

A study of yield characteristics during mechanical oil extraction of preheated and ground soybeans

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Abstract:

Abstract: Soybeans were extracted for oil by compressing a ground sample at various operating pressures, pressing durations and product bulk temperatures. The oil yield from the various operations was measured and expressed as a percentage of the original mass of crushed seeds. It was found that the oil yields increased linearly with increase in pressure as the compression pressure was increased from 40 to 80 kgf/m and that oil yield also increased linearly with increase in the duration of pressing within the range 2 of 6 to 12 minutes. Oil yield also increased with the bulk temperature of the preheated oilseeds but reached a peak yield at about 75 C and then decreased with further increase in temperature of oilseeds. o It was also found beneficial to dry the seeds to a moisture content slightly below the ambient moisture content of 9.3% (d.b.) although reducing moisture to a value lower than 5% (d.b.) resulted in a reduction in oil yield. A single empirical model for estimating the oil yield for varied conditions of pressure, duration of pressing and the bulk temperature of oil bearing material was developed which could estimate the yield with good accuracy within the experimental range. ... **Please download full content from here**
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Keywords: Oil yield, soybean, temperature, pressure, duration of pressing, moisture content