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Role of Information and Communication Technology for agriculture: A case study of Kisan Call Center of Indian Society of Agribusiness Professionals Bhopal, Madhya Pradesh

R.S. Chouhan, Dushyant Kumar and **H.O. Sharma**
Agro-Economic Research Centre,
Jawaharlal Nehru Krishi Vishwa Vidyalaya
Jabalpur - 482004 (MP)

Abstract

Information and Communication in the revival of social organizations. Information and Communication Technology can give a new momentum to the social organizations and productive activity of agriculture which, if raised effectively, could become transformational factors. ICT helps the extension system in re-orienting itself towards the overall agricultural development of small production systems. The Kisan Call Centre (KCC) is a combination of ICT and Agriculture technology. It uses a backend data support system, which is inbuilt into the overall Management Information System. KCC enables farmers to have direct discussions with the subject matter experts who are able to analyze the problem effectively and provide the solution directly. It is observed from the result that the maximum calls of respondents were related to agriculture (54.85%) and only 4.02% from livestock. Amongst the different districts of M.P. the maximum calls were found to be received from Shivpuri (12.27%). It is observed that out of total call received from agriculture sector the maximum found to related to plant protection (42.98%) fallowed by production techniques (32.01%), marketing of farm production (12.03%), HYV seed (9.01%), weather forecasting (1.99%) and other (1.98%). The study also revealed that farmers not followed the recommendations or solutions of their problems due to communicational gap (as experts used scientific vocabulary in the solutions), lack of education, solution is far different from the local farming practice, less cooperation from agricultural department, difficulty in adoption of recommendation due the reason that recommended input are not available in local market and high cost of recommendation.

Key words: Information and Communication Technology, Management Information System, Kisan Call Centre, Indian Society of Agribusiness Professionals

Information and Communication Technology (ICT) is considered as an important means of achieving such a transformation. When used as a broad tool for providing local farming communities with scientific knowledge, ICT heralds the formation of knowledge societies in the rural areas of the developing world. However, this can only be realised when knowledge and information are effectively harvested for overall agricultural and rural development. The development of precision farming in countries of the North emphasizes knowledge-intensity; hence the agricultural paradigm in the developing world will have to be recast to take advantage of knowledge availability to achieve multiple goals of income, food, jobs, etc. ICT has a significant role to perform in evolving such a paradigm, as was evident from the Interdisciplinary Dialogue on IT: Reaching the Unreached (Swaminathan 1993). ICT in the revival of social organizations. ICT can give a new impetus to the social organizations and productive activity of agriculture which, if nurtured effectively, could become transformational factors. The 'knowledge' itself will become a technology for overall agricultural development. Agricultural extension, in the current scenario of a rapidly changing world, has been recognised as an essential mechanism for delivering knowledge (information) and advice as an input for modern farming (Jones 1997). However, it has to escape from the narrow mindset of transferring technology packages to transferring knowledge or information packages. If this can be achieved, with the help of ICT, extension will become more diversified, more knowledge-intensive, and more demand driven and thus, more effective in meeting farmers' information needs. ICT has many potential applications in agricultural extension (Zijp 1994). It can bring new

information services to rural areas where farmers, as users, will have much greater control than before over current information channels. Access to such new information sources is a crucial requirement for the sustainable development of the farming systems.

Convergence of ICT with agricultural development Broad basing agricultural extension activities; developing farming system, research and extension; having location-specific modules of research and extension; and promoting market extension, sustainable agricultural development, participatory research, etc. are some of the numerous areas where ICT can play an important role. Several research studies conducted on extension organisations have revealed that the delivery of goods is effective when the grass roots extension worker covers a small area of jurisdiction, with multiple purposes (broad basing). The existing system of large jurisdictions, each with a narrow range of activities, is less effective. However, broad basing requires grass roots workers to be at the cutting edge of extension and master of many trades, which is not really possible. IT can help here, by enabling extension workers to gather, store, retrieve and disseminate a broad range of information needed by farmers, thus transforming them from extension workers into knowledge workers. The emergence of such knowledge workers will result in the realisation of the much talked about bottom-up, demand driven technology generation, assessment, refinement and transfer. Agricultural extension systems in most developing countries are under-funded and have had mixed effects. Much of the extension information has been found to be out of date, irrelevant and not applicable to small farmers' needs, leaving such farmers with very little information or resources to improve their productivity. ICT helps the extension system in re-orienting itself towards the overall agricultural development of small production systems. With the appropriate knowledge, small-scale producers can even have a competitive edge over larger operations. When knowledge is harnessed by strong organisations of small producers, strategic planning can be used to provide members with least-cost inputs, better storage facilities, improved transportation links and collective negotiations with buyers. ICT can also play an important role in bringing about sustainable agricultural development when used to document both organic and traditional cultivation practices. Developing countries can create Traditional Knowledge Digital Libraries (TKDL) to collect and classify various types of local knowledge so that it can be shared more widely. These libraries could also integrate widely scattered references to Indigenous Technical Knowledge (ITK) systems in a retrievable form. Thus, IT could act as a bridge between traditional and modern knowledge systems.

The Kisan Call Centre is a combination of ICT and Agricultural technology. It uses a backend data support system, which is inbuilt into the overall MIS (Management Information System). KCC enables farmers to have direct discussions with the subject matter experts who are able to analyze the problem effectively and provide the solution directly. With the increase in choices of farm inputs, pesticides, herbicides, high yielding varieties of seeds, a farmer today requires guidance of expert agriculturists more than anything else. Some one with whom they can share their crop related issues and learn preventive measures. Kisan Call Center (KCC) is a pioneering initiative started in Madhya Pradesh by the Indian Society of Agribusiness Professionals (ISAP).

A central call centre has been established which takes queries of farmers and answers in their language from 7 am to 7 pm, seven days a week. The MIS software captures callers' details and specifications of the query which helps in analysing area-wise and crop-wise details within a time space framework and provides preventive, advance action solutions. It also identifies pest attacks in any particular geographical area and the information collected is provided to the State Agriculture Department for taking timely action by broadcasting on television, radio and other mediums. During the drought of 2009 Kharif, and untimely floods in October 2009, KCC was transformed into a control room providing preventive solutions to reduce crop damage on an area-specific basis across Madhya Pradesh.

The KCC Model has helped expedite farmer query redressal by almost three times compared to its predecessors. About 1.8 lakh calls were received during the first 18 months of the operation from around 1 lakh farmers all across the state. So far, more than 3 lakh farmers have benefited from this Kisan Call Center. The level of satisfaction is evident from the fact that around 12 percent of the calls are "Thank You" calls!

The present study was formulated to study the performance of a KCC of Indian Society of Agribusiness Professionals in Bhopal district of M.P. following specific objectives

1. To study the per month call received in various sector of agriculture from different district of M.P.
2. To analyze the discipline wise call received in various sector of agriculture.
3. To identify the constraints in adoption of answer received by the respondents.

Methodology

A Kisan Call Center of Indian Society of Agribusiness Professionals Bhopal has been selected for the study. Out of the total call received in the year 2010-11 from Bhopal district of MP, 50 respondents has been selected for the study. Both primary and secondary data has been collected for the study. The primary data were based on the general information of the respondent and constraints related of adoption of answer received from the call center. The secondary data were related to call received from the farmers and the calls were classified discipline-wise. The whole data of call received were converted in to month wise call to drawn conclusion.

Results and discussion

The number of call received from the farmers of different district of MP, percentage of call received in different aspects of discipline of agriculture and allied sector, and the constraints faced by the farmers in adoption information and communication technology has been examined to drawn conclusions of the study.

Number of call received

The number of call received from the farmers in different districts of M.P. has been identified and it is observed from the data that there were 13539 call received per month by the KCC out of which the maximum were related to agriculture (54.85%) fallowed by horticulture (29.39%), other (11.74%) livestock (4.02%). (Fig. 1) Amongst the different district of MP, the maximum call were found to be received from Shivpuri (12.27%) followed by Shajapur (11.22%), Rajgarh (4.63%), Sagar (4.61%), Datia (4.13%), Chattarpur (4.07%), Tikamgarh (3.90%), Ujjain (3.10%), Betul (2.98%), Chhindwara (2.60%), Vidisha (2.41%), Dewas (2.34%), Mandsaur (2.31%) and Khargone (2.28%) districts of MP (Fig. 2) to the total call received by the KCC (13539/ month).

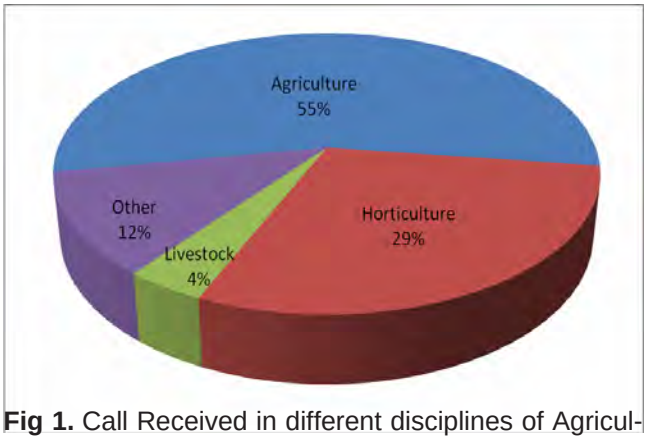


Fig 1. Call Received in different disciplines of Agriculture & Allied Sector (%)

Call received in different aspects

The call received different aspects in the different discipline has been examined and presented in table 1. Considering different aspects of agriculture and allied sectors. It is observed that out of total call received from agriculture sector the maximum found to related to plant protection (42.98%) fallowed by production techniques (32.01%) marketing of farm products (12.03%) HYV

Table 1. Percentage of Call Received in different aspects

Particulars	No. of calls received per month	Percentage to total
Agriculture		
Weather Forecasting	148	1.99
Seed	669	9.01
Production	2377	32.01
Plant Protection	3192	42.98
Marketing	893	12.03
Others	147	1.98
Total	7426	
	(54.85)	100
Horticulture		
Plant and Plant Materials	678	17.04
Production	1033	25.96
Plant Protection	2108	52.98
Marketing	84	2.11
Others	76	1.91
Total	3979	
	(29.39)	100
Animal Husbandry		
Poultry	17	3.13
Fisheries	8	1.47
Dairy	68	12.5
Piggeries	2	0.37
Live Stock management	378	69.49
Marketing	45	8.27
Others	26	4.78
Total	544	
	(4.02)	100
Others	1590	
	(11.74)	
Grand Total	13539	
	(100.00)	

Figures in parenthesis show percentages to grand total

seeds (9.01%) weather forecasting (1.99%) and other (1.98%). In Horticulture discipline (Table 1) It is observed that the maximum call were also found to received for plant protection (52.98%), followed by production technique (25.96%) plant and plant material (17.04%) marketing of farm products (2.11%) and other (1.91%).

As reference to the Animal Husbandry discipline the maximum call were received for live stock management techniques (69.49%), dairy technology (12.50%), marketing technique (8.27%), other (4.78%) and poultry technology (3.13%).

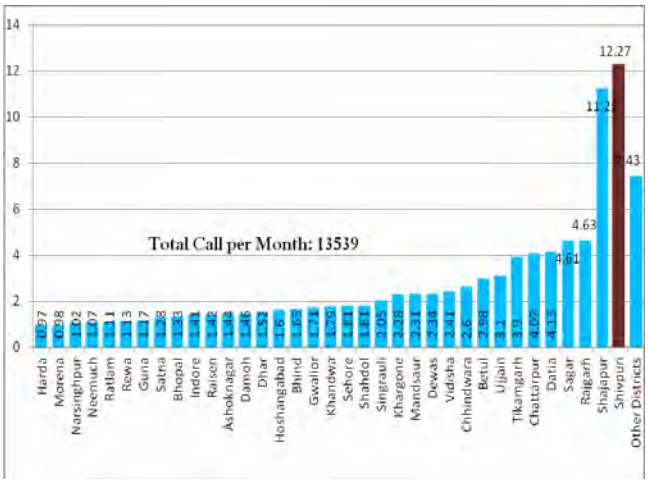
Constraints in adoption of ICT by the farmers

Constraints in adoption of ICT technology also been observed and presented in table 2. It has been observed from the data that the farmers not followed the recommendations or solutions received from the KCC due to communicational gap as experts used scientific vocabulary in their solution (82%), lack of education (52%), solution is far different form the local farming practice (44%), less cooperation from agricultural department (24%), difficulty in adoption of recommendation due the reason that recommended input are not available in local market (30%), call are rarely received by the call center (20%) and high cost of recommendation (12%).

Table 2. Constraints in Information and Communication Technology (Kisan Call Centre)

Constraints	Percentage of farmer
Communication Gap	82
Lack of education	52
Solution different from local farming practices	44
Less corporation from Staff of the Agricultural Department	24
Difficulties in adoption of recommendation	30
High cast of recommendation	12
Rarely received call on the number	20
Total Respondents	50

It is concluded from the above discussion that out of total calls (13539/months), the 54.85% were found to be related to agricultural disciplines. The maximum calls were concerned with plant protection technologies of crop cultivation followed by production technologies of crop cultivation, production technology of horticultural crops, plant protection technology of horticultural crops, HYV seeds of crop, plant and plant materials of fruits and vegetables and time management practices related to the animal husbandry. The farmers were not adopted the recommendation and there was found communication gap due to the difficulty in understanding the solution and the solution was in scientific language, for different from the local farms practices, recommended input not available in the local market and high cost of recommendation. Hence, it is suggested that the recommendation must be tuned with local language, local farming system, availability of input in the local market and lower expenditure.



किसान कॉल सेंटर (केसीसी) सूचना एवं संचार प्रोद्यौगिकी का प्रभावी कारक बन सामाजिक संगठनों एवं कृषि उत्पादन गतिविधियों के लिये एक परिवर्तनकारी एवं प्रेरणादायी साधन बन सकता है। जो संपूर्ण कृषि एवं ग्रामीण विकास के लिए विस्तार प्रणाली में सहायता पहुँचाता है। सूचना एवं संचार प्रोद्यौगिकी और कृषि प्रोद्यौगिकी का एक संयोजन है जो कि प्रबंधन सूचना प्रणाली पर आधारित है एवं संपूर्ण पुराने आकड़ों का उपयोग करता है। केसीसी द्वारा किसान उन विषय विशेषज्ञों से जो समस्या को प्रभावी ढ़ंग से विश्लेषण और समाधान करने में सक्षम होते है क्योकि वे सीधे चर्चा कर सकते है। किसान कॉल सेंटर किसानों की समस्याओं का विश्लेषण और समाधान करने में कितना सक्षम है,को जानने के लिये यह अध्ययन किया गया है। यह अध्ययन इण्डियन सोसायटी ऑफ एग्रीबिजनेंस प्रोफेशनल्स भोपाल में संचालित केसीसी को केस स्टडी मान कर वर्ष 2010-11 में 50 उत्तरदाताओं से सर्वेक्षण

कर किया गया तथा पाया कि संपूर्ण प्राप्त कॉल में अधिकतर कृषि (54.85%) से संबंधित रहे तथा मात्र 4.02% पशुधन से संबंधित पाये गये। मध्य प्रदेश के विभिन्न जिलों में से अधिकतम कॉल शिवपुरी (12.27%) से पाए गए है। कृषि क्षेत्र से प्राप्त कुल कॉल में से सर्वाधिक कॉल पौधा संरक्षण (42.98%), से इसके बाद फसल उत्पादन तकनीक (32.01%), विपणन तकनीक (12.03%), उन्नत बीज (9.04%), एवं मौसम पूर्वानुमान (1.99%) समस्याओं के समाधान से संबंधित रहे। अध्ययन से यह भी ज्ञात हुआ कि विशेषज्ञों द्वारा वैज्ञानिक शब्दावली के प्रयोग, शिक्षा की कमी, स्थानीय कृषि तकनीकों से भिन्न समाधान, कृषि विभाग द्वारा कम सहयोग, सिफारिशों की बाजार में अनुपलब्धता, अधिक आगत लागत वे बाधाएँ पाइ गयी है जिसके कारण किसान, केसीसी से प्राप्त सिफारिशों का पालन नही कर पाते है।

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