

Front-Line Demonstrations for Drudgery Reduction of Women in Agriculture

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Abstract

Rural women are engaged in various agricultural operations like transplanting, weeding, harvesting, picking and post harvesting. Despite significant contribution of women in these activities, those engaged in the formulation of policies have often tended to neglect the productive role of women. All these tasks are time consuming and full of drudgery over the years. Women are engaged in more labour oriented intensive work which requires more physical efforts resulting in physical and ergonomical problems. They face various health problems which need to be tackled effectively for better health and well being of women in agriculture. Hence a study was conducted to carry out Front Line Demonstrations on hundred women engaged in vegetable plucking and cotton picking. Intervention kit comprising of protective gloves, protective masks and pick bag was provided to women for use in agricultural operations of vegetable plucking and cotton picking. After two months of use of the intervention kit data was collected for collection capacity, safety and comfort scores. Results of the study highlighted that the intervention kit helped in reducing the physical health problems and ergonomic problems. Body parts discomfort scores (BPDS) indicated that with the use of protective and functional kit there was decrease in pain of different body parts. Overall Adoption Feasibility Index (AFI) indicated very high adoption (92.66%) of technology.

Keywords: *Front line Demonstration, Intervention kit, Protective gloves, Protective masks, Pick bag, Adoption feasibility index.*

1. Introduction

Agriculture is one of the important sectors determining Indian economy with a contribution of

about 22 percent to GDP. An overwhelming majority of women in rural India is associated directly or indirectly with agriculture production, processing and distribution. Women do extremely tedious, time and labour intensive works like sowing, transplanting, weeding and interculture, harvesting, threshing, picking/plucking and post harvest operations like shelling, cleaning, grading and processing. Ergonomic risk factors are found in jobs requiring repetitive and severe health hazards in terms of cuts and wounds in hands, hardness of skin, blisters and abrasions.

It has been observed that women are less likely to be involved in more mechanized and capital intensive farms geared to market oriented productions. Women lack technological knowledge and have limited access to skills in the use of new techniques, lack of official support and information. They are responsible for more labour intensive work that requires painstaking physical efforts and patience, resulting in drudgery and fatigue. Drudgery which is generally conceived as physical and mental strain, fatigue, monotony and hardship experienced by a human being. National commission on women (2006) had reported that importance of women in agriculture could be attributed to alleviation of poverty, attainment of food security, promotion of well being but the greatest concern is her contribution is not being recognized. Agriculture work is not free from hazards of various types of gravity, farm workers face numerous occupational and health hazards like body care, allergies, eye irritation and breathlessness. Front-Line Demonstration is one of the most powerful extension tools in communication of new ideas, methods and techniques in agriculture development. It helps to convince the farmers faster than any other method through the process of processing, hearing, learning, motivates and encourages one to change his habit,

customs, traditions and practices and thereby helps in building of a progressive attitude. Keeping in mind, frontline demonstrations were conducted to mitigate health hazards in agriculture.

2. Methodology

Present study was conducted in Fatehabad district of Haryana state. Five predominantly cotton growing and five vegetable growing villages were selected randomly for conducting demonstration on protective garments for reducing health hazards in agriculture. Thus total ten villages namely Dhani Majra, Birabadi, Badopal, Dhani Bikaneri and Barsheem for vegetable cultivation Bhattu, Sirdhan, Bigarh, Kirdhan and Thuyan for cotton cultivation were selected purposively in year 2011-12 and 2012-13, respectively. Ten farm women from each village were selected randomly for Front-Line Demonstration on ergonomic intervention. Thus a sample of total 100 women was selected purposively who actively engaged in vegetable plucking and cotton picking.

Front-Line Demonstration kit in form of ergonomic intervention consisting of Protective gloves, Protective masks and Pick bag was provided to each participant for use.

Protective gloves: These are made up of PVC material on one side and blend of cotton or hosiery fabric on the other side. The blended fabric absorb sweat and avoid skin allergies, cuts and wounds in hands faced by women while plucking vegetables.

Protective masks: These are made of cotton fabric and mulmul at nose portion. It covers neck, head and face of user. It prevents sticking of dust, husk and straw around the neck area. Mulmul around nose portion prevents entering of dust/ husk during breathing and protects from harsh environment and direct sun rays.

Pick bag: it is made of cotton cloth and used for collection of cotton and vegetables during picking. Shaped pockets made in front side, make it comfortable for cotton picking. Cushioned belts on shoulders and design as per anthropometric measurements make it easy to carry upto 7kg. load.

All these interventions were provided for one month during peak season of vegetable plucking and cotton picking. The respondents were asked to use the conventional materials for first one month and in second month intervention kit were provided. Evaluation was done after two months on parameters of collection capacity, safety and comfort scores, health hazards and body part discomfort scores.

3. Results and Discussion

Table 1: Health Hazard Perceived by Women in Agriculture

Parameters	Conventional Method			Recommended Method		
	WMS	MS	Rank	WMS	MS	Rank
Physical Health Problems						
Skin allergies	115	2.3	VI	50	1	V
Blisters	129	2.6	IV	32	0.6	VIII
Cuts and wounds in hands	144	2.9	I	38	0.8	VII
Abrasions	140	2.8	II	32	0.6	VIII
Hardness of fingers	131	2.6	III	52	1	IV
Irritation in eyes, nose and throat	125	2.5	V	60	1.2	III
Headache	98	2	VII	90	1.8	I
Sun stroke	72	1.4	VIII	42	0.8	VII
Dizziness	70	1.4	IX	64	1.3	II
Asthama	60	1.2	X	24	0.5	X
Ergonomics						
Backache	97	1.9	II	30	0.6	IV
Body pain	79	1.6	IV	46	0.9	II
Hand pain due to frequent movement	119	2.4	I	70	1.4	I
Shoulder pain	92	1.8	III	42	0.8	III
Miscellaneous						
Work pressure	79	1.6	II	70	1.4	III
Dullness/Boredom	94	1.9	I	80	1.6	I
Chemical hazards	53	1.1	V	40	0.8	V
Spondilites	50	1	VI	30	0.6	VI
Fear of crop loss	64	1.3	IV	64	1.3	IV
Fear of marketing	72	1.4	III	72	1.4	II

Results in Table 1 shows different health problems perceived by women in vegetable picking. Physical problems perceived by women through conventional methods were cuts and wounds in hands (2.88) followed by abrasion (2.80), hardness of fingers (2.62), blisters (2.58) and irritation in eyes, nose and throat (2.50) and skin allergies (2.30). In contrast, these problems reduced by using recommended ergonomic intervention kit as front line demonstrations. The intervention given in peak season of vegetable picking comprised of picking bag, protective gloves and capron. However, some of the physical health problems were found meager after using recommended intervention. These were headache (0.84), dizziness (1.28) and asthama (0.48),

respectively. Miscellaneous problems faced by women in agricultural operations while using conventional as well as recommended intervention were dullness/boredom (1.88), work pressure (1.58) and fear of marketing (1.44), respectively. It may be concluded from the results in table 1 that physical health problems and ergonomic problems were found reduced by using recommended interventions as compared to conventional methods. Results are in consonance with the studies of Gandhi et.al., 2014 and Sihvani, S., 2013.

Table 2: Measurement of Body Part Discomfort Score (BPDS)

Discomfort Region	Occurrence Frequency		
	WMS	MS	Rank
Neck	171	3.42	III
Clavicle left	--	--	--
Clavicle right	--	--	--
Left shoulder	138	2.76	XIV
Right shoulder	158	3.16	V
Left arm	138	2.76	XIV
Right arm	158	3.16	V
Left elbow	57	1.14	XXI
Right elbow	79	1.58	XX
Left forearm	140	2.8	XIII
Right forearm	149	2.98	VII
Left palm	171	3.42	III
Right palm	188	3.76	I
Upper back	146	2.92	X
Mid back	134	2.68	XVI
Lower back	172	3.44	II
Left thigh	149	2.98	VII
Right thigh	149	2.98	VII
Left knee	88	1.76	XVIII
Right knee	88	1.76	XVIII
Left leg	144	2.88	XI
Right leg	144	2.88	XI
Left foot	98	1.96	XVII
Right foot	98	1.96	XVII

Very severe discomfort=4; Severe discomfort=3; Moderate discomfort=2; Mild discomfort=1; No discomfort=0

Table 2 depicts the body part discomfort score in agricultural operations by farm women. Maximum discomfort score was found in right palm having mean score 3.76 and ranked Ist followed by lower back (3.44) and neck (3.42). Minimum discomfort was found in left elbow (1.14) and right elbow (1.58). It is concluded from the results that in vegetable picking farm women face very severe discomfort to moderate discomfort in some of the body parts like right palm, left palm, neck and right shoulder. To minimize body discomfort there is need to provide them ergonomic intervention in form of protective gloves, picking bag and capron while picking vegetables. Results are in consonance with AICRP, 2009 and Kaur and Sharma, 2009.

Table 3: Perceived Adoption Feasibility of Recommended Intervention

Attribute	Response Category			WMS	MS	Rank
	Agree (3)	Undecided (2)	Disagree (1)			
1. Relative Advantage						
Low initial cost	70 (210)	12 (24)	18 (18)	252	240	V
Monetary benefit	82 (246)	4 (8)	12 (12)	266	257	IV
Consistency of use	95 (285)	5 (10)	0 (0)	295	293	I
Time saving	85 (255)	10 (20)	5 (5)	280	275	III
Multiple use potential	92 (276)	8 (16)	0 (0)	292	290	II
Total AFI=89.58%						
2. Compatibility						
Cultural compatibility	85 (255)	10 (10)	5 (5)	270	275	II
Physical compatibility	80 (240)	10 (20)	10 (10)	270	263	III
Situational compatibility	88 (264)	10 (20)	2 (2)	286	282	I

lity						
Social compatibility	92 (27 6)	2 (4)	6 (6)	28 6	2. 82	I
Relational compatibility	80 (24 0)	0 (0)	20 (20)	26 0	2. 50	IV
Total AFI=92.66%						
3. Simplicity Complexity						
Cognitive simplicity	45 (13 5)	10 (20)	45 (45)	20 0	1. 75	IV
Application simplicity	42 (12 6)	28 (56)	30 (30)	21 2	1. 90	V
Adoption simplicity	68 (20 4)	20 (40)	12 (12)	25 6	2. 45	III
Resource simplicity	72 (21 6)	18 (36)	10 (10)	26 2	2. 52	I
Reversibility	75 (22 5)	10 (20)	15 (15)	26 0	2. 50	II
Total AFI=61.80%						
4. Practicability						
Communicability	62 (18 6)	8 (16)	30 (30)	23 2	2. 15	IV
Visibility of results	100 (30 0)	0 (0)	0 (0)	30 0	3. 0	I
Demonstrability	95 (28 5)	5 (10)	0 (0)	29 5	2. 93	II
Triability	80 (24 0)	10 (20)	10 (10)	27 0	2. 62	III
Provision of modifications	80 (24 0)	10 (20)	10 (10)	27 0	2. 62	III
Total AFI=61.80%						
Overall AFI= 82.61%						

Adoption Feasibility Index of Intervention Kit



Adoption perceived feasibility was assessed on four attributes of a new innovation. As Table 3 depicts, overall adoption feasibility index of intervention was found 82.61 percent which speaks of very high adoption of technology among farm women. Maximum AFI 92.66 percent was observed on 'compatibility' that is 'physical' as well as 'cultural' compatibility. However, highest rank was assigned to sub-attribute of 'situational' and 'social' compatibility (2.82). It was followed by cultural compatibility mean score 2.75 and physical compatibility mean score 2.63. This trend seems to be logistic as the farm women found the intervention as 'cultural and situational' compatible at village level.

Regarding relative advantage AFI was found 89.58 percent. Highest rank was assigned to the 'consistency of use' sub-attribute having mean score 2.93 which was followed by 'multiple use potential' with mean score 2.90, respectively. This seems to be fact because women reported that this cotton picking bag can be used for other allied agricultural operations such as vegetable and fruit picking. However, comparatively low mean score was assigned to the sub-attribute of 'low initial cost' having mean score 2.40 and lowest rank (V). This might be due to the fact that grey cotton fabric (malasia) and raw cotton fabric (markin) cost more as compared unused synthetic fabric used for traditional 'Jholi'.

Adoption feasibility index for practicability attribute was found 88.91 percent. Highest rank was assigned to the sub-attribute of 'visibility of result' having mean score 3.0 followed by demonstrability having mean score 2.93. It is interesting to note that all the respondents agreed that results are visible after intervention programme. Comparatively low score (2.15) was assigned to sub-attribute of 'communicability', this might be due to the fact that farm women needed more exposure and technical know how to communicate further.

As regards simplicity complexity AFI was found 61.80 percent comparatively low. Hence,

'cognitive simplicity' scored low at 1.75 mean score and 'application simplicity' scored mean score of 1.90. This trend shows that farm women required more exposures, action trainings and interventions regarding preparation of intervention materials. However 'resource simplicity' scored highest mean score (2.52) and got first rank followed by 'reversibility' (2.50) and second rank. This trend shows that material required for intervention material is easily available. This study finds conformity with Yadav, et.al., 2012.

4. Conclusions:

Vegetable plucking and cotton picking is labour intensive work that requires pains taking physical effort and patience. Women engaged in different agricultural operations face different health problems like cuts and wounds in hand, abrasions, hardness of fingers, blisters and irritation in eyes, nose and throat. To overcome these problems interventions given through front line demonstration on ergonomic kit was drastically helpful in reducing health hazards and increasing their efficiency in terms of vegetable plucking and cotton picking. Perceived feasibility was found very high on adoption attributes by all women farmers.

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