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Development of a seedling ejection mechanism for pro-tray seedling

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ABSTRACT : A novel seedling pick - up mechanism was developed and its performance was evaluated at the laboratory. The pick - up mechanism extracts seedlings from a 98 cell pro - tray and transfer them to place into the soil. The pick - up mechanism consisted of a coupler extension (claw), driven link, driving crank, and coupler. The pick - up mechanism is a four bar mechanism modified according to our requirement. The coupler joins the driving link and driven link. When the crank rotates, the claw enters into the pro - tray cell from the top and tease out a seedling from its cell. The coupler path was so designed to do this job without damaging the root ball and the plant. The pick - up mechanism was tested with different medium and depth of penetration. When tried on 20 days old seedlings, The seedling pick - up mechanism extracted 15 to 20 seedlings per minute and the success ratio was 80 per cent.

KEY WORDS : Pro-tray, Tray holder, Pick - up claw, Four bar mechanism

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