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Role of Krishi Vigyan Kendras (KVKs) in Agricultural Extension: An Overview

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Abstract

Krishi Vigyan Kendra (KVK) is the only institution at the district level in India for technological backstopping in agriculture and allied sectors. All KVKs are envisaged to reduce the time lag between generation of technology at the research institution and its application to the location specific farmer fields for increasing production, productivity and net farm income on a sustained basis. Each KVK has been provided with a team of multi-disciplinary subject matter specialists for taking up the activities of a KVK. Each KVK has a provision of Scientific Advisory Committee (SAC), the function of this Committee is to provide advice to the KVK in formulation of annual technical programme and also to review the performance mandated activities. KVKs are implementing various technological interventions based on the needs of the farming community. The paper tries to critically examine the developments so far and what needs to be done further to strengthen the KVKs.

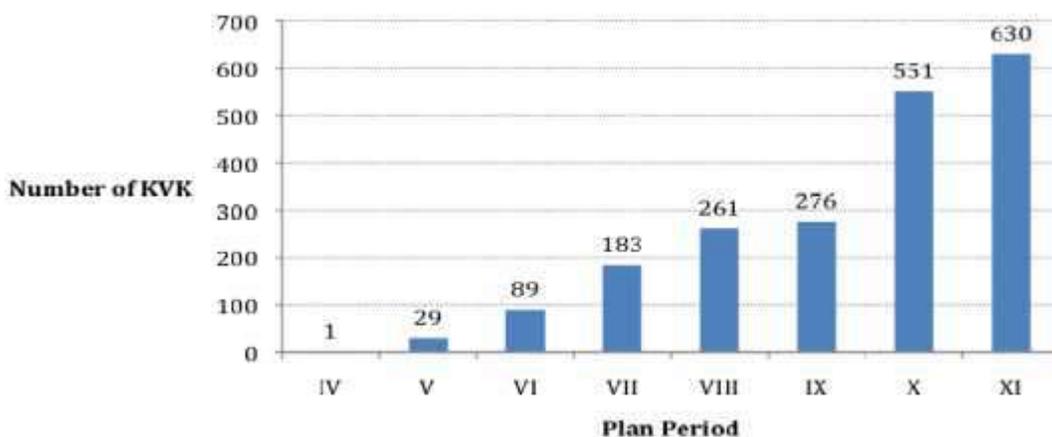
Key words: KVK, Extension, ATMA, Training and capacity building

Introduction

Indian agriculture has witnessed phenomenal growth during last four decades with manifold increase in production of major commodities like food grains, vegetables, fruits, milk, eggs and fish. As a result, the per capita availability of important food items has increased despite of increasing population. The ratio of agricultural land to agricultural population has shrunk to 0.3 ha per person in India as compared to 11.0 ha per person in developed countries. The resources are getting marginalized and there is tremendous pressure on natural resources with divergence of agricultural land and water towards industrial, urban and non-agriculture sector. Food security is one of the major concerns. It is estimated that India's population during the last three and half decades have increased from 551 million to 1122 million, which implied that the country had to feed double the population. Food security is attached to national sovereignty and thus, agriculture sector has to gain strength and vision to uphold the national concern. Knowledge and technology empowerment of farmers is the key to achieve the food security.

On recommendation of the Education Commission (1964-66) and discussion of Planning Commission and Inter-Ministerial Committee as well as recommendation by the committee headed by Dr. Mohan Singh Mehta appointed by ICAR in 1973 the idea of establishment of Farm Science Centre (Krishi Vigyan Kendra) was developed. The first KVK, on a pilot basis, was established in 1974 at Pondicherry under the administrative control of the Tamil Nadu Agricultural University, Coimbatore. Further in 1976-77, the Planning Commission approved the

proposal of the ICAR to establish 18 KVKs during the Fifth Five Year Plan. In 1979, 12 more KVKs were approved and established from Agricultural Produce Cess Fund (AP Cess). Additional 14 KVKs were again approved in 1981 and established during 1982-83 from AP Cess Fund. A High Level Evaluation Committee on KVK constituted by ICAR in 1984, after thorough review strongly recommended establishment of more KVKs in the country. Keeping this in view the Planning Commission approved scheme of ICAR to establish 44 new KVKs during the Sixth Plan. End of Sixth Plan saw functioning of 89 KVKs and during Seventh Plan, 20 new KVKs were established. The success of KVKs at many locations created a great demand for establishment of more KVKs in the remaining districts of the country so the Planning Commission approved 74 new KVKs to be established during the period 1992-93 than again in the Eighth Plan (1992-97), 78 new KVKs were approved and established making total number of functional KVKs by the end of the Eighth Plan to 261. The numbers increased to 290 during Ninth Plan with establishment of 29 KVKs, increase of 551 KVKs at the end of Tenth Plan which include 371 under State Agricultural Universities (SAU) and Central Agricultural University (CAU), 40 under ICAR Institute, 88 under NGOs, 33 under State Governments, 3 under PSUs and the remaining 16 under other educational institutions. At present there are 634 KVKs established in the country. Krishi Vigyan Kendra (KVK) is the only institution at the district level in India for technological backstopping in agriculture and allied sectors. While some of the KVKs have been effectively contributing to the technology development and promotion process, many are plagued with several problems. All KVKs are envisaged to reduce the time lag between generation of technology at the research institution and its application to the location specific farmer fields for increasing production, productivity and net farm income on a sustained basis.



Mandate of KVKs

KVKs are to provide a key facilitating role in the refinement of technologies to specific conditions, by acting as a two-way link between research and farmers. Application of technology/products through assessment, refinement and demonstration for adoption, thus, is the main mandate of the KVKs. To achieve this mandate effectively, each KVK is expected to perform following activities:

- On-farm testing to identify the location specificity of agricultural technologies under various farming systems
- Frontline demonstrations to establish its production potentials on the farmers' fields.
- Training of farmers and extension personnel to update their knowledge and skills in modern agricultural technologies.
- Work as resource and knowledge centre of agricultural technologies for supporting initiatives of public, private and voluntary sector for improving the agricultural economy of the district.
- Produce and make available technological products like seed, planting material, bio agents, young ones of livestock etc to the farmers.
- Organize extension activities to create awareness about improved agricultural technologies to facilitate fast diffusion and adoption of technologies in agriculture and allied sectors.

The High Powered Committee on Management of KVKs (ICAR, 2014) in its report has suggested a new vision, mission and mandate for the KVKs defining its activities as follows:

- On-Farm Testing (OFT) to assess the location specificity of agricultural technologies under various farming systems.
- Out scaling of farm innovations through Frontline Demonstration (FLD) to showcase the specific benefits/ worth of technologies on farmers' fields.
- Capacity development of farmers and extension personnel to update their knowledge and skills in modern agricultural technologies and enterprises.
- Work as Knowledge and Resource Centre for improving overall agricultural economy in the operational area.
- Conduct frontline extension programmes and provide farm advisories using ICTs and other media on varied subjects of interest to farmers.
- Data documentation, characterization and strategic planning of farming practices.

Staffing Pattern:

Each KVK has been provided with a team of multi-disciplinary subject matter specialists for taking up the activities of a KVK. The present staffing pattern includes one Programme Coordinator, 6 Subject Matter Specialists in the core areas viz. agronomy, plant breeding, horticulture, livestock production, home science, extension education, agricultural engineering, fisheries, soil science, agro-forestry and plant protection depending on the need of the area, 3

Programme Assistants to work as Farm Manager, Computer Assistant and Technician. In addition, the KVKs have been provided with two administrative and 4 supporting staff including drivers.

Research–Extension and Development Linkages

Each KVK has a provision of Scientific Advisory Committee (SAC), the function of this Committee is to provide advice to the KVK in formulation of annual technical programme and also to review the performance mandated activities. The Committee consists of the representatives of National Agriculture Research System, various line departments functioning in the district, media, credit and input organizations / agencies and representative of the farmers and farm women.

The idea of constituting this Committee is to see that the Annual Plan of Action is in harmony with the needs of the farmers, resources and location specificity of the technologies, existing government programmes and support. The committee meets once or twice in a year to provide guidance and direction to the KVK to meet the emerging challenge of different crop seasons. Besides, it also serves as a mechanism for research-extension and development linkages. The KVKs also participate in Zonal Agricultural Research and Extension Advisory Committee (ZAREAC), attend workshops and specialized training programmes in the concerned State Agricultural University and ICAR Research Institute. The participation of staff in these forums helps the KVK scientists to get continuous up-to-date technical backstopping and also enable them to help the farmers in timely adoption of latest agricultural technologies.

Monitoring Mechanism

The performance of KVK is monitored and reviewed at various levels. At the field level, the Program Coordinator monitors the activities on day-to-day basis whereas the Head of the host Institution/Organization monitors the technical and financial management of KVK. At the University level, the concerned Director of Extension Education of the State Agricultural University focuses on the functioning of KVKs. The Director of Extension Education has been given the responsibility to provide technologically backstopping and overseeing, irrespective of the host institutions.

At the ICAR headquarters, the Division of Agricultural Extension monitors and reviews the functioning of the KVKs. Every year, a National KVK conference is organized where all the KVKs participate to share their experiences, and new approaches followed in implementing the activities of the KVKs. Critical examination of quarterly progress reports, annual reports, visit-reports of the Zonal Project Directors and annual meetings/conferences/visit constitute other monitoring and review mechanism. QRTs and Independent Evaluations help improving the quality of functioning of KVKs.

Programmes and Activities

KVK is an agro-based capacity building institution for the farmers to provide need based teaching on various aspects of agriculture and allied sectors. KVKs impart latest technical know-how and do-how to different clientele by formulating various programmes with the principles of learning by doing, seeing is believing, earn while you learn to achieve the desirable changes pertaining to their knowledge, skills and attitude with a view to help them live better by improving their farm and allied enterprises. KVK plans, executes and evaluates its programmes with the people (Kokate, 2009). Knowledge “Management” is given emphasis for improved efficiency of KVKs. Knowledge management is all about converting data into information and knowledge, and then applying wisely. Knowledge and technology plays a key role. In this context, how KVKs act as centres of knowledge and wisdom is presented in Figure-3.2. The KVKs facilitate translation of data into knowledge leading to effective technology application. KVK can work as effective knowledge and resource centers through adopting **KRCTO** model.

Knowledge: The acquisition of competence of KVK on existing farming systems and production systems, agricultural technology, markets (demand and prices) and policy are key to its performance.

Resources: Infrastructure building to provide necessary technological backstopping and capacity building are crucial for knowledge and technology dissemination.

Competency: Evaluating technologies, processing and value addition, weather based agro-advisories, market intelligence and agro-logistics.

Technology products: Critical technology products, and problem solving consultancy is to be provided by the KVK.

Organizing farmers groups: Building farmers network around KVK to exchange information, facilitating learning from experience and support in decision making.

Figure 3.2: Knowledge Management Process

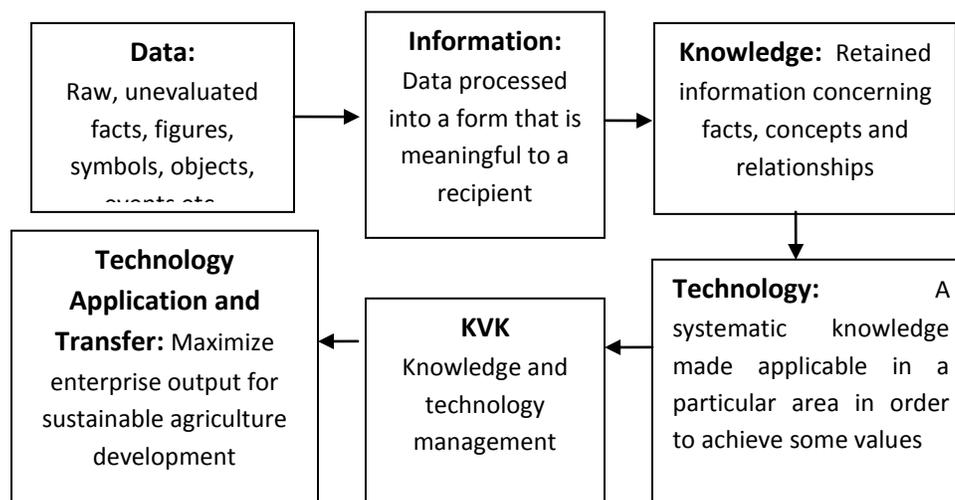


Figure 3.3: Knowledge, Resources, Competency, Technology and Organizing Farmers



KVKs need to be strengthened by increased technological backstopping by ICAR and SAUs for playing the role of knowledge and resource centres effectively and efficiently. There is also a need for extension research by ICAR research institutes and SAUs to suggest innovative approaches and methodologies to KVKs for critical assessment of location specific technologies, frontline demonstrations, effective capacity building of stakeholders, vocational training, and entrepreneurship development for sharing successful experiences.

Experiences of KVKs

KVKs are implementing various technological interventions based on the needs of the farming community. Some KVKs have achieved progress in large scale adoption of technologies as well as establishment of home-scale enterprises by their interventions leading to generation of additional farm income as well as employment opportunities. A few examples of technological interventions such as harnessing pulses productivity, mithun micro-chipping, quality protein maize, banana and palmyrah fibre extraction, aqua, *vashundhara*, *kisan* mobile advisory,

Integrated Pest Management (IPM) in rice, participatory seed production, rain water harvesting and water budgeting, value addition and branding, cotton and sweet orange management, control of read hairy caterpillar, System of Rice Intensification (SRI), drip irrigation, recharging of ground water, *zero* tillage, mitigation of drought, cultivation of high value crops, contingent crop planning, vermi-compost technology, *in-situ* moisture conservation, organic inputs, water efficiency techniques, protective cultivation, production of quality seeds and planting materials, feeds and fodder, azolla cultivation, apiculture, sericulture, farm mechanization, and technological empowerment of farm women.

Performance of KVKs

Several committees have assessed the performance of the KVKs, appreciating the huge potential of KVKs in delivering technologies to the farming communities including training farmers, farm women and rural youth. They have suggested several changes for streamlining their performance. Van den Ban (1994) noted that many KVKs were found under resourced & have inexperienced staff. The World Bank (1990) found that many KVK training courses were under subscribed, raising doubts about their relevance. It was suggested to initiate an objective and scientific evaluation of all KVKs so that a case-by-case assessment could be made to guide the type and level of any further support. To intensify and enlarge such activities, it might be necessary to provide a few field level staff in each KVK (Farrington et al, 1997). Likewise, the Evaluation Committee on KVKs (1980), suggested that after imparting training to the farmers, these need to be followed up (ICAR, 1980). The 1996 Report on the Review of Extension System of ICAR also made several recommendations to strengthen the KVKs (ICAR, 1996). The Performance Audit of Agricultural Extension activities in the ICAR by the Comptroller and Auditor General (CAG, 2008), based on a sample of 180 KVKs (13 from ICAR, 97 of SAUs, 53 of NGOs, 8 of State Governments and 9 Others) across the country, audited during May to November 2007, the CAG found:

- Eligibility criteria for possession of minimum cultivable land were not observed in establishment of 50 KVKs (28 per cent). Most of the NGO KVKs (99 per cent) were yet to mortgage their land to ICAR. Further, improper site selection resulted in subsequent requests for change of selected sites and delay in conducting activities.
- 117 KVKs (65 per cent) did not assess location specific training needs based on interaction with farmers and 53 per cent of the KVKs did not conduct training impact assessment. Shortfall in training courses for practicing farmers, rural youth and extension functionaries was observed in 121 KVKs.
- 94 KVKs (52 *per cent*) were still demonstrating older crop varieties released between 1948 and 1997 in Frontline Demonstrations. Average shortfall of 69 *per cent* was observed in 41 *per cent* of KVKs.

- 131 KVKs (73 *per cent*) did not conduct adequate number of on-farm testing.
- 44 KVKs (39 *per cent*) out of 114 established prior to the X plan were yet to fully establish mandatory infrastructural facilities. Further, infrastructure already constructed at a cost of Rs.8.15 crore remained unutilized in 46 KVKs. e-Linkage facility approved at a cost of Rs.41.02 crore for 200 KVKs during the X Plan was yet to be established as of January 2008.
- Only 0.34 *per cent* of the total rural youth trained were able to gain self employment.
- Coordination and monitoring of KVK activities by ICAR, ZCUs and KVKs were inadequate and needed to be strengthened. Shortfalls were observed in conducting meetings of monitoring bodies like Regional Committees and Scientific Advisory Committees.

The XII Plan Working Group on Agricultural Extension (Planning Commission, 2012) made following recommendations to make KVKs more effective:

- The KVK Farms should be developed as centres of excellence as role model for farmers. It needs to be ensured that every extension staff, including supervisory and administrative level officials, possesses superior competency, skills and knowledge.
- Extension support is weak or non-existent in the case of animal husbandry and fisheries. As separate extension machinery for animal husbandry and fisheries are not going to be feasible in many states, this has to be integrated with ATMA. In districts where livestock and fisheries play a major role, staffing structure within ATMA and KVKs should be modified to include more staff with specialization in these sectors.
- The changing roles of and expectations from KVKs necessitate regular capacity building of its professionals. Hence, exclusive capacity building programmes shall be designed and conducted (like induction training, refresher courses, management and executive development programmes) for effective implementation of the mandated activities and image building/ branding of KVK system. NAARM, Agricultural Extension Division of ICAR and Zonal Project Directorates will jointly take up the responsibility for this.

The Way Forward

NSSO, based on a countrywide survey of nearly 35,000 households revealed that farmers continue to remain far removed from new technologies and guidance from state run research institutes including KVKs (NSSO, 2014). Over 59% of the farm households received no assistance from either government or private extension services. Of the 40.6% households who received extension assistance, only 11% of the services came from government machinery like

extension agents, KVKs and agricultural universities nearly farmers depended on other progressive farmers (20%), media including radio, TV, newspaper (19.6%) and private commercial agents (7.4%).

Some of the suggestions which will be useful towards making KVKs more vibrant and relevant are:

Entrepreneurship Development:

KVKs must develop farmer entrepreneurs to help in technology transfer through farmer-farmer extension. KVK trainings should promote entrepreneurship among rural youth, helping them in gaining self employment.

Promotion of diversified farming systems including Agro-tourism:

KVK farms and KVK adopted villages can be developed as agro-tourism sites, to demonstrate diversifying farm income portfolio and which should be cost effective for adoption by farmers.

Resource Generation:

KVKs can compete and tap funds available from various government schemes/NABARD /Agricultural Skill Council of India for skill & entrepreneurship development in rural areas as well as generate a part of their resources from the sale of planting materials and other produce from their farms, funding relationship with NGOs, and national and international organizations.

ATMA-KVK link:

Lot more needs to be done to achieve the convergence between ATMA and KVK (as envisaged under the joint circular) operational. There might be some success stories, wherein, the proposed changes like quarterly joint meetings, earmarking of funds to KVKs, visit of ATMA staff to the cluster villages of KVKs and ATMA sponsorship for Technology Weeks (being organized by KVKs) are achieved successfully, which may be shared for wider replication in other districts.

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