

24 July – 6 August 2023

Why African farmers should balance pesticides with other control methods

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.

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 of 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 programs 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 USD\$ 1.4 billion 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.



Insects are constantly adapting to methods used to control them.

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.
AP

Sunday News (Tanzania) - Published 21 July 2023

icipe supports training of beekeepers.

Tanzania's Department of Forests, in conjunction with *icipe*, recently provided beekeeper training under the Participatory beekeeping for ecological conservation of Mangrove forests in Zanzibar initiative. Beekeeping has been shown to maintain ecology, agriculture, and livelihoods while also improving food security.

[Video](#)



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Baldwyn Torto of @icipe speaking on nature-based solution for crop protection #ISCE2023



8:03 AM · Jul 26, 2023 · 834 Views



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6:48 AM · Jul 28, 2023 · 2 Views



FAO Malawi
@FAOMalawi

In 🇱🇰, govt shared 22000 pheromone traps to farmers & researchers to assess presence & abundance of #FAW as part of the country's Integrated Pest Management strategy. These traps attract & capture male Fall Armyworm moths. #LearningEvent #FAWglobalaction @faosfsafrica @icipe

3:49 PM · Jul 27, 2023 · 200 Views



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This is a #bee of the species #Hylaeus. Their common name is yellow-faced or masked #bees. Hylaeus are the only bees native to #Hawaii. In the Afrotropical region, #Kenya has the largest number (14) of Hylaeus species. Read more: icipe.org/news/insect-we... #insectoftheweek



Sida

2:23 PM · Jul 24, 2023 · 432 Views



Johan Sävström
@SciComJohan

Insektsbaserad proteiner är framtiden för både boskap och människor. Det menar forskaren Chrysantus Tanga som visar upp forskningsanläggningen @icipe som bla odlar larver till djurfoder. Det är fördelaktigt ekonomiskt och klimatsmart. #Forskningssamarbete @Sida



4:47 PM · Jul 26, 2023 · 1,020 Views



Pascal Nyabinwa, DVM, M.Sc, PhD
@nyabpass

Exciting Breaking News! @NestlerProject, @icipe A field study has just been published on the "Effect of replacing dietary soybean meal with black soldier fly (Hermetia illucens) larvae meal on performance of Nile tilapia (Oreochromis niloticus)." lrrd.org/lrrd35/8/3574n...

4:34 PM · Aug 4, 2023 · 62 Views

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@icipe is pleased to participate in the 16th National #Agriculture Show, #Rwanda, taking place on 20 – 29 July 2023 under the theme “Transforming Agriculture into a resilient and competitive sector through technology, innovation & investment. Read more: minagri.gov.rw/agrishow



Ministry of Agriculture & Animal Resources |Rwanda and 5 others
 5:26 PM · Jul 27, 2023 · 396 Views

Cordaid Kenya
 @CordaidKenya

Dr. Tanga and Dr. Denis from @icipe showcase desert locusts at different stages of their lifecycle, crickets and variety of products and feeds fortified from desert locusts and crickets during the (B)eat The Locust Project launch in Isiolo County.



9:39 AM · Aug 3, 2023 · 23 Views

Jane Kugonza
 @KugonzaJane

Integrate maize, Desmodium and Brachiaria to control fall armyworm. This is push-pull technology by @icipe and @NaroKawanda showcased at the #AgricShow23 ongoing in Jinja. Come and learn more...@emilyarayo @unffe @NaLIRRI @ict4farmers



9:47 PM · Aug 5, 2023 · 1,148 Views

Ifakara Health Institute
 26 July at 16:35

MALARIA CONTROL:
 Protecting people from mosquito bites outdoor
 The findings of a recent study have underlined the significance of looking for effective strategies for protecting people from mosquito bites outdoors. In particular, the evaluation of the usage of odour-baited traps.

According to scientists at Ifakara Health Institute, ICIPE - International Centre of Insect Physiology and Ecology, Swiss Tropical and Public Health Institute (Swiss TPH) and Wageningen University & Research novel outdoor mosquito control measures could be used in addition to traditional methods such as indoor residual spraying and long-lasting insecticidal nets in order to sufficiently eliminate malaria.

>> https://ihi.or.tz/_/malaria-control-protecting-people/
 >> #IFAKARAhealth

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A randomized, double-blind placebo-control study assessing the protective efficacy of an odour-based ‘push-pull’ malaria vector control strategy in reducing human-vector contact

[Ulrike Fillinger](#), [Adrian Denz](#), [Margaret M. Njoroge](#), [Mohamed M. Tambwe](#), [Willem Takken](#), [Joop J. A. van Loon](#), [Sarah J. Moore](#), [Adam Saddler](#), [Nakul Chitnis](#) & [Alexandra Hiscox](#)

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2:05 PM · Aug 4, 2023 · 186 Views

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