

## Scientists call for innovation in fight against destructive locust pests

Cautioning the current dependence on chemical pesticides is harming the environment, scientists are calling for innovation, including the use of genetic engineering, to find a sustainable, long-term solution to the plague of destructive locust pest. “Something we can think about is genetically engineering the biological control agents to be more effective against the desert locusts,” Dr. Michael Osae, president of the Entomological Society of Ghana, said. He noted that there is a fungus, *Metarhizium anisopliae*, that is effective against desert locusts. It has been developed into a commercial biopesticide product called [green muscle](#).

“The fungus’ efficacy in the field is not too good and cannot deal with plague situations,” he explained in an interview with Alliance for Science. “But if we can genetically modify it to be more virulent, such that it can kill faster, this can prevent them from reproducing.”

Though no work is currently ongoing that explores genetic modification in dealing with the pests, the entomologist is convinced it is a sustainable option that warrants attention.

Countries in East Africa are currently battling a widespread invasion by the pests as they destroy crops, [leaving vast populations food insecure](#). Somalia and Ethiopia are facing the worst desert locust infestation in 25 years while this is Kenya’s worst in 70 years. Some communities have experienced 100 percent crop loss, with Somalia declaring the pest invasion a [national emergency](#). The Food and Agricultural Organization (FAO) says it will need about \$70 million to urgently support both pest control and livelihood protection operations in these three most affected countries.

“Authorities in the region have already jump-started control activities, but in view of the scale and urgency of the threat, additional financial backing from the international donor community is needed so they can access the tools and resources required to get the job done,” FAO Director-General Qu Dongyu said in a statement.

The pests chew on all crops, including vegetables, cereals and leaves, but prefer tender young shoots. The FAO, regional governments and experts monitoring the situation have warned the pests may be headed to West Africa next.

“Populations are building up in East Africa,” Osae said. “Very soon, in East Africa, rains will go down. Our rainy season (in West Africa) will start. So, wind blows them down south and they come here and our rain starts and they have fertile grounds for reproduction... Considering the conditions under which this plague is developing, the likelihood of it getting to Ghana is very high, much higher.”

In Ghana, Dr. Felicia Ansah Amprofi, director of the Plant Protection and Regulatory Services Directorate of the Ministry of Food and Agriculture, has sent a letter to her subordinates directing them to strengthen their surveillance. She warned that the pests can “pose serious threat to agricultural production areas of the subregion. This could result in potential adverse impacts on the agricultural seasonal yields and local economies, affecting food security and livelihoods of the populations” the agriculture official added.

The African continent is still recovering from devastation caused by the rampaging fall armyworm pests, an infestation that peaked in 2017 after spreading to about 30 countries. To avoid falling prey a second time, African governments have been stockpiling chemical pesticides to deal with the desert locusts through aerial spraying.

The FAO is unhappy with the reliance on chemical pesticides. “Applying chemical pesticides is still the principal approach used in desert locust control. However, chemical pesticides may have adverse effects on human health and the environment. The risks of a locust plague therefore need to be continuously balanced against the risks of using pesticides,” the [FAO warned](#) in a document published recently.

When a similar desert locust plague hit between 2003 and 2005, affecting 26 countries in Africa near east and southern Europe, about 13 million hectares of desert locust infestation were treated with pesticides. Osae believes this is worrisome for the environment, hence the push for alternatives.

The desert locust belongs to the grasshopper family, which has been around for centuries and occasionally threatens food security across Africa, the Middle East and Asia. Under favorable conditions, they form huge swarms in a cyclical manner and travel across nations at a speed of about 150 kilometers per day, leaving widespread devastation in their wake. Since the 1900s, about six major plagues by the desert locusts have been seen across the world.

The FAO describes the current invasion as an “upsurge” because it has affected an entire region. The agency warned that the situation could become a plague if nations are unable to contain it for more than a year. “The speed of the pests’ spread and the size of the infestations are so far beyond the norm that they have stretched the capacities of local and national authorities to the limit,” the FAO said in a [press release](#).

Farmers in affected areas have been counting their losses. A farmer at Nguni in the Mwingi region of Kenya [told the Standard Media](#): “I was looking forward to a bumper harvest of fifteen 90-kilogramme bags of green grams [mung beans] but now there is nothing left.”

Africa’s major exports, like cocoa from West Africa, and its tropical forests are not likely to be severely affected because the pest thrives in dry areas and doesn’t do well in rain forest regions. However, other major exports, like cashew and vegetables, are at risk, as are a majority of the food crops that many residents rely on, including maize, cowpea and sorghum.

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