

Student profile

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Bio data

I am a Zimbabwean national who holds a BSc Agriculture Honours degree in Horticulture from the Women's University in Africa - Zimbabwe, an Executive Certificate in Project Monitoring and Evaluation – University of Zimbabwe, and MSc in Plant breeding from University of KwaZulu-Natal. My research interests are breeding for plant biotic stresses, particularly in legumes. I have worked on characterization of soybean, genetics of angular leaf spot disease in common bean, breeding for bacterial wilt tolerance in tomatoes, work which was done under the Ministry of Agriculture, Department of research and specialist services - Zimbabwe and Pro-Seeds (PVT) Ltd in South Africa. Currently, my focus is on pre-breeding of bambara groundnut for drought tolerance, high yield and farmer preferred traits through phenotype and genomic assisted techniques.

Crop of interest

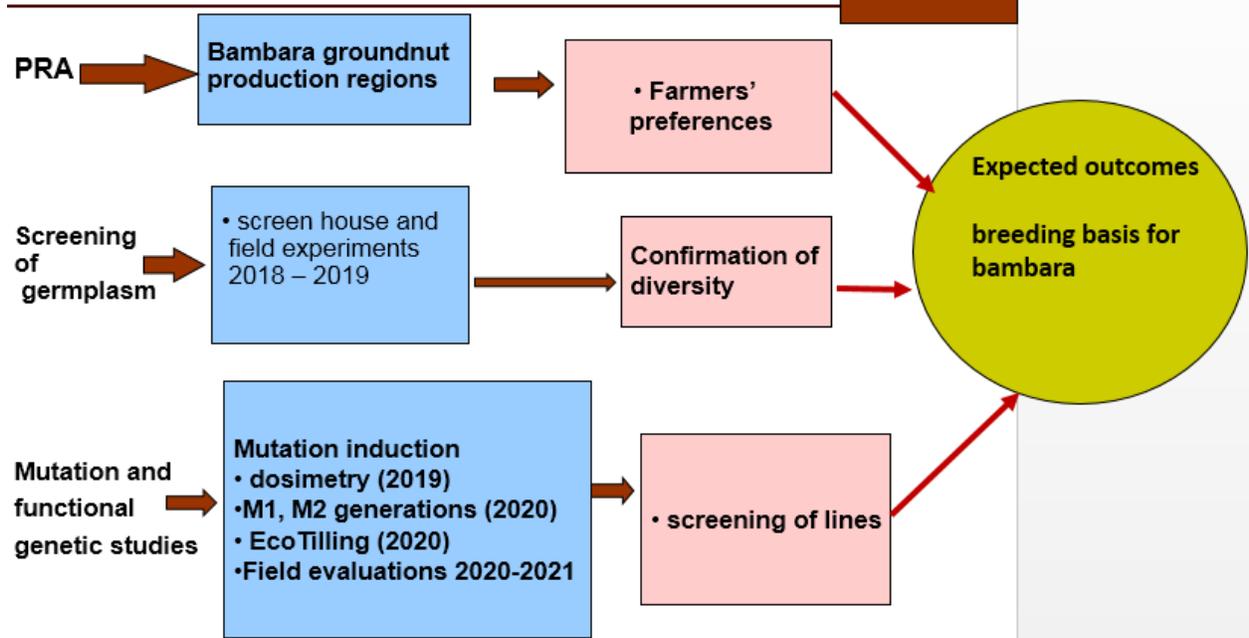
Bambara groundnut is an underutilized crop native to Africa, despite its nutrient rich composition and socio-economic-cultural benefits. Its ability to thrive and grow under marginal environmental conditions and produce reasonable yield, particularly where other food crops fails makes it important in climate risk mitigation. This ability to tolerate drought and other biotic and abiotic stresses, also makes *Vigna subterranean* a model crop to identify useful genes and understand quantitative trait loci of useful genes.

Summary of proposal

To date, there are no improved varieties of bambara in markets, as a result farmers rely on landraces which often are characterized by low and unpredictable yields. Due to limited funding and priority in research interests, coordinated breeding efforts are also lacking. The objective of my research work is to develop a pre-breeding basis for bambara groundnut through mutation breeding and genomic assisted breeding techniques (marker information). The proposed breeding methods involve conventional and molecular breeding techniques. Moreso, participatory breeding approach will also form part of directing the breeding activities. The designed solutions will include but not limited to widening of genetic variation, screening of germplasm as well as reverse genetic technique to improve precision in phenotyping. The expected impact of this research is to contribute to understanding of farmer preferences, establishment of source populations that will be useful in future breeding activities and lobbying for increasing the levels of bambara groundnut and generation of income to improve livelihoods of subsistence farmers.

A graphic abstract of the research proposal

Overview of Research



Useful pictures





Personal comment about the MoBreed opportunity

Thanks to MoBreed for this opportunity. It is fulfilling to have and to know that out there, there are institutions who share and make one's vision come to action. The financial support for MoBreed is a worthy while commitment towards ensuring that African crops are not left behind in the development plans framework.

Progress report

From 2018 to date –

1. A collection of 100 purelines from Zimbabwe, Zambia, Malawi, Tanzania, South Africa and IITA have been assembled.
2. A need assessment and production constraints for bambara groundnut farmers have been done and data collected, a paper is under compilation.
3. Seed multiplication and characterization in the field and screen house has been done
4. Seed multiplication for mutation induction is ongoing
5. Certificate from the responsible Government office has been granted to use Ethyl methane sulphate for mutagenesis.