International Journal of Farm Sciences **6(2)** : 240-246, 2016

Problems and suggestions of paddy and irrigated dry crop growers in the use of agricultural implements and machinery

M SAMPATH KUMAR, R VASANTHA and A SAILAJA

Department of Agricultural Extension, College of Agriculture
Professor Jayashanker Telangana State Agricultural University
Rajendranagar, Hyderabad 500030 Telangana, india
Email for correspondence*:* sampathmspr@gmail.com

ABSTRACT

The study was conducted on the use of farm implements by the paddy growers of Karimnagar district of Telangana region of Andhra Pradesh. Ex post facto research design was adopted in the present investigation. Karimnagar district was purposively selected for the study as maximum budget was allocated by the Department of Agriculture, Government of Andhra Pradesh to this district in Telangana. Four villages were selected from two Mandals of Karimnagar district which included 30 farmers from each village thus making a sample of 120 farmers. Majority of paddy farmers expressed the problem of wheel breakage (83.3%) in power tiller followed by wear and tear of blades in puddler (66.6%). In case of irrigated dry crop growers, majority (75%) expressed the problem of loosening of bolts and nuts in MB plough followed by plough shear wear out (63.3%).

Keywords: Problems; suggestions; agricultural implements; machinery

INTRODUCTION

The combination of local knowledge and continuous experimentation can lead to adaptations, innovations or even inventions. Innovation processes are largely self-guided yet they are affected by the acts of communication. The evolution of agriculture would not have been possible without continuous processes of experimentation and innovation. Banerjee (2010) did a detailed study on the pattern and scope of energy conservation in implements in agriculture in West Bengal. With the development of agricultural machinery industry in the modern market economy, brand variety of agricultural machinery will face an increasing strong competition in China so a consumer-based brand research on agricultural machinery will be necessary (Jianying et al 2011).

Rising interests in farmers' experiments in many countries and the capacity of farmers to find viable solutions for a large variety of problems were underestimated for many years. The traditional processing equipment used by

the farmers included Supa, Chalni, Chakiya, Fanta, Silbatta, Okhli, Mathani, puffing pan, mini oil Ghanis/Kolhus, rice hullers and flour Chakkis etc (Singh 2012).

Creative farmers are not encouraged to develop their own solutions for the problems being faced by them. Nowadays participatory approach is based on farmers' capacity to experiment on their own which integrates farmers' local knowledge and needs that is gaining recognition among extension agents, scientists and policy makers. Many case studies have shown that some farmers do experiments in very creative ways. The study presented here shows the various problems faced by the farmers while using farm implements and machinery and the suggestions given by them as per their experiences and ideas to overcome those problems.

METHODOLOGY

Telangana region in Andhra Pradesh was selected for the study. Out of 10 districts of Telangana region Karimnagar district, out of 57 Mandals of the district two Mandals namely Choppadandi and Jagitial were selected for the study purposively as maximum budget had been allotted by the Department of Agriculture, Government of Andhra Pradesh to this region under farm mechanization. From each Mandal two villages, Bhoopalapatnam and Vedurugatta villages in Choppadandi and Dharur and Thippannapet villages in Jagitial Mandal were selected randomly. From each village 10 small, 10 medium and 10 large farmers cultivating paddy and irrigated dry crops were selected randomly. Data were collected from the selected respondents by using a pre-tested interview schedule.

RESULTS and DISSCUSSION

Problems and suggestions in the use of farm implements and machinery

The problems in the use of farm implements and machinery as faced by the respondents were collected and results were expressed in the form of frequencies and percentages. The suggestions to overcome these problems were also simultaneously documented from farmers. For the farm implements and machinery that are commonly used both by paddy and irrigated dry crop farmers, percentages were computed for 120 respondents whereas for farm implements and machinery used uniquely by paddy and irrigated dry crop farmers percentages were computed for 60 respondents each.

Problems and suggestions in the usage of agricultural implements and machinery in paddy

With respect to puddler, majority of the respondents (66.6%) told that wear and tear of blades was the biggest problem for which 25 per cent of them suggested the replacement of blade with new ones (Table 1). Difficulty while operating due to the stubbles stuck the blades was reported

Table 1. Distribution of respondents according to problems and suggestions in the usage of agricultural implements and machinery in paddy (n= 60)

Machinery	P/S	Statement	#	%
Puddler	P	Wear and tear of blades	40	66.6
	S	Replacement of blades with new one	15	25
	S	Need to manufacture blades of longer duration	8	13.3
	S	Reduce heavy load on blades	5	8.33
	S	Only use for secondary tillage	5	8.33
	S	Do not operate in dry field conditions	17	28.3
	P	Difficulty while operating due to the stubbles stuck the blades	35	58.3
	S	PTO shaft operating speed should be increased	28	46.6
	P	Short life span of wooden beam	27	45
	S	Use iron made beam instead of wooden beam	25	41.6
Cage wheels	P	Formation of cracks and breaks on wheels	30	50
	S	Welding	8	13.3
	S	Do not move the tractor with cage wheels on the roads	12	20
	S	It should be operated in fine till conditions	4	6.66
	S	Do not put heavy loads on cage wheels	3	5
	S	Do not operate at high speed in the field	3	5
Power tiller	P	Wear and tear of tynes and blades	28	48.6
	S	Repair or replacement of tynes	16	26.6
	S	Not to operate directly in stony field conditions	12	20
	P	Breakages occurring on wheels	20	83.3
	S	Do not put heavy loads on wheels	10	16.6
	S	Do not operate at high speed in the field	5	8.33
	S	Better to use as a secondary tillage implement	5	8.33
Paddy transplanter	P	Formation of gaps between paddy seedlings	35	58.3
	S	Fine field conditions (stone free) could overcome this problem	20	33.33
	S	Uniform nursery growing	15	25
	P	Not suitable for light textured soils	24	40
	S	Transplanter suitable to light texture soils was needed	15	25
	P	Operating the machine was difficult	28	46.6
	S	Required full expertise for proper operation of the machine	20	33.3
	P	Unequal planting of seedlings	20	33.3
	S	Nursery should be uniform	10	16.6
	P	It was not transplanting corners of the field	15	25
	S	Transplanting should be done manually at the corners	14	23.3

P= Problem, S= Suggestion

by 58.3 per cent respondents for which 46.6 per cent suggested that PTO shaft operating speed should be increased. 45 per cent told the problem of short life span of wooden beam for which use of iron made beam was suggested by 41.6 per cent respondents.

Fifty per cent complained of formation of cracks and breaks on cage wheels and to get it welded was suggested by 13.3 per cent respondents. Main problem with power tiller was wear and tear of tynes and blades felt by 48.6 per cent respondents for which 26.6 per cent of them suggested the repair or replacement of tynes. The problem of formation of gaps between paddy seedlings due to transplanter was raised by 58.3 per cent respondents and the suggestion given by 33.33 per cent was that fine field conditions (stone free) could overcome this problem

Problems and suggestions in the usage of agricultural implements and machinery in irrigated dry crops

The major problem associated with mould board plough was loosening of bolts and nuts as reported by 75 per cent respondents and 58.3 per cent suggested that they should use welded plough for this (Table 2). 53.3 per cent were of the view that maize sheller had the problem of blockage of cylinder of cob gate for which 41.6 per cent suggested the solution through clearing the cob gate. Blockage of pipes during sowing seeds and fertilizer application with ferti cum seed drill and seed drill was reported the problem by 50 per cent respondents and pipes should be monitored and cleaned properly was suggested by 33.33 per cent.

Problems and suggestions in the usage of agricultural implements and machinery in paddy and irrigated dry crops

Major problem opined by 66.6 per cent respondents was of frequent damage of tynes of the cultivator for which the solution given was use tynes of longer duration by 25 per cent (Table 3). In case of rotavator 66.6 per cent respondents raised the problem of frequent loosening of rotavator bearings and the solution given by 33.3 per cent was replacement of blades with new ones. In case of Dammu Nagali loosening of teeth was the problem of 56.6 per cent respondents and the solution proposed by 50 per cent was replacement with new teeth. 66.6 per cent respondents informed that combine harvester had the problem of blockage of grain tank and 50 per cent suggested that crop should be dried properly for its use. Damaging of cut-off valves of sprayer was the problem of 66.6 per cent growers for which 58.3 per cent suggested that repair or replacement with new cut-off valves should be done. Blockage of sieves of the seed cleaner was the problem of 50 per cent respondents and the solution given by 58.3 per cent was regular cleaning of the sieve holes. Wear and tear of blades in chaff cutter was the problem reported by 41.6 respondents and the solution to it was

Table 2. Distribution of the respondents according to problems and suggestions in the usage of agricultural implements and machinery in irrigated dry crops (n= 60)

Machinery	P/S	Statement	#	%
Mould board plough	P	Loosening of bolts and nuts	45	75
	S	Use of welded plough	35	58.3
	p	Plough share wear out	38	63.3
	S	Use wear resistant materials	30	50
	P	Rusting of plough lever	22	36.6
	S	Occasionally greasing	20	33.3
Maize sheller	P	Blockage of cylinder of cob gate	32	53.3
	S	Clearing the cob gate	25	41.6
	P	Breakage of cobs	26	43.3
	S	Cobs should be properly dried	20	33.3
	p	Un-threshed grains in cobs	21	35
	S	Increase cylinder speed	12	20
	S	Feeding should be uniform	9	15
	P	Vibration in maize Sheller	27	45
	S	Install machine properly	13	21.6
	S	Tighten the bearing	14	23.3
Ferti cum seed drill and seed drill	P	Blockage of pipes during sowing seeds and fertilizer application	30	50
	S	Pipes should be monitored and cleaned properly	20	33.3

P= Problem, S= Suggestion

Table 3. Distribution of the respondents according to problems and suggestions in the usage of agricultural implements and machinery used commonly in paddy and irrigated dry crops (n= 120)

Machinery	P/S	Statement	#	%
Cultivator	P	Frequent damage of tynes	80	66.6
	S	Use tynes of longer duration	30	25
	S	Do not put heavy load on tynes	15	12.5
	S	Do not use in very dry field conditions	35	29.1
	P	Missing or losing of bolts and nuts	65	54
	S	Replacement with new bolts and nuts	60	50
Rotavator	P	Wear and tear of blades	70	62.5
	S	Replacement of blades with new ones	40	33.3
	S	Do not operate in very dry field conditions	30	25
	P	Frequent loosening of rotavator bearings	80	66.6
	S	Replacement with new ones	43	35.8
	S	Apply grease to bearings and all movable parts	37	30.8
	P	Frequent Shaft detachment of rotavator	55	45.8

	S	Strongly attaching to tractor	45	37.5
Dammu Nagali	P	Loosening of teeth	68	56.6
	S	Replacement with new teeth	50	41.6
Combine harvester	P	Blockage of grain tank	80	66.6
	S	Cleaning	30	25
	S	Crop should be dried properly	50	41.6
	P	Too much chaff in grains	60	50
	S	Control the blower	35	29.1
	S	Increase the speed of straw rack	25	20.8
	P	Grain going over tank	55	45.8
	S	Increase rack speed	30	25
	S	Decrease cylinder speed	25	20.8
	P	Paddy straw wrap in cylinder	52	43.3
	S	Increase cylinder speed	45	37.5
Sprayer	P	Damaging of cut-off valves	80	66.6
	S	Repairing or replacement with new cut-off valves	70	58.3
	P	Blocking of pump with dust	72	60
	S	Cleaning and checking regularly	65	54.1
	P	Nozzles blockage	85	70.8
	S	Proper cleaning of nozzle after spraying	75	62.5
	P	Lubricating oil problem in power sprayers	65	54
	S	Changing oil regularly	60	50
	p	Drying of parts of grease point	55	45.8
	S	Check grease points once in a day and apply grease if required	50	41.6
Seed cleaner	P	Blockage of sieves	60	50
	S	Regular cleaning of the sieve holes	70	58.3
Chaff cutter	P	Wear and tear of blades	50	41.6
	S	Replace or repair the blades	44	36.6
	P	Loosening of gears and bearings	32	26.6
	S	Regular application of grease	40	33.3
Harrow and	P	Loosening of bearings & bushings	55	45.3
disc harrow	S	Repair/replacement of bearings	25	20.3
	S	Regular application of grease	30	25
	P	Loosening of discs due to overuse	65	54
	S	Use a large socket wrench to tighten them before use of the disc harrow	49	40.8
	P	Bearings in the disc hub were wearing due to dirt and dust	72	60
	S	Make sure to check before using the harrow and apply bearing grease as needed	55	45.8
Power weeder	P	Damage of rotating blades	62	51.6
	S	Do not operate on very hard surfaces	32	26.6
	S	Proper cleaning should be done	30	25
	P	Breaking of clutch wires and damage of gear box	48	40
	S	New clutch wire should be used and repair the gear box	40	33.3

P= Problem, S= Suggestion

replacing or repair of the blades suggested by 36.6 per cent.

Sixty per cent growers were of the opinion that bearings in the disc hub of harrow and disc harrow were wearing due to dirt and dust for which 45.8 per cent of them suggested that before using the harrow and applying it should be properly checked. Similarly 51.6 per cent respondents reported that power weeder had the problem of damage of rotating blades and the solution to it was to avoid its use on very hard surfaces given by 26.6 per cent.

REFERENCES

Banerjee P 2010. Study on energy consumption pattern and scope of energy conservation in implements used in agriculture. MTech thesis, Jadavpur University, Kolkata, West Bengal, India.

Jianying F, Peng L, Weison M, Xiaoshuan Z and Zetian F 2011. Farmers' brand perception toward agricultural machinery in China. African Journal of Agricultural Research **6(8):** 1966-1971.

Singh G 2012. Agricultural mechanization development in India- lessons for developing countries. International Conference on Creating a Competitive Edge through Agricultural Mechanization and Post-Harvest Technology in Developing Countries, Agricultural Engineering - CIGR-AgEng 2012: Agriculture and Engineering for a Healthier Life, 8-12 July 2012, Valencia, Spain.

Received: 24.4.2015 ***Accepted: 13.9.2015***