

Original Research Article

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

Abstract

Telangana's government has recruited many Agricultural Extension Officers (AEOs) for the Department of Agriculture. A single 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 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 which 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 in December 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 the steps to be taken to overcome the problem. e-Saayam influences building enough practical knowledge & confidence in (76) Agricultural Extension Officers in the District to provide technical support to experienced farmers (18,131) were benefitted.

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 are 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; Thakur et al. 2017). 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 smartphones to provide localized agricultural information can help to reduce crop losses, improve yields as well and have a much more powerful equalizing effect on the incomes of small farmers” (Shoham, 2015; ~~Thakur et al. 2017~~). “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” ([Thakur et al. 2017](#)).

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 **in 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 the 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 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 printouts of the advice and display them at 2 or 3 public gathering places in the village to deliver the same information for the benefit of the farming community. Based on the queries raised by the AEOs in the 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 **the Department** 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, and 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 ([Jaisridhar et al.2012](#)). 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 **Agricultural Extension Officers** were increased by attending training to serve the farming community in a better way because these **Agricultural Extension Officers** are **field-level** workers in the **Department** of Agriculture.

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

S. No.	Year 2020-24	No of Messages were sent to the AEOs
1	2020	912
2	2021	836
3	2022	927
4	2023	914
5	2024	618
	Total	4207

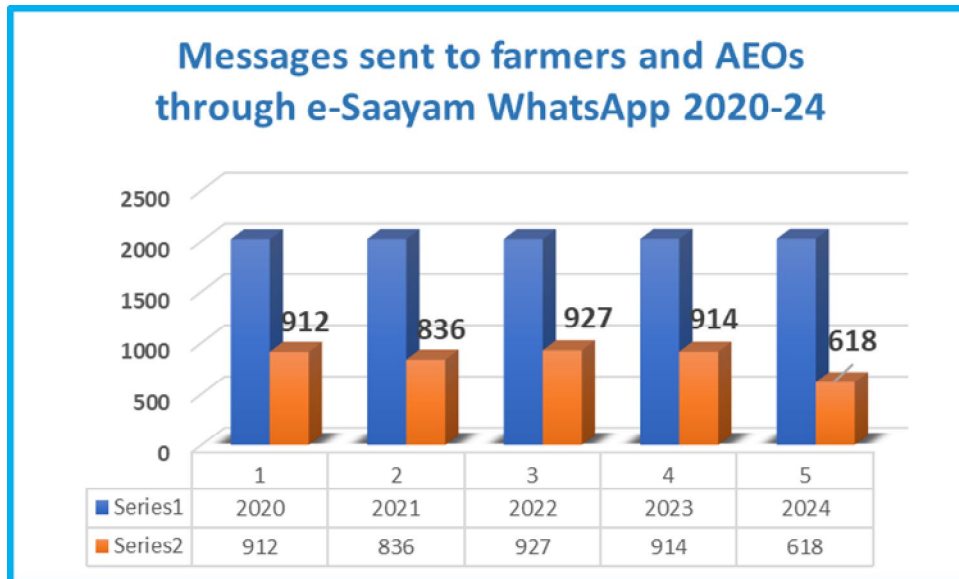


Fig.1 No. of messages sent to AEOs through e-Saayam WhatsApp during 2020-24

CONCLUSION

Imaginative use of Information and Communication Technology is endless to catalyze rural India and those dependent on agriculture. e-Saayam influences building enough practical knowledge & confidence in (76) Agricultural Extension Officers in the District to provide technical support to experienced farmers (18,131) were benefitted. Unnecessary sprays, using high-cost chemicals for low cost, and repeated use of the same chemical were some unwanted practices that could be stopped among farmers by providing timely information through Agricultural Extension Officers in the District.

Disclaimer (Artificial intelligence)

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during the writing or editing of manuscripts.

Option 2:

Author(s) hereby declare that generative AI technologies such as Large Language Models, etc have been used during the writing or editing of manuscripts. This explanation will include the name, version, model, and source of the generative AI technology as well as all input prompts provided to the generative AI technology

Details of the AI usage are given below:

1. ChatGPT

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