

Why African farmers should balance pesticides with other control methods

By [Esther Ndumi Ngumbi](#)

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Insect pests [cause](#) almost half of the crop losses in Africa. If the continent is to feed its growing population, farmers must find ways to control them. Pests account for high losses in other developing regions too.



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For smallholder farmers in particular, pest management needs to be affordable, safe and sustainable. It should avoid the drawbacks of synthetic pesticides as far as possible. Research is now showing that integrated approaches can achieve these goals.

The UN Food and Agriculture Organisation, for example, recently [launched](#) a comprehensive guide that will help millions of smallholder farmers across Africa to manage the fall armyworm. This is a new insect pest in over 30 African countries and a serious threat to maize crops, a staple food.

The guide suggests using biological control and local remedies rather than insecticides that can work in an emergency but may be ineffective and harmful in the longer run.

This is a good example of how farmers can be encouraged to balance the use of insecticides with other forms of pest

control.

African smallholder farmers produce 80% of the continent's food. It's imperative that they have the tools and knowledge to sustainably control insect pests, avoiding the almost 50% losses that arise due to them. But it's also important that as the pressure increases on them to produce more, they must also learn to think about their health and our environment. Governments should make farmers aware of the risks that come with insecticide use only.

Pesticides

When insect pests or diseases threaten their crops, many smallholder farmers, the [majority](#) of whom are poor, turn to [pesticides](#) – man-made chemicals that can prevent infestations or kill the pests.

Pesticide use is growing in many countries including [Cameroon](#), [Ethiopia](#), [Ghana](#), [Kenya](#) and [Nigeria](#). In 2017, Nigeria alone spent over [USD\\$400 million](#) on these chemicals.

Pesticides are popular because they are effective. They [directly](#) reduce the incidence of insect pests which severely limits crop yields. This means higher yields and surpluses, and therefore higher incomes for farmers, less malnutrition and improved food security. Also, many of the older, more dangerous, pesticides are cheap. The benefits [are there](#), but they [are](#) short-term.

In the long run, their use isn't sustainable because insects quickly become resistant and because their use can cause significant damage to the natural environment as well as the health of farmers and consumers. There's also a lack of regulation on their use. The chemicals are [often](#) sold in used bottles, with little or no instruction on how to use them. And many farmers don't [follow](#) appropriate safety measures.

A [recent study](#) explored the relationship between pesticide use on farmers' fields, the value of crop output, and a suite of human indicators in four African countries — Ethiopia, Nigeria, Tanzania, and Uganda. It showed consistent evidence that pesticide use is correlated with significantly greater agricultural output value. But it is also costly in terms of human health and the loss of labour supply due to time lost to illness.

In 2017, [a UN report](#) showed that [about](#) 200,000 people, [mostly](#) from developing countries, die every year from pesticide poisoning.

Agriculture needs a way to manage harmful insects without destroying the ecological balance of the environment.

Integrated pest management

[Integrated pest management](#) is an [approach](#) that doesn't rule out the use of pesticides, but uses them as little as possible and only for strong reasons. It promotes the use of safer alternatives, like biocontrol, which uses natural enemies to control pests, and cultural control practices which modify the growing environment to reduce unwanted pests.

These approaches include:

- The use of resistant cultivars. These are plant varieties that have been bred to resist insect damage
- Crop rotation which changes the crops planted every season, or year, to break the life-cycle of insect pests and discourage pests from staying on the farm
- Habitat manipulation techniques which involve planting a variety of crops in and around the farm in an effort to increase the number of natural insect enemies on the farm land
- The use of pheromone traps. These are small glue traps that contain insect pest attractants.

Several research centres in Africa champion this approach. The [International Centre of Insect Physiology and Ecology](#) is one of them. It is the only institution that specialises in insect research. Since its inception in 1970, it has rolled out several integrated pest management programmes for major insect pests. For example, between 1993-2008, it [championed](#) the biological control programme to control the stem borer pests; *Busseola fusca*, *Chilo partellus* and *Sesamia calamistis* – major pests for maize in Africa. As a result, it [contributed](#) an aggregate monetary surplus of \$1.4bn to the economies of the three countries where it was implemented – Kenya, Mozambique and Zambia.

This is one of many success stories. First used in 1959, integrated pest management has controlled many of Africa's top insect pests, including aphids, Africa's main cassava insect pest ([Bemisia tabaci](#)), the [legume pod borer](#) a serious pest for cowpeas, and [lepidopteran stem borers](#) which harm cereal crops including maize, rice and sorghum.

Most importantly, it has been one of the most effective approaches in combating the [fall armyworm](#). Early this year development and research agencies released [a handbook](#) on the approach which will serve as a resource to many African countries.

Despite its success, insect pests are still a major problem. This is [because](#) they are constantly adapting to methods used to control them and because there [are new](#), invasive insect species and strains emerging everyday.

Moving forward

Integrated approaches to pest management appear to hold more promise than single approaches.

The challenge is to ensure that Africa's farmers adopt practices that are sustainable and friendly to the environment and human health.

Farmers will need incentives and tools to change their practices. For example, access to insect resistant varieties of crops.

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