Knowledge of Paddy and Irrigated Dry Crop Growers on Agricultural Implements and Machinery

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Abstract

The present study entitled 'A Study on the Agricultural Mechanization in Karimnagar District of Andhra Pradesh' had been initiated focusing on the knowledge, extent of use, attitude and documentation of farmers innovations in agricultural implements and machinery. In the present investigation we adopted the Ex post–facto research design. Karimnagar district of Telangana region of Andhra Pradesh state was purposively selected for the study as maximum budget is allotted by the Department of Agriculture, Government of Andhra Pradesh for this district among the other Telangana districts under farm mechanization. The study was conducted in 4 villages selected from 2 mandals of Karimnagar district, which included 30 farmers from each village which has selected for the study, 120 farmers of sample were selected for the study. Majority of the large farmers had high knowledge (57.5%) regarding agriculture implements and machinery followed by medium and small farmers (45%) had low and medium knowledge.

Introduction

In agriculture major essential inputs are implements and machinery which is operated by power. An overall description of the application of these inputs in crop cultivation is denoted by the term farm mechanization.In many developing countries up to 80 per cent of farm power is provided by human beings. In most developed countries human beings are used less and less as a source of power and more for machine operation and control.

The progress of farm mechanization in terms of demand of agricultural equipment is estimated at about 1 to 1.5% per annum. With scarce availability of fodder and feed to animal draft animal power (DAP) to mechanical power hence mechanical power has become more economical and natural resources and inputs are effectively utilized. India has achieved considerable progress in the field of agricultural mechanization over the past four decades. Mechanization played a key role as the fourth input to get the highest yields in agriculture.

For which, besides other things, the average farm power availability will have to be increased from the present level of about 1.35 to 2.00 kw/ha by 2020 Banerjee[1]. The usage of mechanical and electrical sources of power in agriculture will increase agricultural production competitive and cost effective.

Despite of advantages discussed earlier on farm mechanization, many constraints were also reported to stand in the way of mechanization such as scattered holdings of small sized farms, small land holder who is poor they do not have capacity to purchase the costly machinery, very poor knowledge of farmer in buying the farm machinery, operate and maintain it properly,

inadequacy of farm power and machinery with the farmers, repair and replacement facilities not available especially in the remote rural areas and due to the seasonal nature of the agriculture, the farm machinery remains idle for much of the time.

Keeping in view of the above background and also dearth of academic studies on farm mechanization the present investigation to find out Knowledge of Paddy and ID Crop Growers on Agricultural Implements and Machinery was designed. Ex-post-facto research is a systematic enquiry in which the researcher does not have direct control on the independent variables because their manifestations have already occurred or because they are inherently not manipulable, Kerlinger[2].

Material and Methods

The state of Andhra Pradesh was chosen and Telangana region was selected purposively as the investigator hails from this region. The Telangana region is comprised of 10 districts. Out of these 10 districts, Karimnagar district was selected for the study purposively as maximum budget is allotted by the Department of Agriculture, Government of Andhra Pradesh for this district among the other Telangana districts under farm mechanization. Out of 57 Mandals of the district two mandals namely Choppadandi and Jagitial were selected purposively as maximum budget is allotted by the Department of Agriculture for these two mandals under farm mechanization. From each mandal two villages were selected at random by following simple random sampling method. Bhoopalapatnam and Vedurugatta villages in Choppadandi mandal and Dharur and

Thippannapet villages in Jagitial mandal were selected randomly to make a total sample of four villages. From each village 10 small, 10 medium and 10 large farmers cultivating paddy and ID crops were selected.

Interview schedule developed for collecting data from the selected respondents. Each selected respondent was personally contacted and interviewed with the help of interview schedule. Observation of respondent's background, behaviour, emotions, feelings, ideas, aspirations and surroundings were also made use of during interview.

Knowledge on Agricultural implements and machinery (AIM): Knowledge is operationalized as the amount of information understood about the agricultural implements and machinery by the respondents.

List of agricultural implements and machinery that are suitable for the study area as recommended by ANGRAU, Department of agriculture and NGO's were prepared and questions were formulated for the machinery and implements pertaining to paddy and ID crops. The agricultural implements and machinery recommended for paddy crop were 20 in number. A schedule was developed to measure the knowledge level of respondents about agricultural implements and machinery. The questions were related to names of implements and machinery, number of labour required for operation, time required/ acre, cost of

implement/ machinery, cost of fuel/acre, fuel consumption/acre and source of availability.

The answers elicited from the farmers were quantified, for correct answer assigning a score of one and for incorrect answer it was zero. Total score of a respondent is obtained by summing up individual scores obtained by him/ her for each machinery/implement according to crop. Then the respondents according to their overall knowledge were categorized into three groups of low, medium, high based on exclusive class interval. Further, in order to find out knowledge of respondents on farm implements and machinery in depth, knowledge score was summed up operation wise i.e., knowledge on farm implements and machinery in land preparation and sowing, weeding , spraying and harvesting and post harvesting in paddy and irrigated dry crops.

Results and Discussion

The results were expressed in the form of frequencies and percentages.

Result in table-1 clearly indicated that overall knowledge of majority of overall small farmers (45%) was low; for majority of medium farmers (45%) it was medium and for majority of large farmers (57.5%) it was high Deshmukh[3]. Similar trend was observed in case of small, medium and large farmers when considered for paddy and irrigated dry crops separately.

Table 1
Respondents distribution according to their overall Knowledge n=120

S. No	Category		Paddy (n=60)			Irrigated dry crops (n=60)			Over all farmers			Total
			SF	MF	LF	SF	MF	LF	SF	MF	LF	
1	Low (0-50)	n	15	3	5	3	3	4	18	6	9	33
		%	75	15	25	15	15	20	45	15	22.5	27.5
2	Medium (50-100)	n	3	10	4	14	8	4	17	18	8	43
		%	15	50	20	70	40	20	42.5	45	20	35.8
3	High (100-150)	n	2	7	11	3	9	12	5	16	23	44
		%	10	35	55	15	45	60	12.5	40	57.5	36.6
	Total	n	20	20	20	20	20	20	40	40	40	120
		%	100	100	100	100	100	100	100	100	100	100

** (n= sample size), (SF=Small farmers, MF= Medium farmers, LF= Large farmers)

Table-2
Respondents distribution according to their knowledge Operation wise n =120

S. No	Category		Paddy (n=60)			Irrigated dry crops (n=60)			Over all farmers		
			SF	MF	LF	SF	MF	LF	SF	MF	LF
Knowledge on AIM used in Land preparation and sowing											
1	Low	n	12	1	3	7	2	3	19	3	6
		%	60	5	15	35	10	15	47.5	7.5	15
2	Medium	n	5	6	5	10	15	8	15	21	13
		%	25	30	25	50	75	40	37.5	52.5	32.5
3	High	n	3	13	12	3	3	9	6	16	21
		%	15	65	60	15	15	45	15	40	52.5
4	Total	n	20	20	20	20	20	20	40	40	40
		%	100	100	100	100	100	100	100	100	100
Knowledge on AIM used in weeding											
1	Low	n	9	2	5	9	0	3	18	2	8
		%	45	10	25	45	0	15	45	5	20
2	Medium	n	10	9	2	7	10	6	17	19	8
		%	50	45	10	35	50	30	42.5	47.5	20
3	High	n	1	9	13	4	10	11	5	19	24
		%	5	45	65	20	50	55	12.5	47.5	60
4	Total	n	20	20	20	20	20	20	40	40	40
		%	100	100	100	100	100	100	100	100	100
Knowledge on AIM used in spraying											
1	Low	n	11	5	4	7	5	4	18	10	8
		%	55	25	20	35	25	20	45	25	20
2	Medium	n	7	8	3	11	5	6	18	13	9
		%	35	40	15	55	25	30	45	32.5	22.5
3	High	n	2	7	13	2	10	10	4	17	23
		%	10	35	65	10	50	50	10	42.5	57.5
4	Total	n	20	20	20	20	20	20	40	40	40
		%	100	100	100	100	100	100	100	100	100
Knowledge on AIM used in harvesting and post harvesting											
1	Low	n	9	4	9	8	5	5	17	9	14
		%	45	20	45	40	25	25	42.5	22.5	35
2	Medium	n	7	8	2	11	11	4	18	19	6
		%	35	40	10	55	55	20	45	47.5	15
3	High	n	4	8	9	1	4	11	5	12	20
		%	20	40	45	5	20	55	12.5	30	50
4	Total	n	20	20	20	20	20	20	40	40	40
		%	100	100	100	100	100	100	100	100	100

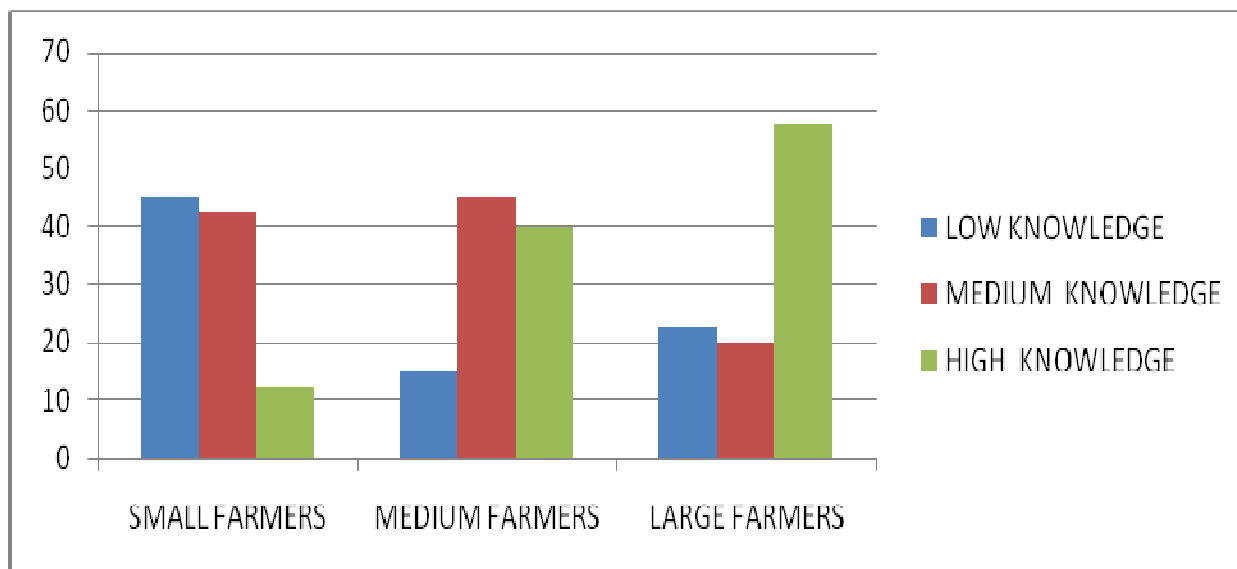** (n= sample size), (SF=Small farmers, MF= Medium farmers, LF= Large farmers)

Figure-1
Respondents distribution according to their overall knowledge on agricultural implements and machinery

With the respect to knowledge on farm implements and machinery used in land preparation and sowing, weeding and spraying majority of overall respondent farmers under small farmers (47.5%, 45% and 45%) had low knowledge respectively.

In case of land preparation and sowing, weeding and harvesting and post harvesting majority overall of medium farmers (52.5%, 47.5% and 47.5%) were found to possess medium knowledge respectively.

With regards to land preparation and sowing, weeding and harvesting and post harvesting, majority overall of large farmers (52.5%, 60% and 50%) were found to possess high knowledge respectively.

In case of spraying operation, majority of overall respondent farmers in small farmers (45%), medium farmers (42.5%) and large farmers (57.5%) had low and high knowledge on Agricultural implements and machinery respectively.

The low knowledge of small farmers on Agricultural implements and machinery used in all farm operations might be due to their low socio economic status, low (nil to one time) participation in extension activities, low socio political participation and cultivation only single crop. Whereas medium to higher scores obtained by respondents in socio economic status, participation in extension activities (one time to more than one time), socio political participation and cultivation of more than one crop might have caused medium and high knowledge among medium and large farmers respectively.

Hence Government through its extension centres viz., KVK's, DAATTC's, FTC, State Department of Agriculture and NGO's should concentrate their efforts on training all the farmers in general.

Relationship between Profile Characteristics and Knowledge of Respondents on Agricultural Implements and Machinery: Null hypothesis: There will be no significant relationship between profile characteristics of respondents and knowledge of respondents on agricultural implements and machinery**.**

Empirical hypothesis: There will be significant relationship between profile characteristics of respondents and knowledge of respondents on agricultural implements and machinery**.**

It is clearly evident from the Table 3 that, the calculated 'r' values between knowledge and farm size, procurement of agricultural Implements and machinery, participation in extension activities related to Agricultural Implements and machinery were greater than table 'r' value at 1 per cent level of probability which indicated positive and significant relationship. Socio political participation and types of crops cultivated were also positively significantly correlated to knowledge at 5 per cent level of probability. Hence, null hypothesis was rejected and empirical hypothesis was accepted for these variables.

On the other hand the calculated 'r' values between knowledge and age, education, farming experience, socio economic status, source of irrigation, scientific orientation, labour availability, and availability of repair centres were less than table 'r' value. Hence null hypothesis accepted and empirical hypothesis was rejected for these variables. Therefore, it can be concluded that there was no significant relationship between above profile characteristics and knowledge.

Table-3
Correlation coefficient values between profile characteristics and knowledge.

S.No	Variables	Knowledge
1	Age	0.048 NS
2	Education	0.144 NS
3	Farm size	0.314**
4	Farming experience	0.086 NS
5	Socio economic status	0.095 NS
6	Socio political participation	0.253*
7	Source of irrigation	0.156 NS
8	Scientific orientation	0.130 NS
9	Labour availability	0.099 NS
10	Procurement of Ag. Implements and machinery	0.234**
11	Participation in Extension activities related to Ag. Implements and machinery	0.236**
12	Availability of Repair centres	0.079 NS
13	Types of crops cultivated	0.199*

Conclusion

Majority of the farmers had high to medium knowledge regarding agricultural implements and machinery but the usage of agriculture implements and machinery was medium to low. It can be improved by developing and distributing location specific implements and machinery and also government should provide subsidies for purchasing the implements and machinery.

References

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