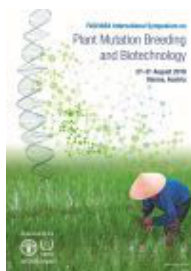


# FAO/IAEA International Symposium on Plant Mutation Breeding and Biotechnology



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## TROPICAL SOYBEAN YIELD IMPROVEMENT AND ENHANCED NUTRITIONAL QUALITY: POTENTIAL ROLE FOR MUTATION BREEDING

Research to unlock both yield potential and stability in soybean production to meet the ever-increasing demand of local consumption in sub-Saharan Africa underpins the breeding and agronomy efforts being done by the Institute of International Tropical Agricultural (IITA). Thus, improving yield potential and stability in soybean through stress tolerant varieties remains critical feature in tropical soybean breeding for Africa. Soybean production constraints faced by both the commercial and small-scale farmers in sub-Saharan Africa are drought, low soil fertility especially phosphorus deficiencies, poor nitrogen fixation, pod shattering and foliar diseases such as rust. Specific production constraints faced by many small-scale farmers include also lack of suitable varieties, unreliable seed supplies and poor grain quality, insufficient information on best production practices and on access to the markets. Although some work has been done on the quantitative and qualitative genetics and seed systems research, there are gaps in the elucidation of the inheritance of importance traits and deployment of the improved varieties. These major areas need to be addressed so that breeding, selection and deployment of improved varieties may be applied in a systematic and effective manner. Radiation induced mutation is a well-recognised method to increase the genetic variation for selection through genome alteration and provides additional platforms to validate and characterise mutants with physiological mechanisms needed to optimize sink-source relations in soybean under diverse African conditions. Such an approach will permit screening and identifications of mutants not only improved in photosynthetic efficiency but also in quality nutritional compositions such as high oleic acid content soybean mutants. This presentation outlines the historical basis for yield gains and adoption of IITA varieties over the past 40 years of soybean breeding in Africa and examines the potential of mutation breeding for achieving further improvements in yield potential and quality traits.

### Country or International Organization

International Institute of Tropical Agriculture

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