DESIGN AND DEVELOPMENT OF A MOTORIZED RICE TRANSPLANTER

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Rice is grown either by direct seeding such as broadcasting, drilling and sowing or by transplanting. Many comparative studies have been conducted between transplanting and direct seeding. It has been observed that transplanted rice yields 10 to 20% higher than broadcast rice. Transplanting has some added advantages such as better water and weed control, uniform ripening and less lodging compared to direct seeding. Also the transplanted rice occupies the field for less time than the direct seeded rice and thus facilitates the control of weeds effectively. There is a manual transplanter developed in Sri Lanka and is called Mark II six rows manual rice transplanter. However it has some operating difficulties because of its high weight. The objectives of this research are to introduce a motorized rice transplanting machine, to develop a suitable design, to fabricate and make a prototype, to test the prototype for performance and also to add some modification if necessary. The machine was designed with a complete drawing which was drawn using AutoCAD software. It was designed as an attachment implement to the two wheel tractor. According to the drawing, machine was produced in Farm Mechanization Research and Development Center, Mahailuppallama and the cost of production was funded by the institution. The machine consists of a power transmission unit, hitch and a leveling board. Designed parts were assembled according to the drawing. Performance of the machine was tested using dapog seedlings. Performance of the machine was better and plants could be established with 20X20 spacing by using this machine. Because of the motorized power the machine can be operated easily by a single person. The machine was so simple in construction and operation, so that it can be handled easily by illiterate farmers, and can be manufactured or repaired by village level mechanics, carpenters and blacksmiths. It is cheap, so as to suit every farmer. The machine is light in weight, and it made the transportation easy from village to the field and also it was fabricated by the material locally available so that farmers have no problem for spare parts afterwards.

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