



NEW SWAN, AUTOMATIC POTATO PLANTER (NSE PP 2R)



सत्यमेव जयते

भारत सरकार

GOVT OF INDIA

कृषि मन्त्रालय

MINISTRY OF AGRICULTURE

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1. SCOPE OF TEST

The scope of test was to check and assess the following: -

1.1 LABORATORY TEST:

- Checking of specifications
- Metering mechanism to seed at desired rate
- Variation in dropping of seed among different openers (inter opener variation).
- Variation in dropping of seed due to change in quantity of seed in the seed box.
- Seed damage determination test
- Uniformity of seeding
- Hardness and chemical composition of the soil engaging parts.

1.2 FIELD TEST:

- Rate of work
- Quality of work
- Power requirement
- Ease of operation, maintenance and adjustments
- Field efficiency and labour requirement
- Defects, breakdowns and repairs

2. METHOD OF SELECTION

The test sample was directly submitted for test by the applicant, hence, method of selection is not known.

3. TEST CODE/PROCEDURE

The following test codes were followed for testing of automatic potato planter.

- | | |
|-------------------------------------------|--------------------------------------------------------------------|
| i) IS: 11893-1986
(Reaffirmed in 2002) | : Specification for Potato Planter, Semi Automatic |
| ii) IS: 9856-1999 | : Test code for Potato Planters |
| iii) IS:4468-2007
(Reaffirmed in 2012) | : Agricultural wheeled tractors-rear mounted three- point linkages |

4. SPECIFICATIONS

4.1 General

- | | |
|---------------------------------|----------------------------------------------------------------------------------------|
| Name of machine | : Automatic Potato Planter |
| Manufacturer's name and address | : M/s. New Swan Multitech Limited
622, Industrial Area-B
Ludhiana-141003(Punjab) |
| Make | : NEW SWAN |

Model	: NSE PP 2R
Type	: Automatic
Serial No.	: Not specified
Year of manufacture	: Not specified
Size of planter (mm)	: 2 x 610
Power source recommended (hp)	: 40 to 60 hp
Prime mover used during test	: Swaraj 855 FE Tractor (Refer Annexure V)
Type of seed to which the planter is design to sow (apa.)	: Potato
Seed on which test trials where requested to be conducted	: Potato

4.2 Constructional details (Refer Fig. 1)

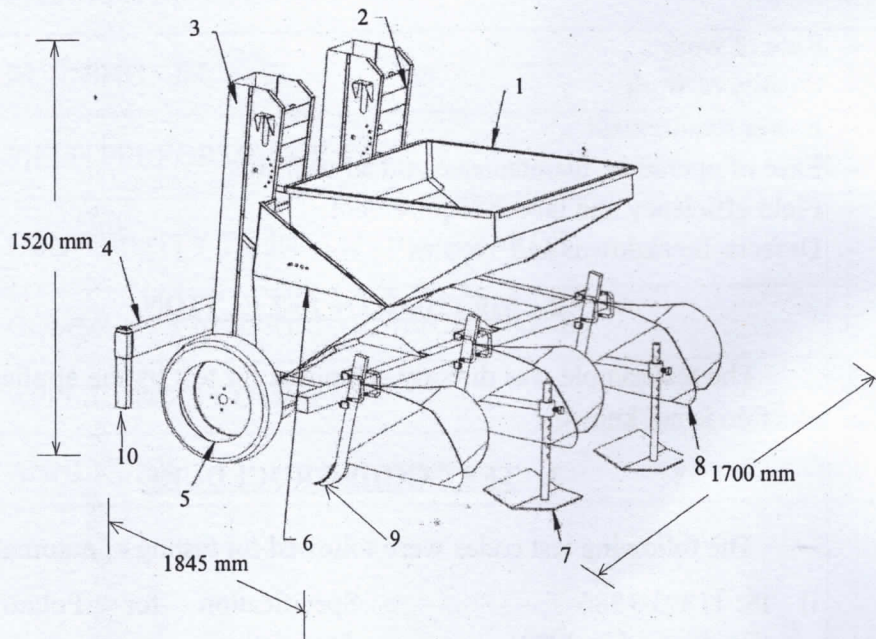


Fig.1: Schematic view of Automatic Potato Planter (NSE PP 2R)

KEY WORDS:

1	Upper hopper	6	Lower hopper
2	Upper roller assembly	7	Ridge compaction device
3	Roller arms	8	Ridger
4	Main frame	9	Furrow opener
5	Ground wheel	10	Stand

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	with a manual containing maintenance and safety instructions, calibration chart etc.		
7.4.1	Each planter shall also be supplied with necessary standard tools	Supplied	Conforms
7.5	Each planter shall be provided with the following accessories: a) Foot rest, b) Row marker, and c) Area recorder	Area recorder was not provided	Does not conform

8.7 Workmanship and finish

8.1	The welding should be satisfactory in all respects and shall not be brittle or porous	Satisfactory	Conforms
8.2	The components shall be free from rust and shall have a protective coating to prevent surface deterioration in transit and storage	Free from rust have a protective coating	Conforms
8.3	The component shall be free from pits, burns and other defects that may be detrimental for their use	Free from pits, burns and other defects	Conforms

8.8 Marking and Packing

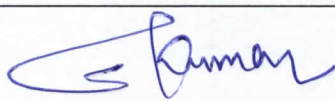

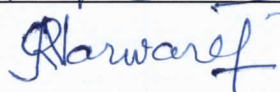
9.1 Marking	Each planter should be marked with the following particulars with the standard make.		
	a. Manufacturer's name and trade mark, if any	Provided	Conforms
	b. Model, code and serial number	Not provided	Does not conform

9. COMMENTS & RECOMMENDATIONS

- 9.1 The dimensions of the three point linkage (hitch pyramid) of the planter do not conform to Ct. I & Cat. II to IS: 4468-2012. This should be looked into for corrective action for standardization.
- 9.2 The planter is not able to plant tuber with 200 mm soil cover as per performance requirement of the IS: 11893-1997. Hence, it is recommended to rectify the same at future production level.
- 9.3 Row spacing of the planter does not conform to relevant IS code, it should be adjustable ranging from 450 to 600 mm preferable in steps of 50 mm. Hence, this should be looked into for corrective action at production level.

- 9.4 The provision for adjustment of spacing of furrow openers were provided but, the entire metering mechanism was fixed. It is therefore, define that the provision of spacing adjustment is considered as fixed at 600 mm only.
- 9.5 The variation in dropping of seed from each chute was observed more than 5 percent from the average quantity obtained. This should be looked into for corrective action at future production level.
- 9.6 Planter is not provided with area recorder. It should be provided as per IS: 11893-1997.
- 9.7 The depth of operation was recorded as 11 to 13 cm in soil having 11 to 12 % moisture content which is found normal for planter operation.
- 9.8 The size of prime mover (tractor) as used for the test was found adequate. No over loading of the prime mover was noticed during the entire test.
- 9.9 The hourly rate of wear of shovel and ridger point on mass basis were recorded as 0.06 and 0.08 to 0.09%, respectively.
- 9.10 There was no marking on the potato planter regarding nominal size, batch, code no. and size etc. except trade mark. Hence, it is recorded to be stamped, embossed or engraved on the metallic plate and rigidly fitted on a non wearing part.
- 9.11 Model, code and serial number were not marked with the planter. Hence, it is recommended to look into in future production level.
- 9.12 **Technical literature:**
Few pages of loose sheets as Operator Manual and Technical Specification were provided which were not sufficient and not standardized. Hence, instruction/owner's manual and parts catalogue etc. should be provided with the planter in book form. However, it is recommended to bring out the manuals also in Hindi and other vernacular languages as per IS: 8132-1999.

TESTING AUTHORITY

SANJAY KUMAR AGRICULTURAL ENGINEER	
P.P. RAO SENIOR AGRICULTURAL ENGINEER	
J.J.R.NARWARE DIRECTOR	

Test conducted/report compiled by: SHRI P. C. DIHINGIA, STA

10. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's Comments
10.1	9.1	We will implement the TPL design in line with IS 4468-2012 to ensure the standardization.
10.2	9.2	We will enhance the soil cover up to 200 mm for future production.
10.3	9.3	We will study and check feasibility to increase the adjustment range from 450 to 600 mm.
10.4	9.4	We will take care of the same for future production.
10.5	9.5	We will implement the area recorder.
10.6	9.9	We will ensure the same for future production.
10.7	9.10	We will ensure the same for future production.
10.8	9.11	We will ensure the same for future production.