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Field Acceptability of Improved Cotton Picking Bag on Drudgery Reduction of Farm Women

Kanta Sabharwa [1], Urmila Devi[2] and R.D. Panwar[3]

ABSTRACT

The present study was conducted in two villages *viz.,* Dhanda Kheri and Dumerkhan of Jind District of Haryana state on purposively selected sample of 30 rural women respondents, who were actively involved in cotton picking. The respondents were demonstrated three types of cotton picking bags (cot-bag) *viz* traditional cloth and modified cot-bag. These two types of cot-bags were given to respondents for cotton picking and their responses towards each type of cot-bag were comparatively assessed on different parameters *viz* perceived health hazards or pain during cotton picking, impact of biomechanical, grip and physical stresses and tool factors and field acceptability. Each attribute was assessed with opinion of respondents as strongly agreed (S.A.), agreed (A) and disagreed (D). The data were collected by personally interviewing the respondents through a well structured interview schedule and were statistically analyzed.

Key words: Acceptability, improved cotton picking bag , drudgery reduction

INTRODUCTION

The prosperity and growth of any nation depends on the status and development of its women, as they form nearly 50 per cent of the population. Farm women constitute so significant a part of the working women population in our country that it necessitates a full understanding of their status and role not only as they now are but as they may be developed in future. This demands their capacity building and empowerment. In our country, 70 per cent of population earn their livelihood from agriculture and allied sectors.

The participation of farm women in agriculture varies from one region to another region, depending upon the agro climatic and socio-economic variations. With in the same region participation varies from crop to crop and activity to activity depending on many social and allied factors. Women's work is getting harder and more time consuming due to ecological degradation and changing agricultural technologies and practices. Women contribute considerably to household labour through farm and non farm activities as well as working as landless agricultural labourer. The rural female participation rate is 27.2 per cent , nearly thrice as much as the urban female. The proportion of the women employed in agricultural sector is 80.7 per cent as compared to men (62.7%) and hence it is said that feminization of agriculture is occurring (Bimla *et al.* 2003). This will lead to women empowerment.

Cotton is one of the most important cash crops of the country and it is contributing to the economic prosperity of cotton growers. Cotton cultivation, practices since ages, has to be low cost responsive, sustainable, environment friendly and definitely production system, in the present day context. Cotton cultivation has the full potential to offer livelihood security to millions of marginal and small farmers, as about 60 million people derive their livelihood directly or indirectly from cotton production and its trade (Siwach, *et.al.* 2009)

In Haryana cotton crop grown on an area of 6.25 lakh hectare with production and productivity of 18.85 lakh bales (1 bales = 170kg) and 650kg lint/ hectare, respectively. Whereas as in India, cotton area was 95.30 lakh hectare and has productivity of 553 kg lint/hectare

[1.] Deptt of Home Science Extension & Communication Management CCS HAU, Krishi Vigyan Kender, Jind-126102, Haryana

with production of 310 lakh bales (Anonymous, 2008). India is ranked second in production after China, USA being the third (Anonymous, 2008).

The yield of cotton can be increased to a considerable extent by use of drudgery reducing techniques in cotton picking. Impact of improved technology in rural India is almost absent. Even where improved techniques have been found for women activity, there is not sufficient access to training in such activities. There are already proven researches that the improved cotton picking technology is less time and energy consuming and increase the work efficiency of user. This technology has been tested and refined by the scientists of CCSHAU, Hisar (Verma & Grover 2006).

In recent years, very few studies have been made to access "the empowerment and capacity building of farm women through improved cotton picking technologies" which is a necessary condition for development main streaming. In view of the importance the present study was undertaken.

METHODOLOGY

The study was undertaken in two villages namely Dhanda Kheri and Dumerkha of Jind district of Haryana State on purposively selected sample of 30 rural women respondents, who were actively involved in cotton picking. The sample respondents were demonstrated about three types of cotton picking bags (a) traditional cloth which they were using for several years and (b) modified cot-bag. These two types of cot-bags were given to the respondents and asked to use at the time of cotton picking. After using these cot-bags responses of respondents towards each bag/cloth were assessed on different parameters likes perceived health hazards or pain during cotton picking and impact in the form of biomechanical stress, grip stress, physical stress, total factors and field acceptability. Each attribute was assessed through different parameters like strongly agreed (SA), agreed (A) and disagreed (D). The data were collected by personally interviewing the respondents with the help of structured interview schedule and were analyzed by proper statistical methods.

RESULTS AND DISCUSSION

Perceived Health Hazards

Pain in various body parts

Among various health hazards perceived, the pain during cotton picking with use of traditional cloth was recorded maximum in their shoulder joints (100%), lower back(100%) and palm(100%) closely followed by 93.3 per cent in upper back as evident from data given in Table 1. Opinion of respondents regarding various statements to descent stresses *viz* biomechanical, grip, physical and tool factor studied were sought.

Table 1: Perceived health hazards/pain during cotton picking using tradition cloth for cotton picking.

n=30

Body Parts	Perceived Pain	
	Yes	No
Head	23 (76.6)	07 (23.3)
Neck	26 (86.6)	04 (13.3)
Shoulder Joints	30 (100.0)	00 (00.0)
Upper back	28 (93.3)	02 (6.66)
Lower back	30 (100.)	00 (00.0)
Upper arm	17 (56.6)	13 (43.4)
Lower arm	09 (30.0)	21 (70.0)
Wrist	26 (86.6)	04 (13.4)
Palm	30 (100.0)	00 (00.0)
Upper legs	19 (63.4)	11 (36.6)
Lower legs	22 (73.4)	08 (26.6)
Keens	24 (80.0)	06 (20.0)
Ankle	21 (70.0)	09 (30.0)

Biomechanical stress

Perusal of data in Table 2 indicated that, among biomechanical stresses, cooperative acceptability of traditional cot-bag and cot-bag with head covering, the maximum percent of respondents *i.e.* 76.7 and 60.0 disagreed with the statement that these are able to maintain body posture at standing position while picking cotton, respectively, while maximum respondents (80 percent) strongly agreed with this statement with the use of modified cot-bag. The corresponding opinion expressed by maximum percentage of respondents using traditional, cot-bag with head covering and modified cot-bag recorded were 90.0, 80.0 and 86.7, respectively in statement twisting of trunk while doing activity (Table 2).

The statements regarding too frequent shifts of posture needed during cotton picking and movements of hands restrained while doing cotton picking, the maximum 60 per cent of respondents strongly agreed and 70 per cent disagreed respectively with use of traditional cot-bag. The corresponding data recorded were found maximum 80.0 per cent disagreed and 93.3 per cent strongly agreed respectively for these statements (Table 2) with use of modified cot-bag.

Grip stress

With regard to grip stress, the maximum of 83.3, 56.6 and 86.7 per cent respondents disagreed, disagreed and strongly agreed, respectively with use of these three cot-bags with regard to its size and shape of cot-bag comfortably, to fasten well to body. While the corresponding figures in this regard for opinion of able to work easily while carrying load recorded were 63.3, 76.6 and 90.0 per cent, respectively. Similarly, opinion expressed with material used for cloth/cot-bag is worse and hard and hurting to body, record maximum of 40.0, 86.7 and 100.0 per cent respondents strongly agreed, disagreed and disagreed, respect for use of traditional, cot-bag with head covering and modified cot-bag evident from Table 2.

Physical stress

Among physical stress, feeling pain in back and lower arms, the maximum percent of respondents recorded were 70.0 and 26.7 who strongly agreed, strongly agreed and disagreed, respectively for these two categories of cot-bags. The corresponding opinion expressed for these two categories of bags regarding statement feeling pain in neck, upper back, shoulder joints and headache while carrying loads recorded were 40.0 and 90.0 percent. The statement that activity is light enough while using cot-bags, maximum 80 percent respondents disagreed for use of traditional respectively while maximum of 93.3 percent respondents expressed their opinion in this favour as strongly agreed (Table 2).

Tool factor

As regards with tool factor maximum of respondents disagreed for use of traditional (86.7%) and maximum of 100.0 per cent of respondents strongly agreed for statement" cloth cot-bag facilitates drop the plucked cotton easily into bag in case of modified cot-bag. The maximum 56.6 and 93.3 percent of respondents agreed, agreed and strongly agreed for use of these two types of bags, respectively for "difficulty to carry cot-bag on back (Table 2).

Table 2: Acceptability of cot-bag for cotton picking on drudgery reduction of farm women village-Dhanda kheri & Dumerkha.

Stress	Statements	Traditional			Modified cot-bag		
		SA	A	D	SA	A	D
Biomechanical stress	Able to maintain body posture at standing position while doing cotton picking.	03 (10.0)	04 (13.3)	23 (76.7)	24 (80.0)	06 (20.0)	00 -
	Too frequent shifts of the posture were needed at the time of cotton picking	18 (60.0)	04 (13.3)	08 (26.7)	03 (10.0)	03 (10.0)	24 (80.0)
	Twisting of trunk while doing the activity was minimized with the use of traditional cloth/ cot-bag.	00 -	03 (10.0)	27 (90.0)	26 (86.7)	04 (13.3)	00 -
	Movements of my hands were restrained while doing cotton picking	03 (10.0)	06 (0.20)	21 (70.0)	28 (93.3)	02 (6.7)	00 -
		24	17	79	81	15	24
Grip Stress	Size and shape of cloth cot-bag was comfortable to fasten well to the body.	02 (6.7)	03 (10.0)	25 (83.3)	26 (86.7)	04 (13.3)	00 -
	Material used for cloth/cot-bag is coarse and hard and hurting to the body.	12 (40.0)	10 (33.3)	08 (26.7)	00 -	00 -	30 (100.0)
	Able to work easily while carrying load	03 (10.0)	08 (26.7)	19 (63.3)	27 (90.0)	03 (10.0)	00 -
		17	21	52	53	07	00
Physical Stress	Feel pain in back & lower arms.	21 (70.0)	06 (20.0)	03 (10.0)	04 (13.3)	03 (10.0)	23 (26.7)
	Feel pain in neck, upper back, shoulder joints & headache while carrying load	12 (40.0)	11 (36.7)	07 (23.3)	00 -	03 (10.0)	27 (90.0)
	Activity is light enough while using cloth/cot-bag	00 -	06 (20.0)	24 (80.0)	28 (93.3)	02 (6.7)	00 -
		36	23	34	32	08	50
Tool factor	Cloth/cot-bag facilitated drop the plucked cotton easily into it.	00 -	04 (13.3)	26 (86.7)	30 (100.0)	00 -	00 -
	Difficult to carry cloth/cot-bag on back	13 (43.3)	17 (56.6)	00 -	28 (93.3)	02 (6.7)	00 -
		13	21	26	58	02	00

Field acceptability of modified cot-bag

Various attributes viz modified cot-bag is good replacement to existing tool/techniques, the size of modified cot-bag can be adjusted according to body size, posses the modified cot-bag, modified cot-bag is costly, easily drop the plucked cotton into bag, feeling of no pain in shoulder joints, upper and lower back at the time of cotton picking and no pain in hands and legs were maximum percent of respondents recorded were 86.7, 43.3, 83.3 (strongly agreed), 76.6 disagreed, 100.0, 86.6 and 86.6 strongly agreed, respectively, however 43.3 percent of maximum percent of respondents were found agreed at par with strongly agreed with respect of size of modified cot-bag adjusted according to the body size as evident from perusal of data in Table 3.

Table 3: Field acceptability of modified cot-bag (Pick bag) for cotton picking

Attributes	Responses		
	SA	A	D
Modified cot-bag is good replacement to the existing tool/techniques	26 (86.7)	04 (13.3)	00 (0.00)
The size of the modified cot-bag can be adjusted according to the body size.	13 (43.3)	13 (43.3)	04 (13.4)
I shall posses the modified cot-bag.	25 (83.4)	05 (16.6)	00 (0.00)
Modified cot-bag is costly	03 (10.0)	04 (13.4)	23 (76.6)
Easily drop the plucked cotton into it.	30 (100.0)	00 (0.00)	00 (0.00)
Feel no pain in shoulder joints, upper & lower back at the time of cotton picking.	26 (86.6)	02 (6.70)	02 (6.70)
No pain in the hands & legs	26 (86.7)	03 (10.0)	01 (3.30)

Impact of modified cot-bag on drudgery reduction

The maximum percent of 243.0, 159.0, 96.0, 174.0 and 447.0 respondents strongly agreed with regard to impact of modified cot-bag with respect of reduced bio-mechanical stress, reduced grip stress, reduced physical stress, facilitated tool factors and field acceptability, respectively as evident from perusal of data in Table 4.

Table 4: Impact of modified cot-bag on drudgery reduction of farm women

Stress/drudgery reduction of modified cot-bag	Strongly Agree (3)	Agree (2)	Disagree (1)	Total Score	Mean Score	Rank
Modified cot-bag reduced bio-mechanical stress	81 (243)	15 (30)	24 (30)	297	9.90	II
Reduce Grip Stress	53 (159)	07 (14)	00 (00)	173	5.76	IV
Reduce Physical Stress	32 (96)	08 (16)	50 (50)	162	5.40	V
Facilitate tool factor	58 (174)	02 (04)	00 (00)	178	5.93	III
Field acceptability	149 (447)	31 (62)	30 (30)	539	17.9	I

CONCLUSION

Results revealed that modified cot-bag was good replacement of traditional cloth as it reduces the biomechanical stress, physical stress, grip stress, comfortable and can be adjusted according to the size of the body.

The technology of cot bag (cotton bag with head covering and modified cotton bag) was designed by department of Family Resource Management, Collage of Home Science HAU, Hisar. On Farm Trial was carried out by Krishi Vigyan Kendra, Jind to explore the impact and acceptability of cot bag for cotton picking for drudgery reduction of farm women. After a span of one season of cotton picking the response of women were recorded under different heads; perceived health hazards, acceptability of cot bag on drudgery reduction like biomechanical stress, physical stress, grip stress and tool factor *etc.*

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