



WORLD MUSA ALLIANCE

Towards Resistant Dessert Banana Varieties for Sustainability

An initiative proposed by Cirad

WHAT IF THE ARRIVAL OF TR4 FUSARIUM WILT IN 2019 IN LATIN AMERICA WAS THE STARTING POINT OF A REINVENTION OF THE DESSERT BANANA SECTOR? The industries have now realised that they were threatened by a danger that was unimaginable a few months before. The incurable nature of this disease, its inexorable extension (already twenty spots spread across the globe) and the absence of satisfactory varietal solutions are forcing a change of model. The current “all-Cavendish” model (a varietal group highly sensitive to the disease) has run out of steam. A varietal overhaul toward greater diversity is required. While all attention is currently focused on fusarium wilt, we can mention other breakdown risks in the industry. Combating black sigatoka requires massive use of pesticides, which have adverse sanitary and environmental consequences.

The main benefits of a change of model are:

- diversification, which will contribute to securing the long-term future of the dessert banana market,
- a transition toward production systems with lower pesticide consumption, and
- improving the social conditions of production.

All this must help recreate added value for all players in these industries.

CHANGES TO AGRICULTURAL PRACTICES AND GENETIC IMPROVEMENT are the two levers which, in combination, can provide resilience to a highly weakened production system. The innovative techniques derived from agro-ecology, such as trapping weevils, fallowing in association with vitroplants, defoliation, service plants, etc., are already contributing in several production zones to an extensive reduction in pesticide use, while controlling diseases and pests. However, on their own they are not sufficient to combat TR4 fusarium wilt. Combining these agro-ecological techniques and varieties resistant or tolerant to the main diseases and pests currently appears to be the preferable solution.

GENETIC IMPROVEMENT OF THE BANANA is a highly complex affair. The necessary sterility of the commercial varieties is a major constraint on improvement, which is of necessity based on cross-breeding between fertile forms. Research centres have been working on the subject for decades. There has been real progress, but the improvement programmes do not yet provide a range of resistant varieties commercially suited to the heavy constraints of the international market. Furthermore, using genetically modified varieties is commercially unacceptable on many markets, and genome editing techniques (NBT), although promising, remain likened, at least in Europe, to GMOs.

SO VALUE CHAIN STAKEHOLDERS have their future tied together. Since the threats weighing down on this industry are shaping its future, varietal creation would seem to be an activity best undertaken jointly, outside of the field of competition, since it requires mobilising powerful and coordinated resources to speed up research. The fields of research to explore cover, for example, knowledge of genetic resources, the genetics of traits of interest, the methods and schemes of varietal creation (including use of NBT) and selection, factors determining uptake by producers and consumers of candidate hybrid varieties, as well as adaptation of pre and post-harvest cropping practices for these new varieties.

THE CREATION OF AN ALLIANCE, WORLD MUSA ALLIANCE, therefore seems to us to be a way to deliver solutions quickly, to meet the threats weighing down on production systems, with TR4 occupying a particularly prominent place among these threats. This Alliance will have the following main objectives:

- produce a set of fundamental knowledge useful for developing new varieties and new production systems,
- develop dessert banana varieties resistant to TR4.

We propose that this Alliance govern a wide range of stakeholders throughout this industry, which will be one of its major strengths. It will be based on close coordination between the various key industry players (producers, commercial operators, inter-professional associations) and research centres. We also propose that this Alliance work on a production principle of universally accessible assets.

JOIN THIS INITIATIVE to take part in a general interest project aiming both to guarantee the long-term future of the industry and commit it to an approach of environmental, social and economic sustainability. The first to answer this call will in the coming months propose the operating principles of this initiative, its governance and mode of funding.

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