9	378	133	511	295	138	433	673	271	944
Post harvest Technology and Value addition										
Processing and value addition	1	0	20	20	0	5	5	0	25	25
Total Post harvest Technology and Value addition	1	0	20	20	0	5	5	0	25	25
Farm Machinery										
Farm machinery, tools and implements	1	112	22	134	75	33	108	187	55	242
Others	3	336	2	338	65	20	85	401	22	423
Total Farm Machinery	4	448	24	472	140	53	193	588	77	665
Livestock and Fisheries										
Animal Disease Management	2	0	0	0	55	5	60	55	5	60
Fisheries Nutrition	3	87	9	96	50	4	54	137	13	150
Fisheries Management	2	16	21	37	4	29	33	20	50	70
Others	5	60	9	69	17	5	22	77	14	91
Total Livestock and Fisheries	12	163	39	202	126	43	169	289	82	371
Home Science										
Household nutritional security	1	0	24	24	0	6	6	0	30	30
Others	3	7	32	39	3	9	12	10	41	51
Total Home Science	4	7	56	63	3	15	18	10	71	81
Agricultural Extension										
Capacity Building and Group Dynamics	2	21	5	26	9	8	17	30	13	43
Others	3	204	36	240	30	10	40	234	46	280
Total Agricultural Extension	5	225	41	266	39	18	57	264	59	323
Grand Total Sponsored Trainings	**77**	**3079**	**581**	**3660**	**1270**	**480**	**1750**	**4349**	**1061**	**5410**

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										
Increasing production and productivity of crops	2	82	0	82	18	0	18	100	0	100
Total Crop Production trainings	2	82	0	82	18	0	18	100	0	100
Production and Value addition										
Production of Inputs at site	1	14	2	16	0	0	0	14	2	16
Total Production and Value Addition Trainings	1	14	2	16	0	0	0	14	2	16
Post harvest technology and Value addition										
Processing and value addition	2	6	46	52	0	2	2	6	48	54
Total Post harvest technology and Value addition	2	6	46	52	0	2	2	6	48	54
Livestock and Fisheries										
Livestock production and management	3	35	26	61	4	10	14	39	36	75
Total Livestock and Fisheries	3	35	26	61	4	10	14	39	36	75
Home Science										
Others	1	7	18	25	0	0	0	7	18	25
Total Home Science	1	7	18	25	0	0	0	7	18	25
Grand Total Sponsored Trainings	9	144	92	236	22	12	34	166	104	270

3.3.2. 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. During 2019-20, a total of 354 vocational training courses were conducted in which 6762 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 (154) followed by crop production and management (82), post harvest technology and value addition (63), livestock and fisheries (54), *etc*.(Table 3.3.25). KVKs in Tamil Nadu conducted 196 courses for 3804 farmers and farmwomen (Table 3.3.26). KVKs in Andhra Pradesh organized 101 coursed in which 1637 participants (Table 3.3.27). In Telangana 51 courses were organized with the participation of 1221 people (Table 3.3.28). In Puducherry state 6 vocational courses were organized with 100 participants (Table 3.3.29).

Table 3.3.24. Details of statewise 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	196	1892	1054	2946	324	534	858	2216	1588	3804
Andhra Pradesh	101	713	483	1196	221	220	441	934	703	1637
Telangana	51	315	419	734	157	330	487	472	749	1221
Puducherry	6	44	34	78	7	15	22	51	49	100
Total	**354**	**2964**	**1990**	**4954**	**709**	**1099**	**1808**	**3673**	**3089**	**6762**

Table 3.3.25. Details of Vocational Training Programmes in Zone-X

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop Production and Management										
Commercial floriculture	5	97	12	109	15	1	16	112	13	125
Commercial fruit production	1	18	6	24	0	4	4	18	10	28
Commercial vegetable production	4	45	19	64	32	11	43	77	30	107
Integrated crop management	3	41	7	48	5	0	5	46	7	53
Organic farming	19	261	38	299	39	12	51	300	50	350
Others	50	375	104	479	131	79	210	506	183	689
Total Crop Production Technologies	82	837	186	1023	222	107	329	1059	293	1352
Post harvest technology and Value addition										
Value addition	42	107	586	693	50	342	392	157	928	1085
Others	21	76	265	341	12	169	181	88	434	522
Total Post harvest technology and Value addition	63	183	851	1034	62	511	573	245	1362	1607
Livestock and Fisheries										
Dairy farming	11	228	103	331	34	16	50	262	119	381
Composite fish culture	1	19	0	19	3	0	3	22	0	22
Sheep and goat rearing	6	118	30	148	26	17	43	144	47	191
Piggery	0	0	0	0	6	8	14	6	8	14
Poultry farming	15	216	105	321	60	73	133	276	178	454
Others	21	158	50	208	36	35	71	194	85	279
Total Livestock and Fisheries	54	739	288	1027	165	149	314	904	437	1341
Income generation activities										
Vermi composting	46	324	128	452	55	40	95	379	168	547
Production of bio agents, biopesticides	2	28	7	35	6	8	14	34	15	49

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Bio fertilizers	1	22	4	26	4	0	4	26	4	30
Repair and maintenance of farm machinery	3	49	3	52	12	1	13	61	4	65
and implements	2	25	2	27	3	0	3	28	2	30
Rural Crafts	6	31	73	104	2	21	23	33	94	127
Seed production	7	85	25	110	15	4	19	100	29	129
Sericulture	3	50	7	57	10	3	13	60	10	70
Mushroom cultivation	45	201	150	351	53	60	113	254	210	464
Nursery, Grafting etc.	6	68	47	115	24	13	37	92	60	152
Tailoring, stitching, embroidery, dying etc.	7	0	106	106	0	110	110	0	216	216
Agricultural Para workers, Para vet training	1	13	7	20	0	1	1	13	8	21
Others	25	290	106	396	75	71	146	365	177	542
Total Income generation activities	154	1186	665	1851	259	332	591	1445	997	2442
Agricultural Extension										
Others	1	19	0	19	1	0	1	20	0	20
Total Agricultural Extension	1	19	0	19	1	0	1	20	0	20
Grand Total	354	2964	1990	4954	709	1099	1808	3673	3089	6762

Table 3.3.26. Details of Vocational Training Programmes in Tamil Nadu

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management										
Commercial floriculture	1	11	8	19	1	0	1	12	8	20
Commercial fruit production	1	18	6	24	0	4	4	18	10	28
Commercial vegetable production	2	31	19	50	6	1	7	37	20	57
Integrated crop management	1	16	2	18	2	0	2	18	2	20
Organic farming	8	144	17	161	14	4	18	158	21	179
Others	10	155	70	225	46	45	91	201	115	316
Total Crop production technologies	23	375	122	497	69	54	123	444	176	620
Post harvest technology and value addition										
Value addition	19	106	140	246	26	176	202	132	316	448
Others	13	53	175	228	12	103	115	65	278	343

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Total Post harvest technology and value addition	32	159	315	474	38	279	317	197	594	791
Livestock and Fisheries										
Dairy farming	9	207	94	301	18	7	25	225	101	326
Sheep and goat rearing	6	118	30	148	21	11	32	139	41	180
Poultry farming	9	152	64	216	28	35	63	180	99	279
Others	8	96	34	130	22	27	49	118	61	179
Total Livestock and Fisheries	32	573	222	795	89	80	169	662	302	964
Income generation activities										
Vermi composting	37	209	93	302	26	26	52	235	119	354
Production of bio agents, bio pesticides	1	19	2	21	0	0	0	19	2	21
Bio fertilizers etc.	1	22	4	26	4	0	4	26	4	30
Repair and maintenance of farm machinery	2	38	2	40	10	0	10	48	2	50
and implements	2	25	2	27	3	0	3	28	2	30
Rural Crafts	6	31	73	104	2	21	23	33	94	127
Seed production	5	70	23	93	6	4	10	76	27	103
Sericulture	1	22	4	26	4	0	4	26	4	30
Mushroom cultivation	35	120	116	236	25	39	64	145	155	300
Agricultural Para workers, Para vet training	1	13	7	20	0	1	1	13	8	21
Others	18	216	69	285	48	30	78	264	99	363
Total Income generation activities	109	785	395	1180	128	121	249	913	516	1429
Grand Total	**196**	**1892**	**1054**	**2946**	**324**	**534**	**858**	**2216**	**1588**	**3804**

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 floriculture	3	67	3	70	9	1	10	76	4	80
Commercial vegetable production	1	14	0	14	6	0	6	20	0	20
Integrated crop management	2	25	5	30	3	0	3	28	5	33
Organic farming	9	66	18	84	14	3	17	80	21	101
Others	32	144	11	155	25	0	25	169	11	180

Area of training	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Total Crop production technologies	47	316	37	353	57	4	61	373	41	414
Post harvest technology and Value addition										
Value addition	13	1	200	201	24	74	98	25	274	299
Others	1	23	70	93	0	0	0	23	70	93
Total Post harvest technology and Value addition	14	24	270	294	24	74	98	48	344	392
Livestock and Fisheries										
Dairy farming	2	21	9	30	16	9	25	37	18	55
Sheep and Goat rearing	0	0	0	0	5	6	11	5	6	11
Piggery	0	0	0	0	6	8	14	6	8	14
Poultry farming	3	24	22	46	21	28	49	45	50	95
Others	8	26	1	27	5	3	8	31	4	35
Total Livestock and Fisheries	13	71	32	103	53	54	107	124	86	210
Income generation activities										
Vermi composting	6	92	28	120	12	9	21	104	37	141
Production of bio-agents, bio-pesticides,	1	9	5	14	6	8	14	15	13	28
Seed production	2	15	2	17	9	0	9	24	2	26
Sericulture	1	12	3	15	4	1	5	16	4	20
Mushroom cultivation	8	81	34	115	28	21	49	109	55	164
Nursery, Grafting etc.	3	33	40	73	10	10	20	43	50	93
Others	6	60	32	92	18	39	57	78	71	149
Total Income generation activities	27	302	144	446	87	88	175	389	232	621
Grand Total	**101**	**713**	**483**	**1196**	**221**	**220**	**441**	**934**	**703**	**1637**

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										
Commercial floriculture	1	19	1	20	5	0	5	24	1	25
Commercial vegetable production	1	0	0	0	20	10	30	20	10	30
Organic farming	2	51	3	54	11	5	16	62	8	70
Others	8	76	23	99	60	34	94	136	57	193
Total Crop production technologies	12	146	27	173	96	49	145	242	76	318

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										
Value addition	10	0	246	246	0	92	92	0	338	338
Others	7	0	20	20	0	66	66	0	86	86
Total Post harvest technology and Value addition	17	0	266	266	0	158	158	0	424	424
Livestock and Fisheries										
Composite fish culture	1	19	0	19	3	0	3	22	0	22
Poultry farming	1	19	0	19	11	0	11	30	0	30
Others	1	13	0	13	2	0	2	15	0	15
Total Livestock and Fisheries	3	51	0	51	16	0	16	67	0	67
Income generation activities										
Vermi composting	3	23	7	30	17	5	22	40	12	52
Repair and maintenance of farm machinery and implements	1	11	1	12	2	1	3	13	2	15
Sericulture	1	16	0	16	2	2	4	18	2	20
Mushroom cultivation	2	0	0	0	0	0	0	0	0	0
Nursery, Grafting etc.	3	35	7	42	14	3	17	49	10	59
Tailoring, stitching, embroidery, dying etc.	7	0	106	106	0	110	110	0	216	216
Others	1	14	5	19	9	2	11	23	7	30
Total Income generation activities	18	99	126	225	44	123	167	143	249	392
Agricultural Extension										
Others	1	19	0	19	1	0	1	20	0	20
Total Agricultural Extension	1	19	0	19	1	0	1	20	0	20
Grand Total	**51**	**315**	**419**	**734**	**157**	**330**	**487**	**472**	**749**	**1221**

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										
Poultry farming	2	21	19	40	0	10	10	21	29	50
Others	4	23	15	38	7	5	12	30	20	50
Total Livestock and Fisheries	6	44	34	78	7	15	22	51	49	100
Grand Total	**6**	**44**	**34**	**78**	**7**	**15**	**22**	**51**	**49**	**100**

3.4. Extension Activities

KVKs organized 49350 extension activities for creating awareness about latest improved agricultural technologies in which 21,52,494 farmers and 49,487 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 26,898 extension activities for 5,92,458 farmers and Extension Personnel (Table 3.4.3). KVKs in Andhra Pradesh organized 15,580 extension activities in which 10,40,609 persons participated (Table 3.4.4). In Telangana, 6,252 activities were organized with the participation of 5,44,015 people (Table 3.4.5). In Puducherry 620 extension activities were organized with 24,899 participants (Table 3.4.6).

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

State	No. of programmes	No. of farmers	No. of Extension Personnel	Total
Tamil Nadu	26898	564712	27746	592458
Andhra Pradesh	15580	1027663	12946	1040609
Telangana	6252	537352	6663	544015
Puducherry	620	22767	2132	24899
Total	49350	2152494	49487	2201981

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

Activities	No. of programmes	No. of farmers	No. of Extension Personnel	Total
Advisory Services	26854	1340344	9564	1349908
Diagnostic visits	4448	23291	2348	25639
Field Day	526	15197	828	16025
Group discussions	1107	20469	1835	22304
Kisan Ghosthi	241	17505	958	18463
Film Show	561	29919	1215	31134
Self help groups	237	7767	309	8076
Kisan Mela	229	120064	6091	126155
Exhibition	434	173452	7053	180505
Scientists' visit to farmers field	6547	30986	2382	33368
Plant/ Animal health camps	168	13084	743	13827
Farm Science Club	56	2539	75	2614
Ex trainees Sammelan	11	497	32	529
Farmers' seminar/ workshop	100	18084	1013	19097
Method Demonstrations	1633	34607	1513	36120
Celebration of important days	524	32385	2784	35169
Special day celebration	376	29044	1275	30319
Exposure visits	490	16038	825	16863
Others	4808	227222	8644	235866
Total	**49350**	**2152494**	**49487**	**2201981**

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

Activities	No. of programmes	No. of farmers	No. of Extension Personnel	Total
Advisory Services	14930	129752	6411	136163
Diagnostic visits	1920	6701	924	7625
Field Day	236	6945	403	7348
Group discussions	282	5677	1282	6959
Kisan Ghosthi	65	9716	443	10159
Film Show	409	17662	681	18343
Self help groups	102	3755	137	3892
Kisan Mela	106	52615	2157	54772
Exhibition	277	102979	3584	106563
Scientists' visit to farmers field	2970	13367	1292	14659
Plant/ Animal health camps	85	8016	498	8514
Farm Science Club	45	1491	38	1529
Ex trainees Sammelan	7	447	31	478
Farmers' seminar/ workshop	58	15913	652	16565
Method Demonstrations	906	23413	852	24265
Celebration of important days	201	18677	1330	20007
Special day celebration	208	17702	672	18374
Exposure visits	288	9922	582	10504
Others	3803	119962	5777	125739
Total	**26898**	**564712**	**27746**	**592458**

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

Activities	No. of programmes	No. of farmers	No. of Extension Personnel	Total
Advisory Services	9775	810126	2327	812453
Diagnostic visits	1412	9621	678	10299
Field Day	202	4548	230	4778
Group discussions	476	7080	242	7322
Kisan Ghosthi	62	3726	258	3984
Film Show	45	6313	270	6583
Self help groups	49	1924	120	2044
Kisan Mela	58	35785	2722	38507
Exhibition	105	32631	2325	34956
Scientists' visit to farmers field	1791	8863	457	9320
Plant/ Animal health camps	49	3320	155	3475
Farm Science Club	6	493	34	527
Ex trainees Sammelan	3	27	1	28
Farmers' seminar/ workshop	19	1169	208	1377

Activities	No. of programmes	No. of farmers	No. of Extension Personnel	Total
Method Demonstrations	540	7433	500	7933
Celebration of important days	177	7832	1281	9113
Special day celebration	120	8073	466	8539
Exposure visits	140	4839	202	5041
Others	551	73860	470	74330
Total	**15580**	**1027663**	**12946**	**1040609**

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

Activities	No. of programmes	No. of farmers	No. of Extension Personnel	Total
Advisory Services	1939	399873	819	400692
Diagnostic visits	1043	6845	726	7571
Field Day	83	3537	160	3697
Group discussions	345	7584	307	7891
Kisan Ghosthi	111	3653	219	3872
Film Show	77	5137	218	5355
Self help groups	50	1624	52	1676
Kisan Mela	62	30739	947	31686
Exhibition	49	22842	894	23736
Scientists' visit to farmers field	1635	8574	629	9203
Plant/ Animal health camps	32	1648	80	1728
Farm Science Club	5	555	3	558
Ex trainees Sammelan	1	23	0	23
Farmers' seminar/ workshop	18	942	153	1095
Method Demonstrations	176	3590	94	3684
Celebration of important days	142	5812	173	5985
Special day celebration	46	3140	137	3277
Exposure visits	56	1172	33	1205
Others	382	30062	1019	31081
Total	**6252**	**537352**	**6663**	**544015**

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

Activities	No. of programmes	No. of farmers	No. of Extension Personnel	Total
Advisory Services	210	593	7	600
Diagnostic visits	73	124	20	144
Field Day	5	167	35	202
Group discussions	4	128	4	132
Kisan Ghosthi	3	410	38	448

Activities	No. of programmes	No. of farmers	No. of Extension Personnel	Total
Film Show	30	807	46	853
Self help groups	36	464	0	464
Kisan Mela	3	925	265	1190
Exhibition	3	15000	250	15250
Scientists' visit to farmers field	151	182	4	186
Plant/ Animal health camps	2	100	10	110
Farm Science Club	0	0	0	0
Ex trainees Sammelan	0	0	0	0
Farmers' seminar/ workshop	5	60	0	60
Method Demonstrations	11	171	67	238
Celebration of important days	4	64	0	64
Special day celebration	2	129	0	129
Exposure visits	6	105	8	113
Others	72	3338	1378	4716
Total	**620**	**22767**	**2132**	**24899**

Technology Week

Technology week celebrations were organized by KVKs in which 77,740 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	
	P	F	P	F	P	F	P	F
Gosthies	6	1896	2	332	2	92	10	2320
Lectures organised	77	5642	25	898	43	2028	145	8568
Exhibition	31	8799	10	4836	13	6631	54	20266
Film show	25	2128	1	0	38	1300	64	3428
Fair	1	612	0	0	0	0	1	612
Farm Visit	85	1325	23	409	57	821	165	2555
Diagnostic Practicals	34	1004	8	288	94	327	136	1619
Distribution of Literature (No.)	644	3909	7	532	59	20784	710	25225
Distribution of Seed (q)	16	170	1	200	16	105	33	475
Distribution of Planting materials (No.)	880	301	3	175	3200	320	4083	796
Bio Product distribution (Kg)	482	334	0	0	550	82	1032	416
Bio Fertilizers (q)	1	50	1	25	6	132	8	207
Distribution of fingerlings	0	0	0	0	3000	4	3000	4

Types of Activities	Tamil Nadu		Andhra Pradesh		Telangana		Total	
	P	F	P	F	P	F	P	F
Apiculture	0	0	0	0	1	65	1	65
IPM in Maize	0	0	0	0	2	141	2	141
Farm implements and machinery	0	0	0	0	1	254	1	254
Distribution of Livestock specimen (No.)	200	4	1	20	2	2000	203	2024
Total number of farmers visited the technology week		4924		1733		2108	0	8765
Total	**2482**	**31098**	**82**	**9448**	**7084**	**37194**	**9648**	**77740**

P = No. of Programmes; 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 16,20,955 messages to 121,54,545 farmers (Table 3.4.8). Amon them, 15,75,626 messages were sent through Kisam Mobile portal to 94,31,977 farmers (Table 3.3.9) and 45,329 messages were sent through other sources to 27,22,568 faremers (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	1685	4770022	1572945	1577467	996	3084488	0	0	1575626	9431977
Other Mobile Advisories	15338	1523670	7981	814164	21639	381767	371	2967	45329	2722568
Total	17023	6293692	1580926	2391631	22635	3466255	371	2967	1620955	12154545

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	665	2155994	266535	965720	696	2021610	267896	5143324
Voice	23	29476	412	3456	100	545	535	33477
Text and Voice	37	56753	948	32152	45	6180	1030	95085
Total	725	2242223	267895	1001328	841	2028335	269461	5271886
Livestock								
Text	231	559048	54	161901	48	357	333	721306
Voice	28	23911	4	1308	12	23	44	25242

Type of message	Tamil Nadu		Andhra Pradesh		Telangana		Total	
	NM	NF	NM	NF	NM	NF	NM	NF
Text and Voice	57	47015	9	6008			66	53023
Total	316	629974	67	169217	60	380	443	799571
Agro Advisories								
Text	57	189265	51	40141	6	240227	114	469633
Voice			6	16670			6	16670
Text and Voice			6	16670	4	478	10	17148
Total	57	189265	63	73481	10	240705	130	503451
Critical Technology Inputs								
Text	25	172834	3	4200	3	6204	31	183238
Voice			1	230			1	230
Text and Voice			1	500			1	500
Total	25	172834	5	4930	3	6204	33	183968
Farm Implements								
Text	14	43397	4	5280			18	48677
Total	14	43397	4	5280			18	48677
Awareness								
Text	65	173720	10	183645	2	4210	77	361575
Voice	8	9750	3	18010	0	0	11	27760
Text and Voice	19	21350	5	17900	0	0	24	39250
Total	92	204820	18	219555	2	4210	112	428585
KVK-Programmes								
Text	86	297328	14	4650	8	264691	108	566669
Voice			2	550			2	550
Text and Voice								
Total	86	297328	16	5200	8	264691	110	567219
Weather								
Text	137	228234	103	87692	24	273331	264	589257
Voice	9	8330					9	8330
Text and Voice	19	18180					19	18180
Total	165	254744	103	87692	24	273331	292	615767
Market								
Text	46	80540	434929		5	264691	434980	345231
Voice	8	8600					8	8600
Text and Voice	19	20200					19	20200
Total	73	109340	434929		5	264691	435007	374031
Women and Children								
Text	1	623	20	9505	1	1115	22	11243

Type of message	Tamil Nadu		Andhra Pradesh		Telangana		Total	
	NM	NF	NM	NF	NM	NF	NM	NF
Voice								
Text and Voice								
Total	1	623	20	9505	1	1115	22	11243
Others								
Text	119	602054	869825	1279	42	826	869986	604159
Voice	4	7460					4	7460
Text and Voice	8	15960					8	15960
Total	131	625474	869825	1279	42	826	869998	627579
Grand Total								
Text	1446	4503037	1571548	1464013	835	3077262	1573829	9044312
Voice	80	87527	428	40224	112	568	620	128319
Text and Voice	159	179458	969	73230	49	6658	1177	259346
Total	1685	**47700**22	1572945	**157746**7	996	**308448**8	1575626	9431977

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	665	2155994	266535	965720	696	2021610			267896	5143324
Voice	23	29476	412	3456	100	545			535	33477
Text and Voice	37	56753	948	32152	45	6180			1030	95085
Total	725	2242223	267895	1001328	841	2028335			269461	5271886
Livestock										
Text	549	92821	177	26779	516	3868			1242	123468
Voice	670	98747	42	14727	844	989	27	355	1583	114818
Text and Voice	306	49594	6	9785	418	589			730	59968
Total	1525	241162	225	51291	1778	5446	27	355	3555	298254
Agro Advisories										
Text	347	37911	68	19276	376	5345			791	62532
Voice	243	243	20	12409	298	1395	51	1260	612	15307
Text and Voice	53	395	114	223000	40	56			207	223451
Total	643	38549	202	254685	714	6796	51	1260	1610	301290
Critical Technology Inputs										
Text	84	11510	12	6109	15	15			111	17634
Voice	34	161	10	4909			12	6	56	5076

Type of message	Tamil Nadu		Andhra Pradesh		Telangana		Puducherry		Total	
	NM	NF	NM	NF	NM	NF	NM	NF	NM	NF
Text and Voice	53	180							53	180
Total	171	11851	22	11018	15	15	12	6	220	22890
Farm Implements										
Text	106	13808	26	7115	281	1659			413	22582
Voice	259	10766	12	4909	143	361			414	16036
Text and Voice	53	62	5		95	130			153	192
Total	418	24636	43	12024	519	2150			980	38810
Awareness										
Text	162	43274	93	16784	567	12945			822	73003
Voice	97	18282	31	14855	109	1832	15	8	252	34977
Text and Voice	65	16119	10	11785	50	90			125	27994
Total	324	77675	134	43424	726	14867	15	8	1199	135974
KVK-Programmes										
Text	388	47047	279	16551	199	21195			866	84793
Voice	2031	7374	98	9819	537	1375	22	769	2688	19337
Text and Voice	52	7113	46	563	520	810			618	8486
Total	2471	61534	423	26933	1256	23380	22	769	4172	112616
Weather										
Text	202	42107	135	14260	148	7311			485	63678
Voice	267	16080	20	4909	88	1410			375	22399
Text and Voice	38	34484	43	2036					81	36520
Total	507	92671	198	21205	236	8721			941	122597
Market										
Text	172	36286	15	4909	93	4115			280	45310
Voice	125	22600	15	4909	72	1033			212	28542
Text and Voice	21	24470							21	24470
Total	318	83356	30	9818	165	5148			513	98322
Women and Children										
Text	91	14482	40	5489	36	2326			167	22297
Voice	5	120	25	5209	111	134	25	16	166	5479
Text and Voice	5	120	0	0	62	82			67	202
Total	101	14722	65	10698	209	2542	25	16	400	27978
Others										
Text	646	23348							646	23348
Voice	53	266040	5	200					58	266240
Text and Voice	641	16741							641	16741
Total	1340	306129	5	200					1345	306329

Type of message	Tamil Nadu		Andhra Pradesh		Telangana		Puducherry		Total	
	NM	NF	NM	NF	NM	NF	NM	NF	NM	NF
Grand Total										
Text	5198	657189	4332	317192	7590	267357			17120	1241738
Voice	8379	654558	2046	160178	10638	58569	325	2942	21388	876247
Text and Voice	1761	211923	1603	336794	3411	55841	46	25	6821	604583
Total	**15338**	**1523670**	**7981**	**814164**	**21639**	**381767**	**371**	**2967**	**45329**	**2722568**

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

Other Extension Activities

KVKs organized other extension activities like animal health camps, publications of newletters, CDs/DVDs, extension literatures, lectures, news items in news papers, popular articles, radio talks, TV programmes etc. (Table 3.4.11).

Table 3.4.11. Details of other extension programmes

Programme	Tamil Nadu		Andhra Pradesh		Telangana		Puducherry		Total	
	No.	KVKs	No.	KVKs	No.	KVKs	No.	KVKs	No.	KVKs
Animal health camps (No. of animals treated)	10597	29	2023	16	774	9	100	1	13494	55
Bimonthly Newsletters	154	19	28	7	13	3	0	0	195	29
Electronic Media (CD/DVD)	72	17	38	7	10	5	2	1	122	30
Extension Literature	2865	28	4174	20	124	13	11	2	7174	63
Farmers visit to KVK	43520	30	24721	22	18958	14	15	1	87214	67
Lectures delivered as resource persons	2054	29	419	20	554	14	164	2	3191	65
Newspaper coverage	1241	30	2405	23	1723	15	59	2	5428	70
Popular articles	294	28	278	19	162	14	0	0	734	61
Radio Talks	376	26	150	20	143	12	23	2	692	60
Registration of farmers through AKPS	5753	3	17506	8	12119	6	0	0	35378	17
Research articles	144	21	51	15	26	8	0	0	221	44
Success stories	127	25	71	18	67	14	1	1	266	58
TV Talks	305	23	156	15	164	13	17	2	642	53
Others	2848	8	64	4	25	6			2937	18
Total	**70350**		**52084**		**34862**		**392**		**157688**	

3.5. PUBLICATIONS

The KVKs of Zone-X have brought out 3526 publications, which include 660 popular articles, 752 leaflets/folders/pamphlets, 377 technical reports, 199 Research Papers, 150 Books/ Brochures, viz. CD/ VCD/DVDs 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	139	46	14	0	199
Popular Articles	289	245	126	0	660
Books Chapters	25	11	4	0	40
Books	66	22	16	0	104
Conference Papers	65	21	3	1	90
Seminar Papers	52	8	0	0	60
Posters	117	77	44	2	240
Workshop presentations	69	50	8	3	130
Folders	124	72	42	0	238
Leaflets	167	16	68	8	259
Pamplets	159	43	43	0	245
Brochures	13	14	19	0	46
Pocket Cards & Dairy	5	9	3	0	17
Success Stories	93	43	54	0	190
Technical Bulletins	71	27	7	1	106
Technical Reports	137	96	144	0	377
Training Manuals	85	22	29	16	152
Proceedings	60	32	19	0	111
Others	278	2	18	1	299
Total	**2014**	**856**	**661**	**32**	**3563**

Thirtyfive KVKs in the Zone published 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/Type of Newsletter	Periodicity	No. of publications
Tamil Nadu			
Ariyalur	KVK Newsletter: Seithi Malar	Quarterly	500
Coimbatore	KVK Newsletter: Kovai Velanmai	Quarterly	500
Cuddalore	KVK Newsletter: Uzhavarin erkalam	Quarterly	4
Dharmapuri	KVK Newsletter: Seithi Madal	Quarterly	300
Dindigul	KVK Newsletter: Velanthoothu	Quarterly	3
Erode	KVK Newsletter: Farm Newsletter (Uzhavar Malar)	Quarterly	4

KVK	Name/Type of Newsletter	Periodicity	No. of publications
Erode	KVK Reporter	Quarterly	4
Kancheepuram	KVK Newsletter (Tamil)	Quarterly	200
Kancheepuram	KVK Newsletter (English)	Quarterly	0
Kanyakumari	KVK Newsletter: Sethi madal	Half yearly	2
Karur	KVK Newsletter	Quarterly	2000
Krishnagiri	KVK Newsletter: Uzhavar Thunaivan	Quarterly	200
Nagapattinam	KVK Newsletter: TNJFU Newsletter	Monthly	12
Namakkal	KVK Newsletter	Quarterly	400
Perambalur	KVK Periodical Scientific Newsletter	Half yearly	1200
Pudukkottai	E-Newsletter	Quarterly	1
Salem	Yermunai	Quarterly	4
Sivagangai	KVK Sivaganga Newsletter	Half yearly	100
THENI	KVK Newsletter: Velan Ariviyal Malar	Quarterly	800
Thiruvallur	KVK Newsletter	Quarterly	2000
Thiruvannamalai	KVK Newsletter: Pasumai Kathir	Half yearly	2
Thiruvarur	KVK Newsletter: Nerkalanjiam	Quarterly	4
Thoothukudi	KVK Newsletter: Velan Thunaivan	Quarterly	1000
Tiruchirappalli	KVK Newsletter: Pasumai	Quarterly	4
Tirunelveli	KVK Newsletter	Half yearly	45
Tiruppur	KV e-newsletter	Monthly	50
Villupuram-2	KVK Newsletter	Half yearly	100
Andhra Pradesh			
Chittoor-2 (Kalikiri)	Agrobios	Monthly	0
East Godavari-1 (Kalavacherla))	CTRI Newsletter	Half Yearly	500
Guntur (Lam)	SVVU - Newsletter	Monthly	12
Kurnool-2 (Banavasi)	e-news letter	Quarterly	4
Nellore-1	KVK Newsletter	July-Sept 2019	90
Vishakapatnam-1 (BCT)	BCT Newsletter	Monthly	12
Telangana			
Peddapalli (Ramgirikilla)	Udyana Pantalalo Chepattavalacina Panulu	Monthly	12
Nagarkurnool (Palem)	KVK Newsletter	Quarterly	20
Ranga Reddy (Hayathnagar)	KVK Newsletter	Half yearly	2

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 5726 quintals of seed of cereals and millets, 371 quintals of oilseeds, about 3279 quintals of pulses and supplied to about 22408 farmers. (Table 3.6.1). Fodder seed (5016 q) were produced and distributed to 15349 farmers.

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	418	891320	634	2758	7800578	5812	2073	7501860	2985	478	1592160	1158	5726	17785918	10589
Oil Seeds	124	1229788	610	225	1123501	661	22	12000	18		3570	8	371	2368859	1297
Pulses	1654	1512633	1267	1049	5068776	5204	575	577327	4039	1	5610	12	3279	7164346	10522
Vegetables	145	244875	1974	1	91718	138							145	336593	2112
Fruits	2	55810	707										2	55810	707
Flowers				1	20405	18							1	20405	18
Spices	19	28650	40										19	28650	40
Fodder	415	8680486	15114		76975	78	40	19995	42	61	12210	115	516	8789666	15349
Special Planting Materials	7	383250	730										7	383250	730
Green manure	4	26170	99		13250	24							4	39420	123
Commercial crops				93	28500	7							93	28500	7
Total	**2787**	**13052982**	**21175**	**4128**	**14223703**	**11942**	**2710**	**8111182**	**7084**	**540**	**1613550**	**1293**	**10165**	**37001417**	**41494**

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

3.6.2. Planting material

Slips of fodder crops (978016 No.) slips of fodder crops, vegetable seedlings (1843192), saplings of forestry and plantation etc., totaling **3137216** were supplied to **25120** farmers in the Zone. (Table 3.6.2).

Table 3.6.2. Production and supply of planting material

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	No.	V	F	Q	V	F	Q	V	F	Q	V	F	Q	V	F
Vegetables	123403	87475	282	1381591	514112	2717	352922	182460	421	40276	26063	313	1898192	810110	3733
Fruits	39764	2029990	5012	16880	501675	2180	12339	425830	1291	11626	275039	783	80609	3232534	9266
Flowers and ornamental plants	32854	412805	2038	14123	96075	642	31344	73470	64	13272	157039	2543	91593	739389	5287
Medicinal and aromatic plants	5515	15420	69	79092	107190	178				2621	39355	929	87228	161965	1176
Forestry and plantation crops	18732	893678	1494	20576	614380	806				962	9690	42	40270	1517748	2342

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	No.	V	F	Q	V	F	Q	V	F	Q	V	F	Q	V	F
Fodder slips	862406	778752	1649	29120	145910	121	84000	42000	43	6820	3410	20	982346	970072	1833
Spices	949	10970	65	1000		2				579	5790	15	2528	16760	82
Special Planting materials	1887	43745	122							347	34700	50	2234	78445	172
Others	6746	92229	1219	4800	9600	2							11546	101829	1221
Total	**1092256**	**4365064**	**11950**	**1547182**	**1988942**	**6648**	**480605**	**723760**	**1819**	**76503**	**551086**	**4695**	**3196546**	**7628852**	**25112**

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

3.6.3. Bio-products and bio-agents

A total of 56786 kg of bio fertilizers, 56554 kg of bio pesticides and 685258 kgs of others bio-inputs were produced supplied to 236213 farmers details (Table 3.6.3).

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	12843	871561	10912	15572	376140	2689	28243	602275	2417	129	2570	55	56786	1852546	16073
Bio-inputs	169361	1406844	87091	291675	1877570	647	219215	1357857	644	5007	50070	1281	685258	4692341	89663
Bio-pesticides	35836	1554285	116241	2950	587200	581	4270	518250	761	13499	2471796	12894	56554	5131531	130477
Total	**218041**	**3832690**	**214244**	**310197**	**2840910**	**3917**	**251728**	**2478382**	**3822**	**18634**	**2524436**	**14230**	**798599**	**11676418**	**236213**

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

3.6.4. Livestock Species

A total of 1196799 livestock species, comprising of Fish spawn/seed of 1141918 numbers, 50584 back yard poultry chicks, 3822 dairy animals and 473 sheep and goat have been produced and provided to the farmers (Table 3.6.4).

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

Category	Tamil Nadu			Andhra Pradesh			Telangana			Puducherry			Total		
	Q	V	F	Q	V	F	Q	V	F	Q	V	F	Q	V	F
Dairy cattle	3713	610786	3151	109	190300	70							3822	801086	3221
Goat and Sheep	121	573552	7068	253	1148074	161	96	523500	30	3	10330	3	473	2255456	7262
Poultry	32991	1699207	10536	5964	697310	1093	11410	918000	539	219	13112	41	50584	3327629	12209
Piggery				2	30000	100							2	30000	100
Fishery	1090749	884244	538				40810	739900	25017	10358.4	11560	111	1141918	1635704	25666
Total	**1127574**	**3767789**	**21293**	**6328**	**2065684**	**1424**	**52316**	**2181400**	**25586**	**10580.4**	**35002**	**155**	**1196799**	**8049875**	**48458**

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

3.6.5. Other inputs

A total of 77221 q other inputs comprising of 39349q of crop inputs, 19475 q animal feed, 640 q of poultry feed, 1500 q of fish feed and 16257 q of other inputs have been produced and provided to the farmers (Table 3.6.5).

Table 3.6.5. Details of other inputs produced and distributed

Category	Tamil Nadu			Andhra Pradesh			Telangana			Total		
	Q	V	F	Q	V	F	Q	V	F	Q	V	F
Crop inputs	30606	2902926	4239	443	66110	123	8300	128800	6706	39349	3097836	11068
Animal feed	12425	447575	1499	6800	148000	119	250	5750	5	19475	601325	1623
Poultry feed	45	3025	11	595	59500	24	0	75000	125	640	137525	160
Fish Feed	1500	60000	15							1500	60000	15
Others	16256	1037167	1553	1	600	10				16257	1037767	1563
Total	**60832**	**4450693**	**7317**	**7839**	**274210**	**276**	**8550**	**209550**	**6836**	**77221**	**4934453**	**14429**

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 so as to make soil test based nutrient recommendations in various micro-farming situations in the district. A total number of 36603 samples including soil (32029), water (4409), plant (129), manure (5) samples were analyzed by the KVKs benefitting 32765 farmers of 7822 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	7079	6176	2176	5422	5188	670	3396	3349	262	208	179	21	16105	14892	3129
Soil Samples analyzed by traditional laboratory method	6860	6352	1884	7118	6116	498	987	929	123	959	850	93	15924	14247	2598
Total Soil Samples analyzed	13939	12528	4060	12540	11304	1168	4383	4278	385	1167	1029	114	32029	29139	5727
Water samples analyzed	3102	2703	1230	1001	513	617	226	226	94	80	50	50	4409	3492	1991
Plant Samples analyzed	125	102	74	4	2	2	0	0	0	0	0	0	129	104	76
Manure samples analyzed	2	1	1	0	0	0	0	0	0	3	1	1	5	2	2
Others	31	28	26										31	28	26
Total	**17199**	**15362**	**5391**	**13545**	**11819**	**1787**	**4609**	**4504**	**479**	**1250**	**1080**	**165**	**36603**	**32765**	**7822**

3.7. Rainwater Harvesting

Rainwater harvesting technologies (404 Nos) were demonstrated at 176 locations and trainings were organized benefitting 43202 farmers and 2700 officials (Table 3.7.1).

Table 3.7.1. Details of training programmes conducted on rainwater harvesting

State	KVK	Details of the Activity	No. of Trainings	No. of Demos	No. of Farmers Visited	No. of Officials Visited
TN	Ariyalur	Training and visit facilitated to the trainees in our farm ponds where rainwater harvesting made and effectively utilized for irrigation and fish rearing	2	2	67	15
TN	Cuddalore	Rainwater harvesting structure was insisted to the farmers by KVK through on campus training, off campus training and also through awareness campaigns	15	5	600	25
TN	Dharmapuri	Micro irrigation methods	15	15	1052	72
TN	Dindigul	The farmers of Dindigul district and various districts were shown the Farm Pond, Percolation pond, Trenches, Compartmental bunding etc., and explained the benefits of each technology	13	5	725	21
TN	Kancheepuram	Jal Shakti Abhyan trainings, awareness programmes and demonstrations	46	6	4068	88
TN	Madurai	Kisan Mela - I	2	5	417	155
TN	Madurai	Kisan Mela - II	0	0	520	110
TN	Nagapattinam	Fish culture and Poultry production	2	2	100	12
TN	Namakkal	Conducted Laser drip micro irrigation for water saving, Construction of check dam and farm pond for 90rain water harvesting, Mulching with farm waste to conserve water and application of PUSA gel	2	12	115	8
TN	Perambalur	Tree planting drive on the beds of Rain water harvesting unit	2	2	128	14
TN	Salem	Visit to KVK Farm Pond, KVK Rainwater Harvesting Centre and Water collection at KVK	26	6	2310	452
TN	Sivagangai	150th Birth anniversary of Mahatma Gandhi	1	2	80	10
TN	Sivagangai	Water Conservation Awareness Programme organized by Central Industrial Security 4th RB, Amaravathipudur	1	1	250	30
TN	THENI	We have conducted the JAL SAKTHI ABHIYAN water conservation programme with collaboration of district revenue department, Theni. We have conducted the 87 training and 15 demonstrations on water harvesting.	87	13	12500	127
TN	Thiruvallur	As part of Jal Sakthi Abhiyan Programme Rain Water Harvesting Structure was created at KVK, Tirur for training and demonstration to farmers	4	4	225	15

State	KVK	Details of the Activity	No. of Trainings	No. of Demos	No. of Farmers Visited	No. of Officials Visited
TN	Thiruvarur	Special lecture. Demonstration and film show a on Rain water harvesting was conducted during the JAL SHAKTI ABHIYAN awareness programmes	4	4	2854	212
TN	Thoothukudi	Sirupadu Oorani Desilted and 100 trees planted around the oorani	4	2	254	25
TN	Tirunelveli	Jal Sakthi Abhiyan	110	10	12226	265
TN	Virudhunagar	Micro Irrigation demo unit	12	1	447	200
AP	Anantapur-2 (Kalyandurg)	Farm pond	4	4	80	10
AP	Anantapur-1 (Reddipalli)	Lilly, Jasmine, Citrus, Groundnut, Banana, redgram	4	2	342	35
AP	Chittoor-1 (RASS)	Protective irrigation for rainfed groundnut by using sprinkler/rain gun/drip	1	10	25	8
AP	Chittoor-1 (RASS)	Renovation of irrigation tanks, Trench cum bunding in mango and Recharge bore wells	4	17	262	48
AP	Guntur (Lam)	demonstration on drip irrigation system	0	0	0	0
AP	Guntur (Lam)	method demonstrations on water conservations practices like farm pond	0	9	214	15
AP	Kadapa-1 (Utukur)	Field visit of farm pond	0	5	110	5
AP	Kurnool-2 (Banavasi)	Training programme conducted on Farm ponds	1	4	124	34
AP	Srikakulam	Counter trenching for soil moisture in collaboration with DWMA	1	4	30	5
TS	Wanaparthy (Madanapuram)	Watershed development activities: Farm ponds, Checkd ams, gully plugs construction	6	0	6	6
TS	Medak (Tuniki)	Farm ponds, trenches, roof top water harvesting, Water shed management	2	10	1850	600
TS	Nizamabad (Rudrur)	Soak pits and farm pond excavations were taken up	17	2	150	20
TS	Ranga Reddy (Hayathnagar)	Rainwater management activities	10	10	220	30
PY	Puducherry	Ground Water Board official visit,	0	0	0	0
PY	Puducherry	Jal Shakthi Abhiyan officials visit, Central	6	2	851	28
PY	Puducherry	Officials visit, Farmers, General Public	0	0	0	0
PY	Puducherry	Puducherry Ground water authority	0	0	0	0
			404	**176**	**43202**	**2700**

3.8. Technological Backstoping

The directorates of extension of State Agricultural Universities (SAUs) in the zone and ATARI are vested with the responsibility of technology back stopping , capacity building, monitoring and review of activities of KVKs. A total of 57 events related to training programmes, meetings, seminars, workshops and HRD programmes were conducted by directorates of extension of agricultural, horticultural, veterinary and fisheries universities and also ATARI during 2019-20 for the benefit of 2403 members of staff of KVKs and farmers in the zone. The officials of directorates of extension of SAUs made 445 visits to 72 KVKs to monitor and review the technological interventions and to take stock of the infrastructural facilities available and also the constraints faced by the KVKs operating in the jurisdiction of their respective universities and also the NGO KVKs in the zone.

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

SAU/ATARI	No. of meetings	No of participants
ANGRAU, Lam, Guntur	10	296
PJTSAU, Hyderabad	6	78
Dr.YSRHU, V.R.Gudem, A.P	9	1045
TNAU, Coiumbatore, Tamilnadu	18	385
TANUVAS, Chennai, Tamilnadu	1	4
ATARI, Hyderabad	13	595
Total	**57**	**2403**

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

Name of SAU	No. of visits	No. of KVKs
ANGRAU, Lam, Guntur	186	23
PJTSAU, Hyderabad	20	14
Dr. YSRHU, V.R. Gudem, A.P	152	4
TNAU, Tamilnadu	76	32
TANUVAS, Tamil Nadu	21	5
Total	**455**	**72**

3.9. Agricultural Technology Information Centre (ATIC)

Three Agricultural Technology Information Centres (ATICs) are operational in the Zone, two under Agricultural Universities, Professor Jayashankar Telangana State Agricultural University (PJTSAU) and Tamil Nadu Agricultural University (TNAU) and one Veterinary University, TANUVAS (Tamil Nadu University of Veterinary and Animal Sciences). The ATICs are vested with the responsibility of providing farmers with enhanced access to sources of information related to agriculture and allied sectors and also critical technology products like seed, planting material, livestock material and bio-products and also provide technology services like soil and water analysis, plant & animal diagnostic visits, agro-veterinary advisory *etc*. The three ATICs provided technology information, technology products and agro-advisory to 2405, 1615 and 1256 farmers respectively during 2019-20.

A total of 20 different books were sold to 5460 farmers and one two technical bulletins from PJTSAU were sold to 9256 farmers during last year. Two CDs on various technologies were sold for the benefit of 409 farmers during 2019-20.

Critical technology products like seed, planting material, livestock material, poultry and bio-products were provided to a total of 4867 beneficiaries.

Technology services like soil and water testing, plant diagnostic visits, services to line departments and agro-veterinary advisory services were provided to 179, 1375, 246 and 1522 beneficiaries respectively by the ATICs during 2019-20.

Table 3.9.1. Details of visit of farmers to ATICs

Nature of visit	Number of farmers			
	PJTSAU	TANUVAS	TNAU	Total
Technology information	525	997	883	2405
Technology products	125	1025	465	1615
Agro-advisory	162	742	352	1256

Table 3.9.2. Details of publications by ATICs

Nature of publication	Unit	PJTSAU	TANUVAS	Total
Books	Number	1	19	20
	No. of copies	5000	2133	7133
	Revenue	750000	12443	762443
	No. of farmers	5000	460	5460
Technical bulletins	Number	2		2
	No. of copies	9624		9624
	Revenue	277090		277090
	No. of farmers	9256		9256
CD, DVD and video films		1	1	2
		254	346	600
		10160	2076	12236
		254	155	409

PROJECTS

3.10. National Innovations in Climate Resilient Agriculture (NICRA)

National Innovations in Climate Resilient Agriculture (NICRA) is a multi-institutional and multidisciplinary network project launched by ICAR in 2011 which aims to build resilience in Indian agriculture to climate change and climate variability through strategic research and technology demonstrations. Technology Demonstration Component (TDC) of NICRA which is implemented in 121 climatically vulnerable districts of the country focuses on enhancing the adaptive capacity of farmer in these districts to climatic change and to ensure security of livelihood in times of climatic aberrations. The Technology Demonstration Component (TDC) of NICRA was implemented through 11 KVKs *viz.*, Anantapur, Chittoor, Kurnool, Srikakulam and West Godavari in Andhra Pradesh; Khammam and Nalgonda in Telangana and Namakkal, Ramanathapuram, Villupuram-1 and Tiruvarur in Tamil Nadu. KVKs conducted demonstrations and undertook capacity building and extension activities on climate resilient technologies under four different modules, NRM, crop production, livestock & fisheries and institutional interventions. Demonstrations were organized in 919.7 ha benefiting 1931 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 1101.3 ha area covering 2619 farmers. Under livestock and fisheries interventions, 3894 farmers were benefited on improved fodder production covering 116.35 ha. Silage making, breed upgradation, improved breeds of backyard poultry, vaccination, animal health camps, management of fish ponds etc were demonstrated involving 4756 animals. Under institutional interventions like custom hiring center, fodder bank and seed bank 1263 farmers were benefited. Through capacity building and extension activities, awareness on climate resilient technologies was brought about benefitting 3714 and 6206 farmers through 113 and 237 activities respectively.

Natural Resource Management

Supplemental irrigation using sprinklers in groundnut- Chittoor

Irrigation water being a scarce resource under rainfed situation, its efficient and economic use is of utmost importance for groundnut productivity. Pressurized irrigation system is found to be quite effective under limited irrigation water availability to get more productivity in addition to saving of other critical inputs like fertilizers, pesticides etc. Sprinkler irrigation system is convenient and effective means of supplying irrigation water without much wastage resulting higher productivity. It gained a momentum in recent days because of impact of climate change resulting in unpredictable showers and long periods of drought. Groundnut is the major oilseed crop grown in the cluster villages under rainfed conditions with low productivity because farmers often experience crop failures due to erratic rainfall at critical stages of crop growth. KVK conducted demonstrations on sprinkler method of irrigation in groundnut to conserve irrigation water. Two dry spells occurred during crop growing season, one at vegetative phase and one at pod filling stage. Groundnut crop was saved by giving supplemental irrigation using sprinklers and an increase of 20.2% in yield was recorded when compared to farmers practice.

Treatments	Pod yield (kg/ha)	Cost of cultivation (Rs./ha)	Gross income (Rs./ha)	Net income (Rs./ha)	B:C ratio
Farmers practice	1572	51650	98250	46600	1.90
Supplemental irrigation	1890	53075	118125	65050	2.23

Supplemental irrigation through sprinklers in Groundnut

Conservation furrows in Red gram

Kurnool falls under scarce rainfall zone and frequent prolonged dry spells at critical crop growth stages resulting in poor yields were observed. To cope up with this problem, in- situ moisture conservation measures by formation of conservation furrows between rows of red gram during Kharif-19 in an area of 15 ha were taken up. The results indicated that Red gram variety LRG-52 with In-situ conservation measures and sub soiling gave higher yield 1365 kg/ha in medium black soils compared to farmers practice with favourable B:C ratio of 2.62.

Treatments	Seed yield (kg/ha)	Cost of cultivation (Rs./ha)	Gross income (Rs./ha)	Net income (Rs./ha)	B:C ratio
Farmers practice (without furrows)	1067.5	26250	58685	32435	2.23
Conservation Furrows	1365	28650	75075	46425	2.62

Conservation Furrows in Red gram-Kurnool

Crop Production

Drought tolerant groundnut variety- Anantapur

Climate resilient variety of groundnut, K. Harithandhra was demonstrated in NICRA village covering an area of 2 ha benefitting 10 farmers. The results indicated that, the improved variety showed an additional yield of 277 Kg/ha with 13.21% increase in net income compared to farmers variety (K-6).

Interventions	Variety	Pod yield (kg/ha)	Gross cost (Rs./ha)	Gross returns (Rs./ha)	Net returns (Rs./ha)	B:C ratio
Farmers practice	K-6	2800	31850	159313	127463	4.00
Intervention	K. Harithandra	3077	29700	174005	144305	4.85

K. Harithandra (Groundnut variety)

Laser spray micro-irrigation in small onion

Water Saving Technologies- Namakkal

Laser spray micro irrigation system was demonstrated in small onion and groundnut in order to utilize the stored water in a more efficient manner, to minimize the use of water and to increase the area of cultivation. The results indicated that, an additional yield of 2300 kg/ha and 653 kg/ha with favourable benefit cost ration of 2.18 and 2.58 compared to farmers practice (flood irrigation) in small onion and groundnut respectively.

Treatments	Seed yield (kg/ha)	Cost of cultivation (Rs./ha)	Gross Income (Rs./ha)	Net income (Rs./ha)	B:C ratio
Farmers practice (Flood Irrigation)	13200	298000	416225	118225	1.40
Water saving technology- Laser spray micro irrigation for **small onion**	15500	223750	488750	265000	2.18
Farmers practice (Flood Irrigation)	1272	30150	57240	27090	1.90
Water saving technology- Laser spray micro-irrigation in **groundnut**	1925	33550	86,625	75575	2.58

Micro irrigation in Groundnut

Square planted redgram as alternative to cotton

Crop diversification- Khammam

Cultivation of cotton has been a traditional practice in the NICRA village of Khammam. Frequent and intermittent droughts have been adversely affecting the productivity of the crop in the NICRA village. Red gram (WRG-65) was demonstrated as alternative to cotton which resulted in an additional net income of Rs. 11040/ha compared to farmers practice with a B:C ratio of 1.94.

Intervention	Yield (Kg/ha)	Cost of cultivation (Rs./ha)	Gross income (Rs./ha)	Net income (Rs./ha)	B:C Ratio
Farmers practice (cotton)	1862.5	64115	89400.5	25285	1.39
Cotton diversified with redgram (WRG-65)	1437.5	38425	74750	36325	1.94

Livestock & Fisheries

Shelter Management in Dairy- Namakkal

Foggers were installed in cattle sheds to mitigate heat stress in dairy cattle during summer which reduced heat by 2.6°C. Under this improved conditions the milk yield was enhanced from 5.7 l to 6.4 l/day/animal compared to farmers practice.

Parameters with unit	With foggers	Without foggers
Temperature inside the shed	25.6	28.2
Temperature outside the shed in summer	29	29
Milk yield (l/day)	6.4	5.7
SNF content (%)	7.9	7.9
Fat content (%)	3.4	3.4

Foggers installed in cattle shed

Monitoring water quality in fish ponds

Water quality management in fish ponds- West Godavari

Water quality management in fish ponds was taken to avoid sudden mortality due to changes in water quality parameters. Monitoring of water quality *viz.*, Dissolved oxygen (DO), ammonia content and PH in fish ponds and adoption of correction measures on need basis resulted in 25% increase in yield and gave an additional income of Rs. 400300/ha.

Treatments	Yield (kg/ha)	Cost of cultivation (Rs./ha)	Gross income (Rs./ha)	Net income (Rs./ha)	B:C ratio
Farmer practice	4200	910300	1260000	349700	1.38
Intervention covered pond	5250	825000	1575000	750000	1.91

Polyculture of *L. vannamei* with Indian major carps- West Godavari

In order to maintain good stocking density, better disease management, extra net income and total utilization of different trophic and spatial niches of a pond and to obtain maximum fish- shrimp production per unit area, polyculture of fish and shrimp was demonstrated in an area of 10 ha covering 5 farmers at West Godavari district. Poly culture plots recorded Rs.188600 of additional income per hectare compared to control.

Performance of poly culture of *L. vannamei* with Indian Major Carps

Treatments	Yield (kg/ha)	Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio
Farmer practice	4300	255600	344000	88400	1.34
Intervention covered pond	3900+ 1050	350000	627000	277000	1.79

Climate Resilient Integrated Farming System (IFS) model: KVK, Chittoor (RASS)

Shri Chengal Reddy from Buddareddivarpalli, Deendarlapalli Panchayat, one of the NICRA adopted villages has adopted Integrated Farming System on 3 acres of land covering agriculture, horticulture, dairy and poultry components and implemented several climate resilient technologies that resulted in enhanced system productivity and income. He hitherto was dependent on agriculture and dairy only.

KVK, Chittoor (RASS) guided the farmer at every stage of establishing the IFS unit and provided critical inputs related to the climate resilient interventions like stress tolerant varieties of tomato and groundnut (Arka Samrat and Dharani) , soil and water conservation measures (plastic mulching and micro-irrigation in tomato), crop diversification with Chrysanthemum, heat stress management using foggers in cattle sheds, improved fodder production (Hybrid Napier and CoFS-31), backyard poultry (Rajashri) and use of Azolla as poultry feed.

The productivity of individual components of the system was enhanced by 17.6%, 11.4%, 14.3% and 9.6% with respect to groundnut, tomato, dairy and fodder respectively, when compared to farmer practice due to the adoption of climate resilient technologies. Additional net returns of Rs.2,74,650, Rs.19,840 and Rs.41514 was obtained from horticulture, agriculture and livestock components respectively. The entire system ensured additional net income of Rs.3,37,000 per ha with the adoption of climate resilient technologies in each of the components of the IFS unit.

Many farmers in the NICRA village are motivatged to adopt this climate resilient IFS model to sustain and stabilize their income levels. So far five farmers from the same village have already started successfully implementing the IFS model.

Drought tolerant groundnut variety (Dharani) Backyard poultry , Rajashri

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.

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 trying 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.

ARYA has been implemented by three KVKs in Zone 10 *viz*., Nellore-1 in Andhra Pradesh, Nalgonda (Kampasagar) in Telangana and Kanyakumari in Tamil Nadu since 2015-16 and additional seven KVKs *viz*., West Godavari-2 (Vrgudem), Kadapa, Mahabubabad (Malyal), Dharmapuri, Shivagangai, Erode and Puducherry were sanctioned during 2018-19.

KVK Nellore-1 has trained 324 youth on vermicomposting, mushroom production and establishment of nursery (Table 3.11.1). Eighteen enterprise units have been established by 62 trained youth. Among the 365 trained youth in KVK West Godavari-2 (Vrgudem), 155 youth have established 87 enterprise units on value addition, poultry rearing and sheep and goat rearing. In KVK-Kadapa-1 (Utukur), 24 enterprises on vermicompost, mushroom production, nursery unit and value addition have been established by 40 youth among 245 trained youth. Thirty two enterprises on nursery, bakery unit, vermicomposting and IFS have been established by 60 among 120 trained youth in Nalgonda (Kampasagar) while 114 youth have established 24 enterprises on nursery, vermicomposting, value addition, honey production and poultry rearing in Mahabubabad (Malyal). In Dharmapuri of Tamil Nadu, 20 enterprises on poultry rearing, mushroom production and nursery units have been established by 240 youth. In Sivagangai, 190 enterprises on poultry, vermicomposting, fishery, and value addition have been established by 200 youth. In Kanyakumari, ten enterprise units on value added products from banana and coconut have been established by 150 youth while 50 youth have established vermicompost unit. In Erode, 37 youth have established 23 enterprise units on poultry. bio-inputs production, value added products from banana and honey production. KVK Puducherry has trained 116 youth on hydroponic green fodder production, vermicomposting, value addition, mushroom production and poultry rearing.

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-1	Vermicompost	2	87	6	6
	Mushroom	4	115	32	4
	Nursery	3	122	24	8
	Total	9	324	62	18

KVK	Enterprise	No. of Trainings	No. of Youth trained	No of Youth established units	No. of enterprises established
West Godavari-2 (Vrgudem)	Value addition	3	45	45	2
	Poultry	3	180	60	60
	Sheep and goat	3	140	50	25
	Total	9	365	155	87
Kadapa-1 (Utukur)	Vermicompost	2	77	12	4
	Mushroom	2	48	4	4
	Nursery	2	60	8	4
	Value addition	2	60	4	4
	Total	8	245	40	24
Telangana					
Nalgonda (Kampasagar)	Nursery	1	30	10	2
	Bakery	1	30	22	2
	Vermicompost	1	30	20	20
	IFS	1	30	8	8
	Total	4	120	60	32
Mahabubabad (Malyal)	Nursery	1	30	6	1
	Vermicompost	1	30	30	5
	Value addition	1	30	18	3
	Honey production	1	30	30	5
	Poultry	1	30	30	10
	Total	5	150	114	24
Tamil Nadu					
Dharmapuri	Poultry	4	90	90	10
	Mushroom	3	90	90	5
	Nursery	2	60	60	5
	Total	9	240	240	20
Sivagangai	Poultry	3	70	70	70
	Vermicompost	3	60	60	60
	Fishery	3	50	50	50
	Value addition	3	20	20	10
	Total	12	200	200	190

KVK	Enterprise	No. of Trainings	No. of Youth trained	No of Youth established units	No. of enterprises established
Kanyakumari	Value added products from Banana	9	96	90	6
	Value added products from Coconut	6	69	60	4
	Vermicompost	2	50	50	50
	Total	17	215	200	60
Erode	Poultry	3	45	10	13
	Bio-Inputs	3	43	7	1
	Value added products from banana	3	42	10	3
	Honey production	1	30	10	6
	Total	10	160	37	23
Puducherry					
Puducherry	Hydroponic Green Fodder Production	1	25		
	Vermicompost	1	16		
	Value addition	1	25		
	Mushroom	1	25		
	Poultry	1	25		
	Total	5	116		
Grand Total		**88**	**2135**	**1108**	**478**

Mushroom production unit established by Mr. A. Mahendra of Nellore District under ARYA Project

Vermicompost unit established by youth of Podalakur Mandal, Nellore district

Backyard poultry unit established by Mr K. Daraiah of Aliveru village in West Godavari District

Honey production unit established in Mahabubabad (Malyal), Telangana

Shadenet nursery established in Dharmapuri, Tamil Nadu

Poultry unit established in Sivagangai, Tamil Nadu

Production of valueadded products by youth of Kanyakumari District, Tamil Nadu

Bio-inputs production unit established by youth of Erode district (Tamil Nadu)

3.12. Tribal Sub Plan (TSP)

The Tribal Sub Plan (TSP) which aims to bring about equitable development of tribal people at a par with those in plains in terms of housing, transportation, health, education, income, employment opportunities and to prevent exploitation of tribal people, has been implemented in the states of Andhra Pradesh and Telangana of the zone through 6 KVKs each. The KVKs implementing tribal sub plan in A.P are Vizinaganagarm, Visakhapatnam-1 (BCT), Vishakapatnam-2 (Buchayapet), West Godavari-2 (Vrgudem), East Godavari-2 (Pandirimamidi) and Prakasam-1 (Darsi). In the state of Telangana the KVKs, Adilabad, Mancherial (Bellampalli), Khammam (Wyra), Bhadradri (Kothagudem), Nalgonda (Kampasagar) and Mahabubabad (Malyal) have been included for implementing TSP in their operational mandals. It is ensured that the operational area of TSP has more than 40 per cent of tribal population and the project leads to 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 review and action plan meeting of 12 KVKs implementing TSP in Zone X was held in ICAR-ATARI, Hyderabad on 26th June, 2019 to review the achievements of KVKs under TSP during 2018-19 and to finalize the action plan for the year 2019-20. The achievements of KVKs under TSP have been presented in the following tables.

Table 3.12.1. Achievements of interventions undertaken by KVKs under TSP during 2019-20

S.No.	Activity	Units	Achievement		
			Andhra Pradesh	Telangana	Zone
1	On- farm trials	Number	39	22	61
		No. farmers	147	63	210
2	Frontline demonstrations	Number	70	40	110
		No. farmers	933	468	1401
3	Farmers training	Number	125	54	179
		Participants	4059	1829	5888
4	Training of Rural Youth	Number	30	17	47
		Participants	831	500	1331
5	Training of Extension Personnel	Number	23	10	33
		Participants	708	398	1106
6	Skill Training	Number	26	12	38
			859	386	1245
7	Extension activities	Number	250	22	272
		Participants	6424	2767	9191
8	Production of seed	Quantity (q)	238.31	253.25	491.56
		No. farmers	873	1855	2728
9	Planting material supplied	Number	449853	55586	505439
		No. farmers	1319	4935	6254

S.No.	Activity	Units	Achievement		
			Andhra Pradesh	Telangana	Zone
10	Live-stock strains and fish finger lings supplied	Number	5804	10030	15834
		No. farmers	464	989	1453
11	Soil samples tested	Number	1448	1500	2948
		No. farmers	1395	1500	2895
12	Mobile agro- advisory provided to farmers	Number	1329	562	1891
		No. farmers	103574	5363	108937
13	Micro-enterprises established	Number	1994	2133	4127
		Participants	2175	3692	5867

The KVKs conducted 38 skill training programmes benefitting 1245 tribal people and imparted skills required to establish and run micro-enterprises for income generation. A total of 4127 physical assets/ micro-enterprises were established in the project benefitting 5867 tribal people.

Table 3.12.2. Skill training programmes conducted during 2019-20

S.No.	Name of the KVK	Name of the training Programme	Duration (Days)	No. of trainees
1	Adilabad, Telangana	Raising of seedlings in pro-trays	3	30
		Skill training on value addition to millets	3	30
		EDP on value addition to tomato	3	30
2	Mancherial (Bellampalli), Telangana	Vermi compost production	1	46
		Preparation and application of neem Seed kernal extract	1	50
3	Khammam (Wyra), Telangana	Training programme on tailoring	60	25
		Training on embroidery	60	25
4	Bhadradri (Kothagudem), Telangana	Management of newly emerging Pests and Diseases in major crops	1	30
		Use of ICT tools for effective extension	1	30
5	Nalgonda (Kampasagar), Telangana	Horticultural technologies for doubling farmer income	3	30
		Value addition of fish and fishery products	3	30
6	Mahabubabad (Malyal), Telangana	Honeybee rearing	3	30
Total of Telangana			**12**	**386**

S.No.	Name of the KVK	Name of the training Programme	Duration (Days)	No. of trainees
7	Vizianagaram, A.P.	Nursery management in vegetables	2	35
		Value addition to millets	3	25
		Mushroom cultivation	5	25
		Value addition to vegetables	3	22
		Maintenance of nutri -garden	2	25
		Low cost iron rich foods to prevent anaemia	2	23
		Azolla cultivation	1	30
		Maintenance of backyard poultry	2	33
8	Vishakapatnam-2 (Buchayapet) A.P.	5 training programmes on value addition to millets	2	200
		Raising of ginger seedlings through Pro tray technology	02	25
		Raising of turmeric seedlings through Pro tray technology	02	25
		HoneyBee production	03	25
9	East Godavari-2 (Pandirimamidi), A.P	Processing of nuts and value addition in cashew	5	29
		Production and use of organic manures and fertilizers	3	30
10	West Godavari-2 (VR Gudem), A.P	Beekeeping	5	25
		Importance & Method of soil sampling	1	35
		Value addition of fruits and vegetables	3	30
		Importance of soil sampling	1	35
		Integrated fisheries cum poultry cum horticulture	3	50
		Aquaculture worker	25	20
11	Prakasam-1 (Darsi), A.P	Dyeing and Printing Techniques	5	30
		Hatchery management in poultry	3	25
Total of Andhra Pradesh			**26**	**859**
Total of the Zone			**38**	**1245**

Table 3.12.3. Physical assets / micro-enterprises established in tribal areas during 2019-20

S.No.	Name of the KVK	Name of the physical asset / micro-enterprise	No. of units	No. of beneficiaries
1	Adilabad, Telangana	Vermi compost beds	36	36
		Seed storage units	50	50
		Tarpaulins	107	107
		Cotton pullers	500	500
		Micro irrigation (Sprinklers)	20	20
		Multipurpose flour mill	3	500
		Shade net unit	5	5
		Mulching sheet	16	4
		Water transportation equipment	280	280
		Small motors for lifting water	4	4
		Pro-trays	72	72
		Sprinkler nozzle set	125	125
2	Khammam (Wyra), Telangana	Taiwan sprayers	11	55
		Battery sprayers	40	40
		Stitching machines	10	50
		Mini flour mills	02	10
		Vermibeds	30	30
		Tarpaulins	40	40
		Community nutrition garden	10	300
		Homestead nutrition garden	65	65
3	Nalgonda (Kampasagar), Telangana	Taiwan sprayers	30	90
		Drum seeder	10	20
		Paddy reaper	1	5
		Solar dryer	1	3
		Chaff cutter	3	6
		Tarpaulins	163	163
		Brush cutter	5	25
		Fish harvesting nets	10	10
		Vegetables crates	50	50
		Knitted gloves	100	100
		Vermicompost units	4	4

S.No.	Name of the KVK	Name of the physical asset / micro-enterprise	No. of units	No. of beneficiaries
4	Bhadradri (Kothagudem), Telangana	Vermibeds	14	28
		Multipurpose floor mill	3	90
		2 HP motors for lifting water	6	60
		Turpaulins	20	20
		Sewing machines	30	60
		Embroidery machines	6	60
		High Pressure Knapsack Sprayer	12	60
		Rotavator (42 Blades)	4	120
		Cultivator (9 tines)	4	90
5	Mahabubabad (Malyal), Telangana	Apiary	5	20
		Vermicomposting	50	50
		Mini flour mill	6	30
		Taiwan sprayers	15	75
		Battery sprayers	50	50
		Tarpaulins	60	60
		Storage bins	50	50
Total of Telangana			**2133**	**3692**
6	Vizianagaram, A.P	Bicycle wheel weeder	20	20
		Agriculture bore wells in DFI villages	4	26
		Submersible agriculture motors	3	42
		Family bio-gas plants	6	6
		Jute Bags	1000	50
		LED based solar lanterns	100	100
		Cotton stem applicators	200	40
		50 eggs capacity Incubators	3	3
		Secateurs	210	105
		Plastic crates	260	130
		Blackpoly sheets	20	20

S.No.	Name of the KVK	Name of the physical asset / micro-enterprise	No. of units	No. of beneficiaries
7	Visakhapatnam-1 (BCT), A.P	Vermicompost beds	40	40
		Poultry units	5	20
		Grain storage units	60	240
		Water transport Equipment	2	10
		Water lifting equipment	2	14
		Cono weeders	10	20
		Nursery units	2	8
		Incubator	1	20
		Flour mills	2	40
8	Vishakapatnam-2 (Buchayapet), A.P	Multipurpose Pulitzer	4	200
		Mini rice mill (2 HP motors)	4	200
		Groundnut decorticator	8	160
		Turmeric polisher	2	100
		Winnowing Fan (Men Operator)	8	160
8	West Godavari-2 (Vrgudem), A.P	Poultry enterprise	5	5
		Sheep enterprise	5	5
		Solar dehydration units	2	45
9	East Godavari-2 (Pandirimamidi), A.P	Custom hiring centres	3	300
		Rubber tapping and processing equipment	1	30
		Smoke house to Rubber growers	1	45
		Beekeeping unit in rubber plantation	1	12
10	Prakasam-1 (Darsi), A.P	Kadaknath	1	1
Total of Andhra Pradesh			**1994**	**2175**
Total of the Zone			**4127**	**5867**

A successful group approach for value addition of mahua for income generation- KVK, Adilabad

Mahua tree is associated intricately with the culture of tribal people and meets a wide-range of their food needs. With the facilitation by the KVK, Adilabad in Telangana, a group of 35 women formed an FPO named *Bheembai Adivasi Mahila Sakara Sangam* to prepare value added foods of mahua in 2019.

Training was imparted by the KVK to tribal women in processing and value addition of mahua. Multipurpose flour mill was provided to the FPO along with some other inputs for processing and storage of value added products from mahua.

The group processed 600 kg of mahua in 4 months period and a total of income to a tune of Rs. 2, 40,000 with a net profit of Rs. 1,74,000 and B:C ratio 3.63 was recorded by the group. Each member of the group earned an amount of Rs. 400 per day with limited resources and processing knowledge. Twenty five per cent of the net profit was deposited as corpus fund for future activities of the group.

This group approach boosted the confidence levels of the tribal women for taking up income generating activities of various types through value addition of non-timber forest produce available in the vicinity of their tribal villages. The KVK will continue to impart the requisite skills, provide critical inputs required and also facilitate creation of market linkages too.

Value added food from mahua *Bheembai Adivasi mahila sakara sangam*

3.13. Soil Health Cards

Soil Health Management (SHM), one of the most important interventions under National Mission on Sustainable Agriculture (NMSA) aims at promoting Integrated Nutrient Management (INM) through judicious use of chemical fertilizers including secondary and micro nutrients in conjunction with organic manures and bio-fertilizers for improving soil health and its productivity. As a part of this project soil testing facilities of KVKs have been strengthened to provide soil test based recommendations to farmers for improving soil fertility, enhancing productivity of crops and to bring down cost of production through encouragement of judicious use of fertilizers. Soil Health Card Scheme is a scheme launched by the Government of India in February 2015. Under the scheme soil health cards are issued to farmers with crop-wise recommendations of nutrients and fertilizers required for the individual farms to help farmers to improve productivity through judicious use of inputs. During 2019-20, KVKs in Zone-X issued 30531 Soil Health Cards benefiting 28218 farmers in 4695 villages (Table 3.13.1). Also 30015 soil test based fertilizer recommendations were issued to 27035 farmers in 4271 villages.

Table 3.13.1. Soil health card and management advisories issued 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 Health Cards issued using Mini Soil Testing Kit	6397	6094	1691	5074	4452	523	3031	2984	236	78	49	11	14580	13579	2461
Soil Health Cards issued using traditional laboratory method	5848	5461	1511	8192	7434	509	952	894	121	959	850	93	15951	14639	2234
Total Soil Health Cards issued	12245	11555	3202	13266	11886	1032	3983	3878	357	1037	899	104	30531	28218	4695
Soil test based fertilizer recommendations issued															
Based on Mini Soil Testing Kit data	5259	4617	1691	3844	3542	333	3206	3717	112	78	49	11	12387	11925	2147
Based on traditional laboratory analysis data	5813	5422	1490	9606	7696	402	1250	1142	139	959	850	93	17628	15110	2124
Total recommendations	11072	10039	3181	13450	11238	735	4456	4859	251	1037	899	104	30015	27035	4271

N = Number, F = No. of Farmers, V = No. of Villages

Table 3.13.2. Soil analysis and issue of soil health cards by KVKs during 2018-19

KVK	Soil Samples analyzed (Nos)			Soil Health Cards Issued		
	MSTL	STL	Total	MSTL	STL	Total
Tamil Nadu						
Ariyalur	392	0	392	1576	0	1576
Coimbatore	220	968	1188	220	968	1188
Cuddalore	362	100	462	303	83	386
Dharmapuri	681	0	681	681	0	681
Dindigul	170	0	170	0	0	0
Erode	1221	2164	3385	1221	2164	3385

KVK	Soil Samples analyzed (Nos)			Soil Health Cards Issued		
	MSTL	STL	Total	MSTL	STL	Total
Kancheepuram	200	27	227	0	0	0
Kanyakumari	253	0	253	253	0	253
Karur	289	112	401	289	120	409
Krishnagiri	135	0	135	125	0	125
Madurai	120	114	234	0	114	114
Nagapattinam	300	0	300	127	0	127
Namakkal	395	415	810	395	415	810
Perambalur	97	509	606	0	0	0
Pudukkottai	306	0	306	0	0	0
Ramanathapuram	249	50	299	249	50	299
Salem	90	367	457	90	367	457
Sivagangai	87	267	354	87	267	354
THENI	0	669	669	0	669	669
Thiruvallur	125	0	125	125	0	125
Thiruvannamalai	94	86	180	94	86	180
Thiruvarur	435	0	435	435	0	435
Thoothukudi	371	253	624	0	0	0
Tiruchirappalli	0	369	369	0	360	360
Tirunelveli	0	92	92	0	185	185
Tiruppur	0	0	0	0	0	0
Vellore	185	0	185	127	0	127
Villupuram-1	302	298	600	0	0	0
Villupuram-2	0	0	0	0	0	0
Virudhunagar	0	0	0	0	0	0
Total (Tamil Nadu)	7079	6860	13939	6397	5848	12245
Andhra Pradesh						
Anantapur-2 (Kalyandurg)	125	0	125	125	0	125
Anantapur-1 (Reddipalli)	151	324	475	151	324	475
Chittoor-2 (Kalikiri)	220	0	220	300	0	300
Chittoor-1 (RASS)	592	2318	2910	592	2318	2910
East Godavari-1 (Kalavacherla)	0	0	0	0	0	0
East Godavari-2 (Pandirimamidi)	480	0	480	0	0	0
Guntur (Lam)	810	0	810	810	0	810
Kadapa-1 (Utukur)	194	0	194	194	0	194
Kadapa-2 (Vonipenta)	0	120	120	0	120	120
Krishna-2 (Ghantasala)	220	0	220	0	0	0
Krishna-1 (Garikapadu)	191	0	191	191	0	191

KVK	Soil Samples analyzed (Nos)			Soil Health Cards Issued		
	MSTL	STL	Total	MSTL	STL	Total
Kurnool-2 (Banavasi)	310	0	310	310	0	310
Kurnool-1 (Yagantipalli)	88	1169	1257	892	2611	3503
Nellore -1	621	189	810	621	189	810
Nellore-2 (Periyavaram)	36	0	36	0	120	120
Prakasam-1 (Darsi)	414	1890	2304	408	1886	2294
Prakasam-2 (Kandukur)	0	0	0	0	0	0
Srikakulam	60	1004	1064	60	520	580
Vishakapatnam-1 (BCT)	300	0	300	300	0	300
Vishakapatnam-2 (Buchayapet)	0	0	0	0	0	0
Vizianagaram	134	0	134	96	0	96
West Godavari-1 (Undi)	24	104	128	24	104	128
West Godavari -2 (Vrgudem)	452	0	452	0	0	0
Total (Andhra Pradesh)	5422	7118	12540	5074	8192	13266
Telangana						
Adilabad	666	0	666	666	0	666
Karimnagar (Jammikunta)	732	0	732	732	0	732
Peddapalli (Ramgirikilla)	240	0	240	0	0	0
Bhadradri (Kothagudem)	150	0	150	150	0	150
Khammam (Wyra)	185	0	185	185	0	185
Nagarkurnool (Palem)	50	0	50	0	0	0
Wanaparthy (Madanapuram)	263	0	263	230	0	230
Mancherial (Bellampalli)	0	20	20	0	20	20
Sangareddy (DDS)	0	0	0	0	0	0
Medak (Tuniki)	0	117	117	0	92	92
Suryapet (Gaddipalli)	270	393	663	270	393	663
Nalgonda (Kampasagar)	500	10	510	0	0	0
Nizamabad (Rudrur)	50	0	50	508	0	508
Ranga Reddy (Hayathnagar)	0	247	247	0	247	247
Mahabubabad (Malyal)	140	200	340	140	200	340
Warangal Urban (Mamnoor)	150	0	150	150	0	150
Total (Telangana)	3396	987	4383	3031	952	3983
Puducherry						
Karaikal	130	0	130	0	0	0
Puducherry	78	959	1037	78	959	1037
Total (Puducherry)	208	959	1167	78	959	1037
Grand Total	**16105**	**15924**	**32029**	**14580**	**15951**	**30531**

3.14. Cluster Frontline Demonstrations on Pulses under NFSM

Cluster Frontline Demonstrations (CFLDs) on Pulses under NFSM

During 2019-20, CFLDs on pulses programme was conducted through 55 KVKs of ICAR-ATARI, Zone-X during kharif, rabi and summer seasons in Andhra Pradesh, Telangana, Tamil Nadu and Puducherry. A total of 2240 ha area was allotted to this zone in which 2210 ha programme was implemented by organizing 5525 demonstrations on Red gram, Bengal gram, Blackgram and Green gram crops (Table-1) with 98.7% achievement. Newly released improved varieties which are notified by the central varietal release committee and are not older than 10 years, crop production, protection technologies, use of 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. The demonstrations were conducted in cluster approach in interior areas mainly with small and marginal farmers and weaker sections.

Table 3.14.1. Crop wise achievement of CFLDs on Pulses in Zone-X, 2019-20

Crop	Telangana			Andhra Pradesh			Tamil Nadu			Puducherry			Zone-X		
	AT	AA	Demo (No)	AT	AA	Demo (No)	AT	AA	Demo (No)	AT	AA	Demo (No)	AT	AA	Demo (No)
Kharif															
Blackgram	-	-	-	90	90	225	90	90	225	-	-	-	180	180	450
Greengram	100	100	250	80	80	200	80	80	200	-	-	-	260	260	650
Redgram	220	220	550	220	220	550	70	70	175	-	-	-	510	510	1275
Total Kharif	320	320	800	390	390	975	240	240	600	-	-	-	950	950	2375
Rabi and summer															
Bengalgram	90	80	200	130	130	325	30	30	75	-	-	-	250	240	600
Blackgram	40	30	75	230	230	575	400	400	1000	10	10	25	680	670	1675
Greengram	90	90	225	80	70	175	180	180	450	10	10	25	360	350	875
Total Rabi& Summer	220	200	500	440	430	1075	610	610	1525	20	20	50	1290	1260	3150
Grand Total	**540**	**520**	**1300**	**830**	**820**	**2050**	**850**	**850**	**2125**	**20**	**20**	**50**	**2240**	**2210**	**5525**

(AT: Area Target (ha), AA: Area Achievement (ha))

ANDHRA PRADESH

Total 2050 Cluster frontline demonstrations on pulses were implemented in Andhra Pradesh by 20 KVKs in black gram, green gram, red gram and bengal gram in an area of 820 ha.

Black gram

About 800 cluster FLDs on black gram were conducted covering an area of 320 ha in kharif, rabi and summer seasons. The varieties demonstrated were TBG-104 and LBG-752. The technology demonstrated included improved variety, seed management, integrated pest and disease management. During kharif season TBG-104 recorded average yield of 15.40 q/ha with an increase of 24.10% over check and this variety recorded highest yield of 21.50 q/ha and 20q/ha in Guntur and West Godavari districts respectively with an increase of 34% over local check. During rabi and summer seasons TBG-104 recorded an average yield of 12.6 q/ha with an increase of about 33.12% over check. LBG-752 recorded an average yield of 15.87q/ ha with an increase of 42.97% over check yields of 11.10q/ha.

Table 3.14.2. Performance of Cluster Frontline demonstrations on pulses in Andhra Pradesh, 2019-20

Crop	Variety	Name of KVK/ District	Average yield (q/ha)		% increase over check
			Demo	Check	
Kharif					
Greengram	WGG 42	Ananthapur (Kalyandurg, Reddipalli), Visakhapatnam-1 (BCT), West Godavari (Undi, Venkataramannagudem)	8.90	6.90	28.90
	IPM 2 14	Krishna-1 (Garikapadu), Prakasam-1 (Darsi)	10.85	7.45	45.63
Redgram	PRG 176	Kurnool-2 (Banavasi), Visakhapatnam-1 (BCT)	14.70	10.10	45.54
	LRG 52	Ananthapur (Kalyandurg, Reddipalli), Chittoor-1 (RASS), Guntur (Lam), Kadapa-1 (Utukur), Prakasam-1 (Darsi), Vishakapatnam-2 (Buchayapet), West Godavari-1 (Undi)	11.50	7.90	45.56
Blackgram	TBG 104	Anantapur-1 (Reddipalli), East Godavari-2 (Pandirimamidi), Guntur (Lam), Kurnool-1 (Yagantipalli), Nellore-2 (Periyavaram), West Godavari (Undi, Venkataramannagudem)	15.40	12.40	24.19
***Rabi* and Summer**					
Blackgram	TBG 104	Chittoor-1 (RASS), Kadapa-1 (Utukur), Kurnool-2 (Banavasi), Nellore-1, Nellore-2 (Periyavaram), Srikakulam, Vishakapatnam-1 (BCT), Vishakapatnam-2 (Buchayapet), West Godavari (Undi, Venkaramannagudem)	12.62	9.48	33.12
	LBG 752	Krishna-2 (Ghantasala), Prakasam-1 (Darsi)	15.87	11.10	42.97
Greengram	WGG 42	AnAnantapur-1 (Reddipalli), Chittoor-1(RASS), Visakhapatnam-1 (BCT), West Godavari-1 (Undi)	9.60	8.30	15.66
	IPM 2 14	Vishakapatnam-2 (Buchayapet)	5.80	4.00	45.00
Bengalgram	NBeG 49	Guntur (Lam), Kadapa-1 (Utukur), Kurnool-2 (Banavasi), Kurnool-1 (Yagantipalli), Prakasam-1 (Darsi)	16.46	14.60	12.73
	NBeG 3	Krishna-1 (Garikapadu)	20.58	19.51	5.50

CFLD on Blackgram (TBG-104) KVK, Guntur (Lam)

CFLD on Blackgram (TBG-104)-KVK West Godavari-2 (VR Gudem)

CFLD on Blackgram (TBG 104) KVK West Godavari-1 (Undi)

CFLD on YMV resistant greengram (WGG-42), KVK Anantapur-2 (Kalyandurg)

Greengram

About 375 cluster frontline demonstrations on green gram were conducted in kharif and rabi seasons covering an area of 150 ha. Improved variety WGG-42 was demonstrated during kharif season. Average yield registered was 8.90 q/ha with an increase of 28.90% over check in Visakhapatnam and Ananthapur districts. Highest average yield of 14.90 q/ha against check yield of 10.70 q/ha was recorded in West Godavari district with an increase of about 40% over check. During rabi season, WGG-42 recorded an average yield of 9.60 q/ha against check yield of 8.30 q/ha in Ananthapur, Visakhaptnam, Chittoor and West Godavari districts.

Redgram

A total of 550 demonstrations with improved varieties LRG-52 and PRG-176 were demonstrated along with bio-fertilizers like rhizobium, PSB and bio-pesticides like *Trichoderma viridae*, recommended fertilizers and plant protection measures during kharif season in an area of 220 ha. LRG-52 recorded an average yield of about 11.50 q/ha with an increase in yield of 45.56% over local check. PRG-176 registered an average yield of 14.70 q/ha with an increase of 45.54% over local check in Ananthapur, Kurnool and Visakhapatnam districts.

CFLD on redgram, KVK Kurnool-2 (Banavasi)

CFLD on Redgram (PRG 176), KVK Kurnool-2 (Banavasi)

CFLD on Redgram, KVK Chittoor-1 (RASS)

CFLD on Bengalgram (NBeG-49), KVK Guntur (Lam)

Bengalgram

A Total of 325 demonstrations were conducted covering an area of 130 ha with recently released varieties NBeG-49 & NBeG-3. NBeG-49 recorded an average yield of 16.46/ha with an increase of 12.73% over local check and with highest yield of 22.5 q/ha at KVK, Lam. NBeG-3 variety recorded average yield of 20.58 q/ha over check yield of 19.51q/ha with an increase of 5.50% in Krishna district.

TELANGANA

A Total of 1300 cluster frontline demonstrations on pulses were organized in Telangana state covering an area of 520 ha during 2019-20. Improved varieties along with integrated crop production technology, seed treatment, integrated nutrient management and integrated pest management practices were demonstrated.

Table 13.4.3. Performance of improved cultivars under cluster frontline demonstrations in Telangana 2019-20

Crop	Variety	Name of KVK	Average yield (q/ha)		% increase over check
			Demo	Check	
Kharif					
Greengram	WGG 42	Adilabad, Mahabubnagar (Madanapuram), Sangareddy (DDS), Suryapet (Gaddipalli), Warangal Urban (Mamnoor)	8.20	6.00	35.48
	MGG 347	Khammam (Wyra), Mahabubabad (Malyal)	6.20	5.40	14.81
Redgram	PRG 176	Khammam (Wyra), Warangal Urban (Mamnoor), Mahabubnagar (Palem, Madanapuram), Suryapet (Gaddipalli) (Kampasagar), Ranga Reddy (Hayathnagar)	12.80	10.50	21.90
	WRG 65	Adilabad, Mahabubabad (Malyal), Karimnagar (Jammikunta, Ramgirikhilla), Bhadradri (Kothagudem)	15.50	12.80	21.09
Rabi and summer					
Greengram	WGG 42	Peddapalli (Ramgirikilla), Nagarkurnool (Palem), Bhadradri (Kothagudem), Warangal Urban (Mamnoor)	12.60	10.10	24.75
	MGG 347	Mahabubabad (Malyal)	14.50	11.50	26.08
	WGG 42	Karimnagar (Jammikunta), Wanaparthy (Madanapuram)	10.20	8.30	22.89
Blackgram	TBG 104	Khammam (Wyra)	11.20	8.00	40.00
	LBG 752	Bhadradri (Kothagudem)	11.50	9.80	17.34
	PU 31	Nagarkurnool (Palem)	19.00	15.70	21.09
Bengalgram	NBeG 3	Adilabad, Peddapalli (Ramgirikilla), Nizambad (Rudrur), Sangareddy (DDS)	17.50	15.80	10.75
	NBeG 47	Mahabubabad (Malyal)	12.80	11.10	15.31

Green gram

In Telangana, 475 demonstrations were laid out in 190 ha area during 2019-20. Two varieties viz., WGG-42, MGG-347, were demonstrated in kharif as well as in rabi and summer seasons. During kharif season, WGG-42 recorded an average yield of about 8.20q/ha showing an improvement of about 35.48% in yields over the local check in Adilabad, Mahabubnagar, Nalgonda and Warangal districts. During rabi season, average yield of 12.60q/ha was recorded in Warangal and Karimnagar districts with WGG-42 against the check yield of 10.10 q/ha.

CFLD on Greengram (WGG 42), KVK Adilabad

CFLD on redgram (PRG 176), KVK Kampasagar

Redgram

In Telangana state two varieties of red gram viz., PRG-176 and WRG-65 were demonstrated under cluster frontline demonstrations during 2019-20. WRG-65 recorded an average yield of 15.50/ha as compared to check yield of 12.80 q/ha in Adilabad, Karimnagar, Warangal and Khammam districts while highest yield observed was 23.51 q/ha in Adilabad district. PRG-176 recorded an average yield of 12.80 q/ha against local check yield of 10.50 q/ha and highest yield of 16.52 q/ha was registered in Nalgonda district with an increase of 14.7% over check.

CFLDs on redgram, KVK Suryapet (Gaddipalli)

CFLD on redgram (PRG 176), KVK Nagarkurnool (Palem)

Blackgram

A Total of 75 demonstrations were laid out in 30 ha area during rabi season. Demonstrated variety PU 31 recorded highest average yield of 19q/ha with an increase of 21.09% over local check.

Bengalgram

About 200 Cluster frontline demonstrations were conducted in 80 ha area in Karimnagar, Mahabubnagar, Medak, Adilabad and Nizamabad districts of Telangana. Improved variety NBeG-47 along with recommended package of practices recorded an average yield of about 12.80 q/ha showing an increase in yields by 15.31% over check, Where as improved variety NBeG 3 recorded an average yield of 17.50 q/ha against check yield of 15.31 q/ha in Adilabad, Karimnagar, Nizamabad and Medak districts with an increase of 10.75%.

Tamil Nadu

In Tamil Nadu state, 2125 cluster frontline demonstrations covering an area of 850 ha were conducted on blackgram, greengram and red gram during kharif season and on blackgram, greengram, and bengalgram during rabi season. Recently released cultivars along with integrated pest and disease management, nutrient management and agronomical management practices formed the part of cluster frontline demonstrations in the state.

Table 13.4.4. Performance of Cluster frontline demonstrations on pulses in Tamil Nadu 2019-20

Crop	Variety	Name of KVK/ District	Average yield (q/ha)		% increase over check
			Demo	Check	
Kharif					
Black gram	VBN 6	Kancheepuram, Namakkal	7.90	6.70	17.91
	VBN 8	Dharmapuri, Namakkal, Thiruvannamlai, Theni, Madurai	8.40	6.50	29.23
Green gram	CO Gg 8	Dharmapuri, Dindigul, Namakkal, Theni, Madurai	8.40	6.20	35.48
Red Gram	CO Rg 7	Karur, Krishnagiri, Theni	8.6	7.5	14.66
	CO 8	Dindigul, Dharmapuri	9.8	8.2	19.51
Rabi and Summer					
Black gram	VBN 8	Cuddalore, Kancheepuram, Namakkal, Dindigul, Nagapattinam, Perambalur, Shivagangai, Theni, Thiruvannamlai	8.20	6.20	32.25
	VBN 6	Erode, Karur	7.70	6.80	13.23
Green gram	CO Gg 8	Namakkal, Theni, Thiruvallur, Villupuram-1, Virudhunagar	7.40	6.70	10.44
	VBN 3	Kancheepuram	6.20	5.10	21.56
Bengalgram	JAKI 9218	Coimbatore, Dindigul	13.50	10.80	25.00

Blackgram

A total of 1225 demonstrations were laid out in 490 ha in kharif, rabi and summer seasons. Improved black gram cultivars viz. VBN-6 and VBN-8 were demonstrated during kharif season. VBN-8 recorded 29.23% increase in yield over check in Dharmapuri, Madurai, Theni, Thiruvannamalai and Namakkal districts. VBN-6 registered an increased yield of about 18% in Namakkal and Kancheepuram districts. During rabi season, VBN-8 recorded an average yield of 8.20 q/ha against average check yield of 6.20 q/ha with 32.25% increase.

CFLD on Blackgram (VBN-8), KVK Namakkal

CFLD on Blackgram, KVK Kancheepuram

Greengram

Improved cultivars CO Gg-8 and VBN-3 were demonstrated during kharif, rabi and summer seasons in 260 ha area with 650 demonstrations. During kharif season CO Gg-8 variety recorded an average yield of about 8.40 q/ha showing an increase of 35.40% over the check in Dharmapuri, Dindigul, Nammakal, Theni and Madurai districts. In rabi season, the yield recorded by CO Gg-8 was about 7.40 q/ha as compared to check yield of 6.70 q/ha registering an increase of 10.44%.

Redgram

Two varieties of red gram viz., (CO Rg-7) and CO-8 were demonstrated under cluster frontline demonstrations during kharif season, in 70 ha with 175 demonstrations. Improved variety (CO Rg-7) recorded an average yield of 8.6q/ha against check yield 7.5 q/ha and highest yield was observed in Krishnagiri districts which is 12.10 q/ha compared to check yield of 10.6q/ha. While CO-8 recorded an average yield of 9.8 q/ha against check yield of 8.2 q/ha in Dindigul and Dharmapuri districts.

CFLD on redgram, KVK Theni

CFLD on redgram CO 8, KVK Krishnagiri

Bengalgram:

A total of 75 demonstrations were conducted in 30 ha in Coimbatore and Dindigul districts on bengal gram with improved variety JAKI-9218, the average yields recorded were 13.50 q/ha where as for check it was only 10.80 q/ha.

Geo tagging of CFLD on bengalgram, KVK Coimbatore

3.15. Cluster Frontline Demonstrations (CFLDs) on Oilseeds under NMOOP

KVKs of the zone conducted cluster front line demonstrations on oilseeds under National Food Security Mission (NFSM) in 2019-20 during *kharif, rabi* and *summer* seasons to demonstrate the production potential of newly released technologies on the farmer's fields at different locations. The crops covered are groundnut, sesame, sunflower, castor, safflower, soybean and niger. A total of 1280 hectares area was allotted to 46 KVKs in Andhra Pradesh, Tamil Nadu and Telangana states and theprogramme was implemented in 944.8 ha by organizing 2362 demonstrations.

Table 3.15.1. Cluster Frontline Demonstrations (CFLDs) on Oilseeds

Crop	State	Area (ha)		No. of Demonstrations	
		Target	Achievement	Target	Achievement
Kharif					
Groundnut	Andhra Pradesh	110	120	275	300
	Telangana	30	0	75	0
	Tamil Nadu	100	50	250	125
	Sub total	240	170	600	425
Sesame	Andhra Pradesh	20	3.2	50	8
	Tamil Nadu	20	10	50	25
	Sub total	40	13.2	100	33
Sunflower	Andhra Pradesh	10	0	25	0
	Tamil Nadu	10	0	25	0
	Sub total	20	0	50	0
Castor	Andhra Pradesh	30	39.2	75	98
	Telangana	20	20	50	50
	Tamil Nadu	10	10	25	25
	Sub total	60	69.2	150	173
Soybean	Telangana	50	20	125	50
Safflower	Andhra Pradesh	20	0	50	0
Niger	Andhra Pradesh	10	10	25	25
Total Kharif season		**440**	**282.4**	**1100**	**706**
Rabi and Summer					
Groundnut	Andhra Pradesh	170	75.6	425	189
	Telangana	110	140	275	350
	Tamil Nadu	160	120	400	300
	Sub total	440	335.6	1100	839
Sesame	Andhra Pradesh	130	136.8	325	342
	Telangana	50	30	125	75
	Tamil Nadu	40	20	100	50
	Puducherry	10	0	25	0
	Sub total	230	186.8	575	467

Crop	State	Area (ha)		No. of Demonstrations	
		Target	Achievement	Target	Achievement
Sunflower	Andhra Pradesh	30	40	75	100
	Telangana	30	20	75	50
	Tamil Nadu	50	10	125	25
	Sub total	110	70	275	175
Castor	Andhra Pradesh	20	10	50	25
	Telangana	0	20	0	50
	Tamil Nadu	20	0	50	0
	Sub total	40	30	100	75
Safflower	Andhra Pradesh	20	40	50	100
	Sub total	20	40	50	100
Total Rabi & Summer Season		**840**	**662.4**	**2100**	**1656**
Grand Total		**1280**	**944.8**	**3200**	**2362**

Andhra Pradesh

A total of 1187 Cluster frontline demonstrations on oilseedswere implemented by 18 KVKs in Andhra Pradesh during 2019-20 in groundnut, sesame, sunflower, castor, safflower and niger crops in an area of 474.8 ha.

Table 3.15.2. Performance of CFLDs on Oilseeds in Andhra Pradesh

Crop	Variety	Name of KVK/ District	Average yield (q/ha)		% increase over check
			Demo	Check	
Kharif					
Groundnut	Dharani	Chittoor, West Godavari, Kadapa, Prakasam	26.50	22.10	19.90
Groundnut	Kadiri Harithandhra	Kurnool, Anantapur	12.82	11.03	16.22
Groundnut	Dheeraj	Chittoor, Krishna	25.04	23.06	8.58
Sesame	YLM-66	Visakhapatnam	4.37	3.20	36.56
Castor	DCH-519	Prakasam, Anantapur, Kurnool	14.60	12.80	14.06
Niger	DNS-4	Visakhapatnam	4.80	3.10	54.80
Rabi and Summer					
Groundnut	Dharani	Nellore, West Godavari	36.00	30.00	20.00
Groundnut	Kadiri Harithandhra	Guntur, Kurnool	32.36	29.30	10.44
Groundnut	Dheeraj	Chittoor	30.50	26.80	13.80
Groundnut	K-9	Visakhapatnam	22.00	19.00	15.78
Sesame	YLM-66	Guntur, Kadapa, Nellore, Kurnool, East Godavari, Vizianagaram	7.83	5.64	38.80

Crop	Variety	Name of KVK/ District	Average yield (q/ha)		% increase over check
			Demo	Check	
Castor	DCH-519	Anantapur	20.42	18.97	7.64
Sunflower	NDSH-1012	Kurnool, Prakasam	11.50	8.80	30.60
Sunflower	KBSH-53	Chittoor, Visakhapatnam	20.00	13.30	50.30
Safflower	DSH-185	Anantapur	7.64	7.20	6.11
Safflower	ISF-764	Anantapur	7.75	7.30	6.13
Safflower	PBNS-12	Kurnool	12.30	9.80	25.51

Groundnut: KVKsof Andhra Pradesh conducted 489Cluster FLDs on groundnut covering an area of 195.6 ha in *kharif, rabi* and *summer* seasons in Andhra Pradesh. Technology demonstrated included improved variety with integrated crop management practices. During *kharif*, improved variety Dharani increased the yields by 19.90% compared to check yield in Chittoor, West Godavari, Kadapa and Prakasam districts. During *rabi*, demonstrations were conducted with improved variety Dharani, Khadiri Harithandhra and Dheeraj of which Khadiri Harithandhra recorded highest yield of 36q/ha in Nellore and West Godavari districts under irrigated conditions.

Sesame: A total of 350 Cluster frontline demonstrations on sesame were taken up in 140 ha together in both kharif and rabi seasons. In *kharif*, improved variety YLM-66 along with other technological interventions resulted in average demonstration yield of 4.37 q/ha which is 36.56% higher than the check yield of 3.20 q/ha in Visakhapatnam district. During *rabi* season varietal demonstration of YLM-66 with recommended package of practices resulted in 38.80% increase in yields compared to check yield in Krishi Vigyan Kendras of Guntur, Nellore, Kadapa, Vizinagaram, Kurnool and West Godavari districts.

Castor: A total of 123 cluster frontline demonstrations were conducted in 49.2 ha by KVKs of Kurnool, Prakasam, and Anantapur districts on castor during *kharif* and *rabi* seasons. Technology demonstrated included improved hybrid with integrated crop management practices. DCH-519 hybrid resulted in average demonstration yield of 14.60 q/ha with 14.06% increase against check yield of 12.80q/ha in *kharif* season. Highest yield of 20q/ha was recorded in case of DCH-519 in *rabi* season with 7.40% increase in yield against the check yield of 18.97 q/ha during *rabi* season.

Sunflower: A total of 100 Cluster frontline demonstrations in 40 ha were conducted on sunflower by KVKs in Kurnool, Chittoor, Prakasam and Visakhapatnam districts during *rabi* season. The technology demonstrated was improved hybrid with integrated crop management practices. Improved hybrid KBSH-53 resulted in 20 q/ha of average yield with 50.30% increase against check plot yield of 13.30 q/ha in Chittoor and Visakhapatnam districts. The hybrid NDSH-1012 resulted in an average yield of 11.50 q/ha against 8.80 q/ha of check with 30.60% increase in yield over the check yield in Prakasam and Kurnool districts.

Safflower: A total of 100 CFLDs in 40 ha were organized in Safflower in Kurnool and Anantapur districts during *rabi* season under irrigated situation. Safflower hybrid PBNS-12 recorded highest average yield of 12.30 q/ha against check yield of 9.80q/ha with 25.51% increase in yield over check plot.

Niger: 25 Cluster frontline demonstrations on niger were conducted by KVK, Visakhapatnam district during *kharif* season in 10 ha area. The technology demonstrated was varietal demonstration with integrated crop management practices. The variety DNS-4 resulted in average yield of 4.80 q/ha against check yield of 3.10 q/ha with 54.80% increase in yield.

CFLD on Sesame, KVK Krishna-1 (Garikapadu)

CFLD on Safflower crop, KVK Anantapur-1 (Reddipalli)

Tamil Nadu

Cluster frontline demonstrations on oilseeds were implemented by 16 KVKs in Tamil Nadu during 2019-20 in groundnut, sesame, sunflower and castor crops in an area of 220 ha.

Table 3.15.3. 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	Dindigul	15.90	13.40	18.60
Groundnut	TMV-14	Tiruvannamalai	21.40	17.25	24.05
Groundnut	CO-6	Theni	22.40	16.55	35.34
Groundnut	CO-7	Namakkal	14.99	10.05	49.15
Sesame	TMV-7	Theni	7.10	6.25	13.60
Castor	YRCH-1	Namakkal	14.60	9.30	56.30
Rabi and Summer					
Groundnut	Dharani	Perambalur, Tuticorin, Tiruvannamalai, Dharmapuri	23.06	18.24	26.42
Groundnut	CO-7	Karur	20.60	18.50	11.35
Groundnut	GJG-7	Ariyalur	21.70	17.50	24.00
Groundnut	ALG-06-320	Villupuram-1	26.80	21.70	23.50
Groundnut	K-9	Theni	22.04	16.57	33.01
Sesame	TMV-7	Karur, Theni	7.20	5.90	22.03
Sunflower	DRSF-113	Karur	12.80	11.00	17.09

Groundnut: A total of 425 Cluster FLDs on groundnut were conducted by the KVKs of Tamil Nadu covering an area of 170 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, TMV-14, CO-6 and CO-7. Highest average demonstration yield of 22.4

q/ha was recorded withCO-6 variety with 35.34% increase in yield compared to check yield in Theni district. During *rabi*, groundnut demonstrations were conducted with improved variety Dharani CO-7, GJG-7, ALG-06-320 and K-9 following integrated crop management practices. ALG-06-320 variety recorded highest average demonstration yield of 26.80q/ha, resulting in 23.50% increased yield compared to check yield of 21.7 q/ha in Villupuram-1 district.

Sesame: A total of 75 cluster frontline demonstrations in 30 ha were conducted on sesame in both *kharif* and*rabi* seasons. In *kharif*, improved variety TMV-7 along with other technological interventions resulted in 13.60% increase in yields with an demonstration yield of 7.10 q/ha over the check yield of 6.25 q/ha in Theni district. Varietal demonstration of TMV-7 with recommended package of practices under irrigated conditions resulted in 22.03% increase in yields compared to local check during *rabi* season in Karur and Theni districts.

Castor: KVK, Namakkal conducted 25cluster frontline demonstrations on castor in 10 haarea during *kharif* season. The technology demonstrated was improved hybrid with integrated crop management practices. The hybrid YRCH-1 resulted in average yield of 14.60q/ha against 9.30q/ha of check yield with 56.30% increase in yield.

Sunflower: 25 Cluster frontline demonstrations in 10 ha on sunflower were conducted by KVK, Karur during *rabi* season. Technology demonstrated included improved hybrid with integrated crop management practices. The hybrid DRSF-113 recorded 17.09% increase in yields compared check yield.

CFLD on sunflower, KVK Karur CFLD on castor, KVK Namakkal

CFLD on groundnut, KVK Tiruvannamalai

Telangana

CFLDs on oilseeds programme was implemented by 11 KVKs in Telangana during *kharif*, *rabi* and *summer* seasons in groundnut, sesame, soybean and castor crops in an area of 250 ha.

Table 3.15.4 Performance of CFLDs on oilseeds in Telangana

Crop	Variety	Name of KVK/ District	Average Yield (q/ha)		% increase over check
			Demo	Check	
Kharif					
Soybean	Basara (Asb-22)	Nizamabad (Rudrur)	20.19	16.04	25.87
Castor	DCH-519	Mahabubnagar	12.29	8.21	49.69
Rabi and Summer					
Groundnut	Dharani	Karimnagar, Warangal	18.25	16.25	12.30
Groundnut	Kadiri Harithandhra	Nalgonda	23.10	19.80	16.66
Groundnut	K-9	Nagarkurnool	20.09	18.75	7.10
Sesame	Hima	Karimnagar	9.50	8.70	9.19
Castor	DCH-519	Mahabubnagar	16.90	12.09	28.40

Groundnut: 350 Cluster FLDs on groundnut were conducted covering an area of 140 ha in *rabi* and *summer* seasons in Telangana. The varieties demonstrated were K-9, Kadiri Haritandhra and Dharani. Kadiri Haritandhra along with integrated crop management practices resulted in 16.66% increase in yields over check yield in Nalgonda district with average demonstration yield of 23.10 q/ha.

Soybean: 50 Cluster FLDs on soybean were conducted covering an area of 20 ha during *Kharif* season by KVK, Nizamabad (Rudrur) in Telangana. Improved variety Basara (Asb-22) was demonstrated along with other technological interventions. Highest demonstration yield of 20.19q/ha was recorded with 25.87% increase over check yield of 16.04q/ha.

Sesame: A total of 75 cluster frontline demonstrations on sesame in 30 ha were taken up in *rabi* season with other technological interventions. The improved variety Hima resulted in 9.19% increase in yields with a demonstration yield of 9.50q/ha over the check yield of 8.70q/ha in Karimnagar district.

Castor: 100 Cluster frontline demonstrations on castor were conducted in 40 ha by KVK, Mahabubnagar during *Kharif* and *rabi* seasons. The technology demonstrated was improved hybrid with integrated crop management practices. During *kharif* the hybrid DCH-519 resulted in an average yield of 12.29 q/ha against 8.21 q/ha of check with 49.69% increase in yields. During *rabi*, the hybrid DCH-519 resulted in yield of 16.90 q/ha against 12.09 q/ha of check with 28.40% increase in yields.

CFLD on soybean, KVK Nizamabad (Rudrur)

CFLD on castor, KVK Wanaparthy (Madanapuram)

3.16. Seed Hubs

Twelve KVKs of the zone, 6 KVK 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 2019-20 7195.5 q of foundation, certified seed of pulses have been produced under the seed hub programme in the zone.

In Tamil Nadu, 3197.5q quality seed of black gram (VBN-6, VBN-8 and CO-6), red gram (CoRg 7) green gram (VBN-gg-3 and CO-8) was produced. The class of seed includes certified seed, truthfully labelled seed and foundation seed during late kharif and rabi seasons. In Telangana, a total of 1015q of certified / truthfully labelled seed of newly released varieties of green gram (WGG-42), red gram (PRG-176), black gram (PU-31) and horse gram (CrHg 4) was produced. In Andhra Pradesh under the seed hub programme 2983 q of certified and foundation seed of black gram (LBG-752, TBG-104), red gram (PRG-176) and green gram (WGG-42) have been produced by the KVKs.

Table 3.16.1. Details of quality seed production under seed hub programme

KVK	District	Crop	Variety	Season	Area Sown (ha)	Target (q)	Production (q)	Category of Seed
Telangana								
Nagarkurnool (Palem)	Mahabubnagar	Redgram	PRG-176	Kharif	24.8	500	250	F/S
		Redgram	PRG-176	Rabi	13.3	300	275	F/S
		Greengram	WGG-42	Rabi	13.3	300	275	F/S
Sub Total						1100	800	
Ranga Reddy (Hayathnagar)	Rangareddy	Redgram	PRG-176	Kharif	14	300	100	F/S
		Greengram	WGG-42	Kharif	3	100	10	C/S
		Horsegram	CRHG-4/ CRHG-22	Kharif	4	100	30	C/S
		Redgram	PRG-176	Rabi	4	50	45	CS
		Greengram	WGG-42	Rabi	8	50	30	CS
Sub Total						600	215	
Total Telangana						**1700**	**1015**	

KVK	District	Crop	Variety	Season	Area Sown (ha)	Target (q)	Production (q)	Category of Seed
Andhra Pradesh								
Reddipalli	Ananthapur	Redgram	LRG-52,	Kharif	10.8	400	400	F/S
			PRG-176					
		Greengram	WGG-42,	Kharif	4	200	200	F/S
			IPM-2-14					
		Bengalgram	NBeg-47 & 49	Rabi	10	400	200	FS
Sub Total						**1000**	**800**	
Yagantipalli	Kurnool-1	Redgram	PRG-176	Kharif	24.8	250	280	F/S
			LRG-52	Kharif	28.8	150	170	F/S
		Bengalgram	NBeG-3	Rabi	4	100	80	F/S
			NBeG-47	Rabi	4	60	60	F/S
			NBeG-49	Rabi	18	350	400	F/S
			NBeG-119	Rabi	2	30	70	F/S
		Blackgram	TBG-104	Rabi	6	80	123	C/S
Sub Total						**1020**	**1183**	
Krishna-2 (Ghantasala)	Krishna	Blackgram	LBG 752	Rabi	40	1000	600	CS - II
			LBG 787	Rabi	10		150	CS
Sub Total						**1000**	**750**	
Amadalavalasa	Srikakulam	Blackgram	TBG-104	Rabi	20	400	200	(TLS)
		Greengram	IPM-2-14	Rabi	10	400	50	CS)
Sub Total						**800**	**250**	
Total Andhra Pradesh						**3820**	**2983**	
Tamil Nadu								

KVK	District	Crop	Variety	Season	Area Sown (ha)	Target (q)	Production (q)	Category of Seed
Madurai	Madurai	Blackgram	VBN-8	Rabi	15	500	10	FS/CS
		Greengram	CO-8	Rabi	10	500	7.5	CS
Sub Total						1000	17.5	
Virudhunagar	Virudhunagar	Blackgram	VBN-8	Rabi	10.4	600	750	CS
			CO-6		10			CS
		Greengram	CO-8	Rabi	13	400	975	CS
Sub Total						1000	1725	
Salem	Salem	Blackgram	VBN-8	Kharif	6	700	40	CS
		Cowpea	VBN-3	Rabi	5	30	30	FS
		Greengram	CO-8	Rabi	13	270	-	-
Sub Total						1000	70	
Kancheepuram	Kancheepuram	Blackgram	VBN-6	Kharif	2	10	17	C/S, F/S
			CO-8	Rabi	4	30	35	FS & CS
		Greengram	VBN-8	Rabi	12	100	195	FS & CS
			VBN-6	Rabi	8	70	75	FS & CS
Sub Total						210	322	
Villupuram-1	Villupuram	Blackgram	VBN-8	Rabi	3.5	900	150	CS
			VBN-8		10			
		Greengram	CO-8		2		20	FS
			CO-8	Rabi	3	100	30	CS
Sub Total						1000	200	
Trichy	Trichy	Blackgram	VBN-8	Rabi	134	990	838	FS& CS
		Greengram	CO-8	Rabi	4	10	25	FS
Sub Total						**1000**	**863**	
Total Tamil Nadu						**5210**	**3197.5**	
Grand Total						**10730**	**7195.5**	


Seed Hub Godown and Infrastructure at KVK Nagarkurnool (Palem)


Seed Hub Godown and Infrastructure at KVK Kurnool-1 (Yagantipalle)


Seed Hub Godown and Infrastructure at KVK Kancheepuram

3.17. NFDB programme on demonstration of growth performance of improved fish varieties- Jayanthi Rohu /Amur carp

Blue Revolution is one of the prime components of doubling the farmer's income by 2020. In this stride NFDB (National Fisheries Development Board) has been intervening and coming up with farmer's friendly and scientifically sound fish farming practices. NFDB has extended financial assistance to KVKs through ATARI-X during 2019-20 to study the growth performance of improved fish varieties in farmer's ponds (perennial). KVK scientists regularly visited the ponds and monitored the fish culture activities time to time and gave guidance on management and feeding schedule of fisheries to the concerned fish farmers under the supervision of ATARI-X. Improved fish varieties demonstrated included Jayanthi Rohu, Amur carp and improved Catla. The objectives of theprogramme are to bring activities relating to fisheries and aquaculture for focused attention and professional management, to achieve sustainable management and conservation of natural aquatic resources including fish stocks and to enhance contribution of fish towards food and nutritional security.

During 2019-20 five Krishi Vigyan Kendras of the zone, 2 from Telangana, 2 from Andhra Pradesh and 1 KVK from Tamil Nadu have been involved in the implementation of demonstration activity of improved fish varieties funded by NFDB. Twenty eight farmers have been identified for implementing the project in 49 fish ponds in an area of 40 ha. Improved species Jayanthi rohu/ Amur carp has been stocked along with Indian major carps at a stocking density of 7000/ha-16150/ha.

KVK, Suryapet (Gaddipalli): Stocking was done in an area of about 6.8 ha with stocking density of 10500/ ha in September 2019. Jayanthi Rohu was introduced in 10 fish ponds involving 6 farmers along with Rohu, Mrigal.

KVK, Nalgonda (Kampasagar): New fish species Jayanthi rohu along with normal rohu was stocked in 6 fish ponds with a stocking density of 7000/ ha involving 4 farmers in 15.6 ha pond area.

KVK, West Godavari (Venkatramanagudam): New fish species Jayanthi Rohu and Amur common carp have been stocked along with Indian major carps in 6 fish ponds in an area of 4.83 ha with a stocking density of 16150 /ha.

KVK, Nellore-1: New fish species Jayanthi Rohu and Amur common carp and improved Catla have been stocked along with Indian major carps in 6 fish ponds in an area of 7.77 ha with a stocking density of 7000 /ha.

KVK, Myrada (Erode): New fish species Amur common carp have been stocked along with Indian major carps in 21 fish ponds in an area of 5 ha with a stocking density of 10000 /ha.

Table 3.17.1. Details of new fish species demonstrated to assess growth performance

KVK	No. of farmers	No. of fish ponds	Area (ha)	Name of new species	Stocking density (per ha)	Month of stocking	Indian major carps
Suryapet (Gaddipalli)	6	10	6.80	Jayanthi rohu, Improved Catla	10500	September	Rohu, Mrigal
Nalgonda (Kampasagar)	6	6	15.60	Amur carp	7000	September	Rohu
West Godavari-2 (Vrgudem)	5	6	4.83	Jayanthi rohu, Amur carp	16150	August	Catla, Jayanthi rohu, Mrigal, Grass carp, Amur Common carp

KVK	No. of farmers	No. of fish ponds	Area (ha)	Name of new species	Stocking density (per ha)	Month of stocking	Indian major carps
Nellore-1	5	6	7.77	Improved Catla, Jayanthi rohu, Amur carp	7000	September	Catla, Rohu, Mrigal,
Myrada (Erode)	6	21	5.00	Amur carp	10000	Feb	Rohu, Mrigal
Total	**28**	**49**	**40**		**50650**		

New fish species improved Catla attained an average weight of 900 grams, Jayanthi Rohu attained 852.5 grams while Amur carp attained a weight of 833 grams in a period of 8 months from the date of stocking.

Table 3.17.2. Growth Performance of new fish species demonstrated

KVK	Growth Performance (grams)		
	Improved Catla	Jayanthi Rohu	Amur carp
Suryapet (Gaddipalli)	-	550	475
Nalgonda (Kampasagar)	-	650	355
West Godavari-2 (Vrgudem)	-	1510	680
Nellore-1	900	700	1700
Myrada (Erode)	-	-	954
Average growth attained		852.5	833

Releasing of seed into pond, KVK Kampasagar

Fishpond at KVK Erode

3.18. Krishi Kalyan Abhiyan

Eight districts three each from States of Telangana, Andhra Pradesh and 2 from Tamil Nadu have been identified as Aspirational Districts under the jurisdiction of ICAR- Agricultural Technology Application Research Institute Zone 10. Eight districts (3each in Telangana and Andhra Pradesh and 2 in Tamil Nadu) have been identified for implementation of the Krishi Kalyan Abhiyan programme from 1st July 2018 to 15thAugust 2018 during phase I, and phase II from 2nd October to 25thDecember 2018. After success of Krishi Kalyan Abhiyan phase I and II, Phase-III of the programme was iniatiated during 15th January -15th April, 2019 for Genetic upgradation programme through High Yielding Indigenous Breed (HY-IB) bovine semen and delivery of quality Artificial insimination services at farmers doorstep to 100 more villages/district in each 8 districts.

KKA programme in KVK Khammam (Wyra), Telangana

Distribution of seedlings as a part of KKA - KVK, Kadapa, Utukur, Andhra Pradesh

Micro irrigation training conducted by KVK, Virudhunagar, Tamil Nadu

Distribution of groundnut seeds by KVK, Ramnathapuram, Tamil Nadu

3.19. Swachhta Hi Sewa programme

Responding to Prime Minister's appeal for citizens' participation in swachhta movement, Swachhata Hi Sewa (SHS) campaign has been celebrated annually since 2017 mobilizing millions of people in creating awareness on the access to safe sanitation, toilets usage, triggering behavior change on cleanliness and shramdaan at public places. Around 10 crore people in SHS 2017 and approximately 20 crore individuals in SHS 2018 came together for swachhta, including political leaders, government officials, school children, youth from NYKS/NCC/NSS.

The SHS 2019 activities include shramdaan and theme is action towards focused plastic waste management and towards the effective ban of Single Use Plastic (SUP) from 11th September to 2nd October 2019. It also encouraged conducting awareness campaigns and initiating innovative programs to ensure maximum activities undertaken.

Swachhata Hi Sewa was celebrated from 3rd to 27th October, 2019 on recycling and Effective Disposal of Plastic Waste (SAMUCHIT NIPTAAN) at 68 KVKs of Zone-10.

Table 3.19.1. Swachhata Activities from 11th September to 2nd October 2019 by KVKs of ATARI, Hyderabad

S. No.	Activities under SHS	No. of adopted villages	Number of Activities	Number Participants	
				Farmers	Students
1	Large scale campaigns for cleaning public places, hospitals, etc	178	16	19377	11235
2	Plastic waste collection and segregation	69	17	1698	972

Cleaning of office premises KVK, Nellore-2 (Periyavaram)

Collection and disposal of plastic waste, KVK, Perambalur

Cleaning of farmer's hostel premises, KVK, Mahabubabad (Malyal)

Table 3.19.2. Recycling and Effective Disposal of Plastic Waste (SAMUCHIT NIPTAAN)

Name of ATARI/ KVKs	Quantity of plastic waste collected (kg)	Quantity of plastic waste effectively disposed (kg)	Method used for effective disposal of plastic waste	Total number of hours of Shramdaan (hours)	Number Participants	
					Farmers	Students
ATARI, Zone-10	250	250	Recycling	25	-	35
KVKs	6623	5607.5	Recycling and composting of bio degradable plastics	1064.4	11654	7861

KVK Bhadradri Kothagudem

KVK Thiruvarur

KVK Prakasam-1 (Darsi)

Swachhata Pakhwada

Swachhata Pakhwada programme was organized by 69 KVKs of ATARI Zone-10, Hyderabad, from 16th to 31st December, 2019 at KVK campuses, adopted villages, streets and nearby villages of KVKs of Andhra Pradesh, Tamil Nadu. KVK scientists, technical staff, students and farmers were involved in this programme.

Table 3.19.3. Activities conducted under Swachhata Pakhwada programme, Zone-10

Date	Activities	Male	Female	Total No. of Participants
16-Dec	Display of Banner at prominent places, Swachhta pledge and briefing of the activities and plantation of trees.	911	217	1128
17-Dec	Stock taking on digitization of office records/ e-office implementation. Cleanliness drive including cleaning of offices, corridors and premises. Review of progress on weeding out old records, disposing of old and obsolete furniture, junk materials and white washing/ painting.	1330	700	2030
18-Dec	Sanitation and SWM Cleanliness and sanitation drive within campuses and surroundings including residential colonies, common market places. Stock taking of biodegradable and non-biodegradable waste disposal status and providing on the spot solutions.	1120	411	1531
19-Dec	Sanitation and SWM Cleanliness and sanitation drive in the villages adopted under the Mera Gaon Mera Gaurav programme or other schemes by ICAR Institutes/ KVKs involving village community. Reviewing the progress of ongoing Swachhta activities.	2030	568	2598
20-Dec	Stock taking of waste management including utilization of organic waste/generation of wealth from waste, polythene free status, promoting clean and green technologies and organic farming practices in kitchen gardens of residential colonies/ nearby villages and providing on the spot technology solution.	2109	767	2876
21-Dec	Campaign on cleaning of sewerage and water lines, awareness on recycling of waste water, water harvesting for agriculture/ horticulture use/ kitchen gardens in residential colonies of nearby villages.	1382	401	1783

Date	Activities	Male	Female	Total No. of Participants
22-Dec	Workshops, exhibitions, technology demonstrations on agricultural technologies for conversion of waste to wealth, safe disposal of all kinds of wastes. Debate on Swachhta at the DARE/ICAR establishments, seminars, awareness camps, rallies, street plays and expert talks.	1591	589	2180
23-Dec	Celebration of Special Day – Kisan Diwas (Farmer's Day), inviting farmers. Experience sharing on Swachhta initiatives by farmers and civil society officials. Felicitating farmers/ civil society officials for exemplary initiatives.	2319	765	3084
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 by any institutes/ establishments.	1470	439	1909
25-Dec	Cleaning of public places, community market places and/ or nearby tourist spots.	1190	412	1602
26-Dec	Fostering healthy competition - Organized competitions and rewarded best offices/ residential areas/ campuses on cleanliness. Quiz, essay and drawing competitions for school children, village youth.	603	218	821
27-Dec	Awareness on waste management & other activities including utilization of organic waste/ generation of wealth from waste, polythene free status, composting of kitchen and home waste, promoting clean & green technologies and oganic farming practices in new area.	463	191	654
28-Dec	Campaign on cleaning of sewerage and water lines, awareness on recycling of waste water, water harvesting for agriculture/ horticulture use/ kitchen gardens in residential colonies outside campuses/ nearby villages with the involvement of local/ village communities.	1610	451	2061
29-Dec	Visits of community waste disposal sites/ compost pits, cleaning and creating awareness on treatment & safe disposal of bio-degradable/ non bio-degradable waste by involving civil/ farming community.	1987	527	2514
30-Dec	Involvement of VIP/ VVIPs and print & electronic media to ensure adequate publicity to the Swachhta Pakhwada programme.	1050	126	1176
31-Dec	Organization of press conference for highlighting the activities of Swachh Bharat Pakhwada by involving all stake holders including farmers/ VIPs/ press and electronic media.	580	224	804

Swachhta Pakhwada Pledge & briefing of the activities KVK, Visakhapatnam-1 (BCT)

Cleaning of offices, corridors and premises, KVK Ranga Reddy

Pledge & Cleanliness, sanitation drive involving school children, KVK, Thiruvarur

Rally on conversion of Waste to wealth, safe disposal of all kinds of waste, KVK, Krishna-1 (Garikapadu)

KVKs celebrated Kisan and Vigyan Diwas (Farmer's Day) on 25th December, 2019 for experience sharing on Swachhta initiatives by farmers and civil society officials. Village Sarpanches, Ward Members, Panchayat Secretaries and AEOs have attended the programme along with KVK staff. KVKs felicitated farmers and civil society officials for exemplary initiatives on Swachhta.

3.20. Farmers FIRST Programme (FFP)

The Farmer FIRST Programme (FFP) is an ICAR initiative to privilege the small holder 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 farmers' conditions. The focus is on farmer's Farm, Innovations, Resources, Science and Technology (FIRST). 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. Farmers First Programme (FFP) has been implemented by Four ICAR institutes (IIMR, IIOPR, IIOR and CRIDA) and one University (TANUVAS, Chennai) under ATARI, Hyderabad.

The Farmers FIRST centers undertook 74 interventions covering 4741 ha area and 5990 households in the operational villages. Twenty-nine crop-based technologies were demonstrated in 1279 ha benefiting 2790 households. Horticultural interventions on 12 technologies were demonstrated in 125 ha benefiting 597 households. In livestock module, 24 technologies were demonstrated involving 2640 animals benefiting 1682 households. Nine NRM technologies were demonstrated in 698 ha benefiting 921 households. Four enterprises were established for the benefit of 207 households.

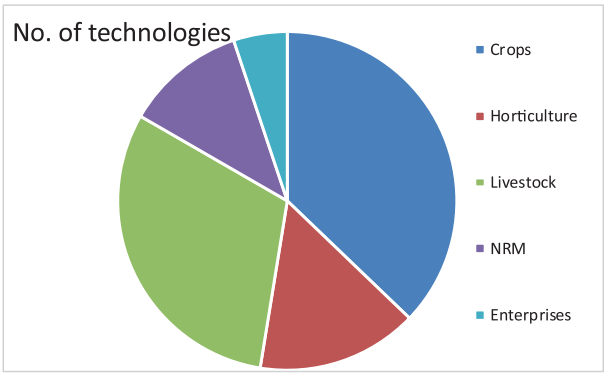
Improved sorghum variety CSV 27 (19% yield improvement), pearl millet variety PA 9285, redgram variety ICPL 87119 (Asha) (19% yield improvement), little millet variety DHLM 36-3 (20% yield improvement), foxtail millet variety SiA 3085 (22% yield improvement), kodo millet variety JK 98 were demonstrated by IIMR, Hyderabad. CRIDA, Hyderabad demonstrated pigeon pea variety PRG 176 (33% increase in yield), Bengalgram variety NBeG 49 (42% increase in yield), safflower variety Manjeera (13% increase in yield). Marigold cultivation under drip fertigation gave Rs.10,000 per ha additional income, IPM in cucurbits and marigold resulted in 25% higher yield, IPM for fruit fly in mango orchards reduced the yield losses, protray nursery under shadenet nursery resulted in 100% germination, broad bed with mulching for vegetable increased the yield by 17%. IPM and IDM technologies were demonstrated to farmers by IIOR, Hyderabad. Intercropping Cocoa, banana, watermelon and maize in Oil Palm demonstreated by IIOPR gave higher net returns and BC ratio.

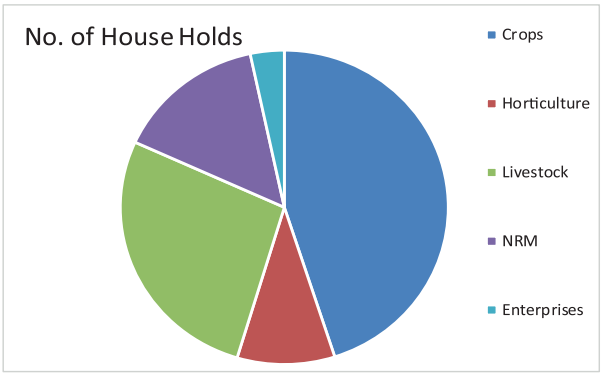
CRIDA Hyderabad demonstrated *in-situ* moisture conservation through open conservation furrow for redgram resulting in an increased yield by 25% and rainwater use efficiency from 1.74 to 2.4 kg/ha mm. HDPE embedded gabion structure conserved 60% of rainwater, raised groundwater by 0.6m. Micro irrigation to high value crops resulted in 60% water saving and 35% yield increase. Use of weeders in redgram improved the weeding efficiency by 90%. custom hiring centres for sprayers, weeders, brush cutter helped in reducing drudgery by 32%. The nine row planter was also demonstrated in 10 ha. Moisture conservation measures, INM, mulching were demonstrated by IIOR, Hyderabad. New varieties of rice, redgram, greengram, castor, sesamum and groundnut were demonstrated. Integrated nutrient management technologies to rice, banana and vegetables demonstrated by TANUVAS, Chennai saved input costs and increased the crop yield. Weather based irrigation scheduling to oil palm demonstrated by IIOPR resulted in a water savings of 44330 l/ha/day and conserved 4 hours of electricity and one man power. Soil test based fertigation schedule increased the net income by 46%. Mechanized harvester for oil palm saved 6 hours of harvest time and improved the harvesting efficiency by 50%.

IIMR, Hyderabad demonstrated and distributed improved breeds for backyard poultry production, improved sheep and goat breeds. Area specific mineral mixture demonstrated by CRIDA, Hyderabad increased the milk yield by 23%, mineral block licks improved the growth rate of small ruminants by 24%, backyard poultry rearing with Srinidhi birds gave 3 times more eggs and 1.5 times more meat, vaccination reduced the chick mortality, CO 4 and Phule Jaywant

fodder varieties improved the milk production by 32%, Deccani and Nellore sheep breeds gave 28.2% and 76.4% higher body weight. Community hatchery unit established by TANUVAS, Chennai reduced the cost of hatching, increased the hatchability and enhanced the income. Improved strains of poultry reduced the mortality, increased the egg and meat production. Use of mineral mixture and balanced cattle feed reduced the infertility and increased the conception rate. TANUVAS Teat protect reduced the incidence of Mastitis in cattle. Super Napier grass demonstrated by IIOPR gave 13% higher fodder yield than CO 3 grass. Fish farming in coconut and oil palm farms gave an additional income of Rs.616673 per pond per year. Vermicompost production technology using oil palm biomass yielded 3.1 tonnes of vermicompost per ha per year. Backyard poultry rearing demonstrated by IIOR with Rajasri birds increased the egg and meat consumption in rural areas. Nellore breed ram lamb rearing enhanced the household income @ Rs.8000 to 10000 per sheep

Primary processing of millets, rotti and pappad making machines were demonstrated and distributed by IIMR. Millet and paddy processing units were provided and demonstrated by IIOR.





IIMR: Field training on installation of pheromone traps to control insect-pests

IIMR: primary processing unit at Gangapur

IIOPR: Demonstrating application of bio control agent to manage leaf eating caterpillar in oil palm

IIOPR: Dr. Chahal, ADG (AE), ICAR, Delhi and Dr. Y. G. Prasad, Director, ATARI, Hyderabad visited FFP interventions

Thiru. A. Jambulingam of Bandikavanoor village received the ICAR-NAARM Innovator Award for refurbishing condemned trucks into poultry houses

3.21. Skill Development Training Programmes by ASCI

Agricultural Skill Council of India (ASCI) under the aegis of Ministry of Skill Development & Entrepreneurship (MSDE) works towards capacity building of farmers, wage workers, self-employed & extension workers engaged in organized and unorganized segments of agriculture & allied Sectors for bridging gaps and upgrading skills. ASCI aspires to transform Indian agriculture through development of skills of country's man power in emerging areas of agriculture. ASCI has developed 176 qualification packs / job roles covering segments like seed production, farm mechanization, dairy, poultry, horticulture, commodity management , agri entrepreneurship etc. Skill development training programmes have been taken up by KVKs, SAUs and ICAR institutes by ASCI certified trainers having expertise in the respective job role.

The KVKs, SAUs and ICAR institutes have been affiliated with ASCI as training partners and the trainers in the KVK have been assessed and certified to take up job roles chosen by them.

A training of trainers for the trainers of the zone was organized jointly by ASCI and ATARI during 25-27, September, 2019 for imparting domain and platform skills and to assess the trainers for certification. All the trainers of the zone cleared the test and were certified to take up the training programmes in the job roles allotted to them. During last year , 85 training programmes were allotted to the zone covering 36 KVKs (13 in AP, 10 in Telangana and 13 in Tamilnadu), one SAU (PJTSAU) and five ICAR institutes (CRIDA, IIRR, DPR, NRCM and NRCB). The training programmes were to be conducted on 24 different job roles (7 in agriculture, 4 in horticulture, 2 in dairy, 3 in poultry, 4 in fisheries and 4 in allied sector). Out of the 85 programmes only 76 could be initiated due to various constraints faced by the training partners. Among the 76 initiated, only 3 trainings could be completed absolutely including assessment of trainees by two training partners (KVK, Ranga Reddy (Hayathnagar) and ICAR-NRCM). Most of the other training partners too completed the training except the assessment of trainees due to the prevailing COVID situation during March, 2020. The following are the details of training programmes which were underway in the zone during 2019-20.

Table 3.21.1. The details of training programmes (ASCI) organized in the zone during 2019-20

Name of the KVK / SAU/ ICAR institute	Job role	Notional hours	No. of trainees
Vizianagaram	Vermicompost Producer	200	20
Visakhapatnam-1 (BCT)	Nursery Worker	200	20
Visakhapatnam-1 (BCT)	Organic Grower	200	20
West Godavari-2 (Vrgudem)	Mushroom Grower	200	20
West Godavari-2 (Vrgudem)	Aquaculture Worker	200	20
West Godavari-1 (Undi)	Quality seed grower	200	20
West Godavari-1 (Undi)	Bee Keeper	200	20
Guntur (Lam)	Dairy Farmer - Entrepreneur	200	20
Guntur (Lam)	Vermicompost Producer	200	20
Nellore-1	Brackish water Aquaculture Farmer	200	20
Nellore-1	Nursery worker	200	20
Chittoor-1 (RASS)	Sericulturist	200	20
Chittoor-1 (RASS)	Floriculturist-Open Cultivation	200	20

Name of the KVK / SAU/ ICAR institute	Job role	Notional hours	No. of trainees
Kurnool-2 (Banavasi)	Small poultry farmer	240	20
Kurnool-2 (Banavasi)	Mushroom grower	200	20
Kurnool-1 (Yagantipalli)	Quality Seed Grower	200	20
Kurnool-1 (Yagantipalli)	Organic Grower	200	20
Kadapa-1 (Utukur)	Vermicompost Producer	200	20
Kadapa-1 (Utukur)	Mushroom grower	200	20
Anantapur-2 (Kalyandurg)	Agricultural extension service provider	200	20
Anantapur-2 (Kalyandurg)	Organic Grower	200	20
Prakasam-1 (Darsi)	Vermicompost producer	200	20
Krishna-1 (Garikapadu)	Quality Seed Grower	200	20
KVKs			
Ranga Reddy (Hayathnagar)	Nursery Worker	200	20
Ranga Reddy (Hayathnagar)	Micro Irrigation Technician	200	20
Warangal Urban (Mamnoor)- Bhupalapalli	Soil & Water Testing Lab Assistant	200	20
Warangal Urban (Mamnoor)- Bhupalapalli	Dairy Farmer - Entrepreneur	200	20
Suryapet (Gaddipalli)	Freshwater Aquaculture Farmer	200	20
Suryapet (Gaddipalli)	Mushroom Grower	200	20
Karimnagar (Jammikunta)	Mushroom Grower	200	20
Karimnagar (Jammikunta)	Fish Seed Grower	210	20
Mancherial (Bellampalli)	Organic Grower	200	20
Mancherial (Bellampalli)	Vermicompost Producer	200	20
Nagarkurnool (Palem)	Quality Seed Grower	200	20
Nagarkurnool (Palem)	Sericulturist	200	20
Khammam (Wyra)	Nursery Worker	200	20
Khammam (Wyra)	Quality Seed Grower	200	20
Nizamabad (Rudrur)	Assistant Gardener	200	20
Nizamabad (Rudrur)	Vermicompost producer	200	20
Nalgonda (Kampasagar)	Vermicompost Producer	200	20
Nalgonda (Kampasagar)	Nursery Worker	200	20
Medak (Tuniki)	Organic Grower	200	20
Medak (Tuniki)	Vermicompost producer	200	20
SAUs			
PJTSAU	Agriculture Extension Service Provider	200	20
PJTSAU	Quality Seed Grower	200	20
ICAR Institutes			
CRIDA Hyderabad	Soil & Water Testing Lab Assistant	200	20

Name of the KVK / SAU/ ICAR institute	Job role	Notional hours	No. of trainees
CRIDA Hyderabad	Agriculture Machinery Repair and Maintenance Service Provider	200	20
Directorate of Poultry Research, Hyderabad	Small poultry farmer	240	20
National Research Centre on Meat, Hyderabad	Supply Chain Field Assistant	200	20
National Research Centre on Meat, Hyderabad	Animal Health Worker	300	20
KVKs			
Ariyalur	Quality seed grower	200	20
Ariyalur	Dairy farmer-entrepreneur	200	20
Perambulur	Dairy Farmer - Entrepreneur	200	20
Perambulur	Soil & Water Testing Lab Assistant	200	20
Namakkal	Organic Grower	200	20
Namakkal	Soil & Water Testing Lab Assistant	200	20
Shivagangai	Small poultry farmer	240	20
Shivagangai	Micro Irrigation Technician	200	20
Dharmapuri	Mushroom Grower	200	20
Dharmapuri	Organic Grower	200	20
Madurai	Soil & Water Testing Lab Assistant	200	20
Madurai	Beekeeper	200	20
Erode	Vermicompost Producer	200	20
Erode	Organic Grower	200	20
Karur	Beekeeper	200	20
Karur	Vermicompost Producer	200	20
Tirunelveli	Nursery Worker	200	20
Tirunelveli	Sericulturist	200	20
Ramnad	Vermicompost Producer	200	20
Ramnad	Mushroom grower	200	20
Virudhunagar	Vermicompost producer	200	20
Virudhunagar	Bee Keeper	200	20
Kanyakumari	Mushroom Grower	200	20
Kanyakumari	Beekeeper	200	20
Salem	Organic Grower	200	20
Salem	Quality Seed Grower	200	20


Aquaculture Worker – KVK, West Godavari-2 (Vrgudem)


Nursery Worker – KVK, Ranga Reddy (Hayathnagar)


Soil and Water Testing Lab Assistant- KVK, Namakkal - Tamilnadu

Unemployed youth turned entrepreneurs
KVK, Rangareddy (CRIDA)

KVK, Rangareddy under ICAR-CRIDA was allotted an ASCI skill training programme "**Nursery Worker"** during 2019-20 and the SMS (Horticulture) Mr. G. Srikrishna was certified through Training of Trainers (TOT) of ASCI. This training conducted successfully from 10th February to 11th March, 2020 covering 200 hours duration in 25 days as residential programme for improving skills in both theory (30%) and practicals (70%) of nursery management practices. Twenty young and educated farmers were identified for this training Ranga Reddy district as per the guidelines of Agriculture Skill council of India.

Experts/resource persons were identified from different Institutes/Research stations/Universities/NGOs/ Line departments/Private organizations for conduct of theory and practical sessions. Skills were imparted to trainees on wide range of topics like laying out of nursery, input management, plant propagation structures, seed extraction and storage, sexual/asexual propagation techniques, micro-propagation, pest and disease management, irrigation and nutrition management etc. The trainees were also taken on exposure visits to successful nurseries in the district. After the training was over, the trainees were assessed by ASCI assessors through tab test and viva voce and all the trainees were certified. The trainees were also provided with literature, tools and input for motivating them to take up Nursery Management as an entrepreneurial activity.

Four enthusiastic youth among the trainees formed two groups of 2 each and established two nursery units (*Mana* nursery , Green Mithra Nursery) in March, 2020 immediately after getting certified and supplied quality plant material to the needy farmers and also for the "*Harithahaaram"* project of Telangana government on recommendation by department of Horticulture and Forestry. K. Madhukumar and K. Umamaheswari of *Mana* nursery produced 12500 saplings of forest and multipurpose fruit trees and earned Rs.124000 through sale of 4000 saplings in 4 months duration. Similarly R. Tejaswini and R. Laxmi of "Green Mithra Nursery" produced 46800 saplings /seedlings of fruit trees, forest trees, flower and vegetable crops and made a net profit of Rs.2,35,000 since March through sale of about 31500 plants. Three trainees got placement in Commercial nurseries as a field supervisors.

3.22. Mera Gaon Mera Gaurav

"Mera Gaon Mera Gaurav" (MGMG) is an innovative initiative of Indian Council of Agricultural Research (ICAR), planned to promote the direct interface of scientists with the farmers to hasten the lab to land process. The objective of this scheme is to provide farmers with required information, knowledge and advisories on regular basis by adopting villages. This programme was implemented by 8 ICAR institutes in Andhra Pradesh, Telangana and Tamil Nadu states. During 2019-20, 275 scientists as 63 teams have adopted 237 villages and organized 1259 activities benefiting 24658 farmers and rural people.

Table. 3.22.1. Details of institutes participating in MGMG programme

S No.	Name of institute/ university	No. of Teams	No. of Scientists	No. of Villages
Andhra Pradesh				
1	Indian Institute of Oil Palm Research, Pedavegi, Andhra Pradesh	3	14	13
2	Central Tobacco Research Institute, Rajahmundry, Andhra Pradesh	7	33	33
Telangana				
1	Indian Institute of Oilseeds Research, Rajendranagar, Hyderabad, Telangana	8	39	40
2	National Research Centre on Meat, Hyderabad, Telangana	3	13	7
3	Directorate of Poultry Research, Hyderabad, Telangana	5	18	19
Tamil Nadu				
1	Central Institute of Brackishwater Aquaculture, Chennai, Tamilnadu	14	67	14
2	Sugarcane Breeding Institute, Coimbatore, Tamilnadu	18	72	90
3	National Research Centre for Banana, Tiruchirapalli, Tamil Nadu	5	19	21
	Total	**63**	**275**	**237**

A toral of 275 scientists made 307 visits in teams and conducted various activities in the adopted villages involving of 6089 farmers. A total of 1259 activities were conducted by 8 ICAR institutes of Zone-10 benefitting 24658 participants. 48 training programmes were organized on agriculture, fisheries, value addition and other related aspects benefitting 1085 farmers. 126 Interface meetings/ Kisan Ghoshtis were organized with the participation of 2961 farmers. A total of 266 awareness and demonstration programmes were conducted on various aspects of agriculture, aquaculture, climate change, mechanization, water conservation, new crops, varieties etc. involving 4799 farmers. Mobile advisories (442 Nos.) and literature (60 Nos.) on improved agricultural practices, soil health, pest and disease management, nutrition, value addition, government schemes etc. were provided to 8826 farmers & rural women.

Table: 3.22.2. Details of activities conducted under MGMG programme

S. No.	Name of activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	307	6089
2.	Interface meeting/ Kisan Goshthies	126	2961
3.	Training organized	48	1085
4.	Demonstrations conducted	151	1500
5.	Mobile based advisories (No of message)	442	6545
6.	Literature support provided (No)	60	2281
7.	Awareness created (No)	115	3299
8.	Others	10	898
	Total	**1259**	**24658**

Demonstration on Spraying with Drone in Horticulture crops

Monitoring of Ram lamb

Technological intervention in Pearl Spot, ICAR-CIBA, Chennai

Demonstration of Pearl Spot intervention to Karathittu Tribal Women

3.23. District Agro Met Units (DAMUs)

Apropos memorandum of understanding (MOU) entered by ICAR with Indian Meteorological Department (IMD), 128 District AgroMet Units (DAMUs) have been set up under the Gramin Krishi Mausam Seva (GKMS) scheme to receive weather data from IMD and Automatic Weather Stations (AWS) to be established at each DAMU and to prepare and disseminate sub-district livel agro-met advisory bulletins. Under phase I, 24 KVKs have been selected for setting up of DAMUs in zone x (9 in AP, 4 in Telangana, 10 in Tamilnadu and 1 in Puducherry). Through DAMUs, it was aimed to bring IMD and KVKs together in a structured matter to ensure better understanding of roles and responsibilities and to cater to the beneficiaries in a more effective manner. 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.

A short term training course of 6 day duration was jointly organized by IMD and ICAR-ATARI, Hyderabad during 14-19, October, 2019 at ATARI, Hyderabad. to impart knowledge and skills to 45 newly recruited Subject Matter Specialists (Agrometeorology) and Agromet Observers of the DAMUs of zone in generation and dissemination of agro-met advisories. Resource persons from IMD (Delhi &Hyderabad), ICAR-CRIDA, PJTSAU, ICAR-ATARI, Hyderabad and TNAU, Coiumbatore gave lectures on various aspects related to interpretation of weather forecasts issued time to time by IMD, contingency crop planning, generation of agromet advisories based on crop phenology and methods of dissemination of the advisories to reach beneficiaries at block level. The trainees were given hands on training on handling and maintenance of meteorological equipment, recording of data, generation and uploading of agromet advisories on Agromet-DSS portal. During the year under report selection of site for establishing AWS as per the norms communicated by the IMD has been completed in all the DAMUs of the zone.

Orientation training to the newly recruited staff of DAMUs of the zone

The achievements of DAMUs of the zone during 2019-20 are presented in Table 1.

In the state of Telangana, a total of 202 agro-met advisory bulletins were generated and issued to the farmers and among them 162 were uploaded in Agromet – DSS portal. A total of 15 farmers' awareness programmes were conducted in the state on the use of agro-met advisories and also on the utility of Meghdoot App of IMD benefitting 712 farmers. A total of 82 SMSs related to weather were sent to 76459 farmers of the state during the year. Similarly in the state of Andhra Pradesh, of the 1928 agro-advisories

issued to the farmers, 1859 advisories were given on agro-met DSS portal. During the year 44 farmers' awareness programmes were organized for the benefit of 1656 farmers. A total of 526 SMSs related to weather based crop advisory were given to 1241600 farmers during 2019-20 by the DAMUs of the state. In Tamilnadu, 2749 agromet adivisories were issued by the 10 DAMU KVKs of the state of which 2719 were given using agro-met DSS. 74 farmers' awareness programmes were conducted to bring awareness on the utility of weather based agro-advisories and Meghdoot app among 3978 farmers. Weather based advisory was given to 82569 farmers through 46 SMSs during the year. 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 limited feed back that was gathered from the receivers of the advisory revealed that they got benefited significantly in terms of timely sowing and planting of crops, scheduling of irrigation and fertilizer application, pest management and timely harvesting of crops avoiding post-harvest losses to a greater extent.

Table 23.1. Achievements of DAMUs during 2019-20

S. No.	Name of the KVK	No. of AAS bulletins prepared using Agromet DSS	No. of AAS bulletins disseminated to farmers in the year	Farmers' Awareness Programmes (FAP)		SMSs sent to farmers	
				No.	No. farmers	No.	No. farmers
1	Adilabad	46	46	3	120	48	1932
2	Nalgonda (Kampasagar)	40	54	3	92	12	3573
3	Khammam (Wyra)	37	49	4	222	22	70954
4	Mahabubabad (Malyal)	39	53	5	278	0	0
Telangana total		162	202	15	712	82	76459
5	Srikakulam	352	352	3	100	352	352
6	Vizianagaram	90	159	6	275	54	2536
7	East Godavari-1 (Kalavacherla)	205	205	3	110	5	434909
8	West Godavari-2 (Vrgudem)	106	106	4	200		
9	Krishna-1 (Garikapadu)	141	141	8	241	1	2911
10	Prakasam-1 (Darsi)	318	318	3	107	30	774385
11	Nellore-1	299	299	6	176	11	4444
12	Kadapa-1 (Utukur)	138	138	3	112		

S. No.	Name of the KVK	No. of AAS bulletins prepared using Agromet DSS	No. of AAS bulletins disseminated to farmers in the year	Farmers' Awareness Programmes (FAP)		SMSs sent to farmers	
				No.	No. farmers	No.	No. farmers
13	Kurnool-2 (Banavasi)	210	210	8	335	73	22063
Andhra Pradesh total		1859	1928	44	1656	526	1241600
14	Dharmapuri	308	296	17	710	7	0
15	Kanchi	469	469	5	300	0	0
16	Cuddalore	361	361	6	312	0	0
17	Trichy	35	40	2	103	0	0
18	Virudhunagar	238	238	8	626	0	0
19	Pudukottai	17	17	9	437	0	0
20	Ramnad	239	239	10	480	13	25904
21	Salem	26	63	2	110	8	374
22	Tiruvallur	382	382	11	639	15	45375
23	Vellore	644	644	4	261	3	10916
Tamil Nadu total		2719	2749	74	3978	46	82569
24	Puducherry	0	0	0	0	0	0
	Zone total	**4740**	**4879**	**133**	**6346**	**654**	**1400628**

3.24. 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 co-ordinate the project. Successful technologies will be identified by the partnering ICAR institutes along with designing the methodologies for the study and developing schedules for collecting primary data by the ATARIs.

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, Krishna districts of Andhra Pradesh. A total of 250 schedules were filled with the help of data enumerators engaged under the project and with the active involvement of the SRF of the project at ATARI. The target of 400 samples could not be met due to the COVID situation in March, 2020 and will be achieved during the current year along with targets for the year 2020. The data pertaining to the three states will be analysed and documented by CIFA in due course of time.

Jayanti Rohu Amur Common Carp

3.25. Cluster Demonstrations on Organic Farming under PKVY during 2019-20

Paramparagat Krishi Vikas Yojana (PKVY) is a sub-component of soil health management (SHM) scheme under National Mission on Sustainable Agriculture (NMSA) of ministry of agriculture and farmers welfare. PKVY aims to combine traditional knowledge of farmers and the modern agricultural science to develop sustainable models of organic farming to ensure long term soil fertility build up, resource conservation and to help in climate change mitigation and adaptation. The primary objective of the scheme is to maintain soil fertility and to produce food through organic practices without the use of agro-chemicals. PKVY also aims at empowering farmers through institutional development through cluster approach not only in implementing organic farming practices but also in input production, quality control, value addition and direct marketing through innovative means.

The Participatory Guarantee System (PGS) is a locally focused quality assurance system of government of India which certifies producers based on active participation of stakeholders and is built on a foundation of trust, social networks and knowledge exchange. It is an alternative to third party certification and is especially adapted to local markets and short supply chains. PGS enables the direct participation of producers, consumers and other stakeholders in the process of certification of organic produce. In this project on cluster demonstrations on organic farming, local groups are formed with the participation of a minimum of 20 farmers covering 50 ha who pledge to implement organic farming following PGS-standards by registering themselves under a regional council of PGS-India.

During the year 2019-20, 45 KVKs in zone x (16 from A.P, 10 KVKs from Telangana and 18 KVKs from Tamilnadu) were selected to implement cluster demonstrations on organic farming under PKVY through formation of local groups under a chosen Regional Council of PGS-India. Each KVKs has been given Rs.3.30 lakhs towards cluster formation, capacity building, project implementation, man power requirement for uploading data, certification cost, incentive to participating farmers through direct benefit transfer (DBT), brand building, local publicity, local marketing initiatives and participation in trade fairs.

A one-day orientation training programme was organized by ICAR-ATARI, Hyderabad on 21st August for the nodal officers of 45 KVKs implementing cluster demonstrations on model organic farming under Paramparagat Krishi Vikas Yojana (PKVY) during 2019-20. The resource persons from Centre for Sustainable Agriculture (CSA) and Ekalavya foundation, two regional councils under PGS-India elaborated on certification procedures and tapping of market potential for organic produce.

The achievements of the project have been presented in the following tables. A total of 38 local groups were formed covering 871 farmers and 1730 acres of land. Awareness camps (46), farmers meetings (76), training programmes (63) and exposure visits (23) were conducted by the implementing KVKs with the participation of 1235, 1816, 1692 and 490 farmers respectively. Some of the project KVKs have also made attempts to establish market linkages for selling their organic produce through group approach.

The implementing KVKs are, 16 in Andhra Pradesh (Anantapur-1 (Reddipalli), Chittoor-1 (RASS), Chittoor-2 (Kalikiri), East Godavari-2 (Pandirimamidi), Guntur (Lam), Kadapa-1 (Utukur), Kadapa-2 (Vonipenta), Krishna (Garikpadu), Kurnool-1 (Yagantipalli), Kurnool-2 (Banavasi), Nellore-1, Nellore-2 (Periyavaram), Srikakulam, Visakhapatnam-1 (BCT), Vishakapatnam-2 (Buchayapet), West Godavari-2 (Vrgudem)), 10 in Telangana (Adilabad, Nalgonda (Kampasagar), Suryapet (Gaddipalli), Bhadradri (Kothagudem), Wanaparthy (Madanapuram), Nagarkurnool (Palem), Sangareddy (DDS), Medak (Ekalavya), Nizamabad (Rudruru), Ranga Reddy (Hayathnagar), 18 in Tamil Nadu (Cuddalore, Madurai, Pudukottai, Salem, Tiruvallur, Trichy, Vellore, Villuppuram, Virudhunagar, Kancheepuram, Namakkal, Sivagangai, Coiumbatore, Dindigul, Erode, Karur, Perambalur, Ariyalur) and one in Puducherry.

Table 3.25.1. Formation of local groups under PKVY during 2019-20

State	No. of local groups formed	No. of Farmers registered	Area covered (acres)	Crops covered
Andhra Pradesh	16	354	859.51	Paddy, groundnut, sweet orange, tomato, redgram, millets, vegetables, blackgram, horsegram, greengram, sugarcane, cashew, turmeric, bengalgram, cowpea, sesame, banana,mango, chillie, acid lime, pine apple and ginger
Telangana	7	163	300	Vegetables, groundnut, paddy, jowar, maize, fennel, bengalgram, tomato, chillies, mango and ridge gourd
Tamilnadu	15	354	570.5	Millets, vegetables, paddy, pepper, greengram, blackgram, jowar, bajra, groundnut, chillies, black pepper, hill banana, cardamom, onion, horsegram and gingelly
Total	**38**	**871**	**1730.01**	

Table 3.25.2. Meetings / trainings/ awareness programmes undertaken under PKVY during 2019-20

Name of State	Mobilization/ awareness camps organized		Farmers meetings organized		Training programmes organized		Exposure visits organized	
	No.	No. of farmers	No.	No. of farmers	No.	No. of farmers	No.	No. of farmers
Andhra Pradesh	19	587	36	696	29	692	8	121
Telangana	14	305	11	290	10	330	7	186
Tamil Nadu	12	323	28	810	24	670	8	183
Puducherry	1	20	1	20	-	0	0	0
Total	**46**	**1235**	**76**	**1816**	**63**	**1692**	**23**	**490**

Training to local group- KVK, Anantapur On-farm input production – KVK, Adilabad

3.26. Frontline Demonstrations (FLDs) on Nutri Cereals

Frontline demonstrations (FLDs) programme on nutri cereals was formulated for the promotion of Sustainable Agriculture Practices (SAP) in 150 districts through KVKs to commemorate the 150th birth anniversary of Mahatma Gandhi by government of India under National Food Security Mission (NFSM). Demonstrations on Nutri Cereals (Millets) through KVKs of ICAR in identified districts were planned and to be executed till 2nd October, 2020 to encourage the farmers for nutri cereals (Millets) cultivation and to promote less water consuming crops towards Sustainable Agriculture Practices (SAP).

FLDs on Nutri cereals through KVKs in ATARI Zone-10

Thirteen KVKs of the zone, 5 KVKs in Andhra Pradesh, 4 KVK in Tamil Nadu and 4 KVKs in Telangana are involved in the production of nutri cereals. During 2019-20, a total of 140 acres (56 ha) were allotted and 120 acres (48 ha) implemented by KVKs in Andhra Pradesh, Telangana and Tamil Nadu by conducting 140 demonstrations in rabi and summer seasons. The crops demonstrated included jowar, ragi and other small millets. In Andhra Pradesh average demonstration yields of jowar ranged from 16.5 to 49.6q/ha, while in Telangana average yields of demonstrations on jowar ranged from 10.5 to 21.7q/ha, and in Tamil Nadu it ranged from 22.5 to 28q/ha.

Table 3.26.1. Progress of FLDs on Nutricereals in Zone-X, Rabi/Summer 2019-20

State	No. of KVKs	Crop	Season	Target		Achievement	
				Area (Acres)	Demo (No)	Area (Acres)	Demo (No)
Andhra Pradesh	5	Jowar	Rabi/Summer	40	40	30	30
		Ragi	Rabi/Summer	10	10	10	10
		Small millets	Rabi/Summer	10	10	10	10
Tamil Nadu	4	Jowar	Rabi/Summer	40	40	30	30
Telangana	4	Jowar	Rabi/Summer	40	40	40	40
Total A	**13**		**Rabi/Summer**	**140**	**140**	**120**	**120**

Table 3.26.2. Millet Varieties demonstrated in different states of Zone-X

State	Crop	Variety
Andhra Pradesh	Jowar	NTJ-5, PAC-537
	Ragi	Bharathi
	Korra (Small Millets)	SiA 3222
Telangana	Jowar	CSV-29R
Tamil Nadu	Jowar	K-12

Table 3.26.3. Performance of Nutricereals in Zone-X, Rabi/ Summer 2019-20

KVK	Crop	Season	Variety	Area (ha)	Yield (q/ha)		Percent Increase (%)
					Demo	check	
Andhra Pradesh							
Anantapur-1 (Reddipalli)	Jowar	Rabi	PAC 537	4	29.50	25.50	15.60
Guntur (LAM)			NTJ 5	4	48.40	41.50	16.60
Kurnool-1 (Yagantipalli)			NTJ 5	4	49.60	43.20	14.80
Visakhapatnam-1 (BCT)	Ragi	Summer	Bharathi	4	20.20	13.70	47.40
Visakhapatnam-1 (BCT)	Small Millets (Korra)	Summer	SiA 3222	4	11.50	7.50	53.30
Telangana							
Mancherial (Bellampalli)	Jowar	Rabi	Local seed Godi/ Boda	4	10.50	10.00	5.00
Wanaparthy (Madanapuram)			CSV 29R	4	17.80	13.80	29.40
Sangareddy (DDS)			CSV 29R	4	16.40	12.90	27.10
Nizamabad (Rudrur)			CSV 29R	4	21.70	20.20	7.40
Tamil Nadu							
Madurai	Jowar	Summer	K 12	4	28.00	25.00	12.00
Salem			K 12	4	24.20	19.30	25.30
Coimbatore			K 12	4	22.50	18.20	23.62

Performance of Nutri Cereals in Andhra Pradesh

To promote nutricerelas production in Andhra Pradesh, 50 demonstrations of jowar and small millets were conducted in 20ha during rabi/summer seasons. 30 demonstrations of jowar crop were conducted in Anantapur-1 (Reddipalli), Guntur (Lam) and Kurnool-1 (Yagantipalli) districts. Improved varieties along with recommended dose of fertilizers, weedicide and need based plant protection measures were demonstrated by KVKs. The data recorded revealed that average yields of demonstrations were ranged from 16.2 to 48.4q/ha. 10 demonstrations of ragi organized in 4 ha area by KVK, Visakhapatnam recorded an average yield of 20.2q/ha. SiA-3222 variety of korra crop registered an average yield of 11.5q/ha with 53.30% increase over check yield.

Demonstration of sorghum (PAC-537), KVK Anantapur-1 (Reddipalli)

Demonstration of Korra (SiA-3222), KVK Visakhapatnam-1 (BCT)

Performance of Nutri Cereals in Tamil Nadu

A total of 40 demonstrations on jowar crop were conducted by Madurai, Salem, and Coimbatore KVKs in 16 ha of area. The average yield recorded ranged from 22.5 to 28q/ha.

Demonstration of sorghum (K-12), KVK Salem

Demonstration of sorghum (CSV 29R), KVK Wanaparthy (Madanapuram)

Performance of Nutri Cereals in Telangana

A total of 40 demonstrations were conducted on jowar crop by Mancherial (Bellampalli), Wanaparthy (Madanapuram), Sangareddy (DDS) and Nizambad (Rudrur) KVKs. The demonstrations were organized during rabi season with improved variety along with all recommended practices viz., timely weeding, spraying of micronutrients, need based plant protection measures. Average demonstration yields ranged from of 10.5 to 21.7q/ha in Telangana.

3.27. Jal Shakthi Abhiyan

Jal Shakti Abhiyan (JSA) - A water conservation campaign was launched in the country from 1st July, 2019 for creating awareness among all stakeholders including farmers on water conservation and rain water harvesting. Fifty seven rural districts under ICAR-ATARI, Hyderabad have been identified for organising Kisan Melas under Jal Shakti Abhiyan from 1st July to 15th Sep, 2019 during phase-I and phase II from 1st October to 30th November, 2019 to create mass awareness among farmers in more than 707 blocks in covering 57 rural districts in the states of AP (68 blocks in 9 districts), Telangana(113 blocks in 22 districts), Tamil Nadu (525 blocks in 25 districts) and Puducherry (1 block in 1district) by organizing kisan melas on the optimum usage of water in farming with focus on increase in water use efficiency.

3.27.1. Details of Kisan Melas organised by KVKs under Jal Shakti Abhiyan

State	No. of KVKs	Number of Melas organized	Number of participants	No. of Central Team Members	MP	MLA	State Ministers	MLC
Andhra Pradesh	13	18	14663	10	3	9	1	0
Telangana	14	27	26396	18	3	12	3	2
Tamil Nadu	25	35	27028	22	9	8	5	0
Puducherry	1	1	752	0	0	0	1	0
Total	**53**	**81**	**68839**	**50**	**15**	**29**	**10**	**2**

KVK Thiruvannamalai - Shri. S. Ramachandran

Hon'ble Education Minister Dr. A. Suresh, Andhra Pradesh at KVK Prakasam (Darsi)

3.28. Awards and recognition

Smt. Padala Bhudevi, Women Agri Entreprenuer from KVK, Srikakulam received Nari Shakti Puruskar from Hon'ble President of India

KVK, Banavasi was awarded Best KVK by Hon'ble Vice Chancellor, ANGRAU

KVK, Kalavacharla received 'FTCCI award for Social welfare initiatives for Women Empowerment'

KVK, Yagantipalli received Best NICRA KVKs Award, 2019 from DDG (AE) at ICAR-CRIDA, Hyderabad

KVK, RASS, Chitoor received Mahindra Samriddhi Award

KVK, Srikakulam received Dhanuka Innovative Award presented by Shri Gajendra Singh Shekawat, Central Minister for Jal Shakti Abhiyaan

KVK, Namakkal awarded "Pandit Deendayal Upadhyay Rashtriya Krishi Vigyan Protshahan Puraskar–2018"

Mr. Sudharsan from KVK, Erode received Best Young Entrepreneur Award from Government of Kerala for his farm innovation Herboliv+

KVK, Erode received Best TNAU KVK Award during foundation day on 01.07.2019

KVK, Namakkal awarded Best NICRA KVK award 2019

Namakkal awarded Best Government Organization award 2020 of News 18 channel

Dr. M. Jagan Mohan Reddy KVK, Palem received Best Scientist Award

KVK, Adilabad awarded – Best Extension Centre Award

Haldhar Organic Farmer Award Thiru. P. Saravanan, Ariyagoundampatti, Namagiripetti Block, Namakkal District

Dr. Shivakrishna Kota, SMS (Agricultural Extension), KVK, Bellampalli received Best Scientist Appreciation Award

Mrs.Tamilselvi from KVK, Erode received Best Women Entrepreneur Award by DD, Mahila Kisan

Sri. B. Lanvanya Ramana Reddy from KVK, Palem received national level Haldar Organic Award

Sri. B. Raju from KVK, Palem received best organic farmer award on 03.09.2018 on the eve of university foundation day

Sri. B. Chandraiah from KVK, Palem received best innovative farmer award on the eve of University foundation day (2)

KVK, Ranga Reddy - Sri Bolla Subba Reddy received Best Farmer Rythu Nestham Award 2019

KVK, Jammikunta - Best women farmer appreciation award-FSC-107th ISC, UAS, Bengalore

Smt. Sudha Rani women farmer from NICRA village of KVK, RASS received Best Women Farmer Award from Vice Chancellor, PJTSAU on CRIDA Foundation Day (12.04.2019)

Mr. R. Suresh, of Ariyalur has been recognised at Farm Innovators Conclave, New Delhi for innovation on low cost hatchery

3.29. Important events

ICAR-ATARI-Hyderabad

Action plan meeting of KVKs of Tamil Nadu and Puducherry: The final action plan meeting of KVKs of Tamil Nadu and Puducherry was conducted at TNAU, Coimbatore during 22nd and 23rd April 2019. Dr.Y.G. Prasad, Director, ATARI, Hyderabad; Dr. M. Jawaharlal, DEE, TNAU; Dr.D. Ramasamy, DEE, TANUVAS and Dr.R. Jayaraman, DEE, TNJFU; Scientists of ATARI, PCs and SMS of KVKs participated. The action plans for 2019-20 were discussed and finalized. Dr.N. Kumar, Hon'ble Vice Chancellor of TNAU interacted with the PCs during the valedictory programme.

Action plan meeting of KVKs of Andhra Pradesh: The final action plan meeting of KVKs of Andhra Pradesh was conducted during 29th and 30th April 2019 at ANGRAU, Guntur. Dr.Damodara Naidu, Hon'ble Vice Chancellor of ANGRAU, Dr.Y.G. Prasad, Director, ATARI, Hyderabad, Dr.N.V. Naidu, Director of Research, ANGRAU, Dr.P.Ram Babu, DE, ANGRAU, Dr. Ravi Kumar Mathur, Director of IIOPR, Dr.D. Sreenivasulu, DE of SVVU, Dr.RVSK Reddy, DE, Dr.YSRHU, Dr.L.Uma Devi, Dean, Home Science College, Dr.J.Dilip Babu, Director of Research, Dr.YSRHU participated.

Action plan meeting of KVKs of Telangana: The final Action Plan meeting of KVKs of Telangana was conducted on 16th May 2019 at PJTSAU, Hyderabad. I served as the Co Chairman for the session on Home Science Technologies, reviewed the work done by Home Science SMS and participated in the Action Plan discussions.

New Extension Methodologies and Approaches (NEMA) Workshop: The planning workshop of the Network Project on New Extension Methodologies and Approaches (NEMA) involving 11 ATARIs and 6 ICAR Research Institutes was launched on 24 May 2019 at NAARM, Hyderabad.

Annual zonal review workshop of KVKs of Zone X: The annual zonal review workshop of KVKs in Zone X was organized by ATARI-Hyderabad at NAARM, Hyderabad during 24-26 May 2019. The workshop was inaugurated by Dr.A.K. Singh, DDG (AE), ICAR.

Review and action plan workshop of Farmers FIRST project: The annual review cum action plan workshop of Farmers FIRST project was organized on 24th June 2019 at ICAR-ATARI-Hyderabad. Dr. G. Ravindra Chary, Director, ICAR-CRIDA, Hyderabad, Director and Scientists of ICAR ATARI-Hyderabad and PIs of FFP from CRIDA, IIOPR, IIOR, IIMR and TANUVAS participated.

Review and action plan workshop of ARYA project: The annual review and action plan meeting of ARYA project was held at ICAR-ATARI-Hyderabad on 25th June 2019. I arranged accommodation, meeting hall and refreshments for the workshop. Dr.M.A. Arif Khan, KVK Nalgonda (Kampasagar), Dr. Munindra Naidu, KVK Nellore and Dr. Thirukumaran, KVK Kanyakumari presented their achievements. Dr. Karunashree, KVK VR Gudem, Dr. Ankaiah Kumar, KVK Kadapa, Dr. Sarala Kumari, KVK Warangal Malyal, Dr. Shanmugam, KVK Dharmapuri, Dr. Sendurkumaran, KVK Sivagangai, Dr. Alagesan, KVK Erode, Dr. Ramamourthi, KVK Puducherry presented their achievements and action plan.

Review and Action Plan meeting of TSP KVKs of Zone X: The review and action plan meeting of 12 KVKs implementing TSP in Zone X was held in the conference hall of ICAR-ATARI, Hyderabad on

26th June , 2019 to review the achievements of KVKs under TSP during 2018-19 and to finalize the action plan for the year 2019-20. The meeting was chaired by Dr. Y.G. Prasad, Director, ICAR-ATARI, Hyderabad and was participated by Heads and SMSs of 12 KVKs (6 from Andhra Pradesh and 6 from Telangana) and Scientists of ICAR-ATARI, Hyderabad.

Orientation training to Nodal Officers of cluster model organic demonstrations under PKVY: One day orientation training programme was organized on 21st August 2019 for the Nodal Officers of 45 PKVY KVKs. Dr.Y.G. Prasad, Director, ICAR-ATARI, Hyderabad chaired the programme. Mr. P. Venugopala Reddy, Chairman, Ekalavya Foundation, Dr.G.V. Ramanjaneyulu, Executive Director of Center for Sustainable Agriculture, resource persons from Ekalavya Foundation participated and presented.

IMC Meeting of ICAR ATARI Hyderabad: ATARI Hyderabad, 29th August 2019

Jal Sakthi Abhiyan Awareness programme: Held at Dr. Mahalingam College of Engineering and Technology, Pollachi, Coimbatore District of Tamil Nadu on 14 September 2019 organized by KVK Coimbatore. The exhibition was opened by Hon'ble Deputy Speaker of Tamil Nadu Legislative Assembly Shri. Pollachi V. Jayaraman. Shri.B.K. Singh, Commissioner and Central Nodal Officer for JSA, Shri Rupan Sankar Raja, PD, DRDA-Coimbatore, Dr.S.Panneer Selvam, Director, WTC, TNAU, Shri. Ettimadai A.Shanmugam, MLA, Kinathukadavu, Smt.V.Kasthuri Vasu, MLA-Valparai, Shri.V.P. Kandasami, MLA, Sulur, Dr.Tom.P.Sailus, AD (Central Schemes), DoA, Coimbatore, Smt.G.K.Umarani, AD, DoH, Coimbatore, Professor C. Ramaswami, Secretary, Dr. N.Mahalingam College of Engineering and Technology, Pollachi, Staff of KVK-Coimbatore and about 250 farmers participated.

QRT planning meeting: The planning meeting of the QRT for ATARIs Bengaluru and Hyderabad was held at ATARI Hyderabad on 26th and 27th September 2019. I was identified as the Member Secretary for ATARI Hyderabad to coordinate with the Member Secretary of the QRT. I was involved in arranging accommodation and refreshments for the QRT and recording the proceedings of the meeting.

Short term course to SMSs and Agromet observers of DAMU project: A short term training course of 6 day duration was jointly organized by IMD and ICAR-ATARI, Hyderabad during 14-19, October at ATARI, Hyderabad. The objective of the training was to impart knowledge and skills to 45 newly recruited Subject Matter Specialists (Agrometeorology) and Agromet Observers of the 24 District Agromet Units (DAMUs) established across Andhra Pradesh (9), Telangana (4), Tamil Nadu (10) and Puducherry (1). Resource persons from IMD (Delhi &Hyderabad), ICAR-CRIDA, PJTSAU, ICAR-ATARI, Hyderabad and TNAU, Coiumbatore gave lectures on various aspects related to interpretation of weather forecasts issued time to time by IMD, contingency crop planning, generation of agromet advisories based on crop phenology and methods of dissemination of the advisories to reach beneficiaries at block level. The trainees were given hands on training on handling and maintenance of meteorological equipment, recording of data, generation and uploading of agromet advisories on Agrome-DSS portal

QRT meeting of KVKs of Telangana: The Quinquennial Review meeting of KVKs of Telangana was held during 30th and 31st October 2019 at KVK Nalgonda (Gaddipally) and KVK Kammam (Wyra). I coordinated with the KVKs in organizing the review meetings and visits. Twelve KVKs of Telangana were reviewed during the meeting and subject-wise achievements, capacity building and infrastructure

needs were also presented. The team visited the infrastructure facilities, demo units, demonstration plots, adopted villages and interacted with farmers of the two KVKs. Exhibitions of KVK activities, products, farmers innovations were organized.

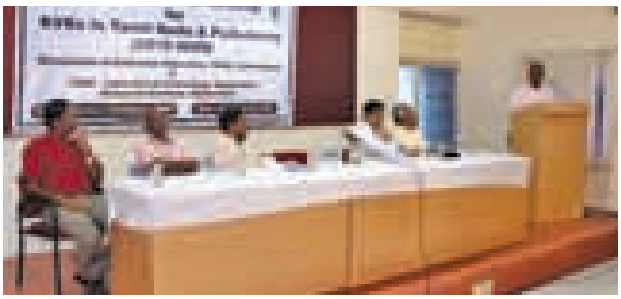
Training of Trainers (TOT) of ASCI: TOT was conducted at PJTSAU, Hyderabad between 27-29, November, 2019.

QRT meeting of KVKs of Northern Andhra Pradesh: The Quinquennial Review meeting of KVKs of Northern Andhra Pradesh was held during 27 to 29 November 2019 at KVK Visakhapatnam (BCT), Andhra Pradesh. I coordinated with KVK Visakhapatnam (BCT) and KVK Srikakulam in organizing the review meetings and visits. Nine KVKs of Andhra Pradesh were reviewed during the meeting and subject-wise achievements, capacity building and infrastructure needs were also presented. The team visited the infrastructure facilities, demo units, demonstration plots of KVK Visakhapatnam (BCT) and KVK Srikakulam. The team also visited the demonstration plots in adopted villages of KVK Visakhapatnam (Kondempudi), KVK-Visakhapatnam (BCT), KVK Srikakulam and interacted with the contact farmers. Exhibitions of KVK activities, products, farmers innovations were organized.

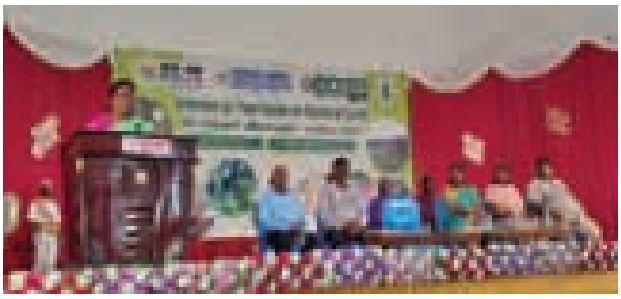
Annual Workshop on TDC-NICRA: 2 December 2019.

QRT meeting of KVKs of Southern Andhra Pradesh: The Quinquennial Review meeting of KVKs of Southern Andhra Pradesh was held during 3 to 6 February 2020 at Tirupati, Andhra Pradesh. KVK Chittoor (RASS) and KVK Chittoor (Kalikiri) hosted the meetings. I coordinated with the KVKs in organizing the review meetings and visits. Eleven KVKs of Andhra Pradesh were reviewed during the meeting. The subject-wise achievements, capacity building and infrastructure needs were also presented. A meeting of the Stake Holders was organized on 4th February 2020 at KVK Chittoor (RASS). The team visited the infrastructure facilities, demo units, demonstration plots of KVK Chittoor (RASA) and KVK Chittoor (Kalikiri). The team also visited the demonstration plots in adopted villages of the KVKs and interacted with farmers. Exhibitions of KVK activities, products, farmers innovations were organized.

Dr. Y.G. Prasad, Director, ATARI, Hyderabad addressing the gathering during the Action Plan meeting of Andhra Pradesh



Dr. N. Kumar, Hon'ble Vice Chancellor, TNAU, Coimbatore addressing the gathering during the Action Plan meeting of Tamil Nadu and Puducherry



Mrs. Vijila Sathyanath, MP, participated in the conference on Kitchen Garden for Nutritional Security organized by KVK Thoothukudi

Sri. Gummanur Jayaram, Hon'ble Minister for Labour and Employment, Govt. of AP participated in the Rythu Dinotshavam organized by KVK Banavasi

Sri. Kottu Sathya Narayana Hon'ble MLA graced the occasion of Farmers' day organized by KVK, VR Gudem

Dr. A.K. Singh, DDG (AE), ICAR addressing Inaugural Session of Annual Zonal Workshop of KVKs, 24th May, 2019

Launch of the project, New Extension Methodologies and Approaches (NEMA), May 24th, Hyderabad

Annual Zonal Workshop of KVKs organized during May 24-26, 2019 at ICAR- NAARM, Hyderabad

KVK Nalgonda (Gaddipally): Sri. G. Jagadeesh Reddy, Energy Minister; Sri. Badugula Lingaiah Yadav, MP; Shri Gadari Kishore Kumar, MLA

KVK Ananthapuram (Reddipalli): Sri. T. Rangaiah, MP; Sri. A. Venkata Rami Reddy, MLA and Smt. J. Padmavathi, MLA

KVK Prakasam (Kandukur): Sri Magunta Sreenivasulu Reddy, MP; Sri Anna Rambabu, MLA, Dr. D. Damodar Reddy, Director (CTRI)

KVK Khammam (Wyra): Sri P. Ajay Kumar, Hon'ble Minister for Transport, Telangana

KVK Nagapattinam: Mr. Pavunraj MLA

KVK Chittoor (RASS): Sri. K. Narayana Swamy, Deputy CM and Minister for Excise & Commercial Taxes; Sri. M. Gnanendra Reddy, Ex. MP

KVK Kadapa (Utukur): Sri Meda Mallikharjuna Reddy, MLA; Sri K.Amaranath Reddy, Ex MLA

KVK west Godavari (VR Gudem): Sri Kotari Abbayya Chowdhary, MLA

KVK Chittoor (Kalikiri):
Sri M. Reddeppa MP

KVK Ananthapuram (Reddipalli):
Sri. T. Rangaiah, MP, Sri. K. Pedda Reddy, MLA,
Smt. J. Padmavathi, MLA

KVK Mahabubnagar (YFA): Sri. S. Niranjan Reddy, Hon'ble Minister of Agriculture and Cooperation; Sri. V. Srinivas Goud, Hon'ble Minister of Proh. & Excise, Sports & Youth services & Culture and Archaeology

KVK Tiruchirappalli: Thiru. Vellamandi N. Natarajan Minister of Tourism, Smt. S. Valarmathi Minister for Backward Classes and Minority Welfare

KVK Tiruchirappalli: Thiru. S. Thirunavukkarasar MP

KVK Tirunelveli: Tmt. V.M. Rajalakshmi, Hon'ble Minister for Adhi Dravidar and Tribal Welfare

KVK Villupuram: Dr. D. Ravikumar, MP;
Tmt. P. Seethapathy, MLA

KVK Coimbatore: Thiru Pollachi V Jayaraman Hon'ble Deputy Speaker, Tamil Nadu Assembly, Thiru Ettimadai A Shanmugam MLA, Thiru Kasthuri Vasu MLA, Thiru VP Kandasamy MLA

4. Staff Position in ATARI, Hyderabad

S.No.	Name	Designation
1.	Dr. Y.G. Prasad	Director
3.	Dr. Chari Appaji	Principal Scientist (Agril. Extn.)
4.	Dr. J.V. Prasad	Principal Scientist (Agril. Entomology.)
5.	Vacant	Principal Scientist (Agril. Extn.)
6.	Dr. A. Bhaskaran	Principal Scientist (Soil Science)
7.	Smt. B. Malathi	Scientist (Agril. Economics)
8.	Shri. V.V. Ramana	Asst. Admin. Officer
9.	Shri. S. Balakamesh	Asst. Finance & Accounts Officer
10.	Vacant	Jr. Accounts Officer
11.	Vacant	Private Secretary
12.	Shri P. Venkatesh	Assistant
13.	Smt. N. Archana	Lower Division Clerk
14.	Smt. G. Navneetha	Lower Division Clerk
15.	Shri. N. Vijay Kumar	Lower Division Clerk
16.	Shri. M. Sadanand	Senior Technical Officer
17.	Smt. Subbalakshmi	Skilled Supporting Staff

5. List of KVKS in Zone-X

S.No.	KVK/District	Address
Tamil Nadu		
1	Ariyalur	Krishi Vigyan Kendra, Cholamadevi Post, Jayamkondam, Udayarpalayam, Ariyalur - 612902
2	Coimbatore	Krishi Vigyan Kendra, Vivekananduram Seeliyur Via, Karamadai Block, Coimbatore - 641113
3	Cuddalore	Krishi Vigyan Kendra, Vriddhachalam, Cuddalore - 606 001
4	Dharmapuri	Krishi Vigyan Kendra, Papparapatti, Dharmapuri - 636809
5	Dindigul	Krishi Vigyan Kendra, Gandhigram Rural Institute Gandhigram, Dindigul-624302
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 District - 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 – 635120.
11	Madurai	Krishi Vigyan Kendra, Agricultural College & Research Institute, Madurai - 625104
12	Nagapattinam	Krishi Vigyan Kendra, Sikkal, Nagapattinam - 611108
13	Namakkal	Krishi Vigyan Kendra, Veterinary College and Research Institute Campus, Namakkal - 637002
14	Perambalur	Krishi Vigyan Kendra, Valikanduram, Perambalur - 621115
15	Pudukottai	Krishi Vigyan Kendra, Vamban Colony, Pudukkottai - 622303
16	Ramanathapuram	Krishi Vigyan Kendra, Coastal Saline Research Centre Collectorate Complex, Ramanathapuram - 623503
17	Salem	Krishi Vigyan Kendra, Sandhiyur, Via Mallur, Salem - 636203
18	Shivagangai	Krishi Vigyan Kendra, Kundrakudi, Sivagangai - 630 206
19	Theni	Krishi Vigyan Kendra, Kamatchipuram (S.O), Theni - 625520
20	Tirunalveli	Krishi Vigyan Kendra, Urmelalagian, Ayikudi Post, Tenkasi- Tk,, Tirunelveli - 627 852
21	Tiruppur	Krishi Vigyan Kendra, TNAU Farm, Pongalur, Devanampalayam Post, Palladam Taluk, Tiruppur - 641 667
22	Tiruvallur	Krishi Vigyan Kendra, Tirur, Tiruvallur-602025
23	Tiruvannamalai	Krishi Vigyan Kendra, Kilnelli Village, Chithathur post Vembakkam Taluk, District. Thiruvannamalai-604 410

S.No.	KVK/District	Address
24	Tiruvarur	Krishi Vigyan Kendra, Needamangalam, Thiruvarur - 614404
25	Trichy	Krishi Vigyan Kendra, Sirugamani, Tiruchirappalli-639 115
26	Tuticorin	Krishi Vigyan Kendra, MudivaithanendalVagaikulam, Thoothukudi-628102
27	Vellore	Krishi Vigyan Kendra, Virinjipuram, Vellore - 632 104
28	Villupuram-1	Krishi Vigyan Kendra, Tindivanam, Villupuram - 604002
29	Villupuram-2	Krishi Vigyan Kendra, TANUVAS, Kalasamuthiram, Chinnasalem, Kallakurichi-606301
30	Virudhanagar	Krishi Vigyan Kendra, Kovilangulam, Aruppukkottai, Virudhunagar - 626107
Andhra Pradesh		
1	Anantapur-1 (Reddipalli)	Krishi Vigyan Kendra, Reddipalli (V), B.K. Samudram (Mdl), Anantapuram (Dist)-515701
2	Anantapur-2 (Kalyandurg)	Krishi Vigyan Kendra, Garudapuram (V), Kalyandurg (M), Kalyandurg, Anantapur-515761
3	Chittoor-2 (Kalikiri)	Krishi Vigyan Kendra, CLRC Building, Madanapalle Road, Kalikiri, Chittoor - 517 234.
4	Chittoor-1 (RASS)	Krishi Vigyan Kendra (RASS), Vanasthali, Karakambadi Post, Renigunta Mandal, Chittoor -517 520
5	East Godavari-1 (Kalavacherla)	Krishi Vigyan Kendra, Kalavacharla, Rajanagram Mandal East Godavari -533 294
6	East Godavari-2 (Pandirimamidi)	Krishi Vigyan Kendra, Pandirimamidi, Rampachodavaram, East Godavari - 533 288
7	Guntur (Lam)	Krishi Vigyan Kendra, Lam, Guntur - 520034
8	Kadapa-1 (Utukur)	Krishi Vigyan Kendra, Utukur, Kadapa Y.S.R District- 516003
9	Kadapa-2 (Vonipenta)	Krishi Vigyan Kendra, Vonipenta, YSR Kadapa District - 516173
10	Krishna-1 (Garikapadu)	Krishi Vigyan Kendra, Garikapadu, Krishna District-521175
11	Krishna-2 (Ghantasala)	Krishi Vigyan Kendra, Agril. Research Station, Ghantasala, Krishna - 521 133
12	Kurnool-2 (Banavasi)	Krishi Vigyan Kendra, Near G.L.S. Farm, Banavasi, Yemmiganur Mandal, Kurnool District -518360
13	Kurnool-1 (Yagantipalli)	Krishi Vigyan Kendra, Yagantipalle, Kurnool - 518124

S.No.	KVK/District	Address
14	Nellore-1	Krishi Vigyan Kendra, Mini Bypass Road, A.K. Nagar (Post), B.V. Nagar, Nellore District -524 004
15	Nellore-2 (Periyavaram)	Krishi Vigyan Kendra, Periyavaram, Venkatagiri Post, SPSR Nellore District-524 132
16	Prakasam-1 (Darsi)	Krishi Vigyan Kendra, Agril. Research Station, Darsi, Prakasam-523247
17	Prakasam-2 (Kandukur)	Krishi Vigyan Kendra, Central Tobacco Research Institute Research Station Premises, Kandukur, Prakasam-523 105
18	Srikakulam	Krishi Vigyan Kendra, Amadalavalasa, Srikakulam District-532185
19	Vishakapatnam-1 (BCT)	Krishi Vigyan Kendra, BCT-Krishi Vigyan Kendra, Haripuram, Rambilli Mandal, Visakhapatnam-531061
20	Vishakapatnam-2 (Buchayapet)	Krishi Vigyan Kendra, C/o Jyothirmaya trust, Amarapuri, Pottidorapalem post, Butchayyapeta Mandal, Visakhapatnam-531026
21	Vizayanagaram	Krishi Vigyan Kendra, Rastakuntabai, Vizianagaram-535523
22	West Godavari-2 (Vrgudem)	Krishi Vigyan Kendra, Venkataramannagudem, West Godavari-534 101
23	West Godavari-1 (Undi)	Krishi Vigyan Kendra, Undi, West Godavari-534199

Telangana

S.No.	KVK	KVK Address
1	Adilabad	Krishi Vigyan Kendra, ARS premises, Ramnagar, Adilabad- 504002
2	Mancherial (Bellampalli)	Krishi Vigyan Kendra, Bellampalli, Mancherial District-504251
3	Karimnagar (Jammikunta)	Krishi Vigyan Kendra, Jammikunta, Karimnagar-505122
4	Pedapalli (Ramgirikilla)	Krishi Vigyan Kendra, Ramagirikhilla, Ratnapu, Ramagiri, Peddapalli District-505212
5	Khammam (Wyra)	Krishi Vigyan Kendra, ARS Wyra, Khammam-507165
6	Bhadradri (Kothagudem)	Krishi Vigyan Kendra, Garimellapadu Village, Kothagudem Mandal, Khammam-507165
7	Wanaparthy (Madanapuram)	Krishi Vigyan Kendra, Madanapuram (Vill. & Mdl), Wanaparthy, Mahabubnagar -509110
8	Nagarkurnool (Palem)	Krishi Vigyan Kendra, Palem, Mahabubnagar-509215

S.No.	KVK/District	Address
9	Sangareddy (DDS)	Krishi Vigyan Kendra, Didgi village, Zaheerabad, Medak-502220
10	Medak (Tuniki)	Krishi Vigyan Kendra, Tunki Village, Kowdipally, Mandal, Medak District 502316
11	Suryapet (Gaddipalli)	Krishi Vigyan Kendra, Gaddipalli, Garedapalli Mandal, Nalgonda -508201
12	Nalgonda (Kampasagar)	Krishi Vigyan Kendra, Kampasagar, Babusaipet post, Tripuraram mandal, Nalgonda-508207
13	Nizamabad (Rudrur)	Krishi Vigyan Kendra, Farm Science Centre, Rudrur, Varmi Mandal, Nizamabad-503188
14	Ranga Reddy (Hayathnagar)	Krishi Vigyan Kendra, Near Deer Park, Bhagyalatha Busstop, Hayathnagar Research Farm, Hyderabad -501 505
15	Mahabubabad (Malyal)	Krishi Vigyan Kendra, Malyal, Mahabubabad, Warangal- 506101
16	Warangal Urban (Mamnoor)	Krishi Vigyan Kendra, Mamnoor, Warangal-506166
Puducherry		
1	Karaikal	Krishi Vigyan Kendra, Madur, Sellore Thirunallar, Karaikal-609607
2	Ponndicherry	Krishi Vigyan Kendra, Kurumbet, Puducherry-605009

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(पहले क्षेत्रीय परियोजना निदेशालय) क्षेत्र - 10

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