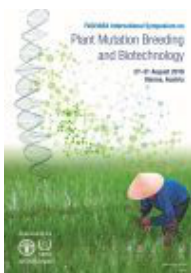


FAO/IAEA International Symposium on Plant Mutation Breeding and Biotechnology



Contribution ID: 249

Type: Poster

IMPROVEMENT OF LOCAL DESSERT-TYPE BANANA FOR DISEASE TOLERANCE AND AGRONOMIC TRAITS THROUGH NUCLEAR TECHNIQUE APPLICATION

The demand exists for a local dessert-type banana ('Gingeli'), appreciated for its soft, dry-textured and sweet-acidulated taste. The Gingeli banana is a tall and slender variety highly sensitive to Fusarium wilt (FoC), weevil borer, and wind, thus limiting its commercial exploitation and causing its near -extinction. The 'Gingeli' banana, however, holds untapped commercial prospects both for local and export markets. Thus, a mutation breeding project was initiated in 2007 with the support of IAEA, to induce desirable traits such as reduction in height and tolerance to FoC. In-vitro cultures were irradiated at 18, 20 and 25 Grays and the generated putative mutants were field planted. In absence of a Fusarium 'hot spot', the mutated population was planted and allowed to grow for two to three years, to be naturally affected by weevil and FoC. Eight improved lines with 11-16 kg bunches and 80 to 125 fingers as compared to an average of 6-9 kg bunches with 65 to 80 fingers borne on tall but stout trees were selected. These improved lines and other lines were brought back to in-vitro conditions and 2 months old rooted plantlets were subjected to Fusarium assays, using a modified double-tray system. The roots were inoculated with spores of FoC race 1 and planted in the double tray containing sterile soil-manure mix. Suckers produced on lines that died were selected and planted in the field to confirm their response. The major constraint faced with the modified double tray system was that the disease pressure was too high making the selection process difficult. The soil/manure mix later became too compact which could have affected the adequate screening. Screening under field conditions remains a more reliable, yet slow, method. All the improved lines were mass multiplied for distribution to growers.

Country or International Organization

Food and Agricultural Research and Extension Institute (Mauritius)

Author: Mrs DUSSORUTH, babita (FAREI)

Co-author: Mr VALLY, Vivian (FAREI)

Presenter: Mrs DUSSORUTH, babita (FAREI)

Track Classification: Mutation breeding for adaptation to climate change in seed propagated crops