

AGRICULTURE FORUM FOR TECHNICAL EDUCATION OF FARMING SOCIETY

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Role of KVKs in Enhancing Farmers Income

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INTRODUCTION

Agriculture is the backbone of rural India, and nearly half of the Indian workforce relies on it. However, increasing costs of inputs, climate variabilities, fragmentation of landholdings, price fluctuations and post-harvest losses continue to constrain farm profitability. So, enhancing farmers income is not just about increasing production – it is about increasing productivity, value addition, efficient resource use, diversification, entrepreneurship, and market linkages. In order to connect agricultural research with the farmers fields, Indian Council of Agricultural Research (ICAR) has been set up Krishi Vigyan Kendras (KVKs) at the district levels as agricultural science centres. Today, with more than 730 KVKs all over the country, these centres contribute significantly in transfer of location specific technologies, building the capacity of the farmers, encouraging innovations and enabling the farmers and rural youth in livelihood sustainability. KVKs act as the last mile extension agency and are carriers of scientific knowledge for developing practical solutions that go on to directly improve farmers income.

What is a Krishi Vigyan Kendra (KVK)

A Krishi Vigyan Kendra (Farm Science Centre) is a frontline agricultural extension institution established by ICAR at the district level for imparting vocational training and for assessing, refining and demonstrating agricultural technology, providing need based services and entrepreneurship development to farmers, rural youth, women and extension functionaries. Unlike the traditional model of extension, KVKs function on the basis of Working Demonstrations and Training Through Participatory Approach, ensuring that the scientific

recommendations have been tested on-farm and field conditions before wide scale promotion.



Major Objectives

- To bring tested agriculture technologies to farmers
- To raise the productivity and profitability of agriculture
- Develop technical capacity in rural communities
- Support climate-resilient and sustainable agriculture
- Foster agri-entrepreneurship and value addition
- Empower farmers with better decision-making through scientific advisory services

How KVK's Enhance Farmers Income

1. Technology Assessment and Refinement

The KVKs evaluate and adapt the agricultural technologies formulated by the research institutions through On-Farm Testing (OFT) in the district under prevailing agro-climatic conditions. It also leads to a situation where the technologies are validated on the farmers fields prior to large scale dissemination and this results in enhanced productivity, reduction in crop failures, judicious use of inputs and higher farm profitability.

2. Frontline Demonstrations (FLDs)

The KVKs organize Frontline Demonstrations (FLDs) on newly released crop varieties and production technologies, such as integrated nutrient and pest management, water management, and precision farming. These demonstrations enable farmers to assess old and new practices side by side, building trust for the adoption of technology that results in higher yields, greater resource-use efficiency and better economic returns.



3. Skill Development and Capacity Building

KVKs conduct essential training programmes for farmers, farm women, rural youth, extension functionaries and Farmer Producer Organisations (FPOs) on crop production, horticulture, animal husbandry, fisheries, bee-keeping, mushroom cultivation, food processing, protected cultivation, precision farming, digital agriculture, organic farming and agri-business. These capability enhanced interventions augment technical knowledge, productivity, cost effectiveness of production, entrepreneurship and income diversification of farmers.

4. Crop Diversification

KVKs are promoting diversification in fruits, vegetables, flowers, pulses, oilseeds, millets,

medicinal and aromatic plants and integrated farming systems to reduce dependence on a single crop and to minimize the risk due to climate and market. Diversification of crops leads to more efficient land use, better nutritional security, multiple income sources, and more stable income to the farmers all through the year.

5. Integrated Farming Systems (IFS)

KVKs encourage IFS (Integrated Farming System) which combinations crops with enterprises like dairy, poultry, goats, fisheries, mushroom culture, vermicomposting, beekeeping and agroforestry. This way of life maximizes recycling of resources, minimizes production risk, provides all year income, generates rural employment and contributes to the sustainability and profitability of the farm.

6. Promotion of High-Value Agriculture

KVKs promote farmers to take up high-value agriculture activities like protected cultivation, precision horticulture, floriculture, exotic vegetable cultivation, seed production, medicinal plants and organic farming. These are high value enterprises which provide better return per unit area, efficient utilization of resources and substantially increase the income of farmers compared to traditional farming systems.

7. Integrated Nutrient Management (INM)

INM is being propagated by KVKs through promotion of soil test based recommendations on Soil Health Cards, using organic manures, biofertilizers, GREEN manure, nano fertilizers and precision nutrient application. Balanced nutrient management helps in maintaining soil fertility, efficient use of nutrients, lowering the cost of fertilizers, higher productivity of crops and profitability of farmers.

8. Integrated Pest Management (IPM)

KVKs propagate IPM by promoting pest monitoring, bio control agents, pheromone and sticky traps, bio pesticides, resistant varieties of crops and need based use of pesticides. This natural resource conserving technology reduces crop loss, pesticide cost and also protects beneficial organisms and enhances environmental sustainability and income of the farmers.

9. Climate-Smart Agriculture

To tackle the issues of climate change, the KVKs advocate climate-smart practices like drought-tolerant and climate-resilient varieties, water harvesting, micro-irrigation, conservation agriculture, crop contingency planning, and weather-based advisory services. These technologies mitigate production risks, enhance resilience to climate variability and provide stable and sustainable farm income.



10. Water-Saving Technologies

KVKs promote scientific water management practices by organizing demonstrations of drip and sprinkler irrigation, rainwater harvesting, mulching, laser land levelling and sensor-based irrigation scheduling. These technologies provide better water use efficiency, lower irrigation cost, enable natural resource conservation and also result in higher crop productivity and profitability.

11. Mechanization and Precision Agriculture

KVKs advocate farm mechanization and precision agriculture through dissemination of small farm machineries, drone-based spraying, GPS-guided farming, AI-based crop monitoring, smart sensors, IOT enabled technologies, and precision nutrient management. They are labour saving, input-efficient, productivity enhancing and cost effective and result in higher farm income.



12. Value Addition and Processing

KVKs impart training to farmers on value addition through food processing, grading, packaging, branding, storage and product diversification. Farmers have been motivated to prepare value added products like tomato ketchup, pickles, jams, fruit drinks, millet based foods and processed spices. Value addition improves product shelf life and market value and enables the farmers to get more income.

13. Agri-Entrepreneurship Development

KVKs promote agri-entrepreneurship by providing training and incubation support for enterprises such as mushroom cultivation, beekeeping, nursery raising, seed production, vermicomposting, dairy farming, poultry, custom hiring centres, agri-clinics, and food processing units. These enterprises create

employment opportunities, diversify income sources, and strengthen rural livelihoods.

14. Digital Agricultural Advisory Services

Modern KVKs provide real-time agricultural advisory through mobile applications, WhatsApp groups, SMS alerts, social media, video conferencing, Interactive Voice Response Systems (IVRS), and AI-based decision-support platforms. These digital extension services enable timely dissemination of information on weather, pest management, market prices, and improved technologies, helping farmers make informed decisions.

15. Strengthening Farmer Producer Organizations (FPOs)

KVKs provide support to Farmer Producer Organizations (FPOs) in the form of technical guidance, business plans, quality production protocols, collective inputs procurement, value chain development and collective marketing. Robust FPO will provides for better bargaining for farmers, reduction of cost of inputs, better market access and higher income through collective operations.

Future Directions

The vision of the KVKs is fast changing from traditional agricultural extension to the new areas of digital and climate-smart agriculture. New focus areas are artificial intelligence (AI), drone-based crop monitoring, precision farming, digital soil health management, and Internet of Things (IoT)-enabled data-driven decisions. KVKs would also promote climate resilient agriculture, carbon farming, natural farming, agri-startups, innovation incubation, and smart supply chain linked with digital marketing to

fortify sustainable agricultural development, farmers livelihood and accelerated technology adoption.

CONCLUSION

Krishi Vigyan Kendras have proven to be an important link between science and farmers in India. By way of technology demonstration, frontline demonstrations, skill enhancement, climate savvy agriculture, integrated farming system, value addition, entrepreneurship development and farm advisory services, KVKs play a befitting role in augmenting farm output, cutting down cost of production, income diversification and market access. With agriculture undergoing digital disruption and sustainability sweeping across it, KVKs will continue to play a pivotal role in the implementation of national vision for a prosperous, resilient and self-reliant farmer community, thereby contributing to realising the target of doubling farmers income through science-led agricultural development.