

Abstract

COMPARATIVE STUDIES ON PROLIFICACY EFFECTS OF MAIZE (*Zea mays* L.) VARIETIES GROWN IN TRINIDAD AND TOBAGO

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Maize (*Zea mays* L.) grain, most of which is imported into Trinidad and Tobago, is an important livestock feed component all of which is imported. Improvement of maize yield will reduce the dependence on imported supplies. In the past, most attention on the improvement of maize production has been based on the concept of large scale cropping enterprises, neglecting small farmers' contribution. Maize prolificacy is examined as an option to improve maize yields. The contributions to grain yield of apical and subapical ear in a number of selected maize varieties have been examined during wet and dry seasons under rain-fed and irrigated conditions, and at different planting densities ranging from 8.9 plants m⁻² to 3.8 plants m⁻². Field and pot studies were also conducted to determine how the plant partitions its dry matter among the plant organs and the yield potential of subapical ears.

Results showed that there was a significant contribution of subapical ears to grain yield in some varieties. Improved moisture supply during the rainy season and under irrigated dry season conditions eliminated the occurrence of barrenness and enhanced the expression of

prolificacy. Apical ear grain yields were higher than subapical ear grain yields under rain-fed and irrigated conditions in both the rainy and dry seasons, in all varieties averaged over density and at all densities averaged over varieties. This highlighted the relative dominance of the apical ear in the grain yield of maize. Field and pot studies showed that the plant partitions between 38.3 to 49.0% of its total dry matter to grain regardless of season whether irrigated or rain-fed. Pot studies showed that the subapical ear has a grain yield potential as high as that of the apical ear. This was also demonstrated when the apical ear was harvested at the milk stage. The subapical grain yield appears to be enhanced when the apical ear is harvested at this stage. Assimilate supply seems to be a major limitation to the realization of the full yield potential of the subapical ear.

It also indicated that there is the potential for farmers to harvest the apical ears of prolific maize varieties at the milk stage for the green maize market thereby enhancing grain yields of subapical ears which can be used for feeding to livestock.

Keywords: Oscar Brathwaite, maize, prolificacy, apical, subapical, grain yield, milk stage