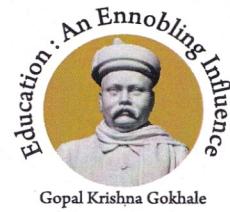


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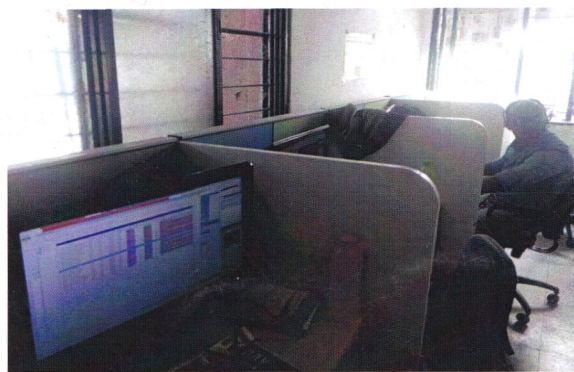
**Gokhale Institute
of Politics and
Economics**
(Deemed to be University)
Pune - 411 004

AERC Report

**Agro-Economic
Research Centre
(AERC)**

**Decision-Oriented Information Systems for Farmers:
A Study of Kisan Call Centres (KCC),
Kisan Knowledge Management System (KKMS),
Farmers Portal, and M-Kisan Portal in Maharashtra**

Sangeeta Shroff



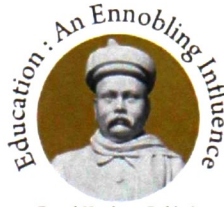
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Management System (KKMS), Farmers Portal,
and M-Kisan Portal in Maharashtra**

Sangeeta Shroff



Gopal Krishna Gokhale

Agro-Economic Research Centre
Gokhale Institute of Politics and Economics
(Deemed to be University)
Pune – 411 004

March 2018

Tel: 020-25650287; Fax: 020-25652579

Foreword

There is an urgent need to increase the extension services available to farmers. ICT is one way to bridge the gap and meet location specific information needs of the farmers as well as bring farmers in the interiors to access technological improvements.

In view of the above, the effectiveness of *e* services in providing advisory services to farmers was examined, to observe the extent to which it enabled them to make appropriate decisions and thus solve the problems they face in farming. The study examined the structure, design, implementation and performance of the government systems of Kisan Call Centres (KCC), Kisan Knowledge Management System, Farmers' Portal and M-Kisan Portal in the state of Maharashtra.

The study revealed that the hardware and software installed in the KCC improved the efficiency but the office space was inadequate and caused disturbance. The Farmer Tele Advisers (FTAs) most often depended upon self knowledge and internet search to respond to the queries of farmers and rarely resorted to any material from Government sources. The farmers did make use of KCCs and found the toll free number easy to access. They, however, mainly resorted to fellow farmers for information on agricultural practices. Mobile phones were also used by farmers to get information. The farmers seldom visited Farmers Portal or Kisan Knowledge Management System and information from websites was not popular for obtaining any information.

The main policy implication of the study was to improve the work conditions of FTAs and also provide them with training and updated information on extension services. The websites should be regularly updated so that the FTAs are in a position to give good advisory services to farmers which is the very purpose of the scheme. Also, escalation of calls, to higher levels, if necessary, should be improved.

I thank Prof Sangeeta Shroff for undertaking the study which will certainly be useful to policy makers as they will be in a position to address the important issue on extension services which is lacking in the agricultural sector.

Gokhale Institute of Politics and Economics,
(Deemed to be University Under Section 3
of the UGC Act, 1956)
Pune 411001

Rajas Parchure,
Professor and Officiating
Director
March, 2018

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Gokhale Institute of Politics and
Economics,
(Deemed to be University Under section 3
of the UGC Act, 1956),
Pune -411004

Sangeeta Shroff
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Executive Summary

Introduction:

There is a crying need to increase the extension services available to farmers. ICT can also be used to bridge the gap and meet location specific information needs of the farmers as well as bring farmers in the interiors to access technological improvements. ICT can also facilitate interactive sessions of knowledge experts with farmers, and by and large help agricultural universities, farmers and other stakeholders to come together and share information.

In view of the above, the effectiveness of *e* services in providing advisory services to farmers was examined, to observe the extent to which it enabled them to make appropriate decisions and thus solve the problems they face in farming. Accordingly a study was undertaken to study the structure, design, implementation and performance of the government systems of Kisan Call Centres (KCC), Kisan Knowledge Management System, Farmers' Portal and M-Kisan Portal in the state of Maharashtra.

Objectives and Methodology :

The study attempts to note the benefit which the farmers have received from *e* services and the extent to which their problems could be solved.

More specifically, the broad objectives of the study are :

1. To examine the organizational setup, infrastructure, ICT and other systems used and the governance of the system;
2. To observe the profile and pattern of Farmer Tele Advisers (FTAs) and also users, the number and nature of calls and the responses given by KCCs.
3. To evaluate the performance of the system from the point of view of the farmers/users including the ease and usefulness of the system.
4. Suggest policy measures so as to strengthen Kisan Call Centres.

The KCC for Maharashtra is located in Pune from where the Farmer Tele Advisers (FTAs) and supervisors were contacted for relevant information. Farmers across 4 districts (Pune, Ahmednagar, Solapur and Osmanabad) were contacted to get appropriate feedback of their experience with KCC.

A neatly designed and very detailed questionnaire was addressed to all stakeholders of the Kisan Call Centres, namely Supervisors, Farmer Tele Advisors

(30), farmers who avail of services of Kisan Call centres (80) and some non-users (20).

A rating scale is used in the questionnaire which does the following rating:

Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree

– 1

Main Findings :

- The education profile of the KCC revealed that 80 percent of FTAs were B.Sc graduates while 13.3 percent were M.Sc graduates and the subject of specialization was mainly agriculture.
- The educational profile in the primary survey of 80 farmers who availed the services of KCCs indicated that 43.75 percent were higher secondary and 2.50 percent were illiterate.
- The caste profile of users indicated that 77.50 belonged to general/other categories.
- The age-profile of users indicated that 80 percent were between 18 to 49 years.
- After restructuring and shifting to Pune from Nagpur, there was a huge change in the functioning of KCCs. The total number of FTAs increased to 69 (30 in each shift and some extra) and the states covered were Maharashtra and Goa.
- The languages used to answer queries were Marathi, Hindi and English..
- There was remarkable improvement in the hardware as well as software after restructuring of KCCs as indicated by both supervisors. They also had a data base of farmers and were in a position to respond to farmers' queries. All equipment installed in the KCC improved the efficiency of the KCC.
- Both supervisors in the KCC, only partially agreed that the office space was adequate. One supervisor disagreed on the activity area of each FTA being sufficient and felt co workers can get disturbed while calls are being answered. There was also other noise from department and perhaps video surveillance was not sufficient for monitoring.
- One supervisor strongly agreed and the other one only agreed that FTAs are efficient in responding to calls, answering the queries and can also access the database/information to answer the questions.
- Both supervisors partially agreed that FTAs are motivated and one supervisor only partially agreed that FTAs take good initiative to improve, innovate and perform better. One supervisor felt that FTAs need supervision while performing work.

- Both supervisors felt that for information and knowledge sources, the FTAs depended on self knowledge and internet search very frequently. The colleagues and supervisors were frequently referred to for obtaining information.
- However, on certain aspects such as knowledge from Nodal officer or field inquiry, both the supervisors responded that such sources were never resorted to. Also extension booklets and papers were rarely used.
- The questionnaire addressed to FTAs revealed that with respect to hardware more than half the FTAs responded that the hardware is latest and up to date, it is fast, reliable, well maintained and interface of key board & mouse is good.
- It was observed that the most frequent source of knowledge of FTAs was self knowledge. With respect to material from Government department, 40 percent indicated that they rarely resorted to this source and 50 percent never used field inquiry as a source of knowledge.
- More than three-fourths of FTAs strongly agreed or agreed that Kisan Knowledge Management System (KKMS) website was user friendly, and while 66.67 percent of FTAs indicated that call clarity is good and farmers do not face any difficulty in understanding the dialect and overall call efficiency is good, about 30 percent partially agreed/disagreed that call drops are less.
- Also a little more than 40 percent of FTAs partially agreed/ disagreed about getting irrelevant calls and facing abusive language.
- With respect to Farmers Portal also the response of FTAs was encouraging but 36.67 partially agreed/disagreed that the information is regularly updated. The m-Kisan website response was also on the favorable side and three fourths of FTAs strongly agreed or agreed about smooth working of the website.
- About three fourths of the FTAs together either strongly agreed or only agreed that they were in a position to handle the questions asked by farmers and queries not solved by them were well handled by their colleagues or supervisors.
- While 50 percent agreed that power cuts are not frequent, the overall picture with respect to infrastructure is not encouraging. There was partial agreement/disagreement or strong disagreement over issues such as sufficiency in lighting, adequate ventilation, noise in other departments which hinders the answering efficiency and overall good working environment.

- More than half the FTAs in the sample partially agreed/disagreed or entirely disagreed that the training programmes help in operating hardware and software.
- With respect to questionnaire addressed to farmers, it was that the most important source of information was fellow farmers and 95 percent of farmers in the sample relied on their counterparts for information. Even KCCs were an important source of information, followed by input companies. Kisan melas were also organized and gaining in importance to bring awareness among farmers. Although Krishi Vigya Kendras are supposed to be a major source of information and spread of technology to farmers, only 28 percent of farmers referred to KVKs for advise.
- The most important source of information was the mobile phone and 78 percent of farmers were aware of the usefulness of mobile phone to access information. About 43 percent of farmers in the sample used mobile phones frequently to get information. The next important source of information was television and 43 percent of farmers frequently obtained information from television. It was clear that information from websites was not at all popular among farmers. None of the farmers had visited Farmers portal and only one farmer was aware of KKMS.
- About 60 percent of farmers agreed that KCC toll free number is easy to reach but 57.50 percent partially agreed/disagreed that wait for KCC call pick –up is not too long. About two-third of farmers strongly agreed or only agreed that the voice reception is clear. Majority farmers agreed that FTA greets them courteously, understands the problem.
- More than half the farmers partially agreed/disagreed or disagreed that questions escalated are well answered by nodal officers and the overall call handling and efficiency is good. By and large with respect to overall information provided being good and useful about half the farmers gave favourable response while half partially agreed/disagreed or disagreed.
- While 58.91 percent of farmers, strongly agreed or agreed about satisfaction with response and information provided by FTAs, the balance partially agreed/disagreed or disagreed.
- More than 70 percent of farmers indicated that good choice of crops, high yields, good quality of output, efficient use of input, price of produce and marketability were either extremely important or very important criteria while undertaking farming.

- About 25 percent felt that less risk, least crop loss, respect in community were moderately important while undertaking farming decisions. About 30 percent indicated that self consumption is slightly important while selecting the crop.
- With respect to credit and insurance decisions, 100 percent of farmers indicated that KCCs are extremely important to guide them on such issues.
- About 74 percent farmers felt that KCCs are very important to advise them on disease control decisions.
- About 67 percent farmers felt that KCCs are useful in providing information on storage decisions but moderately important on risk reduction decisions.
- Half the farmers (52.38 percent) noted that KCCs had only moderate importance on their planting decisions and quality improvement.
- With respect to supply chain and transport decisions 100 percent farmers indicated that KCCS are not important.
- About, 54.43 percent farmers felt that the quality of information provided by KCCs is good while 40 percent revealed that it is satisfactory.
- With respect to continuation of KCCs, 30.38 strongly agreed that KCCs should be continued while 51.90 percent agreed. Thus overall 82.28 percent of farmers felt that KCCs should be continued and 17.72 percent partially agreed/disagreed.

Overall, it therefore appears that farmers are very keen on KCCs being continued, but ofcourse efforts will have to made on various aspects relating to infrastructure in KCCs as well as quality of response by FTAs so that farmers gain and FTAs also work under better conditions.

6.2 Policy Implications :

The major policy implications that emerge from the study are :

- On visit to the KCC in Pune and also as indicated by supervisors, it was observed that the activity area of the KCC was insufficient and there was disturbance to FTAs. Hence, it is necessary to ensure that office space is suitable, well ventilated, adequate toilet facilities are provided and overall work conditions are improved.
- Besides better work conditions, the FTAs also felt that they are not only underpaid but also have contractual appointment. Hence this issue must be addressed by concerned officials.
- Also since large number of calls come daily, there is need to increase the number of FTAs in KCC.

- Since self knowledge and internet search were the main source of knowledge to FTAs, it is very important to provide them with more sources of information such as booklets, information on latest government schemes, field visits, knowledge from Nodal officers, etc.
- The websites should also be regularly updated and training programmes should be regularly conducted so that FTAs are in a position to give good advisory services to farmers which is the very purpose of the scheme.
- Efforts must also be made to ensure that farmers are satisfied with response given by FTAs as this will promote the use of KCCs as a source of extension services.
- Also escalation of questions to higher levels must be improved so that if any calls are not handled by FTAs, they should be satisfied by Nodal officers.

Thus overall it can be concluded that while KCCs do have the potential to provide extension services to each and every farmer, irrespective of location, the service must be improved by ensuring that the infrastructure is up to the mark, the FTAs have upto date knowledge on all agricultural operations as well as on government schemes and farmers are also aware of such a service. If this happens, then with increasing use of KCCs, farmers will be able to resolve their queries, avoid crop failure and thus increase productivity which will provide the much needed boost to the agricultural sector.

Chapter 1

Introduction

1.1 Backdrop :

The agricultural sector in the Indian economy, as is well known, is experiencing much lower rates of growth as compared to the manufacturing and service sectors. Hence in order to achieve higher overall economic growth rate, it is important to increase productivity in the agricultural sector which will also help to contribute to increased rural incomes and employment. This will help to build a strong foundation for increase in consumer demand in rural areas and thus stimulate growth in other sectors of the economy.

However, the agricultural sector is plagued with several handicaps which serve as an impediment to growth and poor extension services is one such major constraint which restricts growth in the sector. Lack of resources, reluctance on the part of government personnel to serve in the interiors, etc. are some factors responsible for limited availability of extension services. However, farmers require continuous advice on various technologies including soil health, cropping practices, plant protection, weather forecast, postharvest technology, clinical services for animals, prices of various crops, etc. If such timely information is provided, it will help to enhance productivity of crops/animals and thus ultimately increase incomes of farmers.

Indian agriculture is characterized by a large number of landholdings to the tune of 138.35 million and thus extension services which should play a lead role in providing advisory services to farmers are under tremendous stress due to financial, infrastructural and human resource limitations. Hence farmers do not receive correct information on crop/animal husbandry which leads to imperfect decisions thus leading to poor crop performance. At times, the farmers depend upon input dealers for advice and also end up purchasing spurious inputs which lead to total crop failure and finally agrarian distress.

In view of the above, the government has encouraged not only public, and private sector but also NGOs, to provide the much needed extension services to farmers. However, given the size of the agricultural sector, the magnitude of the manpower is still insufficient to meet the requirements and therefore the ratio of farm households to extension workers is far from satisfactory, although it is an important

mandate of the government. In this context, recent developments in Information and Communication Technology (ICT) which can provide speedy advisory services along with technical updates to farmers in order to resolve their problems are being promoted. Accordingly, the Government of India under the National e-Governance Plan have developed e-enabled services such as setting up of Kisan Call Centres (KCC), Kisan Knowledge Management System (KKMS), Farmers' Portal and M-Kisan Portal which have gradually evolved since 2004.

1.2 Kisan Call Centres:

In order to harness the potential of ICT in Agriculture, Ministry of Agriculture took a new initiative by launching a scheme entitled 'Kisan Call Centres' on January 21st, 2004, with the main purpose of responding to queries of farmers on agriculture related information through telephone in the farmer's own dialect. A country wide common eleven digit number 1800-180-1551 has been allotted for the KCC. The number is accessible through all mobile phones and landlines of all telecom networks including private service providers. The farmers are given response in 22 local languages and call are attended from 6.00 A.M. to 10.00 P.M. on all seven days of the week at each KCC location. During working hours, there is immediate response to the query of the farmer, but beyond working hours, the call is recorded and the queries are answered later by post.

The design of the KCC in 2004 when it was launched was that a farmer could reach an agricultural graduate or expert (Level-I) who was to respond to his queries and problems. In case the respondent at Level-I is not able to satisfy the farmer, the call be taken through conference at Level-II to a higher level expert. If the farmer is not satisfied at Level –II, he could solve his problem at Level-III at the highest level Nodal centre. However, after setting up KCCs in 2004, there were some teething problems such as poor monitoring, and large number of locations with a small capacity and insufficient investment in technology. There was also frequent breakdown of devices such as telephone lines and telephone instruments. There was also considerable time to connect to the call and no record of telephonic conversation. The answers given by Farmer-Tele advisers (FTAs) were also questioned and they received limited training and capacity building. Further, the feedback of farmers was not taken on quality of services and by and large there was limited demand for these services (www.mmp.cips.org.in/documents/workshops/2015/8-11/shri_R_K_Tripathi.pdf)

In view of the inherent shortcomings, the call escalation process was restructured, revised and strengthened from April 2011 and began to involve (i) State Agricultural Departments from block to state level, (ii) State Agricultural Universities and Krishi Vigyan Kendras and KCC agents to answer queries of farmers by way of call conferencing with experts from these organizations in case the call centre agent is unable to answer the query of the farmer. Active involvement of Common Service Centres (CSC) and other stakeholders is also envisaged so that the query of the farmer will be resolved. In the revised plan, since Level II of the escalation after KCC is at the block level, it is necessary to have atleast one expert on each aspect in every block. The District Level Designated Officers in each district need to be enabled by State level Designated Officers. The states have been requested to take up the following steps to implement the revised escalation matrix :

- A Kisan Knowledge Management System (KKMS) to be developed so that correct, consistent and quick replies to the queries of farmers be given. Hence appropriate and validated information on Agriculture and allied sectors must be put up on its website, www.dackkms.gov.in. The web site contains knowledge data base on package of practices on agriculture, horticulture and animal husbandry of each state. The KCC agents working at various locations of the country have access to this web site through their specific ID's and password provided to them and can use the information provided in this web site to satisfy the query of the farmer.
- To proactively get involved in activities of KCCs and supervise the quality of extension services provided by the KCC agents and ensuring the revised escalation matrix under Kisan Knowledge Management System (KKMS) is put in place and higher level officers keep a track of the answers given at the lower level.
- To coordinate with the state IT department to get the scheme rolled out throughout the CSCs and appointment of a Nodal officer for KCC.
- On line monitoring
- Keep the KCC agents apprised about new schemes/programmes/contingency plans implemented by central and state government.

- Provide the KCC agents with latest versions of guide books and booklets brought out by the state government and the local Agricultural universities.
- Organize monthly video conference on pre-announced dates in the university campus or through State Information Centre for interaction of KCC agents with the Divisional/Zonal level officers of the state agriculture and allied departments.
- The KCCs must give a weekly feedback to the state department of agriculture and allied departments regarding the nature of call including area specific prevalence of crop diseases, pest infestation, etc.
- To create login IDs to various officers of the state governments, KVKs and SAUs from block level upwards.

Besides the KCC agents, farmers and other stakeholders can also have direct access to the knowledge data base search on package of practices in the KKMS website by merely clicking on the “Kisan Login” displayed on the front page of web site to search for desired information available on the web site for their own use. Further, in order to create awareness among the farming community about KCC programme, audio/video spots on KCC are broadcast through All India Radio/ Doordarshan and private television channels (www.mkisan.gov.in/images/featurekccpdf).

Thus as per restructured scheme the KCCs were revamped by consolidation and appointing a new service provider for KCC namely IFFCO Kisan Sanchar Limited which is a subsidiary of IFFCO with the purpose of setting up state of the art KCCs at 14 identified locations. The restructured KCCs are thus more professional with the following innovations :

- a) Voice/media Gateways
- b) Dedicated MPLS leased line network with dedicated bandwidth
- c) Call barging
- d) SMS to caller farmers providing a gist of advisories to them on mobile phone

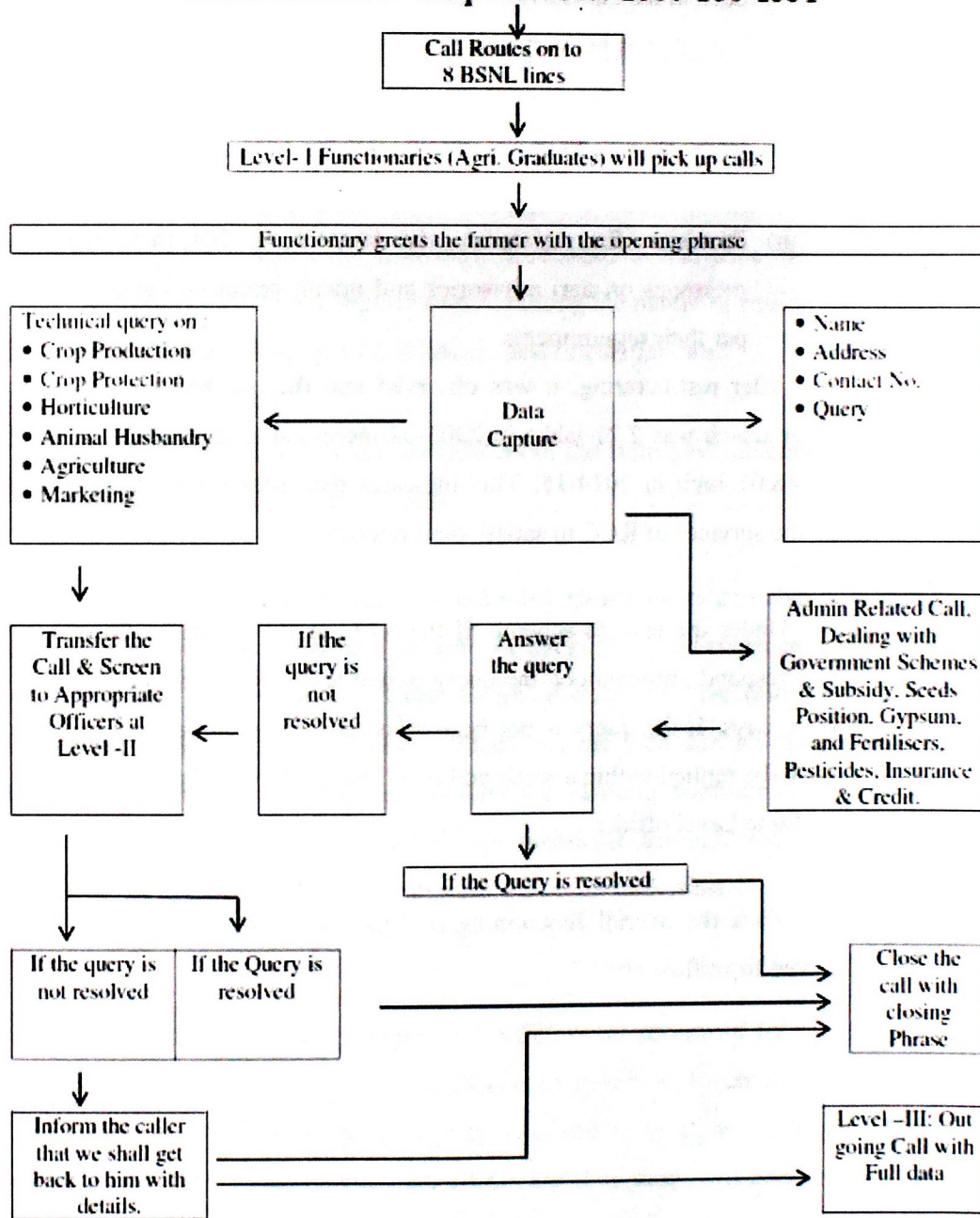
- e) Voice mail system for recording farmer's queries with provision for call back to the caller
- f) Soft phones in every personal computer with caller ID facility
- g) Up scaling the knowledge of Call Centre agents by providing them the latest version of guide books and booklets issued by State Agricultural Department of the Agricultural Universities.
- h) Provision for registering the farmers so that they can receive SMS messages on agri advisories and mandi prices of various commodities as per their requirements.

After restructuring, it was observed that the number of calls in all locations together which was 2.21 lakhs in 2003-04 increased to 20.44 lakh in 2010-11 and is about 48.01 lakh in 2014-15. This indicates that after restructuring the farmers are using the services of KCC to satisfy their queries.

Under the revised scheme, if the KCC or the Common Service centre is not able to respond immediately, the query is sent to block and is to be replied within two or three days. If the query is not been resolved it is escalated to district level officer and is to be replied within a week and if still the problem is not addressed, it is referred to the State Level officer.

Thus the overall functioning of KCCs through the escalation matrix can be observed from flow chart 1.

FARMER Dials Help Line No: 1800-180-1551



Source : <http://crispindia.org/wp-content/uploads/2015/10/Kisan-Call-Centre-Sudhakar-Reddy.pdf>

1.3 M- Kisan Portal – Mobile based services for Farmers :

Under the National e-Governance Plan-Agriculture, an SMS Portal was inaugurated by the Hon”ble President of India in 2013 which provides mobile based services to farmers. While mobile phones have deeply penetrated into rural India, the use of internet facilities is still very limited. In this context, mobile messaging is a very effective tool which can reach the interiors. Hence M-Kisan-SMS Portal for farmers was created which enables all central and state government organizations in agriculture and allied sectors to give information/services/advisories to farmers by SMS in their language on agricultural practices and specific needs of farmers. Unstructured Supplementary Service Data (USSD), Interactive Voice Response System (IVRS) and SMS are also value added services which have enabled farmers and other stakeholders to not only receive messages which are broadcasted but to also get web based services on their mobile without having internet. The purpose of this initiative is also to reach out to semi-literate and illiterate farmers through voice messages. Thus SMS Portal was conceptualized to give a quantum leap in coverage of farmers and geographical area in a timely, specific, holistic and need based knowledge dissemination among the farmers. This is done by leveraging the power of mobile telephony in such a way that all sectors use this platform to not only reach out to the farmers but also resolve their problems and queries.

The main objective of the project was to first create a centralized knowledge base from the perspective of farmers which was termed as Farmers’ Portal (www.farmer.gov.in) in Hindi and English language. It was observed that while over 800 websites of various departments and organisations related to agriculture and allied sectors in the central and state governments and 80 portals of the department pertained to agriculture and allied departments, there was not a single portal for the farmers. This created the need for a portal especially for farmers and SMS portal was introduced. This portal became very popular by all users and a third level domain was created for all mobile based services for farmers on a Unified Portal namely, www.mkisan.gov.in.

The purpose of the Portal are mainly :

- a) To make SMS and other mobile based services as a tool of two way agricultural extension so that not only specific information/advisory services are provided to farmers in a broadcast mode but the farmer can also raise specific queries through Pull SMS or USSD.

- b) Since mobile phones have penetrated in the interiors at a rapid pace and there is wide coverage the portal aims at covering every farm household and bringing a level playing field for small and large farmers also.
- c) To bring about a centralized system wherein different modes of information flow are channelized and spread to the farmers in their own language.
- d) To make an integrated portal which ensures storage of previous advisories/messages and also effective monitoring.
- e) Since internet penetration is very limited, sending text messages to bridge the gap.
- f) Providing web based services through SMS or USSD is also an important goal.
- g) Integration with other farmer-centric services such as Kisan Call Centres, Common Service Centres, Web Portals for extracting relevant information and also for feeding data from remote locations where internet services are not available or are unreliable.

The SMS portal has unique features like database to shift farmers to block level and to select specific agricultural commodities/ correction of messages by supervisory officers, searchable of data base of previous advisories, etc. Nearly 3000 officers and experts from central and state government have been activated and are using the portal in 12 languages by using easy phonetic typing. About 7 million farmers have already opted to receive advisories & services on their mobile phones. The farmers have been put in groups depending upon the state, district, block and the crop /activities selected by respective farmers. Nearly 20 web based services across the country have been integrated with the SMS portal and many more are in the queue. Some of these include buyer-seller interface, choice of machine & dealer, Kisan Call Centre, market prices, agromet advisories, farm mechanization, micro-irrigation, animal husbandry, fertilizer testing, etc.

The registration of experts has been simplified and made more broad based so that it reaches to every nook and corner of the country in every aspect of agriculture and allied services. Further, apart from advisories and information, a number of government services have been integrated with the portal such as e-Payment, Licensing of dealers (seeds, fertilizers and pesticides), soil testing and soil health cards, etc. Monitoring of advisories sent by experts at different levels is also an inbuilt

process wherein a senior officer can view the advisories sent by his subordinates and also rate the same. Wherever needed, these advisories can be revised and resent to the farmers in supersession to the earlier ones. The dash board of the portal provides a transparent view of the SMSs sent by experts which can traced down from national to block level officers, presenting the messages sent by individual experts at respective levels. Also instead of generic advisories and information, area and crop specific information, as well as technical inputs are provided (<http://mkisan.gov.in/aboutmkisan.apx>).

1.4 Review of Literature :

ICT has a major role to play in agriculture and realizing the importance the government launched various modes of delivery of *e-enabled* services under its National *e-Governance* Plan. Kisan Call Centres, Kisan Knowledge Management Systems and Farmer's Portal are major *e-services* provide to farmers. Hence, the use of these services has been reviewed to reveal the usefulness as well as recommendations for further improvement of these services.

A study (Sharma, B.R. and others, 2011) analysed the role of Kisan Call Centres in Himachal Pradesh and noted that this service was more utilized by progressive farmers and in the total sample, the vegetable growers had maximum calls, followed by foodgrain growers and fruit growers. The highest calls were recorded for diseases followed by problems relating to animal husbandry. The study further revealed that those farmers who used services of KCC benefitted more as their productivity levels were higher and hence the need for extension services must be extended so that farmers can produce efficiently as well as scientifically.

A paper on dissemination of farm information through agri portals (Shankaraiah, n and others, 2012) explains various *e-agriculture* extension services which can reach the last mile and thus promote agricultural development in the country. The study gives the example of Warna , (Maharashtra) a cluster of 70 villages where a “wired village project” was launched. The project was initiated to serve the information needs on various crop cultivation practices of major crops, pest and disease control, marketing information, etc. A survey was conducted to find out the usefulness of the services of the wired village project and 95 percent of respondents indicated that electronic services are very useful in improving their standard of living. Most of them used to spend 1-3 days for availing services, but after the launch of *e*

services, they can access information within an hour. The cost of services has also reduced after the project was launched and further, farmers felt that they have experienced increase in production levels due to timely availability of services.

A SWOT analysis (Anup Kumar Das, 2014 [http://cckn-ia.org/download/publications/150122/11 SWOT Analysis Report Odisha.pdf](http://cckn-ia.org/download/publications/150122/11%20SWOT%20Analysis%20Report%20Odisha.pdf)) for Odisha on agriculture knowledge information networks noted that KCCs provide a unique platform for providing farm solutions to the community through real time query resolve process. This forum can be used as a potential source for agriculture and weather based information dissemination for rural communities. Hence, the analysis recommended that the subject matter specialists who provide information to KCCs can be imparted adequate capacity building exposure so that they can gain up-to -date knowledge base and access to relevant information which will help smooth functioning of KCCs.

Ramasubbian H, and others (2015) also conducted a study on information and communication technology in Indian agriculture with special reference to KCC. The study noted that large part of rural areas did not have access to ICT because of illiteracy of farmers who mainly belong to low income group. Hence the study recommended that internet services should be available at low cost and rural information centres should be set up to facilitate farmers to ease the use of Kisan Call Centres. Another study (Das, Ganesh, 2016) was conducted to observe the perception of KCC by the farmers in West Bengal. It was observed from the investigation that majority of the respondents felt that the system of calling is readily accessible and SMS from KCC is easily understandable. However, farmers did not feel that response from voice call was good, perhaps due to inconvenient timings.

Overall, it can be observed from review of literature that there is urgent need to expedite *e* services to farmers, so that farmers can access timely agronomic services and thus improve their productivity levels.

1.5 The need for a strong Information system :

The field of ICT is growing rapidly and even transfer of technology deserves attention. Web portals facilitate the presentation of information from various sources in a unified way. With respect to agriculture also, agri portals have been developed which are supposed to provide most recent information on variables such as prevailing market prices in various markets, weather reports, creation and maintenance of statistical data base on major parameters related to agriculture, suitable package of

practices for crops, etc. This can help extension workers to access latest information on agricultural practices and thus ICT can help and expedite the process of transfer of technology. If farmers get access to this technology, it will definitely help him to practice farming in a scientific manner and thus increase productivity. This certainly brings about the need for a strong *e*-agricultural extension system. When messages are disseminated to farmers manually, as in the traditional system, it is obvious that majority of farmers will be excluded. Therefore, in order to reach about 13 crore farmers in India, spread over a different agro-climatic regions, use of ICT support is the best solution. ICT can also be used to meet location specific information needs of the farmers and also bring farmers in the interiors in isolated areas to access technological improvements. ICT can also facilitate interactive sessions of knowledge experts with farmers, and by and large help agricultural universities, farmers and other stakeholders to come together and share information. The extent of learning depends upon how well the information is assimilated and how widely it is disseminated.

In view of the above, it is important to examine the effectiveness of *e* services in providing advisory services to farmers so that they are in a position to make appropriate decisions and solve the problems they face in farming.

1.6 Objectives of the study :

The main objectives of the report are to study the structure, design, implementation and performance of the government systems of Kisan Call Centres, Kisan Knowledge management System, Farmers' Portal and M-Kisan Portal in the state of Maharashtra. The study attempts to note the benefit which the farmers have received from these services and the extent to which their problems could be solved.

More specifically, the broad objectives of the study are :

1. To examine the organizational setup, infrastructure, ICT and other systems used information content and flow, ability of manpower involved and the governance of the system.
2. To observe the record of the use of the systems-the profile and pattern of users, the number and nature of calls and the responses given by KCCs.
3. To evaluate the performance of the system from the point of view of the farmers/users including the ease and usefulness of the system. Also the information needs of the farmers and the extent to which these are satisfied is noted.

4. To suggest policy measures with respect to improvement in the system and making it more effective so that farm productivity will be enhanced, and the agricultural sector will get a boost.

1.7 Methodology :

The study is conducted in the state of Maharashtra with the help of primary and secondary data. The number of calls attended in the state (district-wise) is indicated in Table 1.1 and the percentage share is indicated in table 1.2.

It can be observed from Table 1.1 that the number of calls in Maharashtra has been increasing over the years. Before restructuring of KCCs in 2012, the number of calls from 2003-04 to 2012 were about 4 lakhs, but the number of calls significantly multiplied from 2013-14. Among the districts of Maharashtra, maximum calls were received from Ahmednagar district followed by Solapur. Overall however, over the 36 districts of Maharashtra, the distribution of calls received by KCC is quite evenly spread. Districts in the Konkan region of the state have a negligible share in total calls made, perhaps since their cropping pattern is fixed in terms of paddy due to assured rainfall. Discussions with farmers revealed that common queries related to usage of appropriate insecticide in case of crop being attacked by disease, suitable fertilizer to be applied, prevailing price in the market and decision on whether to store the crop . Also call frequency went up during harvest time, as farmers wanted information on prevailing market price. In case standing crop was on field and affected by pests, the KCC received calls on appropriate pesticide to be used.

The KCC for Maharashtra is located in Pune from where the FTAs and supervisors were contacted for relevant information. Farmers across 4 districts were contacted to get appropriate feedback of their experience with KCC.

Table 1.1: District-wise Number of Calls attended

Sr. No	District Name	2013-14	2014-15	2015-16	2016-17	Overall
1	Ahmadnagar	49552	63718	62734	51817	227821
2	Akola	21026	21918	33297	26586	102827
3	Amravati	19003	21481	27987	23303	91774
4	Aurangabad	30689	38023	45475	40894	155081
5	Beed	29411	33694	41318	38779	143202
6	Bhandara	3857	5268	5305	3408	17838
7	Buldana	38762	37799	60069	44193	180823
8	Chandrapur	5281	6180	7774	7059	26294
9	Dhule	9525	9750	15753	10286	45314
10	Gadchiroli	978	1379	1489	1455	5301
11	Gondiya	1949	2542	2982	2202	9675
12	Hingoli	20056	21594	30058	24902	96610
13	Jalgaon	25612	26627	36761	25496	114496
14	Jalna	26226	36570	39606	36685	139087
15	Kolhapur	10263	10851	12389	8813	42316
16	Latur	15956	20719	22576	21438	80689
17	Mumbai	555	729	697	795	2776
18	Mumbai suburban	112	116	28	17	273
19	Nagpur	9940	12197	13259	10648	46044
20	Nanded	32622	37628	48518	42736	161504
21	Nandurbar	1752	2319	2283	1644	7998
22	Nasik	45562	48559	55943	39632	189696
23	Osmanabad	19703	25279	27062	23503	95547
24	Palghar	0	0	0	5	5
25	Parbhani	24837	27621	39098	32502	124058
26	Pune	20867	23008	25510	19429	88814
27	Raigarh	841	1028	859	705	3433
28	Ratnagiri	630	912	753	526	2821
29	Sangli	16362	16079	18232	12863	63536
30	Satara	12454	13155	15301	10758	51668
31	Sindhudurg	655	745	666	437	2503
32	Solapur	47511	42702	62555	52540	205308
33	Thane	1787	2144	2361	1344	7636
34	Wardha	7200	8709	10440	8167	34516
35	Washim	18805	18371	31847	25121	94144
36	Yavatmal	24102	24840	34125	29714	112781
	Total	594443	664254	835110	680402	2774209

Source: Office of Kisan Call Centre, Pune.

Table 1.2: District-wise Percentage of Number of Calls attended

Sr. No	District Name	2013-14	2014-15	2015-16	2016-17	Overall
1	Ahmadnagar	8.34	9.59	7.51	7.62	8.2
2	Akola	3.54	3.30	3.99	3.91	3.7
3	Amravati	3.20	3.23	3.35	3.42	3.3
4	Aurangabad	5.16	5.72	5.45	6.01	5.5
5	Beed	4.95	5.07	4.95	5.70	5.1
6	Bhandara	0.65	0.79	0.64	0.50	0.6
7	Buldana	6.52	5.69	7.19	6.50	6.5
8	Chandrapur	0.89	0.93	0.93	1.04	0.9
9	Dhule	1.60	1.47	1.89	1.51	1.6
10	Gadchiroli	0.16	0.21	0.18	0.21	0.1
11	Gondiya	0.33	0.38	0.36	0.32	0.3
12	Hingoli	3.37	3.25	3.60	3.66	3.4
13	Jalgaon	4.31	4.01	4.40	3.75	4.1
14	Jalna	4.41	5.51	4.74	5.39	5.0
15	Kolhapur	1.73	1.63	1.48	1.30	1.5
16	Latur	2.68	3.12	2.70	3.15	2.9
17	Mumbai	0.09	0.11	0.08	0.12	0.1
18	Mumbai suburban	0.02	0.02	0.00	0.00	0.0
19	Nagpur	1.67	1.84	1.59	1.56	1.6
20	Nanded	5.49	5.66	5.81	6.28	5.8
21	Nandurbar	0.29	0.35	0.27	0.24	0.2
22	Nasik	7.66	7.31	6.70	5.82	6.8
23	Osmanabad	3.31	3.81	3.24	3.45	3.4
24	Palghar	0.00	0.00	0.00	0.00	0.0
25	Parbhani	4.18	4.16	4.68	4.78	4.4
26	Pune	3.51	3.46	3.05	2.86	3.2
27	Raigarh	0.14	0.15	0.10	0.10	0.1
28	Ratnagiri	0.11	0.14	0.09	0.08	0.1
29	Sangli	2.75	2.42	2.18	1.89	2.2
30	Satara	2.10	1.98	1.83	1.58	1.8
31	Sindhudurg	0.11	0.11	0.08	0.06	0.0
32	Solapur	7.99	6.43	7.49	7.72	7.4
33	Thane	0.30	0.32	0.28	0.20	0.2
34	Wardha	1.21	1.31	1.25	1.20	1.2
35	Washim	3.16	2.77	3.81	3.69	3.3
36	Yavatmal	4.05	3.74	4.09	4.37	4.0
	Total	100.00	100.00	100.00	100.00	100.

Source: calculated from Table 1.1.

Overall, the questionnaire was addressed to the supervisors, FTAs and farmers who were both users as well as non-users. The sampling design can be observed In Table 1.3.

Table 1.3: Address of Questionnaire

Respondent	Number
Supervisor	2
Farmer Tele Adviser	30
Farmers who are users of KCC	80
Farmers who are non-users of KCC	20

The districts selected with respect to farmers who used KCC services and farmers who did not utilize such services can be observed from Table 1.4.

Table 1.4 : District wise selection of sample size of user and non-user farmers of KCC

District	Pune	Ahmednagar	Solapur	Osmanabad	Total
Users of KCC	38	25	10	7	80
Non-Users of KCC	-	20	-	-	20

From the data in Table 1.2, it can be observed that over the period 2013-14 and 2016-17, maximum calls were made by Ahmednagar and Solapur districts. The field work to select the user –farmers of KCC therefore started in these two districts. However, the field investigators were finding it very difficult to locate the users as they were spread far and wide and were not accessible on mobile phone. As many users possible, i.e 25 users in Ahmednagar and 10 users in Solapur, were addressed with the questionnaire. Farmers belonging to Pune district, who were more conversant with KCC were also selected to get their views on KCC. Finally, 10 farmers were selected from Osmanabad district, as this district is facing crisis in the agricultural sector. Therefore, overall four districts were covered in order to collect data on usage of KCC by farmers. This enabled us to obtain a broader perspective on views of farmers with respect to KCC over four districts of the state. With respect to non-users, Pune district was selected, as the largest number of users in the sample was from this district.

Thus with the above sample size, the study on Kisan Call centre, Kisan Knowledge Management System, Farmers’ Portal and M-Kisan Portal is conducted. A neatly designed and very detailed questionnaire has been addressed to all stakeholders

of the Kisan Call Centres, namely Supervisors, Farmer Tele Advisors, Farmers who avail of services of Kisan Call centres. A questionnaire has also been addressed to Non-Users of KCC services. A rating scale is used in the questionnaire which does the following rating:

Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree - 1

The first chapter which is introductory is followed by chapter 2 which first gives socio-economic characteristics of FTAs and farmers in the sample and then observes the profile of the KCC by addressing a detailed questionnaire to the two supervisors of the KCC. In chapter 3, the questionnaire addressed to FTAs is analysed while in chapter 4, the questionnaire addressed to farmers (both users and non-users) is analysed. In chapter 5 the policy issues to be addressed are discussed.

Chapter 2

Sample Profile of Kisan Call Centre (Maharashtra)

2.1 Backdrop:

The Kisan Call Centre for Maharashtra is located in Pune. The number of calls in Maharashtra has been increasing over the years. Before restructuring of KCCs in 2012, the number of calls from 2003-04 to 2012 were about 4 lakhs, but the number of calls significantly multiplied from 2013-14. In 2013-14, the number of calls received was 5.94 lakh which increased to 6.64 lakh in 2014-15. There was a further increase in number of calls received in 2015-16 to 8.35 lakh. This shows that after restructuring was done farmers began availing of the facility of KCC in a bigger way. However, if we take into consideration the number of farmers in each district, the average call per farmer is even less than one. This indicates that all farmers in the district are not regularly using services of KCCs.

In what follows, an attempt is made to understand the profile of the KCC office located in Pune.

2.2 Profile of FTAs and Farmers (Users and Non-Users of KCC Services) :

It can be observed from Table 2.1, that out of 30 FTA's who were addressed with a questionnaire, 56.67 percent were male and 43.3 percent were female.

Table 2.1 : Gender Profile of FTA's Surveyed

Gender	Number	Percent (%)
Male	17	56.67
Female	13	43.33
Total	30	100.00

Source : KCC survey, Pune.

The education profile of the KCC (Table 2.2) reveals that 80 percent of the FTAs were B.Sc. graduates while 13.33 percent were M.Sc. graduates.

Table 2.2: Education profile of FTAs surveyed

Degree	Number	Percent (%)
B.Sc.	24	80.00
M.Sc.	4	13.33
MBA	1	3.33
PGABM	1	3.33
Grand Total	30	100.00

Source : KCC survey, Pune.

The subject of specialization (Table 2.3) was mainly agriculture and 76.67 percent had passed out from Agricultural Universities. It was also observed that 73.3 percent of FTAs did not have work experience (Table 2.4).

Table: 2.3 Subjects of specialization of FTAs surveyed

Subjects	Number	Percent (%)
Agri. Business Management	1	3.33
Agricultural	23	76.67
Animal Husbandry	1	3.33
Business Management	1	3.33
Economics	1	3.33
Horticulture	1	3.33
Marketing	1	3.33
Sericulture	1	3.33
Grand Total	30	100.00

Source : KCC survey, Pune.

Table: 2.4 FTAs with Work Experience

	Number	Percent (%)
Yes	8	26.67
No	22	73.33
Total	30	100.00

Source : KCC survey, Pune.

The educational profile in the primary survey of 80 farmers who availed the services of KCCs is indicated in Table 2.5. It can be observed that 43.75 percent were higher secondary and 2.50 percent were illiterate. The caste profile (Table 2.6) indicated that 77.50 belonged to general/other categories. The age-profile indicated that 80 percent were between 18 to 49 years.

Table 2.5: Education profile of farmers (KCC user) sample

	Percent (%)
Post- Graduation	11.25
College	36.25
Higher Secondary	43.75
Primary	6.25
Illiterate	2.50
Total	100.00

Source : KCC survey, Pune.

Table 2.6: Caste profile of farmer (KCC users) sample

Caste	Percent (%)
Others/General	77.50
OBC	21.25
ST	0.00
SC	1.25
Total	100.00

Source : KCC survey, Pune.

Table 2.7: Age Profile Sample Farmers (KCC Users)

Age Group	Number	Per cent (%)
18-29	20	25.00
30-39	24	30.00
40-49	20	25.00
50-59	9	11.25
60-69	7	8.75
70 and Above	0	0.00
Total	80	100.00

Source : KCC survey, Pune.

A similar exercise was conducted with respect to non-user farmers of KCC services. It was observed that 45 percent were higher secondary pass and 25 percent were illiterate. With respect to caste (Table 2.9) it was observed that 55 percent were OBC category while 40 percent belonged to other/General category. The age profile of non-users showed that 45 percent were in the age group 50-59 years.

Table 2.8 : Education profile – Non-users

Education	Percent (%)
Post-Graduation	5.00
College	25.00
Higher Secondary	45.00
Primary	0.00
Illiterate	25.00
Total	100.00

Source : KCC survey, Pune.

Table 2.9 : Caste Profile-Non-Users

Caste	Per cent (%)
Others/General	40.00
OBC	55.00
ST	0.00
SC	5.00
Total	100.00

Source : KCC survey, Pune.

Table 2.10: Age Profile Farmers (Non-Users)

Age Group	Number	Percent (%)
18-29	0	0.00
30-39	3	15.00
40-49	4	20.00
50-59	9	45.00
60-69	3	15.00
70 and Above	1	5.00
Total	20	100.00

Source : KCC survey, Pune.

Chapter 3

Profile of Kisan Call Centre and Functioning

3.1 Backdrop :

Kisan Call Centres are supposed to play a very useful role in providing timely information to farmers. However, in order that they function efficiently, it is important that suitable infrastructure is in place, in terms of hardware, software and other facilities to FTAs. In the absence of a conducive environment, the supervisors as well as FTAs may not be able to function efficiently. Hence in this chapter the profile of KCC for Maharashtra and its functioning is observed.

3.2 Profile of Kisan Call Centre :

The Kisan Call Centre, located in Pune provides advisory services to farmers in Maharashtra and Goa. Prior to being stationed in Pune, it was located in Nagpur in 2004. However, when the KCC office was in Nagpur, its functioning was very limited due to inadequate infrastructure. The calls were received on landline and there were only 3 FTAs in each shift and one supervisor. The calls received per day were barely 200 and information available with FTAs was also very limited. However, in 2012 restructuring took place, and KCC office was established in Pune on 1st May 2012. After shifting to Pune, there was a huge change in the functioning of KCCs. The total number of FTAs increased to 69 (30 in each shift) and the states covered were Maharashtra and Goa languages used to answer queries were Marathi, Hindi and English (Table 3.1).

Table 3.1 : Profile of Kisan Call Centre

States Covered	Maharashtra, Goa
Languages Used	Marathi, Hindi, English
Number of FTA's	69

Source : KCC survey, Pune.

Table 3.2 : History of Development of Kisan Call Centre

	Location		
	1st	2nd	3rd
Year of Start/relocation	Nagpur 2004	Pune 2012	-
Number of FTA's	3 in each shift	27 in each shift	-
Number of KCC agents	1 in each shift	1 in each shift	

Source : KCC survey, Pune.

3.3 : Improvements in KCCs Post Restructuring :

The purpose of restructuring KCCs was to improve the software, hardware and also increase the scale of operations. Hence in the following questionnaires addressed to the two supervisors in the KCC office at Pune, (from Table 3.3 to Table3.8), an attempt is made to assess the improvement in the equipment and the software that is used.

From Table 2.13, it can be observed that there was remarkable improvement in the hardware as well as software after restructuring of KCCs. The KCC had two supervisors and both supervisors strongly agreed that there is better hardware, better software and much improved connectivity. They also had a data base of farmers and were in a position to respond to farmers' queries. All equipment installed in the KCC improved the efficiency of the KCC. By and large, responses related to hardware as well as software revealed that both supervisors felt that they were very satisfied and hence efficiency of KCC is enhanced.

Table 3.3 : Comparison of present and past KCC by Supervisors (Number)

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree
Better Hardware/equipment	2	-	-	-	-
Better Software	2	-	-	-	-
Better Connectivity	2	-	-	-	-
Better farmer database	2	-	-	-	-
Better ability to respond farmers calls	2	-	-	-	-

Source : KCC survey, Pune.

Note : The KCC has 2 supervisors. So 2 refers to response of both supervisors.

Table 3.4 : Present Hardware Profile

	Type	No.	Rating
PC's	HP	28	5
Headphones	JABRA	28	3.5
Printers and scanners	HP Lezor jet M12, 16	1	4.5

Source : KCC survey, Pune.

Table 3.5: Present Software Profile

Call Handling Softwares	Available	Rating
Agent Openscape Contact Centre	Yes	5
Openscape Desktop	Yes	5
Real Time Viewer	Yes	5

Source : KCC survey, Pune.

Table 3.6: Hardware Overall Ratings by Supervisors (Number)

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree
The Hardware is latest / up-to-date	2	0	0	0	0
It is fast	1	1	0	0	0
It is reliable	0	2	0	0	0
It is convenient to use for responding to farmer calls	1	1	0	0	0
It is well maintained	0	2	0	0	0
It can handle the call load	1	1	0	0	0
It does not breakdown frequently	0	1	1	0	0
It works even in power outage	1	1	0	0	0
The computer display is good	1	1	0	0	0
The interface of keyboard & mouse is good	0	2	0	0	0
Mouse work well	0	1	1	0	0
Headset are comfortable and work well	1	1	0	0	0
The peripheral such as printer and scanner are good	0	2	0	0	0
The hardware is good for the work requirements	1	0	0	0	0

Source : KCC survey, Pune. Note : 1 refers to response of 1 supervisor (out of 2) and 2 refers to response of both the supervisors.

Table 3.7: Software Overall Ratings(Number)

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree
The software is up-to-date	2	0	0	0	0
It is fast	0	2	0	0	0
It is user friendly	1	1	0	0	0
The screen interface it shows is good & useful	1	1	0	0	0
Calls can be handled easily	1	1	0	0	0
The voice quality is good & clear	1	1	0	0	0
Calls do not get dropped, lost or mishandled by the software	1	0	1	0	0
The software can handle heavy call traffic	0	2	0	0	0
Caller details can be easily recorded and registered	0	2	0	0	0
Question details can be easily & quickly recorded	1	1	0	0	0
Answers can be easily found in the database	0	2	0	0	0
The database is adequate for answering questions	0	1	1	0	0
Answer details can be easily recorded & saved	1	0	1	0	0
All the call & answer details can be easily reviewed later	1	1	0	0	0
Call data can be easily analyzed daily/weekly/monthly/yearly	1	1	0	0	0
Software does not frequently crash	0	2	0	0	0
The system is not affected by viruses & is well protected	1	1	0	0	0
It is easy to transfer calls to other FTAs or supervisor	1	1	0	0	0
It is easy to escalate calls to higher levels	1	1	0	0	0
It is easy to monitor & supervise the call & FTA activity	1	1	0	0	0
The software meets the requirements	1	1	0	0	0

Source : KCC survey, Pune. Note : 1 refers to response of supervisor 1 (out of 2) and 2 refers to response of both the supervisors.

Both the supervisors agreed (one supervisor strongly agreed) that internet connectivity is very important for call handling process and if the speed is slow it could hinder the performance of call handling. The internet also did not slow down during heavy call loads.

Table 3.8: Internet Connectivity (Number)

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree
Internet connectivity is very important for call handling process	1	1	0	0	0
A slow internet speed hinders the performance of call handling	0	2	0	0	0
During heavy call loads, the internet does not slow down	0	2	0	0	0
The internet connectivity is fast enough for responding to calls	1	1	0	0	0
It helps in maintaining the call quality	0	0	0	0	0
The internet connectivity is fast enough for retrieving & recording information	0	0	0	0	0
The internet connectivity does not frequently breakdown	0	0	0	0	0
The internet connectivity is adequate for the work	0	0	0	0	0

Source : KCC survey, Pune. . Note : 1 refers to response of 1 supervisor (out of 2) and 2 refers to response of both the supervisors.

3.4 Infrastructure of KCC:

The infrastructure at the KCC can be observed from Table 3.9 to Table3.10. The KCC (Table 3.9) has 5 ACs installed and other facilities such as CCTVs, drinking water facilities, washroom and dining facilities. However, personal visit to KCC centre revealed that considering that washroom is utilized by 60 FTAs in a day (30 in each shift), the washroom facility is not enough and needs more maintenance.

From Table3.10, it can be observed that both supervisors only partially agreed that the office space was adequate. One supervisor disagreed on the activity area of each FTA being sufficient and felt co workers can get disturbed while calls are being answered. There was also other noise from department and perhaps video surveillance was not sufficient for monitoring.

Table 3.9: Infrastructure/ Office Equipment's

Facilities	No.
No. of AC's Installed	5
No. of CCTV Cameras	1
Drinking Water Facility	1
Washroom Facility	1
Lunch/Dinner Facility	1

Source : KCC survey, Pune.

Table 3.10: Infrastructure Rating (Number)

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree
The office space is adequate	0	0	2	0	0
The activity area of each FTA is sufficient	1	0	0	1	0
The activity area of each FTA is well separated	0	2	0	0	0
Co-workers working does not get disturbed while answering of calls	0	1	0	1	0
Lighting is sufficient	0	2	0	0	0
There is adequate ventilation	0	1	0	1	0
Video surveillance is sufficient for monitoring	0	0	1	1	0
Power cuts are not frequent	0	2	0	0	0
Other departments noise does not hinders your answering efficiency	0	1	0	1	0
Supporting facilities & utilities are adequate	0	2	0	0	0
Overall there is good working environment	0	2	0	0	0

Source : KCC survey, Pune. . Note : 1 refers to response of 1 supervisor (out of 2) and 2 refers to response of both the supervisors.

3.5 Efficiency of FTAs :

Since FTAs are the main source of extension service to farmers, it is useful to judge their efficiency and also the sources of knowledge, the training programmes, etc. The same is indicated from Table 3.11 onwards. One supervisor strongly agreed and the other one only agreed that FTAs are efficient in responding to calls, answer the queries and also access the database/information to answer the questions. Both supervisors partially agreed that FTAs are motivated and one supervisor only partially agreed that FTAs take good initiative to improve, innovate and perform better. One supervisor felt that FTAs need supervision while performing work.

Table 3.11: Assessment of FTA Efficiency (Number)

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree
FTAs are quick in responding to calls	1	1	0	0	0
FTAs are able to handle the hardware and software	1	1	0	0	0
FTA's are able to manage the calls efficiently.	1	1	0	0	0
The FTAs have sufficient knowledge & capability to answer questions	1	1	0	0	0
FTAs are generally able to answer the questions by themselves	1	1	0	0	0
FTAs are able to quickly access the database/information to answer questions	1	1	0	0	0
FTAs often take the help of colleagues to answer questions	0	2	0	0	0
FTAs often escalate to higher levels to answer questions	0	0	0	2	0

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree
FTAs are able to satisfactorily find answer the farmers questions	0	2	0	0	0
FTAs properly record the questions and answers	1	1	0	0	0
FTAs do not need much supervision	0	1	0	1	0
FTAs show good discipline, attendance & punctuality	0	1	1	0	0
FTAs are well motivated	0	0	2	0	0
FTAs take good initiative to improve, innovate and perform better	0	1	1	0	0
FTAs are well trained	1	1	0	0	0
FTA's activities are well monitored/ supervised	1	1	0	0	0
Overall the performance of the FTAs is good	0	2	0	0	0

Source : KCC survey, Pune. . Note : 1 refers to response of 1 supervisor (out of 2) and 2 refers to response of both the supervisors.

3.6 Assessment of Knowledge sources :

An FTA can answer queries of farmers and impart perfect information only if he has the appropriate knowledge and access to information. Hence in Table 3.12 an assessment on information and knowledge sources as well as data base is indicated.

Both supervisors indicated that the FTAs had good self knowledge. One supervisor felt that FTAs did not prepare excel sheets and data on material available. However, there appeared to be a major problem on knowledge sources with respect to material from government sources, University experts and even field sources. This appears to be a major problem as it is likely to hamper the efficiency of the FTAs and they will not be in a position to respond to certain queries of farmers.

Table 3.12: Assessment of information & knowledge sources and databases uses

(Number)

	Excellent	Good	Satisfactory	Somewhat poor	Very poor
Self-Knowledge	0	2	0	0	0
Colleagues & Supervisor	0	2	0	0	0
Prepared Excel sheets & material	0	0	1	0	1
Internet search	0	2	0	0	0
Extension Booklets, books, papers	0	0	1	0	1
Government department sources/material	0	0	0	0	2
Knowledge acquired in Training	1	0	1	0	0
University experts/Nodal officer knowledge	0	0	0	0	2
Information from other farmers	0	1	1	0	0
Field Inquiry	0	0	0	0	2
Other sources (Please Specify)	0	0	0	0	0

Source : KCC survey, Pune. . Note : 1 refers to response of 1 supervisor (out of 2) and 2 refers to response of both the supervisors.

From Table 3.13, it can be observed that both supervisors felt that for information and knowledge sources, the FTAs depended on self knowledge and internet search very frequently. The colleagues and supervisors were frequently referred to for obtaining information. However, on certain aspects such as knowledge from Nodal officer or field inquiry, both the supervisors responded that such sources were never resorted to. Also extension booklets and papers were rarely used. Hence the overall conclusion appears that for information and knowledge by FTAs was most often obtained from their own knowledge as well as from internet search.

The overall assessment on information provided (Table3.14) reveals that the supervisors were not confident on whether up-to date answers on technical questions, questions related to government schemes, market related questions or those related to weather were given. It was also not clear whether farmers were satisfied with the information that they were provided.

As observed earlier, FTAs very frequently used internet for knowledge and in Table 3.15 the various websites used is indicated. KKMS, AgMarket, Agricultural University Portal etc were used constantly and consistently. The assessment of KKMS portal was very frequently used, easy to use and organization of information on the system screen was clear. Both supervisors strongly agreed to these aspects of the website. However, with respect to information on the website being regularly updated, one response indicated strong disagreement. The overall picture that emerges is that although the KKMS portal is user friendly, there is scope to improve the website by getting it regularly updated.

Table 3.13: Assessment of information & knowledge sources and databases uses (Number)

	Very frequently	Frequently	Occasionally	Rarely	Never
Self-Knowledge	2	0	0	0	0
Colleagues & Supervisor	1	1	0	0	0
Prepared Excel sheets & material	0	0	1	0	1
Internet search	2	0	0	0	0
Extension Booklets, books, papers	0	0	1	0	1
Government department sources/material	1	0	0	0	1
Knowledge acquired in Training	0	0	1	1	0
University experts/Nodal officer knowledge	0	0	1	0	1
Information from other farmers	0	0	1	0	1
Field Inquiry	0	0	0	0	2
Other sources (Please Specify)	0	0	0	0	0

Source : KCC survey, Pune. . Note : 1 refers to response of 1 supervisor (out of 2) and 2 refers to response of both the supervisors.

Table 3.14 : Websites used for information source (%) usage in percentage of time

Websites	
Farmer's Portal	85
Kisan Knowledge Management System	100
AgMarket	100
Agricultural University Portal	100
I-Kedut Portal	100
State Seeds Corporation Ltd	85
Accuweather	100

Source : KCC survey, Pune.

Table 3.15 : Assessment of KKMS Portal (Frequency)

	Strongly Agree	Agree	Partially Agree/disagree	Disagree	Strongly Disagree
KKMS website is frequently used	2	0	0	0	0
KKMS website is easy to use	2	0	0	0	0
The organization of information on the system screens is clear	2	0	0	0	0
KKMS website response is fast enough	0	2	0	0	0
Work can get quickly done on the website	1	1	0	0	0
KKMS website is very useful	1	1	0	0	0
Information on the website is regularly updated	0	0	1	0	1
KKMS website does not fail to respond or crash during use	0	1	1	0	0
Overall the KKMS website works well	0	2	0	0	0

Source : KCC survey, Pune. . Note : 1 refers to response of 1 supervisor (out of 2) and 2 refers to response of both the supervisors.

Table 3.16: Assessment of Farmer Portal Website (Frequency)

	Strongly Agree	Agree	Partially Agree/disagree	Disagree	Strongly Disagree
The website is frequently used	1	1	0	0	0
The website is easy to use	1	1	0	0	0
The organization of information on the system screens is clear	1	1	0	0	0
The website response is fast enough	1	1	0	0	0
Work can get quickly done on the website	0	2	0	0	0
The website is very useful	1	1	0	0	0
Information on the website is regularly updated	1	0	1	0	0
The website does not fail to respond or crash during use	1	1	0	0	0
Overall the website works well	1	1	0	0	0

Source : KCC survey, Pune. . Note : 1 refers to response of 1 supervisor (out of 2) and 2 refers to response of both the supervisors.

An important feature of the KCC is that there is call escalation which means that if the FTA is unable to answer the query of the farmer, it is escalated to higher levels. However, it was revealed from Table 3.17 that only one supervisor agreed that queries which could not be solved by FTAs are answered by colleagues while the other supervisor disagreed that queries are answered by colleagues. Again, only one supervisor agreed that calls not answered by colleagues are answered by supervisors while the other supervisor disagreed on this point. Both supervisors strongly disagreed that calls are escalated to level 2 or 3.

Table 3.17: Call Escalation System Frequency

1. Frequency of Level 1 calls		Strongly Agree	Agree	Partially Agree/disagree	Disagree	Strongly Disagree	No. of Call per Day
1	Queries not solved by FTA's are answered by colleagues	0	1	1	0	0	20
2	Queries not solved by colleagues are answered by Supervisors	0	1	0	1	0	35
3	Queries not solved by supervisors are escalated to level 2	0	0	0	0	2	0
2. Frequency of Level 2 calls							
1	Frequency of calls escalated to level 2	0	0	0	0	2	0
2	Queries not solved in level 2 are escalated to level 3	0	0	0	0	2	0
3. Frequency of Level 3 calls							
1	Frequency of calls escalated to Level 3	0	0	0	0	2	0
2	Queries are solved at level 3	0	0	0	0	2	0

Source : KCC survey, Pune. . Note : 1 refers to response of 1(out of 2) supervisor (out of 2) and 2 refers to response of both the supervisors

Table 3.18 : Assessing the call answering system efficiency & effectiveness (Frequency)

	Strongly Agree	Agree	Partially Agree/disagree	Disagree	Strongly Disagree
Generally, the FTAs are able to answer and handle the questions	1	1	0	0	0
Queries not solved by FTA's are well answered by colleagues	1	1	0	0	0
Queries not solved by colleagues are well answered by Supervisors	0	1	0	1	0
Queries not solved by supervisors are easily escalated to level 2	0	1	0	0	1
Queries escalated to level 2 are well attended by State Agriculture Experts	0	1	0	0	1
Level 2 experts speedily attend to the queries	0	0	0	1	1
Level 2 experts satisfactorily attend to the queries	0	0	0	1	1
Queries not solved in level 2 are escalated to level 3	0	0	0	0	2
Queries escalated to level 3 are well attended by Nodal officer	0	0	0	0	2
Nodal officers respond to farmers by call/SMS/post/email	0	0	0	0	2
Overall the call answering system is adequate	0	2	0	0	0

Source : KCC survey, Pune. . Note : 1 refers to response of 1 supervisor (out of 2) and 2 refers to response of both the supervisors.

FTAs attended training programmes, in order to update their knowledge and therefore be in a better position to answer the queries of farmers. However, one supervisor disagreed that the training programme helps in understanding call handling procedure of the KCC and also in operating the hardware as well as software. Also, both supervisors strongly agreed that more and better training is required and also the training should be regular and not occasional.

The overall assessment of call handling indicated that one supervisor strongly disagreed that large number of calls are received every day and one supervisor disagreed that all calls are handled efficiently. Supervisors did not give any response with respect to the overall functioning of the hardware or software.

The overall assessment of the information and knowledge available revealed that information is easily available; it is up to date and available on time. The FTAs also have sufficient knowledge and farmers are satisfied with the information given to them.

Table 3.19 : Overall assessment of usefulness of training programmes (Frequency)

	strongly Agree	Agree,	Partially Agree/Disagree,	Disagree	strongly Disagree
It helps in understanding call handling procedure of the KCC	0	1	0	1	0
It helps in operating of the hardware	0	1	0	1	0
It helps in operating of the software	0	1	0	1	0
It helps in understanding questions of farmer	1	1	0	0	0
It helps in how to handle the questions of farmer	0	2	0	0	0
It helps in getting the necessary knowledge	1	1	0	0	0

	strongly Agree	Agree,	Partially Agree/Disagree,	Disagree	strongly Disagree
It helps in updating knowledge	1	1	0	0	0
It helps in getting knowledge of government schemes	0	0	1	0	1
More & better training is required	2	0	0	0	0
It should be regularly given to all FTA's	2	0	0	0	0
Overall the available training is useful & sufficient	0	0	1	1	0

Source : KCC survey, Pune. . Note : 1 refers to response of 1 supervisor (out of 2) and 2 refers to response of both the supervisors.

Table 3.20: Overall Assessment of call handling

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average
Large number of calls are received everyday	0	0	0	0	1	0.5
All calls are handled efficiently	0	0	0	1	0	0.5
Call handling system are good	-	-	-	-	-	-
Farmer & FTA have good communication	-	-	-	-	-	-
Overall the farmers are satisfied with call handling	-	-	-	-	-	-

Source : KCC survey, Pune. . Note : 1 refers to response of 1 supervisor (out of 2) and 2 refers to response of both the supervisors.

Table 3.21: Overall Assessment of the information & knowledge available (Frequency)

	Strongly Agree	Agree	Partially Agree/ Disagree	Disagree	Strongly Disagree
Information is easily available	0	2	0	0	0
Important and critical information required is easily available	0	1	1	0	0
There is sufficient information & knowledge with the FTA's	0	2	0	0	0
The information is reliable	1	1	0	0	0
The information is up-to-date	0	2	0	0	0
The information is available on time	0	2	0	0	0
Information available is easy to understand	1	1	0	0	0
Farmers can understand the information and process it easily	1	1	0	0	0
Farmers seem to be satisfied with the information provided	1	1	0	0	0
Overall there is sufficient & quality information available to answer farmers questions	0	1	1	0	0

Source : KCC survey, Pune. . Note : 1 refers to response of 1 supervisor (out of 2) and 2 refers to response of both the supervisors.

Chapter 4

Results : Farmer Tele Adviser (FTA) Survey

4.1 Backdrop :

The role of FTA in Kisan Call Centre is of utmost importance because he/she is the first level where the call is handled. The FTA is required to refer to Farmers Portal and all other relevant websites to answer the queries of the farmers. He must therefore have easy online access to the various websites as they are expected to use the data base extensively. This will enable farmers to get timely, correct and useful information which they can use for their agricultural practices and thus increase farm productivity.

4.2 Status of Hardware, Software and Internet Connectivity:

The status of hardware, software and internet connectivity can be observed from Table 4.1 to 4.3. With respect to hardware more than half the FTAs responded that the hardware is latest and up to date, it is fast, reliable, well maintained and interface of keyboard & mouse is good. However 50 percent FTAs partially agreed/disagreed that the hardware breaks down frequently, 36.67 percent disagreed that headsets are comfortable and work well and 46.67 percent strongly disagreed that peripherals such as printer and scanner work well. This indicates the need to improve accessories such as headsets, printer, scanner, etc.

With respect to software, more than 50 percent FTAs agreed that it was user friendly in most aspects but 33.3 percent partially agreed/disagreed that the software could handle heavy traffic and does not crash frequently. Also more than half the FTAs agreed the importance of good internet connectivity. However 40 percent agreed/disagreed that during heavy call loads, the internet does not slow down.

Table 4.1: Rating of Hardware - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
The hardware is latest/up-to-date	13.33	50.00	30.00	6.67	0.00	3.7
It is Fast	23.33	53.33	13.33	10.00	0.00	3.9
It is reliable	33.33	53.33	10.00	3.33	0.00	4.1
It is convenient to use for responding to farmer calls	23.33	56.67	16.67	3.33	0.00	4.0
It is well maintained	10.00	46.67	26.67	16.67	0.00	3.5
It can handle the call load	20.00	43.33	26.67	10.00	0.00	3.7
It does not breakdown frequently	0.00	26.67	50.00	20.00	3.33	3.0
It works even in power outage	26.67	46.67	13.33	13.33	0.00	3.8
The computer display is good	50.00	36.67	6.67	6.67	0.00	4.3
The interface of keyboard & mouse is good	10.00	50.00	13.33	23.33	3.33	3.4
Headsets are comfortable and work well	3.33	20.00	23.33	36.67	16.67	2.5
The peripherals such as printer and scanner are good	3.33	13.33	26.67	10.00	46.67	2.1
The hardware is good for the work requirements	13.33	33.33	40.00	3.33	10.00	3.3
Mouse quality is good	13.33	33.33	30.00	10.00	13.33	3.2

Source : Field Survey

Strongly Agree -5; Agree -4; Partially Agree/Disagree - 3; Disagree - 2;

Strongly Disagree - 1

Table 4.2: Rating of Software - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
The software is up-to-date	30.00	50.00	13.33	6.67	0.00	4.03
It is fast	26.67	56.67	10.00	6.67	0.00	4.03
It is user friendly	23.33	63.33	6.67	6.67	0.00	4.03
The screen interface it shows is good & useful	33.33	46.67	20.00	0.00	0.00	4.13
Calls can be handled easily	23.33	60.00	10.00	6.67	0.00	4.00
The voice quality is good & clear	6.67	50.00	30.00	13.33	0.00	3.50
Calls do not get dropped, lost or mishandled by the software	10.00	60.00	10.00	20.00	0.00	3.60
The software can handle heavy call traffic	16.67	43.33	33.33	6.67	0.00	3.70
Software does not frequently crash	33.33	56.67	10.00	0.00	0.00	4.23
Caller details can be easily recorded and registered	26.67	56.67	13.33	3.33	0.00	4.07
Question details can be easily & quickly recorded	23.33	56.67	13.33	3.33	3.33	3.93
Answers can be easily found in the available database	20.00	40.00	23.33	16.67	0.00	3.63
The database is adequate for answering questions	30.00	53.33	16.67	0.00	0.00	4.13
Answer details can be easily recorded and saved	23.33	26.67	30.00	16.67	3.33	3.50
All the calls and answers details can be easily reviews later	26.67	46.67	13.33	10.00	3.33	3.83
Call data can be easily analyzed daily/week/monthly/yearly	6.67	56.67	23.33	13.33	0.00	3.57

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
Software dose not frequently crash	6.67	20.00	33.33	30.00	10.00	2.83
Repeated Irrelevant calls can be blocked by the software	20.00	53.33	16.67	10.00	0.00	3.83
The system is not affected by viruses and is well protected	20.00	50.00	16.67	10.00	3.33	3.73
It is easy to escalate calls to higher levels	23.33	56.67	10.00	10.00	0.00	3.93

Source : Field Survey, Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree - 1

Table 4.3: Internet Connectivity - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
Internet connectivity is very important for call handling process	43.33	50.00	6.67	0.00	0.00	4.37
A slow internet speed hinders the performance of call handling	13.33	53.33	20.00	6.67	6.67	3.60
During heavy call loads, the internet does not slow down	0.00	30.00	40.00	30.00	0.00	3.00
Internet connectivity is fast enough for responding to calls	13.33	46.67	33.33	3.33	3.33	3.63
It helps in maintaining the call quality	20.00	60.00	10.00	6.67	3.33	3.87
Internet connectivity is fast enough for retrieving & recording information	13.33	60.00	13.33	13.33	0.00	3.73
Internet connectivity does not frequently breakdown	10.00	36.67	33.33	16.67	3.33	3.33
Internet connectivity is adequate for the work	26.67	50.00	10.00	10.00	3.33	3.87

Source : Field Survey

4.3 Information and Knowledge sources used by FTAs:

The information and knowledge sources used by FTAs are indicated from Table 4.4 to 4.7. It can be observed that the most frequent source of knowledge was self knowledge. With respect to material from Government department, 40 percent indicated that they rarely resorted to this source and 50 percent never used field inquiry as a source of knowledge. About 26.67 percent indicated that extension booklets, books and papers were never used for updating their knowledge. Little more than 30 percent rarely or never used University experts or Nodal officers or even obtained information from other farmers to update their knowledge.

Table 4.4: Frequency of Knowledge Sources used for Answering - Percent

	Very Frequently	Frequently	Occasionally	Rarely	Never	Average Rating
Self-Knowledge	33.33	66.67	0.00	0.00	0.00	4.33
Colleagues & Supervisor	33.33	40.00	26.67	0.00	0.00	4.07
Prepared Excel sheets & material	43.33	43.33	10.00	3.33	0.00	4.27
Internet search	50.00	46.67	3.33	0.00	0.00	4.47
Extension Booklets, books, papers	10.00	30.00	16.67	16.67	26.67	2.80
Government department sources/material	0.00	23.33	33.33	40.00	3.33	2.77
Knowledge acquired in Training	10.00	50.00	20.00	20.00	0.00	3.50
University experts/Nodal officer knowledge	16.67	23.33	33.33	6.67	20.00	3.10
Information from other farmers	10.00	20.00	40.00	23.33	6.67	3.03
Field Inquiry	0.00	6.67	10.00	33.33	50.00	1.73

Source : Field Survey ; 5-Very Frequently; 4-Frequently; 3-Occasionally; 2-Rarely; 1-Never

Table 4.5: Rating information & knowledge sources used - Percent

	Excellent	Good	Satisfactory	Somewhat Poor	Very Poor	Average Rating
Self-Knowledge	56.67	43.33	0.00	0.00	0.00	4.57
Colleagues & Supervisor	3.33	50.00	43.33	3.33	0.00	3.53
Prepared Excel sheets & material	23.33	56.67	20.00	0.00	0.00	4.03
Internet search	43.33	30.00	16.67	3.33	6.67	4.00
Extension Booklets, books, papers	10.00	16.67	20.00	26.67	26.67	2.57
Government department sources/material	13.33	16.67	30.00	36.67	3.33	3.00
Knowledge acquired in Training	10.00	46.67	26.67	13.33	3.33	3.47
University experts/ Nodal officer knowledge	10.00	10.00	43.33	20.00	16.67	2.77
Information from other farmers	3.33	13.33	43.33	30.00	10.00	2.70
Field Inquiry	6.67	10.00	16.67	20.00	46.67	2.10

Source : Field Survey, Excellent-5; Good-4;Satisfactory – 3;Somewhat Poor – 2; Very Poor- 1

Table 4.6: Frequency of updating the information in the sources - Percent

	Very Frequently	Frequently	Occasionally	Rarely	Never	Average Rating
Self-Knowledge	36.67	60.00	3.33	0.00	0.00	4.33
Colleagues & Supervisor	20.00	50.00	23.33	6.67	0.00	3.83
Prepared Excel sheets & material	23.33	46.67	23.33	3.33	3.33	3.83
Internet search	53.33	36.67	10.00	0.00	0.00	4.43
Extension Booklets, books, papers	10.00	20.00	16.67	26.67	26.67	2.60
Government department sources/material	3.33	40.00	23.33	30.00	3.33	3.10
Knowledge acquired in Training	6.67	43.33	33.33	13.33	3.33	3.37
University experts/Nodal officer knowledge	6.67	36.67	20.00	20.00	16.67	2.97
Information from other farmers	13.33	30.00	23.33	20.00	13.33	3.10
Field Inquiry	0.00	10.00	13.33	30.00	46.67	1.87

Source : Field Survey, 5-Very Frequently; 4-Frequently; 3-Occasionally; 2-Rarely; 1-Never

Table 4.7: Overall Assessment of the Information Sources used for providing technical information - Percent

	Strongly Agree	Agree	Partially Agree/ Disagree	Disagree	Strongly Disagree	Average Rating
Information is easily available	36.67	56.67	6.67	0.00	0.00	4.30
Important and critical information required is easily available	10.00	63.33	26.67	0.00	0.00	3.83
The information is reliable	26.67	53.33	16.67	3.33	0.00	4.05
The information is up-to-date	10.00	53.33	20.00	13.33	3.33	3.53
the information is available on time	16.67	60.00	16.67	3.33	3.33	3.83
information available is easy to understand	30.00	60.00	10.00	0.00	0.00	4.20
Farmers can understand the information and process it easily	23.33	60.00	16.67	0.00	0.00	4.07
Farmers seem to be satisfied with the information provided	16.67	76.67	3.33	0.00	3.33	4.03
Overall there is sufficient & quality information available to answer farmer's questions	6.67	70.00	16.67	3.33	3.33	3.73

Source : Field Survey, Strongly Agree -5; Agree -4; Partially Agree/Disagree - 3; Disagree - 2; Strongly Disagree - 1

4.4 Overall assessment of Information from Various Source :

The FTAs obtain information from various sources on government schemes, market prices, Kisan Knowledge Management System (KKMS), Farmers Portal, m-Kisan website, and the overall assessment of the information, etc. From Table 4.8 to Table 4.13 the ease with which the information can be accessed is indicated.

With respect to government schemes while by and large a little more or a little less of 50 percent of FTAs agreed that the information is easily available, reliable, easy to understand about 30 percent partially agreed/disagreed that information is up-to date or farmers are satisfied with the information provided. However, this finding does not match with our general discussion with officials at KCC and IFFCO who indicated that there was severe lack of information on government schemes and queries related to this aspect could not be resolved.

About three fourths either strongly agreed or agreed that price and market information was easily accessible and farmers were satisfied with the answers received from FTAs. Similarly more than three-fourths of FTAs strongly agreed or agreed that KKMS website was user friendly, though 23.3 percent disagreed that changes can be made in the information after it is recorded. With respect to Farmers Portal also the response of FTAs was encouraging but 36.67 percent partially agreed/disagreed that the information is regularly updated. The m-Kisan website response was also on the favorable side and three fourths of FTAs strongly agreed about smooth working of the website.

Table 4.8: Overall Assessment of the Information Sources used for providing government schemes related information - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
Information is easily available	23.33	60.00	13.33	0.00	3.33	4.00
Important and critical information required is easily available	10.00	60.00	23.33	3.33	3.33	3.70
The information is reliable	13.33	56.67	23.33	6.67	0.00	3.77
The information is up-to-date	13.33	46.67	30.00	6.67	3.33	3.60
The information is available on time	20.00	46.67	23.33	6.67	3.33	3.73
Information available is easy to understand	16.67	66.67	13.33	0.00	3.33	3.93
Farmers can understand the information and process it easily	10.00	56.67	23.33	6.67	3.33	3.63
Farmers seem to be satisfied with the information provided	10.00	50.00	30.00	6.67	3.33	3.57
Overall there is sufficient & quality information available to answer farmer's questions	16.67	53.33	23.33	3.33	3.33	3.77

Source : Field Survey ; Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree - 1

Table 4.9: Overall Assessment of the Information Sources used for providing price and market related information - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
Information is easily available	36.67	56.67	6.67	0.00	0.00	4.30
Important and critical information required is easily available	33.33	43.33	20.00	0.00	3.33	4.03
The information is reliable	20.00	53.33	20.00	3.33	3.33	3.83
The information is up-to-date	26.67	43.33	20.00	6.67	3.33	3.83
The information is available on time	23.33	46.67	23.33	3.33	3.33	3.83
Information available is easy to understand	30.00	53.33	10.00	3.33	3.33	4.03
Farmers can understand the information and process it easily	26.67	60.00	10.00	0.00	3.33	4.07
Farmers seem to be satisfied with the information provided	30.00	46.67	13.33	3.33	6.67	3.90
Overall there is sufficient & quality information available to answer farmer's questions	30.00	50.00	13.33	3.33	3.33	4.00

Source : Field Survey, Strongly Agree -5; Agree -4; Partially Agree/Disagree - 3; Disagree - 2; Strongly Disag

Table 4.10 Overall Assessment of the above Information Sources for Other information used - percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
Information is easily available	50.00	46.67	3.33	0.00	0.00	4.47
Important and critical information required is easily available	26.67	66.67	6.67	0.00	0.00	4.20
The information is reliable	23.33	63.33	13.33	0.00	0.00	4.10
The information is up-to-date	20.00	60.00	16.67	3.33	0.00	3.97
The information is available on time	36.67	50.00	13.33	0.00	0.00	4.23
Information available is easy to understand	36.67	53.33	10.00	0.00	0.00	4.27
Farmers can understand the information and process it easily	16.67	73.33	10.00	0.00	0.00	4.07
Farmers seem to be satisfied with the information provided	30.00	53.33	16.67	0.00	0.00	4.13
Overall there is sufficient & quality information available to answer farmer's questions	20.00	56.67	23.33	0.00	0.00	3.97

Source : Field Survey ; Strongly Agree -5; Agree -4; Partially Agree/Disagree - 3; Disagree - 2; Strongly Disagree - 1

Table 4.11: Assessment of Kisan Knowledge Management System (KKMS) Website - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
KKMS website is easy to use	50.00	50.00	0.00	0.00	0.00	4.50
The organization of information on the system screens is clear	53.33	40.00	6.67	0.00	0.00	4.47
KKMS website response is fast enough	33.33	60.00	6.67	0.00	0.00	4.27
Work can get quickly done on the website	36.67	50.00	13.33	0.00	0.00	4.23
Information on the website is regularly updated	33.33	53.33	13.33	0.00	0.00	4.20
KKMS website does not fail to respond or crash during use	16.67	56.67	20.00	6.67	0.00	3.83
More information can be added to the website	30.00	56.67	10.00	3.33	0.00	4.13
Errors made during recording the details can be rectified	6.67	46.67	33.33	10.00	3.33	3.43
You can make changes in the information after the information is recorded	16.67	23.33	30.00	23.33	6.67	3.20
Retrieving information from KKMS is easy	16.67	46.67	23.33	13.33	0.00	3.67
Yesterday's data can be easily accessed in KKMS	23.33	30.00	23.33	20.00	3.33	3.50
Overall the KKMS website works well	23.33	56.67	13.33	6.67	0.00	3.97

Source : Field Survey ; Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree - 1

Table 4.12: Assessment of Farmers Portal Website - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
The website is frequently used	23.33	66.67	6.67	3.33	0.00	4.10
The website is easy to use	36.67	50.00	13.33	0.00	0.00	4.23
The organization of information on the system screens is clear	23.33	66.67	10.00	0.00	0.00	4.13
The website response is fast enough	30.00	46.67	20.00	3.33	0.00	4.03
Work can get quickly done on the website	16.67	60.00	20.00	3.33	0.00	3.90
The website is very useful	26.67	50.00	20.00	3.33	0.00	4.00
Information on the website is regularly updated	20.00	40.00	36.67	0.00	3.33	3.73
The website does not fail to respond or crash during use	16.67	53.33	26.67	0.00	3.33	3.80
Overall the website works well	13.33	70.00	16.67	0.00	0.00	3.97

Source : Field Survey, Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree - 1

Table 4.13: Assessment of m-Kisan Website - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
The website is frequently used	10.00	60.00	26.67	3.33	0.00	3.77
The website is easy to use	23.33	60.00	16.67	0.00	0.00	4.07
The organization of information on the system screens is clear	23.33	60.00	13.33	3.33	0.00	4.03
Registration of SMS is easy	30.00	46.67	13.33	10.00	0.00	3.97
List of services available are useful	3.33	80.00	10.00	3.33	3.33	3.77
The website response is fast enough	10.00	66.67	23.33	0.00	0.00	3.87
Work can get quickly done on the website	16.67	56.67	20.00	6.67	0.00	3.83
The website is very useful	10.00	63.33	20.00	6.67	0.00	3.77
Information on the website is regularly updated	13.33	60.00	23.33	3.33	0.00	3.83
The website does not fail to respond or crash during use	3.33	60.00	33.33	0.00	3.33	3.60
Overall the website works well	13.33	73.33	10.00	3.33	0.00	3.97

Source : Field Survey, Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree - 1

4. 5 Assessing Call Efficiency :

It is important to assess the efficiency with which the FTAs can handle calls and hence the same is observed in Table 4.14 and Table 4.15. While 66.67 percent of FTAs indicated that call clarity is good and farmers do not face any difficulty in understanding the dialect and overall call efficiency is good, about 30 percent partially agreed/disagreed that call drops are less. Also a little more than 40 percent of FTAs partially agreed/ disagreed about getting irrelevant calls and facing abusive language. This issue is unfortunate and farmers must be discouraged from doing so.

About three fourths of the FTAs together either strongly agreed or only agreed that they were in a position to handle the questions, queries not solved by them were well handled by their colleagues or supervisors. However about 50 percent FTAs disagreed or strongly disagreed that queries not solved in level 2 are escalated to level 3, or are well attended by Nodal officers or even responded to farmers by e mail, SMS/post. Hence it appears that FTAs did not have enough faith in level 2 or level 3.

Table 4.14: Assessing Call Efficiency - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
Voice reception over the phone is clear	10.00	46.67	33.33	10.00	0.00	3.57
During slow internet, voice reception is clear	13.33	43.33	26.67	13.33	3.33	3.50
Call drops are very less	16.67	46.67	30.00	6.67	0.00	3.73
Call clarity is good	10.00	66.67	16.67	6.67	0.00	3.80
It is easy to understand the queries from farmers	20.00	70.00	10.00	0.00	0.00	4.10
You are able to easily understand various dialects	16.67	73.33	10.00	0.00	0.00	4.07
Farmers does not face difficulty in understanding your dialect	16.67	66.67	16.67	0.00	0.00	4.00

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
Farmers does not face difficulty in understanding scientific/technical words	10.00	60.00	30.00	0.00	0.00	3.80
You generally do not get irrelevant calls	10.00	33.33	43.33	13.33	0.00	3.40
You generally do not face abusive language	10.00	43.33	40.00	6.67	0.00	3.57
Overall, call efficiency is good	10.00	66.67	20.00	3.33	0.00	3.83

Source : Field Survey ; Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree - 1

Table 4.15: Assessing the call answering efficiency & effectiveness - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
Generally, you are able to answer and handle the questions	43.33	56.67	0.00	0.00	0.00	4.43
Queries not solved by you are well answered by colleagues	20.00	60.00	20.00	0.00	0.00	4.00
Queries not solved by colleagues are well answered by Supervisors	20.00	56.67	16.67	6.67	0.00	3.90
Queries not solved by supervisors are easily escalated to level 2	6.67	46.67	16.67	20.00	10.00	3.20
Queries escalated to level 2 are well attended by State Agriculture Experts	3.33	20.00	40.00	20.00	16.67	2.73

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
Level 2 experts speedily attend to the queries	3.33	20.00	40.00	33.33	3.33	2.87
Level 2 experts satisfactorily attend to the queries	3.33	30.00	30.00	23.33	13.33	2.87
Queries not solved in level 2 are escalated to level 3	0.00	26.67	23.33	23.33	26.67	2.50
Queries escalated to level 3 are well attended by Nodal officer	3.33	16.67	23.33	26.67	30.00	2.37
Nodal officers respond to farmers by call/SMS/post/email	0.00	20.00	33.33	16.67	30.00	2.43
Overall the call answering system is adequate	6.67	43.33	33.33	3.33	13.33	3.27

Source : Field Survey ; Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree - 1

4.6 Infrastructure Rating :

Conducive environment and suitable infrastructure will go a long way in boosting the morale of FTAs and also in improving their efficiency. Hence in Table 4.16, the infrastructure in the KCC where the FTAs handle the calls is assessed. While 50 percent agreed that power cuts are not frequent, the overall picture with respect to infrastructure is not encouraging. There was partial agreement/disagreement or strong disagreement over issues such as sufficiency in lighting, adequate ventilation, noise in other departments which hinders the answering efficiency and overall good working environment. In a personal visit to the KCC centre at Pune also it was observed that there is scope to improve the overall environment of the KCC in terms of toilet facilities, ventilation, noise, etc.

Table 4.16 Infrastructure rating - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
The office space is adequate	10.00	13.33	26.67	33.33	16.67	2.67
The activity area for calling is sufficient	10.00	16.67	30.00	33.33	10.00	2.83
The activity area is well separated	6.67	13.33	36.67	33.33	10.00	2.73
You do not get disturbed while answering of calls	6.67	16.67	33.33	30.00	13.33	2.73
Lighting is sufficient	20.00	20.00	20.00	26.67	13.33	3.07
There is adequate ventilation	10.00	16.67	30.00	26.67	16.67	2.77
Video surveillance is sufficient for monitoring	0.00	40.00	20.00	26.67	13.33	2.87
Power cuts are not frequent	6.67	50.00	20.00	16.67	6.67	3.33
Other departments noise does not hinder your answering efficiency	10.00	36.67	16.67	26.67	10.00	3.10
Supporting facilities & utilities are adequate	0.00	16.67	43.33	30.00	10.00	2.67
Overall there is good working environment	10.00	26.67	43.33	16.67	3.33	3.23

Source : Field Survey ; Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree - 1

4.7 Usefulness of training programmes :

Training programmes should be conducted regularly so that FTAs are able to update their knowledge. However, more than half the FTAs in the sample partially agreed/disagreed or entirely disagreed that the training programmes help in operating hardware and software. Also about 43 percent of FTAs partially agreed/disagreed that the training programmes help in getting knowledge about government schemes. Even during the personal visit, there was complaint from supervisors and FTAs that they are not well informed about government schemes. This poses a serious problem to them while answering questions related to government schemes because the farmers are very keen to take benefit of these schemes. They therefore want to know the terms and conditions of the scheme, the subsidy that might be given and other formalities. If the

FTAs do not have details of the schemes, they may misguide the farmers and thus create problems. Hence FTAs must be well informed about the modalities of government schemes.

Table 4.17: Overall assessment of usefulness of training programmes - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
It helps in understanding call handling procedure of the KCC	36.67	53.33	6.67	0.00	3.33	4.20
It helps in operating of the hardware	3.33	26.67	20.00	40.00	10.00	2.73
It helps in operating of the software	3.33	26.67	23.33	36.67	10.00	2.77
It helps in understanding questions of farmer	26.67	60.00	10.00	0.00	3.33	4.07
It helps in how to handle the questions of farmer	26.67	56.67	13.33	0.00	3.33	4.03
It helps in getting the necessary knowledge	26.67	56.67	13.33	0.00	3.33	4.03
It helps in updating knowledge	36.67	40.00	16.67	3.33	3.33	4.03
It helps in getting knowledge of government schemes	6.67	33.33	43.33	10.00	6.67	3.23
More & better training is required	56.67	30.00	3.33	6.67	3.33	4.30
Training should be regularly given	43.33	36.67	6.67	6.67	6.67	4.03
Overall the available training is useful & sufficient	10.00	56.67	26.67	3.33	3.33	3.67

Source : Field Survey ; Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree – 1

4.8 Self-Assessment of FTAs :

The self assessment of FTAs (Table 5.18 to 5.21) indicated that they were satisfied with their own performance. Most responses showed that they strongly agreed or agreed with respect to being quick in responding to calls, handling them efficiently alongwith software and hardware, quickly access the data base, can satisfy the farmers, feel motivated and take initiative to perform better and overall are satisfied with their own performance. The main negative point perhaps was that 40 percent partially agreed/disagreed that they could escalate calls to higher levels to answer questions.

The FTAs also strongly agreed or agreed that large number of calls are received everyday, all calls are handled efficiently, call handling procedures are good, the farmer can understand the FTA, and overall the farmers seemed satisfied with the handling and speed of response. The performance of the hardware and software used was good and helpful but 43.3 percent FTAs partially agreed/disagreed that the performance of the internet connectivity was good. About 40 percent disagreed that infrastructure service support is good.

Thus overall it can be observed that while FTAs were satisfied with the hardware and software, the infrastructure and service support was not up to the mark and hence need improvement.

Table 4.18: Self- Assessment of the FTA - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
You are quick in responding to calls	63.33	36.67	0.00	0.00	0.00	4.63
You are able to handle the hardware and software	43.33	50.00	6.67	0.00	0.00	4.37
You are able to manage the calls efficiently.	46.67	53.33	0.00	0.00	0.00	4.47
You have sufficient knowledge & capability to answer questions	40.00	56.67	3.33	0.00	0.00	4.37
You are generally able to answer the questions by yourself	40.00	60.00	0.00	0.00	0.00	4.40
You are able to quickly access the database/information to answer questions	46.67	50.00	3.33	0.00	0.00	4.43

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
You can take the help of colleagues to answer questions	23.33	53.33	20.00	3.33	0.00	3.97
You can escalate calls to higher levels to answer questions	10.00	30.00	40.00	13.33	6.67	3.23
You are able to satisfactorily find answers for the farmer's questions	33.33	53.33	13.33	0.00	0.00	4.20
You properly record the questions and answers	46.67	50.00	3.33	0.00	0.00	4.43
You do not need much supervision	23.33	63.33	3.33	10.00	0.00	4.00
You show good discipline, attendance & punctuality	43.33	53.33	3.33	0.00	0.00	4.40
You are well motivated	60.00	40.00	0.00	0.00	0.00	4.60
You take good initiative to improve, innovate and perform better	36.67	63.33	0.00	0.00	0.00	4.37
You are well trained	40.00	56.67	0.00	3.33	0.00	4.33
Overall you are satisfied with your performance	40.00	56.67	0.00	3.33	0.00	4.33

Source : Field Survey ; Strongly Agree -5; Agree -4; Partially Agree/Disagree - 3; Disagree - 2; Strongly Disagree - 1

Table 4.19: Overall Assessment of Call Handling - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
A large number of calls are received every day at the KCC	56.67	43.33	0.00	0.00	0.00	4.57
All calls can be handled efficiently at the KCC	30.00	63.33	6.67	0.00	0.00	4.23
Call handling systems/procedures are good	26.67	63.33	10.00	0.00	0.00	4.17
The farmer & FTA can understand each other & communicate easily	43.33	56.67	0.00	0.00	0.00	4.43
Overall the farmers seem satisfied with the handling & speed of response	16.67	80.00	3.33	0.00	0.00	4.13

Source : Field Survey ; Strongly Agree -5; Agree -4; Partially Agree/Disagree - 3; Disagree - 2; Strongly Disagree - 1

Table 4.20: Overall Assessment of hardware, Software and Infrastructure

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
The performance of the hardware used is good & it is helpful	20.00	43.33	30.00	6.67	0.00	3.77
The performance of the software used is good & it is helpful	26.67	50.00	16.67	6.67	0.00	3.97
The performance of the internet connectivity is good	13.33	36.67	43.33	6.67	0.00	3.57
The infrastructure & service support is good	10.00	20.00	30.00	40.00	0.00	3.00

Source : Field Survey; Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree - 1

4.9 : Overall assessment of Information provided and overall assessment of Kisan Call Centre :

By and large the FTAs strongly agreed or agreed that the knowledge, information and data base available was adequate, and up to date answers could be given regarding technical questions, price and market related questions, weather condition and by and large there was overall satisfaction. The important point which once again emerged is that 56.67 percent partially agreed/disagreed that information related to government schemes was adequate.

With respect to the overall assessment of the performance of the Kisan Call centre 73.3 percent of FTAs agreed that it was good and 43.3 percent felt that the KCC was excellent in terms of usefulness to farmers as well as for the state's agriculture while 40 percent revealed that it was good. About 63.3 percent of FTAs strongly agreed that the Kisan Call Centre scheme should be continued and 33.3 percent agreed for the same.

Table 4.21 Overall Assessment of Information Provided (Percent)

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
The knowledge, information and data-base available with you is adequate	10.00	56.67	33.33	0.00	0.00	3.77
Adequate & up-to-date answers are provided on technical questions	23.33	56.67	16.67	3.33	0.00	4.00
Adequate & up-to-date answers are provided on government schemes related questions	6.67	33.33	56.67	0.00	3.33	3.40
Adequate & up-to-date answers are provided on price & market related questions	33.33	53.33	13.33	0.00	0.00	4.20
Adequate & up-to-date answers are provided on weather & general questions	33.33	50.00	16.67	0.00	0.00	4.17
Overall the farmers seem satisfied with the information provided	16.67	76.67	6.67	0.00	0.00	4.10

Source : Field Survey; Strongly Agree -5; Agree -4; Partially Agree/Disagree - 3; Disagree - 2; Strongly Disagree - 1

Thus the overall conclusion with respect to FTAs response on KCCs was that while they were satisfied with their own performance in answering queries of farmers, the main limitation was that they were not well informed about government schemes. Further while there was no problem by and large with the software and hardware, the

infrastructure in terms of ventilation, noise, etc needed to be improved. But almost all FTAs felt that KCC was useful to farmers and needed for the state's agriculture.

Table 4.22: Overall Assessment of Kisan Call Centre - Percent

	Excellent	Good	Satisfactory	Somewhat Poor	Very Poor	Average Rating
Please give your overall assessment of the performance of the Kisan Call Centre	13.33	60	23.33	3.33	0	3.83
Please give an overall assessment of your own performance/contribution at the Kisan Call Centre	20	73.33	6.67	0	0	4.13
Please give your overall assessment of the systems & policies under which the Kisan Call Centre is working	10	33.33	50	6.67	0	3.47
Please give your overall assessment about the usefulness of the Kisan Call Centre to the farmers & the state's agriculture	43.33	40	16.67	0	0	4.27
	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
Please give your overall opinion whether the Kisan Call Centre Scheme should be continued	63.33	33.33	3.33	0	0	4.60

Source : Field Survey; Strongly Agree -5; Agree -4; Partially Agree/Disagree - 3; Disagree - 2; Strongly Disagree - 1

Chapter 5

Results : Farmers' Survey

5.1 Backdrop :

After observing the profile of Kisan Call centres, the assessment of supervisors and FTAs on KCCs, etc. it is most important to observe the impact of KCCs on farmers. This is obviously because the very purpose of KCCs is to cater to the need of farmers answer their queries which will enable them to take appropriate decisions in farming and thus increase productivity. Attempt is thus made in this direction in this chapter.

5.2 : Sources of Information/advise on farming :

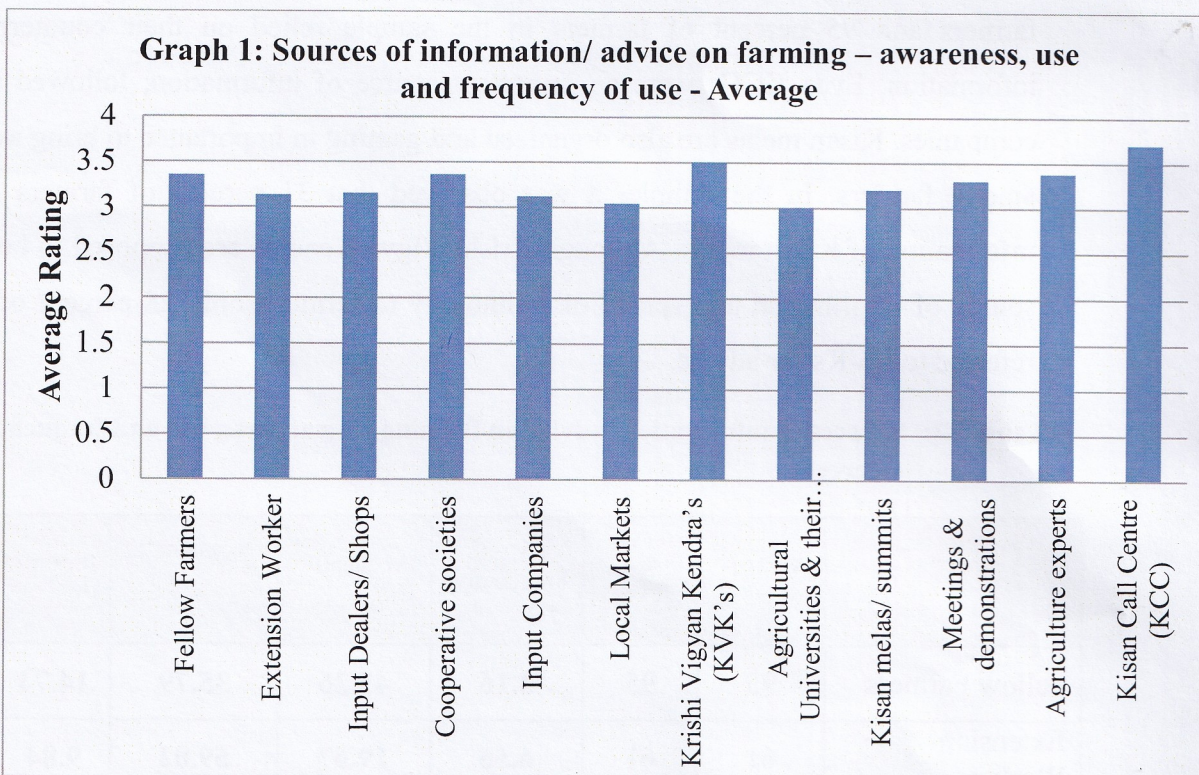
In Table 5.1, the sources of information and advise on farming related activities is indicated. It can be observed that the most important source of information was fellow farmers and 95 percent of farmers in the sample relied on their counterparts for information. Even KCCs were an important source of information, followed by input companies. Kisan melas are also organized and gaining in importance to bring awareness among farmers. In the sample, it was observed that 31 percent of farmers gathered information of Kisan melas. Although Krishi Vigya Kendras are supposed to be a major source of information and spread of technology to farmers, only 28 percent of farmers referred to KVKs for advise.

Table 5.1: Sources of information/ advice on farming – awareness, use and frequency of use - Percent

	Aware (%)	Use (%)	Very Frequently (%)	Frequently (%)	Occasionally (%)	Rarely (%)	Never (%)	Average Rating
Fellow Farmers	95	95	3.16	45.26	35.79	14.74	1.05	3.35
Extension Worker	61	61	6.56	19.67	59.02	9.84	4.92	3.13
Input Dealers/ Shops	54	54	7.41	27.78	40.74	20.37	3.70	3.15
Cooperative societies	11	11	9.09	36.36	45.45	0.00	9.09	3.36
Input Companies	17	17	5.88	29.41	41.18	17.65	5.88	3.12
Local Markets	28	28	0.00	29.63	44.44	25.93	0.00	3.04
Krishi Vigyan	28	28	14.29	35.71	35.71	14.29	0.00	3.50

	Aware (%)	Use (%)	Very Frequently (%)	Frequently (%)	Occasionally (%)	Rarely (%)	Never (%)	Average Rating
Kendra's (KVK's)								
Agricultural Universities & their materials	13	13	7.69	30.77	23.08	30.77	7.69	3.00
Kisan melas/summits	31	31	13.33	23.33	33.33	30.00	0.00	3.20
Meetings & demonstrations	20	20	10.00	35.00	30.00	25.00	0.00	3.30
Agriculture experts	16	16	6.25	31.25	56.25	6.25	0.00	3.38
Kisan Call Centre (KCC)	79	79	15.19	46.84	31.65	5.06	1.27	3.70

Source : Field Survey; 5-Very Frequently; 4-Frequently; 3-Occasionally; 2-Rarely; 1-Never



5.3 Communication media and devices used to source information and quality of information:

Information is made available to farmers through various media and the same can be observed from Table 5.2. The most important source of information was the mobile phone and 78 percent of farmers were aware of the usefulness of mobile phone to access information. About 43 percent of farmers in the sample used mobile phones frequently to get information. The next important source of information was television and 43 percent of farmers frequently obtained information from television. It is clear from Table 5.2 that electronic sources were not at all popular among farmers. None of the farmers had visited Farmers portal and only one farmer was aware of KKMS. This clearly indicates that there should be more awareness among farmers to use electronic methods to source information.

Regarding quality of information (Table 5.3) about 45.26 percent of farmers felt that the information from fellow farmers was good quality and 51.8 percent indicated that the information from KCC was good. However, with respect to several sources, the response was only satisfactory and in few cases poor or very poor. With respect to awareness and quality of information from media and devices (Table 5.4), it appears that mobile phone are the most important source of information and 43 percent of farmers found the quality of information through this device good. Also 100 percent farmers (Table 5.5) in the sample owned and used mobile telephones and 62 percent found their use to be good. Only 25 percent of farmers had internet connectivity which was used to access KCC websites and other such related sites.

Overall, it appears that there is scope to improve the quality of information provided to farmers by various sources so that they are able to solve their queries. Most important, farmers do not seem to be using digital technology and hence this needs to be promoted.

**Table 5.2: Communication media and devices used to source information
Awareness and use frequency - Percent**

	Aware (Valid % in 100 samples)	Use (Valid % in 100 samples)	Very Frequently	Frequently	Occasionally	Rarely	Never	Average Rating
Newspapers/magazines	49	49	6.12	34.69	42.86	16.33	0.00	3.31
Radio	9	9	11.11	22.22	55.56	11.11	0.00	3.33
TV	61	61	4.92	42.62	37.70	13.11	1.64	3.36
Mobile phone	78	74	12.16	43.24	36.49	8.11	0.00	3.59
Mobile Apps	9	9	11.11	22.22	33.33	33.33	0.00	3.11
Computer	3	3	0.00	33.33	0.00	66.67	0.00	2.67
Internet & websites	12	12	8.33	50.00	16.67	25.00	0.00	3.42
Kisan Knowledge Management System (KKMS)	1	1	0.00	0.00	100.00	0.00	0.00	3.00
M-Kisan Portal (Mobile/SMS Service)	1	1	0.00	100.00	0.00	0.00	0.00	4.00

Source : Field Survey; 5-Very Frequently; 4-Frequently; 3-Occasionally; 2-Rarely; 1-Never

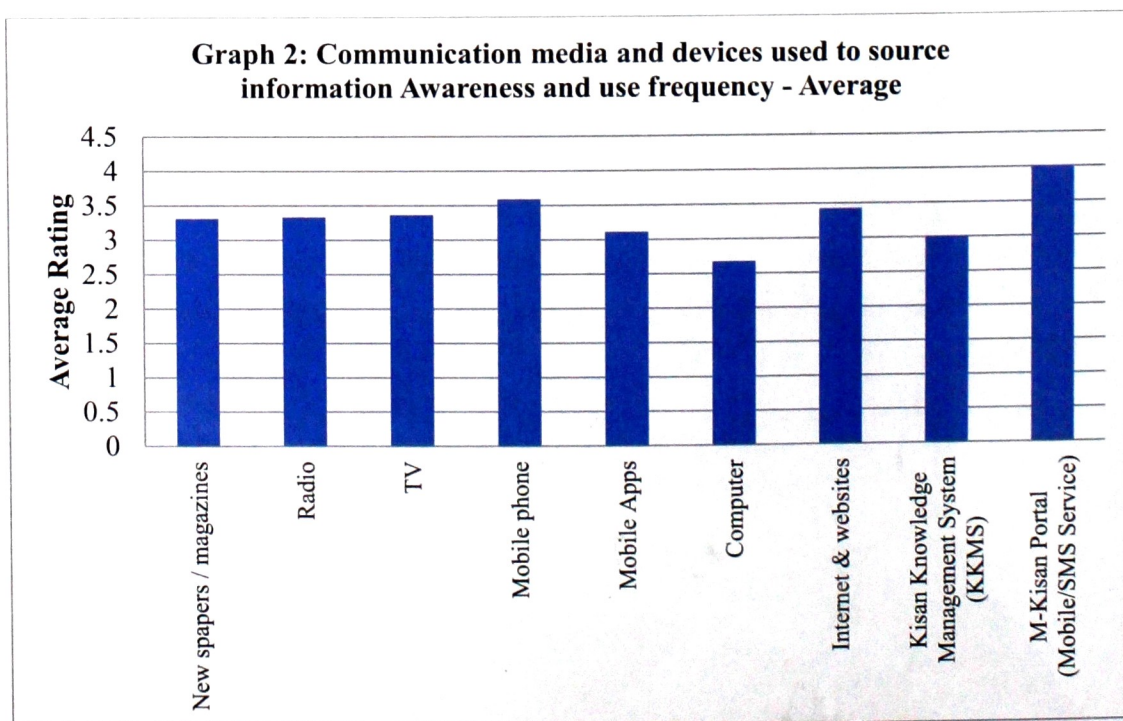


Table 5.3: Sources of information/ advice on farming - awareness/ usefulness and quality – Percent

	Aware (Valid % in 100 samples)	Use (Valid % in 100 samples)	Excellent	Good	Satisfactory	Somewhat poor	Very Poor	Average Rating
Fellow Farmers	95	95	4.21	45.26	32.63	16.84	1.05	3.35
Extension Worker	61	61	8.20	26.23	44.26	18.03	3.28	3.18
Input Dealers/ Shops	54	54	7.41	27.78	40.74	20.37	3.70	3.15
Cooperative societies	11	11	0.00	63.64	18.18	0.00	18.18	3.50
Input Companies	17	17	0.00	17.65	58.82	17.65	5.88	2.88
Local Markets	28	28	3.57	25.00	42.86	25.00	3.57	3.07
Krishi Vigyan Kendra's (KVK's)	28	28	17.86	46.43	17.86	17.86	0.00	3.64
Agricultural Universities & their materials	13	13	7.69	15.38	38.46	30.77	7.69	2.85
Kisan melas/ summits	31	31	9.68	38.71	29.03	16.13	6.45	3.37
Meetings & demonstrations	20	20	15.00	15.00	35.00	30.00	5.00	3.05
Agriculture experts	16	16	12.50	37.50	37.50	12.50	0.00	3.50
Kisan Call Centre (KCC)	79	79	15.19	51.90	27.85	5.06	0.00	3.77

Source : Field Survey; Note 1- Excellent; 2-Good; 3-Satisfactory; 4-Somewhat Poor; 5-Very Poor

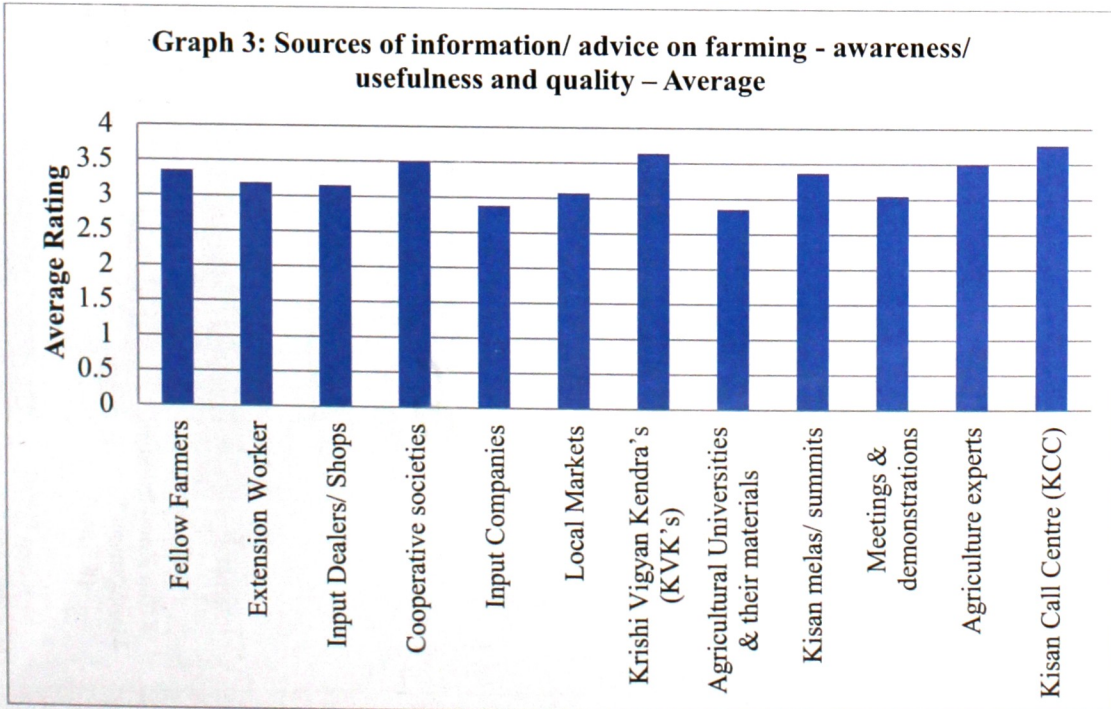


Table 5.4: Communication media and devices used to source information – Awareness/ use and quality – Percent

	Aware (Valid % in 100 samples)	Use (Valid % in 100 samples)	Excellent	Good	Satisfactory	Some What poor	Very Poor	Average Rating
Newspapers/ magazines	49	49	14.29	30.61	34.69	20.41	0.00	3.39
Radio	9	9	0.00	33.33	66.67	0.00	0.00	3.33
TV	61	61	6.56	44.26	34.43	14.75	0.00	3.43
Mobile phone	78	74	13.51	43.24	36.49	6.76	0.00	3.64
Mobile Apps	9	9	11.11	44.44	22.22	11.11	11.11	3.33
Computer	3	3	33.33	0.00	33.33	33.33	0.00	3.33
Internet & websites	12	12	8.33	50.00	25.00	16.67	0.00	3.50
Kisan Knowledge Management System (KKMS)	1	1	0.00	0.00	100.00	0.00	0.00	3.00
M-Kisan Portal (Mobile/SMS Service)	1	1	0.00	100.00	0.00	0.00	0.00	4.00

Source : Field Survey; Note 1- Excellent; 2-Good; 3-Satisfactory; 4-Somewhat Poor; 5-Very Poor

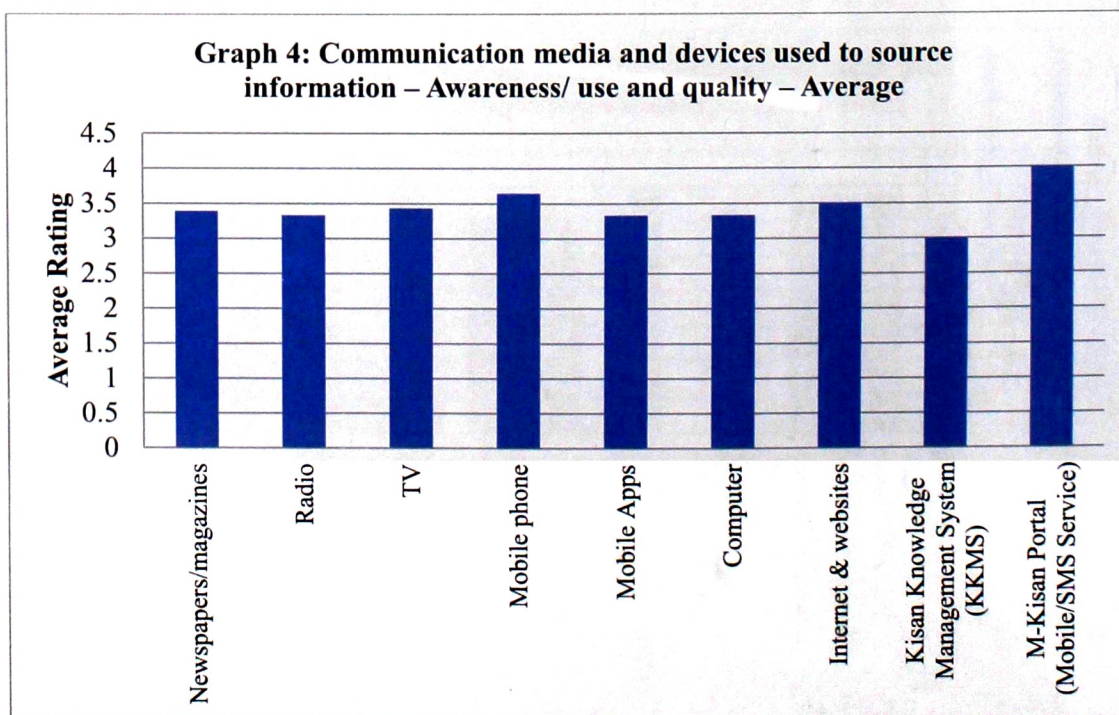
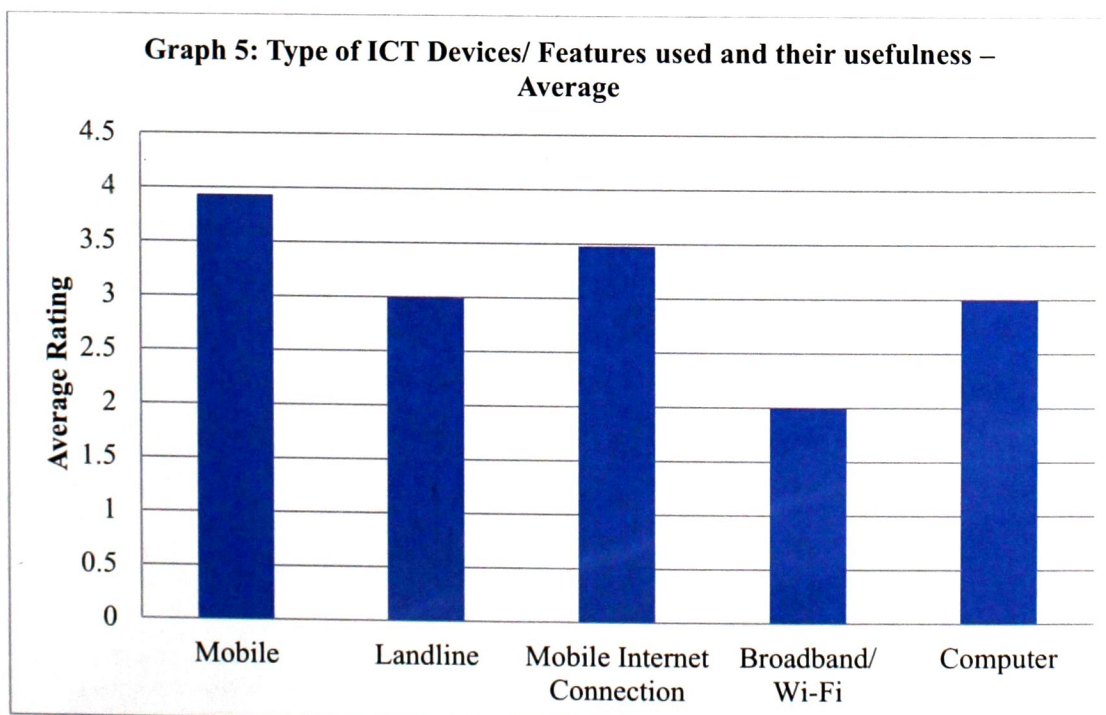


Table 5.5: Type of ICT Devices/ Features used and their usefulness – percent

	Owned (percent in 100 samples)	Used (Percent in 100 samples)	Used for KCC/W bsites /Portals (percent in 100 samples)	Excellent	Good	Satisfactory	Somewhat Poor	Very Poor	Average Rating
Mobile	100	100	100	17.00	62.00	19.00	1.00	1.00	3.93
Landline	1	1	1	0.00	0.00	100.00	0.00	0.00	3
Mobile Internet Connection	25	25	25	12.00	36.00	44.00	4.00	4.00	3.48
Broadband/ Wi-Fi	2	2	2	0.00	0.00	0.00	100.00	0.00	2
Computer	1	1	1	0.00	0.00	100.00	0.00	0.00	3

Source : Field Survey; Note 1- Excellent; 2-Good; 3-Satisfactory; 4-Somewhat Poor; 5-Very Poor



5.4 : Overall Call Response Efficiency and Quality

In order that the farmer may make most efficient use of KCC, it is necessary that the telephone line works efficiently and also the communication skills as well as quality of response of the FTAs are good. Therefore such questions are addressed in Table 5.6 and 5.7.

It can be observed from Table 5.6 that 60 percent of farmers agreed that KCC toll free number is easy to reach but 57.50 percent partially agreed/disagreed that wait for KCC call pick –up is not too long. About two-third of farmers strongly agreed or only agreed that the voice reception is clear. Majority farmers agreed that FTA greets them courteously, understands the problem. However, about 43 percent of farmers partially agreed/disagreed that FTAs response does not take much time and calls are often escalated to higher authorities. More than half the farmers partially agreed/disagreed or disagreed that questions escalated are well answered by nodal officer and the overall call handling and efficiency is good. By and large with respect to overall information provided being good and useful about half the farmers gave favourable response while half partially agreed/disagreed or disagreed. This indicates that there is a lot of scope to solve the queries of farmers.

In Table 5.7 the response to questions on technical aspects is indicated. Again by and large while half the farmers gave favourable response, the other half partially agreed/disagreed or fully disagreed on questions such as information being reliable, provided quickly and easy to understand. While 58.91 strongly agreed or agreed about satisfaction with response and information provided by FTA, the balance partially agreed/disagreed or disagreed. Therefore about 40 percent of farmers were not really satisfied with the responses of FTAs which means there is scope for improvement on these aspects also.

Table 5.6 : Overall Call Response Efficiency & Quality - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
KCC toll free number is easy to reach	11.25	60.00	27.50	1.25	0.00	3.81
The wait for KCC call pick-up is not too long	2.50	28.75	57.50	10.00	1.25	3.21
Voice reception over the phone is clear	21.25	45.00	27.50	5.00	1.25	3.80
Call drops are not frequent	13.75	21.25	41.25	22.50	1.25	3.24
Farmer Tele Advisor (FTA) greets and speaks courteously	22.78	34.18	26.58	15.19	1.27	3.62
FTA understands & responds in your language	21.52	39.24	32.91	6.33	0.00	3.79
FTA understands your question or problem easily	18.75	46.25	27.50	7.50	0.00	3.76
FTA answers clearly & in a way understandable to you	21.52	37.97	29.11	11.39	0.00	3.70
FTA's answer is useful & solves your problem/need	17.72	40.51	32.91	8.86	0.00	3.67
FTA's response does not take much time	6.25	28.75	43.75	21.25	0.00	3.20
Calls are often escalated to higher authorities	7.89	30.26	43.42	17.11	1.32	3.26
Questions escalated are well answered by the Agriculture Experts or Nodal Officer	16.22	29.73	33.78	18.92	1.35	3.41
Overall the call handling and efficiency is good	13.92	37.97	34.18	12.66	1.27	3.51
Overall the information provided is good and useful	19.23	32.05	41.03	7.69	0.00	3.63

Source : Field Survey; Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree - 1

Graph 6: Overall Call Response Efficiency & Quality - Average

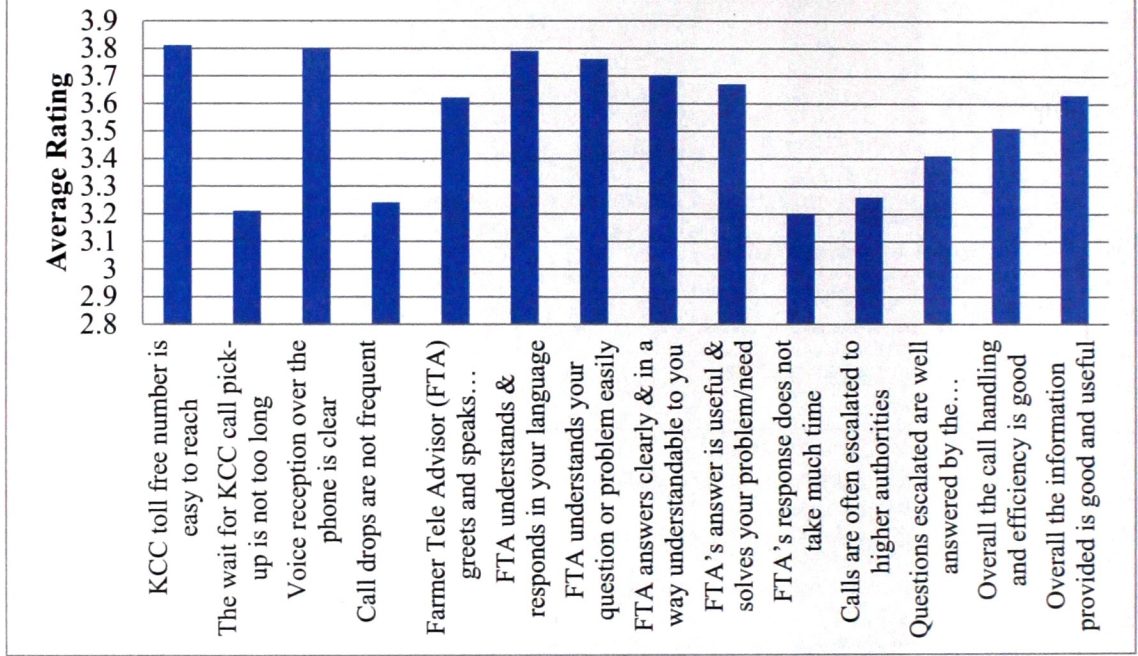
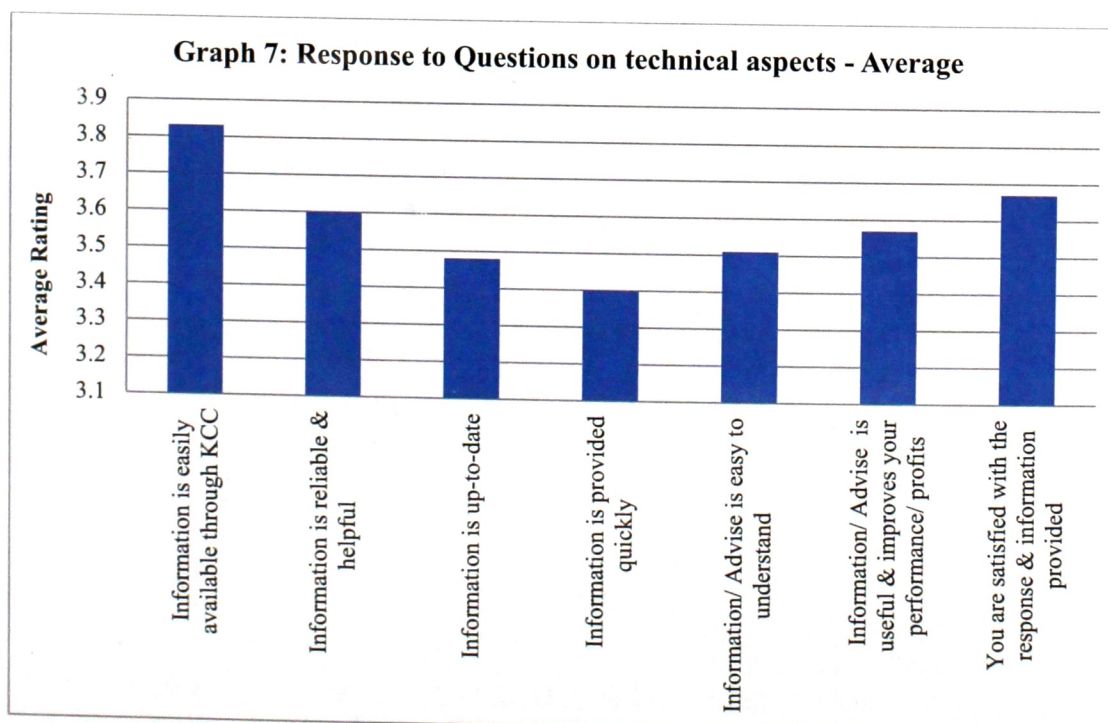


Table 5.7 : Response to Questions on technical aspects - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
Information is easily available through KCC	8.00	69.33	21.33	0.00	1.33	3.83
Information is reliable & helpful	12.00	41.33	41.33	5.33	0.00	3.60
Information is up-to-date	6.67	41.33	46.67	4.00	1.33	3.48
Information is provided quickly	9.33	34.67	42.67	13.33	0.00	3.40
Information/ Advise is easy to understand	8.00	49.33	30.67	9.33	2.67	3.51
Information/ Advise is useful & improves your performance/ profits	12.00	41.33	40.00	5.33	1.33	3.57
You are satisfied with the response & information provided	15.07	43.84	35.62	4.11	1.37	3.67

Source : Field Survey



5.5: Response on questions related to various aspects of farming operations

The questions asked by farmers relate to various aspects of farming such as price of produce, information on government schemes, information on weather, etc. Therefore questions related to these issues are addressed from Table 5.8 to 5.10.

With respect to price and market related questions, about half agreed that information is easily available through KCC and is reliable. However, the other half partially agreed/disagreed or disagreed on this aspect. About 54.29 percent of farmers partially agreed/disagreed that information is up to date and 11.43 percent disagreed about the same. Only 41.2 percent of farmers indicated that they were satisfied with the response and information provided by FTAs while 41.18 partially agreed/disagreed and 14.71 disagreed about the same.

A strange finding is observed in Table 5.9 when there was 100 percent satisfaction by farmers on information related to government schemes. This is because an important complaint by FTAs was that they did not have detailed and up to date knowledge on government schemes and wanted more information on this aspect. Despite FTAs facing such constraints, it is revealed that from the farmers side there is complete satisfaction.

More than half the farmers agreed or strongly agreed that information on weather, services, events, etc is easily available, reliable, up-to –date, provided quickly, easy to understand and are overall satisfied with the responses given.

Table 5.8 : Response to Price and Market Questions - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
Information is easily available through KCC	8.57	42.86	45.71	2.86	0.00	3.57
Information is reliable & helpful	11.43	40.00	45.71	2.86	0.00	3.60
Information is up-to-date	5.71	28.57	54.29	11.43	0.00	3.29
Information is provided quickly	5.71	42.86	34.29	17.14	0.00	3.37
Information/ Advise is easy to understand	2.86	42.86	45.71	8.57	0.00	3.40

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average Rating
Information/ Advise is useful & improves your performance/ profits	2.86	42.86	34.29	17.14	2.86	3.26
You are satisfied with the response & information provided	8.82	32.35	41.18	14.71	2.94	3.29

Source : Field Survey; Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree - 1

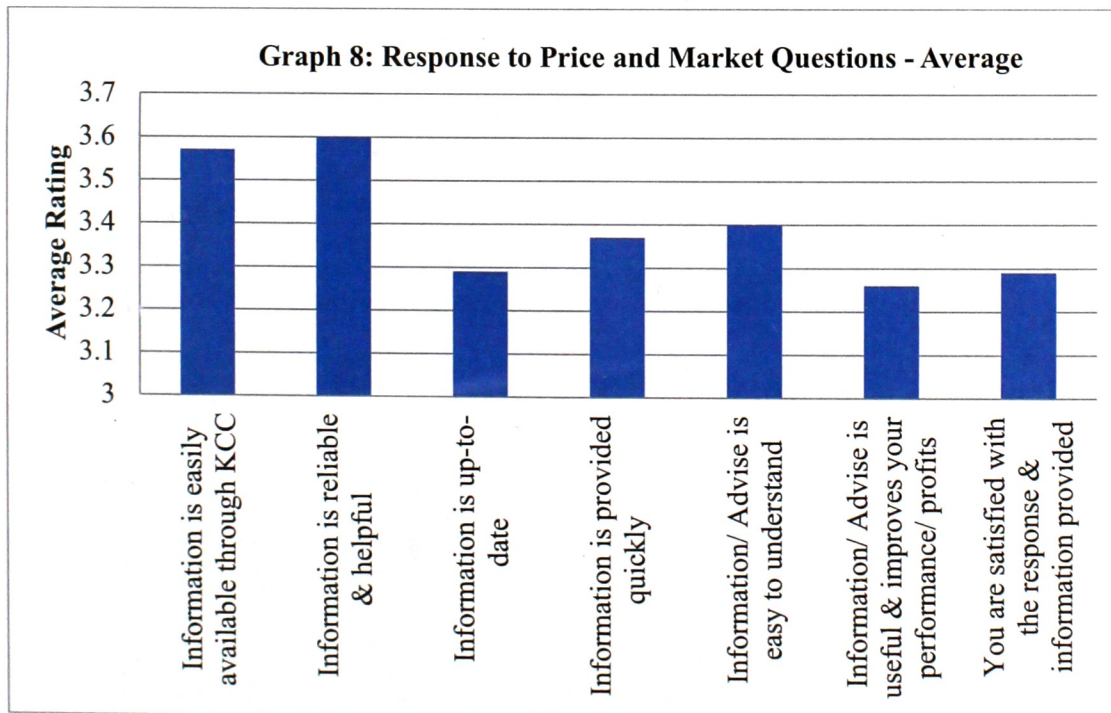


Table 5.9 : Response to Government Schemes Questions - Percent

	Strongly Agree	Agree	Partially Agree/Di disagree	Disagree	Strongly Disagree	Average Rating
Information is easily available through KCC	100.00	0.00	0.00	0.00	0.00	5.00
Information is reliable & helpful	0.00	100.00	0.00	0.00	0.00	4.00
Information is up-to-date	0.00	100.00	0.00	0.00	0.00	4.00
Information is provided quickly	0.00	100.00	0.00	0.00	0.00	4.00
Information/ Advise is easy to understand	0.00	100.00	0.00	0.00	0.00	4.00
Information/ Advise is useful & improves your performance/ profits	0.00	100.00	0.00	0.00	0.00	4.00
You are satisfied with the response & information provided	0.00	100.00	0.00	0.00	0.00	4.00

Source : Field Survey : Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree – 1

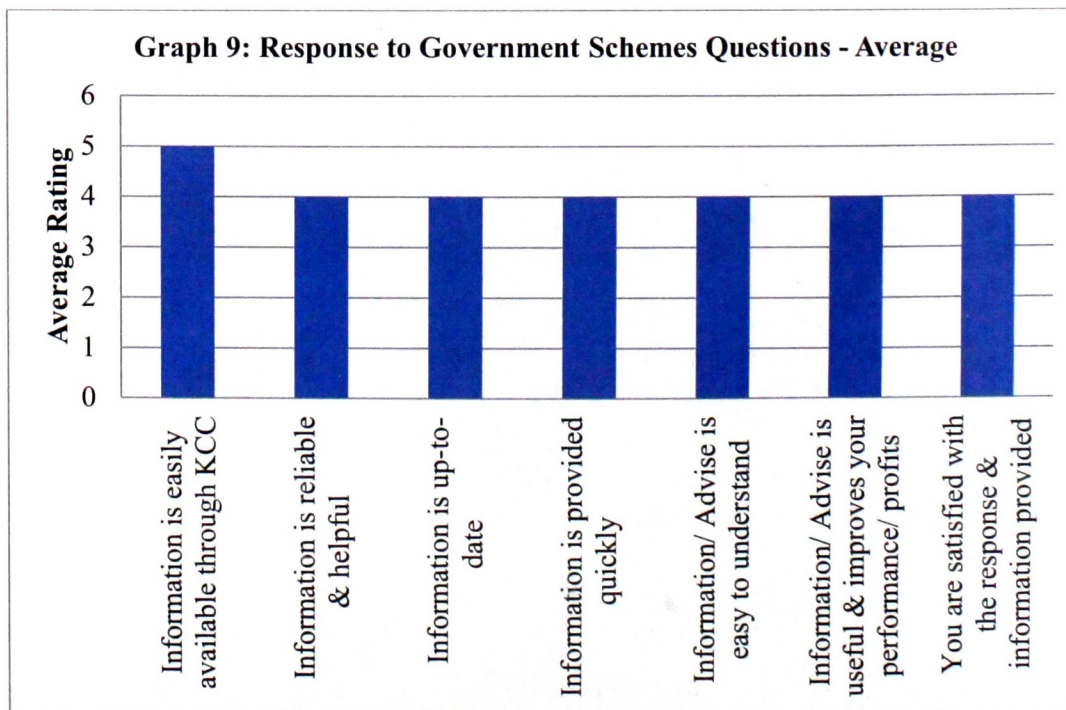
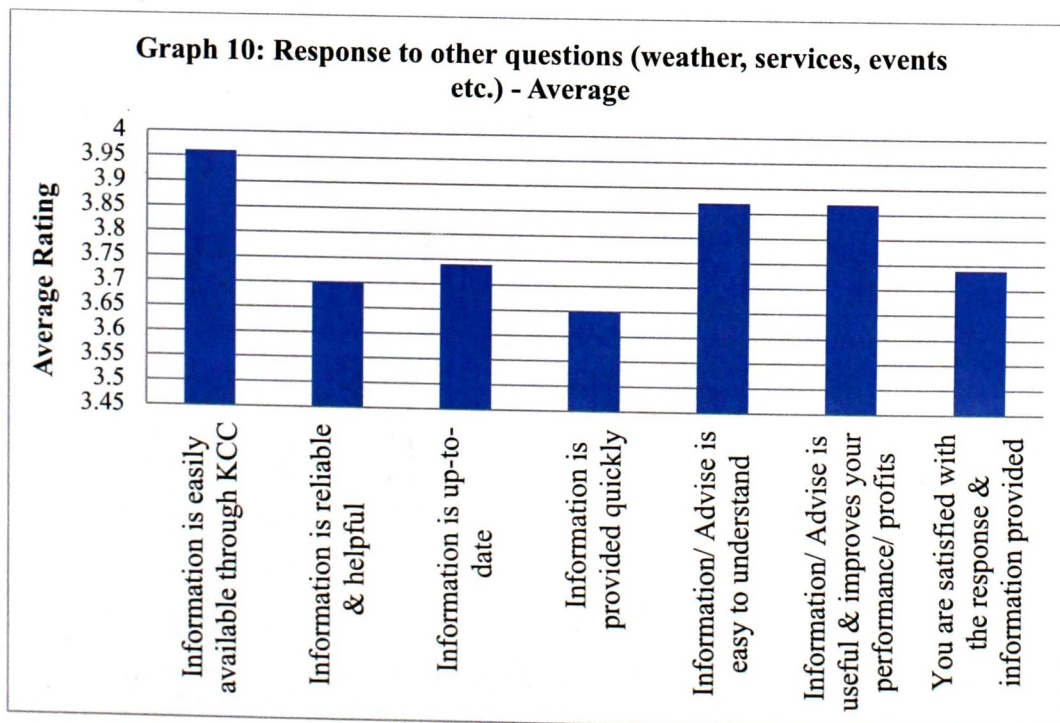


Table 5.10 Response to other questions (weather, services, events etc.) - Percent

	Strongly Agree	Agree	Partially Agree/Disagree	Disagree	Strongly Disagree	Average
Information is easily available through KCC	17.39	65.22	13.04	4.35	0.00	3.96
Information is reliable & helpful	17.39	39.13	39.13	4.35	0.00	3.70
Information is up-to-date	13.04	52.17	30.43	4.35	0.00	3.74
Information is provided quickly	13.04	52.17	21.74	13.04	0.00	3.65
Information/ Advise is easy to understand	17.39	56.52	21.74	4.35	0.00	3.87
Information/ Advise is useful & improves your performance/ profits	26.09	47.83	13.04	13.04	0.00	3.87
You are satisfied with the response & information provided	17.39	43.48	34.78	4.35	0.00	3.74

Source : Field Survey; Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree – 1



5.6 Focus on objectives while undertaking farming operations :

When a farmer is undertaking his agricultural operations, he has several objectives in mind. The list of such objectives is indicated in Table 5.11 and the responses of the farmers are indicated.

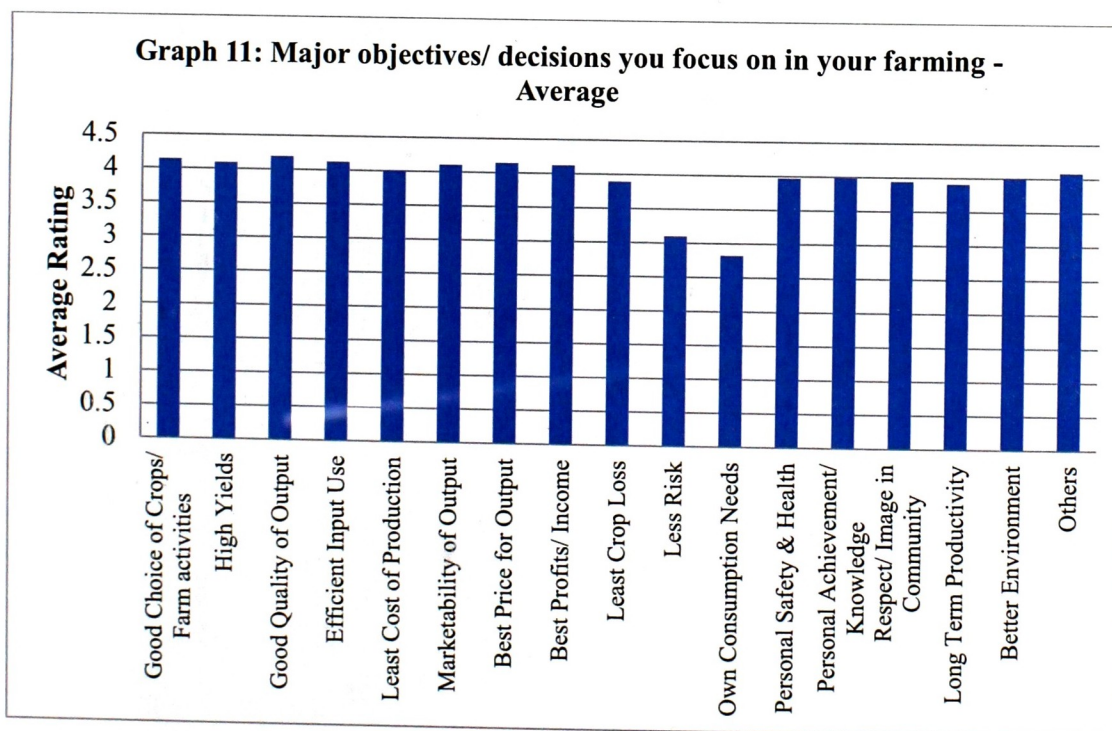
It can be observed from Table 5.11 that more than 70 percent of responses indicated that good choice of crops, high yields, good quality of output, efficient use of input, price of produce and marketability were either extremely important or very important criteria while undertaking farming. About 25 percent felt that less risk, least crop loss, respect in community were moderately important while undertaking farming decisions. About 30 percent indicated that self consumption is slightly important while selecting the crop. Overall it appears, that farmers did take into account wide criteria while conducting agricultural operations but issues such as self consumption, less risk were given less importance.

Table 5.11: Major objectives/ decisions you focus on in your farming - Percent

	Extremely Important	Very Important	Moderately Important	Slightly Important	Not Important	Average Rating
Good Choice of Crops / Farm activities	27.59	57.47	14.94	0.00	0.00	4.13
High Yields	32.26	45.16	21.51	1.08	0.00	4.09
Good Quality of Output	37.65	40.00	22.35	0.00	0.00	4.19
Efficient Input Use	37.18	41.03	17.95	3.85	0.00	4.12
Least Cost of Production	35.29	34.12	27.06	2.35	1.18	4.00
Marketability of Output	31.40	48.84	18.60	1.16	0.00	4.10
Best Price for Output	42.11	39.47	11.84	3.95	2.63	4.14
Best Profits/ Income	34.21	48.68	11.84	5.26	0.00	4.12
Least Crop Loss	27.85	40.51	25.32	5.06	1.27	3.89
Less Risk	15.94	24.64	26.09	20.29	13.04	3.10
Own Consumption Needs	6.94	19.44	33.33	29.17	11.11	2.82

	Extremely Important	Very Important	Moderately Important	Slightly Important	Not Important	Average Rating
Personal Safety & Health	36.36	28.79	30.30	4.55	0.00	3.97
Personal Achievement/ Knowledge	32.84	38.81	22.39	5.97	0.00	3.99
Respect/ Image in Community	32.86	35.71	25.71	4.29	1.43	3.94
Long Term Productivity	29.85	38.81	23.88	7.46	0.00	3.91
Better Environment	34.92	34.92	25.40	4.76	0.00	4.00
Others	35.90	41.03	17.95	5.13	0.00	4.08

Source : Field Survey; Note : 5- Extremely Important, 4-Very Important; 3-Moderately Important; 2-Slightly Important; 1- Not Important



5.7 Importance of Kisan Call centres on important decisions:

The farmer needs information on a wide variety of aspects related to agriculture before sowing his crop, during harvest as well as post harvest. He receives this information from various sources including from KCCs. Therefore in Table 5.12, we tried to observe on which aspect he is dependent on KCC.

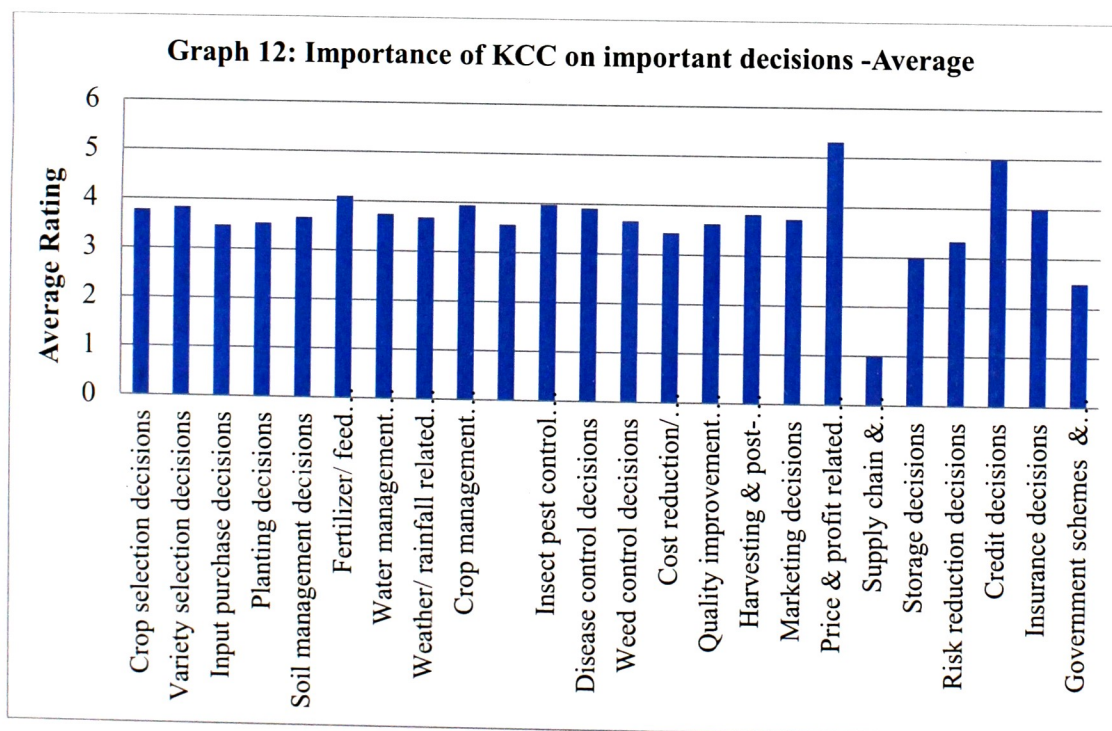
It can be observed from Table 5.12 that with respect to credit and insurance decisions, 100 percent of farmers indicated that KCCs are extremely important to guide them on such issues. About 74 percent farmers felt that KCCs are very important to advise them on disease control decisions. About 67 percent farmers felt that KCCs are useful in providing information on storage decisions but moderately important on risk reduction decisions. Half the farmers (52.38 percent) noted that KCCs had only moderate importance on their planting decisions and quality improvement. With respect to supply chain and transport decisions 100 percent farmers indicated that KCCS are not important.

Table 5.12: Importance of KCC on important decisions - Percent

	Extremely Important	Very Important	Moderately Important	Slightly Important	Not Important	Average Rating
Crop selection decisions	4.35	58.70	34.78	0.00	2.17	3.77
Variety selection decisions	17.07	53.66	24.39	4.88	0.00	3.83
Input purchase decisions	10.53	42.11	31.58	15.79	0.00	3.47
Planting decisions	4.76	42.86	52.38	0.00	0.00	3.52
Soil management decisions	17.65	35.29	41.18	5.88	0.00	3.65
Fertilizer/ feed application decisions	27.91	53.49	18.60	0.00	0.00	4.09
Water management decisions	26.32	36.84	21.05	15.79	0.00	3.74
Weather/ rainfall related decisions	18.18	45.45	27.27	4.55	4.55	3.68
Crop management decisions	17.65	64.71	11.76	5.88	0.00	3.94
Agricultural machinery decisions	44.44	11.11	11.11	22.22	11.11	3.56
Insect pest control decisions	25.64	48.72	23.08	2.56	0.00	3.97
Disease control decisions	10.87	73.91	10.87	4.35	0.00	3.91
Weed control decisions	8.33	58.33	25.00	8.33	0.00	3.67
Cost reduction/ efficiency increasing decisions	0.00	44.44	55.56	0.00	0.00	3.44
Quality improvement decisions	12.50	37.50	50.00	0.00	0.00	3.63
Harvesting & post-harvest decisions	25.00	41.67	25.00	8.33	0.00	3.83
Marketing decisions	19.35	41.94	32.26	6.45	0.00	3.74
Price & profit related	20.00	40.00	33.33	0.00	6.67	5.31

	Extremely Important	Very Important	Moderately Important	Slightly Important	Not Important	Average Rating
decisions						
Supply chain & transport decisions	0.00	0.00	0.00	0.00	100.00	1
Storage decisions	0.00	66.67	0.00	0.00	33.33	3
Risk reduction decisions	0.00	33.33	66.67	0.00	0.00	3.33
Credit decisions	100.00	0.00	0.00	0.00	0.00	5
Insurance decisions	100.00	0.00	0.00	0.00	0.00	4
Government schemes & assistance decisions	0.00	100.00	0.00	0.00	0.00	2.5

Source : Field Survey; Note : 5- Extremely Important, 4-Very Important; 3-Moderately Important; 2-Slightly Important; 1- Not Important



5.8 Impact of KCC on important decisions:

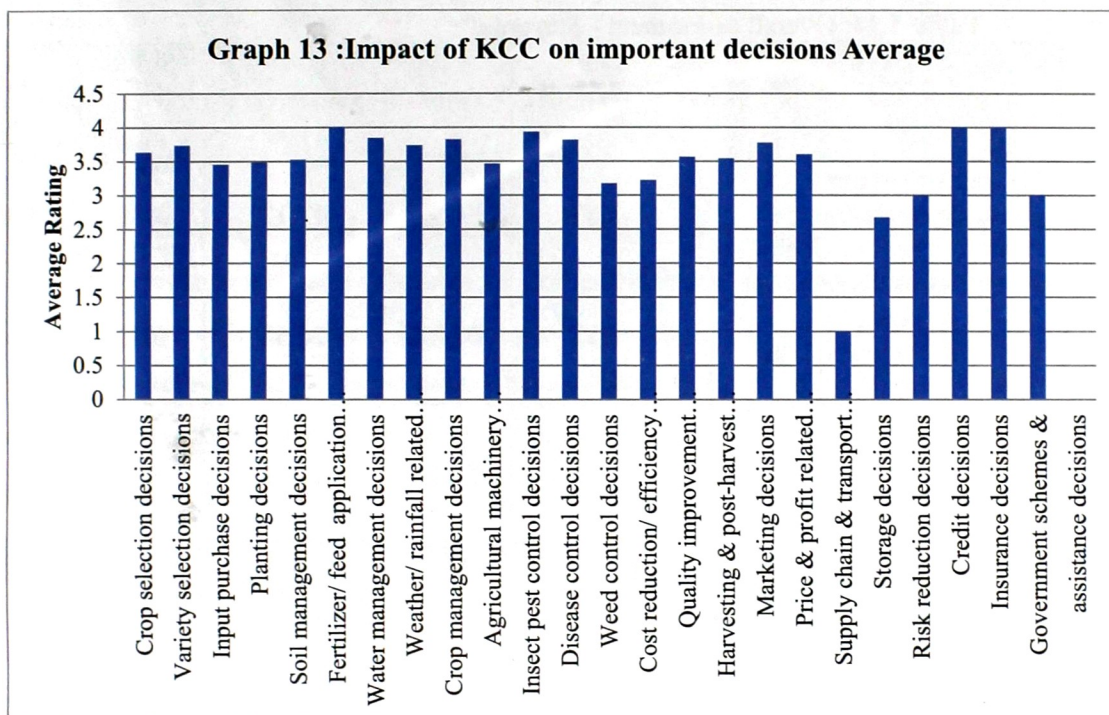
Since the very purpose of KCCs is to solve farmers' queries and have impact on them, the same was observed with respect to various aspects and indicated in Table 5.13. More than 70 percent of farmers indicated that KCCs had significant impact on fertilizer/feed application, crop management decisions, insect/pest control decisions. About half the farmers said that KCCs had moderate impact on planting decisions, credit decisions and insurance decisions. Also storage decisions and risk reduction decisions had moderate to small impact by KCCs on farmers. It was observed that 100 percent

farmers indicated that KCCs had significant impact on their taking advantage of government schemes.

Table 5.13: Impact of KCC on important decisions - Percent

	Huge Impact	Significant Impact	Moderate Impact	Small Impact	No Impact	Average Rating
Crop selection decisions	4.17	58.33	35.42	0.00	2.08	3.63
Variety selection decisions	12.20	53.66	29.27	4.88	0.00	3.73
Input purchase decisions	9.09	40.91	36.36	13.64	0.00	3.45
Planting decisions	8.70	34.78	52.17	4.35	0.00	3.48
Soil management decisions	8.00	48.00	32.00	12.00	0.00	3.52
Fertilizer/ feed application decisions	23.26	55.81	18.60	2.33	0.00	4
Water management decisions	26.32	42.11	21.05	10.53	0.00	3.84
Weather/ rainfall related decisions	18.18	50.00	22.73	4.55	4.55	3.73
Crop management decisions	11.76	64.71	17.65	5.88	0.00	3.82
Agricultural machinery decisions	30.77	23.08	23.08	7.69	15.38	3.46
Insect pest control decisions	26.09	47.83	19.57	6.52	0.00	3.93
Disease control decisions	14.58	58.33	20.83	6.25	0.00	3.81
Weed control decisions	0.00	50.00	25.00	16.67	8.33	3.17
Cost reduction/ efficiency increasing decisions	0.00	33.33	55.56	11.11	0.00	3.22
Quality improvement decisions	11.11	44.44	33.33	11.11	0.00	3.56
Harvesting & post-harvest decisions	23.08	30.77	30.77	7.69	7.69	3.54
Marketing decisions	17.95	51.28	23.08	5.13	2.56	3.77
Price & profit related decisions	20.00	40.00	26.67	6.67	6.67	3.6
Supply chain & transport decisions	0.00	0.00	0.00	0.00	100.00	1
Storage decisions	0.00	33.33	33.33	0.00	33.33	2.67
Risk reduction decisions	0.00	33.33	33.33	33.33	0.00	3
Credit decisions	50.00	0.00	50.00	0.00	0.00	4
Insurance decisions	50.00	0.00	50.00	0.00	0.00	4
Government schemes & assistance decisions	0.00	100.00	0.00	0.00	0.00	3

Source : Field Survey; Note : 5- Huge Impact; 4- Significant Impact; 3-Moderate Impact; 2- Small Impact; 1- No Impact



5.9 Overall assessment of KCCs by farmers :

Since the very purpose of KCCs is to benefit the farmers and provide them with useful information, in Table 5.14 we tried to capture the overall assessment of KCCs by farmers by addressing them with few questions.

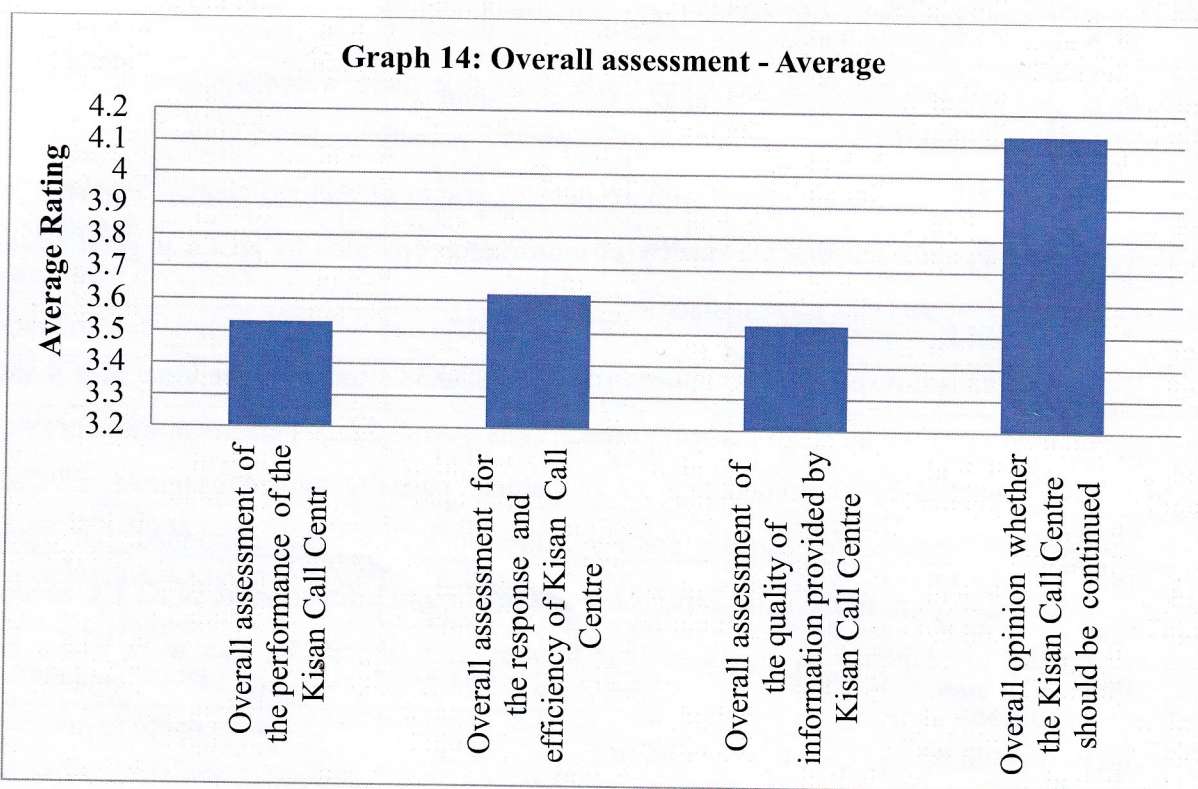
It can be observed from Table 5.14 that there were negligible farmers who indicated that KCCs were excellent while 52 percent assessed them as good, 65.82 percent felt they were good with respect to response and efficiency. Further, 54.43 percent farmers felt that the quality of information provided by KCCs is good while 40 percent revealed that it is satisfactory.

With respect to continuation of KCCs, 30.38 strongly agreed that KCCs should be continued while 51.90 percent agreed. Thus overall 82.28 percent of farmers felt that KCCs should be continued and 17.72 percent partially agreed/disagreed. Overall, it therefore appears that farmers are very keen on KCCs being continued, but ofcourse efforts will have to made on various aspects relating to infrastructure in KCCs as well as quality of response by FTAs so that farmers gain and FTAs also work under better conditions.

Table 5.14: Overall assessment - Percent

	Excellent	Good	Satisfactory	Some what Poor	Very Poor	Average Rating
Overall assessment of the performance of the Kisan Call Centr	2.53	51.90	41.77	3.80	0.00	3.53
Overall assessment for the response and efficiency of Kisan Call Centre	1.27	65.82	26.58	6.33	0.00	3.62
Overall assessment of the quality of information provided by Kisan Call Centre	1.27	54.43	40.51	3.80	0.00	3.53
	Strongly Agree	Agree	Partially Agree/ Disagree	Disagree	Strongly Disagree	Average
Overall opinion whether the Kisan Call Centre should be continued	30.38	51.90	17.72	0.00	0.00	4.13

Source : Field Survey; Note 1- Excellent; 2-Good; 3-Satisfactory; 4-Somewhat Poor; 5-Very Poor
Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree – 1



Chapter 6

Summary and Conclusions

6.1 Introduction:

The agricultural sector in the Indian economy, as is well known, is experiencing much lower rates of growth as compared to the manufacturing and service sectors. Hence in order to achieve higher overall economic growth rate, it is important to increase productivity in the agricultural sector which will also help to contribute to increased rural incomes and employment. A major constraint to growth in the agricultural sector is poor extension services due to lack of resources, limited manpower, reluctance on the part of government personnel to serve in the interiors, etc. In this context, recent developments in Information and Communication Technology (ICT) which can provide speedy advisory services alongwith technical updates to farmers in order to help them with appropriate extension services are being promoted. Accordingly, the Government of India under the National e-Governance Plan have developed e-enabled services such as setting up of Kisan Call Centres (KCC), Kisan Knowledge Management System (KKMS), Farmers' Portal and M-Kisan Portal which have gradually evolved since 2004 and makes it possible to reach the entire farming community spread over different agro-climatic regions.

ICT can also be used to meet location specific information needs of the farmers and also bring farmers in the interiors in isolated areas to access technological improvements. ICT can also facilitate interactive sessions of knowledge experts with farmers, and by and large help agricultural universities, farmers and other stakeholders to come together and share information. The extent of learning depends upon how well the information is assimilated and how widely it is disseminated.

In view of the above, it is important to examine the effectiveness of e services in providing advisory services to farmers so that they are in a position to make appropriate decisions and solve the problems they face in farming. Accordingly a study was undertaken to study the structure, design, implementation and performance of the government systems of Kisan Call Centres, Kisan Knowledge Management System, Farmers' Portal and M-Kisan Portal in the state of Maharashtra.

6.2 Objectives of the study and Methodology :

The study attempts to note the benefit which the farmers have received from e services and the extent to which their problems could be solved.

More specifically, the broad objectives of the study are :

1. To examine the organizational setup, infrastructure, ICT and other systems used, information content and flow, ability of manpower involved and the governance of the system.
2. To observe the record of the use of the systems-the profile and pattern of users, the number and nature of calls and the responses given by KCCs.
3. To evaluate the performance of the system from the point of view of the farmers/users including the ease and usefulness of the system. Also the information needs of the farmers and the extent to which these are satisfied is noted.
4. Policy measures with respect to improvement in the system and making it more effective so that farm productivity will be enhanced, livelihoods of the rural persons will improve and finally the agricultural sector will get a boost.

The KCC for Maharashtra is located in Pune from where the Farmer Tele Advisers (FTAs) and supervisors were contacted for relevant information. Farmers across 4 districts (Pune, Ahmednagar, Solapur and Osmanabad) were contacted to get appropriate feedback of their experience with KCC.

A neatly designed and very detailed questionnaire was addressed to all stakeholders of the Kisan Call Centres, namely Supervisors, Farmer Tele Advisors (30), farmers who avail of services of Kisan Call centres (80) and some non-users (20).

A rating scale is used in the questionnaire which does the following rating:

Strongly Agree -5; Agree -4; Partially Agree/Disagree – 3; Disagree – 2; Strongly Disagree

– 1

6.3 Main Findings :

1. The education profile of the KCC (Table 2.2) reveals that 80 percent of the FTAs were B.Sc. graduates while 13.33 percent were M.Sc. graduates. The subject of specialization was mainly agriculture and 76.67 percent had passed out from Agricultural Universities. It was also observed that 73.3 percent of FTAs did not have work experience
2. The educational profile in the primary survey of 80 farmers who availed the services of KCCs indicated that 43.75 percent were higher secondary and 2.50 percent were illiterate. The caste profile indicated that 77.50 belonged to general/other categories. The age-profile indicated that 80 percent were between 18 to 49 years. A similar exercise was conducted with respect to non-user farmers of KCC services. It was observed that 45 percent were higher secondary pass and 25 percent were illiterate. With respect to caste it was observed that 55 percent were OBC category while 40 percent belonged to other/General category. The age profile of non-users showed that 45 percent were in the age group 50-59 years.
3. Initially, when the KCC office was set up in Nagpur in 2004, its functioning was very limited due to inadequate infrastructure. The calls were received on landline and there were only 3 FTAs in each shift and one supervisor. The calls received per day were barely 200 and information available with FTAs was also very limited. However, restructuring took place, and KCC office was established in Pune on 1st May 2012. After shifting to Pune, there was a huge change in the functioning of KCCs. The total number of FTAs increased to 69 (30 in each shift and some extra) and the states covered were Maharashtra and Goa. The languages used to answer queries were Marathi, Hindi and English.
4. There was remarkable improvement in the hardware as well as software after restructuring of KCCs as indicated by both supervisors. They also had a data base of farmers and were in a position to respond to farmers' queries. All equipment installed in the KCC improved the efficiency of the KCC.
5. Both supervisors only partially agreed that the office space was adequate. One supervisor disagreed on the activity area of each FTA being sufficient and felt co workers can get disturbed while calls are being answered. There was also other noise from department and perhaps video surveillance was not sufficient for monitoring.

6. One supervisor strongly agreed and the other one only agreed that FTAs are efficient in responding to calls, answer the queries and also access the database/information to answer the questions. Both supervisors partially agreed that FTAs are motivated and one supervisor only partially agreed that FTAs take good initiative to improve, innovate and perform better. One supervisor felt that FTAs need supervision while performing work.
7. Both supervisors felt that for information and knowledge sources, the FTAs depended on self knowledge and internet search very frequently. The colleagues and supervisors were frequently referred to for obtaining information. However, on certain aspects such as knowledge from Nodal officer or field inquiry, both the supervisors responded that such sources were never resorted to. Also extension booklets and papers were rarely used. Hence the overall conclusion appears that information and knowledge by FTAs was most often obtained from their own knowledge as well as from internet search. Calls were seldom escalated to level 2 and 3.
8. The questionnaire addressed to FTAs revealed that with respect to hardware more than half the FTAs responded that the hardware is latest and up to date, it is fast, reliable, well maintained and interface of key board & mouse is good. However 50 percent FTAs partially agreed/disagreed that the hardware breaks down frequently, 36.67 percent disagreed that headsets are comfortable and work well and 46.67 percent strongly disagreed that peripherals such as printer and scanner work well.
9. With respect to software, more than 50 percent FTAs agreed that it was user friendly in most aspects but 33.3 percent partially agreed/disagreed that the software could handle heavy traffic and does not crash frequently. Also more than half the FTAs agreed the importance of good internet connectivity. However 40 percent agreed/disagreed that during heavy call loads, the internet does not slow down.
10. It was observed that the most frequent source of knowledge of FTAs was self knowledge. With respect to material from Government department, 40 percent indicated that they rarely resorted to this source and 50 percent never used field inquiry as a source of knowledge. About 26.67 percent indicated that extension booklets, books and papers were never used for updating their knowledge. Little more than 30 percent rarely or never used University experts or Nodal officers or even obtained information from other farmers to update their knowledge.

11. About three fourths of FTAs, either strongly agreed or agreed that price and market information was easily accessible and farmers were satisfied with the answers received from FTAs. Similarly more than three-fourths of FTAs strongly agreed or agreed that KKMS website was user friendly, though 23.3 percent disagreed that changes can be made in the information after it is recorded. With respect to Farmers Portal also the response of FTAs was encouraging but 36.67 partially agreed/disagreed that the information is regularly updated. The m-Kisan website response was also on the favorable side and three fourths of FTAs strongly agreed or agreed about smooth working of the website.
12. While 66.67 percent of FTAs indicated that call clarity is good and farmers do not face any difficulty in understanding the dialect and overall call efficiency is good, about 30 percent partially agreed/disagreed that call drops are less. Also a little more than 40 percent of FTAs partially agreed/ disagreed about getting irrelevant calls and facing abusive language.
13. About three fourths of the FTAs together either strongly agreed or only agreed that they were in a position to handle the questions asked by farmers and queries not solved by them were well handled by their colleagues or supervisors. However about 50 percent FTAs disagreed or strongly disagreed that queries not solved in level 2 are escalated to level 3, or are well attended by Nodal officers or even responded to farmers by e mail, SMS/post. Hence it appears that FTAs did not have enough faith in level 2 or level 3.
14. While 50 percent agreed that power cuts are not frequent, the overall picture with respect to infrastructure is not encouraging. There was partial agreement/disagreement or strong disagreement over issues such as sufficiency in lighting, adequate ventilation, noise in other departments which hinders the answering efficiency and overall good working environment.
15. More than half the FTAs in the sample partially agreed/disagreed or entirely disagreed that the training programmes help in operating hardware and software. Also about 43 percent of FTAs partially agreed/disagreed that the training programmes help in getting knowledge about government schemes. Even during the personal visit, there was complaint from supervisors and FTAs that they are not well informed about government schemes.
16. The self assessment of FTAs indicated that they strongly agreed or agreed that large number of calls are received everyday, all calls are handled efficiently, call

- handling procedures are good, the farmer can understand the FTA, and overall the farmers seemed satisfied with the handling and speed of response. The performance of the hardware and software used was good and helpful but 43.3 percent FTAs partially agreed/disagreed that the performance of the internet connectivity was good. About 40 percent disagreed that infrastructure service support is good.
17. With respect to questionnaire addressed to farmers, it was that the most important source of information was fellow farmers and 95 percent of farmers in the sample relied on their counterparts for information. Even KCCs were an important source of information, followed by input companies. Kisan melas were also organized and gaining in importance to bring awareness among farmers. Although Krishi Vigya Kendras are supposed to be a major source of information and spread of technology to farmers, only 28 percent of farmers referred to KVKs for advise.
 18. The most important source of information was the mobile phone and 78 percent of farmers were aware of the usefulness of mobile phone to access information. About 43 percent of farmers in the sample used mobile phones frequently to get information. The next important source of information was television and 43 percent of farmers frequently obtained information from television. It was clear that information from websites was not at all popular among farmers. None of the farmers had visited Farmers portal and only one farmer was aware of KKMS.
 19. About 60 percent of farmers agreed that KCC toll free number is easy to reach but 57.50 percent partially agreed/disagreed that wait for KCC call pick –up is not too long. About two-third of farmers strongly agreed or only agreed that the voice reception is clear. Majority farmers agreed that FTA greets them courteously, understands the problem. However, about 43 percent of farmers partially agreed/disagreed that FTAs response does not take much time and calls are often escalated to higher authorities. More than half the farmers partially agreed/disagreed or disagreed that questions escalated are well answered by nodal officer and the overall call handling and efficiency is good. By and large with respect to overall information provided being good and useful about half the farmers gave favourable response while half partially agreed/disagreed or disagreed.
 20. . While 58.91 strongly agreed or agreed about satisfaction with response and information provided by FTA, the balance partially agreed/disagreed or disagreed.

Therefore about 40 percent of farmers were not really satisfied with the responses of FTAs which means there is scope for improvement on these aspects also.

21. More than 70 percent of farmers indicated that good choice of crops, high yields, good quality of output, efficient use of input, price of produce and marketability were either extremely important or very important criteria while undertaking farming. About 25 percent felt that less risk, least crop loss, respect in community were moderately important while undertaking farming decisions. About 30 percent indicated that self consumption is slightly important while selecting the crop.
22. With respect to credit and insurance decisions, 100 percent of farmers indicated that KCCs are extremely important to guide them on such issues. About 74 percent farmers felt that KCCs are very important to advise them on disease control decisions. About 67 percent farmers felt that KCCs are useful in providing information on storage decisions but moderately important on risk reduction decisions. Half the farmers (52.38 percent) noted that KCCs had only moderate importance on their planting decisions and quality improvement. With respect to supply chain and transport decisions 100 percent farmers indicated that KCCS are not important.
23. With respect to overall assessment of Kisan Call Centres, there were negligible farmers who indicated that KCCs were excellent while 52 percent assessed them as good, 65.82 percent felt they were good with respect to response and efficiency. Further, 54.43 percent farmers felt that the quality of information provided by KCCs is good while 40 percent revealed that it is satisfactory.
24. With respect to continuation of KCCs, 30.38 strongly agreed that KCCs should be continued while 51.90 percent agreed. Thus overall 82.28 percent of farmers felt that KCCs should be continued and 17.72 percent partially agreed/disagreed.

Overall, it therefore appears that farmers are very keen on KCCs being continued, but ofcourse efforts will have to made on various aspects relating to infrastructure in KCCs as well as quality of response by FTAs so that farmers gain and FTAs also work under better conditions.

6.4 Policy Implications :

The major policy implications that emerge from the study are :

1. On visit to the KCC in Pune and also as indicated by supervisors, it was observed that the activity area of the KCC was insufficient and there was disturbance to

FTAs. Hence, it is necessary to ensure that office space is suitable, well ventilated, adequate toilet facilities are provided and overall work conditions are improved. This will also motivate the FTAs to perform better. Some FTAs felt the need to have transport facilities for work, especially for female FTAs.

2. Besides better work conditions, the FTAs also felt that they are not only underpaid but also have contractual appointment. Hence they did not have incentive to continue in the job. Also since large number of calls come daily, there is need to increase the number of FTAs in KCC. For example, on the day the visit was made to KCC, the number of calls received was 3410 while only 2455 calls could be attended. Hence to avoid call waiting, the number of FTAs may be increased and salary may also be raised.
3. Since self knowledge and internet search were the main source of knowledge to FTAs, it is very important to provide them with more sources of information such as booklets, information on latest government schemes, field visits, knowledge from Nodal officers, etc. The websites should also be regularly updated and training programmes should be regularly conducted so that FTAs are in a position to give good advisory services to farmers which is the very purpose of the scheme.
4. Despite KCCs having the potential to reach out to farmers across the state, it was observed that farmers still depend upon fellow farmers for extension services. Hence all round effort must be made to ensure that there is increasing use of KCCs to solve the queries of farmers.
5. Efforts must also be made to ensure that farmers are satisfied with response given by FTAs as this will promote the use of KCCs as a source of extension services. Also escalation of questions to higher levels must be improved so that if any calls are not handled by FTAs, they should be satisfied by Nodal officers.

Thus overall it can be concluded that while KCCs do have the potential to provide extension services to each and every farmer, irrespective of location, the service must be improved by ensuring that the infrastructure is up to the mark, the FTAs have upto date knowledge on all agricultural operations as well as government schemes and farmers are also aware of such a service. If this happens, then with increasing use of KCCs, farmers will be able to resolve their queries, avoid crop failure and thus increase productivity which will provide the much needed boost to the agricultural sector.

References:

Shankaraiah, N. , and others (2012), Dissemination of Farm Information Through Agri Portals, International Journal of Advanced Biological Research, Vol.2(3)2012:382-391, ISSN 2250-3579

Ganesh Das (2016), “Perception of Kisan call centre (Farmer Call centre) by the farming community with their socio-economic variable: A study on Coochbehar District”, *IRCST international Journal of Advanced Computing, Engineering and Application (IJACEA)*, ISSN:2319-281x,vol.5,No.3, May-June2016

Web Site

1. www.dackkms.gov.in
2. www.mkisan.gov.in/images/featurekccpdf
3. <http://mkisan.gov.in/aboutmkisan.apx>
4. <http://ccknia.org/download/publications/150122/11SWOT AnalysisReportodisha.pdf>

Review of the Report

(I) Title of the Draft Study Report Examined:

“Decision-oriented Information System for Farmers: A Study of Kisan Call Centres (KCC), Kisan Knowledge Management System (KKMS), Farmers Portal and M-Kisan Portal in Maharashtra”

by Sangeeta Shroff

(II) Date of Receipt of the Draft Report: 15-12-2017

(III) Date of Dispatch of Comments: 28-02-2018

(IV) General Comments

There is frequently a significant information gap between the outside world and the farmers this often seriously affects their decisions and performance. The extension service of the government used to play an important role in bridging this gap but has become inadequate in the recent years. The Kisan Call Centre (KCC) scheme is a recent major initiative of the government to try and bridge this information gap using the vast telecommunication network. The performance of the agriculture sector in Maharashtra is of significant importance for meeting food demand and raising rural incomes. The present study has made a significant effort to evaluate the structure, functioning and effectiveness of the KCC scheme in Maharashtra.

(V) Comments on Methodology and Analysis

1. The methodology followed is quite sound.
2. What is the rationale behind selecting the sample districts? Kindly mention some points.
3. In the Introduction, it would be useful to examine some call patterns in KCC. For e.g. Which topics (Agriculture related) and crops constitute more of the calls? In which month the call frequency is higher? Which district is higher in call frequency?

A. Centre Study (Chapter 3):

1. For Tables where Likert scales are used, it would good to show the values of the scale below the Table. For example: Excellent=5, Good=4, Satisfactory=3, Somewhat poor=2, Very Poor=1. It would help the reader to understand the meaning of numbers mentioned in the tables.
2. Table 3.3, 3.6, 3.7, 3.8, 3.10, etc. - In the responses, what does no. 2 signify? If it is the response of both the supervisors, then it would be good to indicate this in the Table below or indicate 1 as 1st Supervisor, 2nd Supervisors.

3. In Table 3.17- Question 2 ‘Queries not solved by colleagues are answered by Supervisors’, there appear to be conflicting answers. What can be the possible reason? Please check the scale & data, if it is frequency.
4. In Table 3.18- Question 3 ‘Queries not solved by colleagues are answered by Supervisors’, there appear to be conflicting answers. What can be the possible reason? Which one is true?
5. In Table 3.18- Question 4 ‘Queries not solved by colleagues are answered by Supervisors’, there appear to be conflicting answers.. What can be the possible reason?
6. Please check for conflicting responses. It may create confusion for the readers.

B. FTA (Chapter 4):

1. Table 4.2- Last question- Average comes out to be 0.07. Please check.
2. Page No. 51- Last line- Please reword ‘‘Strongly Agreed or Disagreed’’ – it is confusing.
3. Table 4.22- Average Rating appears to have some error.

C. Farmer (Chapter 5):

1. In Table 5.9- There is no variation. It may be useful to check the data.
2. For Table 5.1, 5.2, 5.3, 5.4: It would be useful. if a few figures/graphs are made.

(VI) Comment on other issues

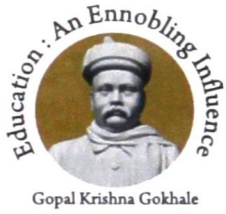
1. Page No. 2- 1st Paragraph-3rd line- ‘‘along with’’ instead of alongwith.
2. Page No. 2- 1.2- Kisan Call Centre- Presently KCC runs on all holidays – please check.
3. Page No. 2- 3rd Paragraph- Citation format can be changed and this could be included in References.
4. Page No. 3- 1st Bullet point- ‘‘password’’ instead of pass word.
5. Page No. 4- 1st Paragraph- Citation format can be changed and it could be included in references.
6. Page No. 6- Figure- Format of ‘‘source’’ can be changed.
7. Page No. 9- Last paragraph- Citation format can be changed and it could be included in references.
8. Page No. 15- Last paragraph- 5th Line- There appears to be an incomplete word.
9. Page No. 16- 2.2 Title- ‘‘Services’’ instead of sevicees.
10. In chapter 2, Table alignment can be improved.
11. Page No. 43- 2nd Paragraph- 4th line ‘‘keyboard’’ instead of key board.
12. Page No. 80- Last Paragraph- 3rd line- check typo
13. Page No. 92- Point No. 17- 1st Line- ‘‘Questionnaire’’ instead of questionairree
14. Page No. 95- References- Few typos in 1st and 2nd reference. Website reference can be reformatted.
15. List of abbreviations used in the report can be added at the beginning of the report.
16. Few tables need to be aligned again. This could improve the quality of the Tables and the Report.

(VII) Overall view on the acceptability of report:

The report has addressed the major questions & issues on the structure, functioning and performance of the KCC scheme in Maharashtra. The report is acceptable and provides many useful insights about the functioning of KCC in Maharashtra. If most of the above suggestions & comments made above can be addressed, it will improve the quality of the report.

Action Taken

All the suggestions made have been incorporated in the Report.



**Gokhale Institute
of Politics and
Economics**

(Deemed to be University)
Pune - 411 004

846, Shivajinagar, BMCC Road, Deccan Gymkhana, Pune 411 004.

Ph. No. : 020-25650287, 25675008, 25654288, 25654289, 25661369

Fax : 020-25652579

Website : www.gipe.ac.in