

Physical properties of seedling mat for a manually operated paddy transplanter

ABSTRACT

Experiments were conducted to identify the optimum soil composition as a seedling raising medium for a manually operated transplanter. The effects of moisture content and seedling age on rupture strength, soil bearing index and uniformity index of seedling block after being cut from the mat were also investigated. The average values of rupture strength at saturation (45-50%), intermediate (30-35%) and friable range (20-25%) moisture contents were 3.21 N/cm², 4.21 N/cm² and 8.25 N/cm² respectively. The seedling mat with soil composition (80% silty clay loam soil + 10% sand + 10% Cow dung) at a moisture content of 30-35% dry basis, produced the maximum value for soil bearing index (0.84) which was essential for better crop establishment. Green house seedlings at the age of 13 days produced maximum soil bearing index of seedling block and optimum rupture strength of seedling mat. The addition of saw dust to the mat soil decreased soil cohesion and hence decreased soil bearing index of the seedling block.

Keyword: Seedling mat; Rupture strength; Soil bearing index; Uniformity index