Identification, multiplication, and upscaling of bacterial wilt resistant enset (*Ensete ventricosum*) in Hadiya zone, Southern Ethiopia

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**Field visit and FGD report as part of SI-MFS initiative activities implementation**

A field visit and focus group discussion were held in at *Shurmo* Kebele, *Lemo* district in Hadiya zone of southern Ethiopia from 16 – 19 December 2022 involving of 11 participant farmers. Five (45.5%) of the participants were women farmers.

*Purpose the visit and discussion*: to understand the past and current farming system of Hadiya zone with zoomed focus on enset production trends in the farming system and identify the constraints of its production in the zone.

*Background:* - The farming system of Hadiya zone has been Enset (*Ensete ventricosum*) dominated mixed farming with some cereals and livestock constitute the major component together with Enset. Besides enset, wheat, maize, tef, barley, faba bean and ckickpea are the major crops grown in Hadiya zone. It was implied that cereal crops particularly wheat is becoming the dominant component of the farming system while the coverage of enset is dwindling due to bacteria caused enset disease, more probably bacterial wilt (BW) caused by *Xanthomonas campestris* pv. *Musacearum.* According to the farmers, farmers gave up planting enset because of this disease and as a result the benefits generated from enset production have been gradually vanishing.

*Health enset plant* *Bacterial wilt affected plant (source @* [https://alliancebioversityciat.org/stories/one-stop-shop-knowledge-banana-and-enset-bacterial-wilt](https://alliancebioversityciat.org/stories/one-stop-shop-knowledge-banana-and-enset-bacterial-wilt)*)*

We have learned that enset has been playing an important role in the livelihoods of farmers in Hadiya zone specifically for *Shurmo* kebele farmers.

*Use of enset*: - all participant farmers indicated that enset is the major component of human food and animals' feed. Being prepared in different food forms, enset is the staple food of the most. Farmers claimed that no part of enset is useless. All parts of enset are used for different purposes including food, feed and fiber.

*The disease*: - the production and productivity of enset in this zone has been reducing in the last two decades due to the onset of enset bacterial wilt, according to the farmers. Participant farmers indicated that this disease has occurred in 1998 and spreading widely since then. The disease appears at the top of a leaf and spread downward to the edible part of the plant. It seems that the pathogen that causes bacteria wilt of enset is found in association with plants or plant material and the soil in which it grows. The disease is transmitted from infected plants to healthy plants by mechanical means, mainly through contaminated tools used for land preparation and pruning.

*Control options:* - farmers were told to maintain farm sanitation to prevent the disease, which is less practical to apply at farm by farmers. The recommended prevention options include limitation of enset farms access to animals, regular disinfection of farm tools, early removal of male flowers/buds and of diseased plants. Use of disease-free planting materials was also recognized as good sanitation practice.

Identification and distribution of bacterial wilt resistant/tolerant varieties is, however, given less attention as adaptation and prevention mechanism. Participant farmers, except one,

claimed that maintaining farm sanitation is tedious and less successful and call for access to disease tolerant planting materials.

The start by Areka Agricultural research center looks promising. Few enset varieties provided by this center might be resistant to this disease as they were not affected so far even if they are still at early developmental stage. Participant farmers are optimistic about the performance of this varieties. Hence, identification and distribution of resistant/tolerant enset varieties should be the priority activity to overcome the pressure of this bacteria.

Farmers also noticed that some of the varieties they have been growing such as *Disho*, *Sephar*, *Gimbo*, *Agade*, *Eniba* and *Kinwar* have shown some degree of tolerance to this disease. Further study is, indeed, needed to confirm.

*Livestock – enset interaction: - there* has been strong interaction of the livestock sector with enset production. As indicated above, enset is the main feed of animals in the area. Particularly during the dry spell time enset provide the entirety of animals' feed. Participant farmers indicated that the number of animals per household and in the community has been decreasing following the decrease in enset production. This implies the strong dependence of the livestock sector on enset production and hence improving the production and coverage of enset will ensure increase of animals' number as well as improve its productivity in the area.

*Planned activity for SI-MFS initiative*: Three major activities will be carried out during the implementation of SI-MFS initiative in Hadiya zone.

1. Introduction and screening of enset varieties for bacteria wilt tolerance/resistance
   In collaboration with Areka research center and Hawassa university, we will design enset varieties screening crowdsourcing trials to identify and disseminate bacteria wilt (BW) resistant/tolerant varieties of enset in the target area. About 10 – 20 varieties will be tested and evaluated by farmers for their reaction to the disease and identified varieties will be multiplied and distributed to enset growing areas in Hadiya and beyond. Each crowd farm will test and evaluate three varieties at a time.
2. *Feed value assessment*: - In collaboration with ILRI Ethiopia, we will assess the feed volume generated from identified varieties and analyze nutritional content of enset feed to help formulate nutritious feed to the livestock sector.
3. *Upscaling of crowdsourcing winner varieties of faba bean*: - Bioversity international has introduced about 13 varieties of faba bean as part of Africa Rising project in 2021 and evaluated by farmers through crowdsourcing for their yield and adaptation to local growing conditions. From the distributed 13 varieties, five of them were preferred by farmers. The identified winner varieties for faba bean will be upscaled for wider area covered production in *Shurmo* kebele of *Lemo* district through this initiative.

FDG participant farmers

*Training provided:* - participant farmers were also provided refreshment training on the need crop diversification to manage crop production constraints including diseases, crowdsourcing approach for variety evaluation and selection and the role of crop rotation for soil fertility restoration, human nutrition diversification and disease cycle disturbance.

At the end of the discussion, participant farmers unanimously called for appropriate interventions to stop enset disease to improve its production and productivity as in the past and confirmed their willingness to work with scientists to come up with sound and appropriate solutions.

_____With this, the discussion meeting came to an end_____