




Promoting smallholder access to fungal biopesticides through Public Private Partnerships in East Africa

Preamble

Staple food crops such as maize, millet, legumes, roots and tubers and banana, and several horticultural crops including cabbage/kale, tomato, onion, mango and avocado, contribute significantly to food and nutritional security, household income and employment of more than 70% of the population in East Africa, especially women and youth. However, sustainable production of these agricultural and horticultural crops is constrained by losses due to indigenous and invasive pests, such as tomato leaf miner, African cereal stemborer, Diamondback moth, African bollworm, fruit flies, and, more recently, the fall Armyworm. Global annual yield loss due to diamondback moth alone is valued at US\$ 1.3 billion, while an estimated USD 13.3 billion worth of crops in Africa are at economic risk due to fall army worm damage. Combined yield losses due to pest infestations are significant, especially in smallholder farms, sometimes leading to complete crop failure.

In the absence of effective alternative management options, smallholders rely on the indiscriminate use of synthetic pesticides, which are costly. Such high dependence on synthetic pesticides not only leads to negative environmental impacts on the crops and associated natural enemies, but it also reduces the nutritional value of the crop, and often leads to pests gaining resistance to the chemicals. Fungal biopesticides, have recently emerged as better alternatives to synthetic pesticides in Africa and globally. They rank better than other biopesticides because of attributes such as contact infection, easier mass production at both small-scale and commercial levels, ease of formulation and application, and relatively broader host range



70%
of the population in East Africa rely on staple foods

US\$ 1.3 billion
yield loss due to diamondback moth

USD 13.3 billion
Damage by fall army worm

Reduces the nutritional value of the crop

Negative environmental impacts on the crops

Pests gaining resistance to the chemicals.



Synthetic pesticides



Fungal biopesticides

Contact infection

Easier mass production at both small-scale and commercial levels

Ease of formulation and application

Relatively broader host range

The technology

The biopesticides are potent fungal isolates from the region, which have proven to be effective in managing thrips, aphids, fruit flies and spider mites, and other new pests such as fall army worm and whiteflies.

Local and regional benefits

The overall objective of ENSAFE is to ensure availability of biopesticides to smallholders in developing countries, and scale up production of biopesticides to create entrepreneurship opportunities for women and youth.

The project will also contribute to:



Improved biopesticide formulation and application strategies that enhance efficacy of biopesticides;



Optimization and quality control processes in biopesticide production



Registration and commercialization of new biopesticide products in East Africa

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