

## Africa's most notorious insects: The bugs that hit agriculture the hardest

The dreaded [crop-eating Fall armyworm](#) continues to [spread](#) across Africa like wildfire. This invasive insect pest, first [reported](#) in Africa in early 2016, is in more than 20 African countries including [South Sudan](#) and [South Africa](#). It has destroyed many staple crops like maize. Damage to maize alone by this pest [could total](#) \$3bn in the next 12 months.

By Esther Ndumi Ngumbi 5 Sep 2017



Stephen Ausmus via [Wikimedia Commons](#) - Bemisia tabaci, Africa's main cassava insect pest

Crop losses in African countries due to insect pests are estimated at 49% of the expected total crop yield each year, according to the [Centre for Agriculture and Biosciences International](#). But some crop losses can be even worse, and the effects of the [changing climate](#) are expected to increase the damage done by insects.

Which are Africa's top insect pests? The ones named here are just a few of the wide range of insect pests that affect crop production in Africa. But describing the top ones – and the crops they attack – can help focus the minds of researchers, governments and development agencies.

### Insects that damage cereal crops

Cereals like maize, rice, wheat and sorghum are [Africa's most important food crops](#). Maize is by far the most widely grown cereal crop – [more than](#) 300 million people out of [approximately](#) 1 billion people in sub-Saharan Africa [depend](#) on it as their main food source. Maize is severely affected by pests. The most significant yield losses are [caused by](#) lepidopteran stem borers, *Busseola fusca* (Fuller) and *Chilo partellus* Swinhoe (Crambidae).

Depending on the country, season, region and maize variety, *Chilo partellus* can cause (annual) yield losses ranging from 15% to 100%. Production losses of up to [\\$450m](#) to farmers in eastern Africa by *Chilo partellus* have been reported.

### Root and tuber crops

More than [240 million tonnes of root and tuber crops](#), including cassava, sweet potato, potato, and yam, are annually produced on 23 million hectares of land in Africa. [As many as](#) 500 million to one billion Africans consume cassava. While the crop is tolerant of heat and other extremes, it's vulnerable to insect pests.

*Bemisia tabaci* (Gennadius) is [Africa's main cassava insect pest](#). Unlike the stem borers, which chew and bore through stems and new maize cobs, these whiteflies feed directly on plants' sap. They also carry cassava plant diseases.



Cassava roots infected with Cassava Brown Streak Disease.

IITA/Flickr

The most important diseases they transmit are the [Cassava Mosaic virus](#) and [Cassava Brown Streak disease](#). Entire yield losses have been reported and annual economic losses in East and Central Africa have been estimated at [\\$1.9 - 2.7bn dollars](#).

## Legume crops

Legume crops, including cow peas and beans, are an important part of African diets. [They provide](#) protein, vitamins, and minerals such as calcium and antioxidants. But the production of most legume crops is threatened by [several insect pests](#) including bean flies, aphids, thrips, leafhoppers, whitefly, and leaf beetles.

The legume pod borer is a [serious pest](#) for cowpeas, a crop that is consumed by over 200 million Africans. [Yield losses](#) of up to 80% have been reported in Nigeria, Niger, and Burkina Faso — the three major cowpea-producing countries.

## Efforts at control

Because of insects' impact on food security, billions of dollars have gone into research aimed at finding

effective control measures. The [International Center of Insect Physiology](#), for example, dedicated over a decade of research in an effort to find ecologically sustainable controls for lepidopteran stem borers. The [International Institute of Tropical Agriculture](#) is developing crop varieties that are resistant to insect pests and the plant diseases they spread.

There are many more insects that affect African crop production. And minor pests can become a greater threat when weather conditions [change](#) or when they develop resistance to chemical pesticides used to control them.

Insects can [spread into new areas](#) because of trade and climate change. The resulting outbreaks can destabilise food security and the gains made in crop productivity. The emergence of the Fall armyworm in Africa is an example of this.

Many invasive insect species can be controlled at early stages before they disperse to new environments. This requires better surveillance and monitoring by African countries.

This should include predictive modelling – a process that uses data mining and probability to forecast future outcomes. The process could help determine when the next insect invasions are likely to occur or predict the impact of a changing climate on the distribution of insect pests. It has already been used to [help predict](#) the impact of temperature changes on the future distributions of lepidopteran maize stem borers and their natural enemies.

Countries could then prepare to reduce the impact of insect invasions. Because insects know no borders, it is important for African countries to work together on combating pests.

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