

Mat Type Nursery Raising Technique for Rice Transplanters

**Priyanka Tiwari^{1*}, Prabhat
Kumar Guru²**

¹National Institute of
Technology, Kurukshetra –
136119, Haryana (India)

²ICAR-National Rice Research
Institute, Cuttack- 753006,
Odisha (India)



*Corresponding Author

Priyanka Tiwari*

E-mail:

tiwari.priyankatiwari.p2@gmail.com

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INTRODUCTION

The rapid increase in labour cost and to ensure timeliness in farm operation mechanization of traditional method of rice transplanting is need of the hour. There is shorter window period for rice transplanting, farmers are facing difficulty in timely paddy transplanting. Traditional way of rice transplanting is labor intensive and involves drudgery. Mechanical rice transplanter is Cost effective and operation friendly. It helps in maintaining soil physical properties and is considered to be better from crop management and productivity point of view. Raising mat type nursery in frames or in fields is complex and labor intensive technique and possibly one of the major constraints in adoption of mechanical transplanting. Sometimes the plant population in nursery is uneven which may affect the performance of the transplanter. In spite of having an edge over the traditional transplanting, adoption rate of mechanical transplanters is low due to lack of knowledge in growing mat type nursery (Guru et al., 2018). This article provides procedure and guideline for preparation of mat type nursery for rice transplanter.

Preparation of Mat type nursery:

For manual transplanting of rice, nursery was prepared in field and for mechanical transplanting, mat type nursery was prepared using seedling tray or seedling frame in field. Proper care until the transplanting has been done. For manual transplanting of 1 hectare land, 800 m² area was required for nursery preparation (Patel et al., 2018). Assured water supply and efficient drainage system is needed for good quality rice nursery. Select the mat type nursery location having fertile soil preferably medium type where irrigation water is available and minimum transportation distance of seedlings to the field.

The field should be 20 m away from tubewell and trees to avoid shade, debris and damage by birds. For nursery preparation selected area of field should be ploughed twice followed by two puddlings in weekly interval and levelled by available power source i.e. animals, power tiller or tractor preferably using laser guided land leveller. There should be no stones or other hard material in the soil mixture. After preparation of land spread 50-60 gauge, 90 cm wide polythene sheet with 1-2 mm diameter perforations over it. Place one or more iron frames having compartments of size 18x9.5x0.75 inch for Self-propelled single wheel riding type transplanter, 18x12x0.75 inch for self-propelled walk behind type paddy transplanter and self-propelled 4 wheel type paddy transplanter over the polythene sheet. Number and size of compartments vary according to machine specifications. Sprouted seeds were uniformly spread over the surface and in 20-25 DAS seedlings were pulled out for transplanting. Polythene sheet weighing 350 gms spread to a length of about 20 meters is sufficient for preparing seedlings for one acre. Fill the soil from both sides in the frames uniformly up to the top surface. About 10-12

kg seed is sufficient to sow seedlings for one acre. Spread pre-germinated seed evenly in each compartment to achieve uniform density of 2-3 seeds per sq. cm. Cover the seeds by a thin layer of soil and sprinkle water by hand sprayer for proper setting of soil. Lift frames and put these at the next place and repeat the above procedure for sowing required number of seedling mats. After sowing, irrigate the field, but the flow of water for first 2-3 irrigations should be mild and level should be uniform so that there is no damage to newly formed mats. Care must be taken that mats are always wet. The seedling mats become ready after 20-25 days of sowing. For uprooting seedling mats, drain the water from the nursery field a few hours before uprooting and give a cut with a sharp blade along the boundaries the mat. For mat type nursery seedlings are established in a layer of soil mix, arranged on a firm surface i.e. Concrete floor/ polythene sheets on field/ seedling trays. Seedlings are ready for planting within 14-20 days after seeding (DAS). For uprooting the seedling mat, give a cut with a sharp blade along the boundaries of the mat.



Fig. 1: Mat type nursery



Figure 2 Mechanical rice transplanter in operation

CONCLUSION

Imparting technical knowledge, ensuring timely availability and encouraging custom hiring may be some of the practical solutions for increasing the rice area under mechanical transplanting. Mechanical transplanting is fast and efficient uses less labor and ensures timely planting. Mechanical transplanting reduces stress, work load, and health risks as compare to the the manual transplanting. It also ensures uniform spacing and plant density and seedlings recover fast, tiller vigorously, and mature uniformly.

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