



Research Paper

Evaluation of seasonal rainfall changes on the growth performance of *Vigna unguiculata* (cowpeas) in Zimbabwe

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ABSTRACT

Climate change has been negatively affecting crop productivity in most parts of the world. This has affected the planting time of crops and resulted to reduced yield because of inappropriate planting dates. Marginalized crops like cowpea (*Vigna unguiculata*) are the most affected. Cowpea is an important but marginalized legume crop and a valuable component of cropping systems. The crop is adapted to harsh environments such as high temperatures and drought but yield can be compromised by low or too high temperatures and rainfall regimes. The changes to the onset of rainfall have necessitated a relooked to the recommended planting dates of many crops since they are now unsuitable to prevailing rainfall patterns. The objective of this field study was to investigate the effect of the planting time on growth performance of the two varieties. Two commonly grown cowpea varieties (CBC 1 and IT18) were planted at three different times (early December, mid-December and early January). Growth and performance were characterized by measuring plant height, days to 50% flowering and final grain yield. Results showed that planting date had a statistical significant ($p < 0.05$) effect on cowpea height, days to 50% flowering and grain yield. The variety IT 18 performed better than CBC 1 at all three planting dates. Planting cowpeas in early December resulted in higher growth performance than in mid December and early January. Early planting (early December) is recommended for high yield and IT 18 may be grown late in the season.

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INTRODUCTION

Vigna unguiculata (Cowpea) is an annual, warm season and leguminous plant believed to have originated in Central Africa. Its origin and subsequent domestication is associated with pearl millet and sorghum in Africa (Shumba et al., 2002). Its rapid growth and rapid ground cover have made it an essential component of sustainable subsistence agriculture in marginal lands. Cowpea is adapted for drier regions of the tropics where rainfall is scarce, soils are sandy with little organic matter. All cultivated cowpea varieties are warm season and adapted to heat and drought conditions. A typical erect cowpea plant reaches a canopy height of 60-80 cm (Singh, 1998) and seed pods are borne

above the leaf axil making the pods very visible (Singh, 2005).

Cowpea growth performance improves with early planting (Singh and Uttam, 1994). In Zimbabwe, it is currently sown from October to early December (Shumba et al., 2002). It may be grown in February and March under irrigation. Lately there has been a change in the composition of the global atmosphere resulting in changes in the global climate, specifically shifting of rainfall seasons (Roberts et al., 2005). Rainfall has been varied from too low to very high during some months of the summer season in Zimbabwe (Zimbabwe National Meteorological Service