

## **Effect of shading on growth of two peanut cultivars**

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Peanuts are grown extensively between 40°S and 40°N. In subtropical regions they are generally grown in long photoperiods with high irradiance, while in the tropics they are grown in short photoperiods with low irradiance. Studies have shown that growth under tropical conditions produces plants with lower total dry matter (DM), and proportionally less DM in the reproductive fraction. Changed assimilate distribution in Spanish peanuts attributed to differing level of irradiance (1) has been recorded under controlled conditions, but results were confounded by differing photoperiods. This study attempts to clarify the role of irradiance in assimilate distribution and assesses the relative performance of Virginia and Spanish cultivars under different irradiance conditions.

### **Methods**

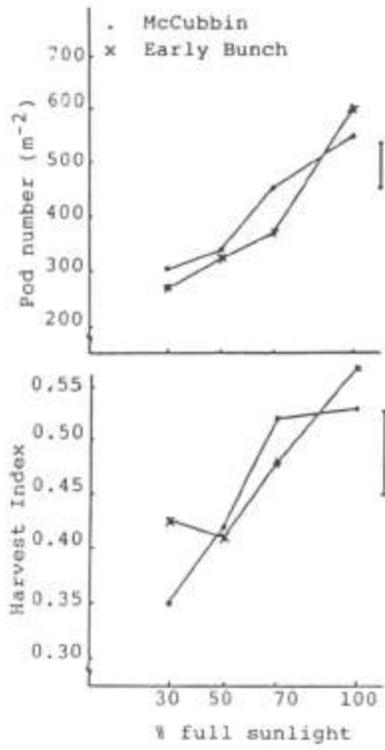
The Spanish cv. McCubbin and the Virginia cv. Early Bunch were established in the field at Kingaroy under non-limiting cultural conditions. Three replicates each of unshaded, 30Z shade, 50Z shade and 70Z shade treatments (from emergence until maturity) were established in each cultivar using Serlon<sup>R</sup> knitted shade cloth. Dates of flowering and maturity were recorded, and destructive samples were taken 35, 65 and 100 days after planting and at maturity. Light interception and canopy development were assessed 100 days after sowing.

### **Results and discussion**

Time to 50Z flowering was progressively delayed by increased shading in both cultivars, with flowering occurring 25-30 days after emergence (DAE) in Mc Cubbin and 28-34 DAE in Early Bunch. Time to maturity was also affected, occurring 134-150 DAE for McCubbin and 134-158 DAE for Early Bunch.

DM production was reduced by shading, (data not shown) but effects were more pronounced on DM partitioned to the reproductive components (Fig. 1). Pod numbers and harvest index (HI) were reduced with increased shading, and there was a suggestion of differing shading sensitivity between cultivars - especially in HI. Early Bunch responded significantly to 30Z shading in both pod numbers and HI, but was relatively less sensitive to further increases in shading. McCubbin, however, showed slight (pod numbers) or negligible (HI) response to 30Z shading, but showed increased sensitivity with greater shading. Results suggest that irradiance can effect partitioning of assimilate in peanut, and that genetic variability, at least between botanical types, may be a significant factor in adaptation to low irradiance regions.

**Fig. 1. Effects of shading on pod number and harvest index.**



1. Ketring, D. (1979). Plant Physiol. 64, 665-667.