

ABSTRACT

Some Effects of Harvesting on Seed Production and Phosphorus and Calcium Nutrition on Initial Seedling Growth in *Centrosema acutifolium* (Benth.).

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Seed maturation, harvesting and fertilizer studies were conducted on a seed crop of Centrosema acutifolium CIAT 5277.

Seven visual pod maturity categories were coded 1 to 7 and used to estimate physiological maturity or by definition the period of maximum seed dry weight. This was observed to be associated with pod maturity category 3. Maximum physiological seed quality did not coincide with physiological maturity but was associated with pod maturity category 4.

The highest yield of pure viable seed was associated with pod maturity categories 5 and 6. At this time, seed moisture content was sufficiently low enough to permit safe harvesting.

Field Harvest Maturity (FHM), or by definition the period of maximum yield of pure viable seed was prolonged over a seven week period. During this time, there were no significant differences in the yield of pure viable seed. Seeds harvested prior to FHM were small, immature and of low vigour as compared to those harvested during FHM.

Emergence and dry matter yields associated with the low vigour seeds were significantly ($P < 0.01$) lower, than the high vigour group and applied P up to 80 kg/ha significantly ($P < 0.01$) increased dry matter of the plants associated with both vigour groups. Applied Ca at 100 and 500 kg/ha did not have an effect on dry matter production. Plant tissue P and Ca responded to increasing P and Ca applications. There was a significant increase in the soil P levels up to 80 kg P/ha and applied Ca and initial seed vigour interacted significantly with added P. Of the methods used to extract soil P the modified Bray's method gave the most meaningful results.

Finally, four, harvesting and threshing methods were compared in a seed crop. Sequentially hand harvesting mature pods with manual threshing gave the best yields of pure viable seed. However, a once over hand harvest of all the pods, followed by manual threshing produced no significant difference in seed yield. Mechanical instead of manual threshing significantly ($P < 0.01$) reduced seed yield. The lowest yield of pure viable seed was obtained when the crop was chemically desiccated prior to the harvest. Both seed size and physiological quality were not affected by the harvest method.