

SUCCESS STORIES

Impact of Frontline Demonstrations On Farm Mechanization in Haryana

Tractor operated potato planter



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5. Tractor Operated Potato Planter

Potato is an important cash crop of Northern part of Haryana State and is cultivated in about ten thousands hectares which is about one sixth of the total area under fruits and vegetables cultivated. The planting of potato is labour intensive and full of fatigue and time consuming operation. Its mechanization can reduce the input costs, increase work efficiency, augment cropping intensity and hence the farmer's benefit. With this in-view, farmers were motivated to purchase automatic/ semiautomatic potato planter for self use and on custom hiring to supplement their income. The purpose was to hold demonstrations, motivate farmers' to adopt it and to collect the feedback information.

Brief summary of work done:

During the year 2002, four front line demonstrations on tractor operated automatic potato planter covering an area of 6.2 ha were organized at farmers' fields of Bhatla & Hansi (Hisar). The crop yields ranged between 125-150 q/ha (Avg. yield of 137.5 q/ha). During 2003, more number of farmers used this machine and covered an area of 49.4 ha. Front line demonstration on Automatic/ semiautomatic potato planter were given at farmer's fields in the months of September & October 2004 and 2005 covering an area of 156 ha and 195 ha respectively. The field capacity of machine was 0.4 ha/h while the field efficiency was 70-80%. Saving in labour was 60-70% over control. The increase in yield over control was 10-15%.

The farmers and rural youth having entrepreneurship mind were motivated to buy Automatic/semiautomatic potato planter and adopt custom hiring as a business. On our persuasions, 16 farmers purchased semi-automatic potato planter in 2007 and 19 in 2008. The area sown by them on custom hiring was 705 ha in 2007 and 905 ha in 2008. It clearly shows that these farmers have adopted potato planter for their own use and for custom hiring. The rate of custom hiring charged on an average was ₹ 1250/ ha. The net benefit was ₹ 10,000 per year with one machine and the benefit- cost ratio was 1.67. The pay back period of semiautomatic potato planter was three year. The sale trend of potato planter in Haryana is very encouraging. The no of potato planter purchased by the farmers till date is graphically represented in Fig. 5.1. The performance of semi-automatic potato planter is given in Table 5.1. The economics of tractor operated semi automatic potato planter is given in Table 5.2. The utility and efficacy of potato planter in comparison to conventional method is given in Table 5.3. The field operation of machine and crop sown by potato planter is given in Figs. 5.2 and 5.3.

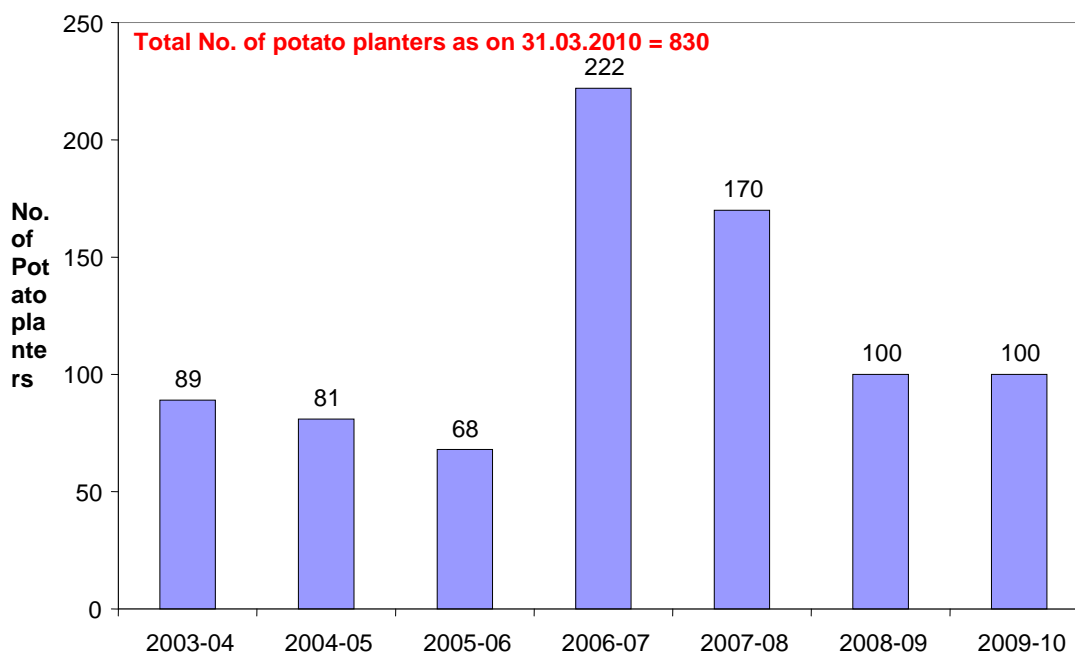


Fig. 5.1: No. of entrepreneurs of potato planter

Table 5.1: Performance of automatic potato planter

Parameters	Values
Operating speed, km/h	2.5-30
Field capacity, ha/h`	0.4
Field efficiency,%	75-80
Fuel consumption, l/h	4.0
Benefits over traditional method	
a) Saving in labour, %	60-70
b) Increase in yields over control, %	10-15
c) Cost of machine (₹)	
• Semiautomatic	• 30,000
• Automatic	• 45,000

Table 5.2: Economics of tractor operated automatic potato planter

Parameters	Values
Power source	35 hp tractor
Cost of operation of machine (₹/ ha)	750
Cost of operation with manual method (₹/ ha)	3000
Custom hiring rate (₹/ha)	1250
Saving, (₹/ ha)	500
Labour requirements with manual method (man-days per ha)	50
Labour requirements with machine (man-days per ha)	5
Increase in yield (%)	10-15
Cost of machine (₹)	30,000
Command area of one machine in one year (ha)	20
Net benefit (@ ₹ 500/ ha) in one year with one machine in ₹	10,000
Pay back period (years)	Three
Benefit-cost ratio	1.6

Table 5.3: Utility and efficacy of potato planter in comparison to conventional method

Parameters	Comments
Extent of achieving timeliness of operation and contribution of the equipment in enhancing productivity through timeliness of operation	Output capacity quite high, results in timeliness in planting of potato crop
Improvement in quality of work	Very Good
Reduction in drudgery	To a great extent
Improvement in safety	Safe
Cost effectiveness	Economical
Suitability of the equipment to the region from following aspects	
Crops grown	Potato
Problems existing in conventional practice	Shortage of labour and more time consuming
Socio-economic factors <ul style="list-style-type: none"> • Labour scarcity in the region • Hiring charges • Initial cost of the machine • Operational skills required • Repair & maintenance facility 	<ul style="list-style-type: none"> • Costly manual labour & scarce <ul style="list-style-type: none"> • ₹ 1250/- per ha • ₹ 30,000 to 40,000 • Skilled operator needed <ul style="list-style-type: none"> • Available

Farmer's feedback:

- Farmers preferred to buy semi-automatic potato planter because of affordable cost and are quite satisfied regarding placement of potato seed by this machine.
- In automatic potato planter more seed rate is required and 2-3% loss of potato seed has been reported



Fig. 5.2: A view of potato planter in operation



Fig. 5.3: A view of crop sown by potato planter

List of potato planter manufacturers

Refer Appendix 'A' {S. No. 19,27, 31, 44, 46}