



## Performance of Improved Sickle for Drudgery Reduction of Farmwomen in Gir-Somnath District of Gujarat

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### ABSTRACT

Most of the works performed by farmwomen are tedious as well as time consuming. Also many of these operations are traditionally done in varying body posture, which if done for long duration of improved sickle on 50 farm women in participatory mode to reduce their drudgery. The present study was carried out with the objectives to evaluate the performance of improved tool for reducing the drudgery level and harvesting efficiency of tools and performance evaluation of harvesting activity performed by farmwomen using newly introduced and traditional tools. Improved sickle resulted in higher field capacity than simple sickle. The rate of perceived opinion for improved sickle fall in the category of highly acceptable tool as compared to simple sickle. The results of the study showed that improved sickle was reducing the drudgery level means physical tiredness is medium to low, time saving is 12 to 20% per hour/ha and cost saving is 10 to 14%. So far, more suitable for crop harvesting by farmwomen and their performance was shown towards improved sickle as compared to the sickles traditionally used by them.

### KEYWORDS

Harvesting, sickle, farmwomen, SWOT and drudgery

### INTRODUCTION

Agriculture is an important unorganized sector where majority of the women labor force is engaged either in their own field or in others field. Activities like; weeding, cutting, uprooting, picking, transplanting, removal of stalk & stubble and threshing involved agricultural activities performed by farmwomen as maximum drudgery. The works for 14 to 16 hours a day is trying to balance competitive demands in agriculture production, household focused activities and income generation. Harvesting is perceived as the drudgery prone task in agriculture domain So, the present study was undertaken with objectives to evaluate the harvesting efficiency of tools and performance evaluation of harvesting activity performed by farmwomen using newly introduced and traditional tools. Hence, a study was conducted on testing and evaluation of farm implements like serrated sickle for 50 farmwomen in participating mode to reduce their drudgery.

The harvesting of cereal crops in India are mostly done manually by sickles. There is large variation in the types of sickles being used in different parts of the country. Mostly, the sickles are made by village artisans with wide variation in shapes and sizes. The serrated sickle introduced by Central Institute of Agricultural Engineering (CIAE), Bhopal. The sickles have been found very useful for harvesting wheat, rice, fodder and other crops that do not have woody stem.

The Front line demonstrations were conducted in 4 Talukas of six villages during last five years. The Una, Talala and Sutrapda taluka is very far away from the Junagadh Agricultural University, Junagadh. The villages for study were selected on the basis of landless agriculture labors, small and marginal farmwomen. Hence, this study was undertaken to popularize the serrated sickle and compare its performance with ordinary/traditional sickle being used by the rural farmwomen for cutting grasses, fodder and cereal crops for maximizing efficiency and safety by the same.

### OBJECTIVE

To evaluate the performance of improved sickle/ tools for reducing the drudgery level harvesting efficiency of tools and performance evaluation of harvesting activities by farmwomen using serrated sickle.

### MATERIALS AND METHODS

The mode of study was conducted as action research with participatory approach. The study was conducted under front line demonstration in different 4 Talukas of six villages viz. in Kodinar Taluka; SHGs of Navagam Vadi Vistar, in Una Taluka: Kanakiya & Kaneri villages. While in Talala Taluka: Pikhori village and in Sutrapada Taluka: Gangetha and Rangpur villages. In these villages, we selected 100 farmwomen for 50 as demonstration and 50 as local check. In the demonstration group, serrated sickle was observed those developed by CIAE, Bhopal. Whereas, traditional sickles were noted in local check group. The comparison of both these group of sickle users, various parameters were recorded like; time taken for harvesting per hectare area under different crops, cost of operations and level of drudgery in the same.

### Potential for use of improved sickle in fodder harvesting:

SWOT (strengths, weaknesses, opportunities and threats) analysis for use of improved sickle in fodder harvesting by farmwomen in Junagadh district is presented in Table 1. It indicates that use of serrated sickle by farmwomen for harvesting of fodder crop could be a useful implement and found reduction in drudgery of farmwomen with increased output including other advantages like; harvesting of other various crops, time saving, more income per unit of time and not require the sharpening of cutting edge frequently. This indicates better possibilities of adoption of the same as drudgery reduction tool for farmwomen empowerment

### Creating awareness and developing desire:

Farmers/ farmwomen are not always aware of the improvements they could make by using scientific and technological knowledge. Thus, the attention of farmwomen was directed towards the women friendly improved farm tools especially of improved sickle by conducting informal meetings and discussion with them.

### Capacity building:

The mind make trainings for the same were organized to farmwomen's group/ beneficiaries for their empowerment with the objectives of imparting knowledge and skill of improved farm tools along with gaining confidence towards their participation in sustainable development of other aspects also.

### Distribution and follow up of the technology:

After completion of the proper training, the participants were

fully motivated for use of improved sickle but being extremely poor and having no outside support especially in the case of landless laborers, they showed inability to purchase it and thus needed financial support. Then to encourage and disseminate the technology of using improved farm tools, Krishi Vigyan Kendra-Junagadh arranged improved sickles for harvesting of fodder as well as other crops under demonstrations and for this also morally supported by their families .

**RESULTS AND DISCUSSION**

During the fodder cutting, all farmwomen were bending in position and none was squatting. However, the bend position during longer periods of work might lead to tensing of certain muscles and thus resulted in quicker as tiredness and soreness (Pheasant, 1991). To reduce these feelings, farmers/farmwomen occasionally stands upright or sharpen their sickles which resulted as wastage of time.

The data in Table 1 showed the percentage saving of time in harvesting with the use of serrated sickle over the traditional sickle. Similarly, economical benefit was also observed better due to the reason of ordinary sickle requires more grinding/sharpening frequently compare to serrated sickle which also affects time wastes as well as money. On the other hand, the design of serrated sickle is much farmer friendly and does not result in any damage to the worker. Hence, it reduces the drudgery amongst the farmwomen while working in the fields.

According to Kulkarni and Sirohi (1985), the sharpened part of sickle is the most important factor affecting the working capacity of farmers and the handle determining the convenience in using this tool may also have an indirect effect on working capacity. Likewise, Sen and Chakrabarti (1989) stated that the use of serrated sickles may improve working efficiency.

In the year 2010-11, front line demonstrations were given in Kaneri village of Una Taluka for 10 farmwomen. They were selected randomly for the inputs to them for harvesting purpose. The serrated sickle cost is Rs. 60/- per piece and no need of serration up to 2 years purchased from CIAE, Bhopal. While, simple/deshi sickle is available at local market and cost is Rs.55- 65. But in Deshi sickle, needed 3-4 times sharpening their edge. These all rural women are belonging to small farming situations and as the control measure, also selected 10 farmwomen for same purposes. The average time consumption of deshi sickle was noted as 25.56 hr/acre while in improved sickle it was 20.62 hr/acre. So, finally time saving was found as 19.53% during cost of operations with deshi sickle cost was between Rs. 55- 65/- per piece while serrated sickle price Rs. 60/- per piece

In the year 2011-12, the Front line demonstrations gave in villages of Una Taluka i.e. Aambavad and Kaneri for 10 beneficiaries on randomly selection basis and under local check we also selected 10 farmwomen. The results were found as cost saving of 10 percent with time saving of 23.96 percent over local check.

Whereas, during the year 2012-13, 2013-14 & 2014-15, villages were selected as Navagam Vadi Vistar in Kodinar Taluka, Gangetha & Rangpur of Sutrapada Taluka and Pikhori of Talala Taluka for demo and traditional sickle using of 10 farmwomen in above respective year with both the groups. The results were indicated as cost saving 10.00, 09.09 & 14.28 percent and time saving during harvesting 16.11, 12.47 & 20.63 percent respectively.

**SWOT analysis for harvesting of crop by using of improved/ serrated sickle**

Strengths	Ferrule and wooden handle Less weight Less fatigue on wrist Serrated blade
Weaknesses	Pressure as on specific time Unawareness and unavailability of improved implements for harvesting

Opportunities	A good tool for farmwomen empowerment Useful in harvesting of various crops Time saving more income per unit time Does not require the sharpening of cutting edge frequently <u>Require to develop at local manufacturers</u>
Threats	Exploitation of farmwomen by middle men during purchasing of improved tools Very high rates Poor care & management by farmwomen lead to reduce efficiency by serrated blade

**SUMMARY & CONCLUSION**

It can be concluded that serrated sickle found effective in reducing the drudgery of farmwomen. Those were better in their on farm performance than their local practices. It has also reduced their health hazards along with saving in their time and energy of majority of respondents. Most of the farmwomen perceived these implements as most feasible technology. It is suggested that other hand tools and implements should also be made easily accessible for them.

**RECOMMENDATIONS**

There is necessity to make the knowledge on occupational health hazards at integral component of various training programme. *The Krishi Vigyan Kendras training programme should be given in the form of package along with popular courses on protection from health hazards and reduction all type of drudgery.*

The adoption of various drudgery reducing technologies by farmers especially for farmwomen will be helped not only reducing their drudgeries but also in improving agricultural productivity and enhancing employment opportunities and their economic status

**Table 1: Performance of the serrated sickle during 2010-11 to 2014-15:**

Sr. No.	Year of FLD given	Observation to be taken through Local check i.e. Deshi Sickle		Observation to be taken through Improved Sickle		Cost Saving (%)	Time Saving (%)
		Cost of operation	Time consumed (hr/ha)	Cost of operation	Time consumed (hr/ha)		
1.	2010-11	50	25.56	45	20.62	10.00	19.53
2.	2011-12	50	25.56	45	20.62	10.00	23.96
3.	2012-13	60	24.95	55	20.93	10.00	16.11
4.	2013-14	60	23.00	55	20.45	09.09	12.47
5.	2014-15	70	26.26	60	20.84	14.28	20.63





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