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Fighting the pest that is ravaging Africa's agriculture

STEPHEN WILLIAMS | 5 JULY 2017

The fall armyworm is a relatively recent intruder in Africa, but it has been widely prevalent in the Americas, particularly South and Central America where it is known to attack more than 80 different plant species, including maize – a major food staple for more than 200m Africans.

The only **crop** that seems able to resist the fall armyworm is cassava, no doubt because it naturally produces cyanide. “The truly frightening risk of the fall armyworm to food security in Africa must be recognised and tackled with a holistic integrated pest management programme,” says Dr BM Prasanna, director of the Global Maize Programme at the International Maize and Wheat Improvement Centre and the CGIAR Research Programme on Maize.

“We cannot eliminate the pest from Africa – now that it is here, it will stay – but we can provide support to farmers and provide options to manage their crops against the fall **armyworm**.” The drought that has afflicted many African regions has simply exacerbated the problem as it creates the prolonged hot, dry conditions in which the fall armyworm thrives.

Dr Roger Day, a sanitary and phytosanitary coordinator at the Centre for Agricultural and Biosciences International, estimates the cost to Africa this year could be as high as \$3bn. By March, the fall armyworm had been reported in 20 countries in Southern Africa, East Africa and parts of West Africa including Benin, Democratic Republic of Congo, Ghana, Nigeria, Togo, and São Tomé and Príncipe.

The fall armyworm (so named in the US as it impacts crops in the autumn, or fall) generally dies back with the cold, winter weather in northern latitudes, but even the experts are unsure of the pest's adaptation to tropical climates.

Organic approach

Some governments have decided that the threat is so severe that they will fund the distribution of pesticides to smallholder farmers. But Thomas Chackunkal, the managing director of agricultural solutions company Contec Global Agro does not think this is the best option. Not only is it costly, but he fears the fall armyworm will quickly develop resistance to the chemical pesticides.

“The alternative is to deploy earth-friendly, efficient and commercially viable solutions created through research and development using non-toxic, biodegradable products,” he says. He is leading a team conducting research at his company's Abuja-based laboratory to identify and cultivate bio-organisms that will serve to protect crops from the fall armyworm pest.

The fall armyworm is in fact a caterpillar, the larval stage of the *Spodoptera frugiperda* moth. Once the larvae pupate, to become moths themselves, they can fly long distances in a short time to locate fresh crops to devastate – and so the 3–4 week lifecycle continues.

The moth, which flies at night, can travel hundreds of miles – more than 250 miles in just eight hours. Unless its advance is contained “a further spread into Europe via the Mediterranean basin and Asia through the Middle East is almost certain”, the UN’s Food and Agriculture Organisation has warned.

And containment is exactly what Contec Global Agro is focusing on, with its research over the last three years aimed at containing this horrendous pest. The company has invested \$2m in its laboratory, housed in an unprepossessing four-storey building in the Garki district of central Abuja.

“We are pioneers of an organic approach, in the sense that we have researched and found microbes, bacteria and fungi to tackle the fall armyworm menace,” says Chackunkal. “This stage is only research, but the next stage is for us to make our product formulations available to the farmer to protect crops from these voracious pests.”

Stopping the pests in their tracks

Contec Global Agro has already posted a remarkable success in containing the deadly *Tuta absoluta* outbreak in Nigeria’s tomato crops. In a similar way to the fall armyworm, the larvae of *Tuta absoluta* (described as “tomato ebola” by many [Nigerians](#)) punctures the fruit and then mines into it. The damage caused to the plant creates malformation, leading to the development of fungal diseases or to rotting fruit. Last year, this caused the destruction of thousands of hectares of tomatoes, causing the price of this staple to skyrocket.

But Contec Global Agro developed and marketed an affordable preventative – a wholly organic bio-pesticide spray, called Fixit GA, which creates a defence mechanism for tomato crops. Where applied, Fixit GA stopped the *Tuta absoluta* in its tracks. Building on this success, the Contec Global Agro team are now hard at work developing a response to the fall armyworm pest.

In a parallel initiative, Contec Global Agro has been developing banana tissues and has the capacity within the laboratory to cultivate about 5m disease-resistant plants. Commenting on the company’s activities, Rohen Berry, a director of Contec Global Group (the parent company of Contec Global Agro), says: “We must not just provide a ‘quick fix’, but ensure in a responsible fashion that our next generation will have the same opportunities for sustainable growth as we do.”