**Project Title: Improvement of Resistance to Cowpea Scab (Sphaceloma sp) disease in Uganda**

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Makerere University Kampala (MUK) is Uganda’s largest and third-oldest institution of higher learning. It was first established as a Technical School in 1922. MUK is currently composed of 9 Colleges and one School offering programmes for about 36,000 undergraduate and 4,000 postgraduates. The Department of Agricultural Production under the School of Agriculture – College of Agricultural and Environmental Sciences (CAES) hosts 2 out of the many Regional Postgraduate programmes to train highly skilled graduates in the fields of Plant Breeding and Seed Systems (MSc.) and Plant Breeding and Biotechnology (Ph.D) within Eastern, Central and Southern Africa.

**Objectives:** The objectives of the project are to;

1. Determine the variability of the Scab fungus (*Sphaceloma* sp) in Uganda.
2. Identify cowpea genotypes resistant to isolated biotypes of the scab fungus.
3. Determine the heritability and gene action of the gene controlling scab disease resistance.

**Methods:**

1. Surveys will be conducted across the country to collect diseased specimen to isolate the pathogen and characterise using Molecular markers.
2. Field screening of 100 cowpea genotypes will be conducted and resistant lines identified will further be challenged in a screen house using isolates obtained from the different locations.
3. Crosses will be carried out among cowpea genotypes having varying levels of resistance/susceptibility using a half-diallel mating design to determine the heritability and gene action of the gene controlling scab disease resistance.

**Expected outputs from the project:** By the end of the project;

1. Information would be generated on scab fungus (*Sphaceloma* sp) variability and resistance.
2. Resistant genotypes would be identified and improved by the National Semi-Arid Resources Research Institute (NaSARRI) for release to farmers.

**Impact of the outputs on agriculture in Africa:**

The resistant varieties developed will lead to increase in grain yield. This will lead to more food available for consumption and for sale to generate incomes and improve the livelihoods of cowpea farmers.

**Molecular Biology Equipment in the University’s Lab**

- RT-PCR and PCR thermocycler
- Agarose gel electrophoresis equipment
- Gel documentation system
- Spectrophotometer
- Magnetic stirrer
- Wet ice maker
- +4°C fridge, -20 and -80°C freezers
- Autoclave
- pH meter
- Magnetic stirrer
- Centrifuge
- Pipette
- Etc.