



# FARM MECHANIZATION INNOVATIONS POTATO PLANTERS

GREEN INNOVATION CENTRE FOR THE AGRICULTURE AND FOOD SECTOR – INDIA

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The Green Innovation Centres for the Agriculture and Food Sectors in India project implemented by GIZ, has supported the development of appropriate low-cost mechanization solutions suitable for smallholder farmers in India. These are:

### 1. Double row semi-automatic potato planter:

The double row semi-automatic potato planter has been developed to ensure a scientific, efficient and speedy planting of potato seed-tubers and to overcome the shortage of farm workers during the peak potato planting season. The performance of the planter is satisfactory and is being promoted in the states of Maharashtra, and Karnataka. This planter has been tested and certified by the Mahatma Phule Krishi Vidyapeeth (MPKV), Rahuri. (State Agriculture University, Maharashtra) and empanelled with the Govt of Maharashtra.

#### Features of the planter-

- Pneumatic depth wheels reduce the draft requirement
- Pneumatic depth control openers helps to achieve potato planting at uniform depth; even on undulating field
- Larger indexer – rotating seed carrier – as compared to the conventional one; minimize the miss index.
- Robust design - Hassle free functionality and easy to maintain and repair.
- Makes planting of potato efficient, faster and more cost effective.
- Adjustable tuber spacing, depth of planting and row spacing makes it feasible for various soil types.
- Vertical adjustment for ridgers is provided
- Tyne/Disc ridgers (optional) are provided
- Minimum labour requirement
- Ensures uniform growth and maturity, thereby ensuring better yield compared to manual planting
- Add-ons: Fertilizer box.



## Technical Specification:

S.N.	Parameter	Details
1	Number of tynes/openers/rows	2 No.
2	Power source	35 hp tractor & above
3	Overall Dimensions (L x W x H)	L2060 xW1500 x H1300 mm
4	Weight	450 kg (Approx.)
5	Row-Row spacing	Min 700 mm; Adjustable
6	Seed hopper capacity	2 quintal
7	Power Source	35 & above hp tractor
8	Depth adjustment	By adjusting depth wheels
9	Ridgers	Tyne or Disc ridger optional
10	Fertilizer box capacity	30-40 kg, Optional
11	Field capacity	1.5 to 2.0 ha/day
12	Price	Around Rs.100000 per unit.

Besides potato planting, the planter can also be used for Ginger and Turmeric bed planting with simple refinements to meet the row spacing 12-15 inches,. Presently, these crops are planted manually and requires 15-18 worker-days per acre to complete the planting operation. Also, the beds are prepared separately by using tractor or animal drawn ridger. Hence, the refinement is undertaken and is in progress. In the forthcoming planting season (May and June), the planter will be tested and promoted in Ginger and Turmeric growing areas of Maharashtra.

## 2. Single and Double row fully automatic potato planter:

Looking to the use of small (18-30 hp) and medium (35-45 hp) tractors; the development of single row and double row fully automatic potato planters suitable for small and medium tractors respectively is undertaken. These planters were extensively tested at Green Innovation center (GIC), Peth project area. The performance of the planter is satisfactory and are commercialized. This Planter is currently being tested in the Mahatma Phule Krishi Vidyapeeth (MPKV), Rahuri.

### A. Single row fully automatic Potato Planter

#### Features of the planter:

- Robust design - Hassle free functionality
- Makes planting of potato efficient, faster and more cost effective.
- Adjustable tuber spacing, depth of planting and row spacing makes it feasible for various soil types.
- The inclination and quality of the belt permit to work on uneven or hilly ground with medium slope
- Vertical adjustment for ridgers is provided
- Tyne/Disc ridgers (optional) are provided
- Ensures uniform growth and maturity, thereby ensuring better yield compared to manual planting



### Technical Specifications-

S.N.	Parameter	Details
1	Number of tynes/openers/rows	01 No.
2	Power source	35 hp tractor & above
3	Overall Dimensions (L x W x H)	L1400 xW1100 x H1600 mm
4	Weight	300 kg (Approx.)
5	Row-Row spacing	Min 700 mm; Adjustable
6	Seed hopper capacity	80-100 Kg
7	Depth adjustment	By adjusting depth wheels
8	Ridgers	Tyne or Disc ridger optional
9	Fertilizer box capacity	25-30 kg, Optional
10	Field capacity	1.5 to 2.0 ha/day

*(Approval from State Agriculture university is in progress, final specifications may change after approval)*

## B. Double row fully automatic Potato Planter

### Features of the planter-

- Robust design - Hassle free functionality
- Makes planting of potato efficient, faster and more cost effective.
- Adjustable tuber spacing, depth of planting and row spacing makes it feasible for various soil types.
- The inclination and quality of the belt permit to work on uneven or hilly ground with medium slope
- Vertical adjustment for ridgers is provided
- Tyne/Disc ridgers (optional) are provided
- Ensures uniform growth and maturity, thereby ensuring better yield compared to manual planting





#### Technical Specifications-

S.N.	Parameter	Details
1	Number of tynes/openers/rows	02 No.
2	Power source	35 hp tractor & above
3	Overall Dimensions (L x W x H)	L1400 xW2000 x H1600 mm
4	Weight	450 kg (Approx.)
5	Row-Row spacing	Min 700 mm; Adjustable
6	Seed hopper capacity	200 Kg
7	Depth adjustment	By adjusting depth wheels
8	Ridgers	Tyne or Disc ridger optional
9	Fertilizer box capacity	35-40 kg, Optional
10	Field Capacity	2.5 to 3.0 ha/day

*(Approval from State Agriculture university is in progress, final specifications may change after approval)*

The Single row fully automatic potato planter will be promoted in Maharashtra, Karnataka and some parts of Telangana state, whereas the Double row fully automatic potato planter will be promoted in Gujarat, Karnataka and North India.

## Overall status of Mechanization in Potato and Tomato value chain

Sr. No.	Name of Equipment	Present Status	Remark
1	Double row semi-automatic potato planter	Developed and certified by MPKV Rahuri.	Ready for sale
2	Single row fully automatic Potato Planter	Developed. Application for the testing to MPKV submitted and testing will be conducted by MPKV during 15-30 December 2021.	Ready for sale
3	Double row fully automatic Potato Planter	Under field trials at GIC project location. Checking the possibilities of its suitability to plant the potatoes as row planting as well as bed planting.	Undergoing field test at MPKV
4	Potato digger (Harvester)	Developed. Applied for the testing at MPKV. Field testing by MPKV will be conducted during 2 <sup>nd</sup> -3 <sup>rd</sup> week of January 2022, rabi crop harvesting.	Ready for sale