Design parameters for stripping fresh oil palm fruitlets

ABSTRACT

An attempt was made in this study to separate oil palm fruitlets mechanically from cut spikelets prior to transportation to the mill. An experimental drum thresher was developed and the effects of various technical conditions on threshability, bruise index, and threshing power requirement were identified. The percentage of stripped fruitlets could be increased by increasing the rotational speed, decreasing inclination angle and diameter of the inner drum. The threshability of fruitlets with a feeding rate of 600 kg/h, inner drum speed of about 300 rpm and diameter of 16, 22, and 28 cm were about 98%, 95%, and 94% for each drum diameter, respectively. Increasing the inner drum speed and diameter would increase the threshing power requirement. The relationship between drum speed and bruise index for each diameter was not significant. The bruise indexes in the threshing drum of 16, 22, and 28 cm diameter approached their average value of 2.4, 3.9, and 4.0, respectively. Fruitlets with these indexes would produce free fatty acid of less than 5% within 12 hours.

Keyword: Oil palm fruitlets; Stripping system; Drum thresher; Stripped fruitlets