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Effect of the orientation of the rice seed swivel disc on the seed consumption rate of the dry paddy field sowing machine

Suwipong Hemathulin[1], Thodsatam Lasopha[1], Nattadon Pannucharoenwong[2]*, Phadungsak Rattanadecho[2], Snunkhaem Echaroj[2] and Victoria Timchenko[3]

[1]Department of Mechanical and Industrial, Faculty of Industrial Technology, Rajabhat Sakon Nakhon University 47000

[2]Department of Mechanical Engineering, Faculty of Engineering, Thammasat University 12120

[3] School of Mechanical and Manufacturing Engineering, the University of New South Wales, Sydney, Australia

*Corresponding Author: pnattado@engr.tu.ac.th, 038259050-55

Abstract

This research article aims to study the effect of rice seed swivel disc's orientation on the seed consumption rate of the 150 cm x 120 cm x 100 cm dry rice sowing machine. The experiment was conducted at Tan kon village, Sawang Daen Din district, Sakon Nakhon province. Data was collected for 5 hours and the system was connected to a 24-hp tractor equipped with a 10 liters fuel tank for diesel oil. The distance between each consecutive rice drop was 25 cm x 25 cm. Two types of rice seed swivel disc were investigated including vertical and horizontal. The engine speed was varied at 1500, 2000 and 2500 rpm. Results demonstrated that horizontal-type machine required grain seed input of 8.3, 9.6 and 10.4 Kg/rai. For the vertical-type an average grain seed input 5.2, 6.5 and 7.4 Kg/rai was required. This study shows that the vertical rice seed swivel disc can save more rice seeds compared with the horizontal-type by 37.35%, 32.29% and 28.85%. Traditional farming costs 3,200 baht per rai. By using the rice seed swivel disc in the vertical axis of the dry rice sowing machine the cost of farming reduced to 1500 baht/rai. This was a 53.1% decrease in the cost of farming and the payback period was within 20 days.

Keywords*:* Sowing machine, Dry paddy field, Rice seed swivel disc, Payback Periods