

**TECHNO-ECONOMIC COMPARISON BETWEEN DIRECT SEEDING AND
TRANSPLANTING METHOD IN RICE CULTIVATION: A CASE STUDY**

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**Final Year Project Report Submitted in
Partial Fulfilment of the Requirement for the
Degree of Bachelor of Science (Hons.) Plantation Technology and Management
in the Faculty of Plantation and Agrotechnology
Universiti Teknologi MARA**

JULY 2015

DECLARATION

This Final Year Project is a partial fulfilment of the requirements for degree of Bachelor of Science (Hons.) Plantation Technology and Management, Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA.

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ABSTRACT

Techno-Economic Comparison Between Transplanting and Direct Seeding Method In Rice Cultivation: A Case Study

Malaysia farmers applied two methods to planting paddy in rice field. The study was conducted to compare techno-economic performance in rice cultivation. Rice transplanter method was compared with direct seeding method. The experimental plot in Sungai Besar Selangor was 1.214ha with two treatments and three replications. Kubota rice transplanter and Backpack Gasoline 3WF-808 20L was used in the experiment. The techno-economic performance both of the machine was conducted. The operational field performance of rice transplanter and direct seeding for rice cultivation method has been evaluated. The results indicated that rice transplanter and direct seeding was found the speed as 3.29 km/h and 1.01 km/h, fuel consumption was 2.95 liter per hour and 0.66 liter per hour, actual field capacity was 0.352 ha/h and 0.614 ha/h, theoretical field capacity was 0.602 ha/h and 0.909 /h, field efficiency was 59.49% and 67.50% respectively. Percentage of missing seedling rice transplanter was 5.56% and direct seeding was no missing seedlings were detected. There was 94.49% and 100% planting efficiency of rice transplanter and direct seeding respectively. Also characteristics of paddy seedling at 21 day old and paddy yield contributing between rice transplanter and direct seeding for rice transplanting method has been evaluated. The result of rice transplanter and direct seeding have been found the average distance between seedlings was 18 cm and 6 cm, seedling density was 126 seedling/m² and 250 seedling/m², seedling height at age 21 days after planting were obtained as 17.40 cm and 28.57 cm, average root length of seedling 13.77 cm and 13.4 cm, percentage weedy rice was 8.67% and 13.67%, paddy yield 7.94 t/ha and 7.28 t/ha respectively was recorded. The net return rice transplanter and direct seeding was RM5493.10/ha and RM4486.60/ha respectively. The benefit cost ratio (BCR) 2.09 and 2.05 were found for rice transplanter method and broadcast seeded method respectively. It was observed that the cost was RM 2209.82/ha when the transplanter was used for 10 ha/year while RM 469.40 when the direct seeding was used for 10 ha/year. Therefore, it might be concluded that it would be economic an increase of annual use. From the results of the study, it can be concluded that rice transplanter method is more economic than the manual transplanting method. However, the operational performance were high in broadcast seeded method.