# INTROGRESSION OF GROUNDNUT ROSETTE VIRUS RESISTANT GENE INTO VALENCIA PEANUT VARIETIES USING CONVENTIONAL BREEDING

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## BACKGROUND

Groundnut Rosette Disease (GRD) is the most destructive viral disease of groundnut (*Arachis hypogaea* L.) in sub-Saharan Africa (SSA) causing annual yield loss valued at over US$156m . The disease is caused by a complex of three agents: *Groundnut rosette assistor virus* (GRAV) , *Groundnut rosette virus* (GRV) and the satellite RNA (sat-RNA). An aphid transmits the disease in a persistent and circulative manner. Disease symptoms occur in two predominant forms, chlorotic and green rosette. Breeding for resistance becomes the most cost friendly option that could be used by the farmers in SSA.

## Main Objective

To enhance the productivity of groundnuts through development of Valencia genotypes resistant to GRD

**Specific Objectives**

- To determine the variation in the level of resistance in the segregating populations (BC1F1 and BC1F2) in relation to GRD.
- To determine the heritability of GRD resistance in Valencia peanut varieties
- To determine the combing ability of the selected Valencia varieties

Researcher making crosses inside greenhouse

## EXPECTED OUTPUT

- There will be successful transfer of the resistant gene from the Spanish and Virginia genotypes to the Valencia peanut varieties.
- The farmers interested in the growing of Valencia will have greater yields than before because of using the GRD resistant varieties.
- There will be successful determination of which parents are good donors of the GRD resistance gene.

## Materials & Methods

**Season 1** Greenhouse

Valencia varieties ($V_C$, $R_B$, $M_3$) × Resistant varieties ($S_{6T}$, $S_2$, Mali)

$F_1$

**Season 2** Greenhouse

$F_1$ x Valencia varieties

$F_1$x Resistant varieties

Selfing

Backcrossing

**Season 3** Field

$BC_1F_1$ No- of seeds in a pod

$F_2$ No- of seeds in a pod

$BC_2F_1$ No- of seeds in a pod

Selfing

**Season 4** Field

Selfing

$BC_1F_2$
- Score for GRD
- Valencia type pod

$BC_2F_2$
- Score for GRD
- Valencia type pod

$F_3$
- Score for rosette
- Valencia type pod

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