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A study on profile characteristics of beneficiaries and non-beneficiaries of mole plough technology implemented under RKVY Farmer FIRST project in western Maharashtra

SY Gadmale, PB Kharde, Preethi Battu, MK Rathod and PS Patil

Abstract
Department of Agriculture and Co-operation (DAC), Ministry of Agriculture, Government of India launched Rashtriya Krishi Vikas Yojana from 2007-08. The project entitled Farmer FIRST under RKVY is an MPKV, Rahuri initiative to move beyond the production and productivity and to privilege the complex, diverse and risk prone realities of majority of the farmers through enhancing farmers-scientists contact with multi stakeholders' participation. The period of the project was from 2016 to 2019. Mole plough technology was the one of the area-based technology implemented under RKVYFFP. The study was conducted in the year 2021, expost-facto research design was used for the study. 30 beneficiary farmers and 30 non-beneficiary farmers were selected from Satara, Sangli and Kolhapur districts (because technology was implemented under these three districts) and one village from each district were selected, hence total 60 respondents selected. Most of the beneficiary and non-beneficiary farmers were of middle-aged (48.39%) and (41.94%), respectively. Most of the beneficiaries had secondary level education (35.48%) and most of the non-beneficiaries had primary level education (32.26 %). Majority of beneficiaries and non-beneficiaries had agriculture as their primary occupation. Majority of the beneficiaries and non-beneficiaries were having fair cropping pattern. Near about half of the beneficiaries were semi-medium farmers (48.39%). Similarly, slightly more than quarter of the non-beneficiaries were semi-medium farmers (35.48%). 67.74 percent of the beneficiaries had 'medium' level annual income and 61.29 percent of the non-beneficiaries had 'medium' level annual income. More than half (54.84%) of the beneficiaries had 'medium' level of knowledge and in case of non-beneficiaries only 35.48 percent of the non-beneficiaries had 'medium' level of knowledge about mole plough technology for ill drained soil. Majority of the beneficiaries and non-beneficiaries were having medium sources of information, extension contacts, achievement motivation and risk orientation.

Keywords: RKVY, RKVYFFP, farmer first project, mole plough technology

1. Introduction
National Development Council in its meeting held on 29th May, 2007 observed that a special additional central assistance scheme be introduced to incentivized state to draw up comprehensive agricultural development plans taking into account agro-climatic conditions, natural resources and technology for ensuring more inclusive and integrated development of agriculture and allied sectors. In pursuance to aforesaid observation and in consultation with the Planning Commission, Department of Agriculture and Co-operation (DAC), Ministry of Agriculture, Government of India launched *Rashtriya Krishi Vikas Yojana* from 2007-08 which has been operational since then. The National Commission on farmers has drawn attention to the knowledge deficit, which constrains agricultural productivity. To overcome this, the farmers need effective linkages with universities and best practices. The project entitled Farmer FIRST under RKVY is an MPKV, Rahuri initiative for western Maharashtra to move beyond the production and productivity and to privilege the complex, diverse and risk prone realities of majority of the farmers through enhancing farmers-scientists contact with multi stakeholders' participation. Many aspects are multiple or multi; multiple stakeholders, multiple perspectives, multiple realities, multi- functional agriculture, multi method approaches. The period of the project was from 2016 to 2019. RKVY Farmer FIRST Project is the area-based programme. Hence, mole plough technology was implemented in Satara, Sangli and Kolhapur as most of the areas from these districts were waterlogged.

2. Methodology

The present study was conducted in three districts of Western Maharashtra state i.e., Satara, Sangli, and Kolhapur. The ex-post-facto research design was used for the study. One tehsil from each district and one village from each tehsil were purposively selected. Total 60 respondents (30 beneficiaries and 60 non-beneficiaries) from the same villages were selected. The interview schedule was drafted so as to collect the information in line with the objectives of the study. The interview schedule developed was pre-tested for its accuracy, simplicity, and practicability with a group of thirty beneficiaries of scheme. Data is acquired by personal interview. A study is based on eleven profile characteristics of the respondents and each variable is categorized according to mean and standard deviation. The data is tabulated and analysed using appropriate statistical tools i.e., mean, standard deviation, frequency, and percentage).

3. Results

Table 1: Personal characteristics of beneficiary and non-beneficiary farmers of mole plough technology

Sr. No.	Variables	Beneficiaries (n=30)		Non-Beneficiaries (n=30)	
		f	%	f	%
1	**Age**				
	Young age (Up to 35 years)	7	23.33	8	26.67
	Middle age (36 to 54 years)	16	53.34	15	50.00
	Old age (55 and above years)	7	23.33	7	23.33
2	**Education**				
	Illiterate (no formal education)	3	10.00	5	16.67
	Primary (Std. I to VII)	6	20.00	6	20.00
	Secondary (Std. VIII to X)	10	33.33	11	36.67
	Higher secondary (Std. XI to XII)	6	20.00	4	13.33
	Collegiate (Degree & above)	5	16.67	4	13.33
3	**Occupation**				
	Agriculture	16	53.33	19	63.33
	Agriculture + Business	8	26.67	6	20.00
	Agriculture + Service	6	20.00	5	16.67
3	**Land Holding**				
	Small farmer (Up to 2 ha)	7	23.33	9	30.00
	Semi medium farmers (2.01 to 4.00 ha)	13	43.34	11	36.67
	Medium farmers (4.01 to 10.00 ha)	7	23.33	6	20.00
	Big farmers (Above 10.00 ha)	3	10.00	4	13.33

It is concluded from the Table 1 that most of the beneficiary farmers were of middle-aged (53.34%) followed by old age (23.33%), and young age (23.33%). Similarly observed in case of non-beneficiaries, most of the farmers were of middle aged (50.00%) followed by young age (26.67%), and old age (23.33%). It can be inferred that the respondents were of middle aged in both the categories.

Table 1 indicated that 33.33 percent of beneficiaries had secondary level education followed by primary education (20.00%), higher secondary education (20.00%), degree and above education (16.67%), and illiterate (10.00%). In case of the non-beneficiaries, 36.67 percent of the respondents had secondary level education followed by primary level education (20.00%), illiterates (16.67%), higher secondary education (13.33%), degree and above education (13.33%).

From table 1 it is evident that majority of the beneficiaries had agriculture as the primary occupation (53.33%), followed by agriculture with business (26.67%), and agriculture with service (20.00%). Similarly, 63.33 percent of non-beneficiaries had agriculture as their primary occupation followed by agriculture with business (20.00%) and agriculture with service (16.67%).

It is clear from the Table 1 that majority of the beneficiaries were semi-medium farmers (43.34%) followed by small farmers (23.33%), medium farmers (23.33%), and big farmers (10.00%). Similar in case of non-beneficiaries, most of the respondents were semi-medium farmers (36.67%), small farmers (30.00%) followed by medium farmers (20.00%), and big farmers (13.33%).

Table 2: Socio-economic and communicational characteristics of beneficiary and non-beneficiary farmers of mole plough technology

Sr. No.	Category	Beneficiaries (n=30)		Category	Non-beneficiaries (n=30)	
		f	%		*f*	%
1	**Cropping pattern**					
	Poor (Up to 5)	5	16.67	Poor (Up to 4)	10	33.33
	Fair (6 to 9)	16	53.33	Fair (8 to 9)	15	50.00
	Good (10 & above)	9	30.00	Good (10 & above)	5	16.67
	Mean= 7.29	SD= 2.39		Mean= 6.50	SD= 2.30	
2	**Annual income**					
	Low (Up toRs.145132)	6	20.00	Low (Up to Rs.132167)	6	20.00
	Medium (Rs.145133 to Rs.460325)	17	56.67	Medium (Rs.132168 to Rs.399499)	19	63.33
	High (Rs.460326 & above)	7	23.33	High (Rs.399500 & above)	5	16.67
	Mean= 302729	SD= 157597		Mean= 265833	SD= 133666	
3	**Sources of information**					

	Low (Up to 30)	6	20.00	Low (Up to 23)	8	26.67
	Medium (31 to 44)	17	56.67	Medium (24 to 37)	15	50.00
	High (45 & above)	7	23.33	High (38 & above)	7	23.33
	Mean= 37.25	SD= 7.62		Mean= 30.67	SD= 7.61	
4	**Extension contacts**					
	Low (Up to 7)	7	23.33	Low (Up to 6)	11	36.67
	Medium (8 to 9)	17	56.67	Medium (7 to 8)	12	40.00
	High (10 & above)	6	20.00	High (9 & above)	7	23.33
	Mean= 8.50	SD= 1.56		Mean= 7.08	SD= 1.53	
5	**Knowledge**					
	Low (Up to 6)	7	23.33	Low (Up to 5)	8	26.67
	Medium (7 to 8)	18	60.00	Medium (6 to 7)	13	43.33
	High (10 & above)	5	16.67	High (8 & above)	9	30.00
	Mean= 7.50	SD= 1.43		Mean= 5.67	SD= 1.37	
6	**Achievement motivation**					
	Low (Up to 14)	6	20.00	Low (Up to 12)	7	23.33
	Medium (15 to 18)	18	60.00	Medium (13 to 16)	18	60.00
	High (19 & above)	6	20.00	High (17 & above)	5	16.67
	Mean= 16.42	SD= 2.70		Mean= 14.21	SD= 2.57	
7	**Risk Orientation**					
	Low (Up to 13)	7	23.33	Low (Up to 11)	8	26.67
	Medium (14 to 19)	17	56.67	Medium (12 to 17)	15	50.00
	High (20 & above)	6	20.00	High (18 & above)	7	23.33
	Mean= 16.50	SD= 3.64		Mean= 14.88	SD= 3.43	

It is observed from the above Table 2 that many of the beneficiaries had 'fair' cropping pattern (53.33%) followed by 'good' cropping pattern (30.00%) and 'poor' cropping pattern (16.67%). On the other hand, most of the non-beneficiaries had 'fair' cropping pattern (50.00%) followed by 'poor' cropping pattern (33.33%), and 'good' cropping pattern (16.67%).

The results shown in Table 2 indicated that, 56.67 percent of the beneficiaries had 'medium' level annual income followed by 'high' (23.33%) and 'low' (20.00%) annual income. Similarly, 63.33 percent of the non-beneficiaries had 'medium' level annual income followed by 'low' (20.00%) and 'high' (16.67%) annual income. However, mean annual income of the beneficiaries was Rs. 302729.16 with the SD = 157597, while mean annual income of the non-beneficiaries was Rs. 265833.33 with the SD = 133666.25 which indicates that beneficiary farmers had higher annual income compared to non-beneficiary farmers.

The results shown in Table 2 indicated that more than half of the beneficiaries had 'medium' level of sources of information (56.67%) followed by 'high' level (23.33%) and 'low' level (20.00%) of sources of information. In case of non-beneficiaries, majority of the farmers (50.00%) had 'medium' level of sources of information followed by 'low' level (26.67%) and 'high' level (23.33%) of sources of information. However, the mean sources of information score of beneficiaries were 37.25 with standard deviation 7.62 higher compared to that of non-beneficiary farmers (mean score 30.67 with SD 7.61).

Table 2 shows that 56.67 percent of the beneficiaries had 'medium' level of extension contact while 23.33 percent and 20.00 percent of them had 'low' level and 'high' level of extension contact respectively. In case of non-beneficiaries, 40.00 percent had 'medium' level of extension contact while 36.67 percent and 23.33 percent had 'low' level and 'high' level of extension contact respectively. The mean extension contact score for beneficiary farmers was 8.50 with SD 1.56 while mean extension contact score for non-beneficiary farmers was 7.08 with SD 1.53.

The results given in Table 2 indicated that more than half (60.00%) of the beneficiaries had 'medium' level of knowledge followed by 'low' level (23.33%) and 'high' level (16.67%) of knowledge about mole plough technology for ill drained soil. Similar in case of non-beneficiaries, 43.33 percent of non-beneficiaries had 'medium' level of knowledge followed by 'high' level (30.00%), and 'low' level (26.67%) of knowledge about mole plough technology for ill drained soil. It was noted from the above result that the knowledge score of the beneficiary group ranged from 7 to 8 with the mean knowledge score 7.50 and SD 1.43. The knowledge score of non-beneficiary group ranged from 6 to 7 with the mean knowledge score 5.67 and SD 1.37.

It is evident from the Table 2 that majority of the beneficiaries had 'medium' level of achievement motivation (60.00%) followed by 20.00 percent beneficiaries had 'high' level and 20.00 percent beneficiaries had 'low' level of achievement motivation. Whereas 60.00 percent non-beneficiaries had 'medium' level of achievement motivation followed by 23.33 and 16.67 percent of non-beneficiaries had 'low' level and 'high' level of achievement motivation respectively. The mean achievement motivation score of beneficiary farmers was 16.42 with SD 2.70 while mean achievement motivation score of non-beneficiary farmers was 14.21 with SD 2.57.

From the Table 2 observed that majority of the beneficiaries had 'medium' level of risk orientation (56.67%) followed by 'low' level (23.33%), and 'high' level (20.00%) of risk orientation. Similarly in case of non-beneficiaries, half of them (50.00%) had 'medium' level of risk orientation followed by 'low' level (26.67%), and 'high' level (23.33%) of risk orientation. Furthermore, mean risk orientation score for beneficiary farmers was 16.50 with SD 3.64 while mean risk orientation score for non-beneficiary farmers was 14.88 with SD 3.43.

4. Conclusion

Most of the beneficiary farmers were of middle-aged (53.34%), whereas half of the non-beneficiaries were of middle aged (50.00%). 33.33 percent of beneficiaries had

secondary level education and 36.67 percent of the respondents had secondary level education. Majority of the beneficiaries had agriculture as the primary occupation (53.33%), similarly, 63.33 percent of non-beneficiaries had agriculture as their primary occupation. Majority of the beneficiaries were semi-medium farmers (43.34%) and most of the non-beneficiaries were semi-medium farmers (36.67%). Many of the beneficiaries had 'fair' cropping pattern (53.33%), similar in case of non-beneficiaries, most of the non-beneficiaries had 'fair' cropping pattern (50.00%). 56.67 percent of the beneficiaries had 'medium' level annual income whereas 63.33 percent of the non-beneficiaries had 'medium' level annual income. But mean annual income of the beneficiaries was Rs. 302729 while mean annual income of the non-beneficiaries was Rs. 265833.33. More than half of the beneficiaries had 'medium' level of sources of information (56.67%). In case of non-beneficiaries, majority of the farmers (50.00%) had 'medium' level of sources of information. 56.67 percent of the beneficiaries had 'medium' level of extension contacts while 40.00 percent of non-beneficiaries had 'medium' level of extension contacts. More than half (60.00%) of the beneficiaries had 'medium' level of knowledge whereas 43.33 percent of non-beneficiaries had 'medium' level of knowledge about mole plough technology for ill drained soil. Both the beneficiaries and non-beneficiaries had 'medium' level of achievement motivation (60.00%). Majority of the beneficiaries had 'medium' level of risk orientation (56.67%). Similarly in case of non-beneficiaries, half of them (50.00%) had 'medium' level of risk orientation.

5. Future scope of the study

Majority of the beneficiaries were having medium level of annual income, cropping pattern, sources of information, extension contacts, knowledge about mole plough technology for ill drained soil, risk orientation, and achievement motivation. And important thing is that all these characteristics are better in case of beneficiaries than non-beneficiaries. Therefore, it is implied that State Agricultural departments and government should come forward and try to promote the similar projects in undeveloped and needed areas for better farming and uplifting socio-economic status of the farmers. The study was confined with only three districts of the western Maharashtra and that too in only three villages (one from each district), hence study can be conducted in wider areas to get an overall profile characteristic of beneficiary farmers.

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