Original Research Article

e-Saayam – An ICT-based initiative to provide timely technical support to Farmers through AEOs in Karimnagar District of Telangana State

Abstract

Telangana's government has recruited many Agricultural Extension Officers (AEOs) for the Department of Agriculture. One AEO was appointed for every 2000 Ha. The newly recruited AEOs do not have enough practical knowledge & confidence to provide technical support to the experienced farmers. At the same time, there is a lack of timely technical support to farmers, leading to increased costs of cultivation, resulting in lesser net returns. To overcome this problem and provide continuous technical support & also to increase the confidence among the AEOs in the Department of Agriculture, Krishi Vigyan Kendra, Jammikunta has initiated ICT based e-Saayam project in collaboration with the Department of Agriculture to deliver credible advice to the farmers & keep updated by disseminating specific Agricultural Extension Services without time lapses in coordination with FARMER-AEO-SCIENTIST in a regular smart cyclic mode.

Both the Agriculture Department and KVK, Jammikunta are jointly implementing the programme from December 1, 2017. As part of the programme, AEOs would visit agricultural fields and identify standing crops. If they find any problem (Pest & diseases), they would take pictures of the affected crop using tablets supplied to them and post the picture on the e-Saayam WhatsApp group. Scientists who are part of the group would advise to overcome the particular problem. After getting a reply from scientists, AEOs would suggest to farmers regarding the steps to be taken to overcome the problem.

Keywords: e-Saayam, WhatsApp group, Farmer-AEO-Scientist, Feedback Information and Communication Technology (ICT)

Introduction:

Indian farming community is facing a multitude of problems to maximize crop productivity. Especially Smallholder farming systems are much less productive and profitable than they should be (GOI, 2015). Poor agricultural productivity has huge implications for employment, growth and poverty of a sizeable population of India. As per census 2011, 54.3 per cent of the population of India is engaged in agriculture (GOI, 2015). Despite successful research on new agricultural practices, the majority of farmers is not getting upper-bound yield due to several reasons. The knowledge and information gap seems to be one of the major factors for poor agricultural productivity (Singh, 2002). This gap seems to be the result of inadequacies of the current agricultural information delivery system. Indian farmers need timely expert advice to make them more productive and competitive.

Information needs of farmers related to introducing a particular crop, production techniques, agricultural inputs, market information, weather forecast, availability of credit, and expert advice about maintaining crops in a healthy state (Milovanovic, 2014). Such type of timely information requirements cannot be met through traditional face-to-face extension methods with low extension worker & Farmer ratio and their geographical availability and time constraints. To bridge the gap between farmers & extension workers, the Government of Telangana has recruited a large number of Agricultural Extension Officers (AEOs) in the Department of Agriculture. One AEO was appointed for every 5000 Ha. However, newly recruited AEOs do not have enough practical knowledge & confidence to provide technical support to the experienced farmers.

Low-cost information and communication technology (ICT) tools promise the ability to deliver timely, relevant, and actionable information to farmers throughout the world, at dramatically lower costs than traditional extension services (Aker, 2010; Cole and Fernando, 2012, World Bank, 2016). Among these tools, the mobile internet offers a futuristic scope for access to varied forms of dynamic information needed in agricultural production. The use of smart phones to provide localized agricultural information can help to reduce crop losses, improve yields as well as has a much more powerful equalizing effect on the incomes of small farmers (Shoham, 2015). Smartphone users spend considerably more time on social media platforms such as WhatsApp. Thus, there exists an ample opportunity to utilize WhatsApp for agricultural extension activities.

By utilizing this opportunity Krishi Vigyan Kendra, Jammikunta of Karimnagar district has initiated ICT based e-Saayam project in collaboration with the Department of Agriculture from 1st December 2017 to deliver credible advice to the farmers & keep updated by disseminating specific Agricultural Extension Services without time lapses in coordination with FARMER-AEO-SCIENTIST in a regular smart cyclic mode. Besides e-Saayam WhatsApp group.

e-Saayam is a WhatsApp-based agro-advisory system. It aims to improve farm productivity by delivering high-quality personalised (farm-specific) agro-expert advice on time through the Agricultural Extension Officers (AEOs) to each farm at the farmer's doorsteps without time lapses.

System Architecture and Operation:

The e-Saayam WhatsApp group includes all the Scientists of Krishi Vigyan Kendra (KVK) & District Agricultural Advisory and Transfer of Technology Centre (DAATTC), Agricultural Extension Officers (AEOs), horticulture officials of the Karimnagar district.

As part of the programme, all 54 AEOs in the district would visit a fixed number of farms daily and identify standing crops in their respective clusters comprising 5000 acres. If they find any problem (Pest & diseases), they would take pictures of the affected crop using tablets supplied to them and post the picture of the affected crop along with farmer details on the e-Saayam WhatsApp group. The scientists who are part of the group after analyzing the crop situation prepare a farm specific advice to overcome the particular problem via the same media to the AEOs. After getting a reply from scientists, AEOs disseminate the information directly to the concerned farmer through available e-mode with farmers or directly interact with farmers through phone calls to suggest to farmers the steps to be taken to overcome the problem. They would also take printout of the advices and displayed at 2 or 3 public gathering places in the village for delivering same information for the benefit of the farming community. Based on the queries raised by the AEOs in WhatsApp group, special programmes were also taken up like Farmer- Scientist interaction programmes and Joint diagnostic field visits with farmers.

e- Saayam Working Objectives:

1. To bridge the information gap between the agricultural expert and the farmer.
2. To provide continuous technical support and also to increase the confidence among the AEOs in Dept. of Agriculture.
3. To provide quality personalized agro-advice and cost-effective services to the farmers starting from pre-sowing operations to post-harvest precautions by involving AEOs in the district.

Innovation of the Project

- Improvement in the performance of agricultural extension services by providing practical knowledge & confidence in newly recruited Agricultural Extension Officers to provide technical support to the experienced farmers.
- Integrating the next-generation agro advisory tools and supplements in the present extension system.

- Improve the input efficiency by encouraging integrated pest management methods, judicious use of pesticides and fertilizers by avoiding their indiscriminate usage.

Benefits of e – Saayam:

- ✓ It provides quality personalised agro-advice to farmers with the involvement of the Department of Agriculture.
- ✓ It provides accountable advice with two-way communication.
- ✓ The advice is comprehensive, complete and regular in terms of diagnosis, analysis, advice delivery, follow-up and feedback.
- ✓ It significantly reduces the lag period between research efforts and field applications.

Major Outcomes

The farmers are happy with the expert advice as it is helping them improve input efficiency by encouraging integrated pest management (IPM) methods, and judicious use of pesticides and fertilisers by avoiding their indiscriminate usage. The details of benefits accrued to farmers are as follows:

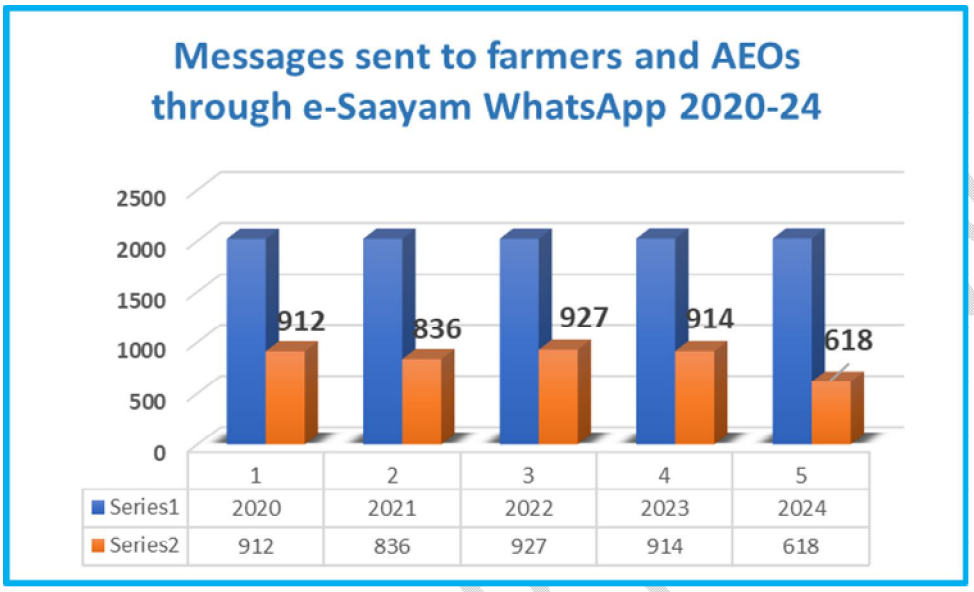
- No. of AEOs upgraded their knowledge and skills – 76
- No. of Framers benefitted – 7452
- No. of other farmers benefitted – 18,131
- Average Cost of cultivation (Rs/Ha) reduced- 1850.00
- An additional benefit (Rs/Ha) to the farmer- 2675.00
- The total benefit to the farming community (Rs.)- 1.9934 crores

Technical Knowledge and confidence of AEOs were increased to serve the farming community in a better way because these AEOs are grass-level workers in Dept. of Agriculture.

Table 1 : Messages sent to farmers and AEOs through e-Saayam WhatsApp 2020-24

S. No.	Year	No of Messages
1	2020	912
2	2021	836
3	2022	927
4	2023	914
5	2024	618
	Total	**4207**

Fig.1 No. of messages sent to AEOs through e-Saayam WhatsApp during 2018-19



COMPETING INTERESTS DISCLAIMER:

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

CONCLUSION

Imaginative use of Information and Communication Technology is endless to catalyze rural India and those dependent on agriculture. The e-Saayam enables farmers, even those who are marginal and poor, to cultivate knowledge on par with that of an agricultural expert. e-Saayam influences building enough practical knowledge & confidence in AEOs in the District to provide technical support to experienced farmers. Unnecessary sprays, using high cost chemicals for low cost, repeated use of the same chemical were some of the unwanted practices which could be stopped among farmers by providing timely information through Agricultural Extension Officers in the District.

REFERENCES

Aker, J.C. 2011. Dial "A" for agriculture: a review of information and communication technologies for agricultural extension in developing countries. *Agricultural Economics* **42**(6):631-647.

Cole, S.A. and Fernando, A.N. 2012. The value of advice: Evidence from mobile phone-

based agricultural extension. Working Paper, Harvard Business School: 13-47.

GOI, 2015. Raising agricultural productivity and making farming remunerative for farmers, an Occasional Paper, *NITI Aayog*, Government of India. New Delhi.

Milovanovic´ S. 2014. The role and potential of information technology in agricultural improvement. *Econ Agric*: **61** (2)

Shoham, J.2015. Access to mobile and inequalities in agriculture in India, The Policy Paper, Series Number 16, Vodafone

Singh, R.B., Kumar, P. and Woodhead, T. 2002. Smallholder Farmers in India: Food Security and Agricultural Policy, Rome FAO

World Bank. 2016. World Development Report: Digital Dividends. Washington, DC.
World Bank. https://openknowledge.worldbank.org/handle/10986/23347 License: CC BY 3.0 IGO."