Concept Paper

A predictive innovative model for transfer of technology: crop health center (CHC) at village level

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ABSTRACT

Digitalized technological interventions play crucial role in all domains of life especially in agriculture. But in the sphere of farming the digital divide is still unbridgeable due to lack of ways and modes to reach the unreached. If this is addressed, the unreached could be reached with all the available information on farming technologies which in turn would increase the production and productivity. This could be achieved through the concept of crop health centers (CHCs) at block level supported by the village crop advisors (VCAs) located at village level. The required knowledge and skills for the VCAs will be provided by the scientists of agricultural universities, research institutes or KVKs in the concerned district. Any innovation or new idea takes its own phase of time to reach the target group or social system through a proper channel. The linkage between the VCAs and the farmers will be helpful in promoting synchronized agricultural management practices among the farmers which would support total crop management. The CHCs can also serve as a conduit between the farmers and farmer benefitting schemes offered through various government and non-government agencies.

Keywords: Transfer of technology; CHC; VCAs; information; knowledge; services

INTRODUCTION

Technologies are ruling todays' world. Due to technological interventions the world comes to the hands of each human being. Nowadays people have quick access to technologies for finishing their work. This is applicable in all spheres of technological life including the most crucial domain of agriculture. The results of the study on technology gap and productivity difference in Indian agriculture by Maity (2015) showed a large technology gap ratio between the sample states of the country ranging between 0.403 and 0.838. The study supported the view that technology gap plays an important part in explaining the ability of agriculture sector in one state to compete with agriculture sector in other states in India.

In the sphere of farming the digital divide is still unbridgeable due to lack of ways and modes to reach the unreached. The departments of agriculture, horticulture, animal husbandry and other line departments, SAUs and KVKs are constantly working for improving the status of the farmers through technology transfer. But the status of the farmers is not improved and the needs of the farmers are also not satisfied. Though several facilities like transport and communication are created for the betterment of farmers, there is a gap between the officials and farmers interaction. The farmers are still lacking the knowledge on source of technology and its availability. Most of the farmers are not willing to go and meet the correct department personnel, SAUs and KVKs as the institutions are located far away from their location. As a result they are practicing outdated technologies which in turn result in low yields that lead to low income. If this situation is addressed the unreached could be reached with all the available information on farming technologies which in turn would increase the production and productivity.

The farmers always have faith in their fellow farmers and their influential leaders. The studies on sociometry revealed that the influential fellow farmers or educated rural youth who are much attracted towards agriculture play a major role in influencing the decisions of the farmers in adopting the technological interventions.

A ready reckoner helping hand is the need of the hour for the farmers to decide on technologies to adopt and to manage their farming in a successful way without the interference of any risk or with the capacity to manage the risk factors. Studies have revealed that lack of timely availability of information on varieties and technologies is one of the main causes for production loss and crop failure. Technologies are digitalized for easy access to the farmers. Hence now the mandate is to guide the famers to access the information that is digitalized. Some of the farmers are helping other farmers by disseminating the technologies adopted by them.

Waman et al (1999) found that the level of education, size of family, interest in modern farming and sources of information were the main factors which significantly influenced behavior of the small farmers regarding new farm technologies. Zaidi and Munir (2014) revealed that farmers were unaware about efficient farming techniques, proper use of fertilizers, good quality seeds and pesticides.

Thus it could be concluded that lack of awareness is still an important contributing factor for low production and productivity. Hence the need of the hour is to have knowledgeable resource with practical knowhow at the farmers' doorsteps to provide them information on suitable technological interventions including crop management, crop protection, value addition and marketing. The availability of the agricultural information provider within the reach of the farmers will facilitate them with timely information that is season-bound and crop-based.

This could be achieved through the concept of crop health centers (CHCs) at block level supported by the village crop advisors (VCAs) located at village level. The services of these VCAs will surely bridge the existing gap in the technology transfer and ensure the timely availability of both technology and information to the farmers which in turn would support increased production and productivity.

Concept clarification

Crop health centre (CHC) is a concept similar to that of primary health centres in villages and also the noon meal scheme operated in Tamil Nadu. The village crop advisors (VCAs) placed at CHCs are like nurses in PHCs and provide advisory services, recommendations and technology transfer services for specific crops to the farmers in the villages to overcome the technology gap which is the major reason that attributes for productivity difference in major crops between areas. The aim of this concept is to protect assured revenue for farmers from their landholdings in each and every season by on the spot technology delivery. This provides timely technological interventions on crop varieties, timely management of pests and diseases by avoiding crop loss and economical use of financial and human resources thus gaining profit through increased yield. An information kiosk would also be provided at CHCs to digitally access information on agriculture and allied technologies. Lot of success stories have been recorded on the substantial improvement in the livelihood and increased income of

Table 1. Proposed intervention to be provided through the CHCs

Component	Proposed intervention
Crop improvement	Suitable and improved varieties could be suggested
	Demonstration of appropriate seed treatment techniques
Crop management	Various mechanical, cultural, biological and chemical weed control measures could be suggested
	Awareness on various crop specific and location specific agricultural machineries and implements would be created among the farmers
	Different types of fertilizers namely chemical fertilizers and organic fertilizers and their application
Crop protection	Identification and suitable control measures
	Various pest and disease management practices to be adopted by the farmers at different stages of the crop
Marketing	Price forecast for major crops
	Price information of different markets

the farmers in the adopted and nearby villages of KVKs, university centers and department offices.

The concept paves way for reaching the farmers with customized technological interventions for specific crops. The list of proposed interventions that could be provided through the CHC concept (Table 1). It also attempts to release the pressure exerted in the present target-oriented extension system. The efforts being taken up by the present extension system are still scanty to reach all the needy farmers. It is relatively difficult for extension persons to reach all the farmers within the stipulated timeframe of their target. There will be a chance of mismatch between the situations, what is and what it ought to be.

Mode of operation

At first phase it can be operated with five CHCs per block and three VCAs per CHC (Fig 1). Thus a block will have 15 VCAs. The selection of VCAs should be done based on certain criteria viz age, educational qualification, involvement in farming and having good social contact. The VCAs may be interested rural youth with specified age group of 25 to 40 years. Individuals with interest in farming and also willing to serve as farm service providers should be identified in each village. VCAs can also visit the farmers' fields in a scheduled time period and provide on the spot recommendations. They will serve as farm service providers for crop production, crop management, crop protection and marketing which are the essential services needed by the farmers. VCAs will guide and facilitate the farmers to be more productive in their landholdings throughout the year for realizing revenue regularly. They will teach hi-tech agriculture to the farmers for improving their income.

The required knowledge and skills for the VCAs will be provided by the scientists of agricultural universities, research institutes, research stations or KVKs in the concerned district. The experts in each domain will be the resource persons to impart training cum demonstrations to the VCAs. The CHC-located villages will have demonstration plots on varieties and technologies specific to that location. The demo-plots will be maintained by agricultural universities, research institutes, research stations or KVKs and the scientists will be visiting periodically and render farm advisory services.

The system can be operated as a separate entity or a funded project during the period of initialization. The VCAs can be paid for a period of three years from the project budget and once the project is withdrawn, it can be owned by the villagers and the farmers will pay the VCAs from their association of

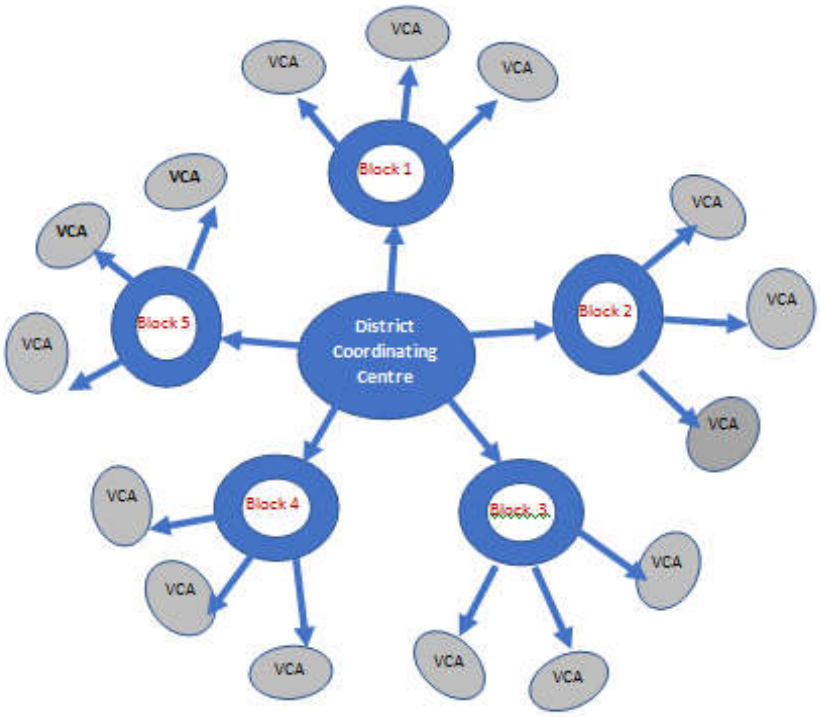

Fig 1. Predictive innovative model of technology transfer through CHCs

registered members. The registration amount would be used by the CHCs to pay the VCAs after the withdrawal of the project. VCAs must take periodical trainings from the scientists at least once in two months.

The identified VCAs have to be registered under the project. After undergoing the orientation and training programme, the VCAs will be provided with ID cards and the CHCs will also be registered. At this stage farmers will have to register as the members in the CHCs by paying a minimum amount of registration fee. This registration would facilitate them to get the timely and season-bound services of the VCAs. The registration may be renewed once in three years. In order to make the system sustainable, farmers should be included as stakeholders to take decisions and do social audit for transparency and accountability. Any government schemes or subsidies can be routed through the CHCs so that the benefits reach the real needy farmers. The concept can be spread over the entire district in phases.

Any innovation or new idea will always take its own phase of time to reach the target group or social system through a proper channel. The concept of CHCs might take about three years to sustain itself and transfer the benefits to the farming community. After the withdrawal of the project the CHCs should be capable enough to operate by themselves through mobilization of funds through registration fees paid by the members. Elected members among registered farmers of the CHCs should monitor the activities by social auditing.

Expected outcome

Through CHCs the farmers can easily access VCAs at any time as they are available in the immediate vicinity. The immediate attention seeking field problems could be addressed quickly. For example the problems of pests and diseases can be managed before a major damage is caused to the crop that might lead to an economic loss. High yielding varieties can be popularized easily and can spread across in a short period. Horizontal spread can be achieved in adoption of crop varieties and technologies.

The linkage between the VCAs and the farmers will be helpful in promoting synchronized agricultural management practices among the farmers which would support total crop management. Adoption of total crop management practices will contribute to reduction of cost of cultivation of the crops which would result in increase in the cost-benefit ratio. A study on evaluation of role and impact of crop advisory services on farm practices and farmer's income in Guntur district of Andhra Pradesh showed that the impact of crop advisory centre on the reduction in per acre expenditure on inputs for RCAC user-farmers was Rs 9,794 and the return due to increased yield was Rs 10,500. The added returns were found to be Rs 20,294 per acre (http://krishikosh.egranth.ac.in/handle/1/67773).

Though the prices of majority of the agricultural commodities across all the major markets in the country are digitally available, access to this information for the small and marginal farmers is still a big challenge.

Given the diversity in the socio-economic conditions in the country, increasing number of dual income families, fast pace of industrialization and urbanization the enormous number of opportunities are available in the value addition sector of agricultural and horticultural produce. It not only satisfies the producers and processors by way of higher monitory returns but also leads to better taste and nutrition content. Value is added by changing their form, colour and other such methods to increase the shelf-life of the perishables. Though with the effort of Ministry of Food Processing Industries the growth of this sector is accelerated still there is a long way to go in terms of ensuring quality aspects of the harvested produce such as maturity indices, grading, primary processing etc that would benefit not only the processors but also the farmers by way of fetching better prices for their commodities. Through the concept of CHCs, awareness and necessary inputs could be provided to the farmers in terms of value addition.

The CHCs can also serve as a channel between the farmers and farmer benefitting schemes offered through various government and non-government agencies. The government can also utilize the services of CHCs to identify eligible and deserving farmers for any schemes operated by it. It is easy to identify the farmers or beneficiaries and make them reap the benefits of government schemes, subsidies and compensations for loss due to natural calamities without any false authentication or overlapping endorsement. Apart from increasing the individual farmer's income through this model the income and

GDP level of the country would also increase in the long run.

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