

**Entry No. IRRC-0138**

Category : International Rice Research Conference

Select Theme : Disruptive technologies and innovations

Endorsement email :

Keyword 1 : Innovation systems

Keyword 2 : Precision agriculture

Keyword 3 : Social inclusivity of technologies

Title of Entry : Evaluation test of Cambodian-designed direct seeder prototype for two-wheel tractor

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Select only one type of presentation

: 15 minute oral presentation

Abstract

: Field test and evaluation of a Cambodian-designed Direct Seeder Prototype for Two-wheel tractor operation Chan Makara Meana\*, Dyna Thenga, Savath Sengb, Lyhour Hina, Timothy Rendallc Gerald Hitzlerd, Lytour Lora a Faculty of Agricultural Engineering, Royal University of Agriculture, Cambodia b Department of Agricultural Engineering, General Directorate of Agriculture, Cambodia c Illinois at Urbana Champaign University, USA d International Rice Research Institute(IRRI ),Cambodia \*Corresponding Email: meanmakara321@gmail.com Abstract Rice is consumed widely throughout the world and it is a staple crop in Cambodia. By 2017 rice production was predicted to increase 1.7% of GDP per capita. By the way, agricultural machinery had contributed in Cambodia approximately 93.73% in land preparation by 2017. Agricultural machinery for seedling transplanting and sowing process had only 0.01%(I have my doubts about the figure) in 2013 and agriculture labor force had decreased form 80% to 42% between 1998 and 2017. The decline of labour in agriculture has prompted the development of suitable agricultural machinery to subsidize labour. The study aimed to identify the performance of the seed planter compared with hand broadcasting and to compare the growth and production yield of the two practices. The study was carried out in a farmer's field, located in Tatork village, Pouk Commune, Pouk District, Siem Reap Province, Cambodia. For the field trials Sen Pidor fragrant rice variety (local rice variety) was used . There were two treatments with 3 replicates of each treatment. Randomize Complete Block Design (RCBD) method was used for the experimental design. The dimension of each experimental plot is 5 m × 20 m. The cultivating by direct seeder had seed rate about 147 kg/ha, while the hand broadcasting up to 180 kg/ha. In growth process of rice, it was observed that rice's stem length of direct seeder practice was 79.21 centimeter but hand broadcasting was only 72.62 centimeter in age 69 days. At the end of harvesting, the experimental plots using direct seeder obtained higher yield, 4.2 t/ha compared to 3.85 t/ha of hand broadcasting in average moisture content 19%. Addition to this, 100 grains 'weight of direct seeder practice was 1.70 g whereas the hand broadcasting

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