

Development of extra-early maturing, Striga and aphid resistance cowpea [*Vigna unguiculata* (L.) Walp] varieties.

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Background

The timing of seed set in cowpea often coincides with terminal drought, a stress which can significantly reduce yield. Extra-early maturing varieties, which mature in 51-55 days, are better adapted than conventional ones to this stress, since they mature before the onset of terminal drought, and also avoid much of the damage caused by pests and diseases which affect the plants at the end of the cropping season.

Objectives

1. To discover the mode of inheritance of earliness in the three early maturing lines Sanzi, Tobonaa and CB27.
2. To identify sources of earliness controlled by different sets of gene(s).
3. To introgress extra-earliness into the improved Striga and aphid resistant varieties Kirkhouse-Benga and Wang-Kae.
4. To identify candidate gene(s) controlling earliness in cowpea.

Progress to date

1. Polymorphisms for a number of molecular markers has been identified between Sanzi, Tobonaa and CB27 and the two improved varieties.
2. A backcross breeding programme has been conducted featuring Sanzi, Tobonaa and CB27 as donors of extra-earliness and Kirkhouse Benga and Wang-Kae as the recipients; the progenies are currently at BC3F3. Promising selections have been subjected to a preliminary trial for yield potential, ensuring that they have retained resistance to both Striga and aphids. Among these, lines T11, T10 and T18 outperformed the checks in terms of maturity, seed size and grain yield, while T23, T5 and T4 were superior with respect to both earliness and yield.
3. The genetic basis of the inheritance of earliness in Sanzi, Tobonaa and CB27 was deduced from segregation data in six basic generations. A generation mean analysis using the six basic

generations indicated that gene action involved in the inheritance of days to first flower appearance and 95% pod maturity in Sanzi and Tobonaa was duplicate epistasis, whereas that of CB27 is complimentary epistasis.



Sanzi seeds (i); field trials with CB27 (ii); advancing materials in 2019 in the greenhouse (iii).