

Pimpan Pruengam 2007: Development and Testing of the Continuous Feeding Sugar Cane Polishing Machine. Master of Engineering (Agricultural Engineering), Major Field: Agricultural Engineering, Department of Agricultural Engineering. Thesis Advisor: Associate Professor Mongkol Kwangwaropas, Ph.D. 201 pages.

The sugar cane polishing machine is used for juicing process of fresh drink. The juicing sugar cane industry is an alternative method for increasing sugar cane value. Furthermore, more percentage of juice can be obtained comparing with conventional peeling way because the cane's flesh was not peeled off. Experimental study of Suphanburi 50 sugar cane aged 7-9 months found out that average length was 152.75 cm, average diameter was 3.13 cm, regularity of sugar cane was 0.99. The average maximum axial compressive force, radial force and bending force at different lengths of specimens were 2613.42 N, 1076.24 N and 631.76 N, respectively. The average % Brix was 14.69.

Power requirement test of the continuous feeding sugar cane polishing machine at rotational speed of the brush unit 3 levels was also conducted 864 rpm, 1080 rpm and 1152 rpm in conjunction with speed of the feeding mechanism 3 levels, 16.11 rpm, 24.17 rpm and 36.25 rpm respectively. It was shown that at brushes speed 1080 rpm and the feeding unit speed 36.25 rpm resulted in minimum power requirement of brush units, 727.81 watts. Test of continuous operation found out that the working capacity at rotational speed of the brush units 1080 rpm and the feeding mechanism speed 36.25 rpm resulted in the highest working capacity, 276.96 kg/hr with the cleaning percentage 74.72%.

In this study was concluded that the optimum rotational speed of the brush units and the feeding mechanism were 1080 rpm and 36.25 rpm, respectively.

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