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Transformation and intensification of food crop production in Africa in light of increasing threats from pests and diseases

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Abstract

Pests and diseases present a major constraint to the production of food in Africa, threatening horticultural and agricultural crops alike and causing severe losses of harvest and income. To effectively respond to the increasing demand for food requires a transformation of the food production systems encompassing all components of the systems.

Plant health, starts with healthy and productive propagules. Because in Africa, most of planting materials are traded (exchanged) through informal systems, diseases are spread through human activities. The cassava virus diseases, *Fusarium oxysporum* TR4, and banana bunchy top virus in banana provide ample evidence for this uncontrolled threat. Seed health, even of commercial seeds, is not given the highest priority and outbreaks of virus diseases in soybean, groundnut and maize can be traced to seed-borne pathogens or, the use of contaminated seed (MLN in maize, ToBRFV in tomato). Pest populations driven by changing weather patterns cause direct damage (*Tuta absoluta*) or, indirectly, from the spread of virus diseases (*Bemisia tabaci*) that can destroy cultivation of crops like tomato, cassava or cotton. Healthy seeds and planting materials are the prerequisite for a productive crop and resistant varieties, the main element of disease management in field production systems. However, for many crops resistant, cultivars are not available and crop management in open fields is merely a sequence of chemical control interventions. To mitigate the impact of pests (and the diseases they spread) to horticultural crops, a transition from field production to protective cultivation in screenhouses, as already seen in few African countries, is likely the only option to guarantee a comprehensive crop management following the guiding principles of “good horticulture practices”. Under protective cultivation, a framework of measures that include bio-control agents and the sensitive application of pesticides can be applied that, in field production, are not feasible. Challenges and opportunities for African farmers will be highlighted.

Keywords: Crop management, emerging disease threats, plant health