

**PRE-HARVEST AND POST-HARVEST STUDIES ON THREE
EARLY MATURING PIGEON PEA CULTIVARS**

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ABSTRACT

Pre-harvest and post-harvest studies were conducted to evaluate three early maturing pigeon pea cultivars, UW 17, UW 10 and ICPL 87 for mature green pod production in Trinidad. Each cultivar was grown at four plant populations at two different times and the green pod yield at first cropping and second cropping were determined. Additionally, studies on growth and development were conducted in the two experiments.

Significant differences in yield existed among cultivars. In both trials mean pod yield of UW 10 was higher than that of UW 17 and ICPL 87. The first cropping accounted for 65% to 82% of the total yield, and the second cropping 18% to 35%. In the June trial optimum yields for UW 10, UW 17 and ICPL 87 were recorded at 222,000 and 111,000 and 444,000 plants/ha respectively. In the September trial however plant population had no significant influence on yield.

Growth and development patterns were similar among cultivars in both trials. Varying plant population from 55,500 to 444,000 plants/ha increased leaf area, crop growth rate and dry matter accumulation. In the September trial growth and

development were more rapid for UW 10 and UW 17 resulting in a shorter time to 50% flowering.

The effect of different heights of cutting back on the second crop yield of UW 10 was studied. Yield increased significantly with increasing height of cutting back above ground level.

Factors determining consumer preference for mature green pigeon pea was determined and the acceptability of UW 10, UW 17 and ICPL 87 was assessed. Consumers preferred large pods that are easy to shell with large green seeds. In addition they preferred pods which cooked to a soft but firm texture in a reasonable time. Consumers favoured UW 10 over UW 17 and ICPL 87. Significant differences in physical and chemical constituents were noted among cultivars. The keeping quality of shelled and unshelled pigeon pea seeds were examined at ambient room conditions and under refrigerated conditions at 5°C. The keeping quality of unshelled seeds stored at 5°C was better than the other treatments. In addition total sugar content increased and starch content decreased for both shelled and unshelled seeds stored at 5°C.

The effects of storage temperature on the germination percentage and field emergence of pigeon pea seeds were studied. Seeds stored under ambient room conditions maintained their viability for up to 9 months. Under reduced temperatures of 5°C and 18°C

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viability was maintained up to 12 months. After 12 months in storage field emergence was lower than but significantly correlated with germination percentage. study.

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