



EMPOWERMENT OF FARM WOMEN THROUGH LOCATION SPECIFIC DRUDGERY REDUCING TECHNOLOGIES IN AGRICULTURE-A CASE STUDY ON KRISHI VIGYAN KENDRAS OF ODISHA

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ABSTRACT

Women are the back bone of agricultural work force (Population: 48.1 % women and 51.9 % men). In overall farm production, women's average contribution is estimated at 55 to 66 % of the total labour with percentages much higher in certain regions women do the most tedious and back-breaking jobs in agriculture, animal husbandry and home. After PRA survey, as per the need of the farm women the Home Scientists of KVKs have been assigned to mainstream the women in agriculture, identify the issues, provide suitable interventions, capacity building activities for them as well as in-service personnel, NGOs, rural youth, unemployed youth. Approximately 130 Nos of OFTs and 112 No. of FLDs on 2550 nos. of farm women on drudgery reduction of farmwomen were conducted in various KVKs over the period. Capacity building activities in using drudgery reducing technologies were conducted through 1520 trainings. The feedback is collected through direct interaction with the end users and taking their data on attributes like, perceived exertion, relative advantage, compatibility, simplicity, utility, cost effectiveness, applicability for further refinement and documentations. More than 25 drudgery reducing technologies/ implements were adopted in 485 Nos Villages in different blocks of 31 Districts by farm women in various pre-sowing, sowing, harvest and post-harvest processes. Around 15 heavy to moderately heavy activities are now become light to very light making them more convenient to perform. In relation to drudgery faced by farm women in different farm activities, based on opinion of farm women, maximum degrees of drudgery perceived by the respondent were in rice transplanting and harvesting followed by preparatory work during seedbed, weeding, sowing, irrigation, fertilizer application, pesticide dusting, carrying crops to threshing and grain carrying operations. In post-harvest operations, maximum drudgery oriented task as perceived by rural women was winnowing, plucking vegetables and during making of value added products. Thus, the severe pain they felt in elbow, shoulder, arms, wrist, back, legs have been done away with and those activities are carried out with very light to moderate pain. The reduction of drudgery resulted - reduced occupational health hazards, improved efficiency and enhanced output, which lead to better livelihood options and family food security.

Keywords: Farm women, Drudgery, Efficiency, Health, livelihood



INTRODUCTION

Women are the back bone of agricultural work force (Population: 48.1 % women and 51.9 % men). Women work force constitute 23 % of the total work force. 46.3 % of the women work force are agricultural Workers. 55-66 percent of agricultural Work force are women. In overall farm production, women's average contribution is estimated at 55 to 66 % of the total labour with percentages much higher in certain regions Women do the most tedious and back-breaking jobs in agriculture, animal husbandry and home. Hard work of women is mostly unpaid and unnoticed.

Drudgery is generally conceived as physical and mental strain, agony, fatigue, monotony and hardship experienced by human being, while all these result in decline in performance of men and women alike. The plight of women in this regard is alarming as they are constrained by illiteracy, poor health, unemployment, low technical know-how and skills. The farm

women put in hard physical labour beyond their capacity. A continuous work affects adversely their mental and physical well-being. In relation to drudgery faced by farm women in different farm activities, based on opinion of farm women, maximum degrees of drudgery perceived by the respondent were in rice transplanting and harvesting followed by preparatory work during seedbed, weeding, sowing, irrigation, fertilizer application, pesticide dusting, carrying crops to threshing and grain carrying operations. In post-harvest operations, maximum drudgery oriented task as perceived by rural women was winnowing, plucking vegetables and during making of value added products. Scientific and technological inputs and interventions are thus required in agriculture to relieve farm women from the physical and mental strain (Singh et al 2008). The paper highlights on reducing drudgery of women particularly about agriculture work load in Odisha.



MATERIALS AND METHODS

The 31 Krishi Vigyan Kendras spread across the entire state of Odisha got reach to the farmwomen population (65%) in 485 villages of 122 blocks over 31 districts, through its various programmes. The Home Scientists have been assigned to mainstream the women in agriculture, identify the issues of farmwomen, provide suitable interventions, capacity building activities of farmwomen as well as in-service personnel, NGOs, rural youth, unemployed youth. After PRA survey, as per the need the KVK conducted On-Farm Testing to assess the suitability of drudgery reducing technologies / implements for farmwomen by measuring the drudgery in terms of heart rate, energy expenditure, output, time spent and muscular-skeletal problems. The suitable technologies converted to Front Line Demonstration for large scale adoption. Training on innovative agricultural technologies to improve the skill and knowledge level of the farm women were also

an integral part of the KVKs methodology. For larger dissemination and popularization of the technologies, field-days are organized in farmers' fields. Through TV talk, Radio talk it also tries to create awareness among the farm women. Celebration of women in agriculture day KVK insisted farm women to adopt friendly tools for drudgery reduction and increasing their income by efficiently utilizing their leisure time. Approximately 130 Nos of OFTs and 112 No. of FLDs on 2550 numbers of farm women on drudgery reduction of farmwomen were conducted in various KVKs over the period. Capacity building activities in using drudgery reducing technologies were conducted through 1520 trainings. The feedback was collected through direct interaction with the end users and taking their data on attributes like, perceived exertion, relative advantage, compatibility, simplicity, utility, cost effectiveness, applicability for



further refinement and documentation.

RESULTS AND DISCUSSION

Women friendly drudgery reducing implements mostly demonstrated in different districts of Odisha as these include farm machines that take account of the different needs and capacities of women's bodies, catering to their typically lower mass and muscle strength, postural differences, load-bearing and lung-breathing capacity, and oxygen consumption rates. All these jobs involve considerable amount of drudgery as they are not only done manually but also, they must be performed by bending posture under the shining sun for long hours (Kumar Bharath et al 2011). The scientists also stressed on improving quality of work life of farmwomen by creating awareness to adopt these implements through different mode of events.

In post-harvest operations, maximum drudgery oriented task as perceived by rural women was winnowing followed by crop bundles of harvested produce in

the thresher, carrying bundles on head to threshing place, collecting harvested produce and making bundles, transporting produce from farm to home, filling grains in gunny bags. Least drudgery-oriented tasks considered were storing grains and protecting harvested produce from birds. The main reasons for drudgery perception were monotone, tiring, laborious, repetitive and time-consuming tasks. Women are still taking role as gender division in crop production activities. Crop activities prioritized on drudgery by men are distinctly different (Mrunalini and Snehalatha, 2010). In horticulture they were more prone to drudgery as weeding, sowing, watering, plucking is the main operation conducted by women in vegetable cultivation. The above women friendly implements reduced the drudgery and increase the efficiency of farm women.

More than 15 drudgery reducing technologies/ implements were adopted in 485 Nos Villages in different blocks of 31 Districts



by farm women in various pre-sowing, sowing, harvest and post-harvest processes. Drudgery of farm women in various field operations could be reduced by providing improved farm tools and equipment and the attention of farm women was directed towards the women friendly improved farm tools (Patel et al., 2015). According to the feedback, the improved tools and equipment are primarily developed keeping men workers in consideration while farm women in the country are also involved in most of the operations. Hence, already developed equipment are not suitable to farm women as such because ergonomical characteristics are different than men workers. The result is that women workers forced to carry out the operation with their hands, and there is a lot of drudgery involved in it in addition to occupational health problems. The posture adopted during the operation are also not proper and lead to occupational health problems, if not given due attention. The reduction of

drudgery resulted - reduced occupational health hazards, improved efficiency and enhanced output, which lead to better livelihood options and family food security.

CONCLUSION

Most of the Krishi Vigyan Kendra of Odisha has set a long vision to strengthen the inherent power of farm women. It will motivate the farm women to take initiative roles for establishing processing units by which they can preserve their products and obtain a good price as per their expectation. This can be possible by taking mutual supports of Govt. and Non-Govt. agencies. KVKs should take some of the following future strategy to adopt women friendly technologies.

- Preparation of location specific action plan by KVKs
- The tools and implements designed by ICAR Institutes/SAUs need to be tested/refined to suit to local conditions/traditions by KVKs



- Developing of technical skills among farmwomen in agriculture and allied fields
- Mechanisms to reach larger number of women
- Extension functionaries to be enriched with advanced knowledge
- The gender specific implements both in farm as well as in home needs to be available locally at subsidized rates
- Easy and wide availability of Liberalized bank credit including in problems areas
- A health cum insurance policy for farm women

Figure-1: % Participation of women in agriculture in Odisha

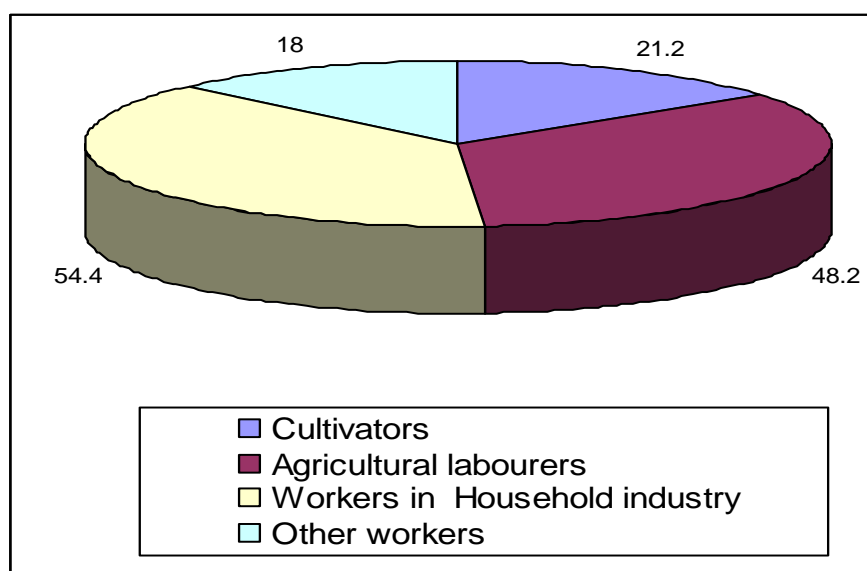


Table-1: Performance of various drudgery reducing technologies assessed by KVKs across the state

Sl. No.	Technology/ Implements assessed	Musculo-skeletal problem		Avg. Energy Expenditure (KJ/min.)			Avg. Output			
		FP	RP	FP	RP	% reduction	Unit	FP	RP	Increase (%)
1.	Bhindi plucker	Pain in arms, shoulders, back and fingers	Only light pain in wrist and elbow	7	6.46	7.71	kg/hr	5.56	8.12	46.04
2.	Drum seeder	Severe pain in back, arm and shoulder	Light pain in shoulder, back	10.1	12.2	-20.79	sqm/hr	100	900	800.00
3.	Groundnut decorticator	Light pain in fingers, shoulders	Moderate pain in wrist, arm and shoulder	7.95	6.4	19.50	kg/hr	2.32	27	1063.79
4.	Groundnut	Light pain in	Very light pain	10.	11.9	-10.43	kg/h	6.71	7.8	17.4



Sl. No.	Technology/ Implements assessed	Musculo-skeletal problem		Avg. Energy Expenditure (KJ/min.)			Avg. Output			
		FP	RP	FP	RP	% reduction	Unit	FP	RP	Increase (%)
	stripper	fingers, shoulders	in finger	83	6		r		8	4
5.	Hand operated paddy winnower	Severe pain in elbow, wrist and shoulder	Light pain in wrist and shoulder	5.18	4.74	8.49	kg/hr	54.2	160.8	196.68
6.	Hand ridger	Severe pain in arms, wrist and elbow	Light pain in shoulder and arm	8.91	8.32	6.62	sqm/hr	40.8	87.7	114.95
7.	Improved sickle	Severe pain in arms, wrist and shoulder	Light pain in arms, wrist and shoulder	14.12	13.84	1.98	sqm/hr	206.11	231	12.08
8.	Mahua seed decorticator	Light pain in fingers, shoulders	Moderate pain in wrist, arm and shoulder	11.17	9.47	15.22	kg/hr	1.8	10.5	483.33
9.	Paddy parboiling unit	Severe pain in arms, wrist and shoulder	Light pain in arms, wrist and shoulder	8.4	6.95	17.26	kg/hr	35	75	114.29
10.	Pedal operated paddy thresher	Severe pain in elbow, wrist and shoulder	Moderate pain in midback, knees, legs and feet	15.78	12.76	19.14	kg/hr	21.6	45.6	111.11
11.	Sugarcane stripper	Moderte pain in elbow, wrist and shoulder	Light pain in elbow, wrist and shoulder	11.18	10.12	9.48	kg/hr	38	47	23.68
12.	Sunflower thresher	Light pain in fingers, shoulders	Very light pain in finger	12.68	8.16	35.65	kg/hr	5	20	300.00
13.	Tubular maize sheller	Severe pain in shoulder, palm	Light pain in shoulder, palm	6	7	-16.67	kg/hr	4	25	525.00
14.	Twin wheel hoe weeder	Severe pain in shoulder, elbow & wrist	Light pain in shoulder, elbow & wrist	5.17	4.12	20.31	sqm/hr	130.34	170.86	31.09
15.	Wheel finger weeder	Severe pain in shoulder, elbow & wrist	Light pain in shoulder, elbow & wrist	9.98	8.32	16.63	sqm/hr	150	500	233.33

Table-2: Performance of various drudgery reducing technologies assessed by KVKs across the state

Sl. No.	Technology/ Implements assessed	Impact	Feedback
1	Bhindi plucker	Adopted in 12 villages in 4 districts	Avoid hand injury and reduction in skin problems
2	Drum seeder	Adopted in 21 villages of 3 districts	Increase efficiency and uniformity in seed sowing. Easy to transport and handle
3	Groundnut decorticator	Adopted in 476 villages 8 districts	Less breakage of groundnut seeds
4	Groundnut stripper	Adopted in 56 villages	Reduction in pain in hands



Sl. No.	Technology/ Implements assessed	Impact	Feedback
		of 5 districts	And palms
5	Hand operated paddy winnower	Adopted in 1256 villages 21 districts	Reduction in pain in hands And shoulders
6	Hand ridger	Adopted in 68 villages 5 districts	Reduction in backache, maintains right posture
7	Improved sickle	Adopted in 867 villages is of 13 districts	Saves time and faster work, does not require sharpening of cutting edge frequently
8	Mahua seed decorticator	Adopted in 16 villages in 4 districts	Reduction in pain in finger tips and faster decortications.
9	Paddy parboiling unit	Adopted in 168 villages in 7 districts	Breakage percentage of rice is reduced during milling
10	Pedal operated paddy thresher	Adopted in 526 villages of 8 districts	Easier threshing compared to traditional method
11	Sugarcane stripper	Adopted in 72 villages in 6 districts	It avoids hand injury and increases work efficiency
12	Sunflower thresher	Adopted in 52 villages in 9 districts	Easy to operate and reduction of pain in finger tips.
13	Tubular maize sheller	Adopted in 845 villages in 12 districts	Reduction in pain in finger tips, avoids injury and faster shelling.
14	Twin wheel hoe weeder	Adopted in 32 villages 5 districts	Maintains the right posture and reduction in backache
15	Wheel finger weeder	Adopted in 27 villages 4 districts	Maintains the right posture and reduction in backache

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