

Media release

Agroforestry can safeguard the future of chocolate

We love to enjoy the sweet taste of chocolate. However, the cocoa trees are in dire need: They are threatened by the viral disease “Cocoa Swollen Shoot” (CSSVD). In West Africa alone, CSSVD has ravaged over three hundred million trees, and caused huge economic losses among the farming population. Scientists from the Research Institute of Organic Agriculture FiBL have found that diversification measures such as agroforestry can offer solutions.

(Frick, 22 March 2018) Having spread widely in West Africa during the past few decades, the Cocoa Swollen Shoot Virus Disease (CSSVD) is now a serious threat to global cocoa production. So far, the only effective treatment is the removal of infected cocoa trees (*Theobroma cacao* L.), followed by a replanting of the fields with CSSVD-tolerant trees, a method comparable with treatments of fire blight in Switzerland.

The disease is particularly relevant for the Ivory Coast and Ghana, the two largest cocoa producer countries. Current estimates assume that in Ghana, about 17 percent of all cocoa areas are affected and over 300 million cocoa trees have fallen victim to the disease in the past 70 years. This equals a loss of several billion US dollars, and for many farmers this means the loss of their regular source of income.

Agroforestry offers solutions

Past research has mainly focused on resistance breeding and the control of the insect vectors of the virus. However, no major successes could be achieved so far. Diversification measures such as agroforestry received little attention in the past. They have, however, great potential to mitigate the severity of the disease. This is the conclusion of a research project of FiBL, the Swiss Federal Institute of Technology (ETH) Zurich and local partners. The scientists tested on small farms in Ghana how shaded cocoa – that is, cocoa grown beneath the canopy of shade trees in agroforestry systems – affects both the severity of CSSVD and the cocoa yield.

In agroforestry systems with 50 percent shade, CSSVD severity was lowest and cocoa yield highest. This indicates that agroforestry offers an optimal coping strategy to achieve a balance between CSSVD severity and reduced cocoa yields.

To explain the underlying factors that led to the positive effects of shade trees, the researchers also investigated the light conditions and the fertility of the soil. The results suggest that the positive effects of shade trees were mainly that the shaded cocoa trees were exposed to less light stress than the trees in monoculture.

The results were published in the scientific journal "Agriculture, Ecosystems & Environment".

FiBL contacts

- Christian Andres, Department of International Cooperation, FiBL Switzerland
Phone +41 62 865 72 16, e-mail christian.andres@fibl.org
- Franziska Hämmerli, Communication, FiBL Switzerland
Phone +41 62 865 72 80, e-mail franziska.haemmerli@fibl.org

Supporters

- Sawiris Foundation for Social Development

Partners

- Swiss Federal Institute of Technology (ETH) Zurich, Switzerland
- Cocoa Research Institute of Ghana (CRIG), Ghana
- University of Ghana, Ghana

Links

- fibl.org: [Presentation of the research project](#)
- blogs.ethz.ch: [Contribution of FiBL researcher Christian Andres in the blog of the ETH Zurich](#)

Videos

- [youtube.com: Healthier cacao in West Africa](https://www.youtube.com/watch?v=...)
The documentation summarizes the main findings of the research project. The cultivation method “dynamic agroforestry” is explained using the example of “Sronko (Unique) Farms” in eastern Ghana.
- [youtube.com: Healthier cacao in West Africa \(short version\)](https://www.youtube.com/watch?v=...)

References

Andres, C., Blaser, W.J., Dzahini-Obiatey, H.K., Ameyaw, G.A., Domfeh, O.K., Awiagah, M.A., Gattinger, A., Schneider, M., Offei, S.K., Six, J. (2018) Agroforestry systems can mitigate the severity of cocoa swollen shoot virus disease. *Agriculture, Ecosystems and Environment* 252:83-92. doi:<https://doi.org/10.1016/j.agee.2017.09.031>

This media release online

This media release and pictures can be accessed online at www.fibl.org/en/media.html.

About FiBL

Since 1973, the Research Institute of Organic Agriculture FiBL has been finding intelligent solutions for a regenerative agriculture and sustainable nutrition. About 280 employees carry out research, advisory services and training at various sites to support organic agriculture.

- Homepage: www.fibl.org
- Video: www.youtube.com/watch?v=U84NrjIORFc