Biovision

Newsletter August 2020

Please feed! But there's more to it than that.

The success story of an environmentally friendly farming method

biovision

A future for all, naturally

Paskalia Shikuku
Farmer educator in the Siaya district of Kenya, widow and mother of four girls

"Thanks to push-pull, I was able to give my two younger daughters a better education."

Push-pull: diversity through participatory research

Push-pull is an agroecological method that helps to significantly increase yields of maize and millet. Pests are controlled effectively, water is stored better in the soil, soil fertility is improved and valuable animal feed is produced. Biovision is promoting the method in association with *icipe*, the insect research institute.

- **Objectives of the current project phase:**
  - To identify the types of vegetables used locally that can help increase food diversity and generate higher income
  - To apply the push-pull method to mixed maize/vegetable cultivation
  - To implement the method in the project area following its development
- **Project budget 2020:** CHF 220,000
- **Donation account:** PC 87-1933093-4
- **Sustainable Development Goals (Agenda 2030):**
  This project makes direct or indirect contributions to three of the 17 Sustainable Development Goals (SDGs):

Welcome hangers-on

Many smallholder farming families in East Africa benefit from the push-pull environmentally friendly grain cultivation method. But that's only half the story.

By Stefan Diener, Programme Manager at Biovision

Tineyi Chakanyuka and Paskalia Shikuku make a large part of their living from the environmentally friendly push-pull corn and millet cultivation method. Biovision insiders will be thinking: that is not exactly breaking news. For that is what over 160,000 farmers in sub-Saharan Africa are doing too.

But what sets these two women apart is that neither Tineyi Chakanyuka nor Paskalia Shikuku grow corn or millet. They take advantage of the fact that push-pull opens up a variety of other economic niches in addition to grain production. These niches can be – or even have to be – filled by small-scale entrepreneurs in order for push-pull to become established. This is entirely in keeping with the holistic approach of Biovision and agroecology.

Push-pull is an environmentally friendly cultivation technique that offers a range of advantages: it increases the yields of smallholder families by offering protection against pests, reducing parasitic plants and increasing soil fertility. But in order to use push-pull at all, households are also dependent on the fact that the seeds they need for implementing the method (desmodium and elephant grass) must be available on the market in the first place. And this is where Tineyi Chakanyuka comes in. She is responsible for the product range sold by the seed producer Mukushi Seeds in Harare, Zimbabwe, and recognised early on that there is great potential in selling push-pull companion crops. As the popularity of this cultivation method rises, so does the demand for seeds.

A story with a sequel

Paskalia Shikuku has created a niche for herself at the other end of the value chain. She is president of the forage grass cooperative "Sabatia Napier Traders Group". High-quality forage grass is harvested by farmers as a very welcome by-product of the push-pull method. There is often even a surplus, as they produce more than their animals need.

The farmers affiliated to the cooperative dry out the surplus grass and turn it into fodder bales. These are collected and stored in a dry place until demand for hay increases in the dry season and the price rises. Consequently, push-pull fits into an agro-ecological system which not only ensures food security for farm households, but also strengthens the financial independence of upstream or downstream companies and contributes to the health of livestock.

And the story is far from over: as part of a project supported by Biovision, the Kenyan-based international research institute, *icipe*, is currently investigating the extent to which the cultivation of vegetables can be integrated into push-pull. This would give families a wider choice of foods. In addition, vegetables fetch high prices on the market, and this is another opportunity for small farming families to generate income.

www.biovision.ch/push-pull-en

1 Tineyi Chakanyuka, who is responsible for the product range, and John MacRobert, Managing Director of Mukushi Seeds, recognised the potential of seeds for push-pull companion crops early on.

2 Seeds of the companion crop brachiaria are crucial to the proper functioning of the environmentally friendly push-pull farming method in drier areas.

3 Elephant grass is highly sought after as animal fodder at the market in Maseno, Kenya.

4 Push-pull farmer Nelson Oyoko makes hay bales from desmodium and elephant grass, which he stores and sells at a good price during the dry season.

A system that makes you ill

As it has been proven quite plainly once again by the coronavirus crisis, our food system is making us ill. It facilitates the occurrence of epidemics and promotes an unbalanced diet, which weakens the immune system and makes us more susceptible to disease.

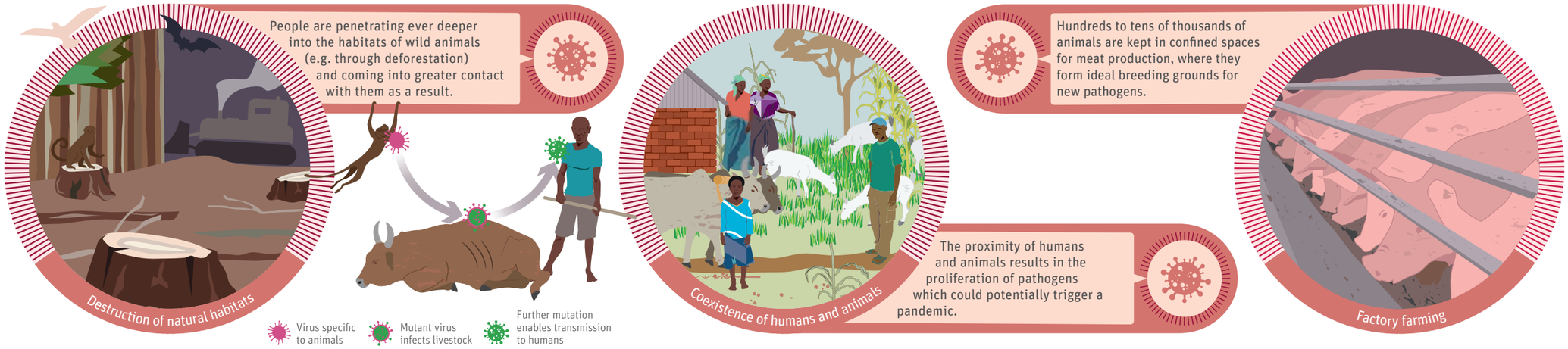
The latest UN World Food Report clearly shows that malnutrition and undernourishment are now the main factors responsible for health problems worldwide, and that they lead to millions of deaths every year in rich and poor countries alike: while one in nine people suffer from malnutrition, one in three are overweight.

The report identifies an important cause in the industrial agricultural system, which is based on the production of empty calories instead of providing a wide range of healthy food. The consumption of highly processed, unhealthy food is constantly increasing, even in poorer countries – placing a huge financial burden on society!

More urgently than ever, we need to bring about an agroecological transformation of our food systems so that healthy food in a healthy environment becomes the norm and is made affordable for all. The fact that demand for local organic vegetables has risen sharply during the pandemic gives cause for hope.

Dr Frank Eyhorn
Managing Director of Biovision

How a virus is transmitted from wild animals to humans



Can the food on our plates prevent future pandemics?

Despite the complex relationship between agriculture and diseases like COVID-19, a seemingly trivial choice – the food on our plates, and how it's produced – can significantly influence the emergence of infectious diseases.

By Shruti Patel and Simon Gottwalt, Biovision

The number of new infectious diseases transmitted from animals to humans like SARS, MERS and COVID-19 has increased dramatically in the last few decades. Not only are there more types of diseases, the frequency of disease outbreaks is also rising.

Key drivers
Underlying this alarming trend are three key drivers: rapid urbanisation, expanding global mobility, and greater contact between humans and animals. The destruction of natural habitats, a stark increase in intensive livestock farming, and growth of wildlife markets make it easier for pathogens to jump from animals to humans. Indeed, scientists believe the new coronavirus, SARS-CoV-2 was transmitted from bats to pangolins that were subsequently sold in Chinese markets frequented by consumers.

Lost amidst calls to ban the sale of wild animals for consumption, many of the principles which govern food production today – a singular focus on productivity, widespread neglect of ecosystem services, and the poor treatment of animals – are an integral part of the problem.

Destruction of natural habitats
Half of the world's habitable land is used for agriculture. Huge swathes are used for fuel production and livestock, posing a major threat to the environment and biodiversity. Palm oil monocultures for example, are a major driver of deforestation. In some regions, traditional farming methods that support biodiversity are being replaced by intensive production models. Encroachment into natural habitats increases the likelihood of humans coming into close contact with wildlife – the primary source of many emerging viral diseases. Furthermore, evidence suggests that the loss of biodiversity within these habitats increases the chances of pathogens jumping from animals to humans. Keeping biodiversity and habitats intact is therefore key to the prevention of future pandemics.

In highly populated areas however, research suggests that high levels of biological diversity are a strong predictor for the emergence of disease. In the pastoral areas of East Africa for example, humans, livestock and wildlife share the same habitat, making these populations particularly vulnerable to disease outbreaks. Here, early warning systems that detect outbreaks in animals before widespread transmission to humans play an important role in the sustainable management of the entire agro-ecosystem (see box).

Intensive livestock keeping is a major risk
As countries urbanise and citizens become wealthier, the demand for meat and dairy products is increasing. This has led to the rapid expansion of intensive livestock production systems. Genetically similar animals are often stressed by being kept in tight spaces under unhygienic conditions, leading to the suffering and ill-health of the animals, and creating ideal incubators for new pathogens. In addition, the rampant and heavy use of antibiotics in animals makes pathogens resistant to drugs also used in human medicine. Some experts forecast that by 2050, the rise of resistant bacteria could cause 10 million human deaths a year worldwide. Providing adequate nutrition, husbandry and housing for livestock is therefore not only critical for the welfare of animals and their productivity, it is integral to human health.

Solutions exist
Solutions exist for managing the complex interactions between agriculture, infectious diseases, and human health. Consumers – especially those with the privilege of choosing what they eat – play a critical role in demanding more sustainably produced food, cutting down on animal products, and reducing food waste. Such changes can drastically reduce agriculture's need for more land, and play a vital role in building a food system that puts less stress on the planet and on public health.

On the production side, steps to incorporate the environmental and health costs of industrial agriculture into decision-making can help shift production patterns, and approaches like agroecology which reconcile the conflict between land use, food production and habitat conservation can build food systems which serve both people and the planet. Around the world, there are many examples of such techniques and strategies being effectively used to build more resilient and healthy food systems (ref. Beacons of Hope); the challenge is to bring them to scale.

Beacons of Hope:
www.foodsystemstransformations.org

Zoonosis prevention in Biovision projects

In the pastoral areas of East Africa, several pathogens are circulating, including the Rift Valley Fever Virus and the MERS coronavirus, which, according to the World Health Organization (WHO), could pose a major pandemic threat. Biovision is supporting the development of disease surveillance and monitoring systems through its "Camels for Drought Areas" and "Information System for Diseases and Drought" projects. Close cooperation between human and veterinary medicine at all levels, whether in remote villages or modern, fully equipped laboratories, is essential. This allows dangerous outbreaks to be detected early, and even making it possible to prevent the next global pandemic.

www.biovision.ch/one-health-en

Shruti Patel
Agricultural economist and expert in development cooperation, programme manager for development projects in the field of knowledge transfer at Biovision

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Biovision Symposium 2020

The Biovision Symposium 2020 will be held on **Saturday, 28 November from 2 to 5 p.m. at the Volkshaus in Zurich**. Since the spring event unfortunately had to be cancelled due to the coronavirus lockdown, we hope to welcome you to this new symposium!

You can find more information about the programme at:
www.biovision.ch/symposium2020-en

Come on in! Biovision's new Managing Director, Frank Eyhorn, will welcome you as host of the Symposium 2020 for the first time.

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Raising awareness is most effective in direct conversation: Anna Schöpfer (front) and Rahel Bösiger (back) from Biovision draw attention to sustainable consumption.

How awareness raising works

Biovision and the Centre Ecologique Albert Schweitzer (CEAS) have agreed to form a strategic partnership from 2021 onwards. Raising awareness is an important area in both organisations. What does this mean?

By Florian Blumer, editor, and Alessandra Roversi, editor

Sabine Lerch has no illusions: "Changing their own behaviour is one of the most difficult things people can attempt to do." The 36-year-old has nevertheless been enthusiastically involved in Biovision's CLEVER awareness raising project for eight years, previously as head of the exhibition, now as head of the programme for Switzerland. During this time, she has learned that – if done correctly – awareness raising can definitely make a difference.

Letizia Manzambi, who is responsible for awareness raising programmes at CEAS, also firmly believes in the human capacity for change. Her work focuses mainly on energy, waste and food waste, and her main target group consists of school classes of children aged eight to twelve. An optimal supplement to Biovision: here, awareness raising work mainly concerns young people and adults, with a main focus on sustainable consumption (CLEVER exhibition) and healthy soil (Sounding Soil).

Mountain milk is not from the Alps at all!
Biovision, like the CEAS, is striving to bring about a change in behaviour with its awareness programmes. But is that actually possible? Right at the outset, Sabine Lerch mentions one important advantage of working with children and young people: "They don't yet have fixed patterns of consumption behaviour and are still in a phase of self-discovery, which means they remain open to input." The best approach is generally to talk to them directly. And according to Sabine Lerch, awareness raising is most effective when it triggers an "aha" effect: "Aha, mountain milk isn't from the Alps at all!" or "Aha, the soil is alive!"

But Letizia Manzambi and Sabine Lerch agree on one thing: nothing can be achieved unless people are willing to get involved and reflect on their own behaviour. It helps if they are exposed to a topic over and again. They also feel quite positive about this, because times are changing. "Ten years ago, hardly anyone was talking about sustainable consumption," says Sabine Lerch. "Now, the subject is in the media every day."

More about the future partnership:
www.biovision.ch/ceas-en

Oat, soya, almond or rice drinks? Supermarkets nowadays offer a wide range of plant-based milk products.

Obtain milk from almonds – and save the planet?

Plant-based alternatives to cow's milk are becoming more and more popular, not only among vegans. But what about their carbon footprint?

By Anna Schöpfer, sustainable consumption assistant, Biovision

The consumption of plant-based alternatives to cow's milk is on the rise in Switzerland. Over 50 different plant milks can be found on the shelves of major distributors. Their popularity is increasing among consumers for ethical and health reasons. But are these alternatives to cow's milk also better for the environment and the climate?

Soya drinks*
Soya for human consumption comes mainly from Europe or Canada, which means that the deforestation of valuable rainforests is less of a problem. In Brazil, large areas of rainforest are cleared for soya bean monoculture, releasing significant amounts of CO_2. According to the Soy Network Switzerland, however, the plants from South America are mainly used as animal feed and not for the production of drinks.

Almond drinks
This type of drink has a relatively low carbon footprint. But around 80% of the almonds come from arid regions of California and can only be grown thanks to intensive irrigation. It takes about 265 litres of water to produce one litre of almond milk. In addition, conventional production often involves extensive use of pesticides and insecticides. Cow's milk scores even lower marks in comparison: approximately 1,000 litres of water are needed for one litre of milk.

Rice drinks
Rice cultivation also requires a lot of water. And wet rice cultivation releases high levels of methane gas, which is even more harmful to the climate than CO_2. This greenhouse gas is caused by bacteria in the water and is largely to blame for the poor ecological footprint of rice. The production of one litre of rice milk emits 380 g of CO_2, which is still five times less than one litre of cow's milk.

Oat drinks
Plant-based milk made from oats scores best in terms of sustainability. Oats can be produced locally and therefore only require transportation over short distances. The grains are mostly organically grown – i.e. without the use of pesticides and with low water consumption levels.

Milk made from hemp seeds receives similar ratings to oat drinks. Hemp is undemanding and thrives in almost any type of soil.

The devil is in the details
The carbon footprint of plant milks is usually better than that of cow's milk, as animals release considerable amounts of methane during digestion. Plant milks also usually score higher marks than cow's milk in terms of water consumption and land use. The ecological assessment is even worse if the cattle are fed on concentrated feed. This disadvantage can be counterbalanced significantly if farms supply their own feed – in other words grass, hay and possibly silage. Besides being of great cultural and social importance, making adapted, sustainable use of natural meadows, pastures and the Alps in Switzerland is also important for conserving local biodiversity.

Conclusion: plant milk is not necessarily more sustainable than cow's milk. It depends on the origin and the production method.

Our recommendation: look out for organic labels on milk products – whether plant or animal-based. These labels guarantee that the cultivation methods used do not involve any synthetic chemical pesticides and fertilisers, and are kind to the environment. Choose cow's milk from Switzerland and plant-based milk from Europe.

* Under pressure from milk producers, the EU has introduced a regulation that allows only milk from animals to be designated as "milk".

CLEVER consumption

Biovision is raising awareness among the Swiss population of the effects of their own consumption behaviour on human, animal and environmental health. To this end, Biovision runs the CLEVER travelling exhibition on fun intelligent shopping, organises project weeks in schools and (technical) colleges as well as teacher training courses, and operates the website www.clever-konsumieren.ch, which includes lots of tips and a fun online shop.

www.clever-konsumieren.ch
(only available in German and in French)

Visiting Rahel Fuchs, gardener at the “Pura Verdura” vegetable cooperative in Zurich

Idealists out in the field

By Florian Blumer, editor

There was a feeling of great euphoria. The initiators of the “Pura Verdura” vegetable cooperative had been in negotiations with the city of Zurich for two years. Then finally, at the end of last year, they signed a contract for a plot of land. At the beginning of this year, they started to labour a one-hectare field on the outskirts of the city.

“Finding land in urban areas is difficult”, explains Rahel Fuchs, 34, who is employed as a gardener at Pura Verdura four days a week. “And good land is much harder to come by!” she adds. It’s true: she had a nasty surprise early on, and it looked as if the project launched with such enthusiasm was about to fail even before it had really begun – but more about that later.

Rahel Fuchs is a trained vegetable gardener, ethnologist and social worker. In her spare time she plays the accordion in a folk punk band. Her educational background gives her the ideal foundation for working on a solidarity-based agriculture project (see box), which is based on cooperation between the members of the cooperative.

She receives a salary that is barely enough to live on in Zurich – and yet she earns more than average compared to her colleagues.

The members of the cooperative also need to be extremely idealistic, as emphasised by the vegetable gardener: “They pay about the same amount here as they would to buy vegetables from the health food store, but they can’t choose the contents of their weekly delivery and have to work eight half days a year for it.”

She sees it as a privilege to stand out in the field with the people who buy the vegetables. She sometimes gets into “mild” debates – with vegans, for example, when she argues in favour of the use of fertilisers of animal origin. Or when she takes the stance that using organic plant protection products would make sense in exceptional cases. But Rahel Fuchs feels certain that “These discussions are worthwhile. And raising awareness about what it means to produce food is working: people come along with lots of questions, and often seem impressed by the time they leave the field.

Soon after taking over the field, however, Rahel Fuchs had to announce a piece of bad news to the other cooperative members.

It turned out that about half the field was full of root weeds. She very nearly gave up. But the members of the cooperative offered her their support. Together they picked themselves up again and went to talk to the leaseholder. And with success: soon afterwards they were awarded a contract for a new piece of land. And the euphoria returned.

Solidarity-based agriculture

The solidarity-based agriculture model (Solawi) comprises a purchase guarantee at fair prices, involvement of the buyers and sustainable production. Considering the high level of commitment that it requires from everyone involved, it serves a niche. But it is a niche with potential – especially in cities.

Overview of Solawi projects in Switzerland:
www.solawi.ch/vernetzungsplattform
(only available in German)