Comparative Performance of Serrated V/S Ordinary Sickle Used By Rural Farm Women in Junagarh District of Gujarat

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The harvesting of cereal crops in India is mostly done manually by sickles. Though combine harvesters are being introduced for harvesting of cereal crops but more than 90 per cent area is still harvested 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, Bhopal consists of a steel blade with special serration and a special handle that makes operation of the sickle easy and comfortable compared to the traditional sickle. The good quality steel used and the special serration gives a cutting tooth profile that easily cuts both dry and wet crops. The special shape of the handle gives protection of fingers from getting rubbed to the soil or stubbles. The sickles have been found very useful for harvesting wheat, rice, fodder and other crops that do not have woody stem.

Women population is nearly half of the population and the empowerment to this population is equally important in the nation’s development. Farm women and women labour are the most important functionaries in agriculture and related activities. The ordinary sickle being used for harvesting the fodder grasses is very simple and the design has not been changed for years. As a result, these sickles are very rough to handle and gives poor working efficiency. On the other hand, serrated sickle developed at Bhopal for harvesting purpose is lesser in weight, easy to handle and also saves harvesting time. It is worth to mention that the land holding capacity of Kaneri farmers is very small and on the average, less than 0.5 ha is available with each farmer. Moreover, lack of right tools for carrying out various farm operations is the major constraint. Hence, this study was undertaken to popularize the serrated sickle and compare its performance with ordinary desi sickle being used by the rural farm women for cutting grasses, fodder and cereal crops for maximizing efficiency and safety in use.

MATERIALS AND METHODS

The study was conducted in Junagadh district of Gujarat state. Farm women were from 3 talukas and from each taluka, 2 villages were selected to carry out this study. A total of 100 farm women were selected and divided in to two groups consisting of 50 farm women each. One group was allowed to use the desi ordinary sickle whereas another group was provided with serrated sickle developed by CIAE, Bhopal for cutting down of fodder crops. In order to compare the performance of both these sickles, various parameters noted were time taken to harvest one hectare area of fodder, cost of operation and level of drudgery.

The method used to collect information was interview of the farm women selected to undertake the harvesting of fodder crop. For this purpose, a semi structured interview schedule was developed to know change in level of drudgery during harvesting, time taken to harvest a unit area and cost involved.

RESULTS AND DISCUSSION

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

Table 1. Performance of serrated v/s ordinary sickle.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Parameter</th>
<th>Serrated Sickle</th>
<th>Ordinary Sickle</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Time consumption (hr/ha)</td>
<td>20.2</td>
<td>27.3</td>
</tr>
<tr>
<td>2.</td>
<td>Level of drudgery</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>3.</td>
<td>Cost of sickle + operation (Rs)</td>
<td>60.0</td>
<td>80.0</td>
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<tr>
<td>4.</td>
<td>Benefit over ordinary sickle (%)</td>
<td>25.0</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Time saving (%)</td>
<td>26.0</td>
<td></td>
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</tbody>
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**Advantage of using serrated sickle over the Traditional desi sickle**

The data (Table 1) shows that there is 26 per cent saving in the harvesting time with the use of serrated sickle over the ordinary sickle. Similarly, economical benefit is to the extent of 25 per cent due to the reason that ordinary sickle requires its grinding more frequently which wastes time as well as money whereas serrated sickle does not require it at all. In addition to this the design of traditional sickle is not comfortable for the user as sometimes the fingers as well as lower portion of the hand get rubbed with the soil and cause pain. On the other hand, design of serrated sickle is farmer friendly and does not result in any damage to the worker. Hence, it reduces the drudgery amongst the farm women while working in the fields. According to Kulkarni and Sirohi (1985) the sharpened part of a 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. The present findings were, thus, in agreement with these workers.

**CONCLUSIONS**

It was thus concluded that use of improved serrated sickle by the farm women is desirable for cutting of fodder as well as cereal crops due to the fact that it reduces drudgery on one hand and saves time and money on the other hand. Hence, such improved technologies need to be demonstrated on a large scale among the rural farm women.

**REFERENCES:**


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