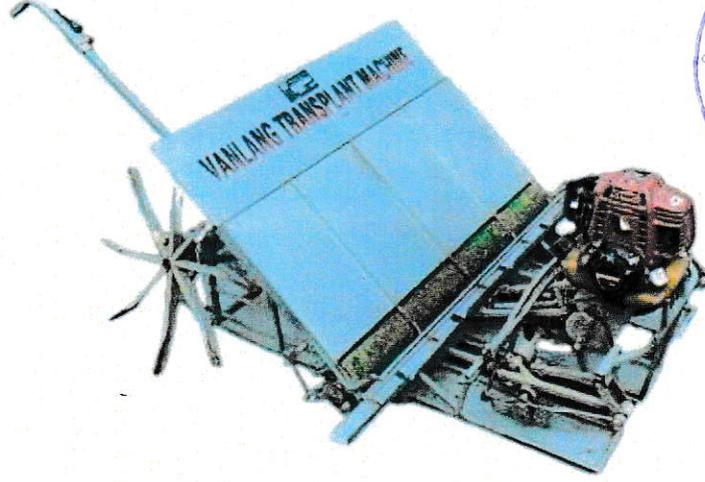


व्यावसायिक परीक्षण रिपोर्ट (प्रारंभिक)
COMMERCIAL TEST REPORT (Initial)



संख्या/No.: Machine 118/489
माह / Month: March 2024

THIS TEST REPORT IS VALID UPTO 31.03.2031



VAN LANG AGRICULTURE MACHINE CO. LTD., VL-RT-2
SELF PROPELLED PADDY TRANSPLANTER



भारत सरकार
GOVT OF INDIA

कृषि एवं किसान कल्याण मंत्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

कृषि एवं किसान कल्याण विभाग

DEPARTMENT OF AGRICULTURE AND FARMERS WELFARE

उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान

NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE

विश्वनाथ चारिआलि, जिला-विश्वनाथ (असम)

BISWANATH CHARIALI: BISWANATH: ASSAM, PIN - 784 176

[AN ISO 9001:2015 CERTIFIED INSTITUTION]

Ph. No. 03715-222094

Website: <https://nerfmtti.nic.in>

E-Mail: fmti-ner@nic.in

Machine 118/489	VAN LANG AGRICULTURE MACHINE CO., LTD VL-RT-2 SELF PROPELLED PADDY TRANSPLANTER	COMMERCIAL (INITIAL)
-----------------	--	-------------------------

4.2 Nursery Preparation:

Healthy paddy seeds of MTU1010 variety were selected to raise the nursery. After thorough cleaning, seeds were soaked in water for 12 hours. Floating seeds were removed and only healthy seeds were kept in moist gunny bag for 24 hours to promote uniform germination.

A nursery tray having size 580 x 195 x 25 mm was laid down over leveled bed. It filled by the mixture of soil up to top followed by compacting and leveling. Then sprouted seeds were broadcasted uniformly over the prepared seed bed and covered with a thin layer of soil followed by a thin cover of paddy straw. Watering twice a day done to irrigate, first by sprinkler and after the germination of seeds by flooding the bed. After 17-19 days the nursery was ready for transplanting by the paddy transplanter.

5. SPECIFICATIONS

5.1 General :

Name of the Machine	: Paddy Transplanter
Name and address of the manufacturer	: Van Lang Agriculture Machine Co., Ltd., Co. Dung 2 Village: Dong La Commune, Dong Hung District, Thai Binh Province, Vietnam
Name & Address of Applicant	: M/s Pipi Traders New Secretariat Road Kohima-797003, Nagaland
Make	: Van Lang Agriculture Machine Co., Ltd.
Model	: VL-RT-2
Serial No.	: 231011
Type	: Engine operated machine, 4-Row
Size of Transplanter (mm)	: 4 x 200
Country of origin	: VIETNAM



Machine 118/489	VAN LANG AGRICULTURE MACHINE CO., LTD VL-RT-2 SELF PROPELLED PADDY TRANSPLANTER	COMMERCIAL (INITIAL)
-----------------	--	-------------------------

9. NOISE MEASUREMENT

9.1 Noise at operator's ear level :

Date of test : 11.12.2023
Type of sound level meter : Class-I, Make- Casella, Model-CEL-633C

Atmospheric conditions :

Temperature (°C) : 26.1
Wind velocity (m/s) : 0.4 to 0.6
Pressure (kPa) : 100.5
Relative humidity (%) : 58.4
Background noise level, dB(A) : 43.7
Observed noise level, dB(A) : 89.6



10. MECHANICAL VIBRATION MEASUREMENT

Vibration measurement test could not be conducted due to ground wheel and transplanting finger of the machine rotate while engine is running at rated speed.

11. FIELD PERFORMANCE TEST

Field test were conducted for total 27.26 hours. Field was puddled by using tractor operated rotavator. Total six test trials were conducted in puddled field. Conditions of test plot and nursery and the field performance results are given Annexure-I & II and summarized in Table-1 and Table-2 below.

Summary of field and nursery condition

Table-1

Sl. No.	Parameters	Observations
	Condition of field	
1	Type of soil	Light
2	Interval between puddling and paddy transplanting, days	02 to 03
3	Depth of puddle (cm)	17.0 to 19.5
4	Depth of standing water over puddle (cm)	2.0 to 2.8

	Condition of nursery	
1	Variety of paddy	MTU1010
2	Type of seed bed soil	Light
3	Area of each tray (m ²)	0.113
4	Age of nursery (days)	17 to 19
5	Leaf stage (no. of leaves)	2.3 to 2.4
6	Height of seedling (cm)	16.0 to 19.0
7	Length of root (cm)	6.0 to 8.4

Machine 118/489	VAN LANG AGRICULTURE MACHINE CO., LTD VL-RT-2 SELF PROPELLED PADDY TRANSPLANTER	COMMERCIAL (INITIAL)
-----------------	--	-------------------------

Summary of field performance results

Table-2

Sl. no.	Parameters	Range
1	Forward speed (kmph)	3.11 to 3.26
2	Depth of transplanting (cm)	4.6 to 6.8
3	Travel reduction (%)	0.50 to 3.11
4	Spacing between rows (cm)	19.6 to 20.6
5	Number of seedlings per hill (nos.)	6 to 8
6	Spacing between hills (cm)	20.0 to 20.8
7	Number of hills in 1 m ²	24 to 25
8	Percentage of transplanting faults in 1 m ² (%)	
	- Missed hills	1.02 to 4.17
	- Floating seedlings	0.82
	- Buried seedlings	0
	- Damaged seedlings	1.02
	- Total transplanting fault	2.03 to 4.17
9	Area covered (ha/h)	0.151 to 0.183
10	Time required to cover 1 ha (h)	5.46 to 6.62
11	Field efficiency (%)	60.4 to 72.62
12	Quantity of nursery consumed per ha. (m ²)	18.24 to 22.08
13	Fuel consumption	
	- l/h	0.41 to 0.46
	- l/ha	2.38 to 2.85

11.1 Rate of work

- Rate of work was recorded as 0.151 to 0.183 ha/h and the forward speed of operation varied from 3.11 to 3.26 kmph.
- Time required to cover one hectare was recorded as 5.46 to 6.62 h.

11.2 Quality of work

The quality of work was assessed by taking into consideration of the following parameters :

- Depth of transplanting was recorded as 4.6 to 6.8 cm.
- The spacing between row to row was recorded as 19.6 to 20.6 cm.
- Number of seedlings per hill was recorded as 6 to 8.
- Spacing between hills was recorded as 20.0 to 20.8 cm.
- Number of hills in 1 m² was recorded as 24 to 25.
- Percentage of missing hills was recorded as 1.02 to 4.17.
- Percentage of floating seedlings was recorded as 0.82.
- Percentage of buried seedlings was recorded as nil.
- Percentage of damaged seedlings was recorded as 1.02.
- The total percentage of transplanting faults was recorded as 2.03 to 4.17.



Machine 118/489	VAN LANG AGRICULTURE MACHINE CO., LTD VL-RT-2 SELF PROPELLED PADDY TRANSPLANTER	COMMERCIAL (INITIAL)
-----------------	--	-------------------------

*not recorded due to ring design constraints

14.1.4 Ring side clearance:

Rings	Ring side clearance, mm	Max. permissible clearance limit, mm
1 st comp. ring	0.05	0.30
2 nd comp. ring	0.05	
Oil ring	*	

*not recorded due to ring design constraints.

14.1.5 Main bearings: 6001-2Nos.

Bearing No.	Type of bearing	Diametrical clearance, mm	Crankshaft end float, mm	Max. permissible clearance limit, mm	
				Diametrical clearance	Crankshaft end float
1	Ball bearing	NA	0.01	0.10	0.30
2	Ball bearing	NA			

14.1.6 Big end bearing:

Bearing No.	Clearance, mm		Max. permissible clearance limit, mm	
	Diametrical	Axial	Diametrical	Axial
1	Needle bearing	--	0.146	1.10

Measurement of big end bearing clearance was not possible as the piston along with connecting rod was not detachable.

14.2 Valve, guide and timing gear:-

Any marked sign of overheating of valves : None
Pitting of seat/faces of valves : None
Any visual damage of teeth of timing gears : None
Condition of ignition coil & magneto : Normal

Transmission system:

All the gears of the transmission system were found in normal condition.



15. COMMENTS & RECOMMENDATIONS

15.1 The average rated power in rating test of engine was observed as 0.59 kW against declared value of 1.0 hp i.e. 0.75 kW by the applicant/manufacturer. This should be looked into for corrective action.

15.2 The specific fuel consumption (SFC) in rating test of engine was observed as 680.0 g/kWh against declared value of 340 g/kWh by the manufacturer which exceeded by

Machine 118/489	VAN LANG AGRICULTURE MACHINE CO., LTD VL-RT-2 SELF PROPELLED PADDY TRANSPLANTER	COMMERCIAL (INITIAL)
-----------------	--	-------------------------

more than 5 percent of that declared by the manufacturer and hence does not fulfill the requirement of IS 7347-1974 (Amended 2011). This should be looked into for corrective action.

15.3 The engine was not marked with Manufacturer name or Trade-mark, Rated power and type of fuel used which does not fulfill the requirement of IS 7347-1974 (Amended 2011). This may be looked into.

15.4 It was observed that during engine performance test, at full load, engine speed was not stable at rated speed. This shall be looked into for corrective action.

15.5 Noise at operator's ear level was observed on higher side against warning limit of 85 dB(A) as specified by International Labour Organization (ILO) for continuous exposure of 8 hours per day. This calls for reduction in noise level to improve the operational comfort and safety.

15.6 Adequacy of Literature

The following literature in English language was provided for reference during testing:

- Operator's/ Service manual
- Parts catalogue

It is recommended to bring out the manual in Hindi and other vernacular languages as per IS: 8132-1999.

TESTING AUTHORITY


(M.R. PATIL)

AGRICULTURAL ENGINEER


(Dr. P.P. RAO)

DIRECTOR



Draft test report compiled by - Shri Khagendra Bora, STA

16. APPLICANT'S COMMENTS

Sr. No.	Para No.	Applicant's Comments
16.1	15.1 to 15.6	We have studied all the comments and recommendations in the draft report from para 15.1 to 15.6 and we will take necessary corrective action in the future product.