#### **2.531 Transplanters**

Mechanisation is needed to raise productivity in rainfed upland and rainfed lowland and to increase cropping intensity in irrigated farms

The manual and self propelled transplanter reduces cost of transplanting by 45-50% and labour requirement by 75-80%.

status and prospectus of

Mechanization decreases

cost of production by reducing labour needed for

particular operation and economy of power and other

inputs (Das, 2012) Study of Adoption of Mechanical Rice Transplanters through Custom Hiring in Tamil Nadu-

a Case Study

Paddy Transplanter Machine transplanting using rice transplanters requires considerably less time

and labor than manual transplanting. It increases the approximate area that a person can plant from 0.7 to 1ha/day. Transplanting of paddy seedlings can be categorized into three groups as follows: 1. By hand (manual) 2. Manually operated machines (work by man power) 3. Mechanically operated machines (work by engine power) development and performance evaluation

Mohanty et al. (2010) reported that the inadequate number of hills per hectare

transplanted by manual labour and the delay in transplanting due to labour shortage during peak transplanting season pushed the demand for a mechanical transplanting. development and performance evaluation

Rice transplanting was mechanized by 1970s and 1980s in Japan and Korea, respectively (Haytham et al., 2010). They also developed new technologies of seedling raising for rice transplanter (Tasaka et al., 1996). Now more than 99% of paddy fields are cultivated by mechanized transplanting in both countries. Mechanical rice transplanting is being introduced in Bangladesh and gaining popularity through the different intervention of some governmental and non-governmental organizations. Usually, a plastic tray called a nursery box (58 × 28 × 2.5cm) is used for raising rice seedlings. Soil is packed into it, and seeds are sown. Nursery boxes are then arranged plain land and the seedlings are raised. When the seedlings are sufficiently grown, the nursery boxes are put on a van and taken to the paddy fields. The seedlings are then transplanted by a transplanter (Haytham et al., 2010). But many technical issues must be considered for successful operation of rice transplanter. For example, in machine transplanting, seedling should be raised with special care in tray. Raising seedling for transplanting requires suitable seedling age, materials and advanced practices including tray and nursery bed soil, seed

preparation for pre-germination and disease disinfection. About 3 leaf stage and 12 to 15cm height seedlings are required for machine transplanting (Kitagawa et al., 2004). **Tray soil**

Transplanters types -status and prostpectus of mechanization of rice

Techno-Economic Performance of a Self-Propelled Rice Transplanter and Comparison with Hand Transplanting for Hybrid Rice Variety

Paddy transplanter Transplanter is a machine used to transplant matured (15-21days) paddy

seedlings at proper place, at right time into the puddled field. A common paddy transplanter comprises; a seedling tray on which mat type rice nursery is kept; a seedling tray shifter that shifts the seedling tray and pickup forks with needles that pick up a seedling from mat type nursery on the seedling tray and put the seedling into the puddled soil. The float of the transplanter served as a base and also helps in movement of the machine over excess water in the field. It creates 2-3 cm raised bed for placement of seedlings at 4-5 cm depth. It also serves as a platform for placement of nursery during transplanting operation. Eight row as well as four row commercially available self propelled transplanter

development and performance

About the transplanter we used

Within row space (WRS) 12 cm, 14 cm, 16 cm, 18 cm, 21 cm

per hill number of seedlings

Planting depths (PD) 1.5 cm , 2 cm, 2.3 cm, 2.7 cm, 3 cm, 3.7 cm

Use of higher WRS (18 cm or 21 cm) or lower number of PHSN (4) did not affect the yield. This study also proves the feasibility of using a wider range of pds (1.5-3.7 cm) in MT

Impact of varieties, spacing and seedling management on growth and yield of mechanicaly transplanted rice