

## **ANALISIS KINERJA MESIN PENGUPAS BIJI KEDELAI (*Glycine max*)**

### **DENGAN PERLAKUAN KADAR AIR BAHAN DAN KECEPATAN**

#### **UDARA**

#### **INTISARI**

**Oleh:**

**NOFA TRI AYU ADINA**

**18/425344/TP/12045**

Kedelai (*Glycine max*) merupakan sumber protein nabati yang paling populer di Indonesia yang diolah dalam bentuk tempe. Tingginya tingkat konsumsi pangan ini memerlukan pemenuhan akan kedelai yang berkualitas. Produksi tempe pada umumnya dilakukan dengan sistem basah (pemisahan kulit ari setelah perebusan), tetapi proses tersebut membutuhkan waktu lama dan kebutuhan air banyak. Pembuatan tempe dapat dilakukan dengan sistem kering menggunakan mesin pengupas kedelai untuk mengupas kulit ari kedelai kering sebelum perebusan. Studi tentang penggunaan mesin pengupas kedelai merupakan salah satu upaya yang dapat dilakukan agar produksi hasil olahan kedelai bermutu baik sehingga mampu meningkatkan produksi dan penerapan mekanisasi pertanian.

Penelitian ini dilakukan pada kedelai dengan kadar air 10%, 12%, 14%, 16% dengan variasi bukaan udara penuh dan bukaan setengah. Hasil penelitian menunjukkan bahwa nilai kapasitas pengupasan terbesar pada kadar air 10% bukaan penuh sebesar 68,34 kg/jam, randemen pengupasan terbesar pada kadar air 16% bukaan setengah sebesar 97%, efisiensi pengupasan terbesar pada kadar air 10% bukaan penuh sebesar 81,95%, tingkat kebersihan pengupasan terbesar pada kadar air 10% bukaan penuh sebesar 83,3%, warna terbesar pada kadar air 10% bukaan setengah, *angle of repose* terbesar pada kadar air 16% bukaan setengah sebesar 18,9°. Selain itu, nilai *bulk density* terkecil didapatkan pada biji kedelai sebelum pengupasan dengan kadar air 16%, berat per 100 biji kedelai terbesar pada kadar air 16% sebesar 18,74 gram, tingkat kekerasan kedelai terbesar pada kadar air 10% sebesar 2,5 kg/mm<sup>2</sup>, kebulatan biji kedelai terbesar pada kadar air 16% sebesar 0,9 mm, *particle density* biji kedelai terbesar pada kadar air 10% sebesar 46,9 g/m<sup>3</sup>.

Kata kunci : biji kedelai, sifat fisik, mesin pengupas kedelai, kadar air, bukaan udara

## **PERFORMANCE ANALYSIS OF SOYBEAN (*Glycine max*) PEELING**

### **MACHINE WITH MATERIAL WATER CONTENT AND AIR SPEED**

#### **TREATMENT**

#### **ABSTRACT**

**By:**

**NOFA TRI AYU ADINA**

**18/425344/TP/12045**

Soybeans (*Glycine max*) are the most popular source of vegetable protein in Indonesia which is processed into tempeh. The high level of food consumption requires the fulfillment of quality soybeans. Tempeh production is generally carried out using a wet system (separating the skin after boiling), but this process takes a long time and requires a lot of water. Tempeh production can be done with a dry system using a soybean peeling machine to peel the skin of dry soybeans before boiling. A study on the use of a soybean peeling machine is one of the efforts that can be made so that the production of processed soybeans is of good quality so that it can increase production and the application of agricultural mechanization.

This study was conducted on soybeans with a water content of 10%, 12%, 14%, 16% with variations of full air opening and half opening. The results of the study showed that the largest peeling capacity value at 10% full opening water content was 68.34 kg/hour, the largest peeling yield at 16% half opening water content was 97%, the largest peeling efficiency at 10% full opening water content was 81.95%, the largest peeling cleanliness level at 10% full opening water content was 83.3%, the largest color at 10% half opening water content, the largest angle of repose at 16% half opening water content was 18.9o. In addition, the smallest bulk density value was obtained in soybean seeds before peeling with a water content of 16%, the largest weight per 100 soybean seeds at a water content of 16% was 18.74 grams, the largest soybean hardness level at a water content of 10% was 2.5 kg/mm<sup>2</sup>, the largest soybean seed roundness at a water content of 16% was 0.9 mm, the largest soybean seed particle density at a water content of 10% was 46.9 g/m<sup>3</sup>.

**Key words:** soybean seeds, physical properties, soybean peeling machine, water content, air openings