

Paddy Drum Seeder

I Introduction

Draft animals and human labours continue to be the major power source for agricultural production in small and marginal land holdings as well as in hilly areas indicating a very low level of mechanization. With the increase in maintenance cost and also reduction in population of draft animals, human energy is predominantly used in agriculture for all operations starting from seedbed preparation to threshing and transportation. In order to improve the efficiency of human labours, simple, suitable and efficient machines or implements should be available to raise the agricultural production in the above mentioned areas. The transplanting of rice seedlings which is a highly labour-intensive and expensive operation can be replaced by direct seeding that can reduce labour needs by more than 20 per cent in terms of working hours requirements. Paddy drum seeder is one of the implement which can reduced human drudgery and can successful implements in the farmers field successfully. The seeder consists of a seed drum, main shaft, ground wheel, floats, and handle and joining smaller ends of frustum of cones makes the

seed to drop from the seed drum. Nine numbers of seed metering holes of 1 cm diameter are provided along the circumference of the drum at the both ends for a row-to-row spacing of 20 cm. Two floats are provided on either side to prevent restrict the sinkage and to facilitate easy pulling of the seeder

II Specifications

Length (cm)	200
Width (cm)	150
Height (cm)	64
Number of rows sown	4-8
Row to row spacing (cm)	20
Number of seed metering holes	9
Diameter of the metering holes (cm)	1
Number of floats	2
Weight (kg)	10
Capacity (ha/day)	1.1

III Details of the direct-seeding technology (on per-hectare basis)

1. Seed rate required - 40 kg
2. Time required for direct seeding – 210 - 420 minutes (3.5 - 7 hours)

3. Labour required - 3 persons [one for pulling the drum seeder, one to help the puller to lift the machine at the end of the field, and one to fill/refill the seed in the drums].
4. Weedicide use is a must, and if needed (in fields where weed problem is high), a second application at 30 days after sowing is also done in addition to the first application made within 2 days after sowing.
5. Paddy seeds are filled to 3/4 level in each of 2-4 drums, and once the seeder is pulled, seeds fall in 4-8 rows @ 20 cm width between the rows.
6. Conoweeders are fit into the 20 cm gap between rows, and they are run across the field 3-4 times, starting from 20 days after sowing.

III Water management

No standing water after seeding. The field is kept wet until panicle initiation stage and from then on 2-3 cm standing water until 10 days before harvesting.

IV Weed management

Weedicide is a must; application of weedicide can be done once or twice during the cropping period upto 40 days after seeding depending upon the condition of the field.

V Operation

Conoweeder is run in one direction only in the direction in which the drum-seeder was pulled.

VI Advantages of Paddy Drum Seeder

1. Direct seeding method avoids any raising of nursery, pulling up seedlings and transplanting them so that labour requirement for crop establishment is negligible.
2. Farmers can take up paddy cultivation at any time, right away, as there is no requirement or delay of raising a nursery.
3. Paddy cultivation using direct seeding method can be taken up in fields which have heavy weed infestation; although this means that weedicide application is a must.
4. Duration of the crop can be shortened by 7-10 days compared to traditional practice.

VII Comparison between traditional transplanting and direct seeding per hectare area

Sl. No.	Particulars	Cost of cultivation for traditional farming (Rs.)	Cost of cultivation for paddy drum seeder (Rs.)
Nursery			
1.	Land preparation	800.00	Nil
2.	Seed cost	1500.00	1000.00
3.	Fertilizer (urea-10kg+DAP 3kg + MOP-3kg)	130.00	Nil
4.	Sowing	500.00	Nil
5.	Miscellaneous (irrigation and plant protection)	1250.00	Nil
Cultivation			
6.	Land preparation	6000.00	6000.00
7.	Fertilizer (60:40:30 kg/ha)	6330.00	6330.00
8.	Uprooting	1500.00	Nil
9.	Transplanting /Seeding	9200.00	920.00
10.	Weeding	9200.00	1840.00
11.	Plant protection chemicals	2000.00	2000.00
12.	Plant protection	750.00	750.00
13.	Reaping	9200.00	9200.00
14.	Threshing and winnowing	14000.00	14000.00
		Rs. 62360.00	Rs. 42040.00

Folder No. RCM(F)-

Prepared and Compiled by:

L. Kanta Singh
SMS (SWCE)
KVK Imphal West

Kh. Hera Singh
SMS (Agric. Engg)
KVK Imphal West

S K Raman
Programme Coordinator
KVK Imphal West

Published by:
N. Prakash
Joint Director
ICAR Research Complex for NEH Region, Manipur Centre

Paddy Drum Seeder



KRISHI VIGYAN KENDRA, IMPHAL WEST
ICAR Research Complex for NEH Region, Manipur Centre
Lamphelpat, Manipur - 795004
E-mail: kykimphalwest@gmail.com, Tel: +91-385-2410485
<http://kvkimphalwest.org/>