ABSTRACT

The present study entitled “Annapurna Krishi Prasara Seva- an innovative mobile based agro advisory service in Mahabubnagar Districts of Telangana” was carried out to get the feedback of farmers about the services rendered through Interactive Information Dissemination System (IIDS) in the year 2019-20. Random sampling methods followed for drawing a total sample size of ninety farmers from the district. Responses obtained through Pre-tested structured interview schedule was further tabulated and analysed with the help of suitable statistical tools and techniques viz. frequency, percentage, mean and rank order. The findings of the study revealed that 94.44 per cent of the respondents gave priority to pest and disease management and 86.67 per cent of the respondents agreed that IIDS service is providing the farmers with timely information. It will be a good monitoring tool to the scientists of DAATTCs to monitor the farmer’s field and it will be a good knowledge management system for knowledge providers and policy makers.
1. INTRODUCTION

Lack of dissemination of right information to right farmer at right time will lead to poor adoption of technologies. This may lead to lose the credibility on information service providers like universities, SDAs etc. Mobile phone is becoming an all-time partner to all the individuals and farmers were also now-a-days having mobile phones [1,2]. Sending information to the mobile is easy and scalable. Many government and private sector agricultural institutions are using mobile phone for providing actuate and timely information. Dissemination of information on free of cost through toll free no (1800 4253141) which is directed towards registered farmers may generate more acceptance of the advisories sent. Reviews reveal that still the utilization pattern of mobile phone information is not upto the mark expected [3,4,5].

The Indian Council of Agricultural Research (ICAR), Government of India, New Delhi has awarded the project under National Agricultural Innovation Project (NAIP) to Media Lab Asia, as a Consortium Leader with Acharya N.G. Ranga Agricultural University (ANGRAU), Guntur, National Institute of Rural Development (NIRD), Hyderabad and Mudra Institute of Communication, Ahmedabad (MICA) as the partners, to develop an alternative ICT model to meet the information needs of Indian farmers [6]. As part of that, Interactive Information Dissemination System (IIDS) was developed and successfully pilot tested in Andhra Pradesh and Telangana states of India [7]. It was started in DAATT centre, Mahabubnagar in the year 2018. In last 2 years, a total of 2291 farmers were registered in Annapurna Krishi Prasara Seva by conducting sensitization and awareness programmes in various villages in erstwhile Mahabubnagar district. In recent years DAATT centre, Mahabubnagar disseminated 271 alerts during 2018-19 & 175 during 2019-20 with a motto to adopt the appropriate production technologies to boost the yield levels in dry land crops [8,9].

This IIDS is an integrated model based on the study and analysis of 26 major (Information Communication Technology) ICT Initiatives in agriculture in India. This model is largely integration of Toll free IVRS, Smart Phone Application and Web based agricultural advisory system. The major limitation in current information dissemination system i.e., call center, IVRS system and mobile services are lack of database of farmers, such as location of the farmer, type of field, crops grown, status of the farmer, need of the farmer and other demographic and agriculture profile. Thus, in the proposed system each farmer have to register himself by providing certain details which would be stored in the database and a profile and requirement (need) of each farmer would be recorded. The agricultural expert would provide the personalized solution based on the inputs provided by the farmers and his available profile. Also this system would allow farmers to send text, voice, images and video of the field along with their queries by using a smart phone. This system would be helpful in addressing farmers' information need on important aspects including agriculture technology, crops / plant protection, weather information, market prices, government schemes etc. in location specific manner [10,11,12].

2. METHODOLOGY

A study was carried out in Mahabubnagar district of Telangana state to get the feedback of farmers about the services rendered through IIDS. A schedule was prepared to get the feedback of farmers on perception of IIDS, priority of the sent messages, content covered in priority messages, problems elicited by the farmers and suggestion expressed by the farmers on IIDS services. A total of 13 statements were prepared. 90 farmers were selected randomly from Mahabubnagar district [13,7,14].

3. RESULTS

While interviewing the respondents regarding the perception of IIDS, 86.67 per cent of the respondents agreed that IIDS service is providing the farmers with timely information, 83.33 per cent of the respondents agreed that IIDS service is giving clear information on the subjects they required, 77.78 per cent of the respondents agreed that information provided by IIDS service is easily understandable. 55.55 per cent of the respondents agreed that the periodicity of the message is weekly twice, 54.44 per cent of the respondents agreed that the length of voice message should be 60 seconds, 51.11 per cent of the respondents agreed that sharing of IIDS messages with fellow farmers. 48.89 per cent of the respondents agreed that best time for receiving advisory is evening [14].
Table 1. Feedback of farmers about the services rendered through IIDS

| S. No | Feedback                                                                 | Yes % | No % |
|-------|--------------------------------------------------------------------------|-------|------|
| 1     | a. AKPS ……………                                                        | 64    | 29   |
|       | b. Toll free number…………                                               | 60    | 33   |
| 2     | Are you downloaded AKPS Mobile app in your mobile                        | 30    | 67   |
| 3     | Usefulness of content in advisories received through AKPS                | 70    | 22   |
| 4     | Are you facing any difficulty to dial AKPS Toll free number              | 50    | 44   |
| 5     | Whether the sent message is clear with adequate information              | 75    | 16.64|
| 6     | Are you listened clearly voice messages sent by DAATTC                   | 70    | 22   |
| 7     | Whether the advisories received on timely basis                          | 78    | 13   |
| 8     | Availability of mentioned chemicals in the market (AKPS text and voice messages) | 40    | 56   |
| 9     | Sharing of AKPS text or voice messages with fellow farmers               | 46    | 49   |
| 10    | Length of the voice message should be…..                                 |       |      |
|       | **Time length**                                                          | **Frequency** | **Percentage** |
|       | 30 minutes                                                               | 2     | 2.22 |
|       | 45 minutes                                                               | 39    | 43.34|
|       | 60 minutes                                                               | 49    | 54.44|
| 11    | Best time for receiving advisory                                         |       |      |
|       | **Time**                                                                 | **Frequency** | **Percentage** |
|       | Morning                                                                  | 35    | 38.89|
|       | Afternoon                                                                | 11    | 12.22|
|       | Evening                                                                  | 44    | 48.89|
| 12    | Periodicity of the messages…                                             |       |      |
|       | **No. of times**                                                         | **Frequency** | **Percentage** |
|       | Daily once                                                               | 3     | 3.34 |
|       | Weekly once                                                              | 32    | 35.55|
|       | Weekly twice                                                             | 50    | 55.55|
|       | Once in 10 days                                                          | 5     | 5.56 |
| 13    | Priority of the messages sent.                                           |       |      |
|       | **Priority of the messages**                                             | **Frequency** | **Percentage** | **Rank** |
|       | Weather forecasting                                                      | 55    | 61.11 | V     |
|       | Varieties                                                                | 70    | 77.78 | III   |
|       | Weed management                                                          | 40    | 44.44 | VIII  |
|       | Water management                                                         | 42    | 46.67 | VII   |
|       | Fertilizer management                                                    | 75    | 83.33 | II    |
|       | Pest & Disease management                                                | 85    | 94.44 | I     |
|       | Market intelligence                                                      | 32    | 35.56 | VI    |
|       | Farm machinery                                                           | 60    | 66.67 | IV    |
|       | Horticulture                                                             | 42    | 46.67 | VII   |
|       | Organic farming                                                          | 40    | 44.44 | VIII  |
|       | **Content should be covered**                                            | **Frequency** | **Percentage** |
|       | Description about symptoms of damage                                      | 73    | 81.11 |
|       | Wild boar management                                                     | 70    | 77.78 |
|       | Spraying time of chemical                                                | 60    | 66.67 |
|       | Dosage of chemicals per gunats/acres                                      | 50    | 55.56 |
|       | Locally available chemicals in the market                                 | 60    | 66.67 |
|       | Preventive measures for pest & diseases                                   | 68    | 75.56 |
4. DISCUSSION

While interviewing the respondents regarding the feedback on priority of the messages sent by IIDS, 94.44 per cent of the respondents gave priority to pest and disease management, followed by fertilizer management (83.33%), crop varieties information (77.78%) [15,16,17].

While interviewing the respondents regarding the feedback on content covered in pest and disease management sent by IIDS, 81.11 per cent of the respondents gave feedback on description about symptoms of damage, followed by wild boar management (77.78%), preventive measures for pest & diseases (75.56%), spraying time of chemical & locally available chemicals in the market (66.67%) and dosage of chemicals per guntas/ acres (55.56) respectively.

The suggestions elicited by farmers on IIDS service was, 80.00 per cent of the respondents agreed that sending of more voice messages than text messages, followed by no changes required in present IIDS programme (75.56%), compatibility of text messages in non android phones (72.22%) and visual photos of pest and diseases symptoms (27.78%) respectively.

4.1 Case Studies

A) S. Ashok, Fareedpur village, Chinachintakunta mandal, Mahabubnagar District ID: 247300967 Mobile number: 9949966860 Registered date: 23-08-2019

He has cultivated Cotton in four acres. He was registered in AKPS by DAATTC, Mahabubnagar in August month. He is a recipient of text and voice messages regularly from the DAATTC, Mahabubnagar. In August month he observed sucking pest incidence in the field. He went to Deverakadra fertilizer shop and purchased Emamectin Benzoate+Fipronil (Apex), Acetamaprid and Penitro (Adjuvant) with cost of 5744 Rupees for 4 acres. At the same time i.e. on August 28th he got one text message from AKPS regarding control measures for sucking pest in cotton (Acephate 1.5 g/lit. water or Acetamaprid 0.2 g/lit water) and after seeing that message he interacted with DAATTC scientists and was recommended acetamaprid 500 grams/one hectare, which costs about 777 Rupees. With this suggestion he returned remaining chemicals and saved 2813 Rupees for one acre. He feels very happy for the timely information on control measures for sucking pests in cotton.

B) D. Ravinder Goud, Buddaram Village, Hanwada Mandal, Mahabubnagar District ID: 247300021 Mobile number: 966821200 Registered date: 12-02-2018

He was registered in AKPS by DAATTC, Mahabubnagar in Feb 12th, 2018 He is a recipient of text and voice messages regularly from the DAATTC, Mahabubnagar. He has cultivated Maize in five acres. During 2019-20 the intensity of damage caused by FAW is very severe in his fields. At the same time on July 19th, 2019 he has received two text messages on spraying of emamectin benzoate 0.4 ml/liter water and poison bait preparation for management of FAW. After seeing that messages he interacted with DAATTC, Scientists and told when & how to spray the chemical and how to make poison bait and where & how to apply in the crop. After interacted with DAATTC Scientists, initially he sprayed emamectin benzoate 80 grams per acre and after 15 days he applied poison bait in the field. By following this advise the intensity of damage in his field has become very less. The cost owned for its preparation is also very less. By follow DAATT centre advisories through IIDS text and
voice messages he was economically benefited. He said that dissemination of right information at right time is helpful to the farmers. The farmers were getting very much benefited by AKPS. He told his neighbor farmers about AKPS and they said it was good to receive such messages.

C) G. Ramulu Goud, Nellikkondi Village, Chinachinta kunta Mandal, Mahabubnagar District, ID: 247300557, Phone number-9505056881 Registered date: 11-06-2019

He has registered in IIDS on June 11th, 2019. He was mostly dependent on input dealers and neighbor farmers for information. Now, with the help of IIDS, getting the agro advisories and suggestions from DAATTC experts through text and voice messages.

He regularly received advisories on blast, BPH management, fertilizer management, correction of micro nutrient deficiencies, nursery management, suitable high varieties for Kharif and Rabi seasons in Rice crop and pink boll worm and sucking pest management in Cotton etc. He expressed that, alert messages (text and voice) related to local specific crop problems and weather information provided to his mobile are very useful in taking up timely control measures and reduced unnecessary investment on pest management.

The concept of IIDS is very relevant to the agricultural extension functionaries. The information dissemination through Multimedia (Text, Voice, Image and Video) is very appreciable. IIDS is can be a better alternative ICT model to the farmers because; from field itself farmer can interact directly with the scientists. The personalized advisories to the farmers are very appreciable in this model as the scientist can refer the farm profile and history before providing the solution. It will be a good monitoring tool to the scientists of DAATTCs to monitor the farmer’s field and it will be a good knowledge management system for knowledge providers and policy makers [18,19],

5. CONCLUSION

In a developing country like India where the introduction of ICT tools for agricultural extension is till new, challenges have been many both in the extension mechanism and the farmers or the end users’ side. Proper understanding of its use, its credibility and the access are the major bottlenecks along many others. Sensitizing farmers on use of mobile applications will facilitate to get right information at right time and improve the yields and economic condition of the farmers. Scientists should be taken efforts on sending more text and voice messages on pest and disease control measures as farmers suggested.

CONSENT

As per international standard or university standard, respondents’ written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Kailash A study on use of mobile phone technology (Smartphone) by the farmers of Nagaur district in Rajasthan. M.Sc. (Ag.) Thesis. Institute of Agricultural Sciences, Banaras Hindu University, Varanasi; 2016.
2. Kailash, Om Prakash Mishra, Shani Kumar Singh, Verma HK, Lokesh Kumar. Utilization pattern of mobile phone technology (Smartphone) among the farmers of Nagaur district in Rajasthan. Agriculture Update. 2017;12(3):399-404.
3. Anurag TS, Punna Rao P, Madhavarao and Arbind Simha. Final IIDS Project report submitted to the NAIP, ICAR, New Delhi; 2014.
4. Kanavi RS. An Analysis of Kisan Mobile Advisory Service (KMAS) of KrishiVignyan Kendra.M.Sc. (Ag.) Thesis. University of Agricultural Sciences, Dharward; 2014.
5. Singh S, Ahlawat S, Sanwal S. Role of ICT in agriculture. policy implications. Orient Journal of Computer Science and Technology. 2017;10(3).
6. Gidda Reddy P, Punna Rao P, Mallika M, Aruna Sri I. Information needs of farmers. Indian Journal of Agricultural Library and Information Services. 2011;27(2):25-30.
7. Punna Rao P, Raja Reddy K, Anurag TS, Mahadevaiah M, Sailu P. Interactive information dissemination system (IIDS) – An Alternative ICT model to meet the information needs of Indian farmer. Journal of Pharmacognosy and Phytochemistry. 2017;Special Issue:314-318.
8. Gidda Reddy P, Punna Rao P, Aruna Sri I, Mallika M. Effectiveness of ICT initiatives in Agriculture. Indian Journal of Agricultural Library and Information Services. 2011; 27(1):63-70.
9. Gidda Reddy, Punna Rao P, Mallika M, Aruna Sri I. Farmer’s perception on usefulness of ICT initiatives in Agriculture. Journal of Agricultural Extension Management. 2011;12(1):37-47.
10. Jayanthi M. Impact of ICT enabled agricultural extension services among farmers in Tamil Nadu. Ph.D. Thesis, Centre for Agricultural and Rural Development Studies, Tamil Nadu Agricultural University, Coimbatore; 2016.
11. Savitha B, Raji Reddy D, Anurag TS, Sailu P, Mahadevaiah M. Interactive Information dissemination system (IIDS) - An Innovative ICT Model for Agro Advisory Services to the Indian Farmers. Int. J. Curr. Microbiol. App. Sci. 2018;7(09):2274-2280.
12. Meena MS, Singh KM, Meena HR, Kanwant M. Attitude: A determinant of agricultural graduates’ participation in video conferencing technology. Journal of Agricultural Science. 2012; 4(1):136-142.
13. Michail Salampasis, Alexandros Theodoridis. Information and communication technology in agricultural development. Procedia Technology. 2013; 8:1-3.
14. Sowjanya, Bandaru Lakshmi, Banerjee PK. Impact of Annapurna Krishi Prasara Seva (AKPS) in Dissemination of Agricultural Information in East Coastal Districts of Andhrapradesh. M.Sc. Thesis; 2018.
15. Parab RL, Sawant PA, Sananse SL. Mysore Journal of Agricultural Sciences. 2010;44(3):604-608.
16. Soumya B, Savitha B, Sreenivasa Rao I. Extent of adoption of agro advisories disseminated through Annapurna Krishi Prasara Seva in Telangana state. Journal of Pharmacognosy and Phytochemistry. 2018;7(5):242-244.
17. Soumya B, Savitha B, Sreenivasa Rao I. Usefulness of agro advisories disseminated through interactive information dissemination system (Annapurna Krishi Prasara Seva) in the state of Telangana. International Journal of Agriculture Sciences. 2018;10(16):7006-7007.
18. Lokeswari K. A Study of the use of ICT among rural farmers. International Journal of Communication Research. 2016;6(3):232-238.
19. Manige SV, Patil M, Kumar P, Kantharaju V, Basavaprabhu. Karnataka Journal of Agriculture Sciences. 2013;26(4):524-527.

APPENDIX

Image 1. Creating awareness to farmers on AKPS services
Image 2. Collecting feedback from the farmers

Image 3. Data collection from the farmer

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