Crop Based Community KVK - a Predictive Innovative Model of Technology Delivery to Reach the Unreached

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Abstract

Efforts have been made from time to time to raise the productivity of farmers through extension services but their objectives are still poorly met. The purpose of extension is to disseminate advice to farmers. Gaps in knowledge contribute to the yield gap in biophysical and economic settings. The current extension worker to farmer ratio is very wide in India and hence to address the particular crop in a particular block is very low. The Mandate of Krishi Vigyan Kendra and technology delivery is focussed to particular interventions and is not specific to crop based zone. Technology decision support system is not available within the crop zone and the farmers are unable to get the required knowledge. On the demand side, self-selection on the part of larger, more commercial farmers may bias outcomes. Extension service budgets may be inadequate. Issues of motivation, competence, performance and accountability of extension institutions and their agents may affect results. The main lacunae in reaching small and marginal farmers in rainfed areas for service delivery of technological information's is limited staff. To overcome these constraints and fulfil demands of the farmers, the proposed predictive innovative model of Crop based Community KVK will certainly play a major role in transferring the technologies through trainings by creating farmer experts and shaping them as unique Cluster Crop Experts in the selected village clusters. Community KVK is an innovative conceptual model designed for technology delivery of farm information to the farming community in cluster villages by establishing similar set up of KVK in villages by training and networking of socially amicable farmers. Upscaling this model, can convert farmer Subject Matter Specialists into paid service consultants and they can excel in comparison to input dealers who do not possess crop based knowledge. Further, marketing linkage can be created through farmers groups like commodity groups, FIGs and other groups.

Key words: Crop Based Community, innovative model of technology

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Introduction

Efforts have been made from time to time to raise the productivity of farmers through extension services but their objectives are still poorly met. Farm extension is mainly concerned with two pronged services of information empowerment and technology delivery. ICT led extension service attempts to address the information requirements of extension agents to a great extent. However, the function of technology delivery is the major concern of today. So, a need has been felt for an innovative technology delivery medium through which the technology can be delivered to remote farmers with limited extension functionaries. Thus it is high time to analyze the various extension approaches under the changing agricultural scenario to address the issue of technology delivery.

The current extension worker to farmer ratio is very wide in India *i.e.* 1:5000 whereas in case of China it is 1:625 (*Ragasa et al. 2013*). It is on record that about 40 per cent of the field level extension workers are not in position. The percentage may further increase as at least 25 per cent of the extension workers are in administrative or supervisory position who are not directly in touch with farmers. With remaining extension workers, at least 50 per cent of the time goes for administrative work, official correspondence, works of health department, census works, panchayat department works *i.e*. in non-farm activities. In India, out of 143,863 positions in the Department of Agriculture, only 91,288 posts are filled (*Chandragowda, 2011*). Combined with the large number of farm households in the country, this small number of positions means that on an average, extension services only reach 6.8 per cent of farmers (GFRAS, 2012). About 21,000 agricultural scientists are working in the public sector and 70 per cent of them are involved in research on different crops and coming out with different novel technologies but failed to reach the farmers on account of shortfall in extension agents and lack of effective delivery mechanism.

The purpose of extension is to disseminate advice to farmers. Gaps in knowledge contribute to the yield gap in biophysical and economic settings. Services and purchased inputs such as seeds and synthetic complements are essential productivity-enhancing tools. However, their effective use requires knowledge, which advisors need to articulate and communicate to farmers. The knowledge farmers need goes well beyond production. It includes price and market information, post-harvest management techniques, and an understanding of product quality determinants and safety standards. Some farmers marshal and command the needed knowledge on their own. The ‘resource-poor’ majority of farmers (growers of a large share of

the nation's food) depend on science-based extension from outside to complement their local knowledge for improved farming and prospects for sales. How, therefore, can one best get meaningful advice to farmers and create learning environments that help achieve the desired outcomes and results?

Farmers living in widely dispersed communities can be difficult to reach. Farmers' information needs vary across locations, making extension challenging. Supply side rationing may be a problem in the sense that there are likely to be too few extension agents relative to the number of farmers. On the demand side, self-selection on the part of larger, more commercial farmers may bias outcomes. Extension service budgets may be inadequate. Issues of motivation, competence, performance and accountability of extension institutions and their agents may affect results (Anderson, 2007).

The grand challenge now is (i) to improve farmers' access to the right kind of timely knowledge and information and (ii) to reach all farmers. Public and private information systems should complement each other and operate in partnership rather than at cross-purposes or duplicative at the expense of under serviced areas.

Extension approaches for Technology Delivery

The age-old practice of extension-farmer contact on a one-to-one basis, though very effective, is expensive and unsustainable as the sole means of reaching farmers with agricultural technology. New methods emphasize the passing on of agricultural technology to farmers in organized groups (farmer groups) like *Innovative Farmer Approach:* Resource rich farmers had utilized the government support but small and marginal farmers have been left out; *Farmer-Group Approach:* A farmer group is a collection of farmers interacting with one another towards achieving a common goal. A group size between 20 and 30 is ideal and manageable in order to provide a face-to-face interaction, better communication and the free flow of information. However, as veritable machinery, which is sustaining and relatively cost-effective, the farmer-group approach is dependent on sufficient mobilization at the grassroots and in social units in order to achieve the desired objectives of the approach.

Role of Krishi Vigyan Kendra in Agricultural Technology Dissemination

In India, Krishi Vigyan Kendra (KVK) is one of the most significant technology delivery media to disseminate the latest agricultural technologies to the farming community living in remote rural areas through a scientific manner. One of the mandate of Farm Science Centre or Krishi Vigyan Kendra (KVK) is imparting need based training to farmers and extension professionals on a regular basis.

KVK in Vellore district of Tamil Nadu is located in Vada Vrinjipuram village (K V Kuppam block) functioning since 2004, as a Knowledge and Resource centre for the entire district. The six scientists working at the KVK are catering to the needs of farmers visiting the KVK and satisfy their queries by emails, phone calls, SMS and through direct diagnostic field visits.

The KVK provides periodical updates of knowledge on latest technologies in agriculture, horticulture and animal husbandry through monthly zonal workshops to Extension officials and also through trainings, newsletters, pamphlets, booklets, CDs *etc.* for faster dissemination of technology to farmers. The KVK has made many outstanding contributions for the upliftment of farmers and its impact has created a huge demand and expectations from the farmers that the service should reach more number of farmers in remote villages.

The main lacunae in reaching small and marginal farmers in rainfed areas for service delivery of technological information is that only six scientists or limited staff are available. These scientists could not cover all the 20 blocks of Vellore district due to constraints of time, manpower, finance, transport facilities *etc.* Four to five blocks nearby, *i.e.* KV Kuppam, Gudiyatham, Anaicut, Vellore and Kaniyambadi are mostly covered. To impart trainings, the Assistant Director of Agriculture of the concerned block is consulted and selected farmers are given training. Many-a-times the same set of farmers attend the training thus not giving a chance to other small and marginal farmers.

To overcome these constraints and fulfil the demands of the farmers, a conceptual model of Community KVK is proposed to transfer the technologies through trainings by creating farmer experts and shaping them as unique subject matter specialists in the selected village clusters.

Methodology for Innovative Conceptual Model - Community KVK

Community KVK is an innovative conceptual model designed for technology delivery of farm information to the farming community in cluster villages by establishing similar set up of KVK in villages by training and networking of socially amicable farmers.

Objectives of the Community KVK Innovative Conceptual Model

1. To demarcate the crop zone in a particular block with the help of line department
2. To identify the farmers and train them as Community KVK experts with master trainers (Scientists)

3. To disseminate agricultural and allied sector technologies to all sects of farming community
4. To create a network of knowledge experts by establishing a Community KVK
5. To solve field level problems at village level by the villagers themselves
6. To bring out socio economic changes among the rural community

Selection of Community KVK Village Clusters (CKVC)

Based on the single major cropping area of the district, village clusters will be identified covering a radii of 10 km and will be called as Community KVK. The crops will be agricultural, horticultural and other crops.

These will be selected based on the participatory discussion with scientists, extension officials, farmers, key informants of KVK and also based on the request from the villagers of the district.

The selected villages will be monitored through Community KVK experts throughout the cropping period.

Identification of Community KVK Programme Coordinator (CKPC)

The KVK scientist team will extensively explore the selected Community KVK Village Clusters and conduct focus group discussions and meetings with key informants, opinion leaders, progressive farmers and others. The interested trustworthy farmers will be called for a meeting and informed about the objectives of Community KVK and their roles and responsibilities.

The selected CKPC will be given training on capacity building, leadership, communication and management skills so that they act as good leaders, motivators, coordinators and trainers. These CKPC will be trained in any one major crop production, protection, water conservation, value addition, horticultural and animal husbandry aspects and required handy reference book materials will be provided.

Requirements

- Minimum school education of 10^{th} standard
- Key informant to KVK and opinion leader in that village
- Seniority in age and experience is desirable
- Volunteer
- A Village leader
- Amicable and trustworthy

Identification of Community KVK Subject Matter Specialist (CKSMS)

Similar to the set up of KVK functioning in the district, six CKSMS will be selected based on the needs and interests of the farmers in the selected Community KVK Village Cluster. They will be trained in the following subject matter areas:

1. Agronomy (Crop production aspects)
2. Plant Pathology (Crop protection aspects)
3. Horticulture (Crop production of fruits, vegetables and forestry crops)
4. Agricultural Extension (Capacity building, group formation, communication skills)
5. Home science (Value addition)
6. Animal Husbandry (Veterinary related aspects) similar to the KVK scientific set up

Minimum Requirements

- Service minded attitude
- Minimum School Education of 10th standard
- Ability to read and write Tamil and English fluently

Personal qualities required for CKSMS

- Ability to bear risks and responsibilities
- Project a cheerful, enthusiastic and optimistic image
- Good communication skills
- Listening behaviour
- Courage to delegate
- Accept and capitalize change
- Knowledgeable about village and villagers issues and problems
- Ability to interpret and analyse the situation
- Avoid needless confrontation
- Trustworthy and respectful

The CKPC will facilitate in selection of these CKSMS in the village cluster and terms and conditions will be formulated. The tenure of these CKSMS will be rotated once in two years by giving opportunity to other interested farmers.

Method of Training

The selected CKSMS will be provided with training *viz.,* on campus training, off campus training, vocational training, exposure visits, field days and hands on experience in laboratories and field demonstrations by the scientists of KVK, Vellore within a period of six months.

They will be called for and given priority in all the training programmes of KVK and University to update their knowledge in various sectors from time to time.

They will be provided with minimum of 3-4 trainings that will be conducted in the village itself before the start of season, during mid season and at harvest season.

The CKSMS will be examined for their pre and post training knowledge gain by conducting pre-test and post-test evaluation after their participation in the training.

After confirming their satisfactory level of knowledge gain, these CKSMS will be directed to train their fellow farmers and disseminate the technologies in the respective village clusters.

These CKSMS will be advised to select already formed self-help groups, farmer discussion groups, commodity interest groups *etc.* for imparting training and/or spread of information gained at KVK, Vellore.

Any new area of need or interest of the villagers will be brought to the notice of KVK scientists and accordingly required training will be imparted to the set of interested farmers.

These well trained CKSMS will be able to analyse any agricultural, horticultural or veterinary related problems at the village level and give solutions based on the knowledge gained at the KVK. This would reduce the drudgery of transport, money and time delay in contacting the KVK directly for solving simple issues.

In case of any problem of pests and diseases which could not be solved by the CKSMS, they need to send their queries to KVK scientists over phone or send photos through internet/e mail or mobile, WhatsApp and get the solutions to pass on to the villagers.

Stipend and Honorarium

Though the selected CKSMS will be working on voluntary service basis, they need to be provided with monthly stipend to meet their transport costs, communication (charges for phone calls and internet usage) and refreshment charges during the initial period of establishment of Community KVK.

Besides, honorarium may be provided to them by inviting the Community KVK Programme Coordinator and Community KVK Subject Matter Specialists as guest speakers in the regular KVK training programmes.

Role of KVK in establishment of Community KVK

The role of the KVK could be in

- Identification of major crop based village cluster in the selected blocks of Vellore district
- Identification of village cluster key informants as CKPC by various means of focus group discussion by involving line departments
- Imparting trainings to CKPC for selection of Community KVK SMS
- Identification of CKSMS in the selected Village clusters
- Subject wise training to each CKSMS and making them experts
- Fixing/determining rules and regulations for operation of Community KVK
- Determination of duties and responsibilities of CKPC and CKSMS
- Monitoring and evaluation of Community KVK activities by visiting the village clusters every fortnight
- Impact study on socio economic status of the farmers in the selected village clusters
- Enhancing the crop based problem solving ability of the Community KVK SMS
- Linking the Community KVK with the line departments *viz.,* Department of Agriculture, Department of Horticulture, Department of Agricultural Engineering, NGOs, Farmer Associations, Farmer Producer Companies and Input dealers
- Uplifting the Community KVK experts as/into farming consultants

Outcome of the Proposed Model of Community KVK

- A network of Community KVKs and Community KVK Subject Matter Specialists will be created through trainings of ICAR-SAU KVKs and disseminate knowledge at village level
- Faster dissemination of knowledge on latest technologies
- Farmers start analysing their problems and village issues and come out with their own solutions to solve at the village itself
- Mandate of ICAR-SAU KVK will be fulfilled and limitations of manpower will be managed

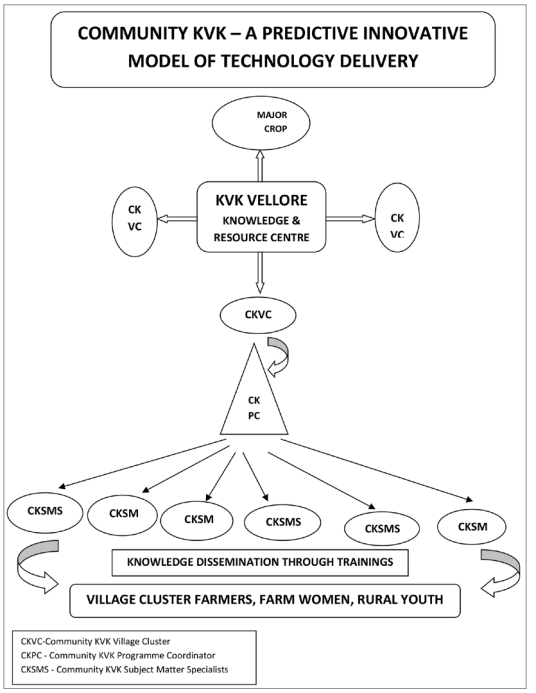
- Farmers become experts in modern agriculture and even turn as scientists paving the way for Researcher-Farmer scientists' interaction and evolve new location specific varieties and technologies
- Production and productivity of the selected crop zone will be enhanced
- Overall social change will occur through agricultural growth expansion and rural upliftment

The main lacunae in this model will be the selected farmers who possess less qualification and their degree of service mindedness may vary as the time passes on.

Conclusion

The current extension worker to farmer ratio is very wide in India *i.e.* 1:5000 whereas in case of China it is 1:625 (*Ragasa et al. 2013*) and hence to address the particular crop in a particular block is very low. The Mandate of Krishi Vigyan Kendra and technology delivery is focussed to particular interventions and not specific to crop based zone. Technology decision support system is not available within the crop zone and the farmers are unable to get the required knowledge. On the demand side, self-selection on the part of larger, more commercial farmers may bias outcomes. Extension service budgets may be inadequate. Issues of motivation, competence, performance and accountability of extension institutions and their agents may affect results. The main lacunae in reaching small and marginal farmers in rainfed areas for service delivery of technological information is that only six scientists or limited staff are available. To impart trainings, the Assistant Director of Agriculture of the concerned block is consulted and selected farmers are given training. Many-a-times the same set of farmers attend the training thus not giving a chance to other small and marginal farmers. To overcome these constraints and fulfil demands of the farmers, the proposed predictive innovative model of Crop based Community KVK will certainly play a major role in transfer of the technologies through trainings by creating farmer experts and shaping them as unique *Cluster Crop Experts* in the selected village clusters.

Upscaling this model, can convert farmer SMS into paid service consultants and they can excel in comparison to input dealers/shop merchants who don't possess crop based knowledge. Further, a marketing linkage can be created through farmers groups like commodity groups, FIGs and other groups.



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