

DOCUMENTATION AND MAINTENANCE OF THE GERMPLASM COLLECTION OF
VIGNA UNGUICULATA

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The IITA collection of Vigna unguiculata consists of 4190 accessions which have originated from over 100 countries. Lines have been obtained from agricultural experiment stations and by direct collection in West Africa. The careful maintenance and evaluation of this material is essential to the success of the grain legumes improvement program at this institute.

Seeds of the collection are stored in paper envelopes arranged in wooden boxes which are kept in a large, walk-in type cold room. Temperature is maintained at 7 to 10 C and the humidity is kept as low as possible. The accessions will be re-grown every three to five years to maintain seed viability.

The collection is evaluated by growing each accession in one three-meter row. Distance between rows is 1.5 m, and plants are spaced 20 cm within the row. Weekly spraying with Rogor plus Thiodane before flowering and Gardona plus Thiodane after flowering keeps insects at a tolerable level.

The germplasm is evaluated cooperatively by the breeder, entomologist, pathologist, and physiologist. The variables of interest are pigmentation patterns of various plant parts, growth characteristics, plant structure, seed characteristics, and reactions to pathogens and insects. The coded data are first recorded on special sheets and then punched onto computer cards, one variable at a time. This has proved to be quicker and more accurate than punching all variables for one accession onto the same card.

After the data for all variables is entered into the computer, a summary sheet is printed by the computer with all the information for each accession. A catalog of this printed information will be published in 1974. At that time breeders can ask the computer to search the information for accessions which meet certain requirements.

New accessions will be planted and evaluated after their addition to the collection. A supplement to the catalog with information on these new lines will be published periodically.

It is planned to select about 200 lines containing most of the known diversity in the collection. This germplasm could then be sent to breeders who need to start work in cowpea but who do not have the resources to maintain the entire collection.