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RESEARCH PAPER

Impact of frontline demonstrations (FLDs) on adoption of improved production technologies in plantation crops

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Abstract: The study was conducted in the operational area of Krishi Vigyan Kendra, Sirsi, Uttara Kannada district of Karnataka state with the sample size of 60 farmers including 30 arecanut and 30 pepper growing FLD beneficiary farmers. The primary data was collected from the farmers on impact of frontline demonstration on the adoption of improved production practices in arecanut and pepper by considering the FLDs conducted in Uttara Kannada district for the year 2017-18, 2018-19 and 2019-20. It was observed that there was an improvement in adoption of improved practices of arecanut (43.33 %) as compare to adoption index before the FLD (37.75 %). Similar results were observed in pepper crop with an adoption index of 57.50 per cent (before it was 54.88 %). Study indicated that frontline demonstrations of KVK had remarkable influence on farmers regarding use of improved production practices in arecanut and pepper. Hence, it is suggested that frontline demonstrations should be conducted as a transfer of technology tool for higher adoption among the farmers.

Key words: Adoption, Arecanut, Intervention, Pepper

Introduction

Krishi Vigyan Kendras (KVKs), the farm science centers, have been claimed as one of the major institutional innovations of ICAR in India. KVKs act as knowledge and resource centers for district extension system in India and play a vital role in technology transfer and diffusion. The concept of frontline demonstration (FLD) was developed by ICAR in the year 1991-92. FLDs are conducted under the close supervision of the scientists of the National Agriculture Research System (NARS) where scientists themselves demonstrate the technologies for the first time before being fed into the main extension systems of the state. The technologies developed by the research institutes are transferred to the farming community through these FLDs to change adoption of improved varieties at farmer level. Hence, the present study was undertaken to study the impact of FLDs on adoption of improved production practices of arecanut and pepper.

Material and methods

The study was conducted in the year 2020-21 in operational area of Krishi Vigyan Kendra, Sirsi, Uttara Kannada district. Thirty each arecanut and pepper farmers to whom improved production technologies of arecanut and pepper were demonstrated through FLD by KVK, Sirsi and were selected by purposive random sampling. The primary data was collected using pre-tested schedule. The data was collected on adoption of improved production practices recommended by KVK during frontline demonstration in arecanut and pepper. The pre and post evaluation technique was used to assess the impact. The adoption of improved practices prior to the training and after training were recorded using recall method.

Results and discussion

Extent of adoption of improved practices in arecanut cultivation by KVK beneficiaries

The data in Table 1 indicates that, all the farmers growing arecanut had adopted SAS-I variety, and recommended spacing was fully adopted by 70 per cent of the arecanut growers and partially adopted by 30 per cent of the farmers before FLD and which remained same after FLD. Arecanut is a perennial crop and the gestation period of arecanut plants is from four to eight years. Hence, there was less scope for changing variety or spacing soon after the FLD. SAS-I variety is a suitable variety in the locality of Uttara Kannada district and hence most of the FLD farmers of arecanut had already adopted improved varieties like 'SAS-I', 'Mangala' and 'Dakshina Kannada'.The profile of the farmers indicated that majority of the farmers were well educated as they are growing plantation crops which involves high cost. They tend to contact different sources to improve the production.

It was observed that more number of farmers who participated in FLD had adopted improved methods. The recommended quantity of FYM (20 kg/plant/year) was adopted by 46.67 per cent after FLD as against the per cent of farmers adopted before (26.67%) while, 53.33 per cent of the farmers adopted partially after intervention as compared to 46.67 per cent before. In case of fertilizers, where the farmers adopting recommended dose of fertilizer (100:40:140 g/plant/year) was only 23.33 per cent before FLD which was changed to 33.33 per cent after FLD. It implies that farmers though managing the nutrients before intervention, it was less than the recommended dose. The FLD was able to bring conviction due to the demonstration and the results were visible to them. This had

resulted in more farmers adopting FYM and chemical fertilizers as recommended. The results were similar to the observations made by Mohanraj *et al*. (2019) in their study on adoption of recommended technologies in arecanut cultivation in Salem district of Tamil nadu where in they revealed that 100 % of the farmers adopted FYM application and 45.83 per cent of the farmers were adopted recommended doses of fertilizer application.

Regarding the common diseases management practices, 46.67 per cent of the FLD farmers of arecanut had adopted fruit rot management (bunch covering with polythene bags orbordeaux mixture (1%) spray to the bunches) practice fully and the same proportion (46.67 %) of the farmers had adopted partially before intervention. After intervention, 53.33 per cent had fully adopted and 46.67 per cent had partially adopted. Similarly, foot rot management practices (dig trenches with 30cm width and 60cm depth all around the plants or drench with 0.3 per cent calixin (3 ml/l) at 15 l/ palm or neem cake 2kg/palm/year) had adopted fully by 33.33 per cent and partially adopted by 40.00 per cent of the farmers before FLD. There was visible change after intervention that was observed with 43.33 per cent adopting fully and 33.33 per cent of them adopted partially.

As in the case of crown rot management (spraying bordeaux mixture 1%) practice, 40 per cent of the farmers had adopted fully and 53.33 per cent had partially adopted before intervention, that changed to 63.33 per cent adopting fully after intervention and 36.67 per cent partially whereas, in case of button shedding management practices (spray indofil M 45 @ 3g/lor dithane Z 78 at 4g/l or remove or burn affected inflorescence), farmers adopted fully (23.33 %) and partially (36.67 %) before intervention. After intervention, it was changed to fully adopted (40.00 %) and partially adopted (23.33 %). Likewise, in leaf spot management practices (bordeaux mixture spray @1%, 0.3 % dithane Z 78 @ 3g/l or mancozeb 75 WP 2g/ l spray), 60 per cent of the farmers fully adopted and 33.33 per cent partially adopted before intervention and after intervention, 66.67 per cent of the farmers fully adopted and 30 per cent had partially adopted.

Yellow leaf disease management (remove diseased palms or apply 1 g phosphatic fertilizer + 2kg neem cake per plant as two applications) was fully adopted by 16.67 per cent of the farmers and 83.33 per cent of the farmers had not adopted any of the practices to control yellow leaf disease which was changed after intervention to full adoption by 23.33 per cent and partially adoption by 10 per cent of the farmers. For the problem of nut splitting, 20 per cent of the farmers had fully adopted the management practice (borax spray at 2g/l) before intervention which was changed to fully adopted (26.67 %) and partially adopted (10.00 %) after the intervention. Regarding the band disease management (borax 25g/palm/year apply 225g of copper sulphate + lime in equal quantity) farmers had adopted the practice fully (30 %) and partially (50 %) before participating in FLD and the change was observed after intervention that, 43.33 per cent of the farmers had fully adopted and the same proportion (43.33 %) had partially adoption. Regarding the common pest management practices, arecanut farmers had adopted mites management practices (dicofol 18.5 EC 2.5 ml/ l spray or dimethoate 30 EC 1.7 ml/l). Among them, 46.67 per cent of the farmers had fully adopted and 13.33 per cent had partially adopted before intervention. It was changed after intervention to fully (53.33 %) and partially (30 %) adoption.

Table 1. Extent of adoption of improved practices in arecanut cultivation by KVK beneficiaries n=30

Practices	Adoption Level					
	Before FLD			After FLD		
	Fully adopted Freq.(%)	Partially adopted Freq.(%)	Not adopted Freq.(%)	Fully adopted Freq.(%)	Partially adopted Freq.(%)	Not adopted Freq.(%)
A. Varieties						
SAS1	30 (100.00)	0 (0.00)	0 (0.00)	30 (100.00)	0 (0.00)	0 (0.00)
Mangala	6 (20.00)	0 (0.00)	24 (80.00)	6 (20.00)	0 (0.00)	24 (80.00)
Sumangala	0 (0.00)	0 (0.00)	30 (100.00)	0 (0.00)	0 (0.00)	30 (100.00)
Mohitnagar	0 (0.00)	0 (0.00)	30 (100.00)	0 (0.00)	0 (0.00)	30 (100.00)
Sreemangala	0 (0.00)	0 (0.00)	30 (100.00)	0 (0.00)	0 (0.00)	30 (100.00)
Thirthahalli local	3 (10.00)	0 (0.00)	27 (90.00)	3 (10.00)	0 (0.00)	27 (90.00)
Dakshinakannada	0 (0.00)	0 (0.00)	30 (100.00)	0 (0.00)	0 (0.00)	30 (100.00)
Sreevardhana	0 (0.00)	0 (0.00)	30 (100.00)	0 (0.00)	0 (0.00)	30 (100.00)
B. Spacing						
2.7 x 2.7	21 (70.00)	9 (30.00)	0 (0.00)	22 (73.33)	8 (26.67)	0 (0.00)