

# African Agricultural Technology Foundation



## PROJECT 3 : Improvement of banana for resistance to banana bacterial wilt disease in Africa

### Background

Bananas and plantains are an important food source for over 100 million people in Sub-Saharan Africa. In the east African highlands and most of the Great Lakes region, bananas are a major staple food and a source of income for over 50 million smallholder farmers. East Africa produces 16.4 million metric tonnes per year – about 20% of the world output. However, many biotic and abiotic factors greatly reduce productivity for banana cultivated under traditional African farming systems. For instance, in 2001, an outbreak of banana bacterial wilt (caused by *Xanthomonas campestris* pv *musacearum*) broke out in Uganda leaving in its wake a trail of crop destruction and utter misery among affected farms. The International Institute of Tropical Agriculture (IITA) estimates economic loss due to diseases in Uganda alone to be at a staggering US\$ 200 million. AATF is collaborating in a public/private sector partnership project to develop Banana Bacterial Wilt-resistant transgenic bananas from east African preferred germplasm.



### Objective

To enable smallholder farmers in Sub-Saharan Africa have access to adapted high yielding bananas from east African highland germplasm with resistance to banana bacterial wilt (BBW) .

### The problem

Banana bacterial wilt disease threatens production of banana in the Great Lakes region. As a result, a 50% decline in household incomes from banana sales and a corresponding increase in banana prices was observed during 2001 and 2004 in Uganda. Other costs associated with BBW include labour for cutting down and disposing of infected plants, de-budding the male flowers and disinfecting cutting tools. These cultural disease control methods currently in use have not been successful and hence the need for exploring feasible alternatives.

AATF has brokered access to a gene from Academia Sinica in Taiwan that is currently being used to transform bananas for resistance against BBW. The work on transformation is being carried out by the International Institute of Tropical Agriculture (IITA) and the National Agricultural Research Organisation (NARO) in Uganda. Current laboratory tests on the efficacy of the gene show that it is working.

### AATF interventions

- Facilitating access to appropriate genes
- Liability assessment and protection
- Fostering strategic partnerships for development of BBW resistant banana in the Great Lakes region of Africa
- Product validation and stewardship
- Fostering interim interventions to replenish banana plants by clean planting materials

### Partner institutions

- Academia Sinica
- NARO – National Agricultural Research Organisation of Uganda
- IRAZ – Institut de recherche agronomique et zootechnique
- IITA – International Institute of Tropical Agriculture
- Public and private tissue culture laboratories in the Great Lakes region of Africa including Burundi, Democratic Republic of Congo, Kenya, Rwanda, Tanzania and Uganda

AATF is a not-for-profit organisation that facilitates and promotes public/private partnerships for the access and delivery of appropriate proprietary agricultural technologies for use by resource-poor smallholder farmers in Sub-Saharan Africa. AATF is a registered charity under the laws of England and Wales and has been given a tax-exempt status in the USA. It is incorporated in Kenya and in the UK and has been granted host country status by the Government of Kenya where it is headquartered.

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