Effectiveness of extension delivery methods in terms of knowledge gain and adoption behaviour of pulse farmers in Tenkasi district, Tamil Nadu

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ABSTRACT

The present study was conducted to identify the knowledge level, skill acquisition and symbolic adoption behaviour of farmers of Tenkasi district, Tamil Nadu by assessing the effectiveness of different extension delivery methods viz method demonstration, film show (video) and message. Under the high level of knowledge, the change was maximum (10%) in case of method demonstration. All three selected treatments were effective in imparting knowledge related to skill acquisition on pulse production technologies. However, the farmers exposed to method demonstration acquired more skills as compared to film show and message delivery systems. While distributing respondents to symbolic adoption level behaviour, it was found that majority of them fell under high level under method demopnstration. In overall adoption behaviour, most of the farmers (55%) had high level under method demonstration followed by medium (30) and low (15%) level. On the other hand, under film show method, most of the farmers (45%) had medium level followed by low (35%) and high (20%) level. Under message method, most of the farmers (43%) had low level followed by medium (42%) and high (15%) level. Thus it can be concluded that the method demonstration was the best method among the three delivery systems.

Keywords: Adoption behaviour; method demonstration; film show; message

INTRODUCTION

Tenkasi district of Tamil Nadu is predominantly an agricultural district. The district has two main seasons, Kar (from June to September during southwest monsoon) and Pishanam (from November to February during northeast monsoon). The cropping pattern of the district varies from one Taluk to another. Paddy occupies the largest area under cultivation followed by pulses in the district. Pulses are mostly cultivated in rainfed areas of the district. The traditional farming practices and limited access to information and technology have resulted in low yields and poor quality crops in the region.

To address these challenges, extension services comprise various extension delivery methods which depend on several factors, including the type of extension delivery method used, the target audience and the context in which it is delivered. In Tenkasi district, it is important to consider the local context including the specific needs and challenges of pulse farmers, while selecting and implementing extension delivery methods. By using a combination of methods, that are tailored to the local context, extension services can effectively promote knowledge gain and adoption behavior among pulse farmers.

Some common extension delivery methods include farmer field schools, demonstrations, workshops and mass media campaigns. Each method has its own strengths and limitations and the effectiveness of each method may vary depending on the target audience and the specific context. Delivery of appropriate information can play an important role including technology delivery, improved access to advice, research, markets, credit, infrastructure, farmer organization development and business development services (Sulaiman 2003).

METHODOLOGY

The study was conducted in three villages namely Chinnathambinadanur, Velayuthaputhapuram

and Kadambankulam of Tenkasi district of Tamil Nadu. Sixty farmers were randomly selected for assessing the effectiveness of extension delivery methods for transfer of agricultural information to the farmers. Based on the problems faced by the farmers, information related to production technologies was gathered to disseminate through different extension modes.

Three technological options were used to transfer production technologies of pulses as T_1 (Method demonstration), T_2 (Film show – video) and T_3 (Message). Pre- and post-test method was administered for these groups to identify the knowledge level before and after using the technological transfer mechanism. The scores gained in knowledge test were categorized as low (1-5), medium (6-10) and high (11-15). The perception of pulse farmers about extension delivery methods and the adoption level of technology transfer mechanisms were also studied.

RESULTS and DISCUSSION

Data given in Table 1 reveal that out of total farmers before the intervention of method demonstration, half of the farmers (50%) had low level with 15 and 35 per cent under medium and high level. After the intervention, majority of the farmers (45%) attained high level followed by medium (40%) and low (15%). In case of film show, most of the farmers fell under low and medium level (40% each) with lowest number in high level (20%). After the intervention, however, most of the farmers shifted to medium level (45%) followed by low (30%) and high (25%).

Similar trend was also observed in case of message. Before the message intervention, highest number of respondents fell under low category (65%) followed by medium (20%) and high (15%). However, after the intervention, highest number of farmers had medium (45%) followed by low (40%) and high (15%) level of knowledge.

The results indicate that the gain in knowledge was prominent after exposure to method demonstrations over other extension delivery methods. Under the high level of knowledge, the change was maximum (10%) in case of method demonstration.

Data given in Table 2 indicate that under method demonstration, maximum respondents were having low knowledge related to skill acquisition (50%) followed by high (35%) and medium (15%) knowledge. However, after the intervention, maximum number was under high (55%) followed by medium (25%) and low (20%) level. In case of film show, maximum respondents were having low knowledge related to skill acquisition (40%) followed by 30 and 20 per cent under high and medium knowledge respectively. After the exposure to film show, maximum number was under high (45%) followed by medium (35%) and low (20%) level. Similarly in case of message delivery method, maximum respondents were having low knowledge related to skill acquisition (65%) followed by medium (20%) and high (15%) knowledge. After the exposure to message, maximum number was under high (45%) followed by medium (30%) and low (25%) level.

The above results indicate that all three selected treatments were effective in imparting knowledge related to skill acquisition on pulse production technologies. However, the farmers exposed to method demonstration acquired more skills as compared to film show and message delivery systems.

While distributing respondents to symbolic adoption level behaviour (Table 3), it was found that most of them fell under high level. Under high level, 40, 15 and 10 per cent respondents knew about seed treatment with biofertilizers *Phosphobacteria* and *Rhizobium*; 45, 15 and 15 per cent knew about foliar spraying of Pulse Wonder; 50, 30 and 25 per cent about application of recommended manures and fertilizers; 65, 10 and 25 per cent about setting of pheromone traps; 45, 25 and 10 per cent about post-harvest management and 30, 20 and 10 per cent about value addition, exposed to method demonstration, film show and message delivery systems respectively.

Table 4 shows that in overall adoption behaviour, most of the farmers (55%) had high level under method demonstration followed by medium (30) and low (15%) level. On the other hand, under film show method, most of the farmers (45%) had medium level followed by low (35%) and high (20%) level. Under message method, most of the farmers (43%) had low level followed by medium (42%) and high (15%) level.

Thus it can be concluded that the method demonstration was the best method among the three delivery systems.

Table 1. Change in knowledge level of pulse farmers exposed to different extension delivery methods

Knowledge level	Delivery method													
	Method demonstration					Film show (video)					Message				
	Pre-test		Post-test		Change (%)	Pre-test		Post-test		Change (%)	Pre-test		Post-test		Change (%)
	n	%	n	%		n	%	n	%		n	%	n	%	
Low (1-5)	10	50	3	15	– 35	8	40	6	30	– 10	13	65	8	40	– 15
Medium (5-10)	3	15	8	40	25	8	40	9	45	5	4	20	9	45	25
High (11-15)	7	35	9	45	10	4	20	5	25	5	3	15	3	15	0

Table 2. Change in skill acquisition behaviour of pulse farmers exposed to different extension delivery methods

Skill acquisition behaviour	Delivery method								
	Method demonstration			Film show (video)			Message		
	Pre-test	Post-test	Change (%)	Pre-test	Post-test	Change (%)	Pre-test	Post-test	Change (%)
	(%)	(%)		(%)	(%)		(%)	(%)	
Low (1-5)	50	20	– 30	40	20	– 20	65	45	– 20
Medium (5-10)	15	25	10	30	35	5	20	30	10
High (11-15)	35	55	20	20	45	25	15	25	10

Table 3. Effectiveness of extension delivery methods on symbolic adoption behaviour level of pulse farmers

Technology	Level	Delivery method					
		Method demonstration		Film show (video)		Message	
		Number	%	Number	%	Number	%
Seed treatment with biofertilizers	Low	4	20	6	30	8	40
Phosphobacteria and	Medium	8	40	11	55	10	50
Rhizobium	High	8	40	3	15	2	10
Foliar spraying of	Low	4	20	9	45	10	50
Pulse Wonder	Medium	7	35	8	40	7	35
	High	9	45	3	15	3	15
Application of recommended	Low	2	10	2	10	4	20
manures and fertilizers	Medium	8	40	12	60	11	55
	High	10	50	6	30	5	25
Setting of pheromone traps	Low	2	10	5	25	6	30
	Medium	5	25	13	65	9	45
	High	13	65	2	10	5	25
Post-harvest management	Low	4	20	9	45	11	55
	Medium	7	35	6	30	7	35
	High	9	45	5	25	2	10
Value addition	Low	5	25	10	50	12	60
	Medium	9	45	6	30	6	30
	High	6	30	4	20	2	10

Table 4. Effectiveness of extension tools on overall adoption behavior level of pulse farmers

Level	Percentage of respondents		
	Method demonstration	Film show (video)	Message
Low	15	35	43
Medium	30	45	42
High	55	20	15

Under method demonstration, the extension agent can explain simple farming skills to a large number of people, thus increasing the impact of extension work. Moreover, as farmers are able to participate, there is a greater chance that they are benefited from the demonstration than if they were passively hearing it in a lecture (https://lms.su.edu.pk/lesson/1909/method-and-result-demonstrations). This is one of the best extension methods. People can see, hear, discuss and take part in a method demonstration. This makes them learn more completely than if they just sit and listen to a lecture (Anon 1971). Film show method rarely goes beyond creating general awareness of the audience (http://ecoursesonline.iasri.res.in/Courses/Extension%20Methodologies %20 for% 20 Transfer%20of%20ag.%20Tech/Data%20Files/lect11.html). The message method does not have an interface and the audience do not develop skill in a method through this delivery system.

Monikha et al (2021) conducted a study in Tenkasi district of Tamil Nadu to identify the knowledge level, skill acquisition and symbolic adoption behaviour of farmers by assessing the effectiveness of different extension tools viz expert system, agri-tech portal and extension literatures. Pre-test revealed that in all the three extension tools, forty five per cent of the farmers were having high level of knowledge, while the post-test results indicated that after exposure to expert system, sixty per cent of the farmers acquired high level of knowledge. Similarly, 70.00 per cent of the farmers' exposure to expert system had high level of symbolic adoption behaviour. Expert system assisted farmers to take decision to adopt different aspects of location-specific crop management practices for increasing their productivity.

Rajkala et al (2019) conducted a study in Ariyalur district of Tamil Nadu to assess the effectiveness of different technology delivery mechanisms viz distribution of literatures, delivering SMS and voice messages to the cashewnut growers. Pre-test revealed that only 16 per cent of the farmers were having high level of knowledge, while the post-test results indicated that information sharing through mobile text message in time to time was effective as 64 per cent of the farmers acquired high level of knowledge. Similarly, high level of adoption by 72 per cent of the respondents was observed for the technology of spraying of Panchagavya. Technology delivery through mobile text message was adjudged as good ICT mode to transfer technologies to the farmers.

CONCLUSION

Extension delivery methods play a critical role in promoting knowledge gain and adoption behaviour among pulse farmers. In the present study, the farmers exposed to the method demonstration had a high level of symbolic adoption behaviour which would guide them to take decision on different aspects of crop management practices like seed treatment with biofertilizers as *Phosphobacteria* and *Rhizobium*, foliar spraying of Pulse Wonder, application of recommended manures and fertilizers, setting of pheromone traps, post-harvest management and value addition. The choice of method depends on the specific context and target audience and a combination of methods may be most effective in promoting sustainable agricultural practices. By utilizing effective extension delivery methods, extension services can help to improve the livelihoods of pulse farmers and contribute to the overall development of the agricultural sector.

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