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Standard Operating Procedure for Site Selection and Field Layout

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1. Introduction

Site selection and field layout are critical aspects of ensuring quality data from phenotyping and breeding trials for optimum performance. Yam plants generally require plain, well-drained-loam and fertile soil. The trial site selection should consider plot history, fallow duration, topography and as much as possible to provide near "ideal or perfect" conditions for the plants to express their genetic potential for the intended trial purpose and objectives. Site selection could be carried out either in designated research stations (on-station), or farmers' fields. Yam is usually planted on ridges, heaps or mounds.

2. Purpose

This SOP indicates the basic requirements for site selection and land preparation in yam cultivation.

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3. *Scope*

The SOP covers pre-land assessment, site selection and registration of plot or site with the Research Farm Unit (RFU) for preparation.

4. *Definition of terms*

RFU Research Farm Unit

LFV Long fallowed vegetation

SFV Short fallowed vegetation

TL Team lead



5. *Roles and Responsibilities*

Team Lead: The Team Lead (TL) performs the following tasks:

- Search for suitable lands for the trial establishment
- Liaise with the staff of RFU to register identified suitable lands
- Obtain and fill land request and preparation forms
- Inspect the land through each stage of preparation.
- certify the prepared land for the trial establishment

Research Farm Unit (RFU): The RFU is responsible for the following activities:

- Conduct onsite and off-site allocation of experimental plots to requestors
- Provide land history and its suitability for yam crop
- Adhere to land regulations and allotment policies

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- Conduct land opening starting with tree removal and stumping
- Conduct land preparation commencing with pre-land herbicide application to slashing/mowing, ploughing, harrowing, ridging and marking in this order
- Application of manure, e.g., poultry droppings and cow dung as may be required
- Maintenance of contour and erosion control
- Irrigation as required
- Deliver quality ridges to the requestor

Scientist



- Assesses the report on the history of the proposed experimental plots for on-site and outstation trial plots
- Visit the proposed site for the inspection of the vegetation cover and type, observe the soil gradient and make decisions

Research Associate/Manager

- Coordinate the search for plots in conjunction with RFU.
- Supervises the collection of soil samples for pre-plant analysis.
- Examine the soil history and write a report on the same to the lead scientist

Supervisor/Technician

- Collect soil samples and prepare same in conjunction with the Analytical Service Laboratory
- Monitor the field preparation in conjunction with the RFU tractor operators
- Conduct the field layout into plots, blocks and replicates

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- Put measures in place to guide against run-offs

6. Procedure/Protocols

6.1 Site Selection

- The Team Lead searches for suitable land depending on the trial objective
- Obtain the land history from the RFU unit. A minimum of 5 years of history is required.
- Ensure soil is a plain alluvial, sandy-loam, well-drained fertile and has a topsoil depth of 40 cm, which is recommended for yam cultivation.
- RFU clears the land by using caterpillar in the case of LFV with forest trees
- In the case of SFV, the TL ensures the land is mowed before the first plough is carried out.
- Do a second plough after 14 days
- Conduct the two harrows 8-10 days after the second plough
- Ridge the land at an inter-row spacing of 1m
- Conduct the field layout and ridge marking based on soil gradient and the objective of the experiment.

Note: these intervals enable more weed seeds to break dormancy, thereby reducing the soil seed bank.

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6.2 Standard Field Layout

- Ridge cap to furrow = 0.75-1m depth, inter-row spacing = 1m for phenotyping and breeding trials
- Ridge cap to furrow = 0.5 -0.75m depth, inter-row spacing = 0.75m for seed multiplication.
- Field planting period = When rain stabilises or February/March with supplementary irrigation.

7. *References*

<https://rfu.iita.org/>

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

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