

## ABSTRACT

### Determination of Maturity and Reaping Indices for Peanuts

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The peanut (*Arachis hypogaea* L.) has an indeterminate flowering habit, bears subterranean fruit, and produces composite pods throughout its reproductive phase. These features, plus the influence of agroclimatological factors on pod development, cause the determination of optimum reaping time for crops to be a problem in the eastern Caribbean region.

This study sought to establish objective crop-maturity (reaping) and pod-maturity (maturity) indices for the St. Vincent-grown NC2 peanut cultivar. Various biochemical and physical-property parameters of maturity-rated and composite samples of pods and seeds collected over 3 years were investigated and correlated with sensory characteristics of the roasted seeds. The maturity-rated and composite samples were used to determine maturity indices and reaping indices, respectively. The influences of relevant agroclimatological factors on crop and pod maturity were examined.

The following parameters were confirmed as reliable maturity indices :

(a) a percentage nut-fill of  $41.52 \pm 1.29$  in green pods, and (b) a weight per cent of  $57.37 \pm 0.77$  oleic acid in oil from green seeds. Also, a percentage nut-fill of  $38.25 \pm 2.21$  in green composite pods was a fairly good indicator of crop maturity, while a weight per cent of  $55.79 \pm 0.59$  oleic acid in oil from green composite seeds was definitely an ideal reaping index. Incorporation of agroclimatological

factors related to soil moisture and temperature, mean daytime air temperature and solar irradiance into regression analyses produced equations which enabled reliable:

- (i) estimation of weight per cent oleic acid in oil (OL) of composite seeds as crops matured, and
- (ii) prediction of optimum reaping time for crops from either actual or estimated OL values.

This is the first known use of percentage nut-fill and weight per cent oleic acid in oil of seeds as objective maturity and reaping indices for peanuts.