वार्षिक प्रतिवेदन
Annual Report
2022

भाकृअनुप
ICAR

भाकृअनुप–कृषि प्रौद्योगिकी अनुप्रयोग अनुसंधान संस्थान
जोन–VIII, पुणे-411005, महाराष्ट्र

ICAR-Agricultural Technology Application Research Institute
Zone-VIII, Pune-411005, Maharashtra

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Preface

ICAR-Agricultural Technology Application Research Institute (ATARI), Pune is vested with the responsibility of coordination and monitoring of technology application and frontline extension education programs through Krishi Vigyan Kendra's (KVKs) in three states viz., Maharashtra, Gujarat and Goa. There are currently 82 KVKs in the Zone, including 50 in Maharashtra, 30 in Gujarat, and 2 in Goa. The ATARI is also responsible with promoting agricultural extension research and knowledge management.

The compilation of the ICAR-ATARI Pune Annual Report for 2022 has covered all the areas of KVK operation that are related, including a detailed account of mandated activities like training, on-farm trials, frontline demonstrations, extension activities, soil testing, seed and planting material production, fish fingerlings, and animal breed development, among others. ATARI Pune has implemented many projects/programs like NICRA, CFLD Oilseeds and Pulses, TSP, ARYA, Farmer FIRST, NARI, DAMU, DFI, Agri Drone Project and Natural Farming, etc. very effectively. The scope of KVK activities and its impact on farmers in remote locations would be better understood with the help of such elaboration.

In 2022, KVKs assessed 672 technologies through 6448 OFTs and conducted 19652 frontline demonstrations in farmers' fields, and ran 9060 training programmes for 354327 participants, including farmers, farm women, rural youth, and extension functionaries. Under the National Food Security Mission (NFSM), KVKs carried out 8755 cluster frontline demonstrations on pulses over an area of 3502 hectares. Similar to this, 6122 CFLDs on oilseeds covering 2484 ha were carried out under NFSM.

Seed hubs for pulses is operational at 14 KVK's in Zone-VIII in the states of Maharashtra (8) and Gujarat (6). During 2022, seed hub KVK's produced 5476.38 q of seed for supply of quality seed of pigeon pea, chickpea, black gram, and green gram. Under the Attracting Rural Youth in Agriculture (ARYA) Project, a total of 107 trainings were conducted and 4519 youth were trained by 12 ARYA centres. A number of extension activities were taken up by the KVKs with the participation of 5491931 farmers and 69889 no.of extension personnel. A total of 58575 samples including soil (50565), water (7920) and plant (368) samples were analyzed benefiting 56013 farmers.

Under Agri Drone Project, ATARI Pune was sanctioned 40 drones, includes 07 to SAUs, 23 to ICAR Institutes and 10 to KVKs. This year ICAR has made special efforts for promoting Natural farming, by introducing new project called as "Out scaling of Natural farming through KVKs". It's a pan India project that is running through 11 ATARIs and 475 KVKs all over India. ATARI Zone VIII is running this project through 48 KVK's in 3 states viz. Maharashtra (17 KVKs), Gujarat (30 KVKs) and Goa (1 KVK).

ICAR-ATARI, Pune has brought out its sixth Annual Report based on output and outcome of the KVKs in the Zone. I sincerely thank Dr. Himanshu Pathak, Secretary (DARE) and DG, ICAR; Dr. U. S. Gautam, DDG (Agril Extension); Dr. R. R. Burman, ADG (Agril Extension), Dr. R. K. Singh; ADG (Agril Extension), technical and administrative staff of agricultural extension division for their whole hearted support and guidance at every moment. All the Vice Chancellors; Chairmen/Secretaries of NGO- KVKs; Directors of ICAR institutes; Director of Extension Education of SAUs deserve appreciation for their encouragement. I also thankfully acknowledge the commendable efforts and contributions made by Shri. Tushar Athare (Scientist), Dr. Rajesh T. (Scientist) and entire team of ATARI including project staff of the institute in bringing out this publication within a stipulated time period.

Date : July 13, 2023
Place : Pune

(Dr. Subrata Kumar Roy)

कार्यकारी सारांश

कार्यकारी सारांश

कृषि और सहयोगी क्षेत्रों में प्रौद्योगिकियों का आकलन, शोधन और प्रदर्शन करने के उद्देश्य से कृषि विज्ञान केंद्र (केवीके) का विशाल नेटवर्क भारतीय कृषि अनुसंधान परिषद द्वारा (आईसीएआर) स्थापित किया गया है। जिसमें ज़ोन-8 पुणे के अंतर्गत 82 कृषि विज्ञान केंद हैं जिनमें महाराष्ट्र में 50, गुजरात में 30 और गोवा में 2 कार्यरत है। यह केवीके विभिन्न सरकारी और गैर सरकारी संगठनों के प्रशासनिक नियंत्रण में हैं। महाराष्ट्र के 50 कृषि विज्ञान केंद्रों मे से 20 राज्य कृषि विश्वविद्यालयों के साथ, 28 गैर सरकारी संगठनों के साथ, एक भाकृअनुप संस्था और एक मुक्त विश्वविद्यालय के साथ है। गुजरात के 30 कृषि विज्ञान केंद्रों मे से 18 राज्य कृषि विश्वविद्यालयों के साथ, 7 गैर सरकारी संगठनों के साथ, दो भाकृअनुप संस्था के साथ और तीन समतुल्य विश्वविद्यालय के साथ है। गोवा के दो कृषि विज्ञान केंद्रों मे से एक भाकृअनुप संस्था के साथ और एक राज्य कृषि विभाग के साथ है। कृषि विज्ञान केंद्रों द्वारा प्रौद्योगिकियों का मूल्यांकन, प्रदर्शन, रोपण सामग्री उत्पादन, प्रशिक्षण कार्यक्रम और अन्य विस्तार गतिविधिया आयोजित किये गये है। जिससे जिला स्तर पर वैज्ञानिक खेती पर ज्ञान और संसाधन केंद्र के रूप में कार्य किया जाता है। वर्ष 2022 के दौरान केवीके द्वारा आयोजित विभिन्न गतिविधियों का सारांश नीचे दिया गया है।

तकनीकी मूल्यांकन

वर्ष 2022 के दौरान कृषि विज्ञान केंद्रों द्वारा कुल 6448 प्रक्षेत्र के माध्यम से 672 विभिन्न तकनीकीयो पर परीक्षण आयोजित किये गये। इनमें से, फसलों पर 494 तकनीकी परीक्षण, पशुधन और मत्स्य पालन पर 101 और अन्य पहलुओं पर 77 तकनीकी परीक्षण आयोजित किए गए। महाराष्ट्र में कृषि विज्ञान केंद्रों द्वारा कुल 5319 प्रक्षेत्र पर 481 तकनीकी परीक्षण आयोजित किये गये है। जिसमे फसलों पर कुल 336 तकनीकी परीक्षण 3664 प्रक्षेत्र पर आयोजित किये गये। 78 तकनीकी परीक्षण पशुधन पर 837 प्रक्षेत्र में , 36 तकनीकी परीक्षण उद्यमों पर 475 प्रक्षेत्र में एवं 31 तकनीकी परीक्षण 343 प्रक्षेत्र में ग्रामीण महिलाओं के सशक्तिकरण पर आयोजित किये गये है। गुजरात में कृषि विज्ञान केंद्रों द्वारा कुल 1052 प्रक्षेत्र पर 180 तकनीकी परीक्षण का आकलन किया गया है। जिनमें से 854 प्रक्षेत्र फसलों पर कुल 150 तकनीकी परीक्षण, पशुधन पर 154 प्रक्षेत्र द्वारा 21 तकनीकी परीक्षण, 34 प्रक्षेत्र द्वारा उद्यमों पर 7 तकनीकी परीक्षण और 10 प्रक्षेत्र द्वारा ग्रामीण महिलाओं के सशक्तिकरण पर 2 तकनीकी परीक्षण शामिल हैं। गोवा में कृषि विज्ञान केंद्रों ने कुल 77 प्रक्षेत्र द्वारा 11 तकनीकी परीक्षण का आकलन किया गया है, जिनमें से 67 प्रक्षेत्र फसलों पर 9 तकनीकी परीक्षण और 10 प्रक्षेत्र पर दो परीक्षण पशुधन पर आयोजित किये गये हैं।

प्रथम पंक्ति प्रदर्शन

कृषि विज्ञान केंद्रों द्वारा कुल 2901.66 हेक्टेयर क्षेत्र पर 19652 प्रदर्शनों का आयोजन किया गया। जिसमे से 9748 प्रदर्शन फसलों पर, 2958 प्रदर्शन पशुधन पर, 3520 प्रदर्शन उद्यम पर, 1804 प्रदर्शन महिला सशक्तिकरण पर और 1622 प्रदर्शन उन्नत औजार एवं उपकरणों पर आयोजित किए गये है। कुल 9748 प्रदर्शन में से 1839 प्रदर्शन अनाज, 1687 प्रदर्शन दलहन, 871 प्रदर्शन तिलहन और 450 प्रदर्शन वाणिज्यिक फसलों पर आयोजित किये गये है। महाराष्ट्र में कुल 1502.59 हेक्टेयर क्षेत्र मे 10202 प्रदर्शनों का आयोजन किया गया। जिसमे से 761 दलहन, 474 तिलहन, 878 अनाज और बाजरा, 272 वाणिज्यिक फसलों, 1086 कृषि उपकरणों, 2275 उद्यम, 1159 पशुधन और 978 प्रदर्शन महिला सशक्तिकरण का भी आयोजन किया गया। गुजरात में कुल 1392.87 हेक्टेयर क्षेत्र मे 9337 प्रदर्शनों का आयोजन किया गया। जिसमे से 926 दलहन, 397 तिलहन, 943 अनाज और बाजरा, 168 वाणिज्यिक फसलों, 536 उन्नत औजार एवं उपकरणों, 1235 उद्यमों, 1799 पशुधन और 826 महिला सशक्तिकरण पर आयोजित किये। गोवा में कुल 7.43 हेक्टेयर क्षेत्र पर 113 प्रदर्शन, जिसमे से अनाज पर 18 प्रदर्शन, वाणिज्यिक फसलों और उद्यमों में 10 प्रदर्शनों का आयोजन किया गया।

प्रशिक्षण कार्यक्रम

प्रशिक्षण कृषि विज्ञान केंद्र की एक महत्वपूर्ण गतिविधि है, जो विभिन्न उन्नत प्रौद्योगिकियों के बारे में ज्ञान और कौशल को बढ़ाने में महत्वपूर्ण भूमिका निभाता है। वर्ष के दौरान, कृषि विज्ञान केंद्रों ने कुल 9060 प्रशिक्षण कार्यक्रम आयोजित किए और कुल 354327 प्रतिभागियों को प्रशिक्षित किया, जिसमे 288968 किसान, 36549 ग्रामीण युवा और 28810 विस्तार कार्यकर्ता शामिल थे। महाराष्ट्र में कृषि विज्ञान केंद्रों ने कुल 6217 प्रशिक्षण कार्यक्रम का आयोजन किया, जिसमे 249553 कृषक महिलाओं, ग्रामीण युवाओं और विस्तार कार्यकर्ताओं ने भागीदारी की, जबकि गुजरात में कुल 100041 कृषकों के लिए 2675 प्रशिक्षण कार्यक्रम और गोवा में कुल 4733 कृषको के लिए 168 प्रशिक्षण कार्यक्रम

आयोजित किया। प्रशिक्षणों के अंतर्गत शामिल किए गए मुख्य विषयगत क्षेत्रों में एकीकृत फसल प्रबंधन, बेहतर उन्नत उपकरण और औजारे, क्षमता निर्माण और समूह गतिशीलता, महिला सशक्तिकरण, बागवानी फसलों के लिए बेहतर उत्पादन पद्धती, पशुधन प्रजातियों में उत्पादकता वृद्धि, एकीकृत कीट प्रबंधन और मिट्टी स्वास्थ्य एवं उर्वरता प्रबंधन शामिल हैं। ज़ोन-8 में कृषि विज्ञान केंद्र ने उद्यमिता विकास को बढ़ावा देने हेतु कुल 1081 प्रशिक्षण कार्यक्रम मे 50084 किसानों, कृषक महिलाओं और ग्रामीण युवाओं को शामिल किया। 8484 लाभार्थियों के लिए, कृषि विज्ञान केंद्र द्वारा 275 व्यावसायिक प्रशिक्षण कार्यक्रमों का भी आयोजन किया गया। प्रमुख विषय क्षेत्रों में फसल उत्पादन और प्रबंधन, फसल कटाई के बाद की तकनीक और मूल्यवर्धन, पशुधन और मत्स्य पालन, आय निर्माण गतिविधियाँ आदि शामिल हैं।

तिलहन पर सामूहिक अग्रिम पंक्ति प्रदर्शन

तिलहन फसलों की उत्पादन एवं उत्पादकता बढ़ाने के लिए तिलहन फसल पर कुल 2484 हेक्टेयर क्षेत्र में 6122 प्रदर्शन महाराष्ट्र, गुजरात और गोवा राज्य में 75 कृषि विज्ञान केंद्रों नें आयोजित किये। मुख्य रूप से मूंगफली, तिल, सोयाबीन, अरंडी, अलसी, कुसुम और सरसों आदि फसलों पर वैज्ञानिक तकनीकी अपनाने को कृषकों प्रेरित किया गया।

दलहन पर सामूहिक अग्रिम पंक्ति प्रदर्शन

दलहन पर सामूहिक अग्रिम पंक्ति प्रदर्शन के तहत खरीफ और रबी मौसम के दौरान महाराष्ट्र और गुजरात राज्यों मे 3502 हेक्टेयर क्षेत्र पर कुल 8755 अग्रिम पंक्ति प्रदर्शन 70 कृषि विज्ञान केंद्रों द्वारा आयोजित किये गए। जिसमे मुख्य रूप से में प्रमुख दलहन फसलों जैसे अरहर, चना, उड़द और मूंग शामिल थे। दलहन फसलों की पैदावार बढ़ाने के लिए राष्ट्रीय खाद्य सुरक्षा मिशन के अंतर्गत दलहन पर सामूहिक अग्रिम पंक्ति प्रदर्शन: शुरू किए गए थे।

जनजातीय उपयोजना: (टी. एस.पी)

11 कृषि विज्ञान केंद्रों द्वारा जनजाति समुदायों की सामाजिक-आर्थिक स्थितियों को उन्नत बनाने के उदेश से जनजातीय उपयोजना (टीएसपी) को कार्यान्वित किया गया। इस उपयोजना के तहत कृषि, पशुधन, मुर्गी पालन, बकरी पालन और अन्य उद्यमों से संबंधित विभिन्न गतिविधियों के माध्यम से फ्रंटलाइन प्रदर्शन (1167), ऑन-फार्म परीक्षण (92), बीज (1092.39 क्विंटल) और रोपण सामग्री (9.30 लाख) उत्पादन और जनजातीय में आय सृजन गतिविधियां बनाने जैसी कई गतिविधियों के आयोजन किये गये।

निकरा

ज़ोन-8 के जलवायु की दृष्टि से सर्वाधिक सवेदनशील 11 कृषि विज्ञान केंद्र जिसमें महाराष्ट्र के 6 (अहमदनगर- I, जालना- I, उस्मानाबाद, नंदुरबार, लातूर, बीड- I) गुजरात के 4 (नर्मदा, दाहोद, पंचमहल, बनासकांठा-I और गोवा (उत्तरी गोवा) द्वारा निकरा परियोजना कार्यान्वित है। परियोजना के अंतर्गत केवीके ने चार मॉडुल के तहत 20 गांवों के 1054.50 हेक्टेयर क्षेत्र मे 3912 प्रदर्शन आयोजित किए। जिसमे प्राकृतिक संसाधन प्रबंधन के तहत 788, फसल उत्पादन पर 1607, पशुधन और मत्स्य पालन पर 1517 और कस्टम हायरिंग केंद्रों के 29 उपकरणों का उपयोग कर 428.20 हेक्टेयर क्षेत्र पर 539 किसानों ने समय पर बुआई की। इन कस्टम हायरिंग केंद्रों के माध्यम से 2.54 लाख रुपये का उत्पन्न हुआ। क्षमता निर्माण और विस्तार गतिविधियों के माध्यम से, जलवायु समुत्थान कृषि प्रौद्योगिकियों के बारे में जागरूकता लाई गई, जिससे क्रमशः 200 और 224 गतिविधियों के माध्यम से 4667 और 5878 किसान लाभान्वित हुए।

आर्या

आर्या परियोजना के अंतर्गत ज़ोन 8 के 12 कृषि विज्ञान केंद्रों (महाराष्ट्र में 6 और गुजरात में 6) पर ग्रामीण क्षेत्रों के कुल 4519 युवाओं के लिए 107 प्रशिक्षण आयोजित किये गये । जिसे ग्रामीण क्षेत्रों के युवाओं को रोजगार के लिए कृषि और संबद्ध और सेवा क्षेत्र के उद्यमों को अपनाने के लिए सशक्त बनाने की पहल की गई थी। जिसमे आजीविका सुरक्षा सुनिश्चित करते हुए 2022 के दौरान 286 युवाओं ने 253 उद्यम- इकाइयाँ स्थापित की।

फार्मर फर्स्ट परियोजना

तीन राज्य कृषि विश्वविद्यालयों (एमपीकेवी राहुरी, जेएयू जूनागढ़, और एनएयू नवसारी) में फार्मर फर्स्ट परियोजना का कार्यान्वयन किया गया है। फार्मर फर्स्ट का उद्देश्य प्रौद्योगिकी विकास और अनुप्रयोग के लिए किसानों-वैज्ञानिकों के इंटरफेस को बढ़ाना है। इस कार्यक्रम का उद्देश्य नवाचारों, फीडबैक, बहु-पद्धति दृष्टिकोण; भेद्यता और आजीविका हस्तक्षेपकई हितधारकों की भागीदारी पर ध्यान केंद्रित करना है। फार्मर फर्स्ट केंद्रों के 9 गाँव मे 366.64 हेक्टेयर क्षेत्र पर 1722 परिवारों को शामिल किया है। 1135.41 हेक्टेयर में फसल आधारित प्रौद्योगिकियों का प्रदर्शन किया गया, जिससे 359 किसानों को लाभ हुआ। 89 हेक्टेयर क्षेत्र में बागवानी प्रौद्योगिकियों का प्रदर्शन किया गया, जिससे 290 किसानों को लाभ हुआ। पशुधन मॉड्यूल में, कुल 40 पशु और किसान लाभान्वित हुए। एनआरएम के तहत 20 हेक्टेयर क्षेत्र में प्रौद्योगिकियों का प्रदर्शन किया गया, जिससे 50 घरों को लाभ हुआ और 20 किसानों के लाभ के लिए दो उद्यम स्थापित किए गए। आईएफएस मॉड्यूल में 144.23 हेक्टेयर क्षेत्र में कुल 437 किसान शामिल हैं।

बीज हब परियोजना

यह कार्यक्रम महाराष्ट्र में 8 कृषि विज्ञान केंद्रों (जालना-I, धुले, सोलापुर-II, बीड-II, अमरावती-II, अकोला, बुलढाणा-II, जलगांव-II) तथा गुजरात में 6 केंद्रों (तापी, नवसारी, खेड़ा, राजकोट-I, पंचमहल और दाहोद) पर गुणवत्तापूर्ण दलहनी फसलों

के उन्नतशील बीजों का उत्पादन करने हेतु आरंभ किया गया। खरीफ सीजन में कुल 653.27 क्विंटल, रबी सीजन के दौरान 4662.86 क्विंटल बीज उत्पादन और गर्मी के सीजन मे 160.25 क्विंटल बीज उत्पादन अरहर, चना, उड़द और मूंग सहित प्रमुख दलहन फसलों से लिया गया।

जिला कृषि मौसम इकाइयां (डीएएमयू)

ग्रामीण कृषि मौसम सेवा (जीकेएमएस) के तहत उप-जिला स्तर पर किसानों को कृषि मौसम संबंधी सलाह को जारी करना और प्रसार करने के लिए भारतीय मौसम विज्ञान विभाग (आईएमडी) के सहयोग से ग्रामीण कृषि मौसम सेवा (जिकेएमएस) के अंतर्गत 21 (महाराष्ट्र में 11 और गुजरात में 9 और गोवा मे एक) मे कृषि मौसम (डीएएमयू) इकाइयां स्थापित की गईं। वर्ष के दौरान, जिला कृषि मौसम केंद्रों ने कृषि मौसम विज्ञान पर 18118 बुलेटिन, 1537 व्हाट्सअप समूहों एवं 16946 किसान जागरूकता कार्यक्रम मे 2.96 लाख किसानों को शामिल किया और समय समय पर कृषि कार्यों आरंभ करने एवं फसल के नुकसान को रोकने के लिए सेवा प्रदान की गई और 267 जागरूकता कार्यक्रम आयोजित किए गए।

प्राकृतिक खेती का विस्तार

प्राकृतिक खेती एक ऐसी प्रणाली है जहां प्रकृति के नियमों को कृषि पद्धतियों पर लागू किया जाता है। 2022 के दौरान, 48 कृषि विज्ञान केंद्रो द्वारा कुल 632 जागरूकता कार्यक्रम, 64 प्रशिक्षण और 395 प्रदर्शनों में 80306 किसानोंने प्राकृतिक खेती से संबंधित विभिन्न गतिविधियों में भाग लिया।

अन्य विस्तार गतिविधियाँ

उन्नत कृषि प्रौद्योगिकियों के बारे में जागरूकता प्रदान करने के लिए जोन-8 के कृषि विज्ञान केंद्रों द्वारा 5561820 किसानों, कृषक महिलाओं और विस्तार कर्मियों की भागीदारी के साथ 64633 विस्तार गतिविधियों का आयोजन किया। विस्तार गतिविधियों में सलाहकार सेवाएँ, एक्सपोज़र विजिट, पशु स्वास्थ्य शिविर, प्रौद्योगिकी सप्ताह, समूह चर्चा, विधि प्रदर्शन, मृदा स्वास्थ्य शिविर, किसान मेले, आदि शामिल थे। बेहतर कृषि प्रौद्योगिकियों पर जानकारी तेजी से प्रसारीत करने के लिए, केवीके ने 18433 प्रकाशन प्रकाशती किए। केवीके ने किसानों को खेत और बागवानी फसलों की विशिष्ट प्रजातियों के 6329 क्विंटल बीज और 3213803 पौधे भी उपलब्ध कराए। केवीके ने 2907 क्विंटल का जैव-उर्वरक और 537 क्विंटल जैव-कीटनाशकों का भी उत्पादन किया और किसानों को उनकी आपूर्ति की।

लाभदायक डेयरी फार्मिंग और पशुधन प्रबंधन

जोन-8 के 52 कृषि विज्ञान केंद्रो (महाराष्ट्र में 30, गुजरात में 20 और गोवा में 2) ने लाभदायक डेयरी फार्मिंग और पशुधन प्रबंधन पर कुल 252 प्रशिक्षण कार्यक्रमों में 10252 किसानों को शामिल किया। जिसमे किसानों ने 3 दिनों के प्रशिक्षण में भाग लिया एवं वैज्ञानिकोने प्रतिभागियों को वैज्ञानिक प्रबंधन, रोग प्रबंधन, टीकाकरण, प्रजनन और भेड़ और बकरियों में बीमारियों की रोकथाम और नियंत्रण और अन्य संबंधित पहलुओं के बारे में जानकारी प्रदान की गई।

मेरा गाँव मेरा गौरव (एमजीएमजी)

मेरा गाँव मेरा गौरव कार्यक्रम के अंतर्गत भाकृअनुप और राज्य कृषि विश्वविद्यालयों ने 97 समूह के माध्यम से कुल 368 वैज्ञानिकों ने 217 अंगीकृत गाँवों के 42139 किसानों और कृषि महिलाओं को शामिल करते हुए विभिन्न गतिविधियों को कार्यान्वित किया। जिसमें वैज्ञानिकों ने इंटरफेस बैठक, जागरूकता कार्यक्रम, एवं कृषि पशुपालन, मुर्गी पालन और उन्नत उपकरणों प्रशिक्षण आयोजित कीए।

कृषि ड्रोन परियोजना (एडीपी)

यह परियोजना केंद्रीय कृषि और किसान कल्याण मंत्रालय द्वारा कृषि मशीनीकरण पर उप-मिशन (एसएमएएम) के तहत कार्यान्वित की गई है, जिसमे जोन 8 के 23 भाकृअनुप संस्था, 7 राज्य कृषि विश्वविद्यालय और 10 कृषि विज्ञान केंद्रों मे 40 ड्रोन स्वीकृत किए गए है।

किसान मोबाइल एडवाइजरी

कृषि विज्ञान केंद्रों ने 65 लाख किसानों को 139738 लिखित संदेश किसान मोबाइल एडवाइजरी के माध्यम से भेजे। इसमे से फसलों पर 114290, कृषि-संबंधित प्रौद्योगिकियों के बारे में किसानों के बीच जागरूकता पर 5191, पशुधन के लिए 7219, कृषि से संबंधित अन्य उद्यमों संबंधित 1071, मौसम की जबकारी पर 9784, और विपणन (599) पर मुख्य रूप से संदेश भेजे गए ।

बीज व रोपण सामग्री उत्पादन

कृषि विज्ञान केंद्रों ने 12452.96 क्विंटल विभिन्न फसलों का बीज उत्पादन 9836 किसानों लिए किया। इसके अतिरिक्त 67.10 लाख पौधे/रोपण सामग्री का उत्पादन, 4.71 लाख पशुधन वितरित किए, 90661.18 किलोग्राम एवं 66862.05 लीटर जैव उर्वरक का उत्पादन कर के किसानों की पूर्तता की है।

मिट्टी, पानी और पौधों के नमूने का परीक्षण

कृषि विज्ञान केंद्र ने मिट्टी की पोषक स्थिति का पता लगाने के लिए और प्रचलित सूक्ष्म कृषि स्थितियों में मिट्टी परीक्षण-आधारित पोषक तत्व सिफारिशें करने के लिए मिट्टी और पानी का परीक्षण किया। जिसमे 6524 गाँवो के 56013 किसानों से प्राप्त मिट्टी (50565), पानी (7920) और पौधों (368) के नमूनों का विश्लेषण किया जिसके आधार पर किसानों को मृदा स्वास्थ्य कार्ड वितरित किया।

कृषि प्रौद्योगिकी सूचना केंद्र (एटिक)

जोन-8 के नौ कृषि प्रौद्योगिकी सूचना केंद्रों पर कुल 10553 किसानों ने भ्रमण किया। एटिक द्वारा 44826 किसानों को माइक्रोबियल इनोक्युलेंट, बीज और रोपण सामग्री, मशरूम कल्चर, जैव कीटनाशक, कृषि उपकरण, पशु आहार सामग्री आदि जैसे कृषि इनपुट भी प्रदान किये गये ।

विस्तार शिक्षा निदेशालय

विभन्न राज्यों के राज्य कृषि विश्वविद्यालयों के विस्तार शिक्षा निदेशालयों के अधिकारीयों ने 57 मानव संसाधन विकास (एचआरडी) एवं केवीके के तकनीकी बैकस्टॉपिंग से संबंधित गतिविधियों का संचालन किया। इसी प्रकार केवीके 21 वैज्ञानिक सलाहकारों समिति की बैठक, 24 फील्ड दिवस, 65 कार्यशालाएं / सेमिनार, 15 किसान वैज्ञानिक बातचीत, 6 प्रौद्योगिकी सप्ताह, 329 प्रशिक्षण कार्यक्रम, 41 अग्रिम पंक्ति प्रदर्शन (ओएफटी), 42 फ्रंट लाइन प्रदर्शन (एफएलडी) कार्यक्रम और 221 अन्य साहित्य/अद्यतन प्रशिक्षण, सेमिनार, कार्यशाला आदि के कार्यक्रमों मे भाग लिया।

विशेष कार्यक्रम

क्षेत्र के किसनों मे जागरूकता पैदा करने एवं विकास हेतु 82 कृषि विज्ञान केंद्रों के माध्यम से अनेक विशेष कार्यक्रम आयोजित किए गए थे। जैसे प्रधान मंत्री किसान सम्मान निधि का सीधा प्रसाण किया गया था जिसमे 4947 किसान को शामिल किया गया था। विश्व दलहन दिवस में 6077 किसान को दलहन का महत्त्व वैज्ञानिकों द्वारा बताया गया। महिला सशक्तिकरण के लिए अंतर्राष्ट्रीय महिला दिवस एवं राष्ट्रीय महिला किसान दिवस आयोजित किया जिसमे क्रमश: 14395, 29432 महिला शामिल हुई थी। किसानों के लिए किसान मेले का आयोजन किया गया जिसमे 26726 किसान शामिल थे। गरीब कल्याण सम्मेलन में 38189 प्रतिभागीयों ने भाग लिया। 82 कृषि विज्ञान केंद्रों पर अंतर्राष्ट्रीय योग दिवस का आयोजन किया। गया जिसमे 8896 प्रतिभागी शामिल हुए। आईसीएआर स्थापना दिवस में 8893 प्रतिभागी शामिल थे। पोषण का महत्त्व बताने के लिए पोषण अभियान और वृक्षारोपण कार्यक्रम का आयोजन किया गया जिसमे 9609 प्रतिभागी शामिल हुए। स्वच्छता ही सेवा की पहल मे स्वच्छता अभियान 2.0 का आयोजन किया गया जिसमे 46098 किसानों ने भाग लिया। 82 कृषि विज्ञान केंद्रों द्वारा विश्व मृदा दिवस मनाया जिसमे 7390 कृषकों ने मृदा स्वास्थ्य के बारे मे जानकारी प्राप्त की।

प्रकाशन

अटारी, पुणे द्वारा दो बुलेटिन और एक शोध पत्र प्रकाशित किये गये। कृषि विज्ञान केंद्रों द्वारा 127 शोध पत्र, 71 तकनीकी बुलेटिन और 649 पॉपुलर आर्टिकल्स, 288 प्रसार साहित्य, 344 अखबारों मे लेख, 22 किताबों 19 सीडी/डीवीडी विभिन्न तकनिकी विषयों पर विकसित किये गये।

Executive Summary

Executive Summary

The Indian council of Agricultural Research (ICAR) has established the vast network of Krishi Vigyan Kendra (KVKs) under the umbrella of ICAR- Agricultural Technology Application Research Institutes (ATARIs) with an aim to assess, refine and demonstrate technologies in agricultural and allied sectors. There are 82 KVKs in Zone-VIII which include 50 in Maharashtra, 30 in Gujarat and 2 in Goa. These KVKs are under the administrative control of various government and non-government organisations. Out of them, 38 KVKs are with SAU, 35 KVKs are with NGOs, 4 KVKs are with ICAR Institutes, 3 KVKs are with deemed university and 1 KVK each is with state department and Open University in the zone. The mandate of KVK is assessment, demonstrations, planting material production, training programmes and other extension activity, thereby serving as the knowledge and resource centre on scientific farming at the district level. Summary of various activities conducted by KVKs during the year 2022 is given below.

Technology Assessment

During 2022, a total of 672 OFTs were conducted through 6448 trials by KVKs of Zone-VIII. Out of these, 494 OFTs on crops, 101 on livestock & fisheries and 77 on others aspects were conducted during the reporting period. KVKs in Maharashtra assessed the suitability of 481 technologies by conducting 5319 trials. Out of these 336 OFTs covering on crops by 3664 trials, 78 on livestock by 837 trial, 36 OFTs on enterprises by 475 trial and 31 on empowerment of rural women by 343 trial. KVKs in Gujarat, assessed the suitability of 180 technologies by conducting 1052 trials. Out of which, 150 on crops including 854 trial,21technologies on livestock by 154 trial, 7 OFTs on enterprises by 34 trial and 2 OFTs on empowerment of rural women by 10 trial. KVKs in Goa, assessed the suitability of 11 OFT by conducting 77 trial, out of which 9 OFTs covering crops including 67 trial and 2 OFTs on livestock including 10 trial.

Frontline Demonstrations

KVKs in Zone VIII conducted 19652 frontline demonstrations on crops (9748), livestock (2958), enterprise (3520), women and children (1804) and farm implements (1622) in an area of 2901.66 ha. Among these, 1839 demonstrations in cereals, 1687 were in pulses, 871 demonstrations in oil seeds, and 450 were in commercial crops. In Maharashtra, a total of 10202 demonstrations out of which 761 demonstrations were on pulses, 474 were in oilseeds and 878 in cereals and millet, 272 were in commercial crops,1086 on farm implements, 2275 demonstrations in enterprise, 1159 demonstrations in livestock,978 demonstrations in women's and children in an area 1502.59 ha. In Gujarat, a total of 9337 demonstrations, out of these, 926 demonstrations were on pulses, 397 on oilseeds, 943 were in cereals and millets, 168 were in commercial crops, 536 for farm implements, 1235 demonstrations for enterprises, 1799 for livestock, 826 for women and children in an area 1392.87 ha. Total of 113 demonstrations in Goa, 18 in cereals, 10 in commercial crops, and 10 in enterprises in an area of 7.43 ha were conducted during the reporting period.

Capacity Development

Training is an important activity of KVK, which play a pivotal role in enhancing the knowledge and skill of farmers and extension personnel about various improved technologies. During the year, KVKs in Zone-VIII organized 9060 training programs covering 354327 participants that include 288968 farmers, 36549 rural youth, and 28810 extension functionaries. KVKs in Maharashtra organized 6217 training courses with the participation of 249553 farmers including farm women, rural youth, and extension functionaries, while the KVKs in Gujarat conducted 2675 courses with a total of 100041 beneficiaries and KVK in Goa conducted 168 courses with a total of 4733 beneficiaries. The main thematic areas covered under training included integrated crop management, improved tools and implements, capacity building and group dynamics, women empowerment, improved production practices for horticultural crops, productivity enhancement in livestock species, integrated pest management, and soil health and fertility management. KVKs in Zone-VIII also organized 1081 sponsored training programs covering 50084 farmers and farm women and rural youth. To facilitate entrepreneurship development, income generation, and self-employment, especially among rural youth and school dropouts, KVKs organized 275 vocational training programs for 8484 beneficiaries and 7704 regular training programs for 295759 beneficiaries. The important thematic areas include crop production and management, post-harvest technology and value addition, livestock and fisheries, income generation activities, etc.

Cluster Frontline Demonstration on Oilseeds

Cluster Frontline Demonstrations on Oilseeds were implemented to enhance the productivity of oilseeds.

Groundnut, sesame, soybean, castor, linseed, safflower and rapeseed, and mustard crops were covered by 75 KVKs in selected districts of Maharashtra, Gujarat, and Goa. A total of 6122 cluster frontline demonstrations were conducted in an area of 2484 ha.

Cluster Frontline Demonstration on Pulses

Cluster Frontline Demonstrations of Pulses under NFSM were started to enhance the pulses yield covering major pulse crops viz, pigeon pea, chickpea, black gram, and green gram in selected districts through 70 KVKs in Maharashtra and Gujarat. In total, 8755 demonstrations were laid out in cluster mode on a 3502.00 ha area.

Tribal Sub Plan

Tribal Sub Plan (TSP) aims to achieve tribal welfare through the organization of different activities related to agriculture, livestock, poultry, goat rearing, and other enterprises. In Zone, 11 KVKs are involved in organizing several activities like capacity building programs, frontline demonstrations (1167), on-farm trials (92), seed (1092.39q) and planting material (9.30 lakh) production and creating income generating activities in tribal-dominated areas for their socio-economic transformation.

NICRA

Technology demonstration component of NICRA project in Zone-VIII implemented by 11 KVKs (6 KVKs of Maharashtra: Ahemdnagar-I, Jalna-I, Osmanabad, Nandurbar, Latur, Beed-I,) 4 KVKs of Gujarat (Narmada, Dahod, Panchmahal, Banakantha-I and one KVK of Goa (North Goa) demonstrated climate resilient agricultural technologies and practices across the three states. Under the project, KVKs conducted 3912 demonstrations by covering a 1054.50 ha area in order to build climate resilience in 20 villages under four areas viz., NRM (788), crop production (1607), livestock and fisheries (1517). In respect of custom hiring centers, 539 farmers of NICRA villages have used 29 implements on a 428.20 ha area for timely sowing and other cultural operations. A revenue of Rs 2.54 lakh was generated through these custom hiring centers. Through capacity building and extension activities, awareness of climate resilient technologies was brought about benefitting 4667 and 5878 farmers through 200 and 224 activities respectively.

ARYA

ARYA project was implemented by 12 KVKs of the Zone (6 in Maharashtra and 6 in Gujarat) and took up the initiative to empower youth in rural areas to take up agriculture and allied and service sector enterprises for gainful employment. A total of 4519 rural youths were trained in various enterprise-based modules. Skill training was imparted to 4519 rural youth through 107 training programs for establishing enterprise units under the project. Enterprise units numbering 253 were established benefiting 286 rural youth during 2022 ensuring livelihood security.

Farmers FIRST Program

Three state Agriculture Universities (MPKV Rahuri, JAU Junagadh, and NAU Navsari implemented the Farmer FIRST project. Farmer FIRST aims at enriching farmers-scientists interface for technology development and application. The program aims to achieve with focus on innovations; feedback; multiple stakeholders' participation; multiple realities; multi-method approaches; vulnerability and livelihood interventions. The Farmer FIRST centers undertook 1196 farmers covering a 366.64 ha area and 1722 households in the nine operational villages. Crop-based technologies were demonstrated in 1135.41 ha benefiting 359 farmers. Horticultural technologies were demonstrated in 89 ha area benefiting 290 farmers. In the livestock module, a total of 40 animals and farmers benefited. NRM technologies were demonstrated in 20 ha benefiting 50 households and two enterprises were established for the benefit of 20 farmers. IFS module covered 437 farmers in an area of 144.23 ha.

Seed Hub

The Seed Hub Project is implemented at 8 KVKs in Maharashtra (Jalna-I, Dhule, Solapur-II, Beed-II, Amravati-II, Akola, Buldhana-II, Jalgaon-II), and 6 KVKs in Gujarat for the quality seed production of pulses (Tapi, Navsari, Kheda, Rajkot-I, Panchmahal and Dahod). Major pulse crops, including pigeon pea, chickpea, black gram, and green gram, were grown for seed production in 2022. Total of 653.27 q of seeds production in the Kharif season, 4662.86 q of seeds production during the rabi season, and 160.25 q of seeds during summer.

District Agro Met Units (DAMU)

Under Gramin Krishi Mausam Seva (GKMS) 21 District Agro Met Units (DAMUs) were established (11 in Maharashtra and 9 in Gujarat) in collaboration with IMD for issuing and disseminating agromet advisories to farmers at the sub-district level. During the year, DAMU centers generated 18118 agromet advisories on Agromet-DDS and disseminated weather-related advisories through different means. A total of 267 awareness programs were organized involving 16946 farmers and 1537 WhatsApp groups created by DAMU KVKs by involving 2.96 Lakh farmers for taking up timely farm operations and to prevent crops during extreme weather events.

Out scaling of Natural Farming

Natural farming is a system where the laws of nature are applied to agricultural practices. During 2022, a total of 632 awareness programs, 64 Training, and 395 Demonstrations, involved 80306 farmers who participated in different activities related to Natural farming.

Other Extension Activities

To create awareness of improved agricultural technologies the KVKs of Zone-VIII organized 64633 extension activities with the participation of 5561820 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 ghosti, etc. To accelerate the rapid dissemination of information on improved farm technologies, KVKs in Zone-VIII brought out 18433 publications.

Profitable Dairying Farming and Livestock Management

In 52 KVKs of Zone -VIII (30 in Maharashtra, 20 in Gujarat and 2 in Goa), total 252 training programmes involved 10252 farmers who participated in different 3 days training coordinator, Scientist, and Animal Sciences, enlightened the participants about scientific management, Feeding, disease management, vaccination, housing, breeding, and prevention and control of diseases in sheep and goats, and other related aspects.

Mera Gaon Mera Gaurav (MGMG)

Under Mera Gaon Mera Gaurav (MGMG) programme a total of 368 scientists through 97 teams from SAU and ICAR research Institutes adopted 217 villages and implemented various activities. Scientists undertook various interface meetings, awareness cum demonstration programmes and training programmes on agriculture, animal husbandry, poultry and improved implements were conducted.

Agriculture Drone Project (ADP)

This project implemented by Union Ministry of Agriculture and Farmers Welfare under "Sub-Mission on Agricultural Mechanization" (SMAM) and total 40 drones sanctioned to 23 ICAR Institutes, 7 SAUs and 10 KVKs at Zone VIII.

Kisan Mobile Advisory

In Zone-VIII 65 lakh farmers benefited through Kisan Mobile Advisories with 139738 text messages. The messages were mainly on crops (114290), awareness among the farmers about agriculture-related technologies (5191), livestock (7219), other enterprises related to agriculture (1071), weather (9784), and marketing (599).

Production of Technological inputs

KVKs have produced and supplied 12452.96 q of seed material of different crops to 9836 farmers. KVKs produced 67.10 lakh planting material of different crops and distributed 4.71 lakh livestock like, poultry, fingerlings etc. worth 60.97 lakhs which was supplied to 3185 farmers. KVKs have also produced and supplied 90661.18 kg and 66862.05 lit of bio-fertilizers for supplying to stakeholder farmers.

Soil, water and plant samples Testing

KVKs also have undertaken soil and water testing to ascertain the soil nutrient status and also to make soil test-based nutrient recommendations in the prevailing micro farming situations in the district. A total of 58575 samples including 50565 soil samples, 7920 water samples, and 368 plant samples were analyzed by the KVKs that benefited 56013 farmers belonging to 6524 villages in Maharashtra, Gujarat, and Goa State.

Agricultural Technology information centres (ATIC)

In nine ATICs of Zone-VIII, farmers visited for technical advice whereas, as much as 10553 visited to obtain products developed by the host institutes. ATICs also provided farm inputs such as microbial inoculants, seeds and planting materials, mushroom cultures, bio pesticides, farm implements, animal feeding materials, etc. to 44826 farmers.

Directorate of Extension Education

The Directorates of Extension Education of State Agricultural Universities and Zonal Project Directorate facilitate technological backstopping and Human Resource Development to the KVKs through training, seminars, workshop etc. A total 57 human resource development (HRD) activities and their officials have participated in 21 Scientific Advisory Committee meeting. Similarly, they have attended 24 Field days, 65 workshops/Seminars, 15 farmer scientist interactions, 6 technology weeks, 329 Training programs, 41 On Farm Testing (OFT), 42 Front Line Demonstrations (FLD) programs and 221 other activities of KVKs.

Special Programmes

Various programmes were organized by the 82 KVKs in the zone with participation of farmers, extension personnel. In Kisan Samman Nidhi (PM-KISAN Scheme) 4947 participated, 6077 participants attended World Pulses Day, 14395 participants celebrated International Women's Day, 26726 farmers participated in Kisan Mela (Farmer's fair), 38189 participants in Garib Kalyan Sammelan.8896 participants celebrated International Yoga Day, 8893 participants participated in ICAR foundation Day celebration and 9609 farmers participated in Poshan Abhiyan and Tree Plantation programme. 46098 participants actively participated in Special Swachhata campaign 2.0, 4907 participants in Rashtriya Mahila Kisan Diwas, 29432 participants in Farmers' PM Kisan Samman Sammelan, 7390 participants in World Soil Day Programme.

Publication

Two bulletins and one research paper were published at ATARI level. KVK staff published 127 research papers, 71 technical bulletins and 649 popular articles. KVKs have documented 288 extension literature, 344 newspaper coverage, 22 books, 19 CD/DVD on various technological aspects of agriculture and its allied enterprises.

Chapter 1

Introduction

To monitor and coordinate transfer of technology projects/ activities, Zonal Coordination Unit (ZCU) was established in 1979 by ICAR at 08 locations across India. These ZCUs were upgraded to Zonal Project Directorate (ICAR-ZPD) in March, 2009 which were further upgraded as ICAR-Agricultural Technology Application Research Institute (ICAR-ATARI) in July, 2015. Three new ATARIs (Pune, Guwahati, and Patna) were sanctioned in 2015 for effective monitoring, coordinating, and reviewing the KVKs and started functioning from 2017. The states of Maharashtra, Gujarat and Goa came under the jurisdiction of Zone-8 ATARI Pune. The jurisdiction of each ATARI with number of states/ union territories are given in Table 1.1.

Table 1.1 States and Union Territories covered under ATARIs

Zones	No. of States/ UTs	States/Union Territories
I	4	Punjab, Uttarakhand, Himachal Pradesh, Jammu & Kashmir
II	3	Rajasthan, Haryana and Delhi
III	1	Uttar Pradesh
IV	2	Bihar and Jharkhand
V	3	West Bengal, Odisha, Andaman & Nicobar
VI	3	Assam, Arunachal Pradesh and Sikkim
VII	5	Tripura, Nagaland, Manipur, Mizoram and Meghalaya
VIII	5	Maharashtra, Gujarat, Goa, Daman and Diu, Dadra & Nagar Haveli
IX	2	Madhya Pradesh and Chhattisgarh
X	4	Andhra Pradesh, Telangana, Tamil Nadu and Puducherry
XI	3	Karnataka, Kerala and Lakshadweep

Mandate of ATARI

- Coordination and monitoring of technology application and frontline extension programs
- Strengthening agricultural extension research and knowledge management.

Major Functions of ATARI

- Planning, monitoring and reviewing of KVK activities in the zone; to identify, prioritize and implement various activities related to technology integration and dissemination.

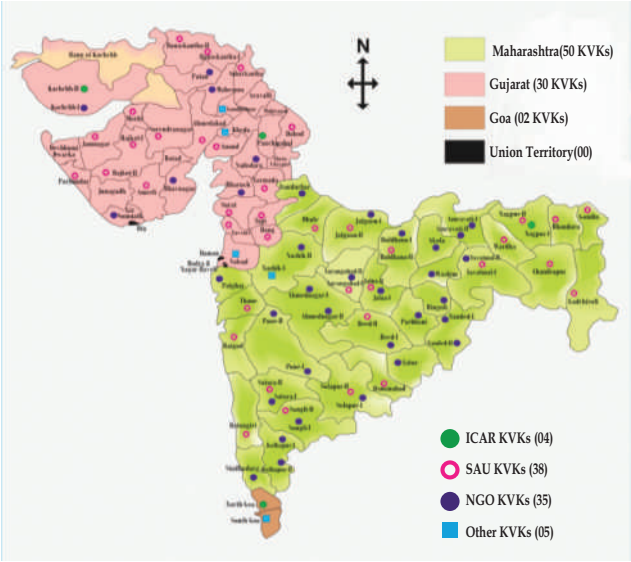
KVKs in Zone VIII, ATARI, Pune

ATARI Zone-VIII, covers states of Maharashtra, Gujarat and Goa comprising of 82 KVKs; of which 50, 30 and 2 exist in the respective states. The state-wise and host organization wise distribution of KVKs is given in Table 1.2.

1.2 Host Organization wise KVKs in the Zone

State	Host Organizations						Total
	SAUs	NGOs	ICAR	DUs	OUs	SDA	
Maharashtra	20	28	01	-	01	00	50
Gujarat	18	07	02	03	-	00	30
Goa	-	-	01	-	-	01	02
Total	**38**	**35**	**04**	**03**	**01**	**01**	**82**

Network of KVKs in ICAR-ATARI, Pune



Additional KVKs in Larger Districts of the Zone

In Maharashtra sixteen Districts (Amravati, Ahmednagar, Pune, Nashik, Aurangabad, Buldhana, Nanded, Beed, Yavatmal, Solapur, Jalgoan, Satara, Jalna, Kolhapur, Sangli and Nagpur) have two KVKs. In Gujarat three districts (Banaskantha, Kutchh and Rajkot) have two KVKs.

New Establishment of KVKs

5 New KVKs (Kolhapur-II, Jalna-II, Nagpur-II, Sangli-II and Thane) were established since the starting of ATARI Pune and site selection committee visited to Silvassa KVK (Dadra & Nagar Haveli).

1.3 Details about Newly Established KVKs

Name of KVK established	State	Year	New/Additional KVK	Host Organization
KVK Kolhapur-II	Maharashtra	2018	Additional	Shri Siddhagiri Math, Kaneri, Kolhapur
KVK Jalna-II	Maharashtra	2018	Additional	VNMKV, Parbhani
KVK Nagpur-II	Maharashtra	2019	Additional	MAFSU Nagpur
KVK Sangli-II	Maharashtra	2019	Additional	MAFSU Nagpur
KVK Thane	Maharashtra	2021	New	MAFSU Nagpur

Krishi Vigyan Kendra

Krishi Vigyan Kendra is a frontline extension model at district level, designed and nurtured by the ICAR for the past four decades since 1974 when the first KVK was established at Pondicherry. The KVK showcases the frontier technologies, develop the capacity of different stakeholders, front runner in technology application, making available technological information and inputs, practicing participatory approaches in planning, implementing, executing and evaluating the technologies. KVKs also pursue assessment and refinement of technologies to suit different agro-climatic conditions. The KVK follows basic concept of imparting learning through work experience, training to extension personnel, flexible, customized syllabus for different areas based on agro-ecological needs. The problems of Maharashtra, Gujarat and Goa are quite diverse ranging from acute drought to surplus water management.

Sr. No	KVKs	Year of Sanction and Host Organization	Sr. No	KVKs	Year of Sanction and Host Organization
Dr. Hedgewar Seva Samiti, Nandurbar			**Shram Safayala Foundation, Amravati**		
22.	Nandurbar	2002 -NGO	23.	Amravati-I	1995 -NGO
Shram Sadhana Trust, Amravati			**Sindhudurg Zila Krishi Pratishthan, Sindhudurg**		
24.	Amravati-II	1995 -NGO	25.	Sindhudurg	1995 -NGO
YCMOU, Nashik			**Jeevan Jyoti Charitable Trust, Parbhani**		
26.	Nashik-I	1994 -YCMOU	27.	Parbhani	1994 -NGO
D.Y. Patil Education Society, Kolhapur			**Satpuda Edu. Society Jalgaon, Jamod, Buldhana**		
28.	Kolhapur-I	1994 -NGO	29.	Buldhana-I	1994 -NGO
J.N. Instt. of Edn. Sci. & Tech. Research, Pokharni, Nanded			**Shabari Krishi Pratishtan, Solapur**		
30.	Nanded-I	1994 -NGO	31.	Solapur-I	1994 -NGO
SUVIDE Foundation, Washim			**DRI, New Delhi**		
32.	Washim	1994 -NGO	33.	Beed-I	1992 -NGO
Kalyani Gorakshan Trust, Pune			**Agril. Development Trust, Baramati, Pune**		
34.	Satara-I	1992 -NGO	35.	Pune-I	1992 -NGO
Pravara Instt. of Res. & Edn. in Natural & Soc. Sci., Ahmednagar			**Vasant Prakash Vikas Pratishtan, Sangli**		
36.	Ahmednagar-I	1992 -NGO	37.	Sangli-I	1992 -NGO
Marathwada Sheti Sahayya Mandal, Jalna			**Satpuda Vikas Mandal PO Pal, Jalgaon**		
38.	Jalna-I	1992 -NGO	39.	Jalgaon-I	1984 -NGO
Gokhle Edn. Society, Nashik			**Richfield Agro-e-Research & Development Centre, Nashik**		
40.	Palghar	1976 -NGO	41.	Nashik-II	2011-NGO
Mahatma Gandhi Mission, Aurangabad			**Sanskriti Samvardhan Mandal, Sagroli, Nanded**		
42.	Aurangabad-II	2011-NGO	43.	Nanded-II	2011-NGO
Shri Marutrao Ghule Patil Shikshan Sanstha, Newasa, Ahmednagar			**Navsanjivan Shikshan Prasarak Mandal, Yavatmal**		
44.	Ahmednagar-II	2011-NGO	45.	Yavatmal-II	2016 -NGO
Shri Sidhagiri Math, Kolhapur			**ICAR-CICR, Nagpur**		
46.	Kolhapur-II	2018 -NGO	47.	Nagpur-I	1994 -ICAR-CICR
Maharashtra Animal & Fishery Sciences University (MAFSU), Nagpur					
48.	Sangli-II	2019- SAU	49.	Nagpur-II	2019-SAU
50.	Thane	2021- SAU			
Gujarat					
NAU, Navsari					
1.	Dang	1985 -SAU	2.	Tapi	2004 -SAU
3.	Narmada	2006 -SAU	4.	Navsari	2006 -SAU
5.	Surat	2011 -SAU			
JAU, Junagadh					
6.	Jamnagar	2004 -SAU	7.	Amreli	2004 -SAU

Vision of KVK

Science and technology-led growth leading to enhanced productivity, profitability and sustainability of agriculture.

Mission of KVK

Farmer-centric growth in agriculture and allied sectors through application of appropriate technologies in specific agro-ecosystem perspective.

Mandate of KVK

Technology Assessment and Demonstration for its Application and Capacity Development.

Activities of KVK

To implement the mandate effectively, the following activities are envisaged for each KVK

- On-farm testing to assess the location specificity of agricultural technologies under various farming systems.
- 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 on modern agricultural technologies.
- To work as Knowledge and Resource Centre of agricultural technologies for supporting initiatives of public, private and voluntary sector in improving the agricultural economy of the district.
- Provide farm advisories using ICT and other media means on varied subjects of interest to farmers

Table 1.4: Host Organization wise KVKs

Sr. No	KVKs	Year of Sanction and Host Organization	Sr. No	KVKs	Year of Sanction and Host Organization
Maharashtra					
PDKV, Akola					
1.	Wardha	1976 -SAU	2.	Chandrapur	1999 -SAU
3.	Bhandara	2002 -SAU	4.	Gadchiroli	2004 -SAU
5.	Gondia	2004 -SAU	6.	Yavatmal-I	2004 -SAU
7.	Buldhana-II	2010 -SAU			
VNMKV, Parbhani					
8.	Aurangabad-I	1983 -SAU	9.	Osmanabad	2004 -SAU
10.	Beed-II	2010 -SAU	11.	Jalna-II	2018 -SAU
MPKV, Rahuri					
12.	Dhule	1983 -SAU	13.	Jalgaon-II	2010 -SAU
14.	Satara-II	2010 -SAU	15.	Solapur-II	2011 -SAU
BSKKV, Dapoli					
16.	Ratnagiri	1983 -SAU	17.		2004 -SAU
Rural Development & Research Foundation, Akola			**Grammonnati Mandal, Pune**		
18.	Akola	2010 -NGO	19.	Pune-II	2010 -NGO
Manjara Charitable Trust, Latur			**Saint Namdeo Sevabhavi Sanstha, Hingoli**		
20.	Latur	2005 -NGO	21.	Hingoli	2002 -NGO

Sr. No	KVKs	Year of Sanction and Host Organization	Sr. No	KVKs	Year of Sanction and Host Organization
8.	Rajkot-I	2004 -SAU	9.	Surendranagar	2005 -SAU
10.	Porbandar	2004 -SAU	11.	Rajkot-II	2012 -SAU
12.	Morbi	2016 -SAU			
AAU, Anand					
13.	Dahod	1976 -SAU	14.	Anand	1985 -SAU
15.	Ahmedabad	2004 -SAU			
SDAU, SK Nagar					
16.	Banaskantha-I	1976 -SAU	17.	Sabarkantha	2004 -SAU
18.	Banaskantha-II	2015 -SAU			
DU, Gujarat Vidyapeeth, Ahmedabad					
19.	Gandhinagar	1977 -DU	20.	Valsad	1992 -DU
21.	Kheda	2005 -DU			
ICAR-CIAH, Bikaner			**ICAR-CAZRI, Jodhpur**		
22.	Panchmahal	2005-ICAR-CIAH	23.	Kutch-II	2010-ICAR-CAZRI
Lokbharati Gram Vidyapeeth, Bhavnagar			**Ambuja Cement Foundation, Gir Somnath**		
24.	Bhavnagar	2009 -NGO	25.	Junagadh	2007 -NGO
Mehsana District Education Foundation, Baroda			**Bhartiya Agro Industries Foundation, Baroda**		
26.	Mehsana	2005-NGO	27.	Bharuch	1994 -NGO
Mangal Bharti Bahadurpur, Baroda			**Sarswati Gram Vidyapeeth Samoda**		
28.	Vadodara	1994 -NGO	29.	Patan	1992 -NGO
Rural Agro. Research & Development Society, Mumbai					
30.	Kutch-I	1992 -NGO			
Goa					
State Government, Goa			**ICAR-CCARI, Goa**		
1.	South Goa	2004 –State Govt.	2.	North Goa	1984-ICAR-CCARI

Agro-climatic Zones (ACZ) in Zone-VIII, Pune

There are 63 districts under the jurisdiction of Zone-VIII, Pune in which 82 KVKs are functioning. The coverage of KVKs under different agro-climatic zones is given in Table 1.4

Table 1.5: Agro-climatic Zones in ATARI, Pune

State	Agro-climatic Zones (ACZ)	Name of KVK	No.of KVK
Maharashtra	Western Plateau and Hills Region	Ahmednagar-I, Ahmednagar-II, Akola, Amravati-I, Amravati II, Aurangabad-I, Aurangabad-II, Beed-I, Beed II, Buldhana-I, Buldhana-II, Chandrapur, Dhule, Hingoli, Jalgaon-I, Jalgaon-II, Jalna-I, Jalna-II, Latur, Nagpur-I, Nagpur-II, Nanded-I, Nanded-II, Nandurbar, Nashik-I, Nashik-II, Osmanabad, Parbhani, Pune-I, Pune-II, Sangli I, Sangli II, Satara-I, Satara-II, Solapur-I, Solapur II, Wardha, Washim, Yavatmal-I, Yavatmal-II	40

State	Agro-climatic Zones (ACZ)	Name of KVK	No.of KVK
	West Coast Plains and Ghat Region	Kolhapur-I, Kolhapur-II, Palghar, Raigad, Ratnagiri, Sindhudurg, Thane	7
	Eastern plateau and hills region	Bhandara, Gadchiroli, Gondia	3
Gujarat	Gujarat Plains And Hills Region	Amreli, Anand, Banaskantha-I, Banaskantha-II, Bharuch, Bhavnagar, Dahod, Dang, Gandhinagar, Jamnagar, Junagadh, Kheda, Kutch-I, Kutch-II, Mehsana, Morbi, Narmada, Navsari, Panchmahal, Patan, Porbandar, Rajkot-I, Rajkot-II, Sabarkantha, Surat, Surendranagar, Tapi, Vadodara, Valsad	29
	Coastal Plains and Hills	Ahmedabad	1
Goa	West Coast Plains and Ghat region	North Goa, South Goa	2
Total			**82**

Special Attainments

"5th Annual Zonal Workshop of ICAR-ATARI, Pune" organized during *7 - 9 July, 2022, at Anand*

The ICAR-Agricultural Technology Application Research Institute, Pune, Maharashtra has organized its *"5th Annual Zonal Workshop"* at Anand Agricultural University from 7th to 9th July, 2022.

Inaugurating the Workshop, the Chief Guest, Dr. Ashok Kumar Singh, Deputy Director General (Agricultural Extension), ICAR urged the Krishi Vigyan Kendras for focusing on increasing the oilseeds production & productivity to reduce the import burden of the country by narrowing the yield gaps and introduction of new varieties. The DDG also advised the researchers to focus on developing the short duration varieties of Pigeon Pea to increase production.

Dr. Singh stated that the KVKs should produce quality planting materials on the instructional farm. The need for developing the Natural Farming Models at the KVK farm to enable the farmers to see the difference among the natural farming and the other farming models was stressed by him.

Dr. V.P. Chahal, ADG (Agricultural Extension), ICAR delivered the plenary address.

Dr. K.B. Kathiria, Vice-Chancellor, Anand Agricultural University, Anand, Gujarat deliberated on enhancing the farmers' income, promoting bio-fertilizers / bio-pesticides, proven I.F.S. Models and making KVK self-dependent, etc.

Dr. Z.P. Patel, Vice-Chancellor, Navsari Agricultural University, Navsari, Gujarat urged the KVKs for implementing the technologies at their farms first before taking them to the farmers.

Dr. N.K. Gontia, Vice-Chancellor, Junagadh Agricultural University, Junagadh, Gujarat appreciated the KVKs' role in taking technologies to the farmers' fields and providing training to the input dealers in the District.

Dr. R. M. Chauhan, Vice-Chancellor, Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar, Gujarat emphasized on the need of Integrated Farming System for enhancing the income of smallholders, value-addition, women empowerment and following the cluster-based approach by the KVKs.

Shri P.P. Adrushya Kadsiddheshwar Swamiji, Chairman, Kaneri Math, Kolhapur, Maharashtra advised the KVKs to work towards conserving the soil health and biodiversity.

Dr. Lakhan Singh, Director, ICAR-ATARI, Pune, Maharashtra underlined the salient achievements in the Zone - VIII during the last 5 Years. The works done by the KVKs on doubling the farmers' income, linkages with Research Organizations, capacity building of KVKs, large-scale dissemination of technologies by KVKs, crop diversification, Nutri-Smart Villages, Natural Farming and Innovative Farmers Meets were highlighted. Dr. C.S. Praharaj, Director, Directorate of Groundnut Research, Junagadh, Gujarat also deliberated during the occasion.

Around 150 participants including Heads and Senior Scientists of 82 Krishi Vigyan Kendras, Directors of Extension Education, Experts from ICAR Institutes and Nodal Officers of Agri-Drone Projects from 28 Centres attended the Workshop.

Annual Review Workshop of NICRA-KVKs in Maharashtra, Gujarat and Goa" organized during 8 - 9 June, 202

The ICAR-Agricultural Technology Application Research Institute, Pune, Maharashtra; ICAR-Central Research Institute on Dry land Agriculture, Hyderabad and Marathwada Sheti Sahayya Mandal, Jalna, Maharashtra jointly organized the Annual Review Workshop of NICRA-KVKs in Maharashtra, Gujarat and Goa at Krishi Vigyan Kendra, Jalna - I, Maharashtra from 8th to 9th June, 2022.

Inaugurating the Workshop, the Chief Guest, Dr. V.K. Singh, Director, ICAR-CRIDA, Hyderabad appreciated the KVK's efforts for the work done in the first phase of NICRA. He also underlined that the water and Green House Gas (GHG) emission is a global constraint. In this situation, keeping the livestock, fisheries and poultry will have more priority in the scenario of climate change. The implementation of the new phase of NICRA by following the Farming System Typology approach was also stressed by Dr. Singh.

Shri Vijay Anna Borade, Trustee, MSSM, Jalna, Maharashtra stressed the need of incorporating some treatments related to the watershed in a next phase of NICRA. He regarded the soil conservation as an only alternative in solving the water problem in the climate sensitive Districts.

Dr. Lakhan Singh, Director, ICAR-ATARI, Pune, Maharashtra underlined that NICRA is a participatory research project and urged the KVKs to use their wisdom as per their locations while implementing the activities.

Outlining the climatic situation of the Marathwada Region, Dr. D.B. Deosarkar, Director Extension Education, Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani, Maharashtra emphasized for adopting the intercropping systems like Cotton and Soybean, Red Gram and Soybean, etc., and the crop diversification by the introduction of Ajwain, Rajma and to focus on pulses and oilseeds to address the climate change issues in the NICRA Villages.

Dr. S.V. Sonune, Head, KVK, Jalna, Maharashtra shared the experiences of the Village watershed and successful interventions of NICRA.

Dr. J.V.N.S. Prasad, Coordinator, TDC-NICRA, ICAR-CRIDA, Hyderabad and Dr. A.V.M. Subba Rao, Principal Scientist, ICAR-CRIDA, Hyderabad also participated and deliberated during the occasion.

More than 45 participants including Principal Investigators, Co-Principal Investigators, Research Associates, Senior Research Fellows and Scientists of 11 NICRA-KVKs from Maharashtra, Gujarat & Goa and 3 Centers of Farmers FIRST Project from Maharashtra and Gujarat participated in the workshop

5th Foundation Day of ICAR-ATARI Pune celebrated on 3rd April, 2022

The ICAR-Agricultural Technology Application Research Institute, Pune, Maharashtra virtually celebrated its *5th Foundation Day*.

Delivering his address, the Chief Guest, Dr. Ashok Kumar Singh, Deputy Director General (Agricultural Extension), ICAR highlighted the Krishi Vigyan Kendras' role in the food and nutritional security of the country. The enhancement in the pulse production of the country due to the Government's initiatives and KVKs' role in the popularization through the CFLD Pulses and Oilseeds was also appreciated by Dr. Singh. The DDG urged the KVKs for demonstrating

the natural farming and organic farming on the instructional farm of KVKs for the benefit of the visiting farmers.

Dr. V.P. Chahal, ADG (Agricultural Extension), ICAR underlined the ICAR-Agricultural Technology Application Research Institutes' journey from 1979 as the Zonal Coordination Unit to the Zonal Project Directorate and currently as the ICAR-ATARIs in the country.

Earlier, welcoming the dignitaries, Dr. Lakhan Singh, Director, ICAR-ATARI, Pune, Maharashtra underlined the Institute's salient achievements during the last 5 Years. The salient works done on the precision farming, climate-resilient agriculture, farming system nutrition, indigenous cow demo units, hi-tech horticulture and promotion of the Farmers' Producers' Organizations (FPOs), etc., were also highlighted by Dr. Singh.

Shri Satyajeet Bhatkal, Chief Executive Officer, Paani Foundation & Director of Television Series - *"Satyamev Jayate"* delivered the *Special Lecture* on *"Successful Experiences of Working for Drought Mitigation in 1000 Villages of Maharashtra"*. He stressed on encouraging the farmers and villagers for water harvesting, managing water crisis and decentralized watershed management in the Villages.

Around 250 participants including the Senior Officials of ICAR Headquarters & its Institutes, Krishi Vigyan, Kendras and State Agricultural Universities, etc., participated in the programme.

Ongoing Research Projects

1. Project: Impact of climate resilient technology interventions implemented through NICRA across different agro-ecological regions of India

Lead Centre of the Project: ICAR-ATARI Hyderabad

Co-PI from ATARI Pune- Dr Lakhan Singh, Director

Scientist associated- Tushar Athare, Scientist (Agril Extension)

Total three KVKs i.e. Jalna-I, Nandurbar and Banaskantha-I are involved from ICAR-ATARI Pune. Under this project 2 NICRA villages and 2 non-NICRA villages are selected. 20 respondents are selected from each village so that data of 80 respondents is collected from NICRA and non-NICRA village. Currently data is collected at the KVK level.

2. Project: Impact Assessment of Selected Interventions by KVK under Doubling Famers Income for Enhancing Farmers' Income

Lead Centre of the Project: ICAR-ATARI Jodhpur

Co-PI from ATARI Pune- Dr Lakhan Singh, Director

Scientist associated- Tushar Athare, Scientist (Agril Extension)

Total 21 KVKs i.e. Aurangabad-I, Osmanabad, Pune-I, Gadchiroli, Nandurbar, Nagpur-I, Raigad, Latur, Pune-II, Jalna-I, Amravati-II, Solapur-I, Dhule, Mehasana, Valsad, Banaskantha-I, Rajkot-I, Bhavnagar, Kutch-I, Navsari and Anand are involved from ICAR-ATARI Pune in this project. 2 DFI Villages and 2 Non DFI Villages are selected for data collection. 20 respondents are selected from each village for data collection. Data of 80 respondents per KVK is ebing collected.

3. Project : Network project on analysis of agricultural programmes conducted in Aspirational Districts in India

Lead Centre of the Project: ICAR-ATARI Kolkata

Co-PI from ATARI Pune- Dr Lakhan Singh, Director

Scientist associated- Tushar Athare, Scientist (Agril Extension)

Two KVKs Nandurbar from Maharashtra and Narmada from Gujarat are selected under this research project from ICAR-ATARI Pune. The major focus of the project is to quantify the impact of various agricultural programmes conducted in aspirational districts. The data is being collected from respondents.

4. Project : Impact of technological interventions of KVKs on socio-economic empowerment and sustainable livelihood security of tribal farmers

Lead Centre of the Project: ICAR-ATARI Guwahati

Co-PI from ATARI Pune- Dr Lakhan Singh, Director

Scientist associated- Tushar Athare, Scientist (Agril Extension)

Total 11 KVKs i.e. Nashik I, Amravati I, Raigad, Palghar, Nnadurbar, Narmada, Valsad, Dahod, Tapi Bharuch and Dang involved from ICAR-ATARI Pune. One adopted and one non-adopted village is selected from each KVK for data collection, whereas 20 respondents are selected from each village totalling to 40 respondents per KVK.

5. Project : Gender and Nutrition Mega Project "Assessing dietary diversity, consumption pattern and nutritional security in Nutri-SMART Villages- A step towards vocal for local"

Lead Centre of the Project: ICAR-ATARI Guwahati

Co-PI from ATARI Pune- Dr Lakhan Singh, Director

Scientist associated- Dr Rajesh T., Scientist (Agril Economics)

Total 36 KVKs of ATARI Pune out of which 29 are from Maharashtra, 06 from Gujarat and 01 from Goa are slected for this research project. One Nutrismart village and one Control village from each KVK for the study are selected. The major focus of the project is data collection and to study the difference in behavioural pattern between Nutrismart and Control village in first phase of study and to evaluate the difference in behavioural change in second phase of study after imparting training on preparation of nutri-rich food, nutrition literature distribution and awareness of women from selected households about nutrition in the nutrismart villages.

6. Project : Impact of ARYA on promotion of agripreneurship and alternative livelihoods

Lead Centre of the Project: ICAR-ATARI Guwahati

Co-PI from ATARI Pune- Dr. Lakhan Singh, Director and Dr Rajesh T., Scientist (Agril Economics)

Total 12 KVKs i.e. Anand, Kheda, Amreli, Rajkot I, Navsari, Bhavnagar, Nagpur I, Pune II, Solapur I, Washim, Osmanabad and Nashik-I involved from ICAR-ATARI Pune. This project was started with the goal of motivating the unemployed rural youth with skill and associated support to work in on and off farm enterprises. The achievements of the project have been assessed against different parameters like increased number of participants, average seasonal/ yearly income, additional manpower creation and support of various organizations towards entrepreneurship development.

7. Project : Impact assessment of popular pulses varieties and technologies disseminated by KVKs through Cluster frontline demonstration of pulses (CFLD-P) in India

Lead Centre of the Project: ICAR-ATARI Kanpur

Co-PI from ATARI Pune- Dr Lakhan Singh, Director

Scientist associated- Dr Rajesh T., Scientist (Agril Economics)

Finalization of the sampling plan for selection of identified Agro-ecological zone and districts for impact assessment of popular pulses varieties and technologies disseminated by KVKs through CFLD pulses was done. During 2021, finalization of the interview schedule was done. After the finalization of location for study, secondary data on the production in chickpea, pigeon pea, green gram and black gram on time series basis for Maharashtra and Gujarat was collected.

Staff Position at KVKs

The details of staff position of KVKs state wise is given in Table 1.1. The total sanctioned staff strength of KVKs in Zone-VIII stands at 1312, out of which 965 (73.55 %) positions are filled. Senior Scientist and Head staff strength is 82 out of which 60 (75 %) are filled. In Maharashtra, 800 out of 636 (79.50 %) positions are filled, 480 out of 308 (64.16 %) positions are filled in Gujarat, 32 out of 21 (65.62 %) positions are filled in Goa.

Table 1.1 State and Post-wise present staff position of KVKs

Sr. No.	Category	Maharashtra			Gujarat			Goa			Total		
		S	F	V	S	F	V	S	F	V	S	F	V
1	Senior Scientist & Head	50	33	17	30	27	3	2	0	2	82	60	22
2	Subject Matter Specialists	299	251	48	180	123	57	12	10	2	491	384	107
3	Farm Managers	50	40	10	30	26	4	2	1	1	82	67	15
4	Programme Assistant (Computer)	50	43	7	29	23	6	2	1	1	81	67	14
5	Programme Assistant (Lab Tech)	50	38	12	31	27	4	2	1	1	83	66	17
6	Assistant	51	42	9	30	23	7	2	2	0	83	67	16
7	Stenographer (Grade-III)	50	34	16	30	13	17	2	1	1	82	48	34
8	Driver	100	71	29	60	22	38	4	3	1	164	96	68
9	SSS	100	84	16	60	24	36	4	2	2	164	110	54
Total		**800**	**636**	**164**	**480**	**308**	**172**	**32**	**21**	**11**	**1312**	**965**	**347**

Staff Position at ATARI, Pune

Total sanctioned staff strength of ICAR-ATARI, Pune is 12, out of which 4 are currently filled (Table 1.2).

Table 1.2 Staff strength of ICAR-ATARI, Zone -VIII, Pune

Sr. No.	Category	Sanctioned (No.)	Filled (No.)
1	**Director**	**1**	**1**
2	**Scientific**	**3**	**2**
	Principal Scientist	1	0
	Scientist	2	2
3	**Administrative**	**8**	**1**
	AAO	1	1
	FAO	1	0
	Assistant	2	0
	UDC	1	0
	LDC	2	0
	Stenographer (Grade-III)	1	0
4	**Technical**	0	0
5	**SSS**	0	0
	Total	**12**	**4**

Infrastructure

Regarding infrastructure, ICAR provides support and funding for establishment and development of KVKs. The infrastructure of a KVK typically includes administrative offices, training halls, laboratories, demonstration farms, livestock units, seed production units and other facilities necessary for conducting research, training, and extension activities. In Zone-VIII total 82 KVKs are functioning. Out of 82, 69 KVKs have their Administrative Building, 35 KVKs have staff quarters, 65 KVKs have Farmer's hostel. 408 demonstration units, 31 rain water harvesting units, 28 Soil & water testing labs are provided to KVKs three states of zone-VIII till the end of year 2022. As on December 2022, total 71 KVKs have

Jeep/ cars with them, while 39 KVKs have two-wheelers and 69 KVKs have tractors. The state wise summary of infrastructure is given in Table 1.3.

Table 1.3 Summary of infrastructure facilities available with KVKs

State	Administrative Building	Farmers Hostel	Staff Quarters	Soil & Water testing lab	Fencing	Rain Water harvesting system	Threshing floor	Farm go dawn	Tractor	jeep	Two wheeler	Demonstration Units
Maharashtra	40	40	17	22	23	21	13	14	46	42	15	220
Gujarat	27	24	18	6	11	9	17	15	22	28	23	173
Goa	2	1	0	0	1	1	1	0	1	1	1	15
Total	**69**	**65**	**35**	**28**	**35**	**31**	**31**	**29**	**69**	**71**	**39**	**408**

Infrastructure with KVKs in Maharashtra

Out of 50 KVKs in Maharashtra state 40 KVKs have their administrative building. 17 KVKs have staff quarters while 40 KVKs have their own farmer hostel. For conducting research activities, 22 KVKs possess soil & water testing lab & 21 KVKs had created rain water harvesting system. 46 KVKs have tractors, 42 KVKs carried jeep & 15 KVKs have their two wheeler. Total 220 demonstration units are operating in Maharashtra state which are highest in number than Gujarat & Goa state.

Table 1.4 Details of infrastructure facilities available with KVKs in Maharashtra

	State	Administrative Building	Farmers Hostel	Staff Quarters	Soil & Water testing lab	Fencing	Rain Water harvesting system	Threshing floor	Farm go dawn	Tractor	jeep	Two wheeler	Demonstration Units
1	Ahmednagar -I	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes	No	2
2	Ahmednagar -II	Yes	Yes	No	Yes	No	No	No	No	Yes	No	No	2
3	Akola	Yes	Yes	No	No	No	No	No	No	Yes	Yes	No	1
4	Amravati-I	Yes	No	Yes	No	Yes	No	No	No	Yes	Yes	Yes	3
5	Amravati-II	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	No	4
6	Aurangabad-I	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	14
7	Aurangabad-II	Yes	Yes	No	No	No	No	No	No	Yes	No	No	2
8	Beed-I	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	11
9	Beed-II	Yes	Yes	No	No	No	No	No	No	Yes	Yes	No	2
10	Bhandara	No	No	No	No	No	No	No	No	Yes	Yes	No	1
11	Buldhana-I	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	6
12	Buldhana-II	Yes	Yes	No	Yes	No	No	No	No	Yes	Yes	No	2
13	Chandrapur	Yes	Yes	Yes	No	Yes	No	No	No	Yes	No	No	9
14	Dhule	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	8
15	Gadchiroli	Yes	Yes	Yes	No	Yes	No	No	No	Yes	Yes	No	1
16	Gondia	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	1

	State	Administrative Building	Farmers Hostel	Staff Quarters	Soil & Water testing lab	Fencing	Rain Water harvesting system	Threshing floor	Farm go dawn	Tractor	jeep	Two wheeler	Demonstration Units
17	Hingoli	No	No	No	Yes	Yes	Yes	No	No	Yes	Yes	No	5
18	Jalgaon-I	Yes	Yes	Yes	No	No	No	No	No	Yes	Yes	No	40
19	Jalgaon-II	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	No	2
20	Jalna-I	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	1
21	Jalna-II	Yes	Yes	No	No	No	No	No	No	Yes	Yes	No	0
22	Kolhapur-I	Yes	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	3
23	Kolhapur-II	No	Yes	No	No	No	No	No	No	Yes	Yes	No	3
24	Latur	Yes	Yes	Yes	No	Yes	No	No	No	No	Yes	Yes	1
25	Nagpur-I	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	2
26	Nagpur-II	No	No	No	No	Yes	No	No	No	Yes	Yes	No	0
27	Nanded -I	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	No	2
28	Nanded -II	Yes	Yes	No	Yes	No	No	No	No	Yes	No	No	6
29	Nandurbar	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	1
30	Nashik-I	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	1
31	Nashik-II	Yes	Yes	No	Yes	No	No	No	No	Yes	Yes	No	8
32	Osmanabad	No	Yes	No	No	Yes	No	Yes	No	Yes	Yes	No	2
33	Palghar	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	3
34	Parbhani	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	7
35	Pune-I	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10
36	Pune-II	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	No	1
37	Raigadh	No	No	No	No	Yes	No	No	No	Yes	Yes	Yes	9
38	Ratnagiri	Yes	No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	8
39	Sangali -I	No	No	No	Yes	No	Yes	No	No	Yes	Yes	No	6
40	Sangali-II	Yes	No	No	No	No	No	No	No	Yes	Yes	No	0
41	Satara-I	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	1
42	Satara-II	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	1
43	Sindhudurg	Yes	Yes	No	No	No	Yes	No	No	Yes	Yes	Yes	2
44	Solapur -I	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	No	13
45	Solapur-II	No	Yes	No	No	No	No	No	No	Yes	Yes	No	2
46	Thane	No	No	No	No	No	No	No	No	Yes	No	No	2
47	Wardha	Yes	No	No	No	No	No	No	No	Yes	Yes	No	4
48	Washim	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	No	2
49	Yavatmal -I	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes	1
50	Yavatmal -II	No	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	2
	Total	**40**	**40**	**17**	**22**	**23**	**21**	**13**	**14**	**46**	**42**	**15**	**220**

Infrastructure with KVKs in Gujarat

In Gujarat state total 30 KVKs are functioning. Out of 30 KVKs, 27 KVKs have their administrative building. 24 KVKs completed their farmers hostel, 18 KVKs have staff quarters, 6 KVKs have soil and water testing lab for conducting research, 9 KVKs have their rain water harvesting system for saving water. 173 Demonstration units are functioning in Gujarat State.

1.5 Details of infrastructure facilities available with KVKs in Gujarat

	State	Administrative Building	Farmers Hostel	Staff Quarters	Soil & Water testing lab	Fencing	Rain Water harvesting system	Threshing floor	Farm go dawn	Tractor	jeep	Two wheeler	Demonstration Units
1	Ahmedabad	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes	2
2	Amreli	Yes	Yes	Yes	No	No	No	Yes	No	Yes	Yes	Yes	3
3	Anand	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	4
4	Banaskantha-I	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	Yes	2
5	Banaskantha-II	No	No	No	No	No	No	No	No	No	Yes	No	0
6	Bharuch	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	1
7	Bhavnagar	Yes	Yes	Yes	No	No	No	Yes	No	Yes	Yes	No	1
8	Dahod	Yes	Yes	No	No	No	Yes	Yes	No	No	Yes	Yes	21
9	Dang	Yes	Yes	No	No	No	No	Yes	Yes	No	Yes	Yes	16
10	Gandhinagar	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	3
11	jamnagar	Yes	Yes	No	Yes	No	Yes	No	No	Yes	Yes	Yes	2
12	junagadh	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	13
13	Kheda	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	3
14	Kutch-I	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	No	2
15	Kutch-II	No	No	No	No	No	Yes	No	No	Yes	Yes	No	5
16	Mehsana	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	No	Yes	14
17	Morbi	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	No	2
18	Narmada	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	7
19	Navasari	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	10
20	Panchmahal	Yes	No	No	No	No	No	No	No	Yes	Yes	Yes	6
21	Patan	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	3
22	Porbandar	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	12
23	Rajkot-I	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	8
24	Rajkot-II	No	No	No	No	No	No	No	No	Yes	Yes	No	3
25	Sabarkanta	Yes	Yes	Yes	No	No	No	No	No	Yes	Yes	Yes	5
26	Surat	Yes	No	No	No	No	No	No	No	Yes	Yes	No	2
27	Surendranagar	Yes	No	No	No	Yes	No	No	No	No	Yes	Yes	2
28	Tapi	Yes	Yes	Yes	No	No	No	No	No	Yes	Yes	Yes	12
29	Vadodara	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	8
30	Valsad	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	1
	Total	**27**	**24**	**18**	**6**	**11**	**9**	**17**	**15**	**22**	**28**	**23**	**173**

Infrastructure with KVKs in Goa

In Goa 02 KVKs have completed administrative building along with farmer hostel, 01 KVK have rain water harvesting System, KVKs have 01 tractor, 01 jeep & 01 two wheeler. Total 15 demonstration units are working properly in Goa state.

Table 1.6 Details of infrastructure facilities available with KVKs in Goa

	State	Administrative Building	Farmers Hostel	Staff Quarters	Soil & Water testing lab	Fencing	Rain Water harvesting system	Threshing floor	Farm go dawn	Tractor	jeep	Two wheeler	Demonstration Units
1	North Goa	Yes	Yes	No	No	No	Yes	No	No	Yes	No	Yes	9
2	South Goa	Yes	No	No	No	Yes	No	Yes	No	No	Yes	No	6
Total		**2**	**1**	**0**	**0**	**1**	**1**	**1**	**0**	**1**	**1**	**1**	**15**

Revolving Fund

The revolving funds were used to generate (create) revenue and resources from the available land of the KVK farm. KVKs produce high-quality seeds and planting materials for a variety of crops and enterprises, including rice, oilseeds, pulses, fruits, vegetables, spices, plantation crops, bio-fertilizers, bio-agents, bio-pesticides, piglets, fingerlings and chicks etc. It is supplied to farmers and the concerned line departments for further distribution to farmers during the year.

Total amount generated through revolving fund by 82 KVKs in Zone-VIII is Rs.3548.57 lakhs of which Rs. 2661.19 lakhs is generated by 50 KVKs in Maharashtra, in Gujarat 30 KVKs generated Rs. 864.49 lakhs, Rs. 22.88 lakhs by 2 KVKs in Goa. KVK wise status is given in Table 2.5.

Table 1.7 State wise Revolving Fund details of KVKs (Rs. in Lakhs)

Sr. No	State	Net balance in hand as on 1st April of 2023
1	Maharashtra	2661.19
2	Gujarat	864.49
3	Goa	22.88
	Total	**3548.57**

Table 1.8 Status of revolving fund in KVKs of Maharashtra (Rs. in lakhs)

Sr. No.	KVK	Balance on 31-03-2023	Sr. No.	KVK	Balance on 31-03-2023
1	Ahmednagar -I	48.85	26	Nagpur-II	0.00
2	Ahmednagar -II	31.89	27	Nanded -I	3.57
3	Akola	7.04	28	Nanded -II	0.89
4	Amravati-I	32.02	29	Nandurbar	12.63
5	Amravati-II	1405.30	30	Nashik-I	39.16
6	Aurangabad-I	4.60	31	Nashik-II	4.20
7	Aurangabad-II	39.99	32	Osmanabad	26.00
8	Beed-I	110.54	33	Palghar	16.81
9	Beed-II	4.82	34	Parbhani	5.01
10	Bhandara	48.81	35	Pune-I	22.92

Sr. No.	KVK	Balance on 31-03-2023	Sr. No.	KVK	Balance on 31-03-2023
11	Buldhana-I	100.57	36	Pune-II	40.10
12	Buldhana-II	45.10	37	Raigad	24.51
13	Chandrapur	27.87	38	Ratnagiri	43.53
14	Dhule	35.90	39	Sangli -I	14.08
15	Gadchiroli	64.55	40	Sangli-II	0.00
16	Gondia	19.25	41	Satara-I	1.24
17	Hingoli	5.60	42	Satara-II	8.50
18	Jalgaon-I	9.70	43	Sindhudurg	5.61
19	Jalgaon-II	13.50	44	Solapur -I	22.93
20	Jalna-I	190.30	45	Solapur-II	7.90
21	Jalna-II	0.00	46	Thane	0.00
22	Kolhapur-I	14.79	47	Wardha	18.53
23	Kolhapur-II	6.98	48	Washim	14.64
24	Latur	36.63	49	Yavatmal -I	56.50
25	Nagpur-I	20.81	50	Yavatmal -II	1.50
Total					**2716.19**

Table 1.9 Status of revolving fund in KVKs of Gujarat & Goa (Rs. in lakhs)

Sr. No.	KVK	Balance on 31-03-2023	Sr. No.	KVK	Balance on 31-03-2023
1	Ahmedabad	13.90	16	Mehsana	44.07
2	Amreli	56.25	17	Morbi	10.54
3	Anand	6.32	18	Narmada	46.56
4	Banaskantha-I	22.21	19	Navsari	9.73
5	Banaskantha-II	2.18	20	Panchmahal	11.54
6	Bharuch	48.67	21	Patan	30.10
7	Bhavnagar	46.70	22	Porbandar	59.08
8	Dahod	13.43	23	Rajkot-I	39.31
9	Dang	49.43	24	Rajkot-II	16.82
10	Gandhinagar	75.47	25	Sabarkantha	15.93
11	Jamnagar	71.12	26	Surat	14.32
12	Junagadh	27.06	27	Surendranagar	95.00
13	Kheda	64.26	28	Tapi	20.68
14	Kutch-I	7.71	29	Vadodara	33.56
15	Kutch-II	8.02	30	Valsad	11.08
Total					**971.04**
1	North Goa	0	2	South Goa	22.88
Total					**22.88**

Technology Assessment Through On Farm Trials

Chapter 2

Technology Assessment

During the year, KVK in the zone VIII assessed 672 location-specific technologies, 481 in Maharashtra by involving 5319 farmers, 180 in Gujarat by involving 1052 farmers and 11 in Goa by involving 77 farmers. Under crop 494 technology assessed with 4597 farmers, in livestock 101 technologies by involving 1001 farmers followed by 39 on enterprises by involving 430 farmers and 38 technologies on women empowerment by involving 420 farm women in state of Maharashtra and Gujarat respectively (Table- 2.1)

Table 2.1: Summary of OFTs conducted by KVKs

State	No. of Technologies	No. of Trials
Maharashtra		
Crop	336	3679
Livestock	78	837
Enterprises	31	393
Women empowerment	36	410
Total	**481**	**5319**
Gujarat		
Crop	149	851
Livestock	21	154
Enterprises	8	37
Women empowerment	2	10
Total	**180**	**1052**
Goa		
Crop	9	67
Livestock	2	10
Total	**11**	**77**
Grand Total	**672**	**6448**

Technology Assessment under Crops

Technologies related to crops were evaluated primarily in the areas of varietal evaluation (137), integrated pest management (88), integrated nutrient management (77), integrated crop management (67) and other related areas. Paddy, chickpea, pigeon pea, soybean, groundnut, mango, chilli, onion, tomato, cumin, and ginger were the key crops for which crop innovations were evaluated. 15 various thematic areas were identified for assessment of technologies which are presented in the following table (Table 2.2)

Table 2.2 Thematic area wise technology assessment under crops

Sr. No.	Thematic Areas	No. of Technologies	No. of Trials
1	Cropping Systems	16	155
2	Farm Machinery	29	325
3	Integrated Farming System	2	13
4	Integrated Crop Management	67	642
5	Integrated Disease Management	38	347
6	Integrated Nutrient Management	77	754
7	Integrated Pest and Disease Management	5	31
8	Integrated Pest Management	88	770
9	Seed / Planting Material production	3	25
10	Processing and Value Addition	3	27
11	Resource Conservation Technology	9	57
12	Storage Technique	4	35
13	Varietal Evaluation	137	1220
14	Weed Management	13	144
15	Women and Child care	3	52
	Total	**494**	**4597**

KVKs from Maharashtra, Gujarat and Goa organized on-farm trials in 15 significant thematic areas in Zone VIII. Over all 4597 farmers participated in the testing of 494 different technologies (Table 2.2) out of which 3679 farmers actively participated in the evaluation of 336 technologies in Maharashtra, followed by 149 technologies by involving 851 farmers and 67 farmers participated in the testing of 9 technologies in Goa (Table 2.3)

Table 2.3 Thematic area and State wise number of technologies assessed on Crop

Sr. No	Thematic Area	Maharashtra		Gujarat		Goa	
		Techno. (No.)	Trials (No.)	Techno. (No.)	Trials (No.)	Techno. (No.)	Trials (No.)
1	Cropping Systems	10	106	2	7	4	42
2	Farm Machinery	28	315	1	10	0	0
3	Integrated Farming System	1	10	1	3	0	0
4	Integrated Crop Management	47	546	20	96	0	0
5	Integrated Disease Management	29	304	9	43	0	0
6	Integrated Nutrient Management	50	536	27	218	0	0
7	Integrated Pest and Disease Management	2	19	3	12	0	0
8	Integrated Pest Management	64	654	24	116	0	0
9	Seed / Planting Material production	3	25	0	0	0	0
10	Processing and Value Addition	2	26	1	1	0	0
11	Resource Conservation	5	43	4	14	0	0
12	Storage Technique	1	20	3	15	0	0
13	Varietal Evaluation	79	884	53	311	5	25
14	Weed Management	12	139	1	5	0	0
15	Women and Child care	3	52	0	0	0	0
	Total	**336**	**3679**	**149**	**851**	**9**	**67**

Assessment of Livestock Technologies

In Zone VIII, KVKs assessed 101 technologies on 4 thematic areas related to livestock and fishery components including disease management (17); evaluation of breeds (16); nutrition management (45) and production & management (23) through 1001 on farm trials in Maharashtra, Gujarat and Goa State (Table 2.4).

Table 2.4 Thematic area wise technology assessment under livestock and fishery

Sr. No	Thematic Areas	No. of Technologies	No. of Trials
1	Disease Management	17	167
2	Evaluation of Breeds	16	171
3	Nutrition Management	45	442
4	Production and Management	23	221
	Total	**101**	**1001**

From Table 2.4, it could be observed that 101 technologies in livestock, poultry and fishery sectors were assessed 78 technologies by involving 837 farmers in Maharashtra followed by 21 technologies involving 154 farmers in Gujarat and two technologies by involving 10 farmers in Goa state.

Table 2.5 Thematic area and State wise number of technologies assessed Livestock and fishery

Sr.No	Thematic Area	Maharashtra		Gujarat		Total	
		Techno. (No.)	Trials (No.)	Techno. (No.)	Trials (No.)	Techno. (No.)	Trials (No.)
1	Disease Management	13	146	4	21	0	0
2	Evaluation of Breeds	15	166	0	0	1	5
3	Nutrition Management	33	336	12	106	0	0
4	Production and Management	17	189	5	27	5	5
	Total	**78**	**837**	**21**	**154**	**2**	**10**

Assessment of Enterprises

In Zone VIII, KVKs assessed 39 technologies on 10 thematic areas related to enterprises components including crop residue management, drudgery reduction, income generation activity through 430 on farm trials in Maharashtra and Gujarat.

Table 2.6: Thematic area wise technology assessment under Enterprise

Sr. No.	Thematic Areas	Technology (No.)	Trials (No.)
1	Crop Residue Management	1	7
2	Drudgery Reduction	15	164
3	Farm Mechanization	6	86
4	Income generation activity	2	34
5	Post- harvest Technology	1	7
6	Processing & Value Addition	5	38
7	Sericulture	1	12
8	Storage techniques	2	16
9	Value addition	5	63
10	Resource conservation	1	3
	Total	**39**	**430**

A Total of 39 technologies were assessed by involving 430 farmers on enterprises, out of which 31 technologies were in Maharashtra by involving 393 farmers followed by 8 technologies by involving 37 farmers in Gujarat State (Table 2.6).

Table 2.7: Thematic area and State wise number of technologies assessed on Enterprises

Sr.No	Thematic Area	Maharashtra		Gujarat	
		Techno. (No.)	Trials (No.)	Techno. (No.)	Trials (No.)
1	Crop Residue Management	1	7	0	0
2	Drudgery Reduction	13	156	2	8
3	Farm Mechanization	5	81	1	5
4	Income generation activity	2	34	0	0
5	Post- harvest Technology	1	7	0	0
6	Processing & Value Addition	2	20	3	18
7	Sericulture	1	12	0	0
8	Storage techniques	1	13	1	3
9	Value addition	5	63	0	0
10	Resource conservation	0	0	1	3
	Total	**31**	**393**	**8**	**37**

Assessment of Women empowerment

In Zone VIII, KVKs assessed 38 technologies on five thematic areas related to woman empowerment components viz; Drudgery reduction, Nutrition security, Post-Harvest Technology, Storage techniques and Value Addition by involving 420 farm women in Maharashtra and Gujarat.

Table 2.8 Thematic area and State wise number of technologies assessed on Women empowerment

Sr.No	Thematic Area	Maharashtra		Gujarat		Total	
		Techno. (No.)	Trials (No.)	Techno. (No.)	Trials (No.)	Techno. (No.)	Trials (No.)
1	Drudgery reduction	15	177	0	0	15	177
2	Nutrition security	12	149	0	0	12	149
3	Post-Harvest Technology	2	10	0	0	2	10
4	Storage techniques	2	21	0	0	2	21
5	Value Addition	5	53	2	10	7	63
	Total	**36**	**410**	**2**	**10**	**38**	**420**

1. Results of Selected On Farm Trials: Maharashtra

I. Livestock & fishery assessment

1. Assessment of cost effectiveness calf starter feed feeding in crossbred calves: KVK Valsad

The health and performance of claves is the main focus area in the calf rearing program at any dairy herd to maintain future stock. Applying a suitable and effective feeding strategy can reduce the cost of calf rearing of crossbred calves. High cost of calf rearing have been identified as the problem by dairy farmers in the Valsad district. To address this issue KVK Valsad conducted 10 on farm trials in the district. The results of the trial revealed that T_3 i.e., feed feeding starts from the second week to 12 weeks of calf age had 65 percent reduction in the cost of calf rearing with Rs. 15344/- profit and 4.69 B: C ratio.

Technology Assessed		Trial	Cost of calf rearing (Rs./calf)	Reduction in Cost of calf rearing (%)	Net Return (Rs./calf)	B:C Ratio
T_1	Farmers practices – Milk feed to calf 2 liters per day from 1 day to 24 week of calf age	10	11880	--	9120	1.77
T_2	Milk feed to calf above 10 % of body weight for 1 day to 12 week of calf age		8910	25	11390	2.32
T_3	Calf starter feed feeding start from second week to 12 week of calf age		4156	65	15344	4.69

2. Rearing of Berari goats for meat purpose: KVK Akola

Berari goat has recently recognized at a national level as the 23rd goat breed of India. Berari is reared mainly for meat purposes in the Vidarbha region of Maharashtra. Low birth weight in kids, high mortality and late maturity were identified as the problem in goatary of the district. To solve this problem, KVK Akola carried out 13 trials in the district. The mortality rate percent, maturity period and average birth weight were recorded. The initial average birth weight (kg) and average mortality (%) rate of Berari goats were 30.42 Kg and 12.61 percent respectively. In this trial, the highest average birth weight was 30.42 Kg for Berari goat followed by 30.11 Kg in the Osmanabadi goat and the 22.38 Kg in local breed.

Technology Assessed		Trial	Average birth weight (Kg)	Mortality rate (%)	Maturity (Month)	Net Return (Rs./ha)	B:C Ratio
T_1	Farmer's practice Local	13	22.38	30.70	2087	2087	1.21
T_2	Berari Goat		30.42	12.61	9722	9722	2.25
T_3	Osmanabadi Goat		30.11	12.81	5786	5786	1.64

II. Varietal evaluation

3. Assessment of late sown new release var. GW 499 of wheat: KVK Mehsana

Wheat is a major rabi crop grown by the farmers of Gujarat. Use of old varieties by the farmers due to the non-availability of quality seeds of improved varieties results in low productivity of wheat. Keeping this in view KVK Mehsana conducted 5 trials to assess the performance of the improved varieties of wheat. The results reveal that the yield of improved varieties under treatment T_3 is higher over the farmer's practices. The results of the assessment revealed that the varieties GW-173 (T_2) and GW-499 (T_3) gave 2.82 percent and 12.47 percent higher yields over traditional varieties GW-496 in T_1. The incremental net return was Rs. 104375/- and 118160/- per ha respectively along with 3.77 and 4.14 B: C ratio. The assessed trials suggest that cultivation of high-yielding improved varieties of wheat with the proper package of practices will prove more promising and economically viable for the farmers.

Technology Assessed		Trial	Test weight (gm)	Yield (q/ha)	Net Return (Rs./calf)	B:C Ratio
T_1	Farmer's practice: GW-496	5	41.20	42.50	100360	3.65
T_2	Recommendation -GW-173		41.80	43.70	104375	3.77
T_3	Recommendation-GW-499		46.70	47.80	118160	4.14

4. Assessment of newly released hybrid rice variety GRH-2: KVK- Navsari

Kharif season is the main rice growing season in the Gujarat State. KVK Navsari conducted trial on assessment of newly released hybrid rice variety GRH-2. The trial was conducted in 6 different locations of the district taking US312/6444 variety of rice as control (Farmer's practice) and the varieties like GR-17/NAUR-1 (T_2) and Hybrid rice GRH-2 (T_3) for assessment. The results of the trial showed that GRH-2 (T_3) gave 7.39 percent increase in yield over the Farmers' variety US-312/6444 with highest B: C ratio of 2.25.

Technology Assessed		Trial	Panicle length (cm)	Yield (q/ha)	Net Return (Rs./calf)	B:C Ratio
T_1	Farmer's Practice: US-312/6444	6	25.1	46.84	50367	2.01
T_2	GR 17/NAUR-1		25.6	43.17	43689	1.92
T_3	Hybrid rice GRH-2		26.8	50.30	59912	2.25

5. Assessment of Cassava varieties in Kutch: KVK Kutch-II

To address the problem of low productivity of cassava in Kutch district, new varieties were assessed for its production potential in various agro-ecological situations in Kutch district of Gujarat. An OFT of new varieties of Cassava namely, Sree Raksha, Sree Suvrna and local variety (Farmer's Practice) were conducted by KVK Kutch at three different locations during 2022. The results revealed that the variety Sree Raksha recorded the highest yield (380 q/ha) followed by Sree Suvarna (310 q/ha) compared to check; i.e., local variety (250 q/ha). The varieties namely Sree Raksha and Sree Suvarna gave net return of Rs. 220700 per ha and 164700 per ha which were higher than farmers practice.

Technology Assessed		Trial	Yield (q/ha)	Net Return (Rs./calf)	B:C Ratio
T_1	Farmer's practice: Local variety	3	250	129200	2.82
T_2	Sree Raksha		380	220700	3.65
T_3	Sree Suvrna		310	164700	2.98

6. Assessment of soybean varieties cv AMS100-39 (PDKV Amba) and cv AMS-MB-5-18 (Suvarna Soya): KVK- Buldhana-I

A problem of low yield of soybean due to cultivation of old variety has been identified by the KVK Buldhana-I. To address the problem a field trial was conducted at 7 different locations of the district involving the FP (JS 335), T_2- (AMS100-39) and T_3 (AMS-MB5-18). The technologies tested through the trial showed that medium duration soybean var. Suvarn Soya gave 26.70 percent higher yield than farmers var. JS-335 and was seen to be suitable for rain-fed medium land with duration of 80-85 days. Suvarn Soya variety is also resistant to armyworm and rust. Farmers preferred this variety due to its duration (medium) and high yield which is suitable for medium land.

Technology Assessed		Trial	Average birth weight (Kg)	Mortality rate (%)	Maturity (Month)	Net Return (Rs./ha)	B:C Ratio
T_1	Farmer's practice: (Var. JS335)	7	47.2	31	19.59	59925	2.55
T_2	AMS100-39 (PDKV Amba)		59.4	34	21.47	68576	2.77
T_3	AMS-MB5-18 (Suvarn Soya)		59.80	54	22.09	71522	2.84

7. Assessment of high yielding Pigeon Pea Varieties: KVK Beed-I

KVK Beed-I assessed two varieties of pigeon pea viz. BDN-716 and BDN-2013-41 along with farmers practice. Results revealed that BDN-2013-41 variety recorded maximum yield of 21.63 q/ha with highest BCR of 4.27 followed by BDN-716 with yield of 17.75 q/ha as compared to 15 q/ha yield of BDN-711.

Technology Assessed		Trial	Days to 50% flowering	Days to maturity	No. of pods /plant	Seed weight in gm	Yield (q/ha)	Net return (Rs./ha)	B: C Ratio
T_1	Farmer's Practices var. BDN-711	13	80	155	390-400	11.50	15	120000	2.96
T_2	Variety BDN-716		105	172	516-520	13.30	17.75	142000	3.50
T_3	BDN-2013-41		95	175	598-600	12.70	21.63	173000	4.27

III. Integrated Nutrient Management

8. Assessment of fertigation schedule in Ginger: KVK Satara-I

OFT on assessment of fertigation schedule of organic nutrient management on ginger was conducted at 6 farmer's field of Satara. On farm trial consisted treatments of recommended doses of fertilizer with 25 ton organic manure. The result revealed that significantly higher yield (15.33 percent) of 10.08 q/ha was observed in application of 25-ton organic manure and 100 % RDF. The yield was 15.33 percent higher than farmers practice. B:C ratio of 6.73 was recorded in T3 against 5.97 of farmers practice.

Technology Assessed		Trial	Yield (q/ha)	Net Return (Rs./ha)	B: C Ratio
T_1	Farmer's practice RDF 120.75.75	6	8.74	143202	5.97
T_2	75 % RDF 90.57.57 with 25 ton OM		9.02	153921	6.28
T_3	RDF 120.75.75 with 25 ton organic manure		10.08	177277	6.73

9. Nutrient Management in castor (Ricinus communis L.) to increase production: KVK Panchmahal

The Gujarat state ranks first in India for area, production and productivity of castor. It is grown in an area of about 3.5 lakh hectares with an annual production of about 6.8 lakh tonnes of castor seeds. Judicious use of fertilizers is a very important and critical factor for the sustainable yield and eco-

friendly environment. In general, farmers are applying high dose of nitrogenous fertilizers which not only increases the cost of cultivation but also increases the attack of insect pests and diseases to solve this problem KVK Panchmahal conducted 12 trial on farmer field and result revealed that significantly higher yield (44.17 per cent) of 29.70 q/ha and increase 162.70 average number of bolls per plant was observed in T_3 with Rs. 34120/- net income and 3.4 BC ratio also 28.64 per cent of 26.50 q/ha and 144.40 average number of bolls per plant in T_2 with Rs.30130/- net income and 3.1 BC ratio as compared to farmers practices.

Technology Assessed		Trial	Yield (q/ ha)	Avg. No. of bolls/plant	Net Return (Rs./calf)	B:C Ratio
T_1	Farmers Practices – Application of imbalance manure and fertilizers	12	20.60	92.60	21450	2.5
T_2	75 kg N/ha and 50 kg/ha P2O5 as basal dose in soils		26.50	144.40	30130	3.1
T_3	75 kg N/ha (50 % as basal and 50 % at 45 DAS) and 50 kg P2O5/ha as basal in soils		29.70	162.70	34120	3.4

IV. Integrated Pest Management

10. Management of Fall army worm in Maize: KVK Nashik-II

Fall armyworm (FAW) has emerged as a major pest of maize in Nashik district of Maharashtra State in Kharif season. Therefore, its management requires interventions at regular interval. As such, OFT comprising of three treatments to control FAW infestation from early crop stage were planned and executed during Kharif 2022. The treatments are as follows- T_1- Spraying pesticide of Profenophos 50 EC, Trizophos 40 EC (Farmer Practice) T_2- Two spray of spinotorum 11.7 % SC @ 5 ml /10 lit water or chlorantraniliprole 18.5 SC 4ml / 10 lit and T_3- Emamectin Benzoate 5 % SG 0.4 gram/lit water or Thiamethoxam 12.6 % + Lambada Cyhalothrin 9.5 % ZC 0.25ml/lit. The results revealed that treatment T3 is most effective followed by T_2 treatment. The

populations of fall armyworm were 3.78, 4.25 and 6.02 02 larvae per plant respectively for T_3, T_2 and T_1. The maize yields obtained from plots of T_1, T_2, T_3 treatments were 63.00, 66.00, and 69.00 q/ha, respectively.

Technology Assessed		Trial	Average birth weight (Kg)	Mortality rate (%)	Maturity (Month)	Net Return (Rs./ha)	B:C Ratio
T_1	Farmers practice: Spraying pesticide of Profenophos 50 EC, Trizophos 40 EC	10	18.02	6.02	63	70544	2.66
T_2	Two spray of spinotorum 11.7 % SC @ 5 ml /10 lit water OR chlorantraniliprole 18.5 SC 4ml / 10 li		10.06	4.25	66	78502	2.94
T_3	Two spray of Emamectin Benzoate 5 % SG 0.4 gram/lit water OR Thiamethoxam 12.6 % + Lambada Cyhalothrin 9.5 % ZC 0.25ml/l		8.40	3.78	69	86828	3.32

11. Management of white grub in groundnut crop: KVK Morbi

White grub is an important pest of ground nut inflicting serious damage to groundnut cultivation in rainy season. Young grubs feed on fine rootlets while mature grubs feed on both roots and pods resulting in yield loss. So, KVK Morbi conducted an OFT on "Management of white grub in ground nut crop" at three different locations in Morbi district. The results of the trials shows that T_3 treatment gave highest yield of 20.20 q/ha with Rs 65900/ha net returns.

Technology Assessed		Trial	Dry Plants %	Yield (q/ ha)	Net Return (Rs./calf)	B:C Ratio
T_1	Farmers practice: Sowing of groundnut without Seed treatment. Farmers adopt drenching of Chlorphyriphos or quinalphos @ 6 lit/ha with irrigation at initiation of pest incidence	3	11.0	15.20	33340	1.53
T_2	Seed treatment with imidacloprid 600 F.S. 4 ml/kg seed		2.9	18.70	54860	1.85
T_3	Soil application of *metarhizium anisoplii* @ 5 kg/ha with 300 kg/ha castor cake at the time of sowing		2.0	20.20	65900	1.98

12. Assessment of Newly Release Variety of Tomato GT-6: KVK Rajkot I

The yield in tomato crop is low due to heavy infestation of leaf curl virus. KVK conducted on farm trial on response of new release variety of Tomato GT-6 to leaf curl occurrence and yield. The refined technology of Sowing of GT-6 Variety and foliar sprayings of Acephate 75 WP @ 1.5 g / liter 10 days after transplanting, Fipronil 5 SC @ 1.5 ml / liter 20 DAT, and Imidacloprid 70 WG @ 2g / 15 liter 40 DAT reduced the disease incidence. Interventions has given higher production as compare to farmer's practices and recommended practices.

Technology Assessed		Trial	% plant infestation	Yield (q/ha)	Net Return (Rs./calf)	B:C Ratio
T_1	Farmer's practice: Local Variety + any Pesticides	3	9 -10	150	70700	2.41
T_2	Recommended Variety GT-6 + any Pesticides		3 - 4	210	103250	3.07
T_3	Recommended Variety GT-6 and foliar spraying of Acephate 75 WP @ 1.5 g / liter 10 days after transplanting, Fipronil 5 SC @ 1.5 ml / liter 20 DAT, and Imidacloprid 70 WG @ 2g / 15 liter 40 DAT		1 - 2	290	109250	3.11

13. Control of brown plant hopper of Rice: KVK Kolhapur-I

The brown plant hopper is a sucking insect that, under heavy infestations, can cause the wilting and complete drying of rice plants. To solve this problem, the KVK conducted on farm trial at farmer's fields. The recommended technology of paddy treatment with Buprofezin 25 SL@ 10 ml in 10 lit water and spraying Imidachloprid 17.8 SL @ 2 ml in 10 lit water reduced the pest incidence. Result showed that by using T_3 yield was increased by 19.37 percent (47.75 q/ha) as against 40.00 q/ha in farmer's practice. The Buprofezin (T_3) is best suited followed by Imidachloprid (T_2) for managing pest brown plant hopper in paddy crop.

Technology Assessed		Trial	% damage	Yield (q/ha)	Net Return (Rs./calf)	B:C Ratio
T_1	Farmer's practices: Quinalphos 25 EC @ 20 ml in 10 lit water	10	13.80	40.00	18750	1.32
T_2	Imidachloprid 17.8 SL @ 2 ml in 10 lit water		3.80	45.75	33250	1.57
T_3	Buprofezin 25 SL@ 10 ml in 10 lit water		2.80	47.75	36750	1.61

14. Canopy management for proper boll development of Cotton: KVK Jalna-I

Cotton is the main cash crop of district. 60 percent area is under rainfed. Farmers are taking private Bt cotton Varieties in rainfed situation which results in low yield due to vegetative growth. KVK Jalna has designed and implement the trial on spray of Growth regulator for canopy management and increasing yield. Trials were conducted on 7 farmers' fields. The results show that yield increased by 19.54 percent in T_3 and 15.84 percent in T_2 over local check.

Technology Assessed		Trial	Avg. No. of bolls / plant	Yield (q/ha)	Net Return (Rs./calf)	B:C Ratio
T_1	Farmer's practice: Natural vegetative growth	7	42.24	24.30	187140	4.66
T_2	Spray of Chlormequat chloride @ 200 ml /ha at 75 DAS		46.51	28.15	223870	5.30
T_3	2 Spray of Mepiquet chloride @ 600 ml/ ha at 55 DAS and at 75-80 DAS		49.32	29.05	232190	5.42

V. Resource conservation

15. Effect of plastic mulch on yield of watermelon: KVK Amreli

The use of plastic mulching and drip irrigation facilitates efficient weed & water management and efficient water fertilizer application. Plastic mulches reduce weed population and maintain requisite soil temperature. Drip irrigation is a method of precise application of irrigation method; not only it aids in lowering weed population but also provides an environment best suitable for crop growth. Drip

irrigation also aids in the efficient application of fertilizers. Trial was conducted by KVK Amreli on assessment of plastic mulching and drip irrigation in watermelon. In watermelon crop, the incremental increase in yield, net return and B:C ratio observed due to use of Silver Black Plastic Mulch (20 micron) under drip irrigation system. Result showed that by using plastic mulching yield was increased by 59.17 percent (369.9 q/ha) as against 232.2 q/ha in farmer's practice. Treatment T_2 was found better than T_1 and T_3. Plastic mulch treatment was found beneficial for insect reduction and fruit disease reduction.

Technology Assessed		Trial	Per fruit weight (kg)	Yield (q/ha)	Net Return (Rs./calf)	B:C Ratio
T_1	Farmer's practice: No mulch	3	3.47	232.2	40742	1.65
T_2	Silver Black Plastic Mulch (20 micron) under drip irrigation system		5.24	369.6	124890	2.81
T_3	Wheat straw mulch		4.32	288.8	52728	1.98

16. To assess the sowing of chickpea on BBF: KVK Nanded-I

KVK Nanded I conducted 5 trials to assess the sowing of chickpea on BBF in three row with two protective irrigations for increasing productivity. Result shows that the average plant height, number of branches, number of pod per plant, root nodulation were higher in BBF sowing method as compare to flat sowing. Plant height, Branches per plant & pods per plant influence significantly due to above adopted planting method. As a result, highest plant height (at par with 54.9 cm and 54.8 cm) was observed in BBF and ridge and furrow planting method. This was significantly higher over that in flat bed (47.6 cm). However, branches per plant and pod per plant was highest in 38and 120respectively BBF method. This sowing method saved 50 percent seed. This method is suitable in low land area. This sowing method gives good yield as well as economically feasible compare other methods of sowing of chick pea. The BBF sowing method significantly increases yield as well as yield attributing traits of the crops and also net return of farmers.

Technology Assessed		Trial	Plant height (cm)	Avg. No. of pods / Plant	Avg. No. of branches	Avg. No. of root nodules	Yield (q/ha)	Net Return (Rs./ha)	B:C Ratio
T_1	Farmer's practice: normal sowing (Flat bed)	5	47.6	86	30	37	18.40	57020	2.40
T_2	Sowing of chickpea on ridge & furrow		54.8	118	35	42	25.75	96975	3.45
T_3	Sowing of chickpea on BBF in three row		54.9	120	38	45	26.10	99330	3.54

VI. Integrated crop Management

17. Effect of Protecting agents and micro nutrient on sun scalding and cracking in pomegranate: KVK Banaskanta II

Pomegranate (*Punica granatum L.)* is an economically important fruit crop of tropical and subtropical regions of the world. One of the major factors limiting yield in pomegranate production is fruit splitting/cracking, losses due to fruit cracking could be as high as 40-60 percent in a given production year. Appearance of splits/cracks on fruit skin greatly reduce the yield and quality of produce. KVK Banaskanta II Conducted trial on Effect of Protecting agents and micronutrient on sun scalding and cracking in pomegranate. The results of the trials indicated that

Micro mix 0.2% + Kaolin clay 4% resulted in the highest yield (113.03 q/ha) with a higher B:C ratio (4.0) than the other treatments.

Technology Assessed		Trial	Yield (q/ha)	Net Return (Rs./calf)	B:C Ratio
T_1	Farmer's practice	5	98.62	222408	3:5
T_2	Kaolin clay spray 4 %		100.64	255445	3:7
T_3	Micro mix 0.2% + Kaolin clay 4%		113.03	283007	4:0

18. To assess the grafting technology in Brinjal to control soil born disease, improve yield and quality of fruits: KVK Pune-I

Brinjal (*Solanum Melongena*) family – Solanaceae, is one of the important vegetable crops commercially grown in Maharashtra also in Pune district. Total 10 trials were carried out. This OFT was conducted to examine the effect of grafted seedlings of open field Brinjal (Solanum Melongena) for controlling the soil borne disease problem and improving yield and quality of Brinjal. Brinjal cultivars, Vishal were grafted on Solanum Torvum (ST) rootstocks that are known to be tolerant to soil borne diseases (Phytophtora blight.).

In the second treatment Brinjal Cultivar Vishal grafted on wild rootstock (Local- Hampi) & non-grafted Brinjal was used as controls.

It was observed that the yield of brinjal was increased

by 31 percent as compared to farmers practice with the good quality fruit production. The average yield obtained in trial plot was 475 q/ha as compared to 362 q/ha from farmers practice. The net returns Rs.217000/- per ha and B:C ratio of 2 were highest in T_3 plots as compared to local check net returns of Rs.81000/- per ha and B: C ratio of 1.

Technology Assessed		Trial	Yield (q/ha)	Soil borne diseases (%)	Crop Duration increase (Days)	Net Return (Rs./ha)	B:C Ratio
T_1	Farmer's practice: Improved Brinjal Variety-Vishal on raised bed without grafted seedlings	10	362	14	0	81000	1

Technology Assessed		Trial	Yield (q/ha)	Soil borne diseases (%)	Crop Duration increase (Days)	Net Return (Rs./ha)	B:C Ratio
T_2	Improved variety of Brinjal- Vishal & Rootstock-ST (Solanum Torvum) on raised bed with grafted seedlings		475	1.0	55	217000	2
T_3	Improved variety of Brinjal- Vishal & wild Rootstock- Hampi		412	7.5	30	97000	1

VII. Farm Machinery

19. Assessment of Finger Millet Thresher-Cum-Pearler for threshing of finger millet: KVK Palghar

KVK Palghar conducted trial on Finger Millet Thresher-Cum-Pearler for threshing of finger millet. The results show that T_2-Performs all respective operations in a single pass while and T_3 -Vivek millet Thresher Cum Pearler performs all respective operations in a double pass. Each thresher was feasible for threshing of finger millet as compared to manual threshing in terms of high output and threshing efficiency, less grain damage and less drudgery. Millet thresher needs no threshing yard and can be taken to the harvested field. For mechanical threshing there by minimizes the cost of preparation of threshing yard and labour required for transportation in addition to

the saving of time. Finger Millet Thresher-Cum-Pearler is heavy in weight and required more labour for transportation while Vivek millet thresher cum Pearler can be transported from one field to another the field by two persons.

Technology Assessed		Trial	Threshing capacity (Kg/hr)	Threshing efficiency (%)	Pearling efficiency (%)	Cost of operation (Rs./ Kg)	Labour requirement (Hrs/q)
T_1	Farmer's practice: Manual threshing	3	9.4	98.20	94.8	9.69	10.48
T_2	Finger millet Thresher-Cum-Pearler		35.8	96.56	98.56	1.80	1.20
T_3	Vivek millet Thresher Cum Pearler		35.4	82.80	95.60	2.36	2.82

Frontline Demonstrations

Chapter 3

Frontline extension is dealt by the KVKs where proven technologies are demonstrated at farmers' fields under close supervision of the scientists /experts. It shows the production potential of improved technologies to the farmers. KVKs played important role to showcase and promote the latest varieties and other technologies related to cereals, pulses, oilseeds, fruits, vegetables, etc. to enhance the production and productivity of the crops and profitability of the farmers.

In total, 19652 frontline demonstrations were conducted on different commodities and enterprises in the Zone covering an area of 2901.66 ha in the states of Maharashtra, Gujarat and Goa (Table 3.1). These included cereals and millets (1839), pulses (1687), oilseeds (871), commercial crops (450), fodder crops (397), fruit crops (1469), vegetable crops (1309), tuber crops (100), flower crops (25), plantation crops (35), spice crops (655) and hybrids of various crops (911). KVKs also conducted demonstrations on farm implements (1622), livestock and fisheries (2958), enterprises (3520) and Women and Children (1804).

Table 3.1 Frontline demonstrations at a glance in the zone

Crop category	Maharashtra		Gujarat		Goa		Total	
	Demos (No.)	Area (ha)	Demos (No.)	Area (ha)	Demos (No.)	Area (ha)	Demos (No.)	Area (ha)
Pulses	761	298	926	339.4			1687	637.4
Oilseeds	474	186.6	397	145			871	331.6
Cereals and Millets	878	277.96	943	298	18	1	1839	575.96
Commercial Crops	272	108	168	51	10	0.1	450	159
Flower Crops	20	4	5	2			25	6
Fodder Crops	170	21.33	227	33.5			397	54.83
Fruit Crops	473	153.9	976	182.05	20	2.5	1469	335.95
Plantation Crops	15	11	20	5			35	16
Spice Crops	306	54.44	339	108.23	10	1	655	162.67
Tuber Crops	10	0.1	90	16.19			100	16.29
Vegetable Crops	669	173	595	145	45	2.83	1309	318
Hybrid Crops	656	220.46	255	67.5			911	287.96

Crop category	Maharashtra		Gujarat		Goa		Total	
	Demos (No.)	Area (ha)	Demos (No.)	Area (ha)	Demos (No.)	Area (ha)	Demos (No.)	Area (ha)
Farm Implements	1086		536				1622	
Enterprises	2275		1235		10		3520	
Livestock & Fisheries	1159	16121 (No.)	1799	2502 (No.)			2958	
Women & Children	978		826				1804	
Total	**10202**	**1502.59**	**9337**	**1392.87**	**113**	**7.43**	**19652**	**2901.66**

Maharashtra

FLDs on Pulses and Oilseeds

Technology demonstrations on pulses were organized on an area of 298 ha involving 761 farmers and on oilseeds covering an area of 186.60 ha involving 474 farmers. The crop and thematic area wise information is exhibited in tables.

FLDs on Pulses

In total 38 demonstrations were laid out on black gram, 361 on chickpea, 10 on cow pea, 10 on Dolichous bean, 20 on green gram, 20 on horse gram and 302 on pigeon pea covering an area of 298 ha at farmers' fields (Table 3.2). Black gram provided 9.22 q/ha of average yield over local check 7.79 q/ha on 15.20 ha area on 38 farmer's field. In chick pea, on an average 18.23 q/ha yield was obtained with adoption of full package of practices which was 21.80% higher over local check (14.97 q/ha). Among the given below technologies, Integrated Pest Management gave highest yield of 22.27 q/ha under demonstrations. In Cow Pea, Integrated Crop Management component gave yield of 12.60 q/ha which found superior over local check (9.23 q/ha). Dolichous bean was taken on 4 ha area with 11.40 q/ha yield which was 37.35 % higher as compared to local check that provided yield of 8.30 q/ha. In green gram, technology such as varietal component gave yield of 12 q/ha which was 100 % more as compared to local check (6 q/ha). Under pigeon pea, mean yield of 12.63 q/ha was attained under demonstrations (check yield 10.19 q/ha with net economic gain of Rs. 55202 per ha. Among various technologies demonstrated on farmers filed, Integrated Pest Management (18.30 q/ha) provided highest yield followed by Integrate Crop Management (17.52 q/ha).

Table 3.2 Thematic area wise physical achievements of FLDs on pulses in Maharashtra

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Blackgram	IPM	1	25	10.00	8.40	7.15	17.48	33225	24350
	Varietal	1	13	5.20	10.79	9.01	19.76	21633	14290
	Sub-Total		**38**	**15.20**	**9.22**	**7.79**	**18.38**	**27429**	**19320**
Chickpea	ICM	1	30	12.00	16.20	14.60	10.96	57080	44850
	IDM	1	13	5.40	18.00	14.25	26.32	44030	17898
	INM	7	92	36.60	17.03	14.16	20.23	42720	27861
	IPDM	4	50	20.00	19.67	17.12	14.92	64119	53146
	IPM	9	130	50.00	22.27	17.76	25.41	78003	54360
	Varietal	3	46	18.50	17.87	14.05	27.16	59757	42340
	Sub-Total		**361**	**142.50**	**18.23**	**14.97**	**21.80**	**58285**	**41850**

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Cowpea	ICM	1	10	2.00	12.60	9.23	36.51	33200	9610
Dolichous Bean	INM	1	10	4.00	11.40	8.30	37.35	58000	27000
Green Gram	Varietal	1	20	8.00	12.00	6.00	100.00	54350	19640
Horsegram	ICM	1	10	1.00	8.92	6.51	37.02	25330	14270
	IPM	1	10	4.00	15.40	13.20	16.67	57700	41000
	Sub-Total		**20**	**5.00**	**14.10**	**11.86**	**18.90**	**41515**	**27635**
Pigeon pea	ICM	2	75	30.00	17.52	13.33	31.44	69305	46460
	IDM	6	121	48.60	10.60	8.79	20.62	49791	36667
	INM	1	13	5.20	14.60	13.10	11.45	75600	54750
	IPDM	3	55	22.00	11.60	9.55	21.38	63966	48784
	IPM	1	10	4.00	18.30	15.10	21.19	69290	44920
	Varietal	2	28	11.50	7.59	6.13	23.90	19890	10795
	Sub-Total		**302**	**121.30**	**12.63**	**10.19**	**23.96**	**55202**	**39187**
	Grand-Total		**761**	**298**					

Performance of Chickpea Demonstrations in Maharashtra

In Maharashtra, 361 chickpea demonstrations were organized with special focus on improved cultivars and adoption of full package of practices on 142.50 ha area with net gain of Rs. 60794 per hectare. On an average, 19.31 q/ha yield was achieved by the farmers with adoption of different improved cultivars. PDKV Kanchan cultivar performed well, which provided 21.70 q/ha yield with net profit of Rs. 59810/ ha. Under Akash (BDNG-797) cultivar, yield of 21.58 q/ha was attained with economic gain of Rs. 55188/ha (Table 3.3). In Maharashtra, chickpea yield under demonstrations was higher by 62.02% over national and 79.82% over state level average (Fig. 3.1).

Fig. 3.1 Yield Performance of Chickpea under FLDs in Maharashtra

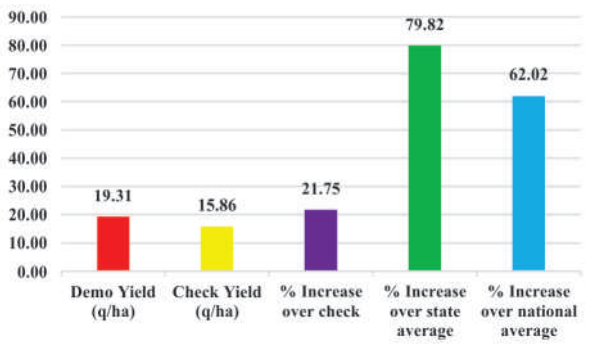


Table 3.3 Variety wise performance of chickpea in Maharashtra

Variety	District/KVK	No. of Demos	Area (ha)	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
Akash (BDNG-797)	Jalna-II, Parbhani	30	12.00	21.58	17.63	22.40	55188	39850	38.49
Digvijay	Ahmednagar-II, Aurangabad-II, Satara-II, Solapur-I, Nashik-II	63	23.20	18.34	15.74	16.47	54256	42143	28.74

Variety	District/KVK	No. of Demos	Area (ha)	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
JAKI - 9218	Beed-I, Gadchiroli, Gondia, Hingoli, Jalna-I, Latur, Nanded-I, Osmanabad	118	47.70	19.88	16.32	21.83	67923	48981	38.67
Local	Satara-I, Solapur-II, Yavatmal-II, Osmanabad	48	19.00	17.34	14.32	21.09	56141	38254	46.76
PDKV Kanchan	Nagpur-I	13	5.20	21.70	16.80	29.17	59810	39440	51.65
Phule Vikram	Ahmednagar-II, Aurangabad -I, Jalgaon-I, Nundurbar	66	26.20	19.81	16.52	19.87	70393	47686	47.62
Vijay	Dhule	13	5.20	16.40	10.20	60.78	44474	15856	180.49
Vishal	Aurangabad-II	10	4.00	18.25	15.00	21.67	45184	33161	36.25
	Total	**361**	**142.50**	**19.31**	**15.86**	**21.75**	**60794**	**42865**	**41.83**

Performance of Pigeon pea Cultivars in Maharashtra

Under technology demonstrations on pigeon pea, seven cultivars BDN-711, BDN-716, BSMR-716, Godavari, PDKV- Kanchan, PKV-TARA and Richa demonstrated on 121.30 ha area at farmers' fields. On an average, 12.63 q/ha productivity was attained under demonstrations which was higher (23.96%) over local cultivars (10.19 q/ha). Highest yield of 19.60 q/ha was achieved under BDN-711 in Aurangabad, Jalna and Nanded districts with net profit of Rs. 87810/ ha (Table 3.4). In Maharashtra, pigeon pea yield under demonstrations was higher by 38.22% over national and 21.24% at state level average (Fig. 3.2).

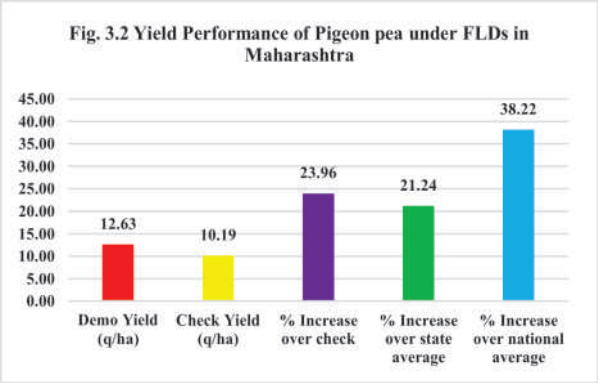


Table 3.4 Variety wise performance of pigeon pea in Maharashtra

Variety	District / KVK	No. of Demos	Area (ha)	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
BDN-711	Aurangabad-I, Jalna-II, Nanded-I	55	22.00	19.60	15.84	23.77	87810	61580	42.59
BDN-716	Akola Amaravati -I Amaravati -II Bhandara Latur	123	49.20	10.78	9.16	17.64	51738	38225	35.35

Oilseed Crops

In Maharashtra, frontline demonstrations were conducted on groundnut (23), linseed (12), mustard (20), niger (14), safflower (40) and soybean (365) covering an area of 186.60 ha at farmers' fields (Table 3.5). Under groundnut, 16.47 q/ha yield was achieved with net profit of Rs. 59450/ ha on 9 ha area. Linseed, mustard and niger productivity of 14.15 q/ha, 5.20 q/ha and 4.20 q/ha was realized by the farmers under demonstrations which was 12.30 %, 26.83% and 35.48 % more as compared to local check (12.60 q/ha, 4.10 q/ha and 3.10 q/ha) respectively. Safflower was taken on an area of 16 ha on 40 farmers field that provided yield of 8.35 q/ha which was 17.84 % more as compared to local check yield of 7.08 q/ha. In soybean, 20.88 q/ha mean yield was achieved under demonstrations which was 22% higher over local practice (17.11 q/ha) and net profit of Rs. 70940/ha was obtained by the farmers. Highest yield was observed under Integrated Pest and Disease Management Component (24.21 q/ha).

Table 3.5 Thematic area wise physical achievements of FLDs on oilseeds in Maharashtra

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Groundnut	IDM	1	13	5.00	13.80	12.20	13.11	53700	49558
	INM	1	10	4.00	19.80	17.50	13.14	65200	53000
	Sub-Total		**23**	**9.00**	**16.47**	**14.56**	**13.13**	**59450**	**51279**
Linseed	INM	1	12	4.00	14.15	12.60	12.30	87975	74708
Mustard	ICM	1	20	8.00	5.20	4.10	26.83	16040	7650
Niger	Varietal	1	14	5.00	4.20	3.10	35.48	10154	5505
Safflower	IDM	1	25	10.00	8.30	7.90	5.06	37250	34450
	Varietal	1	15	6.00	8.43	5.73	47.21	36173	22471
	Sub-Total		**40**	**16.00**	**8.35**	**7.08**	**17.84**	**36712**	**28461**
Soybean	ICM	1	30	12.00	20.20	16.30	23.93	85220	60560
	INM	4	77	30.80	22.53	18.20	23.74	77624	55432
	IPDM	2	30	12.00	24.21	20.20	19.83	84536	59910
	IPM	12	157	64.20	19.55	16.26	20.24	66364	46083
	Varietal	5	71	25.60	20.97	16.86	24.35	66944	46405
	Sub-Total		**365**	**144.60**	**20.88**	**17.11**	**22.00**	**70940**	**49703**
	Grand Total		**474**	**186.60**					

Performance of Soybean Cultivars in Maharashtra

Under soybean, average yield of 20.88 q/ha was attained with adoption of improved varieties where farmers earned a net return Rs. 70940/ ha. Highest yield was obtained under KDS-344 (Phule Agrani) cultivar in Kolhapur district followed by MAUS-71 in Nanded district (Table 3.6). In Maharashtra, soybean yield was higher by 113.90% over national and 42.99 % at state level (Fig. 3.3).

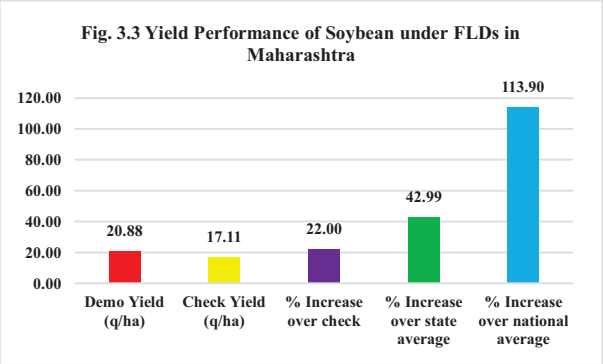


Table 3.6 Variety wise performance of soybean in Maharashtra

Variety	KVK	No. of Demos	Area (ha)	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
JS-335	Washim	10	4.00	14.20	12.10	17.36	42040	30520	37.75
JS-9305	Akola, Wardha	26	10.40	19.10	16.61	14.99	54234	43776	23.89
KDS-344 (Phule Agrani)	Kolhapur-I	5	2.20	29.60	25.20	17.46	106700	81480	30.95
KDS-726	Amaravati-II, Buldhana-I, Solapur-I, Kolhapur-II	75	30.00	22.41	17.62	27.14	89923	53013	69.62
MAUS-158	Beed-II, Latur	45	18.00	16.38	12.87	27.30	40950	25395	61.25
MAUS-162	Aurangabad -I	30	12.00	20.20	16.30	23.93	85220	60560	40.72
MAUS-612	Beed-I, Osmanabad, Parbhani	45	18.00	20.20	16.72	20.82	74959	54973	36.35
MAUS-71	Nanded-I	20	8.00	25.12	20.50	22.54	96696	64900	48.99
PDKV Amba	Yavatmal-I	13	5.20	20.18	19.17	5.27	57774	50431	14.56
Phule Kimaya	Sangli-I	10	4.00	10.07	6.75	49.19	17173	1241	1283.80
Phule Sangam	Ahmednagar-II, Buldhana-II, Nagpur-I, Nashik-II, Satara-I, Yavatmal-II	86	32.80	23.75	19.83	19.80	78860	58961	33.75
	Total	**365**	**144.60**	**20.88**	**17.11**	**22.00**	**70940**	**49703**	**42.73**

Cereals and Millets

Farmers' profit can be increased by adopting latest technologies under different crops of cereals and millets. Frontline demonstrations were conducted on bajra (65), finger millet (104), foxtail millet (15), jowar (166), little millet (13), maize (23), paddy (313), proso millet (10) and wheat (169) covering an area of 277.96 ha in farmers field (Table 3.7). In bajra, average yield obtained in demonstrations was 16.83 q/ha which was 23.28% more as compare to check (13.65 q/ha). In finger millet demonstrations, average yield of 19.26 q/ha was obtained with economic gain of Rs. 26968/ha which was superior over local practice (Rs. 15537/ ha). Foxtail millet was taken on an area of 6 ha with 15.27 q/ha of demo yield that provided net return of Rs. 30999/ ha. Under jowar, mean yield of 22.62 q/ha was realized by the farmers by following full package of practices which was

higher (27.21%) as compared to farmer's practice and a net profit of Rs. 50265/ha was obtained. Varietal component provided highest yield of 26.50 q/ha on 32 ha area. In little millet, yield of 15.10 q/ha was obtained which was 48.04% higher than check yield (10.20 q/ha). Maize was demonstrated on 7.20 ha area that showed 61.18 q/ha yield with net return of Rs. 56226/ ha. In paddy, 40.51 q/ha yield was attained which was higher by 25.37 % over local check. Integrated Nutrient Management component provided higher yield of 42.73 q/ha. Proso Millet gave a yield of 18.50 q/ha on 1 ha area. Under wheat, 29.93 q/ha yield was achieved with improved practices which showed better performance as compared to farmer's practice.

Table 3.7 Thematic area wise physical achievements of FLDs on cereals and millets in Maharashtra

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Bajra	ICM	1	25	10.00	12.50	9.20	35.87	20950	11620
	INM	1	15	6.00	23.58	21.67	8.81	35950	32475
	Varietal	2	25	10.00	17.12	13.30	28.72	29220	19955
	Sub-Total		**65**	**26.00**	**16.83**	**13.65**	**23.28**	**28835**	**21001**
Finger millet	ICM	1	13	2.60	20.50	18.00	13.89	40600	32600
	INM	4	81	25.00	19.27	15.32	25.76	28075	15495
	Varietal	1	10	1.00	15.70	9.67	62.36	7800	-1320
	Sub-Total		**104**	**28.60**	**19.26**	**15.37**	**25.30**	**26968**	**15537**
Foxtail millet	Varietal	1	15	6.00	15.27	12.40	23.15	30999	19120
Jowar	ICM	2	60	24.00	20.35	15.23	33.68	50785	28322
	IPM	1	13	5.00	16.16	12.57	28.56	31936	22060
	Resource Conservation Technologies	1	13	5.00	15.12	11.65	29.79	26624	18705
	Varietal	5	80	32.00	26.50	21.47	23.43	57000	37574
	Sub-Total		**166**	**66.00**	**22.62**	**17.78**	**27.21**	**50265**	**31925**
Little millet	Varietal	1	13	5.20	15.10	10.20	48.04	38110	21370
Maize	INM	1	13	5.20	62.36	55.05	13.28	52264	39441
	IPM	1	10	2.00	58.10	54.72	6.18	60187	50100
	Sub-Total		**23**	**7.20**	**61.18**	**54.96**	**11.31**	**56226**	**44771**

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Paddy	ICM	3	95	11.50	42.38	33.39	26.95	67065	45166
	IDM	1	25	10.00	42.00	29.00	44.83	80000	36500
	INM	5	110	34.50	42.73	33.77	26.53	28052	16353
	IPDM	1	13	5.00	36.65	34.60	5.92	50698	41952
	IPM	3	53	15.20	34.78	29.36	18.45	21893	11923
	IWM	1	4	1.50	38.40	34.50	11.30	25581	8527
	Varietal	1	13	5.00	39.80	32.40	22.84	18275	5865
	Sub-Total		**313**	**82.70**	**40.51**	**32.31**	**25.37**	**36649**	**21695**
Proso millet	Varietal	1	10	1.00	18.50	11.40	62.28	19000	5600
Wheat	IDM	1	10	4.00	23.00	21.00	9.52	64500	61000
	INM	4	49	16.80	33.90	29.70	14.15	45900	38602
	IWM	2	26	10.46	36.09	27.41	31.67	39076	22078
	Varietal	6	84	24.00	25.62	21.07	21.58	34822	23963
	Sub-Total		**169**	**55.26**	**29.93**	**24.89**	**20.25**	**41168**	**31026**
	Grand Total		**878**	**277.96**					

Varietal Performance of Paddy in Maharashtra

YSR cultivar of paddy provided highest yield of 52.29 q/ha in Nashik and Thane area which was 25.63% higher over local check (41.63 q/ha). Ratnagiri-7 cultivar performed well in Sindhudurg and Raigad districts with average yield of 45.78 q/ha (Table 3.8). In Maharashtra, paddy yield was higher by 49.10 % over national and 92.09 % at state level (Fig. 3.4).

Fig. 3.4 Yield Performance of Paddy under FLDs in Maharashtra

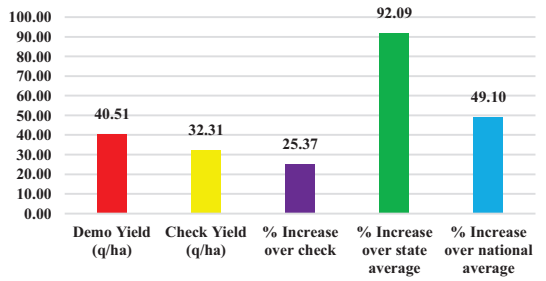


Table 3.8 Variety wise performance of paddy in Maharashtra

Variety	KVK	No. of Demos	Area (ha)	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
DSR-1010	Gadchiroli	13	5.00	36.65	34.60	5.92	50698	41952	20.85
Indrayani	Ahmednagar-I, Nashik-I	60	12.00	39.05	30.73	27.06	51074	35436	44.13
Karjat-3	Raigad	30	11.50	45.22	35.88	26.03	12855	6830	88.21
Karjat-4	Palghar	20	10.00	36.00	29.20	23.29	20730	5970	247.24
Karjat-7	Palghar	24	9.50	34.02	29.70	14.55	21281	7254	193.38
Karjat-8	Sindhudurg	30	3.00	40.01	31.52	26.94	19516	11709	66.68
Karjat-9	Palghar	13	5.00	39.80	32.40	22.84	18275	5865	211.59
PDKV- Tilak	Bhandara	13	5.20	35.40	29.70	19.19	35190	21210	65.91
Ratnagiri-7	Sindhudurg, Raigad	20	4.50	45.78	33.61	36.21	23773	4452	433.98
Suvarna	Ratnagiri	25	10.00	42.00	29.00	44.83	80000	36500	119.18
YSR	Nashik-I, Thane	65	7.00	52.29	41.63	25.63	89138	67969	31.15
	Total	**313**	**82.70**	**40.51**	**32.31**	**25.37**	**36649**	**21695**	**68.93**

Commercial Crops

In total, 272 frontline demonstrations on sugarcane were conducted covering an area of 101.80 ha at farmers' fields. Average yield of 1129.17 q/ha was achieved which was 19.64 % higher over local check. Net profit of Rs. 217268/ per ha was earned by the farmers under demonstrations. Yield obtained under different components is reported in Table 3.9. In Maharashtra, sugarcane yield was higher by 35.12 % over national and 22.74 % at state level (Fig. 3.5).

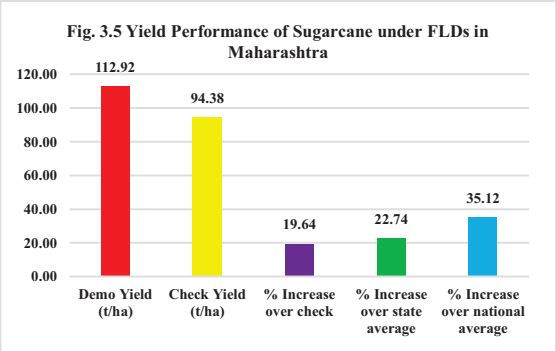


Table 3.9 Thematic area wise physical achievements of FLDs on commercial crops in Maharashtra

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Sugarcane	ICM	1	13	5.00	1088.00	997.60	9.06	199759	171437
	IDM	1	15	6.10	843.30	755.00	11.70	142371	120530
	INM	10	150	55.60	1161.98	968.54	19.97	230332	168649
	IPM	3	79	29.10	1149.39	934.09	23.05	201800	148822
	Resource Conservation Technologies	1	15	6.00	1052.00	909.00	15.73	227830	172760
	Total		**272**	**101.80**	**1129.17**	**943.81**	**19.64**	**217268**	**161953**

Flower Crops

A total of 10 demonstrations in Chrysanthemum and 10 in Marigold were conducted covering area of 4 ha at farmers' fields (Table 3.10). In chrysanthemum, varietal introduction component gave yield of 101.20 q/ha which was quite higher (17.40%) as compared to 86.20 q/ha in local check. In marigold, technology such as varietal introduction gave yield of 150 q/ha which was higher by 54.64% compared to local check (97 q/ha).

Table 3.10 Thematic area wise physical achievements of FLDs on flower crops in Maharashtra

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Chrysanthemum	Varietal	1	10	2.00	101.20	86.20	17.40	63700	38497
Marigold	Varietal	1	10	2.00	150.00	97.00	54.64	60400	23950
	Total		**20**	**4.00**					

Fodder Crops

Frontline demonstrations on sorghum (36), maize (15) and napier (119) were conducted covering an area of 21.33 ha in field situations (Table 3.11). In sorghum, technology such as varietal introduction shown yield of 961.36 q/ha whereas in local check 463.68 q/ha yield was attained by the farmers. In maize, technologies such as Integrated Pest Management gave yield of 423.25 q/ha which was higher as compared to local check (378.10 q/ha). In napier, technologies such as hybrid introduction gave yield of 1236.94 q/ha which was higher as compared to local check (724.48 q/ha.).

Table 3.11 Thematic area wise physical achievements of FLDs on fodder crops in Maharashtra

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Fodder Sorghum	Varietal	3	36	7.20	961.36	463.68	107.33	64008	26813
Fodder Maize	IPM	1	15	3.00	423.25	378.10	11.94	91715	77010
Napier	Hybrid	8	119	11.13	1236.94	724.48	70.73	89022	40038
	Total		**170**	**21.33**					

Fruit Crops

In fruit crops, banana (110), guava (10), lime (78), mango (40), muskmelon (20), orange (79), papaya (14), pomegranate (42), sweet orange (65) and watermelon (15) frontline demonstrations were conducted covering area of 153.90 ha at farmers' fields (Table 3.12). In banana, technologies such as INM and IPDM gave yield of 775.35 q/ha which was higher (21.92%) than local check (635.94 q/ha). Among above technologies, IPDM provided highest yield of 974 q/ha in demonstration plot. In Guava, IPM technology gave 220 q/ha yield which was 7.32% higher than local check (205 q/ha). In lime, ICM, IDM, INM and Resource Conservation Technologies components reported yield of 172.83 q/ha which was more as compared to local check (137.86 q/ha). In mango, technologies such as IDM, INM and IPDM provided yield of 48.50 q/ha. Among above technologies, IPDM gave highest yield of 92.70 q/ha under demonstrations. In muskmelon, ICM component gave yield of 253.17 q/ha which showed superiority over local check (210.57 q/ha). In orange 172.63 q/ha yield was obtained which was 17.59% higher than local check (146.80 q/ha). Papaya gave 16.93 % higher yield under INM component with net return of Rs. 245140 /ha. In pomegranate, ICM, IDM, and IPM components shown good result and furnished yield of 125.67 q/ha which was quite higher (13.07%) than local practice (111.14 q/ha). Among above interventions, ICM resulted highest yield of 146.35 q/ha. It is proved that integrated management of crops played a greater role in harnessing higher

productivity of crops. In sweet orange, INM and IPDM related interventions reported productivity of 253.44 q/ha which was 34.91% higher over local check (187.85 q/ha). Among above technologies, IPDM exhibited highest yield of 297.50 q/ha in demonstration plots. Watermelon reported the demonstration yield of 342.50 q/ha which was 53.42 % higher than check yield (223.25 q/ha).

Table 3.12 Thematic area wise physical achievements of FLDs on fruit crops in Maharashtra

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Banana	INM	5	100	28.50	747.46	612.91	21.95	409913	279666
	IPDM	1	10	4.00	974.00	800.00	21.75	888500	672300
	Sub-Total		**110**	**32.50**	**775.35**	**635.94**	**21.92**	**478283**	**335756**
Guava	IPM	1	10	1.00	220.00	205.00	7.32	425280	401000
Lime	ICM	2	23	5.00	184.84	148.33	24.61	296883	205034
	IDM	1	10	4.00	189.40	161.20	17.49	64033	31742
	INM	1	20	8.00	132.45	109.60	20.85	188100	149300
	Resource Conservation Technologies	1	25	10.00	192.50	145.90	31.94	439100	306100
	Sub-Total		**78**	**27.00**	**172.83**	**137.86**	**25.37**	**257000**	**179442**
Mango	IDM	1	10	10.00	25.00	15.50	61.29	120000	5000
	INM	2	20	1.10	65.26	57.08	14.33	108579	30935
	IPDM	1	10	4.90	92.70	72.60	27.69	71297	45542
	Sub-Total		**40**	**16.00**	**48.50**	**35.85**	**35.31**	**102114**	**28103**
Muskmelon	ICM	1	20	4	253.17	210.57	20.23	1035500	502767
Orange	ICM	2	25	6	178.87	149.00	20.04	180100	123319
	IDM	2	30	12	176.87	150.63	17.42	55175	34060
	INM	2	24	9.6	163.43	140.65	16.20	310830	222682
	Sub-Total		**79**	**27.6**	**172.63**	**146.80**	**17.59**	**182035**	**126687**
Papaya	INM	1	14	5.60	450.40	385.20	16.93	245140	181155
Pomegranate	ICM	1	10	2.00	146.35	138.52	5.65	373974	263944
	IDM	1	9	3.60	102.67	88.67	15.79	249500	187245
	IPM	2	23	4.60	134.67	116.83	15.28	502723	395345
	Sub-Total		**42**	**10.20**	**125.67**	**111.14**	**13.07**	**407230**	**310470**
Sweet Orange	INM	3	45	14.00	228.26	155.66	46.64	409800	284420
	IPDM	1	20	8.00	297.50	244.20	21.83	498000	383400
	Sub-Total		**65**	**22.00**	**253.44**	**187.85**	**34.91**	**431850**	**309165**
Watermelon	ICM	1	10	3.00	580.00	412.00	40.78	551500	227700
	IDM	1	5	5.00	200.00	110.00	81.82	125000	42000
	Sub-Total		**15**	**8.00**	**342.50**	**223.25**	**53.42**	**338250**	**134850**
	Grand Total		**473**	**153.9**					

Plantation Crops

Demonstrations on Cashew (15) were organized covering area of 11 ha in field conditions (Table 3.13). In cashew, technology such as IDM gave yield of 14.00 q/ha which was higher (47.37%) as compared to local practice (9.50 q/ha) and technology such as IPM reported yield of 8.20 q/ha which showed superiority over check (5.20 q/ha) with 57.69% increase in yield. Average yield of 13.47 q/ha in demo plot and 9.11 q/ha in check plot was obtained on 15 farmers field.

Table 3.13 Thematic area wise physical achievements of FLDs on plantation crops in Maharashtra

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Cashew	IDM	1	10	10.00	14.00	9.50	47.37	105000	30000
	IPM	1	5	1.00	8.20	5.20	57.69	42700	16900
	Grand Total		**15**	**11.00**	**13.47**	**9.11**	**47.90**	**73850**	**23450**

Spices Crops

Under spices, 306 frontline demonstrations were organized on 54.44 ha area. In Ajwain, 2 varietal demonstrations reported average yield of 12.65 q/ha which was 29.63% higher with net gain of Rs. 103905/ha. Under IPDM component in Dry Chilli a yield of 8.98 q/ha was reported on 1.50 ha area. In Garlic, 148 demonstrations provided 74.77 q/ha yield as compared to 65.35 q/ha yield in check plot. In Ginger, technology such as IPDM gave yield of 170.20 q/ha which was higher (13.62%) as compared to local practice (149.80 q/ha). In Turmeric, IDM, INM, IPDM and varietal component reported yield of 60.54 q/ha which was 15.73 % higher as compared to local check (52.31 q/ha).

Table 3.14 Thematic area wise physical achievements of FLDs on spices crops in Maharashtra

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Ajwain	Varietal	2	23	8.20	12.65	9.76	29.63	103905	48720
Chilli dry	IPDM	1	15	1.50	8.98	6.54	37.31	137323	83113
Garlic	Varietal	6	148	7.25	74.77	65.35	14.42	276073	176562
Ginger	IPDM	1	10	4.00	170.20	149.80	13.62	660588	573475
Turmeric	IDM	1	5	2.25	44.00	36.10	21.88	174440	120235
	INM	3	35	11.00	70.06	59.68	17.38	287911	218502
	IPDM	2	32	12.80	65.66	56.43	16.36	305328	242477
	Varietal	3	38	7.44	42.67	39.23	8.77	279018	196005
	Sub-Total		**110**	**33.49**	**60.54**	**52.31**	**15.73**	**276490**	**204472**
	Grand Total		**306**	**54.44**					

Tuber Crops

Under tuber crops, demonstrations on Elephant footyam (10) were conducted at farmers' fields covering 0.10 ha area (Table 3.15). Technologies such as varietal demonstration gave a yield of 310.50 q/ha and realized Rs. 422500/ ha additional net profit in demonstration plots.

Table 3.15 Thematic area wise physical achievements of FLDs on tuber crops in Maharashtra

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Elephant footyam	Varietal	1	10	0.10	310.50	235.40	31.90	422500	55000

Vegetable Crops

A total of 669 frontline demonstrations in which 43 brinjal, 43 green chilli, 13 coriander leaf, 15 Dolichous bean, 13 drumstick, 10 okra, 484 onion, 15 potato and 13 on tomato were conducted covering 173 ha area at farmers' fields (Table 3.16). In brinjal, technologies such as ICM, IDM, INM and IPDM components gave yield of 246.13 q/ha. In green chilli, technologies such as ICM and varietal demonstrations provided yield of 216.13 q/ha with net profit of Rs. 287968 /ha. In coriander leaf, varietal demonstrations exhibited yield of 72.55 q/ha, which was 4.46 % higher as compared to local check (69.45 q/ha.). In dolichous bean, ICM component provided yield of 87.20 q/ha with profit of Rs. 255663/ha. In drumstick, technology such as varietal demonstrations gave yield of 110.60 q/ha which was more by 14.97 % over local check (96.20 q/ha). In okra, technologies such as INM and varietal demonstration gave yield of 125.56 q/ha which was higher (23.24%) over farmer's practice. In onion, technologies such as INM component reported highest yield of 265.73 q/ha with net profit of Rs. 190788/ha. Varietal component of potato showed a yield of 788 q/ha over check yield of 741 q/ha on 1.10 ha of area. In tomato, ICM component provided yield of 282.30 q/ha which was higher (29.26 %) as compared to local check (218.40 q/ha).

Table 3.16 Thematic area wise physical achievements of FLDs on vegetable crops in Maharashtra

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Brinjal	ICM	1	13	0.90	224.00	185.00	21.08	138000	104000
	IDM	1	10	2.00	235.00	190.00	23.68	235000	25725
	INM	1	13	0.90	220.00	184.00	19.57	134679	106384
	IPDM	1	7	0.70	340.00	287.00	18.47	428500	338800
	Sub-Total		**43**	**4.50**	**246.13**	**202.89**	**21.31**	**234045**	**143727**
Chilli green	ICM	2	20	8.00	211.60	163.80	29.18	214437	110516
	Varietal	2	23	6.20	221.97	188.50	17.76	361500	252000
	Sub-Total		**43**	**14.20**	**216.13**	**174.58**	**23.80**	**287968**	**181258**

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Coriander leaf	Varietal	1	13	1.00	72.55	69.45	4.46	112000	84240
Dolichous bean	ICM	1	15	1.50	87.20	78.40	11.22	255664	180936
Drumstick	Varietal	1	13	5.20	110.60	96.20	14.97	116060	92420
Okra	INM	1	10	1.00	175.00	164.00	6.71	385000	369000
	Varietal	1	20	4.00	113.20	86.35	31.09	145550	77700
	Sub-Total		**30**	**5.00**	**125.56**	**101.88**	**23.24**	**225367**	**174800**
Onion	ICM	2	24	3.80	151.01	127.81	18.15	301465	223207
	IDM	1	10	2.00	238.00	223.00	6.73	215687	181450
	INM	10	135	47.40	265.73	226.19	17.48	190788	143267
	IPDM	5	65	26.00	233.11	198.48	17.44	274737	170711
	IPM	2	35	12.00	198.00	173.00	14.45	87448	59268
	IWM	1	10	2.00	259.56	252.32	2.87	122076	113222
	Varietal	11	205	46.40	255.78	215.81	18.52	212009	141398
	Sub-Total		**484**	**139.60**	**246.92**	**210.66**	**17.21**	**210289**	**146913**
Potato	Varietal	1	15	1.10	788.00	741.00	6.34	275270	233225
Tomato	ICM	1	13	0.90	282.30	218.40	29.26	262230	165846
	Grand Total		**669**	**173**					

Hybrids

Under hybrids, demonstrations on brinjal (25), cauliflower (15), chilli green (58), cotton (343), maize (68), maize (48), okra (36), onion (9), onion seed (7), paddy (13), soybean (30), tomato (28), turmeric (14) and watermelon (10) were conducted covering area of 220.46 ha at farmers' fields (Table 3.17). In brinjal, average yield of 196.67 q/ha was obtained under demonstrations with net economic gain of Rs. 216231/ha. Cauliflower and green chilli provided average yield of 229 q/ha and 280.24 q/ha respectively. In cotton, components like ICM, IDM, INM, IPM and IWM provided yield of 20.68 q/ha on 132.06 ha area. Maize was taken on 24.60 ha area that provided yield of 65.24 q/ha with Rs. 69984 /ha of net income. In okra, ICM component gave mean yield of 179.95 q/ha which was higher (18.30%) over local check (152.11 q/ha). In onion, average yield of 345 q/ha was obtained which was higher (72.50%) as compared to local check (200 q/ha). Onion seed gave yield of 7.33 q/ha. Paddy was taken on 5.20 ha area, which provided Rs. 49447 /ha of net income. Soybean showed yield of 19.63 q/ha. In tomato, mean yield of 150.30 q/ha was achieved with net profit of Rs. 214376 /ha under demonstrations. Turmeric and watermelon showed 63.82 q/ha and 182 q/ha yield, respectively on farmers field.

Table 3.17 Thematic area wise physical achievements of FLDs on hybrid crops in Maharashtra

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Brinjal	IPM	2	25	9.00	196.67	158.22	24.30	216231	146470
Cauliflower	ICM	1	15	4.00	229.00	192.00	19.27	159600	108300
Chilli green	ICM	1	10	4.00	512.00	390.00	31.28	200800	75000
	IDM	1	13	2.60	146.85	121.38	20.98	256968	183019
	INM	2	30	4.10	145.87	110.78	31.67	250000	169700
	Precision farming	1	5	1.00	251.00	162.00	54.94	280500	164000
	Sub-Total		**58**	**11.70**	**280.24**	**212.97**	**31.59**	**247654**	**152284**
Cotton	ICM	1	35	14.00	16.89	14.37	17.54	54833	40972
	IDM	2	45	14.00	20.26	14.89	36.13	83839	53468
	INM	2	23	9.26	19.96	14.53	37.41	84706	49795
	IPM	15	230	90.80	21.67	17.98	20.57	104363	135026
	IWM	1	10	4.00	14.63	12.87	13.68	24293	24123
	Sub-Total		**343**	**132.06**	**20.68**	**16.87**	**22.61**	**94365**	**109381**
Maize	INM	1	10	4.00	56.75	49.25	15.23	33775	27853
	IPM	3	48	16.60	75.18	63.45	18.50	96600	75067
	IWM	1	10	4.00	32.50	28.75	13.04	26344	20353
	Sub-Total		**68**	**24.60**	**65.24**	**55.50**	**17.57**	**69984**	**54681**
Okra	ICM	2	36	12.80	179.95	152.11	18.30	186900	76100
Onion	Hybrid	1	9	0.40	345.00	200.00	72.50	46350	16700
Onion seed	INM	1	7	1.40	7.33	6.20	18.23	247400	191200
Soybean	IPM	2	30	12.00	19.63	17.11	14.77	57122	45609
Tomato	IDM	1	15	1.50	146.35	129.85	12.71	198771	163182
	Hybrid	1	13	1.00	156.23	143.45	8.91	229981	187224
	Sub-Total		**28**	**2.50**	**150.30**	**135.29**	**11.10**	**214376**	**175203**
Turmeric	INM	1	14	2.80	63.82	55.47	15.05	329838	275954
Watermelon	Resource Conservation Technologies	1	10	2.00	182.00	152.00	19.74	112100	51900
	Grand Total		**656**	**220.46**					

Livestock and Fisheries

Integrating livestock and fisheries as components in Integrated Farming System models is very important for sustainable agriculture and livelihood security. In this context, KVKs had demonstrated different interventions on different components under animal component. A total of 1159 demonstrations (162-dairy buffaloes; 425-dairy cow; 274-goats; 274-poultry and 24-fisheries) were conducted covering

16121 livestocks (Table 3.18). In dairy buffaloes and cows, technologies like area specific mineral mixture, probiotics, fodder, rumen bypass fat, urea treatment, chaff cutting, ration balancing, management of mastitis, management of infertility etc. provided higher yield over respective local checks. In goat, technologies such as deworming, ration balancing, mineral mixture, parasite management, disease management etc. gave higher yield over respective local checks. In case of poultry, technologies such as improved breeds gave higher yield over local check. In fishery, technologies such as Catla, Rohu, Grass carp, Common carp, IFS, composite culture etc. provided higher yield over respective local check.

Table 3.18 Frontline demonstrations on livestock & fisheries conducted by KVKs of Maharashtra

Livestock	Thematic Areas	KVK	Demos (No.)	Livestock (No.)	Unit of Yield	Demo Yield	Check Yield	% Increase
Dairy Buffalo	Disease Management	2	20	20	Milk yield L/anim./day	6.00	4.50	33.33
	Nutrition Management	5	128	216	Milk yield L/anim./day	10.20	8.98	13.61
	Nutrition Management	1	4	10	q/ha	205.00	170.00	20.59
	Production and Management	1	10	10	Milk yield L/anim./day	5.00	4.40	13.64
	Sub-Total		**162**	**256**				
Dairy Cow	Disease Management	3	40	60	Milk yield L/anim./day	6.68	3.88	72.10
	Disease Management	2	23	23	No. of ectoparasites/sq inch	6.60	11.30	-41.55
	Disease Management	1	13	13	numbers	2.00	0.00	0.00
	Nutrition Management	4	63	146	kg/animal	2103.69	2133.89	-1.42
	Nutrition Management	11	146	223	Milk yield L/anim./day	8.52	6.88	23.90
	Nutrition Management	3	50	70	q/ha	872.14	534.43	63.19
	Production and Management	2	35	50	Milk yield L/anim./day	5.12	3.90	31.28
	Production and Management	5	55	172	q/ha	1807.49	1080.14	67.34
	Sub-Total		**425**	**757**				
Fishery	Breed Introduction	1	10	1000	kg of fish	792.00	560.00	41.43
	Breed management	1	10	30	No. of fingerlings	70500.00	26800.00	163.06
	Breed management	1	2	8000	kg of fish	3600.00	3000.00	20.00
	Production and Management	1	2	2000	kg of fish	950.00	0.00	0.00
	Sub-Total		**24**	**11030**				
Goat	Disease Management	2	33	25	kg/animal	4.19	3.55	18.03
	Disease Management	1	10	10	No. of ectoparasites/sq inch	1.00	8.00	-87.50
	Nutrition Management	1	15	150	Fertility rate %	65.00	50.00	30.00
	Nutrition Management	11	166	308	kg/animal	11.44	9.06	26.25
	Nutrition Management	1	20	20	Milk yield L/anim./day	0.50	0.40	25.00
	Nutrition Management	1	20	20	numbers	5.00	3.00	66.67
	Production and Management	1	10	110	kg/animal	28.34	18.26	55.20
	Sub-Total		**274**	**643**				

Livestock	Thematic Areas	KVK	Demos (No.)	Livestock (No.)	Unit of Yield	Demo Yield	Check Yield	% Increase
Poultry	Breed Introduction	4	54	900	kg/bird	2.04	1.38	47.83
	Breed Introduction	5	83	485	No. of eggs /bird/year	130.98	79.43	64.89
	Nutrition Management	1	13	10	Age at sexual maturity in months	2.20	1.70	29.41
	Nutrition Management	1	10	100	kg/animal	1.06	0.94	12.77
	Production and Management	2	23	270	kg/bird	2.46	2.26	8.93
	Production and Management	5	91	1670	No. of eggs /bird/year	175.26	69.46	152.32
	Sub-Total		**274**	**3435**				
	Total		**1159**	**16121**				

Gujarat

FLDs on Pulses

Pulses demonstrations are important to have nutritional security in India. In this context, 326 demonstrations on chick pea, 311 green gram, 85 black gram and 204 on pigeon pea were conducted at farmers' fields covering 339.4 ha area (Table 3.19). In chick pea, technologies such as IDM, IPM and varietal demonstrations gave mean yield of 16.25 q/ha which was 13.78 % higher over farmer's practice with average net return of Rs. 66403/ha. Under varietal demonstrations, yield of 14.49 q/ha was attained with net profit of Rs. 66403/ha. In green gram, IPM component gave yield of 9.99 q/ha which found higher over local check (7.78 q/ha). In pigeon pea, ICM and varietal components provided average yield of 16.39 q/ha with economic gain of Rs. 68390/ha. Under pigeon pea, ICM component performed well (16.87q/ha) and showed their potentiality.

Table 3.19 Thematic area wise physical achievements of FLDs on pulses crops in Gujarat

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Black gram	Varietal	3	85	19	7.00	6.40	9.42	20758	14767
Chickpea	IDM	4	80	29	14.18	12.59	12.68	33202	9079
	IPM	5	71	22.25	19.97	17.27	15.64	11067	18158
	Varietal	10	175	141.25	14.59	11.49	26.97	22134	27237
	Sub-Total		**326**	**192.5**	**16.25**	**13.78**	**18.43**	**66403**	**54474**
Green gram	IPM	2	35	9	9.99	7.78	22.70	34133	21943
	Varietal	7	276	67.4	12.75	9.99	20.57	353476	38660
	Sub-Total		311	76.4	11.37	8.88	21.64	193804	30301
Pigeon pea	ICM	1	12	5	16.87	15.00	21.10	89288	76860
	Varietal	5	192	46.5	15.91	14.20	21.37	47492	33716
	Sub-Total		**204**	**51.5**	**16.39**	**14.60**	**21.24**	**68390**	**55288**
	Grand Total		**926**	**339.4**					

Varietal Performance of Pigeon Pea in Gujarat

Different improved varieties of pigeon pea were demonstrated and highest yield of 17.98 q/ha was attained with GJP-1 cultivar in Junagadh followed by GT 104 (17.90 q/ha) in Bharuch (Table 3.20).

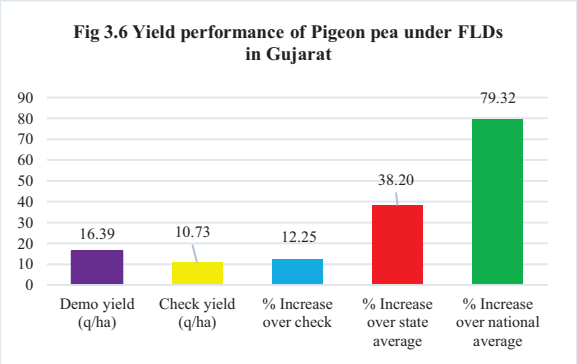


Table 3.20 Variety wise performance of pigeon pea in Gujarat

Variety	KVK	No. of Demos	Area (ha)	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
GJP-1	Junagadh	24	10	17.98	16.21	10.91	91789	83579	9.82
GT 105	Valsad	80	6.5	12.79	11.16	14.59	43880	38459	14.10
GT 104	Bharuch	75	30	17.90	16.30	9.82	77987	62534	24.71
GAM -6	Dang	25	5	16.89	14.73	14.66	59903	36579	63.76
	Total	**204**	**51.5**	**16.39**	**14.60**	**12.25**	**68390**	**55288**	**23.70**

Performance of Chickpea Varieties in Gujarat

Technology demonstrations of chickpea with GG-2, GG-3, GG-5, GG-6, GJG-3, GJG-5, GJG-6, GAM-7, GAM-8 and GAM-10 were conducted on 192.5 ha area benefitting 326 farmers. Higher yield of 30.12 q/ha was achieved under GG-3 cultivar in KVK Amreli followed by GG-5 (22.54 q/ha) in Morbi, Rajkot, Surendranagar and Tapi districts (Table 3.21). In Gujarat, chickpea yield was increased by 36.33 % over national and 3.64 % at state level (Fig. 3.7).

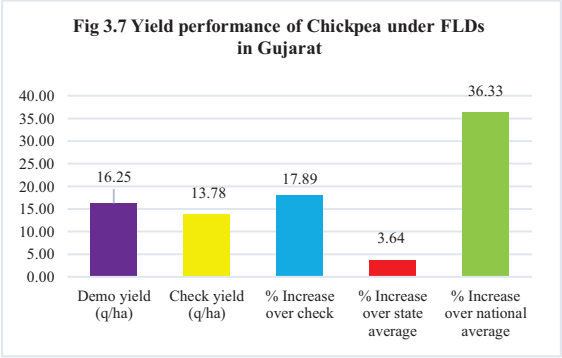


Table 3.21 Yield wise performance of chickpea in Gujarat

Variety	KVK	No. of Demos	Area (ha)	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
GG 2	Anand	10	4	13.28	10.18	30.45	38789	33240	16.69
GG 3	Amreli	25	6.25	30.12	26.43	13.96	134839	116202	16.04

Variety	KVK	No. of Demos	Area (ha)	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
GG 5	Morbi, Rajkot- I, Surendranagar & Tapi	46	17	22.54	20.21	11.52	92875	75658	22.76
GG 6	Porbandar	10	96	10.36	8.16	26.95	39568	30841	28.30
GJG 3	Anand, Dahod	60	24	12.79	10.87	17.65	43991	32489	35.40
GJG 5	Gandhinagar	20	5	19.02	17.56	8.31	82879	69146	19.86
GJG 6	Ahmedabad	65	22.25	21.47	19.34	10.99	92948	76386	21.68
GAM-7	Dang	25	5	11.87	8.60	38.02	39898	25742	54.99
GAM-8	Dang	25	5	10.47	8.35	25.39	44288	38784	14.19
GAM-10	Dang	40	8	10.57	8.12	30.17	53950	46258	16.63
	Grand Total	**326**	**192.5**	**16.25**	**13.78**	**17.89**	**66403**	**54475**	**21.90**

FLDs on Oilseeds

Different technology demonstrations on oilseed crops were conducted especially on groundnut (179), soybean (73), sesame (65), mustard (15) and castor (65) on 145 ha area at farmers' fields (Table 3.22). In groundnut, IDM, INM, IPM, and varietal components provided yield of 24.43 q/ha which was more as compared to farmer's practice (21.36 q/ha). Among above technologies, IDM component gave highest yield of 27.90 q/ha in demonstration plots. In mustard, INM related interventions contributed yield of 21.60 q/ha which was greater than local check (18.60 q/ha). In sesame, varietal component gave yield of 7.45 q/ha which was higher over local practice (6.33 q/ha). In soybean, average yield of 14.55 q/ha was obtained with adoption of different package of practices like INM and improved varieties.

Table 3.22 Thematic area wise physical achievements of FLDs on oilseed crops in Gujarat

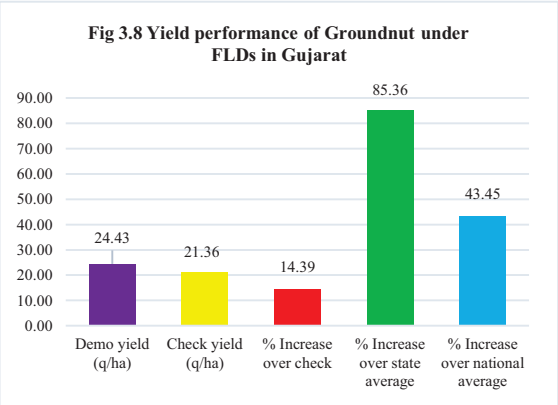
Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Castor	Varietal	4	65	26	30.25	26.66	13.49	128604	103145
Groundnut	IDM	1	10	4	27.90	23.50	18.72	86272	65298
	INM	5	72	21	18.13	16.84	7.60	75494	64671
	IPM	4	52	18	24.58	21.53	14.15	72251	62740
	Varietal	4	45	15	27.12	23.55	15.14	110186	86536
	Sub-Total	**14**	**179**	**58**	**24.43**	**21.36**	**14.39**	**86051**	**69811**
Mustard	INM	1	15	5	21.60	18.60	16.13	71870	55833
Sesamum	Varietal	5	65	26	7.45	6.33	17.61	56213	41224
Soybean	INM	1	25	10	12.50	11.25	11.11	38062	32660
	Varietal	4	48	20	16.60	14.40	15.32	51113	37910
	Sub-Total		**73**	**30**	**14.55**	**12.82**	**13.47**	**44587**	**35285**
	Grand Total		**397**	**145**					

Varietal Performance of Groundnut in Gujarat

Groundnut cultivars were demonstrated at farmers' fields and higher yield (28.84 q/ha) was obtained under GJG-22 in Amreli and Porbandar districts followed by GJG-32 (26.83 q/ha) in Amreli, Junagadh, Morbi and Rajkot districts. Net profit of Rs. 86051/ha was earned by the farmers under demonstrations.

Table 3.23 Variety wise performance of groundnut in Gujarat

Variety	District/KVK	No. of Demos	Area (ha)	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
GG-20	Rajkot II, Junagadh	32	13	25.75	22.21	15.92	94301	70999	32.82
GG-22	Surendranagar	27	8	23.92	20.78	15.08	86107	64920	32.64
GG-24	Kheda	25	5	22.75	19.86	14.55	70035	62470	12.11
GJG-22	Amreli, Porbandar	30	9	28.84	26.17	10.18	124437	101632	22.44
GJG-32	Amreli, Junagadh, Morbi, Rajkot- I	55	19	26.83	23.12	16.08	81104	68306	18.74
GJG-33	Rajkot- I	10	4	18.50	16.00	15.63	60321	50540	19.35
	Total	**179**	**58**	**24.43**	**21.36**	**14.39**	**86051**	**69811**	**23.26**



Performance of Soybean Cultivars in Gujarat

Frontline demonstrations on soybean were conducted with improved varieties like GJS-3, KDS-726, NRC-37 and NRC-38 in Amreli, Bharuch, Surat and Dahod districts. GJS-3 variety performed well and provided higher yield of 19.29 q/ha followed by KDS-726 with productivity of 16.71 q/ha. On an average, net gain of Rs. 44587/ha was realised by the farmers (Table 3.24). In Gujarat, soybean yield was increased by 49.18 % over national and 7.30 % at state level (Fig. 3.9).

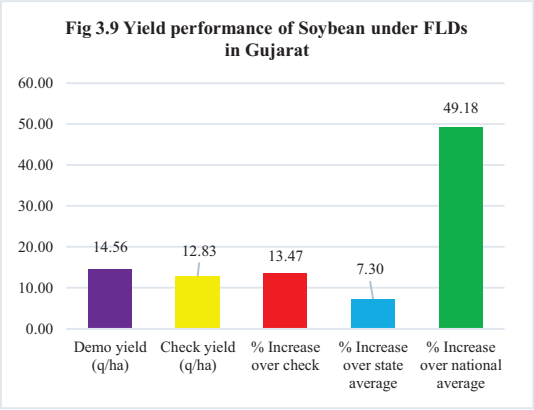


Table 3.24 Variety wise performance of soybean in Gujarat

Variety	District/KVK	No. of Demos	Area (ha)	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
GJS-3	Amreli	22	9	19.29	17.87	7.95	65266	51835	25.91
KDS-726	Bharuch	15	6	16.71	13.70	21.97	57181	42575	34.31

Variety	District/KVK	No. of Demos	Area (ha)	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
NRC-37	Dahod	25	10	12.21	11.24	8.63	38916	32860	18.43
NRC-38	Surat	11	5	10.01	8.50	17.76	16986	13870	22.47
	Total	**73**	**30**	**14.56**	**12.83**	**13.47**	**44587**	**35285**	**26.36**

Cereals and Millets

Farmers' profit can be increased by adopting latest technologies under different crops of cereals and millets. Frontline demonstrations were conducted on paddy (489), wheat (190), Jowar (49), Bajra (40), Maize (125) and finger millet (50) covering an area of 298 ha in field situations (Table 3.25). In Bajra, average yield obtained in demonstrations was 34.73 q/ha which was 11.04% more as compare to check (31.28 q/ha). In finger millet demonstrations, average yield of 13.70 q/ha was obtained with economic gain of Rs. 29091/ha which was superior by 29.08% over local practice (Rs. 20730/ha). Under Jowar, mean yield of 20.67 q/ha was realised by the farmers by following full package of practices which was higher (24.88 %) as compared to farmer's practice and net profit of Rs. 52217/ha was obtained. In paddy, 41.17q/ha yield was attained which was higher by 30.02% over local check. Under wheat, 38.54 q/ha yield was achieved with improved practices which showed better performance as compared to farmer's practice.

Table 3.25 Thematic area wise physical achievements of FLDs on cereals and millets in Gujarat

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Pearl Millet	Varietal	3	40	10	34.73	31.28	11.04	37773	27406
Finger millet	ICM	1	25	5	14.61	11.12	31.38	31830	21136
	IDM	1	25	5	12.78	10.10	26.53	26352	20324
	Sub-Total	**2**	**50**	**10**	**13.70**	**10.61**	**29.08**	**29091**	**20730**
Jowar	ICM	3	49	20	24.88	20.25	22.84	52217	39580
Maize	IPM	2	35	15	18.83	15.67	20.21	23758	12547
	ICM	1	25	10	28.34	21.00	34.95	46176	30900
	Varietal	2	65	15	20.13	16.69	20.66	25796	11165
	Sub-Total	**5**	**125**	**40**	**67.31**	**53.35**	**26.15**	**25796**	**18204**
Paddy	Varietal	12	489	154	41.17	31.66	30.02	42334	29446
Wheat	Varietal	7	190	64	38.54	34.18	12.74	65503	51295
	Total		**943**	**298**					

Commercial Crops

In commercial crops, sugarcane (53) and cotton (115) frontline demonstrations were conducted covering area of 51 ha at farmers' fields. In sugarcane, average yield of 633.57 q/ha was achieved which was 12.04 % higher over local check. Net profit of Rs. 147283 per ha was earned by the farmers under demonstrations. Yield obtained under different components is reported in Table 3.26. In cotton, 115 demonstrations provided 22.43 q/ha yield as compared to 18.81 q/ha yield in check plot.

Table 3.26 Thematic area wise physical achievements of FLDs on commercial crops in Gujarat

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Sugarcane	ICM	1	14	2	130.47	107.71	21.13	264426	203030
	IPDM	1	10	4	1079.10	1002.10	7.68	198154	175627
	INM	1	12	2.5	99.74	93.22	6.99	88144	74088
	IPM	1	12	5	927.56	822.54	12.77	99785	82865
	IWM	1	5	2	931.00	802.00	16.08	85907	58413
	Sub-Total		**53**	**15.5**	**633.57**	**565.51**	**12.04**	**147283**	**118805**
Cotton	ICM	1	25	10	23.90	18.88	26.59	108121	64224
	INM	2	50	14	20.33	18.03	12.76	129763	109607
	IPDM	2	30	7.5	26.31	23.33	12.77	187208	151961
	Varietal	1	10	4	19.20	15.00	28.00	92700	68500
	Sub-Total		**115**	**35.5**	**22.43**	**18.81**	**19.27**	**129448**	**98573**
	Grand Total		**168**	**51**					

Fodder Crops

Fodder crops played an important role towards livestock management and gave higher milk yield. Different frontline demonstrations on sorghum (177), oat (30), napier (10), and lucerne (10) were conducted covering an area of 33.5 ha at farmers' fields (Table 3.27). In sorghum, average yield of 671.24 q/ha was obtained under varietal component which proved superior to local check (582.39 q/ha). In oat, improved variety gave yield of 560.23 q/ha with net profit of Rs. 66340/ha. In napier, varietal component reported yield of 1850 q/ha which was greater as compared to local check (1650 q/ha). In lucerne, varietal component gave yield of 401 q/ha which was higher (23.38%) over farmer's practice (325 q/ha).

Table 3.27 Thematic area wise physical achievements of FLDs on fodder crops in Gujarat

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Lucerne	Varietal	1	10	1	401.00	325.00	23.38	100300	83000
Napier	Varietal	1	10	2	1850.00	1650.00	12.12	124850	110750
Oat	Varietal	2	30	6	560.23	484.17	15.71	66340	51538
Sorghum	Varietal	6	177	24.5	671.24	582.39	15.26	72474	57187
	Grand Total		**227**	**33.5**					

Fruit Crops

In horticultural crops, demonstrations on banana (20), mango (346), muskmelon (10) and watermelon (30), sapota (123) and dragon fruit (447) were conducted on 182.05 ha area at farmers' fields (Table 3.28). In banana, INM and IPDM gave yield of 721.61q/ha which was greater than local check (633.57q/ha). In mango, technologies such as INM, IPDM and IPM gave yield of 66.03q/ha and found good over check (58.85). In watermelon, technologies such as Resource Conservation Technologies and INM gave yield of 396.33 q/ha and found good over check (316.35 q/ha). In sapota, INM gave yield of 129 q/ha which was greater than local check (113.5 q/ha). In dragon fruit, INM component gave yield of 127.75 q/ha and found good over check

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Banana	INM	1	10	4	710.78	592.35	19.99	391546	309145
	IPDM	1	10	4	732.43	674.78	8.54	470744	423324
	Subtotal		**20**	**8**	**721.61**	**633.57**	**13.90**	**431145**	**366235**
Mango	INM	3	271	84.7	91.54	80.48	13.74	133533	110907
	IPDM	1	20	5	38.86	35.26	10.21	230170	188120
	IPM	3	55	17	67.69	60.80	11.34	250321	195882
	Subtotal		**346**	**106.7**	**66.03**	**58.85**	**12.21**	**204675**	**164969**
Muskmelon	ICM	1	10	2	246.52	232.21	6.16	125200	111230
Watermelon	Resource Conservation Technologies	2	15	5.25	335.67	229.10	46.51	173962.7	75577.25
	INM	1	15	6	457	403.6	13.23	406903	348612
	Subtotal		**30**	**11.25**	**396.33**	**316.35**	**25.28**	**290433**	**212095**
Sapota	INM	1	123	53.6	129	113.5	13.66	150488	125553
Dragon fruit	INM	2	447	0.5	127.75	115.25	10.85	150695	225695
	Grand Total		**976**	**182.05**					

Spices Crops

Under spices, ajwain (10), coriander (62), cumin (122), dilseed (10), fennel (75) and turmeric (70) were demonstrated covering an area of 108.23 ha in the farmers' fields (Table 3.29). Ajwain gave the yield of 7 q/ha in demo plot and 6.13 q/ha in check plot. In coriander, ICM and varietal introduction provided a yield of 15.80 q/ha with net profit of Rs. 79141/ha. In cumin ICM, IDM, IPDM and varietal components provided yield of 8.04 q/ha which was higher over local check (7 q/ha) with net economic gain of Rs. 97976/ha. Among above technologies, ICM gave highest yield of 9.18 q/ha in demonstration plots. In Dilseed 9 q/ha yield was observed in demo plot and 7.60 q/ha in check plot. In fennel, ICM, IPM and varietal introduction gave yield of 18.52 q/ha which was greater than local check (15.72 q/ha). Among above technologies, IPM gave highest yield of 24.45 q/ha in demonstration plots.

Table 3.29 Thematic area wise physical achievements of FLDs on spices crops in Gujarat

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Ajwain	ICM	1	10	4	7	6.13	14.19	28890	18098
Coriander seed	ICM	3	10	4	15.27	13.24	15.34	78055	56539
	Varietal	1	52	21	16.33	14.67	11.30	80226	67008
	Sub-Total		**62**	**25**	**15.80**	**13.95**	**13.22**	**79141**	**61773**

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Cumin	ICM	3	47	20	9.18	7.86	16.73	107858	86133
	IDM	3	40	16	8.52	7.41	14.98	109705	90670
	IPDM	1	15	5	8.5	7.2	18.06	116500	87100
	Varietal	2	20	8	5.96	5.555	7.29	57840	53750
	Sub-Total		**122**	**49**	**8.04**	**7.00**	**14.74**	**97976**	**79413**
Dilseed	ICM	1	10	4	9.00	7.60	18.42	42700	35100
Fennel	ICM	1	40	16	21.3	18.1	17.68	140900	113600
	IPM	1	25	10	24.45	20.95	16.71	208596	159255
	Varietal	1	10	4	9.8	8.1	20.99	118200	96523
	Sub-Total		**75**	**30**	**18.52**	**15.72**	**17.82**	**155899**	**123126**
Turmeric	ICM	1	70	0.23	21.43	20.3	5.59	527827	494389
	Grand Total		**339**	**108.23**					

Tuber Crops

In tuber crops, demonstrations on Elephant footyam (26), sweet potato (34) and potato (25) were conducted covering an area of 16.19 ha in the farmers' field conditions (Table 3.30). In Elephant footyam, technologies like INM and ICM were demonstrated at farmer's field in which 277.09 q/ha yield was obtained from demo plot and 252.22 q/ha yield from check plot. In potato, INM component gave yield of 317.25 q/ha which showed superiority over existing practice (304.85 q/ha). Sweet potato gave average yield of 218.42 q/ha with net profit of Rs. 313646/ha.

Table 3.30 Thematic area wise physical achievements of FLDs on tuber crops in Gujarat

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Elephant footyam	INM	2	19	0.18	320.19	295.75	8.27	187163	148638
	ICM	2	7	1.01	233.99	208.69	12.13	159865	129419
	Sub-Total	**4**	**26**	**1.19**	**277.09**	**252.22**	**9.86**	**173514**	**139029**
Sweet potato	INM	1	25	5	194.91	184.97	5.37	317269	296039
	ICM	3	9	3	241.94	203.70	18.77	310023	249707
	Sub-Total	**4**	**34**	**8**	**218.42**	**194.33**	**12.39**	**313646**	**272873**
Potato	INM	1	25	5	317.25	304.85	4.07	198294	184351
Chicory	ICM	1	5	2	136.5	127.75	6.85	180950	146200
	Grand Total		**90**	**16.19**					

Vegetable Crops

A total of 595 frontline demonstrations in which 70 bitter gourd, 166 brinjal, 51 green chilli, 63 dolichus bean, 11 coriander, 59 okra, 49 onion, 50 cabbage, 20 cauliflower and 56 tomato were conducted covering 145 ha area at farmers' fields (Table 3.31). In bitter gourd, technologies such as IPM and varietal introduction shown yield of 145.59 q/ha with net profit of Rs. 113802/ha. In brinjal, technologies such as ICM, IDM, INM, IPDM and IPM components gave

yield of 228.08 q/ha. In green chilli, varietal technologies provided yield of 164.48 q/ha with net profit of Rs. 134892/ha. In cabbage, technologies such as IPDM and IPM components gave yield of 362.39 q/ha. In cauliflower, INM component provided yield of 258 q/ha with profit of Rs. 64175/ha. In dolichus bean, Varietal component provided yield of 65.84 q/ha with profit of Rs. 94770/ha. In coriander, varietal component provided yield of 32.60 q/ha with profit of Rs. 55440/ha. In okra, varietal demonstration gave yield of 107.6 q/ha which was higher (14.96 %) over farmer's practice. In onion, varietal component reported highest yield of 356.44q/ha with net profit of Rs. 79092/ha. In tomato, varietal component provided yield of 312.82 q/ha which was higher (9.85%) as compared to local check (284.76 q/ha).

Table 3.31 Thematic area wise physical achievements of FLDs on vegetable crops in Gujarat

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Bitter gourd	IPM	2	45	4.5	80.78	76.94	4.98	104763	95817
	Varietal	1	25	2.5	210.40	175.68	19.76	122841	89015
	Subtotal		**70**	**7**	**145.59**	**126.31**	**15.26**	**113802**	**92416**
Brinjal	ICM	3	50	14	157.70	122.96	28.26	105653	70383
	IDM	1	16	3	253.00	229.00	10.48	34750	26500
	INM	2	35	9	239.27	225.00	6.34	172936	154393
	IPDM	1	10	4	212.26	188.43	12.65	334520	284860
	IPM	2	15	6	226.33	184.67	22.56	163205	127365
	Varietal	2	40	9	279.89	231.56	20.87	236350	163300
	Sub-Total		**166**	**45**	**228.08**	**196.94**	**15.81**	**174569**	**137800**
Chilli green	Varietal	4	51	12	164.48	138.5	**18.76**	134892	105130
Coriander leaf	Varietal	1	11	3	32.60	25.40	**28.35**	55440	45892
Dolichous bean	Varietal	2	63	23	65.84	**50.20**	**31.16**	94770	64300
Okra	Varietal	3	59	10	107.6	93.6	**14.96**	152340	120710
Cabbage	IPDM	1	25	5	334.78	326.42	**2.56**	80068	71561
	IPM	1	25	5	390	378	**3.17**	144479	123245
	Sub-Total		50	10	362.39	352.21	**2.89**	112274	97403
Cauliflower	INM	1	20	5	258	239	**7.95**	64175	59450
Onion	Varietal	3	49	16	356.44	289.44	**23.15**	79092	59973
Tomato	Varietal	4	56	14	312.82	284.76	**9.85**	135095	115154
	Grand Total		**595**	**145**					

Hybrids crops

Under hybrids, demonstrations on chilli green (36), cotton (65), okra (35), onion (39), bitter gourd (45), cabbage (25) and Castor (10) were conducted covering area of 67.5 ha at farmers' fields (Table 3.32). In cotton, average yield of 31.04 q/ha was obtained under demonstrations with net economic gain of Rs. 171179/ha. In onion, varietal component reported average yield of 359.67 q/ha which was higher (23.60 %) as compared to local check (291 q/ha). In okra, mean yield of 144.52 q/ha was attained which was higher (7.41 %) over local check (134.55 q/ha). In bitter gourd, mean yield of 80.78 q/ha was achieved with net profit of Rs. 182938/ha under demonstrations. In cabbage, mean yield of 390 q/ha was attained which was higher (3.17 %) over local check (378 q/ha). In castor, average yield of 35.75 q/ha was obtained under demonstrations with net economic gain of Rs. 145706/ha.

Table 3.32 Thematic area wise physical achievements of FLDs on hybrid crops in Gujarat

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Cotton	IPM	4	45	16.5	26.48	23.97	10.47	170775	144746
	INM	1	10	4	30.9	28.1	9.96	197056	171493
	Varietal	1	10	4	35.75	30.5	17.21	145706	99948
	Sub-Total		**65**	**24.5**	**31.04**	**27.52**	**12.79**	**171179**	**138729**
Onion	Varietal	2	39	15	359.67	291	23.60	103975	79800
Chilli green	Varietal	2	36	8	113.68	95.21	19.40	152050	113525
Okra	IPDM	1	10	4	187.48	169.91	10.34	377830	332165
	Varietal	1	25	2.5	101.56	99.2	2.38	253992	241540
	Sub-Total		**35**	**6.5**	**144.52**	**134.55**	**7.41**	**315911**	**286853**
Bitter gourd	Varietal	2	45	4.5	80.78	76.94	4.99	182938	156631
Cabbage	IPM	1	25	5	390	378	3.17	364813	347051
Castor	Varietal	1	10	4	35.75	30.5	17.21	145706	99948
	Grand Total		**255**	**67.5**					

Livestock and Fisheries

Integrating livestock and fisheries as components in Integrated Farming System models is very important for sustainable agriculture and livelihood security. In this context, KVKs had demonstrated different interventions on different components. A total of 1799 demonstrations (600-dairy buffalo; 1129-dairy cow; 20 in goat; 20 in poultry and 25 in fisheries) were conducted covering 2502 livestock (Table 3.33). In dairy buffalo and cow, technologies such as area specific mineral mixture, probiotics, fodder, rumen bypass fat, urea treatment, chaff cutting, ration balancing, management of mastitis, management of infertility etc. provided higher yield over respective local checks. In goat, technologies such as deworming, ration balancing, mineral mixture, parasite management, IDM etc. gave higher yield over respective local checks. In case of poultry, technologies such as improved breeds gave higher yield over respective local check. In case of fishery, technologies such as Catla, Rohu, Grass carp, Common carp, IFS, composite culture etc. performed well as compared to local check.

Table 3.33 Frontline demonstrations on livestock and fisheries conducted by KVKs of Gujarat

Livestock	Thematic Areas	KVK	Demos (No.)	Livestock (No.)	Unit of Yield	Demo Yield	Check Yield	% Increase
Dairy Buffalo	Breeding Management	14	320	320	Milk yield L/anim./day	202.72	149.22	35.85
	Disease Management	2	160	160	Milk yield L/anim./day	143.02	114.63	24.77
	Nutrition Management	1	25	25	Conception rate	81.81	50.00	63.62
	Disease Management	1	20	20	Fertility rate %	55.00	45.00	22.22
	Nutrition Management	3	35	35	Milk yield L/anim./day	7.20	6.30	14.23
	Nutrition Management	2	40	40	Kg/animal	0.32	0.24	31.25
	Sub-Total		**600**	600				
Dairy Cow	Nutrition Management	1	40	40	Kg/Animal	23.00	19.20	19.79
	Disease Management	1	20	80	Fertility rate %	65.00	20.00	225.00
	Nutrition Management	1	20	20	q/ha	430.00	250	72.00
	Disease Management	1	57	210	No. of ectoparasites/sq inch	5.00	3.00	66.67
	Nutrition Management	23	992	992	Milk yield L/anim./day	386.41	327.24	18.08
	Sub-Total		**1129**	1342				
Fishery	Production and Management	3	25	75	q/ha	14.90	12.78	16.59
Goat	Disease Management	1	20	80	kg/animal	17.20	14.20	21.13
Prawn	Nutrition Management	1	5	5	q/ha	43.54	30.84	41.18
Poultry	Breeding Management	1	20	400	kg/bird	1.15	1.08	6.48
	Grand-Total		**1799**	**2502**				

Goa

Crops

Different technology demonstrations were laid out at farmers' fields. In black pepper, technologies such as IDM gave yield of 4.4 q/ha as compared to 3.44 q/ha in local check with 27.91% increase with net profit of Rs. 76000/ha (Table 3.34). In vegetable crops like dry chilli, 10 demonstrations were laid out with average yield of 7.9 q/ha as compared to check with yield of 5.7 q/ha. In chilli green, technologies such as IDM gave yield of 26 q/ha as compared to 22 q/ha in local check with 18.18% increase in yield. In brinjal, technologies such as IDM gave yield of 25 q/ha as compared to 20 q/ha in local check with 25% increase. 5 demonstrations for field bean were taken in Goa, in which demo yield of 195.5 q/ha and check yield of 167.7 q/ha was obtained. In sugarcane, ICM component provided 450 q/ha yield against 350 q/ha of local yield. In paddy, 8 varietal demonstrations provided yield of 21.1 q/ha against 13.3 q/ha of local check yield. In cashew, IPM gave yield of 13.13 q/ha as compared to 4.11 q/ha in local check. In yard long bean, varietal component provided 197.5 q/ha against 167.9 q/ha of local yield. In sweet corn, 10 varietal demonstrations provided yield of 59.43 q/ha against 51.85 q/ha of local check yield. 317 q/ha of yield in demonstration plots and 272.5 q/ha yield in check plots was observed for watermelon crop for varietal component.

Table 3.34 Thematic area wise physical achievements of FLDs on crops in Goa

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Chilli green	IDM	1	10	1	26	22	18.18	41200	16900
Chilli dry	IDM	1	10	1	7.9	5.7	38.60	842500	587500

Crop	Thematic Area	KVK	Farmers	Area (ha)	Demo yield (q/ha)	Check yield (q/ha)	% Increase	Net returns (Rs/ha)	
								Demo	Check
Black pepper	IDM	1	10	1	4.4	3.44	27.91	76000	52600
Cashew	ICM	1	10	1	16	12	33.33	105000	62000
Brinjal	IDM	1	5	0.05	25	20	25.00	268000	195000
Field bean	ICM	1	5	0.25	195.5	164.7	18.70	632500	325800
Brinjal	ICM	1	5	0.025	152	128	18.75	145000	37400
Sugarcane	ICM	1	10	0.1	450	350	28.57	160125	124000
Paddy	Varietal	1	8	0.5	21.1	13.3	58.65	35120	13900
Cashew	IPM	1	10	1	13.13	4.11	219.46	109110	21740
Yard long bean	Varietal	1	10	0.5	197.5	167.9	17.63	95232	78008
Sweet Corn	Varietal	1	10	0.5	59.43	51.85	14.62	99844	72820
Watermelon	Varietal	1	10	0.5	317	272.5	16.33	144333	123048
	Total		**113**	**7.43**					

Farm Implements

A total of 1622 demonstrations (1086 in Maharashtra and 536 in Gujarat) were organized on farm implements. In chickpea, major implements demonstrated were three row CRIDA planter (BD), zero till seed drill, broad bed furrow and wheel hand hoe. In cotton, major implements demonstrated were mobile shredder for bio mass utilization, cotton slasher, subsoiler and ridger. In paddy, major implements demonstrated were paddy winnower, paddy drum seeder, vertical conveyor reaper, vaibhav sickles, combine harvester and cono weeder. The crop-wise and state-wise details of farm implements demonstrated are given in Table 3.35.

Table 3.35 Implements used by the KVKs with number of demonstrations

Crop	Implement/Equipment used	No. of KVKs	No. of Demos
Maharashtra			
Chickpea	Three row CRIDA planter (BD), Zero till seed drill, Broad Bed Furrow, Wheel hand hoe	4	70
Chilli dry	Solar tunnel dryer	1	10
Chilli green	Sapling transplanter, Rotary tiller, Self-propelled reaper	2	41
Cotton	Shredder, B/D Solar sprayer, Subsoiler, Cotton Slasher, Ridger	4	173
Drumstick	Manual Phule Drumstick harvester	1	15

Crop	Implement/Equipment used	No. of KVKs	No. of Demos
Maharashtra			
Garlic	Solar Conduction Dryer	1	10
Greengram	Bullock drawn 3 row seed drill	1	24
Groundnut	Groundnut Decorticator, Mogi Wheel Hoe	4	80
Jowar	Animal drawn stubble collector, Insect trap for household pest control, grain pro bags, Sulbha bags	3	55
Lime	Lemon Harvester	2	25
Maize	Bullock operated three Tyne weeder, BBF Planter	2	40
Onion	Onion Storage structure	1	7
Paddy	Paddy winnower, Paddy Drum Seeder, Vertical conveyor reaper, Vaibhav Sickles, Combine Harvester, Conoweeder	6	133
Leafy Vegetables	PDKV Mini Tunnel Solar Dryer	2	55
Pigeon pea	Spiral gravity separator, Grain Cleaner Cum Grader	3	33
Safflower	Seed cum fertilizer drill	1	15
Sapota	Folding type Domestic pyramid shape Solar Dryer for drying of sapota chips	1	20
Soybean	Soybean mitten, Broad Bed Furrow planter (BBF), B/D Planter, Spiral grain separator	8	154
Sugarcane	Sugarcane Trash Mulcher	2	40
Tomato	Manual vegetable seedling transplanter & seedling carrier	2	25
Wheat	Wheat Reaper & Binder, Power operated Seed grading machine, Super grain bag	4	61
	Total		**1086**
Gujarat			
Castor	Dibbler	4	75
Cotton	Cotton shredder, Dibbler, Cotton Picking Apron, Drip irrigation	5	39
Fodder Sorghum	Chaff cutter	1	20
Fennel	Wheel hoe	1	10
Groundnut	Wheel hoe, Twin wheel hoe	2	20
Mango	Power Sprayer	1	5
Okra	Twin wheel hoe weeder	1	50
Paddy	Paddy thresher, Mini rice mill	2	62
Pigeonpea	Stalk Puller for uprooting crop stalks	5	225
Soybean	Spiral seed Separator	1	15
Chick Pea	Wheel Sprayer	1	10
Wheat	Seed cum fertilizer drill	1	5
	Total		**536**
	Grand Total		**1622**

Other Enterprises

A total of 3520 demonstrations (2275 in Maharashtra, 1235 in Gujarat and 10 in Goa) were organized on other enterprises such as mushroom production, nutrition garden, drudgery reduction, vermi compost, storage loss minimization techniques and processing and value addition in crops, introduction of soya nuts for eradication of malnutrition among pre-schoolers, preparation of Iron and B-Carotene rich bajra cookies, finger millet biscuit etc. Demonstrations were also conducted on production and management of mushroom, nutrition garden for income generation mainly for farm women by the KVKs of Maharashtra and Gujarat through establishment of SHGs and production units during the year. The enterprise-wise and state-wise details are given Table 3.37.

Table 3.37 Enterprises demonstrated by KVKs

Enterprise	No. of KVKs	No. of Demonstrations
Maharashtra		
Drudgery Reduction	2	70
Mushroom Production	2	620
Nutrition Garden	25	1187
processing and Value Addition	7	97
Sericulture	5	213
Silage preparation	1	10
Solar Cabinet Dryer	3	38
Storage loss minimization technique	3	40
Total		**2275**

Table 3.37 Enterprises demonstrated by KVKs

Enterprise	No. of KVKs	No. of Demonstrations
Gujarat		
Mushroom production	1	38
Drudgery reduction	1	5
Nutrition Garden	19	1133
Vermi compost	5	54
Solar cooker	1	5
Total		**1235**
Goa		
Nutritional Security	1	10
Total		**10**
Grand Total		**3520**

FLDs on Women and Children by KVKs

1804 demonstrations were conducted in Maharashtra and Gujarat state focusing especially on Health and Nutrition aspect of women and children, benefiting 3146 women and children.

Table 3.38 FLDs on Women and Children by KVKs of Maharashtra and Gujarat with beneficiaries

WOMEN AND CHILDREN			
Name of Intervention	**No. of KVKs**	**No. of Demos**	**No. of Beneficiaries**
Maharashtra			
Women			
Awareness programmes	3	16	125
Drudgery Reduction	13	150	329
Enterprises	7	68	119
Farming System	3	72	95
Health and nutrition	3	37	69
Kitchen Garden	9	89	469
Nutri-garden	13	382	644
Storage Technique	7	50	142
Value addition	9	91	197
Women Empowerment	3	19	67
Others (Solar Tunnel dryer)	1	1	5
Total - Women		**975**	**2261**
Children			
Health and nutrition	1	2	46
Others	1	1	13
Total - Children		**3**	**59**
Total Maharashtra		**978**	**2320**
Gujarat			
Women			
Awareness programmes			
Drudgery Reduction	8	82	176
Enterprises	1	6	11
Health and nutrition	1	2	10
Kitchen Garden	11	280	584
Nutri-garden	1	10	20
Value addition	1	15	20
Others (Solar Tunnel dryer)	1	5	5
Total - Women		**395**	**816**
Children			
Health and nutrition	1	10	10
Total - Children		**10**	**10**
Total Gujarat		**405**	**826**
Grand Total		**1383**	**3146**

Cluster Frontline Demonstrations

Cluster Frontline Demonstrations of Pulses under NFSM

Cluster Frontline Demonstrations of Pulses under NFSM 2022 was sanctioned by Ministry of Agriculture & Farmers Welfare, Government of India with an aim to enhance the pulses production in the country. ICAR-ATARI, Pune implemented the project on major pulse crops *viz.* pigeon pea, chickpea, black gram, horse gram, cowpea and green gram in selected districts through respective KVKs in the states of Maharashtra and Gujarat during year 2022. Details of cluster frontline demonstrations are presented as under:

Target and Achievements

Target

A target of 6305 cluster frontline demonstrations was fixed with coverage of 2522 ha of area in the states of Maharashtra and Gujarat, which was approved for kharif, rabi and summer seasons during 2022. Out of which 3050 demonstrations with coverage of area 1220 ha for crops *viz*., green gram, black gram and pigeon pea in kharif season, 2775 demonstrations in an area of 1110 ha for crops *viz*., chickpea, horse gram, cowpea and dolichos bean during rabi season and 480 cluster frontline demonstrations with area of 192 ha on green gram during summer were proposed.

Achievements

In total, 6230 demonstrations were laid out in cluster mode on 2492 ha area out of targeted 6305 CFLDs (2522 ha).

(i) Kharif Season: A total of 2950 technology demonstrations were conducted on three pulse crops *viz*., green gram, black gram and pigeon pea in an area of 1180 ha covering two states Maharashtra and Gujarat.

(a) Green gram: Cluster FLDs were implemented in an area of 210 ha with the involvement of 525 farmers in Maharashtra.

(b) Black gram: Cluster FLDs were implemented in an area of 110 ha with the involvement of 275 farmers of which 70 ha with 175 farmers in Maharashtra and 40 ha with 100 farmers in Gujarat.

(c) Pigeon pea: Cluster FLDs were laid out in an area of 850 ha with participation of 2125farmers of which 720 ha with 1800 farmers in Maharashtra and 130 ha with 325 farmers in Gujarat.

(ii) Rabi Season: For making larger impact in the area, 2750 demonstrations were conducted in cluster mode on three pulse crops *viz*., chickpea, horse gram, dolichus bean and cowpea in an area of 1100 ha covering two states Maharashtra and Gujarat.

(a) Chickpea: Cluster FLDs were implemented in an area of 1010 ha with the involvement of 2525 farmers, out of which 760 ha with 1900 farmers in Maharashtra and 250 ha with 625 farmers in Gujarat.

(b) Horse gram: Cluster FLDs were laid out in area of 40 ha with the involvement of 100 farmers in Maharashtra.

(c) Cowpea: Cluster FLDs were conducted in area of 20 ha with the involvement of 50 farmers in Maharashtra.

(d) Dolichus Bean: Cluster FLDs were conducted in area of 30 ha with the involvement of 75 farmers in Maharashtra.

(iii) Summer Season: A total of 530 technology demonstrations were conducted on green gram in an area of 212 ha covering two states Maharashtra and Gujarat.

(a) Green gram: The allocation of area is as follows; 20 ha with 50 farmers in Maharashtra and 192 ha with 480 farmers in Gujarat.

Table 3.38 Abstract of approved cluster FLDs on pulses under NFSM and their achievements

Sl. No.	Crops	State	Approved CFLDs		Achievements of CFLDs	
			Area (ha)	No. of Demos	Area (ha)	No. of Demos
Kharif- 2022-23						
1	Pigeon Pea	Maharashtra	730	1825	720	1800
		Gujarat	150	375	130	325
	Total		**880**	**2200**	**850**	**2125**
2	Black Gram	Maharashtra	80	200	70	175
		Gujarat	40	100	40	100
	Total		**120**	**300**	**110**	**275**

Sl. No.	Crops	State	Approved CFLDs		Achievements of CFLDs	
			Area (ha)	No. of Demos	Area (ha)	No. of Demos
3	Green Gram	Maharashtra	210	525	210	525
		Gujarat	10	25	10	25
	Total		**220**	**550**	**220**	**550**
	Grand Total (Kharif)		**1220**	**3050**	**1180**	**2950**
Rabi-2021-22						
1	Chick pea	Maharashtra	750	1875	760	1900
	Chick pea	Gujarat	270	675	250	625
	Total		**1020**	**2550**	**1010**	**2525**
2	Cow Pea	Maharashtra	20	50	20	50
3	Horse gram	Maharashtra	40	100	40	100
4	Dolichus Bean	Maharashtra	30	75	30	75
	Grand Total (Rabi)		**1110**	**2775**	**1100**	**2750**
Summer-2022						
1	Green gram	Maharashtra	20	50	20	50
		Gujarat	172	430	192	480
	Total (Summer)		**192**	**480**	**212**	**530**
Total (Kharif + Rabi + Summer)			**2522**	**6305**	**2492**	**6230**

Technologies Demonstrated

Under CFLD on Pulses, improved and latest varieties along with full package of practices for each pulse crop were adopted and followed. Details are given as under:

Varieties

The varieties of different pulse crops were demonstrated. Crop-wise and season-wise varieties demonstrated are presented in Table 3.39.

Table 3.39 Crop-wise varieties demonstrated under NFSM during 2022

Region	KVKs	Name of the crop Varieties					
		Pigeon pea	Black gram	Green gram	Chick pea	Horse gram	Cow pea
Maharashtra							
Vidharbha	Amaravati-I, Amaravati-II, Bhandara, Buldhana-I, Buldhana-II, Chandrapur, Gadchiroli, Gondia, Nagpur-I, Wardha, Washim, Yavatmal-I, Yavatmal-II	BDN-716, PKV-TARA	AKU-10-01,	BM-2003-02, Utkarsha	RVG-202, JAKI-9218, Phule Vikram, PDKV-Kanchan, Rajvijay -202		
Marathwada	Aurangabad –I, Aurangabad –II, Beed-I, Beed-II, Hingoli, Jalna-I, Jalna-II, Latur, Nanded-I, Nanded-II, Osmanabad, Parbhani,	BDN-711, BDN-716, BDN 2013-41	AKU-10-1	BM 2003-2, Utkarsh	BDNG-797, Phule Vikram,		

Region	KVKs	Name of the crop Varieties					
		Pigeon pea	Black gram	Green gram	Chick pea	Horse gram	Cow pea
Khandesh	Dhule, Jalgaon- I, Jalgaon- II, Nandurbar, Nashik- II	BDN-711	AKU-15, Vishwas	BM2003-2, GM-6,	Phule Vikram, Rajvijay 203, Digvijay		
Western Maharashtra	Ahmednagar-I, Ahmednagar-II, Kolhapur-I, Kolhapur-II, Sangli-I, Satara-I, Solapur-I, Solapur-II, Pune-I,	BDN-711			Phule Vikram, Digvijay		
Konkan	Ratnagiri, Sindhudurg, Raigadh				Dapoli Moong No.-1	Dapoli-1	Kokan sadabahar
Gujarat							
North Gujarat	Mehsana, Patan, Sabarkantha	AGT-2	GU-1	GNM-6			
Central Gujarat	Ahmedabad, Anand Bharuch, Dahod, Kheda, Narmada, Panchmahal, Vadodara	Gujarat Tuver-104 (GT-104), AGT-2, GJP-1	Guj. Urad 3	Gujarat Mungbean-6 (GM-6), GAM-5	GJG 3, GG-3		
South Gujarat	Dang, Tapi, Valsad, Navsari, Surat			GM-6	GG-5		
Saurashtra	Amreli, Bhavnagar, Jamnagar, Junagadh, Morbi, Porbandae, Rajkot-I, Surendranagar				GJG-6, GJG–5, GG-5		

Production Technologies

The general and specific production technologies demonstrated for pulse crops under CFLDs were integrated crop management; integrated nutrient, pest, disease management; seed treatment with bio agents; foliar application of micro nutrient mixtures like pulse wonder; pheromone traps, yellow stick traps; line sowing; utilization of residual moisture after cereals; mechanical harvesting in chickpea etc.

Results

Cluster FLDs were implemented on major pulse crops *viz*., green gram, black gram, pigeon pea, chickpea, horse gram, dolichus bean and cowpea under NFSM during 2021-22 in an area of 2492 ha by involving 6230 farmers covering from two states namely Maharashtra and Gujarat. Season-wise and crop-wise results are presented here under:

Performance of CFLDs on *kharif* pulses: Cluster FLDs on three pulse crops *viz*., green gram, black gram and pigeon pea were implemented during *kharif* 2022. The demonstrations on green gram were laid out by 14 KVKs and average yield of 7.42 q/ha obtained which was higher (33.60 %) over local check (5.73 q/ha). In black gram, 10 KVKs laid out demonstrations and got mean yield of 8.94 q/ha which was more than local practice (7.24 q/ha). Under pigeon pea, 45 KVKs conducted cluster FLDs and obtained average yield of 14.89 q/ha which showed superiority (27.17 %) over check (11.71 q/ha). State-wise and centre wise data is presented in Table 3.40.

Performance of CFLDs on *Rabi* pulses: Technology demonstrations on three pulse crops *viz.,* chick pea, horse gram, cowpea and dolichos bean were implemented during *rabi* season. Chickpea was demonstrated by 57 KVKs and average yield obtained was 19.05 q/ha which was greater (24.68 %) than existing practice, while horse gram was demonstrated by 2 KVK that resulted average yield of 8.65 q/ha which was higher (55.86%) than farmer's practice (5.55 q/ha). Dolichus bean was demonstrated by two KVKs that resulted average yield of 10.8 q/ha which was more (31.54%) than farmer's practice (8.21 q/ha). Cowpea was demonstrated by one KVK that resulted average yield of 10.55 q/ha which was more (45.52 %) than farmer's practice (7.25 q/ha). State-wise and KVK wise data is presented in Table 3.40.

Performance of CFLDs on *Summer* pulses: Green gram demonstrations (480) were conducted on 192 ha area in summer season. Average yield of 10.30 q/ha was attained under demonstrations which was higher by 23.96 % over local check (8.31 q/ha). Net profit of Rs. 39216/ha was gained which was higher by 37.88% over existing practice. State-wise and KVK wise data is presented in Table 3.40.

Table 3.40 State-wise and KVK wise data on pulses in different seasons

State	KVK	Season	Crop	Area (ha)	Demo (No.)	Average Yield (q/ha)		Increase (%)	Net Return (Rs./ha)		Increase (%)
						Demo	Check		Demo	Check	
Maharashtra	36	Kharif	Pigeon pea	720	1800	14.14	10.92	29.49	65161	42899	67.82
Gujarat	9	Kharif	Pigeon pea	130	325	15.63	12.49	25.2	65989	49086	34.44
Total	**45**			**850**	**2125**	**14.89**	**11.71**	**27.17**	**65575**	**45993**	**42.58**
Maharashtra	7	Kharif	Black gram	70	175	9.54	7.59	24.72	35380	25932	39.15
Gujarat	3	Kharif	Black gram	40	100	8.34	6.88	21.27	35487	26435	34.27
Total	**10**			**110**	**275**	**8.94**	**7.24**	**23.57**	**35434**	**26184**	**35.33**
Maharashtra	14	Kharif	Green gram	210	525	7.42	5.73	33.6	24468	17960	40.92
Total	**14**			**210**	**525**	**7.42**	**5.73**	**33.6**	**24468**	**17960**	**40.92**
Maharashtra	40	Rabi	Chickpea	760	1900	19.1	14.83	28.01	35380	25932	39.15
Gujarat	17	Rabi	Chickpea	250	625	18.99	15.72	20.77	64274	48992	31.19
Total	**57**			**1010**	**2525**	**19.05**	**15.28**	**24.68**	**49827**	**37462**	**33.01**
Maharashtra	2	Rabi	Cow pea	20	50	10.55	7.25	45.52	59700	40250	47.36
Total	2			**20**	**50**	**10.55**	**7.25**	**45.52**	**59700**	**40250**	**47.36**
Maharashtra	2	Rabi	Horse gram	40	100	8.65	5.55	55.86	33840	14625	131.38
Total	2			40	100	8.65	5.55	55.86	33840	14625	131.38
Maharashtra	2	Rabi	Dolichus Bean	30	75	10.8	8.21	31.54	40700	24800	64.11
Total	2			**30**	**75**	**10.8**	**8.21**	**31.54**	**40700**	**24800**	**64.11**
Maharashtra	2	Summer	Green gram	20	50	9.95	8.15	22.09	41990	30210	38.99
Gujarat	11	Summer	Green gram	172	430	10.64	8.46	25.74	36442	26673	36.63
Total	**13**			**192**	**480**	**10.30**	**8.31**	**23.96**	**39216**	**28442**	**37.88**

Training Courses Conducted on Pulses

Different on-campus and off-campus training courses were organized to orient the participating farmers about pulses production and protection technologies. In total, 579 training courses were organized with the participation of 15786 farmers (11253 male and 4533 female) that consists of 267 on campus with 7145 participants (5220 male and 1925 female) and 312 off-campus with 8641 participants (6033 male and 2608 female). Details are given in Table 3.41.

Table 3.41 Training programs conducted on pulses production technologies

State	No. of KVKs	Area (ha)	Dem (No.)	On campus training				Off campus training				Total No. of Trainings and Farmers			
				C	M	F	T	C	M	F	T	C	M	F	T
Kharif: Pigeon Pea															
Maharashtra	36	720	1800	47	1678	363	2041	52	1830	311	2141	99	3508	674	4182
Gujrat	9	130	325	13	348	201	549	12	268	133	401	25	616	334	950
Total	**45**	**850**	**2125**	**60**	**2026**	**564**	**2590**	**64**	**2098**	**444**	**2542**	**124**	**4124**	**1008**	**5132**

State	No. of KVKs	Area (ha)	Dem (No.)	On campus training				Off campus training				Total No. of Trainings and Farmers			
				C	M	F	T	C	M	F	T	C	M	F	T
Kharif: Blackgram															
Maharashtra	7	70	175	29	10	139	149	42	44	286	330	71	54	425	479
Gujrat	3	40	100	4	79	23	102	2	37	9	46	6	116	32	148
Total	**10**	**275**	**133**	**33**	**89**	**162**	**251**	**44**	**81**	**295**	**376**	**77**	**170**	**457**	**627**
Kharif: Green gram															
Maharashtra	16	210	525	18	515	118	633	24	642	87	729	42	1157	205	1362
Total	**16**	**210**	**525**	**18**	**515**	**118**	**633**	**24**	**642**	**87**	**729**	**42**	**1157**	**205**	**1362**
Rabi: Chickpea															
Maharashtra	35	760	1900	53	1227	442	1669	50	1617	752	2369	103	2844	1194	4038
Gujrat	15	250	625	16	465	159	624	24	573	366	939	40	1038	525	1563
Total	**50**	**1010**	**2525**	**69**	**1692**	**601**	**2293**	**74**	**2190**	**1118**	**3308**	**143**	**3882**	**1719**	**5601**
Rabi: Cowpea															
Maharashtra	2	20	50	24	95	75	170	39	184	99	283	63	279	174	453
Maharashtra	2	40	100	36	37	73	110	32	99	231	330	68	136	304	440
Dolichus Bean															
Maharashtra	2	30	75	5	90	68	158	5	133	63	196	10	223	131	354
Summer: Green gram															
Maharashtra	2	20	50	4	57	10	67	2	39	9	48	6	96	19	115
Gujrat	10	172	430	18	619	254	873	28	567	262	829	46	1186	516	1702
Total	**12**	**192**	**480**	**22**	**676**	**264**	**940**	**30**	**606**	**271**	**877**	**52**	**1282**	**535**	**1817**
Grand Total	**139**	**2627**	**6013**	**267**	**5220**	**1925**	**7145**	**312**	**6033**	**2608**	**8641**	**579**	**11253**	**4533**	**15786**

Extension Activities

For making wide exposure and awareness, different extension activities on cluster frontline demonstrations for farmers and extension functionaries were organized by KVKs during season (Table 3.42). A total of 15511 participants (12005 farmers and 3506 extension officials) attended in different extension activities and got benefitted about pulses demonstrations organized on pigeon pea, chickpea, black gram, green gram, horse gram, dolichus bean and cow pea in cluster mode.

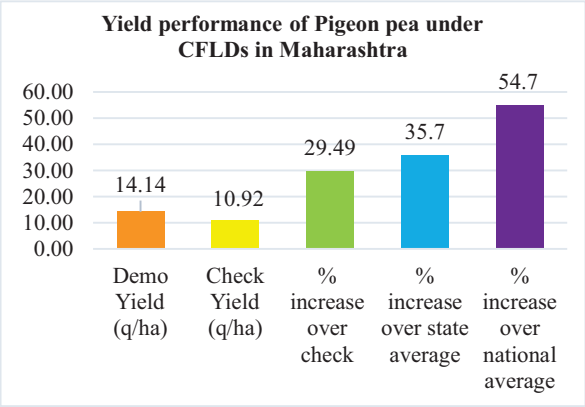
Table 3.42 Extension activities and number of participants

State	KVK	Area (ha)	Demo (No.)	Extension Activities and Participants								Total			
				Farmers				Extension Personnel							
				Extn Act.	M	F	T	Extn Act.	M	F	T	Extn Act.	M	F	T
Kharif: Pigeon Pea															
Maharashtra	36	720	1800	114	3485	638	4123	50	268	64	332	164	3753	702	4455
Gujrat	9	130	325	24	225	318	543	16	37	30	67	40	262	348	610
Total	**45**	**850**	**2125**	**138**	**3710**	**956**	**4666**	**66**	**305**	**94**	**399**	**204**	**4015**	**1050**	**5065**

State	KVK	Area (ha)	Demo (No.)	Extension Activities and Participants								Total			
				Farmers				Extension Personnel							
				Extn Act.	M	F	T	Extn Act.	M	F	T	Extn Act.	M	F	T
Kharif: Black gram															
Maharashtra	7	70	175	17	599	95	694	69	68	93	161	86	667	188	855
Gujrat	3	40	100	20	336	28	364	5	48	0	48	25	384	28	412
Total	**10**	**275**	**133**	**37**	**935**	**123**	**1058**	**74**	**116**	**93**	**209**	**111**	**1051**	**216**	**1267**
Kharif: Green gram															
Maharashtra	16	210	525	63	1114	243	1357	24	195	39	234	87	1309	282	1591
Total	**16**	**210**	**525**	**63**	**1114**	**243**	**1357**	**24**	**195**	**39**	**234**	**87**	**1309**	**282**	**1591**
Rabi: Chickpea															
Maharashtra	35	760	1900	170	3207	715	3922	71	436	190	626	241	3643	905	4548
Gujrat	15	250	625	41	697	236	933	35	136	49	185	76	833	285	1118
Total	**50**	**1010**	**2525**	**211**	**3904**	**951**	**4855**	**106**	**572**	**239**	**811**	**317**	**4476**	**1190**	**5666**
Rabi: Cowpea															
Maharashtra	2	20	50	3	155	69	224	3	10	5	15	6	165	74	239
Rabi: Hoarse gram															
Maharashtra	2	40	100	6	41	42	83	2	4	2	6	8	45	44	89
Rabi: Dolichus Bean															
Maharashtra	2	30	75	13	257	176	433	14	161	130	291	27	418	306	724
Summer: Green gram															
Maharashtra	2	20	50	2	35	9	44	3	3	0	3	5	38	9	47
Gujrat	10	172	430	28	459	305	764	3	29	30	59	31	488	335	823
Total	12	192	480	30	494	314	808	6	32	30	62	36	526	344	870
Grand Total	**139**	**2627**	**6013**	**501**	**10610**	**2874**	**13484**	**295**	**1395**	**632**	**2027**	**796**	**12005**	**3506**	**15511**

Yield performance of pigeon pea cultivars in Maharashtra

Technology demonstrations on pigeon pea were conducted in cluster mode with adoption of improved cultivars and full package of practices at farmers' fields. Highest yield of 17.06 q/ha was obtained under Variety BDN-711 in Ahmednagar-II, Aurangabad -I, Aurangabad -II, Beed-II, Jalgaon-I, Jalna-I, Jalna-II, Nanded-II, Nandurbar and Osmanabad districts with net profit of Rs. 61442/ha. BDN-2013-41 also performed well in Beed-I, Nanded-II, Pune-I, Solapur- I districts where 15.80 q/ha yield was attained with net gain of Rs. 56738/ha (Table 3.43). Overall in Maharashtra, 14.14 q/ha mean yield was attained under demonstrations which was superior about 29.49 % higher over local check (10.92 q/ha) and also reflected 10.42 % higher over at state average and 9.14% at national average yield (Fig. 3.9)



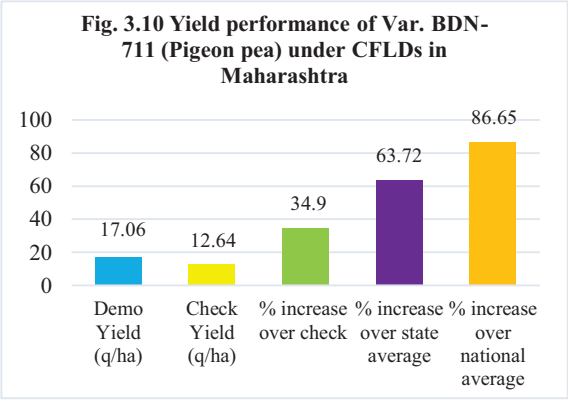
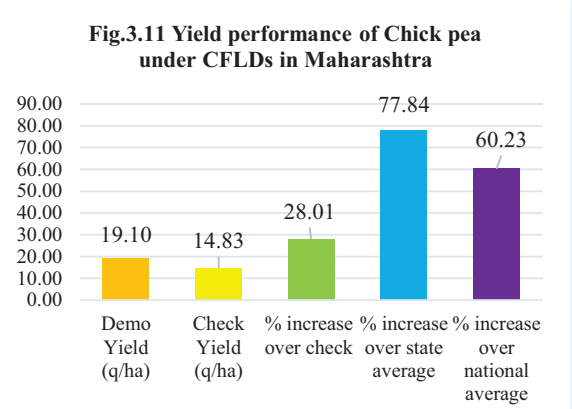


Table 3.43 Yield performance of pigeon pea cultivars

Variety	District	Area (ha)	No. of Demos	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
BDN-711	Ahmednagar-II, Aurangabad -I, Aurangabad -II, , Beed-II, Jalgaon-I, Jalna-I, Jalna-II, Nanded-II Nundurbar, Osmanabad	140	350	17.06	12.64	34.90	61442	50557	59.16
BDN-716	Akola, Amravati-I, Amravati-II, Buldhana-II, Hingoli, Latur, Nagpur, , Parbhani, Wardha, Washim, Yavatmal-I, Yavatmal-II	350	875	13.31	10.75	23.76	61442	42416	44.86
BDN 2013-41	Beed-I, Nanded- II, Pune-I, Solapur-I	100	250	15.80	11.66	35.48	56738	38480	52.73
PKV-TARA	Bhandara, Chandrapur, Gondia, Gadchiroli,	40	100	6.98	5.55	25.68	29095	17025	87.40

Performance of chickpea cultivars in Maharashtra

On an average 19.10 q/ha yield of chickpea was obtained in Maharashtra by following improved varieties and district specific technologies under cluster frontline demonstrations (Table 3.44). It was shown that mean yield was 77.84 % higher over state average and 60.23 % higher over national average yield (Fig. 3.11). Region wise and variety wise performance of chickpea cultivar Phule Vikram is given in Fig. 3.12



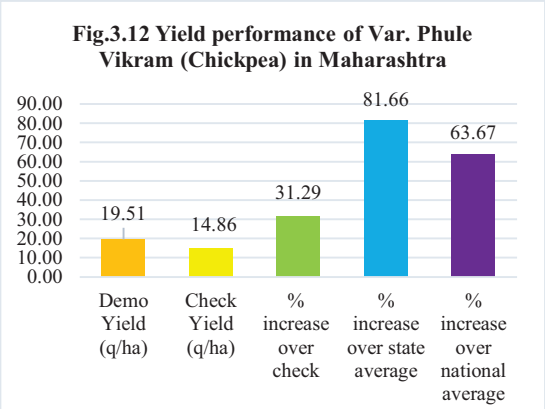
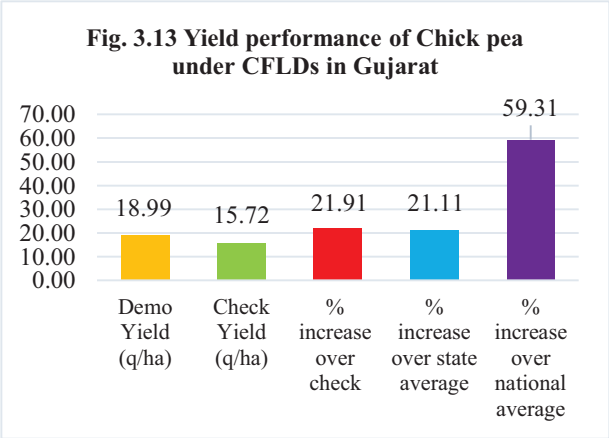


Table 3.44 Performance of chickpea cultivars in Maharashtra

Variety	District	Area (ha)	No. of Demos	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
BDNG-797 (Akash)	Parbhani	20	50	18.9	15.99	18.20	62940	48554	29.63
JAKI-9218	Gadchiroli	20	50	17.7	14.35	23.34	88600	77800	13.88
PDKV Kanchan	Bhandara, Buldhana-II, Chandrapur, Gondia, Wardha, Yavatmal-I	100	250	14.80	12.07	22.57	41550	31450	32.11
Phule Vikrant	Osmanabad, Pune-I	30	75	19.83	15.8	25.53	51150	29000	76.38
Phule Vikram	Ahmednagar-I, Ahmednagar-II, Aurangabad- I , Aurangabad- II Beed- I, Beed-II, Dhule, Jalgaon-I, Latur, Jalna- I, Nandurbar, Nashik- I, Nashik- II, Jalgaon-II, Solapur-I, Solapur-II,Washim, Yavatmal- II	520	1300	19.51	14.86	31.29	59775	41400	44.38
(Rajvijay) RVG-202	Akola, Amaravati-I, Buldhana-I	50	125	23.21	18.54	25.16	92185	72165	27.74
(Rajvijay) RVG-203	Nagpur-I	20	50	19.95	16.5	20.91	44750	32100	39.41

Yield performance of Chickpea in Gujarat

In Gujarat, cluster demonstrations on GJG-3, 5 & 6 and GG-3 & 5 cultivars were conducted on 230 ha. Mean yield of Var. GG-5 was 17.44 q/ha attained under demonstrations which was 21.91 % higher over existing practice (14.31 q/ha), 11.22% higher over state and 46.31 % over national average yield (Fig. 3.14). Net economic gain of Rs. 64274/ha was realised by the farmers which was 31.19 % more than local check (Table 3.45).



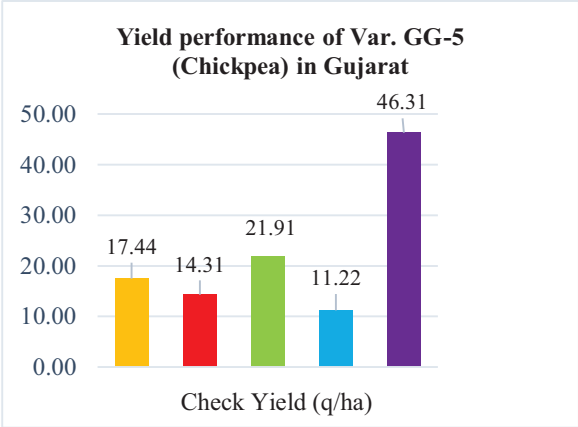


Table 3.45 Yield performance of chickpea in Gujarat

Variety	District	Area (ha)	No. of Demos	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
GJG-3,5&6	Ahmedabad, Amreli, Mehsana, Porbander, Rajcot-I	90	225	22.62	19.03	18.84	80073	63784	25.54
GG 3 & 5	Bhavnagar, Jamnagar, Panchamal, Kheda, Narmada, Navsari, Patan, Surat, Tapi	140	350	17.47	14.31	22.04	58472	43205	35.34

Yield Performance of Pigeon pea Cultivars in Gujarat

Under cluster frontline demonstrations, average yield of 15.63 q/ha was attained which was 25.20 % over local check. GT-105 cultivar provided 18.50 q/ha which was superior over local check (14.60 q/ha) (Fig. 3.15). GT-104 cultivar provided 15.49 q/ha which was superior over local check (12.01 q/ha) (Fig. 3.16).

Fig.3.15 Yield performance of Var. GT-105 (Chickpea) in Gujarat

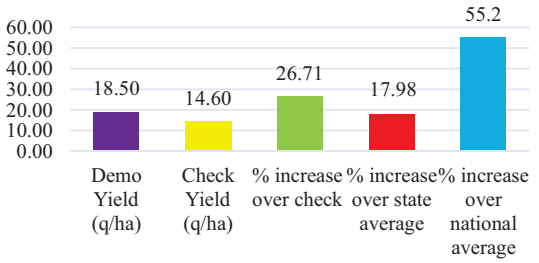


Table 3.46 Yield level and economic performance of pigeon pea cultivars in Gujarat

Variety	District	Area (ha)	No. of Demos	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
GJP-1	Amreli, Vadodara, Ahmdabad	30	75	15.48	13.23	17.00	72654	56116.67	29.47
GT-104	Bharuch, Navsari, Panchmahal, Tapi	60	150	15.49	12.01	28.91	68633	50419	36.12
GT-105	Narmada	30	75	18.50	14.60	26.71	53960	37250	44.86

Cluster Frontline Demonstrations of Oilseeds under NFSM 2022

Cluster Frontline Demonstrations of Oilseeds under NFSM 2022 was sanctioned by Government of India, Ministry of Agriculture & Farmers Welfare with an aim to enhance the production of oilseeds in the country. As a part of this project, ICAR-ATARI, Pune implemented the project on oilseeds crops viz, groundnut, sesame, soybean, castor, linseed, safflower and mustard in selected districts through respective KVKs in the states of Maharashtra, Gujarat and Goa during the year 2022. Details are presented here under:

Target and Achievements

Target

In total, 6450 demonstrations on oilseed crops in cluster mode were targeted covering 2580 ha area in Maharashtra, Gujarat and Goa during kharif, rabi and summer seasons. Out of which 4675 demonstrations in area of 1870 ha for crops viz., groundnut, sesame, soybean and castor was target during kharif season. A total of 625 demonstrations on 250 ha area for mustard, linseed and safflower during rabi season and 1150 CFLDs in an area of 460 ha for groundnut and sesame during summer was targeted.

Achievements

A total of 6122 cluster frontline demonstrations were implemented in an area of 2484 ha, out of targeted 6450 CFLDs (2580 ha.) in Maharashtra, Gujarat and Goa during 2022.

(i) Kharif Season: A total of 4302 CFLDs were conducted on five oilseeds crops viz., groundnut, sesame, soybean and castor in an area of 1758 ha covering three states Maharashtra, Gujarat and Goa.

(a) Groundnut: Cluster FLDs were organized in an area of 340 ha with 841 participating farmers of which 40 ha with 100 farmers in Maharashtra, 290 ha with 716 farmers in Gujarat and 10 ha with 25 farmers in Goa.

(b) Sesame: Cluster FLDs were organized in an area of 98 ha with 193 participating farmers of which 30 ha with 75 farmers in Maharashtra and 68 ha with 118 farmers in Gujarat.

(c) Soybean: Cluster FLDs were laid out on area of 1120 ha benefitting 2776 farmers of which 950 ha with 2351 farmers in Maharashtra and 170 ha with 425 farmers in Gujarat.

(d) Castor: Castor demonstrations were carried on 200 ha area with involvement of 492 farmers in Gujarat.

(ii) Rabi Season: A total of 550 CFLDs were conducted on three oilseed crops viz mustard, linseed and safflower in an area of 220 ha covering two states Maharashtra and Gujarat.

(a) Mustard: In total, 200 demonstrations were conducted on mustard covering an area of 80 ha in two states Maharashtra and Gujarat.

(b) Linseed: 175 farmers demonstrated linseed technologies on an area of 70 ha in Maharashtra.

(c) Safflower: 175 farmers laid out demonstrations on sunflower with coverage of 70 ha area in Maharashtra.

(iii) Summer Season: A total of 1270 CFLDs were conducted on two oilseed crops viz., groundnut, sesame and soybean in an area of 506 ha covering two states Maharashtra and Gujarat.

(a) Groundnut: Cluster FLDs were implemented in an area of 306 ha with the involvement of 770 farmers of which 226 ha with 570 farmers in Maharashtra and 80 ha with 200 farmers in Gujarat.

(b) Sesame: Cluster FLDs were implemented in an area of 170 ha with the involvement of 425 farmers of which 90 ha with 225 farmers in Maharashtra and 80 ha with 200 farmers in Gujarat.

Crop-wise data for three seasons of 2022 viz., *Kharif, Rabi* and *Summer* on approved CFLDs and achievements are presented in Table 3.47.

Table 3.47 Abstract of approved Cluster FLDs on Oilseeds under NFSM and their achievements

Sr. No.	Crops	States	Approved CFLDs		Achievements of CFLDs	
			Area (ha)	No. of Demos	Area (ha)	No. of Demos
Kharif-2022						
1	**Ground nut**	Maharashtra	80	200	40	100
		Gujarat	310	775	290	716
		Goa	20	50	10	25
	Total		**410**	**1025**	**340**	**841**
2	**Sesame**	Maharashtra	70	175	30	75
		Gujarat	40	100	68	118
	Total		**110**	**275**	**98**	**193**
3	**Soybean**	Maharashtra	980	2450	950	2351
		Gujarat	170	425	170	425
	Total		**1150**	**2875**	**1120**	**2776**

Sr. No.	Crops	States	Approved CFLDs		Achievements of CFLDs	
			Area (ha)	No. of Demos	Area (ha)	No. of Demos
4	**Castor**	Gujarat	200	500	200	492
	Total		**200**	**500**	**200**	**492**
	Grand Total (Kharif)		**1870**	**4675**	**1758**	**4302**
Rabi-2021-22						
1	**Linseed**	Maharashtra	80	200	70	175
2	**Safflower**	Maharashtra	70	175	70	175
3	**Mustard**	Maharashtra	40	100	20	50
		Gujarat	60	150	60	150
	Grand Total (Rabi)		**250**	**625**	**220**	**550**
Summer -2022						
1	Groundnut	Maharashtra	210	525	226	570
		Gujarat	80	200	80	200
	Total		**290**	**725**	**306**	**770**
2	Sesame	Maharashtra	90	225	90	225
		Gujarat	80	200	80	200
	Total		**170**	**425**	**170**	**425**
3	Soybean	Maharashtra	**0**	**0**	**30**	**75**
	Grand Total (Summer)		**460**	**1150**	**506**	**1270**
	Total (Kharif +Rabi + Summer)		**2580**	**6450**	**2484**	**6122**

Technologies Demonstrated

Improved varieties and latest technologies were included under cluster frontline demonstrations on oilseed crops. Details are given in Table 3.48.

Table 3.48 Crop-wise and season-wise varieties demonstrated under NFSM during 2022

Crop	Varieties		
	Kharif	Rabi	Summer
Groundnut	JL-776, Konkan Bhuratna, GJG-22, GJG - 32, TG-37-A, DH-256	-	GG-34,Girnar 4,GJG-31, JL1085, KDG-160 (Phule Chaitanya), Konkan Bhuratna, Phule Bharati, TAG 24, TG-37-A, TG 51, GJG -9
Sesame	Kharif AKT-64, JLT-408 GJT-5	-	PKV-NT-11, GJT-5, GT 3
Soybean	Phule Sangam (KDS-726), PDKV Yellow Gold (AMS-1001), JS 335, Phule Kimaya (KDS-753), MACS 1188, MAUS -158, MAUS-162, MAUS-612, NRC 37, PDKV-Purva	-	-
Castor	GCH 10, GCH-8, GCH-9, GAC-11	-	-
Linseed	-	LSL-93, PKV-NL-260	-
Mustard	-	GDM-4, ACN-9 (Shatabdi), TAM-108-1, DRMRIJ 31	-
Safflower	-	PKV- Pink, ISF-764, PBNS-86	-

Production and Protection Technologies

Specific production and protection technologies of oilseed crops were identified and adopted under demonstrations to show the potential of improved varieties.

- Integrated crop management
- Integrated nutrient, pest, disease management
- Seed treatment with bio agents
- Foliar applications of micro nutrient mixtures.
- Pheromone traps, yellow stick traps
- Line sowing
- Utilization of residual moisture after cereals
- Relay cropping etc.

Results

Seven oilseed crops viz., groundnut, sesame, soybean, castor, mustard, linseed and safflower were demonstrated under NFSM during 2022 in an area of 2484 ha by involving 6122 farmers covering three states namely Maharashtra, Gujarat and Goa. Season-wise and crop-wise results are presented here under:

Performance of *Kharif* Oilseeds

Cluster FLDs on 4 oilseed crops viz., groundnut, sesame, soybean and castor were implemented during *kharif* 2022. Demonstrations on groundnut were executed by 17 KVKs and provided mean yield of 21.97 q/ha which was greater (16.14%) than farmer's practice (18.92 q/ha). In sesame, 4 KVKs laid out demonstrations and obtained average yield of 6.99 q/ha which showed superiority (23.63 %) over existing practice (5.66 q/ha). In soybean, 46 KVKs demonstrated latest technologies which provided average yield of 19.25 q/ha which was higher over check (15.06 q/ha). In case of castor, 10 KVKs demonstrated the latest technologies, resulted average yield of 29.29 q/ha which was better against local practice (24.31 q/ha). State-wise and KVK wise data is presented in Table 3.49.

Performance of *Rabi* Oilseeds

Technology demonstrations on linseed, safflower and mustard were organized during rabi 2021-22. Linseed technology was demonstrated at 7 KVKs and resulted 6.04 q/ha yield which was more (26.99%) than farmer's practice (4.75 q/ha). In safflower, 4 KVKs demonstrated latest technologies that provided yield of 11.33 q/ha which was greater (31.14%) than existing practice (8.64 q/ha). In mustard, 2 KVKs organized demonstrations in field situations which gave average yield 26.74 q/ha which was superior over check (4.30 q/ha) in Maharashtra and in Gujarat resulted 21.05 q/ha yield which was more (18.72%) than farmer's practice (17.73 q/ha). State-wise and KVK wise data is presented in Table 3.49.

Performance of *Summer* Oilseed Crops

Groundnut, sesame and soybean were taken up under cluster demonstrations in summer 2022. A total of 770 demonstrations were laid out on summer groundnut. On an average of 22.47 q/ha yield was achieved under summer groundnut which was about 17.03 % higher over local practice. Average net gain was of Rs. 73230 /ha was obtained by the farmers. Similarly, under sesame average yield of 7.30 q/ ha was recorded which was almost 19.29% more over local check with net profit of Rs. 37211/ha and under soybean average yield of 21.41 q/ ha was recorded, which was 53.87% more over local check with net profit of Rs.56965/ha.

Table 3.49 Performance of oilseed crops

State	KVK	Season	Crop	Area (ha)	Demo (No.)	Average Yield (q/ha)		Increase (%)	Net Return (Rs./ha)		Increase (%)
						Demo	Check		Demo	Check	
Maharashtra	2	Kharif	Groundnut	40	100	19.43	16.21	19.87	66688	44099	51.22
Gujarat	14	Kharif	Groundnut	290	716	21.64	18.25	18.59	88285	65027	35.77
Goa	1	Kharif	Groundnut	10	25	24.85	22.30	11.43	151200	126580	19.45
Total	**17**			**340**	**841**	**21.97**	**18.92**	**16.14**	**102058**	**78569**	**29.90**
Maharashtra	2	Kharif	Sesame	30	75	5.87	4.90	19.73	28350	21700	30.65
Gujarat	2	Kharif	Sesame	68	118	8.12	6.41	26.61	58306	43260	34.78
Total	**4**			**98**	**193**	**6.99**	**5.66**	**23.63**	**43328**	**32480**	**33.40**

State	KVK	Season	Crop	Area (ha)	Demo (No.)	Average Yield (q/ha)		Increase (%)	Net Return (Rs./ha)		Increase (%)
						Demo	Check		Demo	Check	
Maharashtra	39	Kharif	Soybean	950	2351	21.65	16.65	**30.00**	69829	45697	52.81
Gujarat	7	Kharif	Soybean	170	425	16.85	13.47	25.15	49778	36006	38.25
Total	**46**			**1120**	**2776**	**19.25**	**15.06**	**27.83**	**59804**	**40851**	**46.39**
Gujarat	10	Kharif	Castor	200	492	29.29	24.31	20.46	134908	106104	27.15
Kharif Total	**77**			**1758**	**4302**	**19.37**	**15.99**	**21.20**	**85024**	**64501**	**31.82**
Maharashtra	7	Rabi	Linseed	70	175	6.04	4.75	26.99	22341	12420	79.88
Maharashtra	4	Rabi	Safflower	70	175	11.33	8.64	31.14	41436	28474	45.52
Maharashtra	2	Rabi	Mustard	20	50	5.45	4.30	26.74	25770	16750	53.85
Gujarat	6	Rabi	Mustard	60	150	21.05	17.73	18.72	98244	75259	30.54
Rabi Total	**19**			**220**	**550**	**10.97**	**8.86**	**23.84**	**46947**	**33226**	**52.45**
Maharashtra	18	Summer	Groundnut	226	570	22.88	17.09	33.84	72320	48982	47.65
Gujarat	8	Summer	Groundnut	80	200	22.06	16.97	30.04	74139	52558	41.06
Total	**26**			**306**	**770**	**22.47**	**17.03**	**31.94**	**73230**	**50770**	**44.24**
Maharashtra	6	Summer	Sesame	90	225	5.64	4.71	19.67	28383	20965	35.38
Gujarat	**8**	Summer	Sesame	80	200	8.95	7.52	19.05	46040	34517	33.38
Total	**14**			**170**	**425**	**7.30**	**6.12**	**19.29**	**37211**	**27741**	**34.14**
Maharashtra	**2**	Summer	Soybean	30	75	21.41	13.92	53.87	56965	41925	35.87
Summer Total	**42**			**506**	**1270**	**51.18**	**37.06**	**38.09**	**167406**	**120436**	**39.00**
Total	**138**			**2484**	**6122**	**27.17**	**20.64**	**31.69**	**99793**	**72721**	**37.23**

Training Courses on Oilseed Crops

On and off campus training courses were organized by KVKs on full package of practices for groundnut, sesame, soybean, castor, linseed, safflower and mustard. A total of 339 training courses were structured with the participation of 11270 farmers (9425 male and 1845 female) that consists of 160 on-campus with 5279 participants (4384 male and 895 female) and 208 off-campus with 6861 participants (5693 male and 1168 female). Details are given in Table 3.50.

Table 3.50 Training courses organised on oilseed crops

State	No. of KVKs	Area (ha)	Dem (No.)	On campus training				Off campus training				Total No. of Trainings and Farmers			
				C	M	F	T	C	M	F	T	C	M	F	T
Kharif: Groundnut															
Maharashtra	2	40	100	3	80	35	115	5	130	52	182	8	210	87	297
Gujarat	14	290	716	22	529	72	601	22	540	84	624	44	1069	156	1225
Goa	1	10	25	0	0	0	0	4	57	38	95	4	57	38	95
Total	**17**	**340**	**841**	**25**	**609**	**107**	**716**	**31**	**727**	**174**	**901**	**56**	**1336**	**281**	**1617**
Kharif: Sesame															
Maharashtra	2	30	75	3	82	15	97	7	127	39	166	10	209	54	263
Gujarat	2	68	118	0	0	0	0	4	106	0	106	4	106	0	106
Total	**4**	**98**	**193**	**3**	**82**	**15**	**97**	**11**	**233**	**39**	**272**	**14**	**315**	**54**	**369**

State	No. of KVKs	Area (ha)	Dem (No.)	On campus training				Off campus training				Total No. of Trainings and Farmers			
				C	M	F	T	C	M	F	T	C	M	F	T
Kharif: Soybean															
Maharashtra	39	950	2351	49	1653	292	1945	68	2291	302	2593	117	3944	594	4538
Gujarat	7	170	425	13	291	118	409	12	261	102	363	25	552	220	772
Total	**46**	**1120**	**2776**	**62**	**1944**	**410**	**2354**	**80**	**2552**	**404**	**2956**	**142**	**4496**	**814**	**5310**
Kharif: Castor															
Gujarat	10	200	492	17	478	33	511	13	360	74	434	30	838	107	945
Total	**10**	**200**	**492**	**17**	**478**	**33**	**511**	**13**	**360**	**74**	**434**	**30**	**838**	**107**	**945**
Rabi: Linseed															
Maharashtra	7	70	175	9	209	50	259	12	325	56	381	21	534	106	640
Total	**7**	**70**	**175**	**9**	**209**	**50**	**259**	**12**	**325**	**56**	**381**	**21**	**534**	**106**	**640**
Rabi: Safflower															
Maharashtra	4	70	175	3	111	23	134	5	210	50	260	8	321	73	394
Total	**4**	**70**	**175**	**3**	**111**	**23**	**134**	**5**	**210**	**50**	**260**	**8**	**321**	**73**	**394**
Rabi: Mustard															
Maharashtra	2	20	50	2	50	14	64	2	78	20	98	4	128	34	162
Gujarat	6	60	150	5	150	13	163	6	182	3	185	11	332	16	348
Total	**8**	**80**	**200**	**7**	**200**	**27**	**227**	**8**	**260**	**23**	**283**	**15**	**460**	**50**	**510**
Summer: Groundnut															
Maharashtra	18	226	570	19	500	130	630	29	652	218	870				0
Gujarat	8	80	200	3	69	12	81	9	224	59	283	31	793	201	994
Total	**26**	**306**	**770**	**22**	**569**	**142**	**711**	**38**	**876**	**277**	**1153**	**31**	**793**	**201**	**994**
Summer: Sesame															
Maharashtra	6	90	225	3	49	8	57	2	39	1	40	5	88	9	97
Gujarat	**8**	80	200	6	84	72	156	6	72	69	141	12	156	141	297
Total	**14**	**170**	**425**	**9**	**133**	**80**	**213**	**8**	**111**	**70**	**181**	**17**	**244**	**150**	**394**
Summer: Soybean															
Maharashtra	**2**	**30**	**75**	**3**	**49**	**8**	57	**2**	**39**	**1**	40	5	88	9	97
Grand total	**138**	**2484**	**6122**	**160**	**4384**	**895**	**5279**	**208**	**5693**	**1168**	**6861**	**339**	**9425**	**1845**	**11270**

Extension Activities Organized

Different extension activities were organized by KVKs for creating more awareness and exposure among participating farmers and extension workers especially on oilseed crops. A total of 9674 personnel (10979 farmers and 1151 extension officials) participated in different extension activities organized by KVKs on groundnut, sesame, soybean, castor, linseed, safflower and mustard. Details are given in Table 3.51.

Table 3.51 Extension activities conducted on oilseed crops

State	KVK	Area (ha)	Demo (No.)	Extension Activities and Participants								Total			
				Farmers				Extension Personnel							
				Extn Act.	M	F	T	Extn Act.	M	F	T	Extn Act.	M	F	T
Kharif: Groundnut															
Maharashtra	2	40	100	7	136	60	196	5	10	4	14	12	146	64	210
Gujarat	14	290	716	122	826	462	1288	29	67	49	116	151	893	511	1404

State	KVK	Area (ha)	Demo (No.)	Extension Activities and Participants								Total			
				Farmers				Extension Personnel							
				Extn Act.	M	F	T	Extn Act.	M	F	T	Extn Act.	M	F	T
Goa	1	10	25	2	27	23	50	2	4	2	6	4	31	25	56
Total	**17**	**340**	**841**	**131**	**989**	**545**	**1534**	**36**	**81**	**55**	**136**	**167**	**1070**	**600**	**1670**
Kharif: Sesame															
Maharashtra	2	30	75	7	112	22	134	2	4	0	4	9	116	22	138
Gujarat	2	68	118	2	80	0	80	4	4	0	4	6	84	0	84
Total	**4**	**98**	**193**	**9**	**192**	**22**	**214**	**6**	**8**	**0**	**8**	**15**	**200**	**22**	**222**
Kharif: Soybean															
Maharashtra	39	950	2351	104	3572	532	4104	78	317	134	451	182	3889	666	4555
Gujarat	7	170	425	16	256	186	442	4	44	50	94	20	300	236	536
Total	**46**	**1120**	**2776**	**120**	**3828**	**718**	**4546**	**82**	**361**	**184**	**545**	**202**	**4189**	**902**	**5091**
Kharif: Castor															
Gujarat	10	200	492	36	771	149	920	13	62	8	70	49	833	157	990
Total	**10**	**200**	**492**	**36**	**771**	**149**	**920**	**13**	**62**	**8**	**70**	**49**	**833**	**157**	**990**
Rabi: Linseed															
Maharashtra	7	70	175	16	498	88	586	13	27	5	32	29	525	93	618
Total	**7**	**70**	**175**	**16**	**498**	**88**	**586**	**13**	**27**	**5**	**32**	**29**	**525**	**93**	**618**
Rabi: Safflower															
Maharashtra	4	70	175	7	208	25	233	7	16	2	18	14	224	27	251
Total	**4**	**70**	**175**	**7**	**208**	**25**	**233**	**7**	**16**	**2**	**18**	**14**	**224**	**27**	**251**
Rabi: Mustard															
Maharashtra	2	20	50	2	94	19	113	3	2	1	3	5	96	20	116
Gujarat	6	60	150	24	434	123	557	16	41	3	44	40	475	126	601
Total	**8**	**80**	**200**	**26**	**528**	**142**	**670**	**19**	**43**	**4**	**47**	**45**	**571**	**146**	**717**
Summer: Groundnut															
Maharashtra	18	226	570	37	772	143	915	23	131	27	158	60	903	170	1073
Gujarat	8	80	200	17	280	45	325	10	13	3	16	27	293	48	341
Total	**26**	**306**	**770**	**54**	**1052**	**188**	**1240**	**33**	**144**	**30**	**174**	**87**	**1196**	**218**	**1414**
Summer: Sesame															
Maharashtra	6	90	225	8	329	59	388	7	24	3	27	15	353	62	415
Gujarat	**8**	80	200	276	144	420	564	7	30	55	85	283	174	475	649
Total	**14**	**170**	**425**	**284**	**473**	**479**	**952**	**14**	**54**	**58**	**112**	**298**	**527**	**537**	**1064**
Summer: Soybean															
Maharashtra	2	30	75	4	84	0	84	2	8	1	9	6	92	1	93
Grand total	**138**	**2484**	**6122**	**687**	**8623**	**2356**	**10979**	**225**	**804**	**347**	**1151**	**912**	**9427**	**2703**	**12130**

Yield Performance of Soybean Cultivars in Maharashtra

Soybean is one of major oilseed crop in Maharashtra. Different varieties of soybean with improved package of practices were demonstrated in clusters. On an average yield of 22.94 q/ha was obtained which was 29.90% higher over local check (Table 3.52 and Fig. 3.17). KDS-726 cultivar provided 24.12 q/ha. which was higher in Marathwada region (Fig. 3.18).

Table 3.52 Yield obtained under soybean demonstrations in Maharashtra

Variety	District	Area (ha)	No. of Demos	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
Phule Sangam (KDS-726)	Ahmednagar I, Ahmednagar-II, Amravati-I, Amravati II, Aurangabad II, Buldhana I, Dhule, Hingoli, Jalna I, Latur, Nagpur I, Nanded II, Nashik I, Nashik II, Parbhani, Pune I, Pune II, Sangli II, Satara I, Satara II, Solapur I, Washim, Yavatmal II	610	1500	22.94	17.66	29.90	76993	51101	50.67
KDS-753	Kolhapur-I, Kolhapur-II, Nanded-I, Sangli-I	100	251	19.84	14.78	34.17	60721	38868	56.23
PDKV Yellow Gold	Akola, Buldhana II, Wardha, Yavatmal I	70	175	18.82	15.97	17.80	40023	30113.19	32.91
MAUS-162	Jalgaon-I, Jalgaon II, Jalna-I	50	125	16.97	13.45	26.16	65545	37550	74.55
MAUS-612	Beed I, Osmanabad	40	100	18.27	15.13	20.72	53958	40840	32.12
PDKV Purva	Chandrapur, Gadchiroli	40	100	18.50	14.5	27.59	67650	41750	62.04
MACS 1188	Nandurbar	20	50	20.86	15.61	33.63	93659	65546	42.89
MAUS -158	Jalna-II	20	50	27.50	14.6	88.36	78650	27840	182.51

Fig. 3.17 Yield performance of Kharif Soybean in Maharashtra

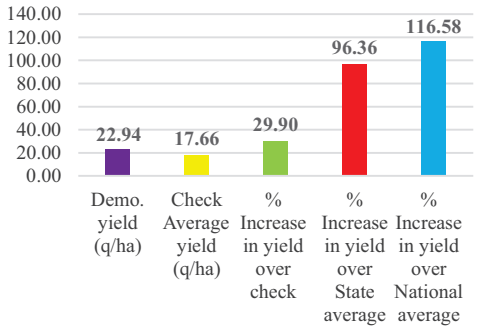
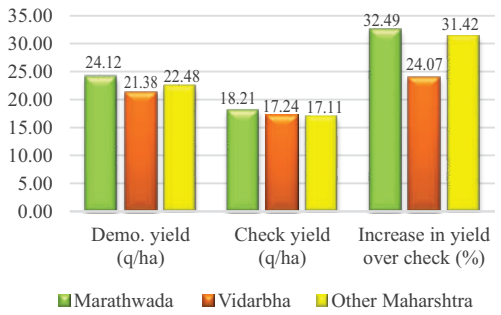


Fig 3.18 Yield performance of Var.KDS 726 (Soybean) in Maharashtra



Groundnut Yield under CFLDs in Gujarat

Under cluster frontline demonstrations of groundnut, GJG 32 cultivar performed well and provided 20.20 q/ha which was about 17.96% higher over farmer's practice. Net income of Rs. 87622/ha was realised by participating farmers which was 33.24 % more over check. (Table 3.53). Overall 21.64 q/ha was attained in Kharif groundnut (Fig. 3.19)

Fig. 3.19 Yield performance of Kharif Groundnut in Gujarat

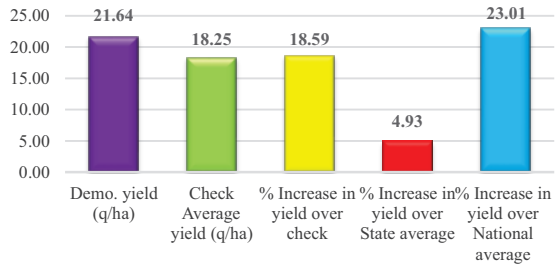


Table 3.53 Yield obtained under groundnut demonstrations

Variety	District	Area (ha)	No. of Demos	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
GJG 22	Bhavnagar, Mehsana	40	100	21.29	17.42	22.25	94219	64274	46.59
GJG - 32	Amreli,Gandhinagar,Jamnagar , Junagadh, Kheda, Kutch-I, Narmada, Rajkot-I, Rajkot-II, Surendranagar	210	516	22.20	18.82	17.96	87622	65764	33.24
TG37A	Banaskantha-I, Banaskantha-II,	40	100	19.10	16.11	18.57	85662	62097	37.95

Performance of Castor in Gujarat

Castor technologies were demonstrated in cluster mode in Ahmedabad, Anand, Patan, Banaskantha, Mehsana, Kheda, Gandhinagar, Sabarkanta and Panchamahal districts at farmers' fields. Yield of 29.29 q/ha was attained which was about 20.46 % higher over check (Fig. 3.20). GCH-8 cultivar performed well and provided 31.54 q/ha which was 22.06% higher over farmer's practice. Net income of Rs. 141438/ha was realised by participating farmers which was 29.49% more over check (Table 3.54).

Fig 3.20 Yield performance of Castor under CFLD in Gujarat

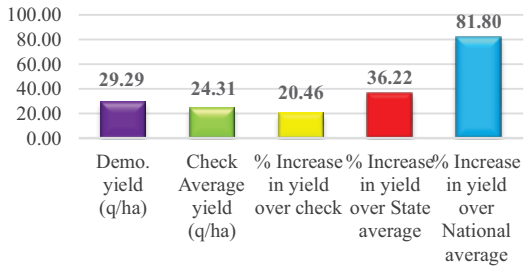


Table 3.54 Yield performance under castor demonstrations

Variety	District/ KVK	Area (ha)	No. of Demos	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
GCH -8	Banaskantha-I, Banaskantha-II Mehsana, Panchmahal, Patan, Sabarkanta	120	300	31.54	25.84	22.06	141438	109229	29.49
GCH-9	Gandhinagar	20	40	28.00	24.00	16.67	113250	86800	30.47
GCH-10	Anand, Kheda	40	102	25.36	21.90	15.77	119450	100385	18.99
GAC 11	Ahmedabad	20	50	24.80	20.30	22.17	148300	118100	25.57

Performance of Soybean in Gujarat

In Vadodara, Bharuch, Narmada, Sabarkanta, Surat, Dahod and Tapi districts, soybean cultivars: JS 335, KDS-726 and NRC-37 were demonstrated at 425 farmers' fields. Average yield of 16.85 q/ha under demonstrations plots was obtained which was about 25.15% higher over local practice (Fig 3.21). NRC-37 cultivar recorded 16.55 q/ha average yield which was about 26.22% higher over local check (Table 3.55)

Fig 3.21 Yield performance of Soybean under CFLD in Gujarat

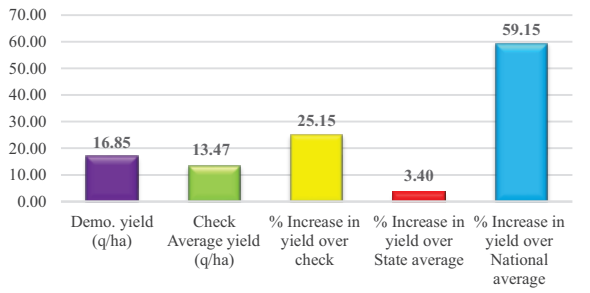


Table 3.55 Yield level and economics under soybean demonstrations

Variety	District	Area (ha)	No. of Demos	Yield (q/ha)		% Increase	Net returns (Rs/ha)		% Increase
				Demo	Check		Demo	Check	
JS 335	Sabarkanta	20	50	18.34	15.20	20.66	73120	57600	26.94
KDS-726 (Phule Sangam)	Bharuch	30	75	17.10	13.75	24.36	58835	41998	40.09
NRC-37	Dahod, Narmada, Surat, Tapi, Vadodara	120	300	16.55	13.11	26.22	43299	30489	42.01

Training of Farmers and Extension Personnel

Chapter 4

Skill set up gradation is necessary for every single farmers, new improved technology adoption through different training programs organized by KVK's play vital role in improving livelihood of farmers, In the Zone-VIII, 82 KVKs organized 9060 training courses with the participation of 354327 farmers, farm women, rural youth, extension functionaries, regular, sponsored and vocational trainings involving Maharashtra, Gujarat and Goa states. In all 288968 farmers and farm women and 36549 rural youth were trained on different skills in different enterprises. Similarly, 28810 extension workers were also trained in different areas. In addition, total 1081 sponsored courses were organized for benefiting 50084 trainee. In all, 275 vocational trainings were conducted by the KVKs with 8484 rural youth for developing their entrepreneurial capability and skills (Table 4.1 and Table 4.2).

Table 4.1 Physical achievement of training programmes

Clientele	Maharashtra				Gujarat				Goa				Grand Total			
	C	M	F	Total	C	M	F	Total	C	M	F	Total	C	M	F	Total
Farmers & Farm Women	4820	138330	57318	195648	2409	58486	31897	90383	100	1714	1223	2937	7329	198530	90438	288968
Rural Youth	831	20977	8595	29572	159	2623	2798	5421	58	894	662	1556	1048	24494	12055	36549
Extension Functionaries	566	17213	7120	24333	107	3172	1065	4237	10	154	86	240	683	20539	8271	28810
Total	**6217**	**176520**	**73033**	**249553**	**2675**	**64281**	**35760**	**100041**	**168**	**2762**	**1971**	**4733**	**9060**	**243563**	**110764**	**354327**

C: Courses, M: Male, F: Female

Table 4.2 Physical achievement of training programmes

Category of Training	Maharashtra				Gujarat				Goa				Grand Total			
	C	M	F	Total	C	M	F	Total	C	M	F	Total	C	M	F	Total
Regular	5348	155135	63218	218353	2215	46642	26730	73372	141	2383	1651	4034	7704	204160	91599	295759
Sponsored	662	17010	7767	24777	392	16753	7855	24608	27	379	320	699	1081	34142	15942	50084
Vocational	207	4375	2048	6423	68	886	1175	2061	0	0	0	0	275	5261	3223	8484
Total	**6217**	**176520**	**73033**	**249553**	**2675**	**64281**	**35760**	**100041**	**168**	**2762**	**1971**	**4733**	**9060**	**243563**	**110764**	**354327**

C: Courses, M: Male, F: Female

Farmers and Farm Women

In all 7329 training courses were conducted by the KVKs in the Zone with 288968 participants including 198530 male and 90438 female. Out of these, 78968 participants represented SC/ST category with 47299 male and 31669 female. About 40.10% participants represented female category. The state wise data related to capacity building of farmers and farm women are given below:

Table 4.3 Training courses for farmers and farm women

	C	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Maharashtra	4820	108455	39225	147680	29875	18093	47968	138330	57318	195648
Gujarat	2409	41448	18663	60111	17038	13234	30272	58486	31897	90383
Goa	100	1328	881	2209	386	342	728	1714	1223	2937
Total	**7329**	**151231**	**58769**	**210000**	**47299**	**31669**	**78968**	**198530**	**90438**	**288968**

Maharashtra

In Maharashtra, 195648 farmers and farm women were trained through 4820 training courses. More than 29.29% female represented the trainees group. In total 47968 farmers and farm women belonged to SC/ST category represented 24.51% of the total participants. Majority of courses were conducted on different components such as crop production (1135) with 48035 participants, plant protection (1030) with 40291 participants, livestock production and management (488) benefiting 17718 participants, post-harvest technology and value addition (287) with 11025, problematic soil management (267) with 10732 farm women etc. Area- wise and category- wise details of training programs are furnished in Table 4.

Table 4.4 Training courses for farmers and farm women in Maharashtra

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Agricultural Engineering	199	4595	1149	5744	1287	554	1841	5882	1703	7585
Agricultural Extension	187	4214	1032	5246	918	460	1378	5132	1492	6624
Agro-Forestry	15	411	67	478	224	66	290	635	133	768
Capacity Building and Group Dynamics	112	1651	1371	3022	593	503	1096	2244	1874	4118
Crop Diversification	31	942	257	1199	113	102	215	1055	359	1414
Crop Production	1135	31626	5320	36946	8645	2444	11089	40271	7764	48035
Entrepreneurship Development	221	4790	4524	9314	1014	1796	2810	5804	6320	12124

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Feed & Fodder Technology	26	456	127	583	248	108	356	704	235	939
Fisheries	22	158	113	271	67	75	142	225	188	413
Fruits	220	6530	665	7195	1468	365	1833	7998	1030	9028
Livestock Production and Management	488	9754	3789	13543	2654	1521	4175	12408	5310	17718
Medicinal and Aromatic Plants	12	211	75	286	182	61	243	393	136	529
Natural Resource Management	80	1939	535	2474	518	238	756	2457	773	3230
Nutrition Security	179	647	5612	6259	362	2650	3012	1009	8262	9271
Ornamental Plants	22	730	120	850	177	72	249	907	192	1099
Plant Protection	1030	25194	5558	30752	7312	2227	9539	32506	7785	40291
Post Harvest Technology & Value Addition	287	4273	3621	7894	874	2257	3131	5147	5878	11025
Problematic Soil Management	267	5968	1775	7743	2102	887	2989	8070	2662	10732
Production of inputs at site	87	1764	572	2336	579	260	839	2343	832	3175
Production of Organic inputs	3	63	0	63	4	0	4	67	0	67
Spices	36	1694	209	1903	282	95	377	1976	304	2280
Tuber Crops	13	175	68	243	91	106	197	266	174	440
Women Empowerment	148	670	2666	3336	161	1246	1407	831	3912	4743
Total	**4820**	**108455**	**39225**	**147680**	**29875**	**18093**	**47968**	**138330**	**57318**	**195648**

Gujarat

Capacity building of 90383 farmers and farm women was done by the KVKs organizing 2409 training courses in Gujarat. Total 35.29% of the participants were from female group. In all, 30272 participants belonged to SC/ST category representing 33.49% of total trainees. The major thrust was given on crop production technologies (704 courses with 28729 trainees), plant protection (381 courses with 14125 participants) and livestock management (339 courses with 12616 beneficiaries) and women empowerment (205 courses and 6683 participants). Similarly, soil health and fertility management, agriculture engineering and capacity building with group dynamics were covered under different farmers' empowerment programs. The details of training courses with male/female participants are reported in below Table 4.5

Table 4.5 Training courses for farmers and farm women in Gujarat

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Agricultural Engineering	50	710	397	1107	233	135	368	943	532	1475
Agricultural Extension	145	2612	878	3490	791	474	1265	3403	1352	4755
Agro-Forestry	6	60	27	87	103	31	134	163	58	221
Capacity Building and Group Dynamics	126	2361	1651	4012	662	604	1266	3023	2255	5278
Crop Diversification	13	141	0	141	126	150	276	267	150	417
Crop Production	704	14210	2956	17166	7158	4405	11563	21368	7361	28729
Entrepreneurship Development	16	171	124	295	115	100	215	286	224	510
Feed & Fodder Technology	3	27	20	47	9	0	9	36	20	56
Fisheries	20	307	90	397	126	21	147	433	111	544
Fruits	81	1640	590	2230	430	234	664	2070	824	2894
Livestock Production and Management	339	4595	4054	8649	1945	2022	3967	6540	6076	12616
Medicinal and Aromatic Plants	1	27	7	34	6	3	9	33	10	43
Natural Farming	24	252	117	369	259	104	363	511	221	732
Natural Resource Management	34	779	202	981	170	41	211	949	243	1192
Nutrition Security	43	170	720	890	82	790	872	252	1510	1762
Ornamental Plants	1	0	0	0	0	37	37	0	37	37
Plant Protection	381	8408	1548	9956	2914	1255	4169	11322	2803	14125
Post-Harvest Technology & Value Addition	42	446	703	1149	122	424	546	568	1127	1695
Problematic Soil Management	116	2518	393	2911	657	235	892	3175	628	3803
Production of inputs at site	14	321	69	390	140	9	149	461	78	539
Production of Organic inputs	4	18	28	46	2	46	48	20	74	94
Spices	31	1210	246	1456	407	67	474	1617	313	1930
Tuber Crops	10	104	1	105	112	36	148	216	37	253
Women Empowerment	205	361	3842	4203	469	2011	2480	830	5853	6683
Total	**2409**	**41448**	**18663**	**60111**	**17038**	**13234**	**30272**	**58486**	**31897**	**90383**

Goa

In Goa, 2 KVKs organized 100 training courses with participation of 2937 farmers and farm women. In total participants, SC/ST category farmers/farm women represented about 24.78%. More than 41.64% of the participants were females. Major attention was given on crop production (32 courses with 960 trainees), in addition, post-harvest technology and value addition, plant protection, problematic soil management and plantation crop components were also emphasized. The details of trainings with participants are given in Table 4.6.

Table 4.6 Training courses for farmers and farm women in Goa

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Agro-Forestry	1	8	6	14	2	2	4	10	8	18
Capacity Building and Group Dynamics	13	177	145	322	46	24	70	223	169	392
Crop Production	32	445	218	663	147	150	297	592	368	960
Entrepreneurship Development	1	0	25	25	0	0	0	0	25	25
Fisheries	3	54	22	76	8	10	18	62	32	94
Fruits	8	112	89	201	56	23	79	168	112	280
Livestock Production and Management	6	155	73	228	0	0	0	155	73	228
Nutrition Security	5	23	90	113	5	24	29	28	114	142
Plant Protection	13	167	58	225	55	26	81	222	84	306
Post-Harvest Technology & Value Addition	7	26	107	133	12	60	72	38	167	205
Production of inputs at site	4	49	16	65	12	9	21	61	25	86
Problematic Soil Management	5	80	16	96	32	14	46	112	30	142
Tuber Crops	2	32	16	48	11	0	11	43	16	59
Total	**100**	**1328**	**881**	**2209**	**386**	**342**	**728**	**1714**	**1223**	**2937**

Training of Rural Youth

Dependency solely on agriculture is breaking through allied business by young farmers as they are taking benefits of training for improvising skills and doubling the income. In total including Maharashtra, Gujarat and Goa, 1048 training courses were organized where 36549 rural youth got benefited on different areas of enterprises based on agriculture, horticulture, bio- fertilizer/ bio-pesticides and value addition etc. In total participants, 26.96% represented SC/ST categories of rural youths out of which 32.98 % belonged to female group. Details of state wise rural youth training courses are given in Table 4.8 to 4.10.

Table 4.7 Training courses for rural youth

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Maharashtra	831	16132	5874	**22006**	4845	2721	**7566**	20977	8595	**29572**
Gujarat	159	1985	1666	**3651**	638	1132	**1770**	2623	2798	**5421**
Goa	58	614	424	**1038**	280	238	**518**	894	662	**1556**
Total	**1048**	**18731**	**7964**	**26695**	**5763**	**4091**	**9854**	**24494**	**12055**	**36549**

Maharashtra

In Maharashtra, total 831 training courses were organized with involvement of 29572 rural youth with ratio of male-female participation of 2.44:1. In crop production of SC/ST category, 26.96% rural youth were trained. About 32.98% of rural youth were female participants. Main focus was given on livestock production and management, plant protection, crop production, post-harvest technology and value addition towards developing skill among rural youth. In case of Gujarat, 159 training courses were arranged with participation of 5421 rural youth. In total participants, 51.61 % female trainees attended the programs and showed keen interest on Agri-business/enterprises. About 32.65% SC/ST category people were represented in the course. In Goa, 58 training programs were organized with 1556 participants involving 894 male and 662 female. Major training areas considered for capacity building of rural youth were fisheries, agro forestry, entrepreneurship development, plant protection techniques and nutrition security. About 26.96% participants were represented SC/ST category of rural youth.

Table 4.8 Training courses for rural youth in Maharashtra

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Agricultural Engineering	39	854	224	1078	434	55	489	1288	279	1567
Agricultural Extension	50	984	415	1399	177	100	277	1161	515	1676
Capacity Building and Group Dynamics	30	772	222	994	95	119	214	867	341	1208
Crop Diversification	6	62	53	115	7	19	26	69	72	141
Crop Production	118	2259	827	3086	960	561	1521	3219	1388	4607
Entrepreneurship Development	79	1444	505	1949	374	270	644	1818	775	2593
Fisheries	3	23	11	34	6	27	33	29	38	67
Fruits	35	928	377	1305	228	83	311	1156	460	1616
Livestock Production and Management	168	3209	1051	4260	920	475	1395	4129	1526	5655
Medicinal and Aromatic Plants	1	18	0	18	2	0	2	20	0	20
Natural Resource Management	4	76	24	100	15	8	23	91	32	123
Nutrition Security	5	27	36	63	35	79	114	62	115	177
Ornamental Plants	2	52	4	56	8	1	9	60	5	65
Plant Protection	95	1944	544	2488	642	224	866	2586	768	3354

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Post Harvest Technology & Value Addition	75	976	737	1713	342	353	695	1318	1090	2408
Problematic Soil Management	52	1306	312	1618	332	125	457	1638	437	2075
Production of inputs at site	28	725	175	900	161	54	215	886	229	1115
Spices	1	20	6	26	7	0	7	27	6	33
Women Empowerment	40	453	351	804	100	168	268	553	519	1072
Total	**831**	**16132**	**5874**	**22006**	**4845**	**2721**	**7566**	**20977**	**8595**	**29572**

Gujarat

Capacity building of 5421 rural youth was done by the KVKs organizing 159 training courses in Gujarat. In all, 1770 participants belonged to SC/ ST category representing 32.65 % of total trainees. The major thrust was given on plant protection (25 courses with 833 participants), crop production technologies (23 courses with 677 trainees) and women empowerment (22 courses and 583 participants) and livestock management (8 courses with 230 beneficiaries). The details of training courses with male/ female participants are reported in below Table 4.9

Table 4.9 Training courses for rural youth in Gujarat

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Agricultural Extension	6	82	92	174	26	2	28	108	94	202
Capacity Building and Group Dynamics	9	147	55	202	110	39	149	257	94	351
Crop Diversification	2	28	9	37	0	0	0	28	9	37
Crop Production	23	272	166	438	112	127	239	384	293	677
Entrepreneurship Development	14	159	146	305	25	115	140	184	261	445
Fisheries	3	48	5	53	1	21	22	49	26	75
Fruits	8	94	120	214	41	0	41	135	120	255
Livestock Production and Management	8	58	26	84	42	104	146	100	130	230
Natural Resource Management	2	107	38	145	18	0	18	125	38	163
Nutrition Security	5	119	305	424	10	30	40	129	335	464
Ornamental Plants	1	15	0	15	5	0	5	20	0	20
Plant Protection	25	456	71	527	58	248	306	514	319	833
Post-Harvest Technology & Value Addition	15	46	252	298	70	191	261	116	443	559
Problematic Soil Management	9	215	27	242	23	16	39	238	43	281

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Production of inputs at site	6	123	0	123	92	9	101	215	9	224
Spices	1	0	22	22	0	0	0	0	22	22
Women Empowerment	22	16	332	348	5	230	235	21	562	583
Total	**159**	**1985**	**1666**	**3651**	**638**	**1132**	**1770**	**2623**	**2798**	**5421**

Goa

In Goa, 2 KVKs, organized 58 training courses with participation of 1556 rural youth. In total participants, SC/ST category rural youth represented about 57.45%. More than 42.55% of the participants were females. Major attention was given on livestock production and management (16 courses with 456 trainees), in addition, fisheries and plant protection components were also emphasized. The details of trainings with participants are given in Table 4.10.

Table 4.10 Training courses for rural youth in Goa

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Agro-Forestry	3	42	20	62	22	14	36	64	34	98
Capacity Building and Group Dynamics	1	8	27	35	0	6	6	8	33	41
Entrepreneurship Development	6	88	31	119	36	19	55	124	50	174
Fisheries	15	191	92	283	48	21	69	239	113	352
Livestock Production and Management	16	109	118	227	107	122	229	216	240	456
Nutrition Security	4	24	46	70	8	34	42	32	80	112
Ornamental Plants	2	31	12	43	13	0	13	44	12	56
Plant Protection	9	111	58	169	41	18	59	152	76	228
Production of inputs at site	2	10	20	30	5	4	9	15	24	39
Total	**58**	**614**	**424**	**1038**	**280**	**238**	**518**	**894**	**662**	**1556**

Training of Extension Personnel

A total 683 training courses were organized for developing capacity of 28810 extension functionaries in the Zone-VIII. About 20.71% of extension workers were represented the SC/ST category. The participation of female extension workers was 28.70%. The state-wise information is furnished in Table 4.12 to 4.14.

Table 4.11 Training courses for Extension personnel

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Maharashtra	566	14271	5176	**19447**	2942	1944	**4886**	17213	7120	**24333**
Gujarat	107	2608	621	**3229**	564	444	**1008**	3172	1065	**4237**
Goa	10	107	60	**167**	47	26	**73**	154	86	**240**
Total	**683**	**16986**	**5857**	**22843**	**3553**	**2414**	**5967**	**20539**	**8271**	**28810**

Maharashtra

In Maharashtra, 566 training programs were organized with participation of 24333 extension functionaries on crop production (108 courses), plant protection (154 courses), livestock production and management (28 courses), Agriculture extension (56 courses), Nutrition Security (38 courses) etc. Major focus was given on areas of training specially protected cultivation, micro irrigation, value addition, soil health, organic farming and women empowerment etc. Details of trainings, participants representing male female and SC/ST category officials are provided in Table 4.12.

Table 4.12 Training courses for extension personnel in Maharashtra

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Agricultural Engineering	20	524	180	704	95	31	126	619	211	830
Agricultural Extension	56	1687	535	2222	235	104	339	1922	639	2561
Agro-Forestry	1	36	1	37	2	1	3	38	2	40
Capacity Building and Group Dynamics	31	779	273	1052	101	68	169	880	341	1221
Crop Diversification	4	92	17	109	46	22	68	138	39	177
Crop Production	108	3187	460	3647	598	299	897	3785	759	4544
Entrepreneurship Development	10	285	337	622	41	116	157	326	453	779
Fisheries	4	101	50	151	10	5	15	111	55	166
Fruits	33	871	137	1008	152	27	179	1023	164	1187
Livestock Production and Management	28	522	140	662	107	74	181	629	214	843
Natural Resource Management	10	326	49	375	86	8	94	412	57	469
Nutrition Security	38	438	952	1390	107	347	454	545	1299	1844
Ornamental Plants	3	95	0	95	6	0	6	101	0	101
Plant Protection	154	4269	1207	5476	1140	487	1627	5409	1694	7103
Post-Harvest Technology & Value Addition	16	234	173	407	34	112	146	268	285	553
Problematic Soil Management	25	665	155	820	110	24	134	775	179	954

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Production of inputs at site	2	31	10	41	18	8	26	49	18	67
Spices	1	40	0	40	1	0	1	41	0	41
Women Empowerment	22	89	500	589	53	211	264	142	711	853
Total	**566**	**14271**	**5176**	**19447**	**2942**	**1944**	**4886**	**17213**	**7120**	**24333**

Gujarat

Technology backstopping of 4237 extension functionaries were done through organizing 107 training courses. Majority of courses were organized in areas such as Plant Protection (35 courses) with 1354 participants, Crop Production (29 courses) with 1231 participants, Women Empowerment (07) with 389 participants and Capacity Building and Group Dynamics (07 courses) with 249 participants etc. Information about trainings is given in Table 4.13.

Table 4.13 Training courses for extension personnel in Gujarat

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Agricultural Extension	5	114	50	164	5	3	8	119	53	172
Capacity Building and Group Dynamics	7	35	18	53	102	94	196	137	112	249
Crop Diversification	6	166	2	168	0	0	0	166	2	168
Crop Production	29	909	92	1001	177	53	230	1086	145	1231
Fruits	3	93	14	107	2	0	2	95	14	109
Livestock Production and Management	5	146	0	146	9	0	9	155	0	155
Natural Farming	5	67	89	156	30	2	32	97	91	188

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Natural Resource Management	3	0	0	0	73	37	110	73	37	110
Nutrition Security	1	0	61	61	0	10	10	0	71	71
Plant Protection	35	1014	154	1168	164	22	186	1178	176	1354
Problematic Soil Management	1	40	0	40	1	0	1	41	0	41
Women Empowerment	7	24	141	165	1	223	224	25	364	389
Total	**107**	**2608**	**621**	**3229**	**564**	**444**	**1008**	**3172**	**1065**	**4237**

Goa

In Goa, 2 KVKs organized 10 training courses for 240 extension workers (Table 4.14). Efforts for developing capacity of extension workers are needed in the state.

Table 4.14 Training courses for extension personnel in Goa

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Agricultural Extension	8	88	51	139	40	24	64	128	75	203
Fisheries	1	12	4	16	6	0	6	18	4	22
Production of inputs at site	1	7	5	12	1	2	3	8	7	15
Total	**10**	**107**	**60**	**167**	**47**	**26**	**73**	**154**	**86**	**240**

Sponsored Trainings

In Maharashtra, Gujarat and Goa, total 50084 participants were trained through 1081 training courses, which were sponsored by different agencies/ organizations. About 28.87% of the participants were represented SC/ST category in training courses. State-wise training details are given below:

Table 4.15 Training courses for sponsored trainings

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Maharashtra	662	12729	5440	**18169**	4281	2327	**6608**	17010	7767	**24777**
Gujarat	392	12116	4856	**16972**	4637	2999	**7636**	16753	7855	**24608**
Goa	27	262	221	**483**	117	99	**216**	379	320	**699**
Total	**1081**	**25107**	**10517**	**35624**	**9035**	**5425**	**14460**	**34142**	**15942**	**50084**

Maharashtra

In Maharashtra, 662 sponsored training programs were conducted with participation of 24777 trainees. Majority of courses represented training areas like crop production (156 courses) with 5949 participants, plant protection (82 courses) with 2353 participants, Livestock Production and Management (79 courses) with 2851 trainees and entrepreneurship Development (77 courses) with 3663 participants. Component wise and category-wise training details are reported in Table 4.16.

Table 4.16 Training courses for sponsored trainings in Maharashtra

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Agricultural Engineering	37	556	137	693	325	28	353	881	165	1046
Agricultural Extension	10	262	80	342	55	16	71	317	96	413
Agro-Forestry	1	36	1	37	2	1	3	38	2	40
Capacity Building and Group Dynamics	39	977	377	1354	127	122	249	1104	499	1603
Crop Diversification	7	147	27	174	39	22	61	186	49	235
Crop Production	156	2795	657	3452	1772	725	2497	4567	1382	5949
Entrepreneurship Development	77	2219	1122	3341	210	112	322	2429	1234	3663
Fisheries	5	43	52	95	37	30	67	80	82	162
Fruits	31	600	125	725	265	51	316	865	176	1041
Livestock Production and Management	79	1591	715	2306	364	181	545	1955	896	2851
Natural Resource Management	5	115	59	174	38	55	93	153	114	267
Nutrition Security	10	26	432	458	28	175	203	54	607	661
Ornamental Plants	2	82	18	100	26	6	32	108	24	132
Plant Protection	82	1366	314	1680	529	144	673	1895	458	2353
Post-Harvest Technology & Value Addition	65	676	692	1368	272	397	669	948	1089	2037
Problematic Soil Management	25	784	137	921	78	24	102	862	161	1023

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Production of inputs at site	12	357	70	427	63	20	83	420	90	510
Production of Organic inputs	1	22	0	22	1	0	1	23	0	23
Women Empowerment	18	75	425	500	50	218	268	125	643	768
Total	**662**	**12729**	**5440**	**18169**	**4281**	**2327**	**6608**	**17010**	**7767**	**24777**

Gujarat

In case of Gujarat, 392 sponsored training courses were conducted with active participation of 24608 trainees. Major attention was given on crop production (118 courses with 8408 participants), Livestock Production and Management (64 courses with 3849), Plant protection (53 courses with 3656 participants) and Capacity Building and Group Dynamics (49 courses with 2569 participants) etc. Training area-wise and category-wise details are given in Table 4.17.

Table 4.17 Training courses for sponsored trainings in Gujarat

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Agricultural Engineering	2	72	0	72	0	0	0	72	0	72
Agricultural Extension	21	293	146	439	384	104	488	677	250	927
Agro-Forestry	1	35	0	35	0	0	0	35	0	35
Capacity Building and Group Dynamics	49	1736	803	2539	19	11	30	1755	814	2569
Crop Diversification	6	166	2	168	0	0	0	166	2	168
Crop Production	118	4504	565	5069	1937	1402	3339	6441	1967	8408

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Entrepreneurship Development	3	40	12	52	13	47	60	53	59	112
Fruits	11	329	309	638	0	0	0	329	309	638
Livestock Production and Management	64	1143	1053	2196	904	749	1653	2047	1802	3849
Natural Resource Management	3	165	34	199	17	2	19	182	36	218
Nutrition Security	2	25	95	120	0	22	22	25	117	142
Plant Protection	53	2300	457	2757	609	290	899	2909	747	3656
Post Harvest Technology & Value Addition	11	204	443	647	19	15	34	223	458	681
Problematic Soil Management	6	323	54	377	60	5	65	383	59	442
Production of inputs at site	3	60	0	60	100	0	100	160	0	160
Spices	8	597	200	797	291	54	345	888	254	1142
Women Empowerment	31	124	683	807	284	298	582	408	981	1389
Total	**392**	**12116**	**4856**	**16972**	**4637**	**2999**	**7636**	**16753**	**7855**	**24608**

Goa

In Goa, 27 training programs were organized with 699 participants involving 379 male and 320 female. Major training areas considered for entrepreneurship development and agricultural extension. About 30.90% participants were represented SC/ST category. Details of training courses are given in Table 4.18

Table No. 4.18 Training courses for sponsored trainings in Goa

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Agricultural Extension	6	60	36	96	32	22	54	92	58	150
Capacity Building and Group Dynamics	1	8	27	35	0	6	6	8	33	41
Entrepreneurship Development	7	88	56	144	36	19	55	124	75	199
Fisheries	4	44	25	69	18	6	24	62	31	93
Plant Protection	5	62	22	84	31	9	40	93	31	124
Post Harvest Technology & Value Addition	4	0	55	55	0	37	37	0	92	92
Total	**27**	**262**	**221**	**483**	**117**	**99**	**216**	**379**	**320**	**699**

Vocational Training

In Maharashtra and Gujarat, 8484 participants were trained through 275 courses on different areas of Vocations/enterprises. State-wise details are reported as under:

Table 4.19 Training courses for Vocational Trainings

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Maharashtra	207	3406	1410	**4816**	969	638	**1607**	4375	2048	**6423**
Gujarat	68	590	383	**973**	296	792	**1088**	886	1175	**2061**
Goa	0	0	0	**0**	0	0	**0**	0	0	**0**
Total	**275**	**3996**	**1793**	**5789**	**1265**	**1430**	**2695**	**5261**	**3223**	**8484**

Maharashtra

Vocational training given to an individual to prepare that individual to be gainfully self-employed with requisite skill is important for rural youngsters. In Maharashtra, 6423 participants were trained through 207 courses. Major emphasis was given on areas like livestock production and management (59 courses with 2261 participants), entrepreneurship development (28 courses with 737 participants), women empowerment (31 courses with 794 participants) etc. Training area-wise and category-wise details are given in Table 4.20.

Table 4.20 Training courses for vocational trainings in Maharashtra

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Agricultural Engineering	7	133	10	143	30	0	30	163	10	173
Agricultural Extension	14	177	110	287	46	17	63	223	127	350
Crop Diversification	3	9	44	53	4	19	23	13	63	76
Crop Production	17	349	68	417	161	55	216	510	123	633
Entrepreneurship Development	28	389	157	546	93	98	191	482	255	737

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Fruits	8	190	20	210	15	8	23	205	28	233
Livestock Production and Management	59	1132	476	1608	415	238	653	1547	714	2261
Plant Protection	15	339	50	389	39	15	54	378	65	443
Post-Harvest Technology & Value Addition	18	170	181	351	65	80	145	235	261	496
Problematic Soil Management	4	55	3	58	11	3	14	66	6	72
Production of inputs at site	3	97	53	150	3	2	5	100	55	155
Women Empowerment	31	366	238	604	87	103	190	453	341	794
Total	**207**	**3406**	**1410**	**4816**	**969**	**638**	**1607**	**4375**	**2048**	**6423**

Gujarat

To develop entrepreneurship among rural youth 68 vocational trainings were organized for benefitting the 2061 participants. Main focus was given on training areas such as women empowerment (17 courses with 395 participants), plant protection (16 courses with 531 participants), Post-harvest technology and value addition (13 courses with 381 participants) etc. Training area-wise and category-wise details are given in Table 4.21.

Table 4.21 Training courses for vocational trainings in Gujarat

Training Areas	No. of Courses	No. of Participants General			No. of Participants SC/ ST			No. of Participants Total		
		M	F	Total	M	F	Total	M	F	Total
Agricultural Extension	3	50	27	77	0	0	0	50	27	77
Crop Production	3	0	24	24	62	32	94	62	56	118
Entrepreneurship Development	3	0	0	0	0	88	88	0	88	88
Fisheries	1	9	4	13	1	21	22	10	25	35
Fruits	1	20	0	20	10	0	10	30	0	30
Livestock Production and Management	10	58	51	109	119	117	236	177	168	345
Plant Protection	16	388	22	410	24	97	121	412	119	531
Post-Harvest Technology & Value Addition	13	0	91	91	70	220	290	70	311	381
Problematic Soil Management	1	55	0	55	5	1	6	60	1	61
Women Empowerment	17	10	164	174	5	216	221	15	380	395
Total	**68**	**590**	**383**	**973**	**296**	**792**	**1088**	**886**	**1175**	**2061**

Chapter 5

Extension Activities

Emphasis is being given on virtual extension to reach the unreached in less time. In this context, the coalition of extension methods and ICT techniques will play a major role in technology transfer. It is most important to implement extension activities for this which involves creating awareness, exposure and mass adoption among farmers and extension workers. In ATARI Zone-VIII, many extension activities were organized & executed by KVKs amongst Maharashtra, Gujarat and Goa. The activity wise details of extension programs is organized in Table 5.1. The major activities like advisory service (34875), scientists visit to farmers fields (5967), diagnostic visits (3616), field days (774), group discussions (1152), kisan goshties (876), film shows (1004), self-help groups (212), kisan mela (234), exhibitions (242), plant/animal health camps (432), farm science club (149), ex-trainees sammelan (96), farmers' seminars (463), method demonstrations (1051), celebrations of important days (1036), exposure visits (345) etc. with the participation of 5491931 farmers and 69889 extension personnel were performed. Out of the total participants, SC/ST category represented about 14.83% farmers. Also about 13.89% farmer women groups were under various extension activities. Similarly innovative extension activities i.e. use of electronic media, extension materials, newspaper coverage, popular articles, animal health camps, radio and TV talks were undertaken by KVK to reach the unreached people. KVK also provided agro-advisory to farmers through mobile phones.

Table 5.1 Number of extension activities and participants

Extension Activities	No. of Programmes	No. of Participants (General)			No. of Participants(SC/ST)			Total Farmers (General + SC/ST)			No. of Extension Personnel		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Maharashtra	30520	3504462	377405	3881867	401962	171693	573655	3906424	549098	4455522	43970	10408	54378
Gujarat	31771	666222	119033	785255	146318	89452	235770	812540	208485	1021025	13168	1868	15036
Goa	2342	6881	3331	10212	2928	2244	5172	9809	5575	15384	295	180	475
Total	**64633**	**4177565**	**499769**	**4677334**	**551208**	**263389**	**814597**	**4728773**	**763158**	**5491931**	**57433**	**12456**	**69889**

Extension Activities in Maharashtra

Extension activities played a major role in the popularization of farm and livestock related technologies in remote areas. In Maharashtra, a total number of 30520 extension programs were implemented in which 4455522 farmers and 54378 extension personnel benefited. Major extension activities were covered such as advisory services (16478 programs) with participation of 3046813 farmers and 22621 extension officials; scientists' visit to farmers' fields (3653) with 29007 farmers and 1940 extension workers' participation; diagnostic visits (2576) with beneficiaries of 15056 farmers and 1952 extension official; etc. Activity-wise details of extension programs are reported in Table 5.2.

Table 5.2 Extension activities organized by KVKs in Maharashtra

Extension Activities	No. of Programmes	No. of Participants (General)			No. of Participants(SC/ST)			Total Farmers (General + SC/ST)			No. of Extension Personnel		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Advisory Services With KMA	1235	2601602	119662	2721264	191483	25521	217004	2793085	145183	2938268	19629	2170	21799
Advisory Services Other than KMA	15243	71616	15826	87442	15562	5541	21103	87178	21367	108545	669	153	822
Celebration of important days	631	24319	14558	38877	6003	4665	10668	30322	19223	49545	1784	935	2719
Diagnostic visits	2576	10387	1606	11993	2453	610	3063	12840	2216	15056	1643	309	1952
Exhibition	133	517846	132827	650673	132407	114661	247068	650253	247488	897741	4546	1665	6211
Exposure visits	211	4787	1669	6456	844	401	1245	5631	2070	7701	260	78	338
Ex-trainees Sammelan	80	1346	319	1665	194	68	262	1540	387	1927	231	52	283
Farm Science Club	89	3267	468	3735	491	180	671	3758	648	4406	186	52	238
Farmers' seminar/workshop	349	14048	4373	18421	2835	1180	4015	16883	5553	22436	1725	354	2079
Field Days	451	10779	1744	12523	2522	618	3140	13301	2362	15663	610	149	759
Film Show	462	21755	9030	30785	3588	1950	5538	25343	10980	36323	549	134	683
Group Discussions	799	12710	2778	15488	2669	791	3460	15379	3569	18948	1107	277	1384
Kisan Ghosthis	642	15730	3236	18966	2905	1339	4244	18635	4575	23210	796	199	995

Extension Activities	No. of Programmes	No. of Participants (General)			No. of Participants(SC/ST)			Total Farmers (General + SC/ST)			No. of Extension Personnel		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Kisan Melas	187	33715	15140	48855	15943	4015	19958	49658	19155	68813	1655	594	2249
Method Demonstrations	608	11857	2727	14584	2821	1373	4194	14678	4100	18778	785	273	1058
Plant/Animal health camps	372	6281	829	7110	1297	395	1692	7578	1224	8802	216	60	276
Scientists' visit to farmers field	3653	18524	3287	21811	5291	1905	7196	23815	5192	29007	1581	359	1940
SHGs	155	4994	9724	14718	384	754	1138	5378	10478	15856	168	139	307
Others	2644	118899	37602	156501	12270	5726	17996	131169	43328	174497	5830	2456	8286
Total	**30520**	**3504462**	**377405**	**3881867**	**401962**	**171693**	**573655**	**3906424**	**549098**	**4455522**	**43970**	**10408**	**54378**

Extension Activities Organized in Gujarat

In Gujarat, 1021025 farmers and 15036 extension officers participated in 31771 extension programs organized by KVKs. Main extension activities such as advisory services (16535) with participation of 584992 farmers and 977 extension personnel; scientists' visit to farmers' fields (2171) benefited 12259 farmers and 904 extension personnel etc. were conducted for large scale technology dissemination and application. Extension activity- wise and category-wise details are furnished in Table 5.3.

Table 5.3 Extension activities organized by KVKs in Gujarat

Extension Activities	No. of Programmes	No. of Participants (General)			No. of Participants(SC/ST)			Total Farmers (General + SC/ST)			No. of Extension Personnel		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Advisory Services With KMA	686	473563	31225	504788	27591	11210	38801	501154	42435	543589	154	29	183
Advisory Services Other than KMA	15849	9818	2099	11917	22549	6937	29486	32367	9036	41403	648	146	794
Celebration of important days	380	15709	8466	24175	6797	5995	12792	22506	14461	36967	1030	258	1288
Diagnostic visits	873	2071	565	2636	933	322	1255	3004	887	3891	246	40	286
Exhibition	102	7777	3994	11771	8336	4180	12516	16113	8174	24287	466	140	606
Exposure visits	128	2370	602	2972	1048	1196	2244	3418	1798	5216	76	17	93

Extension Activities	No. of Programmes	No. of Participants (General)			No. of Participants(SC/ST)			Total Farmers (General + SC/ST)			No. of Extension Personnel		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Ex-trainees Sammelan	16	398	77	475	125	127	252	523	204	727	235	4	239
Farm Science Club	60	20	0	20	371	280	651	391	280	671	11	3	14
Farmers' seminar/ Workshops	110	8675	3735	12410	4843	1506	6349	13518	5241	18759	135	26	161
Field Days	316	5380	1828	7208	2074	1244	3318	7454	3072	10526	229	46	275
Film Show	524	8202	5430	13632	5520	4361	9881	13722	9791	23513	304	93	397
Group Discussions	343	3073	938	4011	2720	1091	3811	5793	2029	7822	138	60	198
Kisan Ghosthis	222	6397	1740	8137	5633	3992	9625	12030	5732	17762	207	53	260
Kisan Melas	46	5721	2982	8703	4081	2979	7060	9802	5961	15763	375	127	502
Method Demonstrations	386	3712	2290	6002	3596	3056	6652	7308	5346	12654	286	68	354
Plant/Animal health camps	60	851	249	1100	964	412	1376	1815	661	2476	76	9	85
Scientists' visit to farmers field	2171	6527	1443	7970	3075	1214	4289	9602	2657	12259	712	192	904
SHGs	34	6	135	141	109	146	255	115	281	396	19	8	27
Others	9465	105952	51235	157187	45953	39204	85157	151905	90439	242344	7821	549	8370
Total	**31771**	**666222**	**119033**	**785255**	**146318**	**89452**	**235770**	**812540**	**208485**	**1021025**	**13168**	**1868**	**15036**

Extension Activities in Goa

In Goa, farmers have different mind-set towards farming. Also there is a lot of potential to create agriculture related industries. In this state, 2342 extension programmes were conducted in which 15384 farmers and 475 extension personnel got benefitted. Major extension activities such as Advisory services (1862) benefiting 3989 farmers; Diagnostic visits (167) benefitting 496 farmers; Scientists visits to farmers field (143); Method demonstration (57) etc. were conducted for large scale technology dissemination and application. Extension activity-wise and category-wise details are given in Table 5.4.

Table 5.4 Extension activities organized by KVKs in Goa

Extension Activities	No. of Programmes	No. of Participants (General)			No. of Participants(SC/ST)			Total Farmers (General + SC/ST)			No. of Extension Personnel		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Advisory Services With KMA	20	618	227	845	162	72	234	780	299	1079	0	0	0
Advisory Services Other than KMA	1842	1310	611	1921	582	407	989	1892	1018	2910	23	12	35
Celebration of important days	25	538	275	813	239	149	388	777	424	1201	28	16	44
Diagnostic visits	167	221	103	324	100	72	172	321	175	496	10	5	15
Exhibition	7	745	342	1087	334	245	579	1079	587	1666	52	28	80
Exposure visits	6	149	66	215	69	47	116	218	113	331	5	2	7
Farmers' seminar/ Workshops	4	57	25	82	25	19	44	82	44	126	9	5	14
Field Days	7	73	35	108	24	19	43	97	54	151	14	8	22
Film Show	18	116	51	167	51	36	87	167	87	254	22	12	34
Group Discussions	10	145	53	198	54	37	91	199	90	289	14	8	22
Kisan Ghosthis	12	52	54	106	21	19	40	73	73	146	15	16	31
Kisan Melas	1	1840	800	2640	800	560	1360	2640	1360	4000	65	35	100
Method Demonstrations	57	505	250	755	226	177	403	731	427	1158	19	11	30
Scientists' visit to farmers field	143	401	180	581	178	123	301	579	303	882	14	7	21
SHGs	23	111	259	370	63	262	325	174	521	695	5	15	20
Total	**2342**	**6881**	**3331**	**10212**	**2928**	**2244**	**5172**	**9809**	**5575**	**15384**	**295**	**180**	**475**

Other Extension Activities

KVK experts have a major challenge of reaching to each corner of the village. In this context, mass communication can play a major role to get in touch with people resided at distant places. Electronic media, print media, digital media, and other related extension activities were used for wider dissemination of farm/livestock and other allied enterprise related technologies among different stakeholders. During the year under report, 54920 activities were organized by KVKs in the zone. State-wise and activity-wise details are reported in Table 5.5.

Table 5.5 Other extension activities organized by KVKs across the Zone

Other Extension Activities	Maharashtra (No.)	Gujarat (No.)	Goa (No.)	Total (No.)
Animal health camp (No. of animals treated)	11109	2875	0	**13984**
Electronic Media	100	21	4	**125**
Extension Literature	7350	5204	7	**12561**
Newspaper Coverage	2727	823	27	**3577**
Popular Articles	496	190	2	**688**
Radio Talks	659	112	1	**772**
TV Talks	623	85	2	**710**
Others	4777	17718	8	**22503**
Total	**27841**	**27028**	**51**	54920

Seed and Planting Material Production

Chapter 6

Production of Technological Inputs

Quality seeds, planting materials, livestock breeds and bio-products are the key element for successful agriculture and allied sector. These element are generated and provided to the farmers by KVKs with minimum charges and assured quality. In this way KVKs help to update farmers with new technology and crop varieties from SAUs. During the period of reporting, KVKs produced 12452.95 q seeds of crop varieties, 66862.05 lit liquid and 90661.18 kg solid bio-products, 67.12 lakh number of planting materials of varieties, 36.90 lakh number of planting materials of hybrids and 4.7s1 lakh number of livestock and fingerlings (Table 6.1).

Table 6.1 Production and supply of technological inputs

Category		Quantity	Value (Rs.in lakh)	Farmers (No)
Seed of crop varieties (q)		12452.95	419.03	9836
Bio-products	Liquid (lit)	66862.05	145.10	13010
	Solid (Kg)	90661.18	99.98	9831
Planting material of crops (No. in lakh)		67.12	64.37	25824
Planting material of crops hybrid (No. in lakh)		36.90	72.21	5979
Livestock and fisheries (No. in lakh)		4.71	60.97	3185
Total		**170084.91**	**1319.38**	**67665**

Seeds

In the year 2022, the quality seed produced by KVKs of Maharashtra, Gujarat and Goa was 7926.84 q, 3984.83 q and 541.28 q, respectively. The crop category- wise information of seed production is reported in Table 6.2.

Table 6.2 Quality seed produced by the KVKs in the Zone

State	Crop Category	Quantity (q)	Total Value (Rs.)	Sold to No. of Farmers
Maharashtra	Cereals	729	2977543.19	825
	Commercial crops	2980	721160	0
	Fodder Crops	0.1825	5400	13
	Oilseed Crops	1561.64	7509624.5	1661
	Pulses	2471.22	13559037.89	3161
	Spices	142.43	334821.15	16
	Vegetable crops	42.37	759651	304
	Total	**7926.8425**	**25867237.73**	**5980**
Gujarat	Cereals	1977.75	5551148.44	1739
	Commercial crops	152.83	508554	24
	Fodder Crops	6.7	111050	200
	Oilseed Crops	1068.04	4408001.7	884
	Pulses	631.025	4100495.84	840
	Spices	7.69	154955.2	117
	Vegetable crops	140.45	365890	52
	Fiber crops	0.35	2100	Nil
	Total	**3984.835**	**15202195.18**	**3856**
Goa	Cereals	23.85	71550	0
	Vegetable crops	517.43	690803	0
	Total	**541.28**	**762353.2**	**0**
	Grand Total	**12452.9575**	**41831786.11**	**9836**

Bio-products

The KVKs of Maharashtra have produced 78629.35 kg (solid) and 60025.05 lit (liquid) quality bio-products, whereas 7333.50 kg (solid) and 6837 lit (liquid) was produced by KVKs in Gujarat and 4698.33 kg (solid) by North and South Goa KVKs. Bio-fertilizers and bio- pesticides are cost efficient and effective measure for crop production. In Gujarat, Use of bio-fertilizers and bio-pesticides has tremendously increased as compare to previous year, farmers now are aware of natural supplements to their farm. Different projects implemented at KVK related to Natural and Organic Farming has interested farmers towards bio-products.

The category-wise details of bio-products production is given in Table 6.3.

Table 6.3 Bio-products produced by the KVKs and sold to the farmers

State	Category	Form	Quantity	Total Value (Rs.)	Sold to No. of Farmers
Maharashtra	Bio fertilizers	Solid (Kg)	30370.5	959600	2356
		Liquid (lit)	45918.55	10289478.5	7162
	Bio fungicides	Solid (Kg)	37043.85	4124364.25	5268
		Liquid (lit)	3422.5	686700	701
	Bio pesticides	Solid (Kg)	11215	1111855	2095
		Liquid (lit)	10684	2674240	2310
	Micro nutrients mixture	Liquid (lit)	816	168600	233
	Total	**Solid (Kg)**	**78629.35**	**6195819.25**	**9719**
		Liquid (lit)	**60025.05**	**13650418.50**	**10173**

State	Category	Form	Quantity	Total Value (Rs.)	Sold to No. of Farmers
Gujarat	Bio fertilizers	Solid (Kg)	7333.5	142935.73	112
		Liquid (lit)	3972	463680	2371
	Bio pesticides	Liquid (lit	665	395850	466
	Bio agent	Liquid (lit	2150	500	Nil
	Vermiwash	Liquid (lit	50	500	Nil
	Total	**Solid (Kg)**	**7333.50**	**142935.73**	**112**
		Liquid (lit)	**6837**	**860530**	**2837**
Goa	Bio fertilizer	Solid (Kg)	4698.33	97950	0
	Total	**Solid (Kg)**	**4698.33**	**97950**	**0**
	Grand total	**Solid (Kg)**	**90661.18**	**6436704.98**	**9831**
		Liquid (lit)	**66862.05**	**14510948.50**	**13010**

Planting Material of Crops

The quality planting material production of crops by KVKs of Maharashtra, Gujarat and Goa was 47.15 lakh, 19.68 lakh and 0.26 lakh respectively. In Maharashtra, Horticulture nurseries is main objective of KVK's at their centers. The crop category-wise details of planting material production of crops is reported in Table 6.4.

Table 6.4 Planting material produced by the KVKs

State	Crop Category	Quantity (No.)	Total Value (Rs)	Sold to No. of Farmers
Maharashtra	Commercial crops	481190	1147725	223
	Flower crops	51287	232434	99
	Fodder Crops	662295	730391.75	484
	Forest species	13805	345300	200
	Fruit crops	412268.63	41543779.9	9466
	Medicinal and Aromatic crops	100	42800	0
	Ornamental plants	3784	89520	160
	Plantation crops	112534	464912.75	80
	Spices	52975	243970	167
	Tuber crop	1128.05	7356	47
	Vegetable crops	2924465	5869426.05	4824
	Total	**4715831.68**	**50717615.45**	**15750**
Gujarat	Commercial crops	40009	135	14
	Flower crops	55373	115244.43	86
	Fodder Crops	106300	104150	225
	Forest species	3803	206575	27
	Fruit crops	65340	1601863.4	1342
	Ornamental Plants	376	8865	33

State	Crop Category	Quantity (No.)	Total Value (Rs)	Sold to No. of Farmers
	Plantation crop	4809	91180	400
	Vegetable Crops	1692790	1913028.1	4735
	Total	**1968800**	**4041040.93**	**6862**
Goa	Fruit crops	4751	307970	819
	Ornamental plants	1326	79608	663
	Plantation crops	7572	658780	1029
	Vegetable crop	12278	37692	701
	Total	**25927**	**1084050**	**3212**
	Grand Total	**6710558**	**55842706.38**	**25824**

Planting Material of Crop Hybrids

In the Zone, the quality planting material production of crop hybrids by KVKs of Maharashtra and Gujarat was 30.22 lakh and 6.68 lakh, respectively. The crop category-wise details of planting material production of crop hybrids are reported in Table 6.5.

Table 6.5 Planting material of hybrid crops produced

State	Crop Category	Quantity (No.)	Total Value (Rs)	Sold to No. of Farmers
Maharashtra	Fodder Crops	258620	331716.75	365
	Fruit crops	6852	502452	2
	Vegetable crops	2756657	5566996.05	4347
	Total	**3022129**	**6401164.80**	**4714**
Gujarat	Fodder	101000	101500	220
	Plantation Crop	2809	56180	0
	Vegetable crops	564463	661770.40	1045
	Total	**668272**	**819450.40**	**1265**
	Grand Total	**3690401**	**7220615.20**	**5979**

Livestock and Fisheries

During the reporting period, the quality livestock and fingerlings production by KVKs of Maharashtra, Gujarat and Goa was 4.57 lakh, 0.02 lakh and 0.11 lakh respectively. Fishery and Poultry production has shown remarkably rise in nearby years in Maharashtra. The category-wise information of livestock and fisheries production is given in Table 6.6.

Table 6.6 Quality livestock and fingerlings production

State	Category	Quantity (No.)	Total Value (Rs)	Sold to No. of Farmers
Maharashtra	Dairy cow	4	52500	3
	Fishery	401000	250000	94
	Goat	274	1619337	117
	Poultry	56437	3811009	2853
	Total	**457715**	**5732846**	**3067**
Gujarat	Goat	21	128100	7
	Poultry	1569	121236	111
	Total	**1590**	**249336**	**118**
Goa	Poultry	11706	115344	0
	Total	**11706**	**115344**	**0**
	Grand Total	**471011**	**6097526**	**3185**

Farmer Centric and Skill Oriented Programmes

Chapter 7

In this chapter, farmer centric and skill-oriented programmers are discussed and salient results are highlighted. Projects like NICRA, Farmers FIRST, ARYA, TSP, DAMU, NARI, FPO are discussed. These programmes have reflected their contribution to climate resilience, creating entrepreneurship, focusing on farm household level farming, capacity building of input dealers etc.

National Innovations in Climate Resilient Agriculture (NICRA)

NICRA is operational in Zone VIII in 11 KVKs of Maharashtra, Gujarat, and Goa state. ATARI monitors the performance of NICRA KVKs namely Ahmednagar-I, Beed-I, Jalna-I, Latur, Nandurbar, and Osmanabad, from Maharashtra State and KVK Banaskantha-I, Dahod Narmada and Panchmahal from Gujarat State and KVK North Goa from Goa. A brief profile of identified villages of each NICRA center is given in Table 7.1.

7.1 Brief profile of identified villages under NICRA

Name of KVK	Names of Adopted Villages	Agro climatic zone	No. of Families	Population	Major crops grown	Rainfall (mm)	Vulnerability situation
Ahmednagar-I	Adgaon Bk	Western Plateau and Hills Region	537	2428	Pomegranate, Pearl millet, Soybean, cotton, sorghum, Onion, Maize fodder crops	571	Drought
	Khadakewake		395	1982		493	Drought
Beed-I	Rajewadi	Western Plateau and Hills Region	200	1196	Soybean, Cotton, Wheat, Gram, R. Sorghum	600	Drought
Jalna-I	Pokalwadgaon	Western Plateau and Hills Region	216	1150	Cotton, Soybean	688	Drought
	Kadegaon		355	3150			
	Varudi		437	2850			
Latur	Itti Nagapur	Western Plateau and Hills Region	278	1467	Soybean, Gram, Sugarcane, Safflower, Guava, Mango, Custurd Apple	725	Drought
Nandurbar	Umarani	Western Plateau & hills region	257	1747	Sorghum, Soybean, Pigeon pea, Black gram Maize,	813.2	Heat stress and drought
	Bhujgaon		133	777			
	Suryapur		108	502			
	Roshmal		875	4562			
	Katri		1563	5395			
Osmanabad	Sarola	Western Plateau and Hills Region	435	3062	Pigeon pea, sorghum, Black gram, Soybean, sunflower	1032.97	Drought
Gujarat							
Banaskantha-I	Fatepura	Gujarat Plains and Hills Region	96	491	Bajra, Castor, Pulses crop, Groundnut, Cotton	1280	Drought
	Marwada		325	847			
	Dhaneri		420	2300			

Name of KVK	Names of Adopted Villages	Agro climatic zone	No. of Families	Population	Major crops grown	Rainfall (mm)	Vulnerability situation
Dahod	Moti Handi	Gujarat Plains and Hills Region	1360	9567	Maize, Soybean Wheat, Gram, Maize Green gram, Vegetable	982.73	Drought
Narmada	Bedchha	Gujarat Plains and Hills Region	246	3492	Cotton, Pigeon pea, Rice, Sorghum	1211.53	Drought
Panchmahal	Nesada	Gujarat Plains and Hills Region	351	1627	Pigeonpea, castor, maize, paddy, gram, bajara, brinjal, chilli, okra	710	Drought
North Goa	Mayem	Western Coast Plains and Ghat region	214	2972	Rice, Pulses crop, Cashew, Mango, Sugarcane	3204.46	Drought

Technology Modules and Interventions

Climate resilient practices and technologies implemented are categorized under four modules: Natural Resource Management, Crop Production Systems, Livestock & Fisheries Production systems and Institutional mechanism. A summary of activities carried over under the NICRA project in Maharashtra, Gujarat and Goa states is given in Table 7.2.

Table 7.2 Summary of activities carried out during 2022

Name of KVK	NRM		Crop		Livestock			Capacity Building		Extension Activities	
	Demo (No.)	Area (ha)	Demo (No.)	Area (ha)	Demons trations	Area (ha)	No. of animals	No. of Training	Farmers	No. of Programmes	No. of Farmers
Maharashtra (06 KVK)											
Ahmednagar I	30	8 (10 unit)	105	40	30	30 unit	60	5	204	5	334
Beed-I	53	18.2	48	9.45	107	0.25	673	16	386	6	341
Jalna I	77	33	190	77	264	4	320	6	161	5	190
Latur	20	11	185	74	56	0.6	1125	24	635	11	1313
Nandurbar	70	28	290	96.6	265	2.6	346	61	627	17	906
Osmanabad	25	10	140	56	0	0	0	7	242	6	171
Sub total	**275**	**108.2**	**958**	**353.05**	**722**	**7.45**	**2524**	**119**	**2255**	**50**	**3255**
Gujarat (04 KVK)											
Banaskantha I	161	56.3	62	25	209	12	450	4	185	18	488
Dahod	0	0	150	55	129	0	637	28	1093	119	920
Narmada	92	25.3	180	63	420	0.4	369	8	315	30	1007
Panchmahal	160	75	150	60	0	0	0	11	272	6	142
Sub Total	**413**	**156.6**	**542**	**203**	**758**	**12.4**	**1456**	**51**	**1865**	**173**	**2557**
Goa											
North Goa	100	134.8	107	79	37	0	132	30	547	1	66
Grand total	**788**	**399.6**	**1607**	**635.05**	**1517**	**19.85**	**4112**	**200**	**4667**	**224**	**5878**

Natural Resource Management Module

Total 788 numbers of farmers were benefited covering 399.60 ha area under this module. Demonstrations were focused on in-situ moisture conservation, water harvesting and recycling for supplemental irrigation, Broad Bead furrow, mulching etc. under in-situ moisture conservation technologies have been demonstrated in 20 NICRA adopted villages.

Demonstration on Sub Soiler KVK Beed-I

Demonstration on Broad Bed Furrow (BBF) Technology KVK Latur

Crop Production Module

Total 1607 farmers were benefited covering 697.80 ha area focused on drought tolerant varieties, short duration varieties, high yielding variety, advancement of planting dates of rabi crops to escape for terminal heat stress etc. of soybean, paddy, gram, ground nut, wheat under this module.

Inter Cropping with Chilli + water melon

KVK -Banaskantha-I, Introduce of new variety GW-451 of Wheat KVK Dahod

Livestock and Fisheries Module

In Livestock and Fisheries farming a total of 4112 animals of 1517 farmers covering 19.85 ha area were benefited by the demonstrations conducted focusing on preventive vaccination, de-worming of animals, animal health camp and nutrition management. Besides, farmers were also supported by CHC, Seed bank and fodder bank.

Fodder Production KVK Nandurbar

Institutional Intervention

A custom hiring center for farm implements has facilitated the farmers in the adoption of new implements for demonstration and checking the feasibility of the improved farm implements in the prevailing conditions. Concerning custom hiring centers (CHCs), 539 farmers of NICRA villages used 29 different farm implements to cover 428.20 ha area for timely sowing and other cultural operations. Rs. 253860/- revenue was generated. The details are given in Table 7.3.

Paddy Thresher KVK Narmada

BBF Planter KVK Osmanabad

Table 7.3 Details of Custom Hiring Centre (CHC)

KVK	Implement (No)	Area covered (ha)	No. of Farmers	Revenue generated through CHGs (Rs.)
Ahmednagar I	3	20	39	3000
Beed-I	1	39.20	98	10000
Jalna	4	20.80	52	9000
Latur	2	45	19	4500
Nandurbar	2	110	65	3690
Osmanabad	1	6.2	10	0
Banaskantha I	2	55	40	4100
Dahod	2	54	35	16200
Narmada	2	0	130	0
North Goa	10	78	51	203370
Grand total	29	428.2	539	253860

Capacity Building

A total 200 courses were conducted under Capacity Building on various thematic areas benefiting 4667 farmers and farm women (3547 males and 1120 females) during 2022. Thematic areas covered were crop Production, natural resource management, nutrient management, integrated crop management, crop diversification, resource conservation technology, pest and disease management, livestock management, nursery raising, employment generation, nutrient garden, repair and maintenance of farm machinery and implements, integrated farming system, fodder and feed management, value addition etc.

Poultry rearing training and chicks' distribution KVK North Goa

Extension Activities

A total of 224 Extension Activities on various thematic areas were conducted benefiting 5878 practicing farmers during the reporting period. The extension activities were conducted on method demonstrations, agro advisory services, awareness animal health camp, Kisan Goshti, resource conservation technologies, celebration field and farmers' days, diagnostic visits and group discussion.

Group Meeting in NICRA Village KVK Latur

Vaccination camp for Lumpy Skin Disease KVK Beed-I

Farmer FIRST Project

The Farmer FIRST as a concept of ICAR is developed keeping farmer in a centric role for research problem identification, prioritization and conduct of experiments and its management in farmers' conditions. The focus is on farmer's Farm, Innovations, Resources, Science and Technology (FIRST). In the Zone, Farmer FIRST project is implemented from October 2016 in 3 centers viz. MPKV, Rahuri; NAU, Navsari; and JAU, Junagadh. Cluster of villages is adopted by FFP centers from which the achievements of the project during the reporting period is given below.

Visit to Horticulture Module of Director, Scientists ATARI Pune at FFP center MPKV Rahuri

Table 7.4 Centre wise cluster of villages and farm families

S. No.	Centre	Cluster of Villages	No. of Farm Families
1.	MPKV, Rahuri	4 (Chinchvihire, Kangar, Tambhere and Kanadgaon)	1150
2.	NAU, Navsari	3 (Kesali, Vadsangal, Changa)	212
3.	JAU, Junagadh	2 (Ghantiyan and Rafala)	360

Centre wise and Module based Interventions

The Annual Progress of 2022 from three Centers is reported module-wise and center-wise in the following different tables. Under MPKV Rahuri, focus on nutrient-rich cultivars of soybean, red gram, chickpea and rabi sorghum, horticulture-based interventions on the Bhagwa variety of pomegranate, integrated farming systems and suitable micro-enterprises for small and marginal farmers and farm women are given that is represented in Table 7.5. A cluster of four villages was covered under different modules and their active involvement was also ensured.

Visit to Livestock Module by Director, Scientists ATARI Pune at FFP center MPKV Rahuri

Table 7.5 MPKV Rahuri Centre: Coverage of different technological interventions in the villages

Modules	Crop/Animal/ Enterprise	Variety	Area covered (ha.)	Quantity produced (q)	No. of farmers
Crop based modules	Soybean	Phule Sangam	30	960	75
	Red gram	BDN-711	10	220	25
	Chickpea	Phule Vikram	4.4	92.4	11
	Rabi sorghum	Phule Revati	20	G-420 F-960	50
Horticulture based module	Pomegranate production technology	Bhagwa	20	3790	50
Entrepreneurship Module	Dal Mill	PKV mini dal mill	Two Women Self Help Group	11	20
NRM Based Module	In situ soil moisture conservation	Rabi Sorghum	20	Increase in yield Up to 25 %	50
Integrated Farming System based module	Vermicomposting	Eisenia fetida	100 families	-	20
	Silage preparation	-			50
	Goat Rearing	Sangamneri			50

Sugarcane GNS-10 was taken under crop based module in NAU Navsari Centre. In Horticulture based module Mango and Sapota crops were demonstrated for micronutrient and PGR application to improve fruit quality and check fruit drop in Kesali, Vadsangal, Changa villages. Intercropping of Indian bean, lucerne, greengram and fodder sorghum was done in young fruit orchards under Integrated farming system.

Table 7.6 NAU Navsari Centre: Coverage of different technological interventions in the villages

Modules	Crop/Animal/ Enterprise	Variety	AArea covered (ha.)	Quantity produced (q)	No. of farmers
Crop based modules	Sugarcane	GNS-10 (Co N 13072)	2.5	920.00	08
Horticulture Based Module	Mango	Micronutrients and PGR application (NAA) to check fruit drop	40	-	26
	Sapota	Micronutrients and PGR application (CaNO3 & Boron) to improve the quality	20	-	40
Integrated Farming System	Inter cropping of Indian bean + Lucerne in newly planted and young orchard	-	10 ha (Lucerne) + 2 ha (Indian Bean)	-	99
	Intercropping of Greengram in orchard	-	7	-	89
	Intercropping of Fodder sorghum in orchard	-	5	-	79

Table 7.7 JAU Junagadh: Coverage of different technological interventions in the villages

Modules	Crop/Animal/ Enterprise	Variety	Area covered (ha.)	Quantity produced (q)	No. of farmers
Crop based module	Wheat	GW-451	10.11	481.43	50
	Gram	GJG-6	10.11	161.25	50
	Sesame	GT-3	10.11	-	50
	Green gram	GG-4	16.18	-	40
Horticulture based module	Brinjal	GRB-7	9	Nutritional Kitchen Gardening	174
	Okra	GO-6			
	Cowpea	AVC-1			
	Sponge gourd	GJSG-2			
	Bottle gourd	Pusha Navin			
	Ridge gourd	GRG-2			
	Cucumber	Guj. Kakdi-1			
	Indian Bean	GJIB-2			
	Indian Bean	GJIB-11			
Livestock based module	Buffalo	Jaffrabadi	40 buffaloes	1,13,296 (lit milk)	40
Integrated Farming Systems (IFS) module (Crop Diversification)	Coriander + enriched compost	-	20.23	-	50

In JAU, Junagadh Crop, Horticulture, Livestock and IFS modules were taken in 02 clusters of villages covering 360 Farm families. In the Crop module different field crops like wheat, gram, sesame and green gram were covered whereas in the Horticulture module various vegetable crops like were covered in Nutritional Kitchen Gardening. Jaffrabadi buffalo was covered under the livestock module. In the IFS module two components were taken like crop with compost.

Field Visit and monitoring the experiment of Crop Diversification Module at FFP center JAU, Junagadh

Chickpea Plot under Crop based Module at FFP Center JAU, Junagadh

Enhancement in Yield and Income

After the successful farmer- Scientist interface different interventions were planned and implemented at farmers' fields with their active participation in the whole process of crop planning, field operations and post-harvest processing. The overall increase in yield and income realized by the farmers is given in Table 7.11. In some cases, the average income was raised by one and half times.

Table 7.8 Average yield and income of different crops demonstrations at farmers' fields

FFP Centre	Crops	Avg. Yield (q/ha)		Gross Income (Rs/ha)		Net Income (Rs/ha)	
		Before	After	Before	After	Before	After
Mahatma Phule Krishi Vidyapeeth, Rahuri	Soybean	24	32	132000	176000	94800	139500
	Red gram	16	22	88000	121000	54000	89000
	Chickpea	15.50	21	85250	115500	52250	83000
	Rabi Sorghum	Grain- 19 Fodder-42	Grain-21 Fodder-48	77500	86250	49500	59250
Junagadh Agricultural University	Wheat	47.62	51.10	101193	127750	68749	92070
	Gram	15.95	18.89	85085	100766	50042	63078
	Coriander	46.56 (Wheat)	20.36 (Coriander)	102607	126356	54286	81538

Capacity Building of Farmers

Need-based technological empowerment of the farmers was done by organizing training courses. Experts from concerned fields of different institutions including financial organizations and central and state line department officials guided the farmers from identified clusters of three centers. Some of the successful farmers were also used as resource persons to share their success stories and improved profitable technologies. Number of programmers conducted during capacity building of farmers as per the thematic areas are given below in Table 7.9.

Table 7.9 Capacity building programme

Thematic area	Number of programme		
	MPKV, Rahuri	NAU, Navsari	JAU, Junagadh
Capacity Building and Group Dynamics	0	0	2
Crop Production	5	1	15
Entrepreneurship Development	0	0	1
Farm Implements	0	0	1
Livestock Production and Management	0	0	5
Natural Resource Management	1	0	4
Nutritional Security	0	0	4
Plant Protection	0	0	16
Processing and Value Addition	0	1	3
Production of Inputs at site	2	0	2
Soil Health and Fertility Management	1	0	2
Women Empowerment	0	0	3
Total	**09**	**2**	**58**

Training organized on Bakery Productd for Farm Women at FFP Center JAU, Junagadh

Training organized on Processing and Value Addition for Farm Women at FFP Center JAU, Junagadh

Extension Activities and Content mobilization for Larger Technology Applications

Under this project, different technology-focused extension activities were organized. Diagnostic visits, mobile-based advisory services, use of ICT tools, sending text and voice messages, developing well-tested content and onsite input management were emphasized (Table 7.10 and 7.11). Activities like Kisan Ghosthis were organized at all three centers and one Kisan Mela was organized at JAU Junagadh.

An overview of activities carried out during content mobilization, center and module-wise is given in Table No. 7.11. Videos, Clips, and Messages were shared on WhatsApp, text messages were also shared along with voice calls in FFP adopted villages benefiting 2022 farmers

Training organized on Bakery Productd for Farm Women at FFP Center JAU, Junagadh

Table 7.10 Extension activities

Programmes	Number of programme		
	MPKV, Rahuri	NAU, Navsari	JAU, Junagadh
Advisory Services	5	0	65
Celebration of important days	3	0	0
Diagnostic visits	7	0	45
Exhibition	2	1	1
Exposure visits	1	0	2
Farm Science Club	1	0	0
Field Day	0	0	15
Group discussions	6	2	57
Kisan Ghosthi	0	0	13
Kisan Mela	0	0	1
Method Demonstrations	7	0	11
Total	**32**	**3**	**210**

Table 7.11 Content mobilization related activities

Module	Content Mobilization					No. of Text messages	No. of villages	No. of farmers
	WhatsApp			No. of voice calls				
	No. of chats	No. of videos	No. of clips	Outgoing	Incoming			
Crop based modules								
MPKV, Rahuri	0	5	2	600	200	0	4	200
NAU, Navsari	0	0	0	34	14	0	3	38
JAU, Junagadh	162	11	15	378	321	22	2	572
Total	**162**	**16**	**17**	**1012**	**535**	**22**	**9**	**810**
Horticulture based modules								
MPKV, Rahuri	50	3	1	200	150	0	4	50
NAU, Navsari	0	0	0	27	20	0	3	22
JAU, Junagadh	42	5	10	315	82	25	2	398
Total	**92**	**8**	**11**	**542**	**252**	**25**	**9**	**470**
Enterprise based modules								
MPKV, Rahuri	50	2	1	50	20	0	4	50
NAU, Navsari	0	0	0	25	12	0	3	25
Total	**50**	**2**	**1**	**75**	**32**	**0**	**7**	**75**
Livestock based modules								
MPKV, Rahuri	120	6	1	200	120	0	4	100
NAU, Navsari	0	0	0	60	12	0	3	50
JAU, Junagadh	38	2	3	126	42	7	2	172
Total	**158**	**8**	**4**	**386**	**174**	**7**	**9**	**322**
NRM based modules								
MPKV, Rahuri	50	1	0	50	20	0	4	50
Total	**50**	**1**	**0**	**50**	**20**	**0**	**4**	**50**
IFS/Crop diversification based module								
MPKV, Rahuri	200	5	2	200	150	0	4	150
NAU, Navsari	0	0	0	51	26	0	3	43
JAU, Junagadh	31	2	1	65	46	3	2	102
Total	**231**	**7**	**3**	**316**	**222**	**3**	**9**	**295**
Grand Total	**743**	**42**	**36**	**2381**	**1235**	**57**	**9**	**2022**

Attracting and Retaining Youth in Agriculture (ARYA) Project.

ARYA project is aimed at the entrepreneurial development of youth in rural areas to take up different agriculture-allied and service-sector enterprises for sustainable income and gainful employment. ARYA KVKs identified the youth eligible under the scheme, trained them on entrepreneurship development skills, and offered a basket of options to start agricultural ventures for self-employment. Under ICAR-ATARI, Zone-VIII, Pune there are 12 Centres operational Nagpur-I, Nashik-I, Osmanabad, Pune-II, Washim, and Solapur-I in Maharashtra and Rajkot-I, Bhavnagar, Kheda, Navsari, Anand, and Amreli in Gujarat. These centres took up the initiative to empower youth in rural areas to take up agriculture and allied and service sector enterprises for gainful employment.

KVKs trained 4519 youth participants on various agricultural and allied enterprises viz. vermicomposting, beekeeping, processing and value addition of farm products, mushroom cultivation,

poultry, fishery, nursery management, and commercial goat farming. About 107 training courses were conducted in the year (Table 7.12). As a result, 253 units have been established and managed by the 286 trained youth. About 69 youth groups were formed.

Table 7.12 KVK wise achievement of ARYA

State/ARYA centres	No. of training courses	No. of rural youth trained			No. of youth established units			No. of entrepreneurial units established	No. of Group formed
Maharashtra		**M**	**F**	**Total**	**M**	**F**	**Total**		
Nagpur - I	8	100	360	460	5	11	16	16	20
Nashik - I	10	181	239	420	39	19	58	46	5
Osmanabad	7	23	187	210	7	1	8	8	6
Pune - II	8	187	110	297	16	9	25	25	0
Washim	10	173	50	223	81	8	89	89	9
Solapur - I	7	176	62	238	42	5	47	47	8
Total	**50**	**840**	**1008**	**1848**	**190**	**53**	**243**	**231**	**48**
Gujarat									
Rajkot I	3	72	0	72	5	0	5	2	0
Bhavnagar	7	140	96	236	5	7	12	2	2
Kheda	7	78	156	234	6	6	12	4	4
Navsari	23	423	352	775	1	3	4	4	7
Anand	2	40	0	40	2	0	2	2	0
Amreli	15	953	361	1314	4	4	8	8	8
Total	**57**	**1706**	**965**	**2671**	**23**	**20**	**43**	**22**	**21**
Grand Total	**107**	**2546**	**1973**	**4519**	**213**	**73**	**286**	**253**	**69**

District Agro Met Units (DAMU) Project

In 2022, Under ICAR-ATARI Pune, 21 KVKs (Maharashtra-11, Gujarat-9 and Goa-01 KVKs) was operational under DAMU. Table 7.13 shows the Dissemination and coverage of AAS in different Agromet units. 1537WhatsApp groups are formed benefitting 296024 farmers covering 10231 villages. Table 7.14 shows the status of FAP (Farmers Awareness Programme) and the Number of bulletins prepared and CBP etc. 267 FAP programmes are conducted to aware farmers of Agromet services, more than 16946 farmers physically attended these programmes and about 18118 Agro advisory bulletins were prepared in the year. CBP programs attained by DAMU staff is 35.

Table 7.13 Dissemination of AAS (Agromet Advisory Services)

Gujarat	KVK	No of WhatsApp Group Created By DAMU Kvk	No of Farmers Covered	No of The Villages Covered	Total Number of Village
1	Amreli	18	2490	180	619
2	Dahod	16	3406	403	552
3	Dang	9	4322	273	311
4	Jamnagar	19	2904	375	677
5	Narmada	19	2248	237	723
6	Panchmahal	9	2000	150	607
7	Surat	18	2478	218	721
8	Vadodara	93	7876	570	1549

Gujarat	KVK	No of WhatsApp Group Created By DAMU Kvk	No of Farmers Covered	No of The Villages Covered	Total Number of Village
9	Valsad	39	3608	416	448
Total	**240**	**31332**	**2822**	**6207**	
Maharashtra					
1	Amravati II	180	39000	1245	1986
2	Aurangabad I	16	42300	913	1362
3	Bhandara	33	4620	83	816
4	Buldhana II	57	8172	91	1502
5	Gadchiroli	105	52460	1250	1678
6	Nagpur I	246	38870	876	1617
7	Nandurbar	242	19427	653	931
8	Osmanabad	23	2548	48	622
9	Palghar	59	13295	702	1008
10	Solapur II	64	14840	967	1152
11	Washim	142	22160	385	760
	Total	**1167**	**257692**	**7213**	**13434**
Goa					
1	North Goa	130	7000	196	216
	Grand Total	**1537**	**296024**	**10231**	**19857**

Table 7.14 Status of FAP (Farmers Awareness Programme)

Gujarat	KVK	No. of Farmers Awareness Programme conducted	Participant in FAP	No of Bulletins Prepared (In Numbers)	CBP attained by DAMU staff (in Numbers)
1	Amreli	2	180	1248	0
2	Dahod	22	2037	104	2
3	Dang	5	205	103	2
4	Jamnagar	28	1627	1020	1
5	Narmada	34	1965	518	1
6	Panchmahal	1	50	800	0
7	Surat	11	360	89	2
8	Vadodara	5	141	1424	0
9	Valsad	4	166	92	0
	Total	**112**	**6731**	**5398**	**8**
Maharashtra					
1	Amravati II	8	426	728	3
2	Aurangabad I	15	717	945	3
3	Bhandara	10	353	104	0
4	Buldhana II	16	844	1344	2
5	Gadchiroli	10	589	1050	2
6	Nagpur I	31	2044	1560	5
7	Nandurbar	5	257	624	2

Gujarat	KVK	No. of Farmers Awareness Programme conducted	Participant in FAP	No of Bulletins Prepared (In Numbers)	CBP attained by DAMU staff (in Numbers)
8	Osmanabad	10	425	1236	3
9	Palghar	17	763	1313	2
10	Solapur II	12	675	2912	4
11	Washim	18	2934	800	1
	Total	**152**	**10027**	**12616**	**27**
Goa					
1	North Goa	3	188	104	0
Grand Total		**267**	**16946**	**18118**	**35**

Meghdoot app. Popularization activity At Sonvadiya, Jamjodhpur, KVK Jamnagar.

Farmer visits at KVK Aurangabad I, FAP in relation to AWS and its functioning.

Nutri-Sensitive Agricultural Resources and Innovations (NARI)

All 82 KVKs from Maharashtra, Gujarat and Goa are working towards nutri-sensitive agriculture. Awareness camps, training and exhibitions were organized for the farmers, farm women and Anganwadi workers. Nutrition gardens, Poshan Vatika and kitchen gardens have been developed at the KVK campus and in identified villages under KVK jurisdiction.Under NARI On-Farm Trials, total 37 nutritional gardens were established in Maharashtra. Biofortified crops were assessed on 36.26 ha benefiting 168 farmers in the zone, out of which 9.92 ha in Maharashtra benefiting 57 farmers and 26.34 ha in Gujarat benefiting 111 number of farmers. 09 number of technologies were assessed under value addition i.e. 05 from Maharashtra and 04 from Gujarat benefiting 135 farmers.

Off Campus Training on Moringa Receipes in adopted NARI Village at KVK Tapi Gujarat

Training on Kitchen Garden organized at KVK Kutch-I Gujarat

Under Field Level Demonstrations 1651 nutritional gardens were established in Maharashtra, 730 in Gujarat and 10 in Goa. Biofortified crops were demonstrated on 134.23 ha area benefiting 509 farmers of which 111.21 ha area was covered in Maharashtra and 23.02 ha area in Gujarat benefiting 347 and 162 farmers respectively. 31 value addition demos, 27 in Maharashtra, 2 in Gujarat, and 2 in Goa were organized in the zone benefitting 779 farmers and farm women, 756 from Maharashtra, 03 from Gujarat and 20 from Goa.

A total of 413 Training programmes benefiting 14180 farmers and 536 Extension Activities involving 20178 farmers were organized in the zone during the reporting year. 260 Training programmes were organized in Maharashtra, 151 in Gujarat and 02 in Goa benefiting 9478, 4657 and 45 farmers respectively. 307 Extension Activities were organized in Maharashtra, 217 in Gujarat and 12 in Goa benefiting 14137, 5637 and 404 farmers respectively. Rashtriya Mahila Diwas was also celebrated on 15 October for creating awareness among farm women and children on Nutrition related aspects.

Table 7.15 OFTs under NARI Programme

Activity	Maharashtra		Gujarat		Goa		Total	
	No/ Area (ha.)	No. of farmers	No/ Area (ha.)	No. of farmers	No/ Area (ha.)	No. of farmers	No/ Area (ha.)	No. of farmers
Nutritional Garden (No.)	37	37	0	0	0	0	**37**	**37**
Bio-fortified Crops (ha.)	9.92	57	26.34	111	0	0	**36.26**	**168**
Value addition (in no. of Unit or no. of Enterprise)	5	40	4	95	0	0	**9**	**135**

Table 7.16 FLDs under NARI Programme

Activity	Maharashtra		Gujarat		Goa		Total	
	No/ Area (ha.)	No. of farmers	No/ Area (ha.)	No. of farmers	No/ Area (ha.)	No. of farmers	No/ Area (ha.)	No. of farmers
Nutritional Garden (No.)	1651	2093	730	956	10	10	**2391**	**3059**
Bio-fortified Crops (ha.)	111.21	347	23.02	162	0	0	**134.23**	**509**
Value addition (in no. of Unit or no. of Enterprise)	27	756	2	3	2	20	**31**	**779**

Table 7.17 Other Activities under NARI Programme

Activity	Maharashtra		Gujarat		Goa		Total	
	Number of Programme	No. of farmers	Number of Programme	No. of farmers	Number of Programme	No. of farmers	Number of Programme	No. of farmers
Training Programmes	260	9478	151	4657	2	45	**413**	**14180**
Extension Activities	307	14137	217	5637	12	404	**536**	**20178**

Nutrition Folder Distribution at KVK Aurangabad-II Maharashtra

FLD on Drudgrey reduction Farm Implement:- Stalk Puller organized by KVK Tapi Gujarat

Tribal Sub Plan (TSP)

In Zone during under Tribal Sub Plan (TSP) scheme involve 11 KVKs for organizing mandated activities in tribal areas for the benefit of farmers. Special training programmes on quality seed production in various crops; farmers' participatory seed production activities; distribution of quality seed, seed storage structures, crop protection equipment & small farm equipment; demonstrations, exhibitions and exposure visits were instituted by varied cooperating centres benefiting tribal farmers.

The interventions under TSP have been taken 1006 training programme benefitting 35000 tribal people and imparted skills required to establish and run micro-enterprises for income generation.

Major goal of this programme is to improve the livelihood of tribal farmers. A brief achievements under TSP programme is as under (i) Production of seed:1092.39q,(ii) Production of planting materials: 9.30 lakh, (iii) Production of Livestock strains:12879, (iv) Production of fingerlings 6500, (v) Soil, water, plant, manures samples testing 9715, (vi) Mobile agro advisory to farmers 973.

Table 7.18 State wise number of farmers Participated in training programme

Sr. No.	Description	Maharashtra	Gujarat	Total			
		Achievements	No. of Farmers	Achievements	No. of Farmers	Achievements	No. of Farmers
1	On-farm trials	62	688	30	253	**92**	**941**
2	Frontline demonstrations	94	1653	1073	4465	**1167**	**6118**
3	Training programme	426	13250	580	21750	**1006**	**35000**
4	Training program conducted for Extension personnel	22	972	18	583	**40**	**1555**
5	No.of Extension activities conducted	575	17799	9073	215946	**9648**	**233745**
6	Seed production (q)	88.9	680	1003	1354	**1092.39**	**2034**
7	Planting material production	281050	611	649205	2978	**930255**	**3589**
8	Livestock strains	12858	351	21	7	**12879**	**358**
9	Production of fingerlings	6500	60	0	0	**6500**	**60**
10	Soil, water, plant, manures samples testing	2144	2046	7571	7564	**9715**	**9610**
11	Mobile agroadvisory to farmers	5392	504256	4347	1191941	**9739**	**1696197**

Mushroom Production Unit

Scientific Beekipping

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

Capacity Building of Farmers through Training Programmes on Profitable Dairying Farming and Livestock Management was sanctioned by the Department of Animal Husbandry & Dairying. KVKs organised five training programmes, each of three days' duration. The programmes in implemented in 52 KVKs of the Zone 30 in Maharashtra, 20 in Gujarat and 2 in Goa. During the 3-day training coordinator, Scientist, and Animal Sciences, enlightened the participants about scientific management, Feeding, disease management, vaccination, housing, breeding, and prevention and control of diseases in sheep and goats, and other related aspects. 252 training programmes has been conducted benefitting 10258 farmers.

Table 7.19 State wise number of farmers Participated in training programme

Capacity Building of Farmers through Training Programmes on Profitable Dairying Farming and Livestock Management												
Sr	Name of State	No.of KVK	No. of Training Completed	No. of Participants								
				SC/ST		OBC		Others		Total		Grand Total
				M	F	M	F	M	F	M	F	
1	Maharashtra	30	151	974	472	1363	498	2129	797	4407	1761	6168
2	Gujarat	20	91	353	745	552	868	498	712	1406	2284	3690
3	Goa	02	10	107	45	38	26	122	62	267	133	400
Total		**52**	**252**	**1434**	**1262**	**1953**	**1392**	**2749**	**1571**	**6080**	**4178**	**10258**

Goat Farming training

Livestock Management and forage cultivation

Agriculture Drone Project (ADP)

The Union Ministry of Agriculture and Farmers Welfare under "Sub-Mission on Agricultural Mechanization" (SMAM) has sanctioned 300 drones to various ICAR Institutes, SAUs and KVKs at national level. Under this project Rs. 10 lakhs grant is given for purchase of one drone. ATARI Pune has been sanctioned 40 drones, includes 07 to SAUs, 23 to ICAR Institutes and 10 to KVKs. SAUs and KVKs are allotted 1 drone each, whereas ICAR Institutes are given two drones.

NCDC Implementation of Central Sector Scheme for Formation and Promotion of 10,000 FPOs by KVKs

Department of Agriculture, Co-operation & Farmers Welfare Ministry of Agriculture & Farmers Welfare Government of India has introduced the CSS Formation and Promotion of 10,000 FPOs under Co-operative Societies Act. Formation of FPOs is targeted in five years period of 2019-20 till 2023-24 while handholding will continue till 2027-28. It is being implemented in total 10 blocks in 06 KVKs from ATARI Pune. 6 blocks (Karad, Satara, Malshiras, Pandharpur, Shirol, Hatkangale) are from 4 KVKs (Satara-I, Satara-II, Kolhapur-I, Solapur-II) of Maharashtra and 4 blocks (Deesa, Dantiwada, Nandod and Dediapada) are from 2 KVKs (Banaskanta-I and Narmada) of Gujarat. The aim aim of the project is to enhance economic strength & market linkages of farmers for enhancing their income. The Objective is to provide adequate handholding and professional support to develop economically sustainable FPOs while facilitating adequate market and credit linkages. All blocks have registered one FPO, in total 10 FPOs have been registered with 2918 number of registered farmer members.

Kisan Sarthi Portal 2022

Kisan Sarathi is a System of Agri-information Resources Auto-transmission and Technology Hub Interface, ICAR. It is powered by Interactive Information Dissemination System (IIDS), Digital India Corporation (DIC), Ministry of Electronics and Information Technology (MeitY), Govt. of India "Kisan Sarathi" is an Information Communication and Technology (ICT) based interface solution with the ultimate goal of an intelligent online platform for supporting agriculture at a local niche with a national perspective.

7.20 Number of Registered Farmers on portal

State	No. of Registered Farmers on portal	No. of Registered Experts
Maharashtra	512561	235
Gujarat	327168	127
Goa	4850	7
Grand total	**844579**	**369**

Chapter 8

Special Programmes

In this section, special programmes organized by the KVKs in the zone are reported.

Kisan Samman Nidhi (PM-KISAN Scheme) Programme (1st January 2022)

Prime Minister Narendra Modi released the 10th instalment of financial benefit under the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme on 1st January 2022 via video conferencing. 77 KVKs under ICAR-ATARI, Zone-VIII, Pune organised and telecasted this programme with 4947 participants. In Maharashtra, state 45 KVKs organised the programme with 2909 participants while in Gujarat 30 KVKs saw participation of 1884 persons and in Goa 2 KVKs involved 154 participants.

National Campaign on "World Pulses Day" (10th February 2022)

76 KVKs of Maharashtra (46), Gujarat (29) and Goa (01) organized 17 seminars and conducted 58 training programmes with 1175 and 2978 number of participants respectively. In total 83 different activities were organized with 3465 participants in the Maharashtra, Gujarat (40 programmes with 2573 participants) and Goa (1 programme with 39 participants).

Field Training by Sangli I KVK on Pulses

Pulse food preparation competition and Exhibition KVK Narmada (GJ)

Name of State	No. of KVKs organized the programme	Seminars organized		Training prog. organized		Gosthis organized		Exhibitions organized		Total	
		No. of activities	No. of participants	No. of activities	No. of participants	No. of activities	No. of participants	No. of activities	No. of participants	No. of activities	No. of participants
Maharashtra	46	11	628	37	1758	22	860	3	219	83	3465
Gujarat	29	6	547	21	1220	9	502	4	304	40	2573
Goa	1	0	0	0	0	1	39	0	0	1	39
Total	**76**	**17**	**1175**	**58**	**2978**	**32**	**1401**	**7**	**523**	**124**	**6077**

International Women's Day 2022

82 KVKs under ICAR-ATARI, Zone-VIII, Pune celebrated the "International Women's Day 2022" with total 14395 participants. In Maharashtra, 50 KVKs organized the programme with 10700 participants while in Gujarat 30 KVKs saw participation of 3547 women and in Goa 2 KVKs involved 148 participants. 41 seminars, 60 Training programmes, 33 Gosthis and 14 Exhibitions were organized all over the Zone with 5329, 4605, 2039 and 2422 participants respectively.

Gosthis organized: KVK Kutch I

Training organized: KVK Kolhapur-I

Kisan Mela (Farmers' fair)

Kisan Mela (Farmers fair) was organised by 82 KVKs the zone on 26th April 2022 under the program *'Kisan Bhagidari, Prathmikta Hamari'* campaign from 25th to 30th April, 2022. Hon'ble Union Minister of Agriculture and Farmer's Welfare Shri Narendra Tomar ji addressed the participants about various initiatives of the government like natural farming, Kisan Samman Nidhi, soil health etc. and applauded the farmers who have increased their income many fold. Earlier Sh Kailas Chaudhary, Union Minister of State for Agriculture and Farmers' Welfare addressed the kisan mela virtually. During the Kisan Mela Farmers- Scientist interaction on *"Bharatiya Prakritik Krishi Paddhati*", technical discussion on Millets, Oilseeds and Bio-fortified crops and exhibitions were organised by KVKs for the benefit of farmers. 25152 farmers participated in the programme. 4 Hon'ble Member of parliaments also graced the occasion.

Sr. No	Name of State	No. of KVKs organized Kisan Mela	No. of farmers participated	No. of public representatives participated			Total
				Central Ministers/MPs	State Ministers / MLAs	Others	
1	Maharashtra	50	15230	2	4	722	15958
2	Gujarat	29	9322	2	7	810	10141
3	Goa	2	600	0	0	27	627
Total		**81**	**25152**	**04**	**11**	**1559**	**26726**

Field Training by Sangli I KVK on Pulses

Field Training by Sangli I KVK on Pulses

Garib Kalyan Sammelan'

50 KVKs of Maharashtra organised programme on Garib Kalyan Sammelan' with a total of 38189 participants. The participants included 7 Ministers from Centre, 12 Members of Parliament, 2 Ministers from State, 21 MLAs & MLCs, 896 other public representatives and other participants. Prime Minister Shri Narendra Modi Ji addressed the programme from Shimla which was shown to all participants. Prime Minister also released the 11th instalment of financial benefits under the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme.

Dignitaries Attended							Total No. of Dignitaries	Total No. of Beneficiaries and other farmers	Total number of participants physically present
Name of State	Number of KVKs	No. of Ministers from Centre	No of MPs	No. of Ministers from State	No. of MLAs & MLCs	No. of other Public Representatives, Govt. Officials			
Maharashtra	50	7	12	2	21	896	938	37251	38189

International Yoga Day 2022

International Yoga Day was celebrated on 21st June 2022. The theme of the International Yoga Day 2022 was "***Yoga for humanity***."*82* Krishi Vigyan Kendra's celebrated International Yoga Day by organizing programmes like yoga exercises, awareness programmes, training programme on balance use of fertilizers and awareness about agroforestry, tree plantation like bamboo, karanj and neem. 8896 participants celebrated the programe. In Maharashtra, 50 KVKs organized the programme with 6878 participants while in Gujarat 30 KVKs saw participation of 1840 farmers and students and in Goa 2 KVKs involved 178 participants.

KVK Dang (Gujarat) celebrated Yoga Day

Farmers participated in Yoga day KVK Navsari (Gujarat)

ICAR foundation Day 2022

The 94th ICAR Foundation Day and Award Ceremony was celebrated on 16 July 2022 at A P Shinde Symposium Hall, NASC, PUSA, New Delhi. As a part of this programme KVKs participated through online video conferencing and conducted awareness programme about schemes of central and state government for farmers. Felicitation of progressive and innovative farmers, field exhibitions on natural farming for small and medium farmers, women farmers and FPOs, farmers-scientist interaction etc. were conducted. 82 KVKs under ICAR-ATARI, Zone-VIII, Pune organised this programme with total 8893 participants. In Maharashtra, state 50 KVKs organised the programme with 5821 participants while in Gujarat 30 KVKs saw participation of 2956 persons and in Goa 2 KVKs involved 116 participants respectively.

Shri. Narendra Singh Tomar, Hon'ble Union Minister of Agriculture & Farmers' Welfare, Parshottam Rupala, Union Cabinet Minister of Fisheries, Animal Husbandry and Dairying, Shri. Kailash Chaudhary, Minister of State for Agriculture and Farmers' along with Secretary, Department of Agriculture Research and Education (DARE) cum Director General (DG), ICAR, Dr. Trilochan Mohapatra, inaugurated the ICAR 94th Foundation Day & Awards Ceremony - 2022 at Delhi.

Shri. Narendra Singh Tomar, Hon'ble Union Minister of Agriculture & Farmers' Welfare interacted with farmer Mayur Prajapati KVK Banaskantha-I (Gujarat)

KVK Solapur-I (M.S) conducted awareness programme about schemes of central and state government for farmers

"Poshan Abhiyan and Tree Plantation" (17th September 2022)

"National Campaign on Poshan Abhiyan and Tree Plantation" was celebrated by KVKs of ATARI Pune on 17 September 2022. On this occasion, Hon'ble Union Minister for Agriculture & Farmers' Welfare, Government of India addressed the farmers. The speech of Hon'ble Minister was telecasted online at KVK campus by inviting dignitaries and farmer participants. KVKs distributed the saplings of fruit/agro-forestry plants & seed packets of vegetable to farmers that was provided by IFFCO.

A total of 82 KVKs organized the event with a total 9609 number of farmer's participants. 9020 number of saplings and 8346 number of vegetable seed packets were distributed. 223 number of public representative were present during the event out of which, 1 was central ministers/MPs and 3 were state ministers/ MLAs with 219 numbers of other public representatives.

Name of State/UT	No. of KVKs organized the fair	No. of farmers participated	Saplings planted/ distributed (No.)	Vegetable Seed Packets distributed (No.)	No. of public representatives participated		
					Central Ministers / MPs	State Ministers / MLAs	Others
Maharashtra	50	6184	3816	5136	0	1	153
Gujarat	30	3222	5094	3010	1	2	64
Goa	2	203	110	200	0	0	2
Total	**82**	**9609**	**9020**	**8346**	**1**	**3**	**219**

Special Swachhata campaign 2.0 from 2nd October to 31st October 2022

The Government of India has organised special campaign 2.0 from 2nd October to 31st October 2022 with a focus on swachhata and reducing pendency in government. ICAR-ATARI, Pune, along with Krishi Vigyan Kendras (KVKs) of Zone-VIII, have organised various activities under special campaign 2.0 from 2nd October to 31st October 2022. At the start of the campaign, all the officials and staff of ICAR-ATARI, Pune and KVKs celebrated Gandhi Jayanti on 2nd October 2022 and took Swachhta Pledge.

Total of 82 KVKs organised in different swachhta awareness & cleanliness drive in nearby villages around KVKs campus Microbial-based Agricultural Waste Management using Vermicomposting on waste

and awareness on recycling of waste, water harvesting for agriculture management with a total of 46098 participants among these 26876 farmers followed by 13121 school students, 361 members of Civil Society, 260 dignitaries and 4839 staff the member explained the on farm-demonstration about bio-waste management through vermi-composting and proper utilization of sewage water for kitchen gardening purpose were shown to the farmers by the KVKs.

Rashtriya Mahila Kisan Diwas (15th October 2022)

80 KVKs under ICAR-ATARI, Zone-VIII, Pune celebrated the Rashtriya Mahila Kisan Diwas on 15th October 2022 with 4907 participants. In Maharashtra, 48 KVKs organized the programme with 3284 participants while in Gujarat 30 KVKs saw participation of 1532 women and in Goa 2 KVKs involved 91 participant

Sr. No.	Name of State	Number of KVK organized the programme	Number of Activities Organized	Number of farmers participated		Number of Scientists Participated	No of VIP attended	Total number of Participants
				Male	Female			
1	Maharashtra	48	74	424	2667	144	49	3284
2	Gujarat	30	33	212	1248	70	02	1532
3	Goa	02	02	26	56	07	02	91
Total		**80**	**109**	**662**	**3971**	**221**	**53**	**4907**

KVK Bhavnagar Gujarat

KVK Buldhana-I Maharashtra

PM Kisan Samman Sammelan on (17 Oct 2022)

The Prime Minister, Shri Narendra Modi inaugurated PM Kisan Samman Sammelan 2022 at Indian Agricultural Research Institute in New Delhi. 82 KVKs under ICAR-ATARI, Zone-VIII, Pune organized the *PM Kisan Samman Sammelan"* on 17th Oct 2022 with total 29432 participants. In Maharashtra, 50 KVKs organized the programme with 18971 participants while in Gujarat 30 KVKs saw participation of 10083 and in Goa 2 KVKs involved 378 participants. During the event, the Prime Minister released the 12th instalment of Pradhan Mantri Kisan Samman Nidhi (PM-KISAN). The Prime Minister also inaugurated the Agri Startup Conclave and Exhibition. He further elaborated that Kisan Sammelan is a means to make the lives of farmers easier, boost their capability and promote advanced agricultural techniques.

123 DFI farmers, 25 KVKs and ATARI officials from ATARI Pune physically attended the programme at Indian Agricultural Research Institute in New Delhi.

State	No. of KVKs	Dignitaries Attended					Total No. of Dignitaries	Total No. of farmers	Total No. of members of FPOs and Start-ups	Total number of participants
		No. of Ministers from Centre	No of MPS	No. of Ministers from State	No. of MLAs & MLCs	No. of other Public Representatives, Govt. Officials				
Maharashtra	50	1	8	1	2	378	395	17424	1152	18971
Gujarat	30	0	9	0	2	374	388	9391	304	10083
Goa	02	1	1	0	0	19	21	342	15	378
Total	**82**	**02**	**18**	**01**	**04**	**771**				

KVK Dang (Gujarat) organized the PM Kisan Samman Sammelan program

Farmers participated at KVK during PM Kisan Samman Sammelan Nashik-II(MS)

World Soil Day 2022

World Soil Day is celebrated every year on 5 December and aims at highlighting the importance of soil. 70 KVKs under ICAR-ATARI Zone VIII, Pune celebrated "World Soil Day 2022" on 5th December 2022 with a total of 7461 participants among these 5549 were farmers, 1063 students and 778 scientists. In Maharashtra, 49 KVKs organized the program with 5435 participants while in Gujarat 19 KVKs saw the participation of 1398 people and in Goa 2 KVKs involved 628 participants. Shri Shripad Naik Union Minister of State for Ports, Shipping and Waterways and Tourism, Govt. of India, Hon'ble Minister for Agriculture Goa, Shri. Ravi Naik attained programme at KVK South Goa.

S. No	Name of the State	No. of KVKs organized programme	No of participants attended				No of VIPs attended
			Farmers	Scientists	Students	Total	
1	Maharashtra	49	4233	335	816	5384	51
2	Gujarat	19	1081	86	216	1383	15
3	Goa	02	235	357	31	623	5
	Total	**70**	**5549**	**778**	**1063**	**7390**	**71**

Hon'ble Minister for Agriculture Goa, Shri. Ravi Naik Addressing to farmer at KVK South Goa

Shri. Shripad Naik Union Minister Of State for Ports, Shipping and Waterways and Tourism, Govt. of India, at: KVK North Goa

Kisan Mobile Advisory Services

Kisan Mobile Advisory Service is one of the Information and Communication Technology (ICT) tools for dissemination of need based information and knowledge at the right time to the needy farmers. KVKs are sending information through text and voice messages to the registered farmers regarding important agricultural operations, weather, market, events, programmes etc. Accordingly, KVKs advised farmers regularly on crops, livestock, other enterprises, weather, marketing and awareness of latest agricultural technologies, events and programmes through personalized advisory. During the reporting period, 6505764 text messages, and 4572983 voice messages were sent to around 65 lakh farmers. Among these advisories, major share was of crops (114290) followed by weather (9784) livestock (7219), awareness (5191), other enterprises (1071) and marketing (599). The information on mobile based advisories is presented in table.

State	No of Registered farmers	Kisan Mobile Advisory Services							
		Message Type	Category of messages						
			Crop	Livestock	Weather	Marketing	Awareness	Other enterprise	Total Messages
Maharashtra	4500623	Text only	4557	2945	4186	167	2453	395	15495
Gujarat	2005141	Text only	102296	64	1246	201	238	146	104191
Total	**6505764**	**Text only**	**106853**	**3009**	**5432**	**368**	**2691**	**541**	**119686**
Maharashtra	4500623	Voice only	4617	2960	4225	181	2480	473	15728
Gujarat	72360	Voice only	2820	1250	127	50	20	57	4324
Total	**4572983**	**Voice only**	**7437**	**4210**	**4352**	**231**	**2500**	**530**	**20052**

Soil, Water and Plant Analysis

Major focus is being given on soil test based application of nutrients in different crops. Mini soil testing kits are being used at each centre. KVKs have soil, water and plant analysing laboratory, mini soil testing kits for analysing soil, water and plant samples for the benefit of farming community. Further, KVKs are also utilizing this facility for carrying out the soil test based nutrient recommendations for conducting FLDs and OFTs and providing advisory services on nutrient based recommendations to the farmers. In 2022, 50565 samples of soils, 7920 samples of water, 368 samples of plants were analysed by the KVKs in the zone. In total, 49273 Soil Health Cards were distributed among farmers with specific recommendation in local language. State-wise data on various parameters are given in Table below.

State	Samples	No. of Samples	No. of Farmers	No. of Villages	Amount realized (Rs.)	No. of Soil Health Card issued
Maharashtra	Soil	39259	37323	3291	7186517	39852
Gujarat	Soil	11306	10892	1187	1053435	9421
Total	**Soil**	**50565**	**48215**	**4478**	**8239952**	**49273**
Maharashtra	Water	6532	6376	1303	1030660	4034
Gujarat	Water	1388	1325	694	148220	61
Total	**Water**	**7920**	**7701**	**1997**	**1178880**	**4095**
Maharashtra	Plant	278	124	53	88080	39
Gujarat	Plant	90	97	49	0	0
Total	**Plant**	**368**	**221**	**102**	**88080**	**39**
Grand Total	**All**	**58575**	**56013**	**6524**	**9418832**	**53368**

Mera Gaon Mera Gaurav (MGMG) Scheme

In the Zone, ICAR institutes and SAUs were actively implemented MGMG scheme. Under this scheme, at institute level many groups of multi-disciplinary Scientists were constituted. One group consists of 4-5 scientists and adopted 5 villages within a radius of 50-100 km from their place of working. In these adopted villages, different types of activities like field visits, trainings, frontline demonstrations, exhibitions etc. were organized. Extension literature was provided to the farmers. In all 97 groups of scientists in the zone, Maharashtra- 16 groups and Gujarat-81 groups were constituted by 368 scientists. In total, 217 villages were adopted and 42139 farmers were benefitted through different activities. State-wise details are given in Table 8.7.

MGMG Center CIRCoT, Mumbai Scientist Visit at Cotton Field

Sr. No.	State	No. of Teams	No. of Scientists	No. of villages	Farmers benefited (No.)
1.	Maharashtra	16	72	40	10847
2.	Gujarat	81	296	177	31292
	Total	**97**	**368**	**217**	**42139**

SAC Meetings of KVKs in 2022

Scientific Advisory Committee meetings were conducted by KVKs to get advice and feedback on the mandated activities of KVK in planned and systematic manner by the participating members from ICAR institutions, ATARI, line department, farmers etc. The Committee monitors progress and facilitate exchange of views on the specific tasks. Total 49 SAC meetings were conducted during 2022, 26 in Maharashtra, 22 in Gujarat and 1 in Goa.

Sr. No.	Maharashtra KVKs	Date	Sr. No.	Gujarat KVKs	Date
1	Ahmednagar-II	25-11-2022	1	Ahmedabad	19-09-2022
2	Aurangabad -I	24-03-2022	2	Amreli	08-03-2022
3	Aurangabad -II	26-12-2022	3	Anand	19-09-2022
4	Beed-I	14-09-2022	4	Dahod	20-09-2022
5	Beed-II	24-02-2022	5	Dang	24-01-2022
6	Buldhana-I	06-09-2022	6	Gandhinagar	07-09-2022
7	Chandrapur	18-06-2022	7	Jamnagar	09-03-2022
8	Dhule	28-12-2022	8	Junagadh	28-02-2022
9	Gadchiroli	06-12-2022	9	Kheda	08-09-2022
10	Gondia	07-12-2022	10	Kutch-I	16-12-2022
11	Jalgaon-I	09-02-2022	11	Kutch-II	04-03-2022
12	Jalna-II	29-03-2022	12	Mehsana	07-01-2022
13	Kolhapur-I	25-02-2022	13	Narmada	29-01-2022
14	Kolhapur-II	24-02-2022	14	Patan	17-02-2022
15	Nagpur-I	22-06-2022	15	Porbandar	07-03-2022
16	Nashik-II	28-12-2022	16	Rajkot-I	10-03-2022
17	Osmanabad	22-02-2022	17	Rajkot-II	10-03-2022
18	Palghar	04-02-2022	18	Sabarkantha	05-07-2022
19	Parbhani	23-03-2022	19	Surat	25-01-2022
20	Pune-I	10-10-2022	20	Surendranagar	10-03-2022
21	Satara-II	12-12-2022	21	Vadodara	04-01-2022
22	Sindhudurg	08-02-2022	22	Valsad	09-09-2022
23	Solapur-I	28-12-2022			
24	Solapur-II	29-12-2022	**Goa**		
25	Washim	28-09-2022	1	South Goa	23-03-2022
26	Yavatmal-II	30-11-2022			

Monthly Ongoing Swachhata Abhiyan

82 KVKs under ICAR-ATARI Zone VIII, Pune organized monthly programme on Swachhata related activates like cleaning of offices, corridors, office surrounding and premises, cleanliness and sanitation drive-in the villages, plantation of trees, distribution of vermi-bed, preparation and cleaning of nutrition garden under MGMG, distribution of vermicomposting cleanliness and sanitation drive within campuses and surroundings, utilization of organic wastes/ generation of wealth from waste, polythene free status, technology demonstrations on agricultural technologies for conversion of waste to wealth, safe disposal of all kinds of wastes, Training programmed on waste management and demonstrations on vermicomposting production. Adapted villages awareness cum training programme on Natural farming & Vermicomposting Microbial-based agricultural Waste Management using Vermicomposting, during this period total 98096 of Participant Farmers, staff school children etc. with 640 VIPs attended the activities.

HRD, Publications and Linkages

Chapter 9

Workshops/Conferences/Trainings Organized

- *Sensitization Workshop on 'Natural Farming for Healthy Nation' Organized by ICAR-ATARI Pune on 10 February, 2022 in virtual mode.*
- *Zonal Level Review Workshop on Attracting and Retaining Youth in Agriculture in Maharashtra and Gujarat Organized by ICAR-ATARI Pune on 15 February, 2022.*
- *Organized Workshop for entry of DFI stories into Excel during 12- 13 May 2022 at ATARI Pune for KVKs of Maharashtra.*
- *Organized Workshop for entry of DFI stories into Excel during 17- 18 May 2022 at ATARI Pune for KVKs of Maharashtra.*
- *Organized Workshop for entry of DFI stories into Excel during 19- 20 May 2022 at ATARI Pune for KVKs of Maharashtra.*
- *Organized Workshop for entry of DFI stories into Excel during 21- 22 May 2022 at ATARI Pune for KVKs of Gujarat.*
- *Organized Workshop for entry of DFI stories into Excel during 23- 24 May 2022 at ATARI Pune for KVKs of Gujarat and Goa.*
- *"Annual Review Workshop of Farmer FIRST Project" and "Annual Review Workshop of NICRA-KVKs in Maharashtra, Gujarat and Goa" jointly organized by ICAR-Agricultural Technology Application Research Institute, Pune, ICAR-Central Research Institute on Dryland Agriculture, Hyderabad and Marathwada Sheti Sahayya Mandal, Jalna, Maharashtra at Krishi Vigyan Kendra, Jalna - I, Maharashtra from 8-9 June, 2022.*
- *International Day of Yoga- Heartfulness Practices for wellbeing and harmony Organized by ATARI-Pune on 21-23 June, 2022.*
- *5th Annual Zonal Workshop of ICAR-ATARI, Pune Organized at Anand Agricultural University from 7-9 July, 2022.*
- *Management Development Programme for Newly Recruited Senior Scientist and Heads of KVKs Jalna-II, Kolhapur-II, Akola, Junagadh and Mehsana Organized by ATARI-Pune during 14-18 July, 2022.*

Meetings Organized

- *Meeting with trustee of Kalyani Gorakshan Trust, Pune along with Head KVK-Satara-I on 04 January, 2022 at ATARI, Pune.*
- *Online Review Meeting for TSP fund utilization on 05 January, 2022.*
- *4th Institute Management Committee meeting of ATARI Pune in virtual Mode on 02 February, 2022.*
- *Online review meeting for utilisation of capital funds of different project under chairmanship of director ATARI, Pune on 13 January, 2022.*
- *Meeting with Amazon, KVK- Narayangaon and FPOs for creating possibility towards Digital Outreach Programs on 22 February, 2022*

Attended Workshops/ Conferences

- Regional thematic Workshop on *Crop Diversification* organized by Commissionerate of Agriculture, Maharashtra on 04 February, 2022.
- Workshop and Farmer Interaction organized at KVK Satara-I with Dr. V. P. Chahal, ADG (Agril Extn) ICAR, New Delhi as chief guest on 01 March, 2022.
- *Annual Action Plan Workshop of Marathwada KV*Ks under VNMKV, Parbhani Agriculture University on 05-06 April, 2022.
- National Dialogue on Innovation in Agricultural Extension: Way Forward at New Delhi organized by TAAS New Delhi at NASC New Delhi on 08-09 April, 2022.
- Virtual National conference on *Promotion of Kisan Drones* on 02 May, 2022.
- Workshop at Gangtok for DFI Finalization under chairmanship of DDG Extn ICAR from 07-09 May, 2022.
- Two-day National Seminar cum Webinar (virtual) on "Climate Change Concerns: Challenges for Agriculture Sector and Food and Nutrition Security organized by ICAR-Indian Institute for Millets Research (IIMR),

Hyderabad and Karnataka Agri-Professional Association (KAPA) from14-15 May, 2022.

- Biennial National Conference of KVKs at Dr. Y.S. Parmar University of Horticulture & Forestry, Solan, Himachal Pradesh 01-02 June, 2022.
- Workshop on 'Planned Survey on Pulses Rice-based Cropping System' on 24 June, 2022.
- Action Plan Workshop of KVKs of MPKV, Rahuri on 30 June, 2022.
- Virtual Annual Review Workshop on ARYA-Attracting and Retaining Youth in Agriculture Project on 05 July, 2022.
- Virtual Orientation Workshop on Implementation of 'Insecticide Resistance Management (IRM): Dissemination of Pink bollworm Management Strategies' organized by ICAR-CICR, Nagpur on 19 July, 2022.
- International Conference on *"Harnessing Indian Agriculture for Indigenous and Global Prosperity"* from 22-23 July, 2022 at NASC Complex, New Delhi.
- NICRA Workshop at CRIDA, Hyderabad from 13-14 August, 2022.
- Technical Workshop on Development of a Food Practice Compendium on Millet mainstreaming and a scale-up strategy on 16 September, 2022.
- Annual Workshop of CSISA-KVKs Network project on 23 September, 2022 at New Delhi.
- Agri-Start Up conclave and Kisan Sammelan at Delhi from 17-18 October, 2022.
- National Workshop on Natural Farming organized by RVSKVV, Gwalior, Madhya Pradesh on 03 December, 2022.

Participation in Training/Meetings/Visits/Interactions by ATARI Officials

- RE Review meeting under the chairmanship of DDG (Agril Extn) on 05 January, 2022.
- Meeting with DDG (Agril Extn) at New Delhi on 07 January, 2022.
- *2nd Task Force Committee ACZ-XIII* Meeting on 24 January, 2022 in virtual mode.
- One District One Product (ODOP) Webinar on *"Pulses Processing and Value Addition*"on 25 January, 2022.
- Online review meeting of FPOs under NCDC CSS, with KVKs under chairmanship of DDG (Agril Extn) ICAR and Shri. C. Roul on 27 January, 2022.
- Pan India implementation of Kisan Sarathi: a series of online sensitization workshops and training program with Directors, Nodal Officers and Office Executive on 31 January, 2022.
- E-meeting on Guidelines of KVKs under chairmanship of DDG, (Agril Extn) ICAR, New Delhi on 15 February, 2022.
- Virtual Review Meeting of DFI Network *Project "Impact Assessment of Selected Interventions by KVK under Doubling Farmer's Income for Enhancing Farmer's Income*" on 16 February, 2022.
- Meeting on implementation of Kisan Sarathi under Chairmanship of ADG (ICT) and DDG (Agril Extn), New Delhi on 17 February, 2022.
- Virtual RAC-Meeting under Chairmanship of Dr. P. Das, Ex. DDG, during 21-22 February, 2022.
- Webinar on *"Chemical Free Natural Farming and its Outreach"* addressed by PM on 24 February, 2022.
- SOC Meeting of ICAR under chairmanship of DG, ICAR in virtual mode on 07 March, 2022.
- Virtual Meeting for Release of Grant-in-Aid for DAMU Project of the financial year 2022-23 on 11 March, 2022.
- Virtual Review Meeting on Expenditure of NICRA KVKs under chairmanship of Dr. J.V.N.S. Prasad, NICRA-TDC, CRIDA, Hyderabad on 11 March, 2022.
- Review meeting of 100% Fund Utilization organized by Director Finance, ICAR New Delhi on 16 March, 2022.
- Video Conferencing on budget announcement for promotion of drones in agriculture on 05 April, 2022.
- Project Team Review meeting of ARYA Project on 06 April, 2022.
- Chief Guest in *World Honey Bee Day* celebration at KVK Palghar on 20 April, 2022.
- EFC finalization meeting on 20 April, 2022 organized by Agricultural Extension Division, ICAR, New Delhi.
- DFI meeting with DDG (Agril Extn), ICAR-New Delhi on 21 April, 2022.
- Training on Pan India implementation of Kisan Sarathi organized by IT Cell, IASRI, New Delhi on 22 April, 2022.
- Review meeting of Gender and Nutrition project Project on 22 April, 2022.
- Meeting on Kisan Bhagidari Prathamikta Hamari Campaign with DDG, (Agril Extn). ICAR- New Delhi on 25 April, 2022.
- Kisan Mela under Aazadi Ka Amrit Mahotsav, Kisan Bhagidari Prathamikta Hamari Campaign from 25-30 April, 2022 at KVK Pune-II on 26 April 2022.
- Committee Member for selection of new Nodal Training Institute under ACABC Scheme in Maharashtra State on 02 May, 2022.
- Review meeting under chairmanship of the DDG (Agri. Extn.) during 07-09 May, 2022 at College of Agricultural Engineering & Post Harvest Technology, Ranipool, Gangtok, Sikkim to finalize *DFI cases of 75000 farmers*.
- Online meeting regarding National KVK conference-2022 under the chairmanship of DDG (Agril Extn), ICAR, New Delhi on 14 May, 2022.
- Virtual meeting on implementation of Kisan Sarathi in all States and Union Territories under the chairmanship

of Additional Secretary, DARE and Secretary, ICAR on 17 May, 2022.

- Meeting on *"Per- sowing Brain storming session to promote Pigeon pea for kharif, 2022"* under the Chairmanship of the Secretary (A&FW) on 18 May, 2022.
- Mid-term review of Regional Committee Meeting 20 May, 2022.
- Interaction meeting with Director, Comptroller, Dean and other officials of CIFE Mumbai on 24 May, 2022.
- Online meeting regarding organizing programs at each KVK on 31 May, 2022 and National conference under chairmanship of DDG (Agril Extn) ICAR-New Delhi on 24 May, 2022.
- Online meeting regarding organizing programs at each KVK on 31 May, 2022 and National conference under chairmanship of DDG (Agril Extn) ICAR-New Delhi on 26 May, 2022.
- Online meeting with Directors of all ATARIs and ADGs, ICAR-New Delhi on 28 May, 2022.
- Meeting hosted by ICT Unit, ICAR, New Delhi on 30 May, 2022 to review status of preparation on event of PM to be organized on 31 May, 2022.
- Virtual Meeting on implementation of Agri-Drone Project under the Chairmanship of DDG (Agril Extn), ICAR 04 June, 2022.
- Project Team Meeting of the National Network Research Project on Attracting and Retaining Youth in Agriculture (ARYA) on 04 June, 2022.
- Review meeting of Gender and Nutrition Project under the chairmanship of Dr. S R K Singh, Director, ATARI-Jabalpur to discuss RCT sampling plan on 07 June, 2022.
- Meeting to discuss formulation of EFC 2021-26 as per new format organized by Agriculture Extension Division, ICAR, New Delhi on 15 June, 2022.
- Review Meeting of KVKs of Maharashtra in collaboration with MCAER under the chairmanship of Agriculture Minister, Govt. of Maharashtra on 16 June, 2022.
- ICAR, University, NAAS Stakeholders virtual Interface Meeting at ICAR-NIASM, Baramati on 17 June, 2022.
- Meeting on QRT under the chairmanship of Secretary, DARE & DG, ICAR on 24 June, 2022.
- Offline meeting regarding DFI, ARYA and CFLD-Pulses with the officials of Agricultural Extension Division, ICAR, New Delhi on 01 July, 2022.
- Offline meeting regarding implementation of Kisan Sarathi 2.0 with PI of the project Dr. Sanjeev Kumar, Principal Scientist, IASRI, New Delhi on 01 July, 2022.
- Virtual Meeting on Action Plan of ICAR for Field Demonstrations on application of Kisan Drones on 05 July, 2022.
- 94th ICAR Foundation Day and Award Ceremony at ICAR, New Delhi during 15-16 July, 2022.
- Project Team Meeting of the National Network Research Project on Attracting and Retaining Youth in Agriculture (ARYA) on 26 July, 2022.
- Acted as DG nominee Member for Assessment Committee of 02 Scientists at ICAR-NIAP, New Delhi on 28 July, 2022.
- Virtual Meeting of all the stakeholders of District Agro Meteorological Units (DAMUs) under the chairmanship of FA, DARE, Ministry of Agriculture & Director of Finance, ICAR on 02 August, 2022.
- Review meeting of District Agro Meteorological Units (DAMUs) under Zone-VIII, ATARI, Pune on 02 August, 2022.
- Virtual Meeting to discuss issues on DAMU Project, operational, Banking System & other doubts on 05 August, 2022.
- Meeting with Ex. Engineer of CPWD and other members along with ATARI staff at site of ATARI, Pune office Building on 05 August, 2022.
- Virtual Meeting on implementation of Agri-Drone Project under the Chairmanship of Dr. A.K. Singh DDG (Agril Extn), ICAR on 12 August, 2022.
- Review meeting under the chairmanship of DDG (Agril Extn), ICAR, New Delhi on 25 August, 2022.
- Virtual Brainstorming Session on Natural Farming for Krishi Vigyan Kendras in the jurisdiction of MPKV, Rahuri on 30 August, 2022.
- An Interaction Meeting with ICAR Institutes under the chairmanship of DG, ICAR on 30 August, 2022.
- Review meeting of Gender and Nutrition project on 05 September, 2022.
- ARYA Research Project Team Meeting to finalize the sampling criteria for the control group respondents and to start data collection on 06 September, 2022.
- Interaction meeting with Shri M.K. Jain, Joint Secretary (Personnel), ICAR at NRCG, Pune on 06 September, 2022.
- Meeting with Govt. of UT Dadra and Nagar Haveli on Silvassa KVK under the Chairmanship of DDG (Agril. Extension), ICAR on 08 September, 2022.
- Interface meeting of Gender and Nutrition project with PI of the project and KVKs of Zone-VIII on 08 September, 2022.
- Review meeting of CBBOs of FPOs of Maharashtra and Gujarat to review the activities undertaken and fund utilization under the chairmanship of Dr. Lakhan Singh, Director, ICAR-ATARI, Pune on 12 September, 2022.
- Periodic Review Meeting of Insecticides Resistance Management: Dissemination of Pink Bollworm Management Strategies organized by ICAR-CICR, Nagpur on 13 September, 2022.
- Meeting on CPGRAMS organized by Agricultural Extension Division, ICAR, New Delhi on 14 September, 2022.

- CSISA-KVK network meeting scheduled in Hybrid mode on 23 September, 2022.
- Meeting regarding preparation for the program organized on 17.10.2022 under the chairmanship of Secretary, DARE & DG, ICAR, New Delhi 26 September, 2022.
- Interface meeting with Award Winning KVKs for Building Success at ATARI, Barapani on 28 September, 2022.
- Virtual meeting regarding disbursement of funds under GKMS scheme under the chairmanship of DDG (Agril Extn), ICAR, New Delhi on 29 September, 2022.
- Committee Member for selection of new Nodal Training Institute under ACABC Scheme in Gujarat State on 30 September, 2022.
- Online Review meeting on Crop Residue Management Initiatives Undertaken by Dr. Abhilaksh Likhi, Additional Secretary, Department of Agriculture & Farmers Welfare on 03 October, 2022.
- Review meeting regarding clarifying fund flow at District Agro Meteorological Units (DAMUs) under Zone-VIII, ATARI, Pune on 03 October, 2022.
- Meeting by Additional Secretary DARE and Secretary, ICAR regarding Mobilization of farmers by all ICAR institutes and Agricultural Universities and Meeting to discuss points related to program on October 17, 2022 of Hon'ble Prime Minister on 13 October, 2022.
- Mid-term review meeting of Regional Committee-II on 14 October, 2022.
- Meeting related to finalization of new DAMU units under the chairmanship of DDG (Agril Extn), ICAR, New Delhi on 31 October, 2022.
- Virtual meeting related to Sensitization of Kisan Sarathi on 01 November, 2022.
- Meeting to finalize Survey schedule of RCT plan under Gender and Nutrition Project on 10 November, 2022.
- Interaction Meeting with ICAR Institutes by Secretary, DARE & DG, ICAR, New Delhi on 11 November, 2022.
- Participated in Farmers' Training on 'Crop Health, Quality Assurance and Precision Agriculture' at Wai, Satara on 12 November, 2022.
- Interaction meeting with Chairperson, KVK Satara-I to review the activities at KVK on 23 November, 2022.
- Meeting regarding Guidelines for Implementation of Agri-Drone Project (ADP) on 24 November, 2022.
- 26th Meeting of Regional Committee-IV 26 November, 2022.
- Virtual International Year of Millets opening ceremony/ side event on 06 December, 2022.
- Training on Natural Farming organized by Natural Farming Training Institute, Gurukul, Kurukshetra on 08-09 December, 2022.
- Review meeting of Gender and Nutrition Project on 13 December, 2022.
- A virtual meeting regarding Celebration of International Year of Millets, 2023 under the Chairmanship of Hon'ble DG, ICAR and Secretory DARE on 15 December, 2022.
- Review meeting of fund flow under GKMS Scheme to District Agro Meteorological Units under the chairmanship of Secretary, DARE & DG, ICAR, New Delhi on 21 December, 2022.

Organized/ Participated in Special Activities by ATARI Officials.

- Online *"Women Farmers Mela"* organized by KVK, Osmanabad, Maharashtra on 03 January, 2022.
- Virtual Inaugural programme of First Official Infrastructure *'Farm Office cum Field Laboratory of ICAR DFR'* by Honble Union Agriculture Minister on 03 January, 2022.
- *Agriculture Technology Festival* organized by KVK Solapur-I on 19 January, 2022.
- *Krishi Mela* organized by KVK Thane on 05 February, 2022.
- *"Kisan Mela on Natural Farming and Date Palm Exhibition"* organized by the KVK Kutch-I, Gujarat on 13 June, 2022.
- Rashtriya Mahila Kisan Diwas at KVK Pune-II on 15 October, 2022.

KVK and Field Visits by the Director, ATARI, Pune

- Visited KVK Amravati-I and Amravati-II on 11 January, 2022.
- Visited KVK Chandrapur and KVK Gadchiroli on 12 January, 2022.
- Visited KVK Ahmednagar-I on 27 April, 2022.
- Visited KVK South Sikkim on 09 May, 2022
- Visited KVK Ratnagiri to review KVK activities on 14-15 May, 2022.
- Visited KVK Jalna-II and Jalna-I on 09 June, 2022
- Field visit at NICRA village of KVK Ahmednagar- I and FFP center at MPKV Rahuri on 10 June, 2022.
- Visited KVK Baramati on 16 June, 2022
- Visited Village's in Solapur District under KVK Solapur-II on 19 June, 2022.
- Visited KVK Pune-II on 15 July, 2022.
- Visited KVK Ahmednagar-I on 01-02 September, 2022.
- Visited KVK Satara-I and Satara-II on 13 September, 2022.

Interview Conducted at KVKs

- Interview conducted for the post of Programme Assistant (farm Manager) at KVK Amravati-II on 11 January, 2022.
- Attended selection Committee meeting for SMS (Horticulture) at KVK Jalna-I on 29 January, 2022.
- Interview of SMS (Agriculture Engineering) and Stenographer at KVK Nanded-II on 19 February, 2022.
- Conducted Interview for the post of Sr. Scientist cum Head and SMS (Agril Extension) at KVK Sangli-I 05 to 06 April, 2022.
- Interview conducted for the post of Senior Scientist & Head and Skill supporting staff at KVK Pune-I on 18 April, 2022.
- KVK Beed-I Senior Scientist & Head and SMS (Plant protection) on 23 April, 2022.
- Interview conducted for the post of Program Assistant (Lab Technician) and Skill Supporting Staff at KVK Solapur-I on 30 April, 2022.
- Conducted interview for the post of Senior Scientist & Head of KVK Palghar on 21 May, 2022.
- Interview conducted for the post of SMS (Animal Husbandry) at KVK Kolhapur-II on 12 September, 2022.
- Interview for the post of SMS (Agril. Extn.) and SMS (Agril. Engg.) conducted at KVK Latur on 15-16 September, 2022.
- Interview for the post of SMS (Agril. Extn.) and SMS (Soil Science) conducted at KVK Hingoli on 17 September, 2022.
- Conducted interview at KVK Satara-I on 30 September and on 01 October, 2022 for Senior Scientist & Head, SMS (Horticulture) and SMS (Plant Protection).

Interview Conducted at ICAR-ATARI, Pune

- Recruitment of SRF on 16 November, 2022 and DEO on 17 November, 2022 under CFLD Pulses Programme at ATARI, Pune.
- Recruitment of two Young Professional-I under the project 'Out scaling of Natural Farming through KVKs' at ATARI, Pune on 17 November, 2022.
- Recruitment of Young Professional-II (IT) and Young Professional-II (Finance) at ATARI, Pune on 23 November, 2022.

SAC Meetings Attended

- SAC Meeting at KVK Amravati-II on 12 January, 2022.
- Virtual SAC Meeting at KVK Surat on 25 January, 2022.
- Virtual SAC Meeting at KVK Nashik-II on 27 January, 2022.
- Virtual SAC Meeting of KVK Palghar on 04 February, 2022.
- Virtual SAC Meeting of KVK Sindhudurg on 08 February, 2022.
- Virtual SAC Meeting of KVK North Goa on 18 February, 2022.
- Virtual SAC meeting of KVK Kolhapur-II on 24 February, 2022.
- Virtual SAC meeting of KVK Jalna-II in on 29 March, 2022.
- Virtual SAC meeting of KVK Buldhana-I on 6 September 2022
- Virtual SAC meeting of KVK Gandhinagar on 07 September 2022
- Virtual SAC meeting of KVK Kheda on 08 September 2022.
- Virtual SAC meeting of KVK Valsad on 09 September 2022.
- Virtual SAC meeting of KVK Ahmedabad on 19 September 2022.
- Virtual SAC meeting of KVK Anand on 19 September 2022.
- SAC Meeting at KVK Pune-I on 10 October 2022.
- Virtual SAC meeting of KVK Yavatmal-II on 29 November, 2022.
- Virtual SAC meeting of KVK Satara-II on 12 December 2022.
- Virtual SAC meeting of KVK Kutch-I on 16 December 2022.
- Virtual SAC meeting of KVK Aurangabad-II on 26 December 2022.
- Virtual SAC meeting of KVK Jalgaon-I on 27 December, 2022.
- Virtual SAC meeting of KVK Solapur-I on 28 December, 2022.
- Virtual SAC meeting of KVK Dhule on 28 December, 2022.
- Virtual SAC meeting of KVK Solapur-II on 29 December, 2022.

Table 9.1 ATARI Pune in ICAR News.

Sr.	Event	Date
1.	Virtual Women Farmers Mela Organized by KVK, Osmanabad, Maharashtra	03 January, 2022,
2.	Virtual Workshop on "Sensitization of KVKs on Natural Farming for Healthy Nation" organized by ATARI Pune	10 February, 2022
3.	ICAR-ATARI, Pune organizes "Zonal Review Workshop of ARYA Project in Maharashtra and Gujarat"	15 February, 2022
4.	ICAR-ATARI, Pune celebrates its 5th Foundation Day	03 April, 2022
5.	The Administrative Building of KVK, Badnapur, Jalna, Maharashtra inaugurated	05 May, 2022
6.	ICAR Institutes celebrate World Bee Day - 2022	20 May, 2022
7.	"Annual Review Workshop of NICRA-KVKs in Maharashtra, Gujarat and Goa" organized by ATARI Pune, CRIDA, KVK-Jalna-I	08-09 June, 2022
8.	"Kisan Mela on Natural Farming and Date Palm Exhibition" inaugurated at KVK Kutch-I Gujarat	13 June, 2022
9.	"5th Annual Zonal Workshop of ICAR-ATARI, Pune" organized	07-09 July, 2022
10.	Capacity Building Program on "Technology Demonstrations for enhancing resilience"	13 August 2022
11.	KVK, Narayangaon, Pune Celebrates Rashtriya Mahila Kisan Diwas	15 October, 2022,
12.	Farmers' Seminar on "Carbon Credit and Bamboo Cultivation" organized	05 November, 2022
13.	Farmers' Training on 'Crop Health, Quality Assurance and Precision Agriculture'	12 November, 2022

Publications

- Rajesh T., Lakhan Singh and Tushar Athare (July 2022). Impact of Cluster Frontline Demonstration on Pulses in Maharashtra An Empirical Analysis. ICAR- Agriculture Technology Application Research Institute (ATARI), Pune Maharashtra, PP-44.
- Lakhan Singh, Rajesh T, Tushar Athare (2022). Accomplishment of ATARI Pune: 5 Years Glorious Journey, ICAR-Agricultural Technology Application Research Institute, Zone-VIII, Pune-411005, PP.85
- Annual Report (2020). ICAR-Agricultural Technology Application Research Institute, Zone-VIII, Pune-411005, PP.155
- Annual Report (2021). ICAR-Agricultural Technology Application Research Institute, Zone-VIII, Pune-411005, PP.161

Awards and Recognition

- Received Appreciation Certificate for Swachhata Pakhwada on 13 April, 2022 from Agriculture Minister, Govt of India.
- Received Vasantrao Naik Award for Outstanding Research and Application in Dry land Farming System for 2021 on 16 July, 2022 at ICAR- New Delhi.

Research Papers

Athare TR, Pradhan P, Singh SRK, Kropp JP. India consists of multiple food systems with socio economic and environmental variations. PLoS One. 2022 Aug 26;17 (8):e0270342. doi: 10.1371/journal.pone.0270342. PMID: 36018832; PMCID: PMC9416984.

Convergence and Linkages

During the reporting period KVKs continued their linkages with different organizations and agencies while discharging their responsibilities as farm science centres at the district level. KVKs worked closely with most of the line departments for technology sharing through training programmes, meetings, demonstrations, extension programmes, technology week, exhibitions, farmers' field school, kisan mela, capacity development, exposure visit, and video films presentation etc. Capacity development of extension workers was ensured through training, farm schools and farmer's field schools. Extension activities involved all stakeholders including media, local institutions, district administration and people's representatives. Exposure field visits and joint Field visits with state-line departments to farmers' fields were arranged to solve their problems. Technological backstopping to the farming community was extended by the KVKs.

Convergence with ATMA

Convergence with ATMA enabled KVKs to promote various technologies in their respective districts. KVK is being used as a good platform to converge different developmental schemes at the district level. Altogether, KVKs participated in 2446 programmes of ATMA during the year and KVKs organized 1694 programmes in collaboration with ATMA (Table 10.3).

Table 9.2 Linkages and Convergence with ATMA.

Sr. no	No of KVK	Name of programmes	Attended by KVK staff (No.)	No of Programs organized by KVKs
1	70	Training programmes	781	406
2	67	Meetings	426	163
3	27	Demonstrations	379	330
4	41	Extension programmes	344	299
5	25	Technology week	38	101
6	36	Exhibition	74	84
7	22	Farmers field school	105	63
8	30	Kisan Mela	85	54
9	10	Capacity development	40	39
10	26	Exposure visit	84	53
11	14	Extension literature	12	35
12	10	Video films	31	20
13	7	Agri-preneurs development	3	13
14	13	Animal health campaigns	5	20
15	14	Soil health camps	29	9
16	1	Training under PMFME	7	3
17	1	Farmers Seminar	2	1
		Grand total	2445	1693

External Funding

KVKs received funding from various schemes and programmes to organize various programs and activities for benefitting the farmers and extension workers. Rashtriya Krishi Vikas Yojana (RKVY), PM Formalization of Micro Food Processing Enterprises, State Agriculture Department, SAUs, and National Bank for Agriculture and Rural Development (NABARD) were the major agencies that funded/supported several KVK activities. Different Boards, Ministries, and companies also supported the KVK interventions.

Table 9.3 External Funding received by KVKs through convergence and Linkages.

Sr. no	Name of external funding Agency	No of KVKs	Amount Received (Rs. In Lakh)
1	Rashtriya Krishi Vikas Yojana (RKVY)	11	343.76
2	PM Formalization of Micro Food Processing Enterprises (PMFME)	1	157.5
3	State Department of Agriculture	21	148.16
4	State Agricultural Universities	10	144.71
5	Adani Foundation	2	127.39
6	Agricultural Technology Management Agency (ATMA)	27	103.42
7	National Bank for Agriculture and Rural Development (NABARD)	4	71.57
8	District Planning Office, Collector Office	1	40.87
9	National Institute of Plant Health Management (NIPHM), Hyderabad.	3	11.28
10	National Horticulture Mission, (NHM).	2	10.25
11	Mission for Integrated Development of Horticulture, (MIDH)	1	9.76
12	State Poultry Development Scheme	1	7.5

Sr. no	Name of external funding Agency	No of KVKs	Amount Received (Rs. In Lakh)
13	Yashwantrao Chavan Maharashtra Open University, (YCMOU) Nashik.	1	7.38
14	Maharashtra state rural livelihood mission (MSRML) ZP, Nanded.	1	6.49
15	Jal Vardhini Pratisthan, Mumbai.	1	5
16	Adivasi Vikas Prakalp.	1	5.1
17	National cooperative development corporation (NCDC)	1	4
18	National Commission for Women, New Delhi	1	4.8
19	Yashwantrao Chavan Academy of Development Administration (YASHADA), Pune.	1	3.97
20	National Institute of Agricultural Extension Management, (MANAGE), Hyderabad.	3	10.82
21	Union Ministry of Fisheries, Animal Husbandry and Dairying	2	2.6
22	Coconut Development Board and Ministry of Petroleum	1	1.24
23	Gujarat State Seed Corporation LTD.	1	0.78
24	Petroleum Conservation Research Association (PCRA).	1	0.72
25	ICL specialty fertilizer, Pune & Yara Chem Pune Fertilizers (in kind)	1	0.50
26	RCF (Rashtriya Chemical and Fertilizers)	1	0.50
27	Coconut Development Board, State Centre, Thane	1	0.50
28	Prachodhan (NGO), Trissur.	1	0.43
39	CARD (NGO) , Ahmedabad	1	0.41
30	Indian Farmers Fertiliser Cooperative Limited, (IFFCO) Gandhidham.	1	0.30
31	Bureau of Indian Standards, (BIS) Mumbai.	1	0.20
	Grand total		1231.911231.91

Table 9.4 Publication by KVK.

Sr. no	No. of KVKs	Category of Publication	Numbers
1	22	Abstract	111
3	8	Book chapters	12
4	20	Book published	22
5	11	Booklet	13
6	6	CD/DVD/YouTube Videos	19
7	21	Conferences	52
8	17	Extension folder	37
9	3	Lead paper	3
10	54	Leaflets/ Folder/ Pamphlet/ extension literature	288
11	10	Newspaper coverage	344
12	57	Popular article	649
13	8	Proceedings	19
14	36	Research papers	127
15	6	Seminar papers	37
16	17	Technical Bulletin	71
17	14	Training Manual	31
18	10	Other	148
		Grand total	1983

KVK staff published 127 research papers, 71 technical bulletins, and 649 popular articles. KVKs have documented 288 extension literature/ leaflet folders, 344 newspaper coverage, 22 books, 19 CDs/DVDs and 111 abstracts on various technological aspects of agriculture and its allied enterprises.

Technology week

Various activities were organized at KVK level under technology week viz. Bio-fertilizer input- distribution (10 q), diagnostic practical (90), etc. About 58 exhibitions were organized by 25 KVKs which was visited by 144933 farmers. 170 total number of farm visits were organized under technology week by 24 KVKs of the zone, which benefitted 12503 farmers. Film show has been the best method of extension, about 95 film shows were shown by 16 KVKs, which was seen by 15684 participants. The total number of lectures organized by 30 KVKs on different issues and improved technology's in agriculture was 372, which was attained by 16953 farmers. 256 technology-related literature were provided by 24 KVKs to 56205 farmers.

Table 9.5 Technology week.

Sr. No	No. of KVKs	Category	Number	Participant
1	10	Supply of Bio-Fertilizers (q)	10	7177
2	18	Diagnostic Practical- problem-oriented field visit	90	1800
3	25	Exhibition	58	144933
4	10	Fair	12	7415
5	24	Farm Visit	170	12503
6	1	Field day	3	89
7	16	Film show	95	15684
8	21	Gosthies	64	4714
9	1	Kisan Diwas	1	172
10	30	Lectures organized	372	16953
11	1	Mushroom training	6	270
12	17	A number of other organizations participated	83	8495
13	24	Supply of Literature	256	56205
14	20	Supply of Planting materials (No.)	18733	4152
15	10	Supply of Seed (q)	57	5210
16	21	Technology Week	651	128710
17	1	Training	2	49
			20663	**414531**

Awards /recognition received by KVKs during 2022

Sr. No	KVK Name	Award Name	Given By	Brief about Awards
1	Ahmednagar-I	Best Agripreneur Award for the years 2017-18 to 2021-22.	MANAGE, Hyderabad	The award is given to Best ACABC Candidate.
2	Nashik-II	IARI Innovative Farmer Award-2022	IARI, New Delhi	'IARI Innovative Farmer Award' by IARI for immense contribution to Agriculture.
3	Pune-I	Best Agripreneur Award-2022	MANAGE, Hyderabad	Best Agripreneur Award at New Delhi to Mrs. Manisha Sanjay Khamkar.
4	Pune II	Best Agripreneur Award-2022	MANAGE, Hyderabad	Best Agripreneur Award to Mrs Shweta Wayal.
5	Pune II	Best Agripreneur Award-2022	MANAGE, Hyderabad	Best Agripreneur Award to Mr Eknath Thorat.

Best Agripreneur Award given by MANAGE, Hyderabad was given to the best ACABC candidate Mr. Jadhav Viraj Bhagirath, KVK Ahmednagar I.

IARI Innovative Farmer Award for immense contribution to Agriculture given to farmers Shri. Balasaheb Kadu Deore, The. Deola Dist. Nashik. KVK Nashik II.

Best Agripreneur Award given by MANAGE, Hyderabad to Mrs. Manisha Sanjay Khamkar KVK Pune I.

Best Agripreneur award given by MANAGE, Hyderabad to Mrs. Shweta Wayal, ARYA trainee KVK Pune II.

Information regarding distinguished visitors during 2022 at KVK level

Sr no	KVK name	Visitor name	Designation of Visitors	About visit
1	Amaravati-II	1. Mrs. Navneet Rana	M P, Amravati constituency.	Attended Garib Kalyan Sammelan Programme which was held at KVK on 31st May 2022.
		2. Dr. Anil Bonde	M P, Rajyasabha.	To attend the Mann ki Baat Programm on 17th October 2022.
2	Buldhana-I	1. Shri. Mukulji Wasnik 2. Shri. Balasaheb Thorat	M P (Rajyasabha) Ex. Revenue Minister (M.S.)	Hon. Mukulji Wasnik and Hon. Balasaheb Thorat visited KVK and discussed about various activities conducted by KVK. Taken information about vermicomposting and organic farming. On 17 Nov 2022. Also, Mrs Medhatai Patkar visited KVK and discussed tribal area activities.
3	Dhule	Dr. Subhashji Bhamre	Former Union Minister of State for Defence, Government of India and MP, Dhule Lok Sabha Constituency.	Attended Garib Kalyan Sammelan Programme which was held at KVK on 31st May 2022.

Sr no	KVK name	Visitor name	Designation of Visitors	About visit
4	Latur	Shri. Sudhakar Shringare	M P Latur constituency.	Member of Parliament, Latur Hon'ble Mr. Sudhakar Shringare visited during the programme on PM Kisan Samman Samelan as the chief guest on 31st May 2022.
5	Nagpur I	Shri. Krupal Tumane	M P Ramtek constituency, Maharashtra.	Member of Parliament, Ramtek Hon'ble Mr Krupal Tumane visited during the programme on PM Kisan Samman Samelan as the chief guest on 31st May 2022.
6	Pune-I	1. Shri. Abdul Sattar 2. Shri. Dadaji Bhuse	Agriculture Minister, Maharashtra Ex-Agricultural Minister, Maharashtra	Hon'ble Shri. Abdul Sattar, Hon. Shri. Dadaji Bhusem, Dr. S.N. Patil, Dr. Sharad Gadhak, Dr. S. D. Savant, Dr. Indra Mani visited KVK durng KRUSHIK - Live Demo & Agri Expo. Hon. Dr. Akhilesh Lekhi visited Centre of Exceelnce, KVK Baramati on 29th August 2022. Also Hon. Dr. G.P. Sharma visited regarding review of financial report of KVK.
7	Satara-II	Shri. Shriniwas Patil	M P, Satara constituency	Visited to attend Farmer's fair on 26th April 2022.
8	Sindhudurg	Shri. Manoj Kotak	M P, Mumbai North East	Attended Garib Kalyan Sammelan Programme which was held at KVK on 31st May 2022.
9	Solapur I	1. Shri Ramdas Athawale	Central Minister for Social Justice & Empowerment, Govt. of India	Attended Garib Kalyan Sammelan Programme which was held at KVK on 31st May 2022.
		2. Dr. Jaysidheshwar Shivacharya Mahaswamiji	M P, Solapur constituency	
10	Wardha	Shri. Ramdasji Tadas	M P, Lok sabha, Wardha	Hon'ble MP visited KVK, Selsura on the occasion of Live telecasting of PM Kisan Samman Sammelan on 31st May 2022 and 17th October 2022.
11	Ahmedabad	1.Shri Narharibhai Amin	M P, Rajy sabha	Visited in the program of PM Kisan sanman Sammelan on 31st May 2022.
		2.Dr. Kirit P. Solanki	M P (Loksabha), Ahmedabad West.	
		3.Shri Hasmukhbhai Patel	M P (Loksabha), Ahmedabad East.	
		4. Shri Bhupendrasinh Chudasma	Former state Cabinet minister for Education, Gujrat.	
12	Banaskantha-II	Shri. Parbatbhai Patel	M P, Banaskantha constituency	Attend the man ki bat programme and participate in various KVK activities on 17th Oct 2022.
13	Mehsana	1. Shri.Surya Pratap Shahi 2. Smt. Shardaben Patel	1. Minister of Agricultural Education and Agricultural Research of Uttar Pradesh. 2. M P, Lok Sabha, Mehsana district.	As a part of various activities of KVK and campus visits on 24th January 2022.
		1.Smt. Ramilaben Bara	MP (Rajyasabha), Sabarkantha	Kisan Bhagidari Prathmitka Hamari - Azadi ka Amrit Mahotsav Farmer's Fair on 26th April 2022.
		1.Smt. Ramilaben Bara		National Campaign on Poshan Abhiyan and Tree Plantation on 17th September 2022.
		1.Smt. Ramilaben Bara		PM Kisan Sanmman Sanmmelan Live Webcasting Program on 17th October 2022.

Visitor

Shri. Surya Pratap Shahi, Minister of Agricultural Education and Agricultural Research of Uttar Pradesh and Smt. Sharadaben Patel M P Loksabha visited KVK Mehsana on 24th January 2022.

Shri. Shrinivas Patil, M P satara at Shetkari Melava on 26th April 2022 at KVK Satara II

Shri Ramdas Athawale, Central minister of social justice and empowerment and Dr. Jaysidheshwar Shivacharya Mahaswamiji, M P Solapur, Attended Garib Kalyan Sammelan Programme which was held at KVK Solapur I on 31st May 2022.

Hon. Dr. Subhashji Bhamre, Former Union Minister of State for Defence, Government of India and MP, Dhule Lok Sabha Constituency visited KVK Dhule to attend Garib Kalyan Sammelan Programme on 31st May 2022.

Mrs. Navneet Rana, M P, Amravati Attended Garib Kalyan Sammelan Programme which was held at KVK on 31st May 2022.

Shri. Parbatbhai Patel, M P Banaskantha , visited KVK Banaskantha II As a part of various KVK activities on 17th October 2022.

Agricultural Technology Information Centre (ATIC) & Techonogical backstopping by DEEs

Chapter 10

Agricultural Technology Information Centre (ATIC)

The Agricultural Technology Information Centre (ATIC) is single window delivery dissemination and supporting system for various innovative and farm worthy techniques evolved at the university and affiliated organization in the pursuit of research and excellence. The ATICs have the responsibility of providing farmers with enhanced access to sources of information related to agriculture and allied sectors and also critical technology products like seed, planting material, livestock material and bio products.

Five Agricultural Technology Information Centres (ATICs) reported information in Zone-VIII, one each at state agricultural / veterinary universities. 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 and services.

The ATICs provided technology information, number of Farmers visited to the ATICs 35148, and 10553 farmers, respectively. Technology services like soil and water testing advisory services were provided to 6474 farmers. 15802 farmers received Kisan Mobile Advisories and 3009 calls received regarding farmers queries a Kisan Call Centre.

Sr no	Particulars	AAU Anand	NAU, Navsari	SDAU, Saradarkrushi nagar	PDKV Akola	VNMKV, Parbhani	Total
1	Number of Farmers visited the ATICs	3439	1228	2034	2471	1381	**10553**
2	Technology information provided to No. of farmers	3439	592	1789	20641	8687	**35148**
3	Soil and water testing	0	18	1	6455	0	**6474**
4	Plant diagnostics	0	31	2	108	0	**141**
5	Details about the services to line Departments	0	36	83	38	0	**157**
6	Others- No. of case treated	0	0	0	9322	0	**9322**
7	Special Extension programme	57	0	2	592	0	**651**
8	Technologies on freshwater aquaculture (hatchery management, grow out culture and post-harvest technology)	0	0	0	103	0	**103**
9	Kisan Call Centre Services	0	0	115	2894	0	**3009**
10	Kisan Mobile Advisory	0	0	716	14982	104	**15802**
11	Special Extension Programme	67	0	0	0	8	**75**
12	Plant diagnostics	0	0	0	0	29	**29**
13	ATIC Help Line Service	321	524	0	180	1187	**2212**
14	Details about the services to line Departments (Nos.)	0	0	83	0	0	**83**
15	E-mail services (Nos.)	59	48	74	0	0	**181**
16	Training (No.	15	5	0	0	18	**38**
17	Training (No. of Farmers)	419	130	0	0	1512	**2061**
18	Literature (No of documents)	17	3	742	0	4	**766**
19	Literature (No of beneficiaries)	2137	738	742	0	4000	**7617**

Technological Backstopping by DEEs

The responsibility of technology backstopping, capacity building, monitoring and review of activities of KVKs is vested with directorates of extension of state agricultural universities (SAUs) of the zone and also with ATARI.

The Directors of Extension Education and their officials coordinate and monitor the mandated activities of all the KVKs under their jurisdiction through Scientific Advisory Committee meetings, Workshops, Review Meetings, Field Visits and organize Human Resource Development Programmes for KVK staff on frontier areas of technologies. Further they also provide technological products like improved seeds, planting materials, livestock, poultry breeds and fingerlings to various KVKs as per their farmer's requirements.

Directorates of Extension Education of various universities and their officials have participated in 21 Scientific Advisory Committee meeting. Similarly, they have attended 24 Field days,65 Workshops/ Seminars, 6 technology weeks, 329 Trainings Programmes, 41 On Farm Testing (OFT) and 42 Front Line Demonstrations (FLD) programmes organized by various KVKs.

Sr. No	Particulars	Name of the DEE					Total
		AAU	NAU	PDKV	SDAU	MAFSU	
1	Number of Workshops / meetings organized by DEEs	13	7	20	17	0	**57**
2	SAC meetings	6	6	1	8	0	**21**
3	Field days	5	8	10	1	0	**24**
4	Workshops / seminars	3	25	33	3	1	**65**
5	Technology week	1	4	1	0	0	**6**
6	Training programmes	9	24	283	6	7	**329**
7	Others pl. specify Group discussions, interface meetings, field visits, review meetings etc.	4	26	183	5	3	**221**
8	Kisan Mela	1	1	15	4	1	**22**
9	Monitoring of interventions	0	12	26	3	1	**42**
10	Farm Development Programmes	3	7	3	3	0	**16**
11	Rabi and khariff campaign	0	4	10	2	0	**16**
12	World soil day programme	0	1	3	0	0	**4**
13	Animal health camp, awareness programme, campaigns, diagnostic visits etc.	0	2	38	2	2	**44**
14	Farmer Scientist Interaction	1	5	5	3	1	**15**
15	On Farm Trials	19	4	18	0	0	**41**
16	Front Line Demonstrations	9	13	20	0	0	**42**
17	Kisan Goshties	0	9	44	0	0	**53**
18	Exhibition	0	6	9	4	3	**22**
19	Research-Exhibition Interface meetingg	0	5	8	0	0	**13**
20	Special day celebration	3	11	29	1	1	**45**
21	Soil health camp	0	1	5	0	0	**6**
22	Animal Health Camp	0	1	2	0	0	**3**
23	Soil test Campaign	0	0	7	0	0	**7**
24	Scientists visit to farmer's field	0	20	131	6	0	**157**
25	No. of farmers visit to DEE	107	509	544	18	108	**1286**
26	Diagnostics visit	0	5	45	0	0	**50**
27	Group Meeting	0	8	21	2	0	**31**
28	Radio talk	0	1	52	0	0	**53**
29	Television talk	0	1	9	0	0	**10**
30	Newspaper Coverage	19	42	261	13	8	**343**
31	Lectured delivered as resource person	0	12	112	0	10	**134**
32	Farm Development Programmes	0	5	11	0	0	**16**
33	Others	0	0	38	0	0	**38**
Total		**203**	**785**	**1997**	**101**	**146**	**3232**

Status of Budget and Staff

Chapter 11

Status of Budget

During the financial year 2022-23, an amount of Rs. 14516.14 lakh was utilized / released against the allotted budget of Rs. 14552.27 lakh. Head–wise details of budget and expenditure are furnished in Table 10.

Table 10.1 Head-wise budget and expenditure of Zone VIII for 2022-23

(Rs. in Lakh)

Heads	RE 2021-22				Expenditure			
	ATARI	KVKs	Support to DEEs	Total	ATARI	KVKs	Support to DEEs	Total
A) Recurring								
Pay and Allowance	115.06	13217.93	0.00	13332.99	78.93	13217.93	0.00	**13296.86**
Contingencies	60.76	693.78	3.74	758.28	60.76	693.78	3.74	**758.28**
HRD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Total	**175.82**	**13911.71**	**3.74**	**14091.27**	**139.69**	**13911.71**	**3.74**	**14055.14**
B) Non - Recurring								
Works	60	262.94	0.00	322.94	60	262.94	0.00	**322.94**
Furniture, IT & Equipment	0.88	87.30	0.00	88.18	0.88	87.30	0.00	**88.18**
Vehicle	0.00	49.88	0.00	49.88	0.00	49.88	0.00	**49.88**
Total	**60.88**	**400.12**	**0.00**	**461**	**60.88**	**400.12**	**0.00**	**461.00**
Grand Total (A+B)	**236.70**	**14311.83**	**3.74**	**14552.27**	**200.57**	**14311.83**	**3.74**	**14516.14**

ICAR-ATARI Staff

Research Management Position

Dr. Subrata Kumar Roy,
Director, ICAR-ATARI, Zone VIII

Scientific Staff

Mr. Tushar Athare, Scientist (Agril Extension)

Dr. Rajesh T, Scientist (Agril Economics)

Administrative Staff

Smt. Priyanka Kumari
Assistant Administrative Officer

Munish Ganti
Finance & Account Officer (Additional charge)

भाकृअनुप
ICAR

भाकृअनुप–कृषि प्रौद्योगिकी अनुप्रयोग अनुसंधान संस्थान

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