



Harvesting with *AARAM* Cushioned Seat Technology for Alleviating Drudgery of Women Farmers

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ABSTRACT

Isabgol (*Plantago esculenta*) is commercially important medicinal cool season crop is grown in *rabi* season in Rajasthan, Gujarat and Madhya Pradesh mainly for its seeds and husk. Isabgol is harvested by women and men farmers manually. Study was conducted on randomly selected women farmers from selective villages of Pokaran, Jaisalmer who performed harvesting of Isabgol crop manually with the objective to analyze drudgery perceived by women workers during harvesting without any technology and with use of *AARAM* cushioned Seat. Likewise, to assess its impact on their work efficiency and postural discomfort occurred due to nature of harvesting work. Data were collected through structured interview schedule and through field operation observations of individual women farmer. Results of the study showed significant change in drudgery of women farmers after using improved *AARAM* cushioned Seat during harvesting work with less difficulty and performing harvesting with more postural comfort as well. Similarly, improved work efficiency up to 25.14 percent due to comfortable working condition.

Key Words : Drudgery reduction , Harvesting , Women farmers, Improved technology.

INTRODUCTION

Women farmer plays significant role in the agricultural operations and allied fields like the livestock production, horticulture, post-harvest operations, agro / social forestry, fisheries etc. Their involvement is in various farm activities whether the work performed by women only or equal participation of men and women worker can also be seen in fields. Women exclusive and dominated farm activities performed by them namely removal of stalks and stubbles, transportation of manure, weeding , harvesting, plucking heaping, bundling storage of crops. All these activities involve high manual labour and work difficulty, monotony and drudgery as well. Farm women conceive that manual harvesting and weeding is quite tedious tasks amongst agriculture activities performed in cultivation of crop (Anon, 2012).

Isabgol (*Plantago esculenta*) is one of the major crop of Jaisalmer district due to its use in medical and food industry especially in ice creams, biscuits and candies. Harvesting of Isabgol occurs 5 to 6 m after sowing and harvesting is generally done cutting at the ground level early in the morning to avoid seed shattering or uprooting plants when soil is very loose. Manual harvesting is time consuming, monotonous and involves high work load and labour oriented. When farm women perform harvesting work in squatting and bending posture, they experience backache and body pain due to continuous labour intensive and repetitive work nature. Unavailability of suitable technology retards efficiency of workers and also continuous physical discomfort and drudgery fall them into occupational health hazards. The Study analyzed drudgery occurred to women workers in

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harvesting work of Isabgol crop without improved technology and with use of *AARAM* cushioned seat designed for postural comfort of harvesting person.

Detail of Technology - *AARAM*' cushioned seat

Women performs majority of the farming activities either in bending or squatting posture. The squatting posture puts strain on the thigh muscles, legs and feet. Thus, to reduce this stress of women farmers in weeding and harvesting activities an *AARAM* cushioned seat was designed and tested at AICRP-FRM, College of Home science, MPUAT centre. The design of stool was conceived and four designs were fabricated and field tested. Based on testing the fourth prototype was finalized. The technical specifications of technology are:

Weight: 597 g; Height: seat 5" + 2" cushioning with 1" slanting in front. Seat circumference: 9"

Advantages: Easy, soft, convenient to use, lessens the stress on the thighs and the calf. (Anon, 2016)



were purposively selected from Dudhia village of Pokaran tehsil of Jaisalmer district who were performing manual harvesting of isabgol crop from many years for present study. Data were collected through observation during field work performed by women farmers and with personal interview of every selected farm women.

Improved Technology *AARAM* seat was compared in terms of traditional practice of harvesting in squatting and improved practice of harvesting sitting on cushioned stool in same squat posture. Assessment of drudgery in traditional and improved method and improvement in their work efficiency was recorded on certain parameters during harvesting of Isabgol. Hardship / drudgery experience of farmwomen in harvesting activities was calculated on 6 psycho-physical parameters on a continuum of 5 point scale with total score of 30 (Corlette & Bishop, 1976). The parameters rating were on work demand, feeling of exhaustion, posture assumed, perception on manual loads operative, difficulty perception and work load perception.

MATERIALS AND METHODS

KVK Pokaran team conducted an On-farm trial on use of *AARAM* seat, a technology for relief of pain which was caused during squatting posture and for reducing drudgery of women workers during harvesting of Isabgol crop. A total of 10 farm women

RESULTS AND DISCUSSION

Isabgol crop is a delicate in nature and manual plucking technique is used for harvesting of crop. This is reason that harvesting work is time consuming, monotonous and involves more work load and labour. Results of the study revealed that

Table 1. Assessment of drudgery in traditional and improved method of harvesting .

N =10

Sr. No.	Farm activity	Work demand (5)	Feeling of exhaustion (5)	Posture assumed in work (5)	Perception on manual loads operative (5)	Difficulty perception (5)	Work load perception (5)	Total Drudgery Score (30 Score)
1	Harvesting [Plucking and Stacking]							
a	Traditional	4.51	4.66	4.86	4.10	4.56	4.45	27.14
b	Improved	2.75	2.10	2.15	2.6	1.20	2.35	13.10
	Percent Change	39.02	54.93	55.76	36.58	73.68	47.19	51.73

Harvesting with *AARAM* Cushioned Seat

farm women of selected area traditionally performed harvesting work through manual plucking of crop. They experienced backache and body pain due to continuous labour intensive and repetitive work of harvesting. Reason of excessive fatigue was reported by women farmer was lack of appropriate technique for comfort during harvesting activity increased the work load of farm women. Gender participation in Isabgol harvesting activity was recorded as equal participation of men and women workers. Drudgery experienced by women workers scored on six parameters.

The data (Table 1) indicated that women workers scored 4.86 highest on difficulty in posture assumed by them during harvesting work of crop.

The posture load was calculated on the basis of the discomfort rating and body part discomfort. Majority of the body parts experienced moderate to severe discomfort in the body parts, nearly 13 body parts experienced more or less degree of discomfort. The average body discomfort felt was in the range of severe to moderately severe. The average PostureLoad Factor was 1.98/5. Results showed considerable shift of postural discomfort prevail among women workers during harvesting of crop. Squatting posture of workers put strain on their toes, thigh and back muscle. It increases their fatigue and

also retards their work efficiency and speed as well. On contrary in cushioned seat use during harvesting, women workers feel less drudgery as score was 2.51. Thus, it can be concluded that the women farmer were not sensitive of the consequences of the faulty posture and resulting load on the body. Women workers expressed that use of *AARAM* Cushioned seat during harvesting fills the gap lies in their squatting posture and relieves their strain and provide comfort during work.

The women working in field do not give much importance to the time spent but do feel the load of time as they work in home, farm and allied activities. Nearly 6 hr/day was spent by them in performing agricultural task on 2 ha of land / season. Women worker expressed very demanding work with score of 4.51 and also expressed work load of harvesting work to score of 4.45. Further, repetitive manual harvesting exhausted the women workers to large extent as score was 4.66 out of 5 score. Scores given on above stated drudgery parameters without support of any improved technique women farmers hardships was higher. Women farmers performing manual harvesting in squatting position without any technology but with use of *AARAM* Seat, they could minimize their work demand (2.75), work load (2.35) and exhaustion (2.10) to a large extent.

Work Posture – Traditional Practice

Vs

Improved Practice





Use of AARAM cushioned seat

Postural comfort affects work performance of worker during any activity. Study also analyze impact of work efficiency which was calculated through time taken or man-days for harvesting activity of an area . In the assessment of work efficiency of worker during harvesting of Isabgol , difference of seven hour in harvesting one hectare area by a women worker reduce their man-day up to 0.88 and work efficiency improvement was calculated up to 25.14 percent.

CONCLUSION

Results of study indicated reduced drudgery load of women workers with considerable improvement in work efficiency aspects in comparison of their traditional practices. Women workers are prominent labour force in performing manual agricultural tasks. In present scenario focus is more on work and production through speedy work efficient

work force. Proper utilization of workers work efficiency can only be possible through comfortable working situations and inclusion of improved drudgery reducing tools and techniques. Besides equal consideration needed for mitigating the occupational health hazards or disorders workers faced but agony of workers manual work is not given due consideration. Singh and Arora (2010) emphasized in their study that there is a need to increase awareness of musculoskeletal disorders and associated risk factors and to train farm women periodically for the proper and safe ways of handling tools and equipment in order to avoid musculoskeletal disorders.

Improved technology AARAM cushioned seat designed for providing postural comfort during working situation and relief in their physical body strain and pain.

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Table 2. Assessment of work efficiency during harvesting of Isabgol.

N =10

Sr. No	Parameter	Man-days	Time (hr)	Labour employed	Work Area
1.	Traditional Practice Manual plucking in squatting posture	3.5	28	1	1 ha
2.	Improved Practice Plucking with AARAM seat use	2.62	21	1	1 ha
	Work efficiency improvement (%)	25.14			