The Africa RISING enset research initiative in Ethiopia:
Enhancing the productivity of farming systems

Enset (Enset ventricosum also known as ‘false banana’) is a source of food, cash, animal feed, medicine, sources of fuel wood and other products and services for smallholder farmers. Currently however, the productivity and area coverage of the crop is declining due to various biotic and abiotic factors.

Diseases such as bacterial wilt (Xanthomonas campestris pv. Musacearum; EXW), pests (Enset root mealy bugs, leaf hopper, mole rat and porcupine) and soil nutrient depletion are some of the production constraints encountered in the south western Ethiopian Highlands. It is reported that up to 80% of enset farms are currently infected by EXW.

In response to repeated demands from farmers and development agents, the Africa RISING project in Ethiopia recently initiated an action research initiative on enset and its production system in our southern region field site at Lemo. There is good evidence that EXW is:

- reducing enset yield and quality;
- the loss of a single enset plant in a family would mean the loss of a family’s food;
- enset offers significant opportunities to women although it currently constitutes a significant demand on their labour;
- the production constraints identified have relevance across enset growing regions suggesting that there is significant scaling potential;
- best-bet enset production technologies and practices do exist but need further research and promotion to make them more widely useable.

Field observations and group discussions with farmers in Jawe and Upper Gana revealed a large range of traditional knowledge and information on host clonal diversity. The various economic and cultural uses of this diversity and their interaction with the management of the pathogen are very prominent.

According to farmers, some clones are resistant/tolerant to the pathogen. Moreover, farmers noted that the number of cultivars varied across villages. Enset production and productivity in Lemo woreda has been decreasing. Farmers claimed that the spread of Xanthomonas wilt in enset (Figure 1) could affect the total number of cultivars at kebele level.

In the two Africa RISING kebeles of Lemo woreda, EXW has had the greatest impact on enset production. Severe declines in cultivation, changes in cropping and dietary patterns, genetic erosion and catastrophic impacts on livelihoods have all accompanied the arrival of EXW in the areas.
The Africa Research In Sustainable Intensification for the Next Generation (Africa RISING) program comprises three research-for-development projects supported by the United States Agency for International Development as part of the U.S. government’s Feed the Future initiative.

Through action research and development partnerships, Africa RISING will create opportunities for smallholder farm households to move out of hunger and poverty through sustainably intensified farming systems that improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.

Prepared by: Zerihun Yemataw

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The three projects are led by the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa) and the International Livestock Research Institute (in the Ethiopian Highlands). The International Food Policy Research Institute leads an associated project on monitoring, evaluation and impact assessment.

The good news is that there is a model for participatory variety evaluation that can potentially put much greater enset genetic diversity in the hands of farmers, from which they can select for different agro-ecological conditions and their own preferences.

Our work is starting to identify different forms of collective actions and local institutions that can support enset disease control. Historically, enset stands have been very long-lived and farmers often innate the existing cultivar mixtures from earlier generations.

The experience of generations communicated by many farmers indicates that they appreciate that their plantations performed better and survived longer with higher levels of crop diversity. High levels of diversity afforded a variety of outputs and minimized risk through multiple cropping.

This momentum needs to be reinforced by Africa RISING. Cultivar diversity also reflected various production objectives (for example: Kocho, Bulla, Amicho, Fiber, disease tolerance) and differential performance under the stresses that the crop has been subjected to.

These observations further indicate the importance of cultivar diversity for food security and sustainable cropping systems.