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STANDARD OPERATING PROCEDURE (SOP) FOR SEED PROCESSING, SEED INVENTORY AND MANAGEMENT IN CASSAVA

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1. Introduction

Cassava is primarily grown via stem cuttings (stakes?), but can also be propagated by seeds. Seed propagation is important to create novel gene combinations and superior cassava varieties. In cassava breeding, "seed processing" refers to the process of preparing harvested seeds, also known as "botanical seed," for sowing, distribution or storage while maintaining their viability and vigor.

2. Purpose

The purpose of this document is to describe a step-by-step procedure of botanical seed processing in cassava breeding programme.

3. Scope

This document describes the processing and inventory of cassava seeds used by the IITA Cassava Breeding Programme

4. Definition of terms

Viability: It is the ability of a seed to germinate and produce a healthy seedling

Vigour: It refers to how quickly seeds germinate

Botanical seed: It is a mature fertilized ovule, which comprises an embryo, food reserves and a seed coat.



5. Roles and Responsibilities

Research Supervisor: coordinates activities involved in seed processing: shelling, sorting, recording, packaging and labeling of seeds.

Research Technician/Field worker: leads the sorting, shelling, recording, packaging of seeds and data entry. He serves as as the link between the supervisor and the processing centre and ensures all cassava inventories are updated.

Data Manager:

- Ensures all the seeds envelopes are barcoded with the relevant information

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- Uploads seed information to Cassavabase



6.1 Procedure/Protocols for seed processing and inventory

- Harvest fruits (crosses) from the field with the bag and cross IDs intact.
- Sun dry fruits that are not completely dry.
- Shell - remove seeds from the fruits.
- Transfer shelled seeds into a labeled seed envelope with the correct tag inside. Merge seeds of the same pedigree into a seed envelope. A tag should contain information on the date of pollination, number of pollinated flowers, parent (female and male) clones, and location of the field.
- Sort according to pedigree and locations. Seeds to sow are separated and made ready for sowing.
- Record number of seeds per pedigree as well as the constituting parents (female x male)
- Arrange the seed envelopes in a polythene bag and then transfer them into a seedbox – a seed box carries a label showing information on the crossing block, location, and year of harvesting for easy identification and access.
- The seedbox is then moved to the cold store at 5°C and 60% relative humidity.

7. References

1. Hahn, S.K., Howland, A.K. and Terry, E.R. 1977. [Cassava breeding at IITA](#), Proceedings of the Third Symposium of the International Society for Tropical Root Crops, IITA, Ibadan, Nigeria, 2-9 December, 1973. Ibadan, Nigeria: IITA, (p. 4-10).
2. I.I.T.A. 1990, Cassava in Tropica Africa: A [reference manual](#) International Institute of Tropical Agriculture. 184 pp

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8. Annex: Forms/Templates to be used for monitoring and data collection

Template used for data collection on seed information from Hybridization process

cross_unique_id	female_parent	male_parent	Pollination date	No of bags	No of flowers	No of fruits	No of Seeds
IBACR230443	IITA-TMS-IKN150473	TMS15F1482P0088	11/15/2023	265	1134	300	524
IBACR230188	IITA-TMS-IBA200287	IITA-TMS-IBA210313	11/25/2023	143	802	243	422
IBACR230335	IITA-TMS-IBA210460	IITA-TMS-IBA210499	10/18/2023	126	809	277	328
IBACR230180	IITA-TMS-IBA200287	IITA-TMS-IBA200276	11/23/2023	108	411	177	324
IBACR230267	IITA-TMS-IBA210141	IITA-TMS-IBA210008	9/27/2023	370	1367	147	306