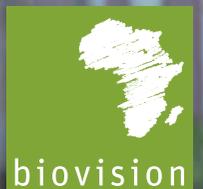


# Biovision

Newsletter June 2015

**Damage to mango groves averted**  
Successful control of invasive mango fruit flies in Kenya



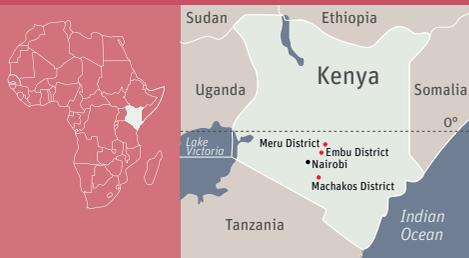
A future for all, naturally

**Jane Biashara**

Senior business adviser at  
NGO Techno-Serve in Kenya



“I am convinced that IPM can successfully combat the mango fruit fly”.



## Fruit fly control

- **Start Date:** July 2011

Biovision is supporting the introduction of Integrated Pest Management (IPM), an environmentally friendly way of dealing with mango fruit flies in Kenya.

- **Objectives of Project Phase 2015**
  - Extend the IPM project to two further locations in Kenya (Embu and Machakos Counties)
  - Prepare basic information on fruit fly populations and the associated damage in the counties of Embu and Machakos
  - Spread information on the control of fruit flies with IPM
  - Develop and reinforce distribution channels for mangos

- **Budget 2015** CHF 101'000.00

- **Account for donations** PC 87-193093-4

# Blessing in disguise

At the end of 2011, mango farmers in Meru District in Kenya sounded the alarm. “Mangoes were crying and falling off the trees,” recalls Sakayo Murauki.

Every morning, mango farmers from the village of Thuti reported the same horror story: the ground was littered with beautiful mangoes from which juice oozed – it was as if the mangos were crying. The inside of the fruit was alive with maggots.

At the time, Jane Biashara, Business Adviser with Techno-Serve, was working with farmers in Meru County to increase mango production and market the fruit. To achieve this increase, farmers had been using large quantities of chemicals. Sakayo Murauki, for example, had been spraying his 520 mango trees with insecticide every two weeks, repeating the treatment eight times each season. All mango producers in Meru County had been persuaded to do the same. Yet, large numbers of mangoes were now rotting.

### Massive decline in harvests despite chemicals

“When the farmers rang me, I felt so powerless,” reports Jane Biashara. The pressure was intense. “4000 mango farmers were expecting a great deal from me,” she recalls with obvious discomfort. Jane lost no time and started to do some research. She discovered that *icipe*, the International Centre of Insect Physiology and Ecology in Nairobi was not only familiar with the problem, but had developed a solution. In 2003, *icipe* had identified a new species of fruit fly, which had originated in Sri Lanka. Once in Kenya and lacking natural predators, it had quickly spread throughout Africa (see also Page 4). Mangoes are amongst the most frequently traded tropical fruits internationally and also an important source

of local food. Stringent quarantine regulations were imposed on mangoes infected by fruit flies, meaning that Kenyan producers were denied access to lucrative export markets in Europe, the Middle East, Japan and the United States – a disaster for thousands of mango farmers.

*icipe* responded quickly and developed a range of innovative measures that in combination worked not only against the exotic species from Sri Lanka but also the indigenous mango fruit fly. The system – Integrated Pest Management (IPM) – uses both biological methods and bio-pesticides although the latter are only used where absolutely necessary. IPM protects the environment and reduces costs as mango farmers can manage with far fewer expensive chemicals.

### Effective pest management with IPM

In Meru District, they were able to build on the experience gained in the successful pilots supported by Biovision since 2011. Mango farmers in Meru were trained in IPM techniques and started applying them in 2013. The success was immediate; fruit fly infestations fell rapidly from 65 % to an average of 15 %.

“I am convinced that IPM can successfully combat the mango fruit fly,” says Jane Biashara today. Even Sakayo Murauki has recovered from his initial horror. “We are now producing top-quality mangoes and earning good money”. This is very important for him and his wife as the money from the fruit sales is their main source of income. It allows them to provide a good education for their children. Veronice, their elder daughter is able to continue her studies to become an air-traffic controller. Her younger sister is also planning to go to university on finishing secondary school. | pl

More photos and information:  
[www.biovision.ch/mango-en](http://www.biovision.ch/mango-en)



Sighs of relief from villagers in Thuti: Veronice, Jennifer, Sakayo and Doris Murauki are delighted with their healthy mangoes. The invasion of a species of fruit fly from Sri Lanka (*bactrocera dorsalis*) had dramatically reduced yields but now, thanks to IPM, the situation is under control.

## Comment

Innovation and long-term collaborations are two key ingredients to achieve sustainable development in our Foundation's projects. The IPM Mango pilot project shows clearly that our longstanding ability to work with motivated family farmers and leading scientists on identifying, developing and improving ecological solutions to pressing problems provides tangible returns: it is cheaper, healthier and more effective than conventional approaches.

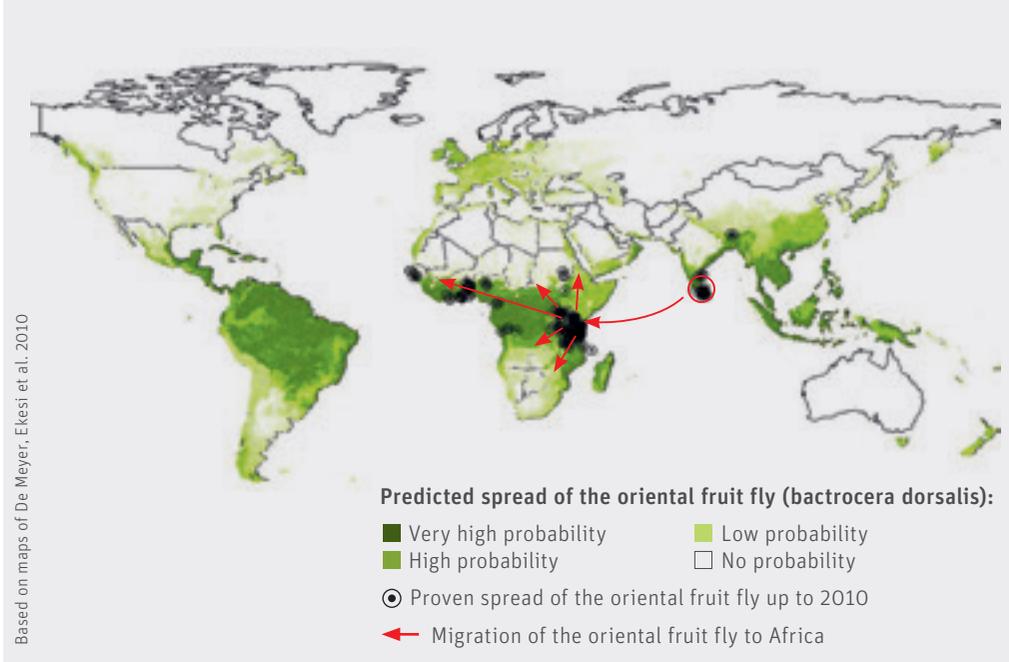
With the successful demonstration of the effectiveness of the pilot project, our next challenge is to translate it into action beyond the local level. At regional and national levels, we are engaging government extension officers to disseminate such sustainable methods further, and we are lobbying for allocation of government funding within an overall policy of changing course in agriculture in Kenya.

In addition, given the willingness of farmers to invest in the adoption of the IPM method, integrating the private sector is key in ensuring affordable, long-term access to the inputs on the one hand, and profitable marketing for smallholders' produce on the other. Tackling these challenges is not a simple feat, but thanks to our established partnerships and the trust we have earned over time, we are confident that we can make a difference with our ecological approach. | sl



**Samuel Ledermann**

Responsible for a range of basic and information projects in East Africa



# Sharp rise in stowaway numbers

They arrive suddenly and cause mayhem: In 2013, it was the American fire-blight bacterium invading the olive groves of Southern Italy, in 2011 the Asian spotted-wing drosophila arrived in Switzerland and in 2003 the oriental fruit fly (*Bactrocera dorsalis*) arrived in Kenya from Sri Lanka. Invasive species are on the march worldwide. To stop their advance, we need a range of ecological agricultural systems.

Invasive species are non-native animals or plants that settle and breed in regions other than their indigenous habitat. In their new home, they can interfere with ecosystems, reduce biodiversity and cause immense damage. According to the European Environment Agency, the annual economic losses to European agriculture, forestry and fishing from invasive species are valued at 12 billion euros.

These non-native plant and animal species like to travel as stowaways on aircraft and

ships and it is difficult to stop this migration. They often have no natural predators and are also hard to eliminate with chemical agents. In addition, the excessive use of chemicals is likely to put an extra burden on nature, the environment and human health.

### Oriental fruit flies in East Africa

In 2003, farmers on the Kenyan coast started to notice serious damage to a range of fruit crops, particularly mangoes. The *Bactrocera dorsalis*, a fruit fly that had originated in Sri Lanka, was identified as the culprit. It probably reached East Africa in a cargo of fruit being transported by ship. Once in East Africa, it spread rapidly and is now found in more than 30 African countries. In Kenya, where four-fifths of the mango crop is grown by small farmers, it destroyed 50% – 80% of the harvest. The fruit flies lay their eggs beneath the skin of the mangoes and this initiates a process of decay. The larvae feed on the flesh of the fruit and then drop to the ground. Here, they penetrate the soil and pupate.

### Success with Integrated Pest Management

Between 2005 and 2009, a research team from *icipe*, the International Centre of Insect Physiology and Ecology in Nairobi, developed a package of measures – Integrated Pest Management (IPM) – designed to combat the invaders from Asia. The measures included the following:

- Breeding and release of two species of parasitic wasps (beneficial insects) that lay their eggs in the larvae or eggs of the fruit fly. The resultant wasp larvae then decimate the pests.
- The rotting mangoes are collected and stored in a tent-like, close-meshed netting. The beneficial insects are able to escape but the larger pests cannot.
- The male fruit flies are lured into a scented trap and then eliminated.
- Each tree is spot-sprayed (1 m<sup>2</sup>) with a poisonous attractant.
- Bio-pesticide produced from fungal spores is applied to deal with the larvae in the soil. These fungal spores kill the larvae and so reduce their number.

The IPM measures were tested from 2009 onwards in three pilot projects, each with different local conditions. From 2011, the method was successfully introduced and is now used in several areas of Kenya.

### Invasive species on the march

This success should not blind us to the fact that the problem of invasive species is getting worse. It is being exacerbated by the sharp rise in the movement of goods and people and the higher temperatures resulting from climate change. If we are to control the invaders in the longer term and in a way that does not harm the environment, we need research into locally adapted solutions or sometimes new solutions. This requires time and money.

Nevertheless, experts remain confident: “I am sure that we can solve any pest problem eventually with biological methods,” says Dr Martin Andermatt, a pioneer in the field of biological pest management and President of Andermatt Holding, a company that owns several small and medium enterprises active internationally in the field. He is in no doubt that ecological agriculture has a great future and regards the liberal use of chemicals as simply the wrong approach: “In the final analysis, these substances end up on our plates and so in our bodies. In the longer term, ecological agriculture is the only way forward,” says Andermatt. He also cites the preservation of biodiversity as essential. This is a view shared by Dr Hans Rudolf Herren, the President of Biovision. “We need

a range of natural agricultural systems that can adapt to invasive species,” says Herren, adding that monocultures reliant on large quantities of chemicals are simply unsustainable. Herren, a recognised expert in the field is convinced that monocultures will be unable to resist new threats and so lack resilience. | pl

**Dr Martin Andermatt** is an agronomist. He completed his doctorate at ETH in Zurich with a thesis on the biological control of the codling moth. In 1987, he and his wife developed a biological alternative to the chemical control of fruit pests. Since 1988, they have produced it in their own factory and sold successfully.

Interviews with Martin Andermatt and Hans Rudolf Herren: [www.biovision.ch/interviews-en](http://www.biovision.ch/interviews-en)



As part of its research, *icipe* bred and released small parasitic wasps; this wasp – the *fopius arisanus* – is a natural predator of the fruit fly and lays its eggs in the eggs or larvae of the fruit fly, which the wasp larvae then devour.

## Health for humans and nature

Each Wednesday, natural healers meet for mutual education and training in the Buyijja Forest School. The most experienced of them can identify more than 700 medicinal plants. They also know how to cultivate and harvest them, convert into powders, pastes and teas and use for specific purposes. Biovision has been supporting the project in the Mpigi District since 2009. Not only does it supplement the inadequate healthcare system in the Mpigi District but also helps the forests; the natural healers value and protect the forests as they are the source of their medicinal plants.

### Holistic approach

In addition to supporting the organic cultivation of medicinal plants, the Biovision project also encourages ecological agriculture. This chimes with the holistic approach adopted by Biovision. Traditional healers are trained in ecological, organic agriculture at the newly developed demonstration gardens. Educational gardens have already been established in eight villages in the region. Each garden has two trained "Community Own Resource Persons". They give advice to small farmers and provide support with the introduction of sustainable methods of cultivation. A total of 240 people have already been trained and supported in the Mpigi District. | pl

Further information:  
[www.biovision.ch/mpigi-en](http://www.biovision.ch/mpigi-en)



## Local information and training

The young agronomy student Veronica Wamiti is training 11 well-established small farmers in poultry rearing, egg production and chick breeding – an example of the practical spread of knowledge.

Despite the age gap, the young instructor is fully accepted by the considerably older members of the farmer group from the village of Thayu in Nyandarua District (Kenya). They soon realised that the student was an excellent teacher who prepared her teaching material with a meticulous attention to detail and was enthusiastic about passing on her knowledge. Since mid-2013, Veronica has been visiting one of the local farms once a month and instructing the assembled smaller farmers. It is the farmers themselves who choose the topics. They were particularly interested in the course on poultry rearing. They saw it as an opportunity to sell eggs and chickens and so earn cash: They and their families are very reliant on this income.

### Chickens were dying from pesticide poison

In the break between the theory session on the different types of poultry rearing, feed-stuffs and animal health and the practical session in the chicken pens, one of the farmers mentioned a previous attempt at

keeping poultry. "I had ten hens and seven of them died," she explained looking somewhat chastened. She now knows that fresh water is very important for poultry. Veronica also explains that hens are sometimes poisoned if empty pesticide containers are used for carrying water.

Veronica Wamiti looks after one of the 11 farmer advice centres in Kenya supported by Biovision. There are a further eight centres run jointly with other partners and two run with the Ecological Organic Agriculture Initiative. In this way, Biovision can reach some 30'000 farmers in rural Kenya and provide them with information and training in ecological agriculture. | pl

Further information:  
[www.biovision.ch/veronica-en](http://www.biovision.ch/veronica-en)

Practical sessions are essential to the success of the agricultural training (top). Instructors have access both in the advice centres and out in the field to the information provided by Biovision (bottom).



## Biovision wins ENERGY GLOBE National Award 2015

The 2015 ENERGY GLOBE awards attracted 1500 projects from 177 countries. The Biovision travelling exhibition “CLEVER – Test your shopping intelligence” was the National Winner for Switzerland. The jury in explaining their choice said: “With this exhibition, the Swiss winner is helping consumers shop in a better and more sustainable way based on social and ecological criteria”.

The Award is one of the world’s most prestigious environmental prizes. It honours outstanding sustainable projects that focus on a prudent use of resources, energy efficiency and renewable energies.

[www.energyglobe.info](http://www.energyglobe.info)



Gudrun Hager, Austrian Trade Commissioner and Commercial Counsellor for Switzerland and Liechtenstein (left) presents Sabine Lerch, manager of Biovision’s CLEVER project, with the national ENERGY GLOBE award.

### Imprint

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## Maize in the Paul Klee Centre

Until the end of 2015, the Paul Klee Centre (ZPK) in Bern is acting as a bridge between nature and art – and with good reason: In both his theoretical and practical work, Paul Klee reflected the link between nature and culture. The ZPK, working with a range of partners from the world of art, science and agriculture, is now focussing on the timeless values of nature and our current interaction with it.

Working jointly with HAFL, the School of Agricultural, Forest and Food Sciences at the Bern University of Applied Sciences and the Biovision Foundation, ZPK will shine a light not only on the laws of nature and their creative potential, but also controversial issues such as providing enough healthy food for global populations and managing environmental risks.

Biovision will be present with two different activities. Until 4 July, visitors can see the interactive exhibition “Clever – Test your shopping intelligence” at “Creaviva”, ZPK’s museum for children. Secondly, Biovision is hosting a small Push-Pull exhibition where it will be growing maize and millet in order to demonstrate this sustainable method. The

Push-Pull method reduces pests and improves soil fertility allowing small farmers to manage without the use of chemicals and on average increase their yields threefold. Expansion of the method and the associated knowledge is a key element of Biovision’s project work in East Africa. | pl

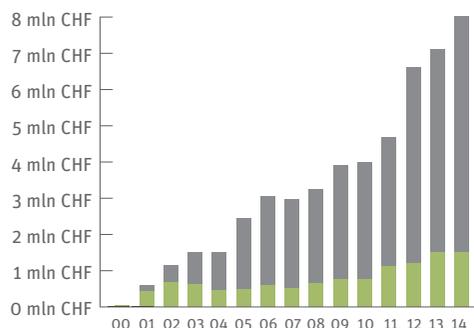
[www.biovision.ch/zpk-en](http://www.biovision.ch/zpk-en)



Art and agriculture: the word “culture” derives from the Latin “colere” meaning to till the earth and nurture, giving culture and cultivation a common etymology. The Paul Klee Centre and Biovision also share an objective: to convey cultural knowledge.

## Successful 2014 for Biovision

Income from donations exceeded 8 million Swiss Francs making it another record year. Biovision has used this growth in recent years to expand its work in specific strategic areas. Last year, it successfully implemented 35 projects, representing an investment of more than 6,4 million Swiss Francs – the highest ever. Our sincere thanks to all those whose donations made this outstanding achievement possible!



As a result of restructuring, we were even able to slightly improve the ratio between project expenditure and the cost of administration and fundraising. It is now 80:20 %.

The full Annual report can be found at [www.biovision.ch/annual-report](http://www.biovision.ch/annual-report)



## A story from the life of John Cheburet

# From gospel choir to farm radio

Even as a boy, John Cheburet, the son of a small farmer in Nakuru, was a radio enthusiast and could often be found hogging his father's transistor radio. John loved listening to sports programmes and the Swahili service in Kenya of the German radio station "Deutsche Welle". Later at school, "I realised that my general knowledge was better than that of my peers," recalls John.

His other gateway to radio was his tenor voice. As a young man he sang in a gospel choir, who made a CD for the Catholic church. "The recording studio then asked me to work for them as a volunteer and this in turn gave me access to Waumini, a Catholic radio station," he explains. Whilst working for Waumini, he presented late-night programmes of classical music.

In 2008, Cheburet's potential was recognised by Peter Baumgartner, who had set up The Organic Farmer (TOF) for Kenyan farmers. Since then, John has been producing and broadcasting TOF Radio programmes; they

are short programmes in Swahili, which cover both fundamental and current issues relating to ecological agriculture, arable and vegetable crops, animal husbandry and the

**"Young farmers also want to earn money".**

marketing of produce. The programmes also offer an opportunity for debate and in a country such as Kenya without dedicated training or teaching for small farmers, the dissemination of information through TOF is an essential element of help for the purpose of self-help.

Today John Cheburet's dulcet tones can be heard by more than three million people in Kenya through programmes on Radio KBC (Kenyan Broadcast Corporation) and Radio Milele FM. These stations also produce programmes in other local languages, which John produces and often presents. In 2014, TOF Radio was broadcast on four different channels and attracted an audience of five million people; listeners like its topicality and the way it provides seasonally adjusted content and offers concrete solutions to the pressing problems facing farmers. Each programme

includes a slot for listeners' questions sent in by text or telephone. These questions are answered by Cheburet and the TOF Team.

"We provide practical tips and background information. In this way, we can help small farming families improve their lives", says John when asked what motivates him. In addition, he already has ideas for the future: "Younger farmers want to do more than just grow enough food for their own needs. They want to earn money," he explains. As a result, it is important to include items on potential supply chains, improving livestock breeding and looking after higher-output cattle. "If we are to reach a younger audience, we must also make much greater use of the Internet and social media," he says. There is much to do and John Cheburet, who has been with TOF Radio since its inception is ready to give it his all. | pl

Listen to radio presenter John Cheburet:  
[www.biovision/cheburet-en](http://www.biovision/cheburet-en)  
 TOF-Magazin: [www.theorganicfarmer.org](http://www.theorganicfarmer.org)

