

RANCANGBANGUN *FERTILIZER APPLICATOR* MODEL *DOUBLE OUTLET SCREW CONVEYOR*

INTISARI

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Pada budidaya tebu di PG. Madukismo terdapat alat pupuk mekanis bernama *fertilizer applicator* dengan sistem sistem broadcast model plat putar. Modifikasi yang dilakukan adalah merubah penjatah menjadi sistem *screw conveyor double outlet*. Dengan menggunakan *sistem screw conveyor*, proses penjataan pupuk akan lebih stabil. Pupuk ZA dan Phonska akan dimasukkan ke dalam hopper terpisah. Dosis target yaitu keluaran total 0,5kg /10 m dengan perbandingan 6:4. Penelitian ini bertujuan untuk merancang *fertilizer applicator* dengan *sistem screw conveyor*. Dalam penelitian dilakukan uji verifikasi untuk memastikan keluaran pupuk. Metode yang digunakan dalam penelitian yaitu dengan pengamatan langsung. Pengolahan data dilakukan dengan membandingkan keluaran pupuk pada tiap alur dengan beda tenaga penarik yaitu John Deere 5715 dan New Holland 6030. Prototipe *fertilizer applicator* model *screw conveyor double outlet* berhasil dirancang dan direalisasikan. Pada hasil uji verifikasi dengan tenaga penarik John Deere 5715 jarak uji 50 m didapatkan error ZA 3,83% dan Phonska 6,36%. Kemudian pada jarak uji 75 m didapatkan error ZA 3,26% dan Phonska 3,27%. Pada hasil uji verifikasi dengan tenaga penarik New Holland 6030 jarak uji 50 m didapatkan error ZA 3,57% dan Phonska 2,80%. Kemudian pada jarak uji 75 m didapatkan error ZA 1,49% dan Phonska 2,47%. Rekomendasi perbaikan prototipe yaitu lebih diakuratkannya bentuk dan dimensi *screw conveyor* untuk lebih menstabilkan keluaran pupuk.

Kata Kunci : Tebu, Rancangbangun, Pupuk, *fertilizer applicator*, *screw conveyor*

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DESIGN OF FERTILIZER APPLICATOR DOUBLE OUTLET SCREW CONVEYOR MODEL

ABSTRACT

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Sugarcane cultivation in PG. Madukismo has a mechanical fertilizer called a fertilizer applicator with a rotary plate model broadcast system. The modification made is to change the allotment to a double outlet screw conveyor system. By using a screw conveyor system, the fertilizer allotment process will be more stable. ZA and Phonska fertilizers will be put in separate hoppers. The target dose is a total output of 0.5kg /10 m with a ratio of 6:4. This study aims to design a fertilizer applicator with a screw conveyor system. In the study, verification tests were carried out to ensure fertilizer output. The method used in this research is direct observation. Data processing was carried out by comparing the fertilizer output in each channel with different towing forces, namely John Deere 5715 and New Holland 6030. The prototype of the screw conveyor double outlet fertilizer applicator model was successfully designed and realized. On the results of the verification test with a towing force of John Deere 5715, a test distance of 50 m, the ZA error was 3.83% and Phonska 6.36%. Then at a test distance of 75 m, the ZA error was 3.26% and Phonska 3.27%. In the results of the verification test with a towing force New Holland 6030, a test distance of 50 m, the ZA error was 3.57% and Phonska was 2.80%. Then at a test distance of 75 m, the ZA error is 1.49% and Phonska is 2.47%. Recommendations for improving the prototype are more accurate in the shape and dimensions of the screw conveyor to further stabilize fertilizer output.

Keywords : Sugarcane, Design, Fertilizer, Fertilizer applicator, Screw conveyor

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