

# Pack 117

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**Backgrounder: Best production and post-harvest practices for organic soybean**

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**Introduction**

The cultivation of organic soybeans excludes practices that involve using synthetic chemicals throughout the production chain. In addition, the cultivation of organic soybeans is based on other principles such as:

* The non-use of GMOs (Genetically Modified Organisms).
* The recommendation to recycle organic waste.
* Crop rotation to regenerate the soil.
* Managing insect pests with biological agents.
* Environmental friendliness and preservation of natural resources.
* Maintenance and development of biodiversity, for example by cultivating and breeding a variety of species and maintaining or planting hedges.

Currently, Togo is the leading exporter of organic soybeans to the European Union and is implementing strategies to better organize the entire soybean sector. The main advantage of growing soybeans organically is easy access to the market. Organic production also restores soil fertility and enables farmers to practice sustainable agriculture in a healthy environment. He/she consumes healthy products, and he/she and his/her family are less exposed to the pollution linked to the use of chemical products.

There are strict rules related to obtaining an organic label or brand for exporters. These rules mean that producers must follow a rigorous technical itinerary to avoid contamination of soybeans by synthetic chemicals throughout the production chain.

**The benefits of growing soybeans organically**

One of the advantages of growing organic soybeans is the health and well-being of the producer and the consumer.

Another advantage is the high probability of finding a market. Organic soybean is produced to meet a specific market need. An upstream partner (buyer) follows the whole production chain and helps to ensure that organic standards are met. For producers, growing organic soybeans requires a real commitment and a willingness to farm differently.

Organic production helps to maintain and preserve a healthy environment. In some cases, the use of organic products is advantageous because they are readily available and contribute to reducing operating costs.

In contrast, the synthetic chemicals used in conventional soybean production expose both the producer and the end consumer to health concerns in relation to the skin, lungs, kidneys, and other health issues.

**Key information about the soybean sector in Togo**

* Organic soya is mainly grown for export. Locally, some efforts are being made to advance domestic processing and consumption. However, the quantities processed and consumed are still low and not always known with accuracy.
* In 2019, Togo exported 42,300 tons of organic soybeans to the European Union, making the country the largest global exporter of this product to the EU.
* The market for organic products is growing rapidly. Organic soybeans are used in China, Europe, and the United States to produce food products such as soy milk, soy oil, and other products.
* The seasons and the level of supply and demand are the main elements that determine the price of organic soybeans each year.
* In Togo, inputs (for example, organic seeds, and non-chemical pest and disease management products) and technical support are provided by both the government and by aggregators.

**The impact of climate change on the cultivation and harvesting of organic soybeans**

* In Togo and more generally in Africa, the price of organic soybeans is determined every crop year by the abundance of the harvest. In turn, the quality and size of the harvest depends on the regularity of the rains. The rains have been disrupted in recent years by climate change.
* Togo is impacted by climatic hazards due to marine currents that cause extreme temperatures and irregular seasons in the south of the country. This situation is aggravated by climate change, one of the main manifestations of which is the disruption of rainfall, which sometimes appears early or late throughout the country. This has a negative impact on soybean yields, which are subject to the same stress as other rain-dependent crops.
* In organic soybeans, excessive rainfall can create heavy water flows capable of transporting chemicals and synthetic products from conventional crop fields to organic soybean fields.
* At maturity and harvest, excessive rainfall interferes with the drying and storage process and leads to deterioration of seed quality.
* Producers often do not have the skills and technical means to manage water so that the crop benefits from the required amount. Producers are dependent on the vagaries of the weather each year.

**Strategies for coping with the impacts of climate change**

The main concern with farmers faced with climate change is that they won’t be able to manage water supplies so that there is neither too little nor too much water.

Thanks to the expertise of agricultural supervisors and the mobilization of the government and other partners involved in the soybean sector, farmers are developing ways to adapt to the changing climate.

* The meteorological services, in collaboration with the Ministry of Agriculture and other partners, are working to indicate recommended sowing periods to producers. This helps producers sow at the right time, which allows them to benefit from appropriate rainfall.
* In addition to this initiative, producers are coached on adopting smart farming techniques suited to the climate variability they face. This involves applying methods adapted to each situation. For example, farmers can determine whether ridge or flat ploughing is appropriate for their soil type and texture. They can also determine whether it is necessary to ridge under soybean plants depending on the availability of rainfall; the purpose of ridging is partly to protect the plants from strong winds. However, ridging can also block the small amount of rainwater that falls under the plants when rains are light.
* Aggregators can provide producers with flexible and short-cycle (90-day) varieties.

**Gender dimensions of the organic soybean sector in Togo**

In the soybean value chain, women are much more concentrated in the marketing sector. They buy from producers and sell to wholesalers and exporters. They also have a monopoly on retail marketing in local markets. Since organic soybeans are produced primarily for export, they present few opportunities for women.

* Men have a monopoly over the organic soybean value chain from production to marketing.
* Nevertheless, there are market opportunities for women's farming groups. They can also receive technical support from production to marketing.

**Key information on soybean cultivation and marketing**

In Togo, the organic soybean production chain is organized in two phases: first, the planning phase up to weed management, and second, harvesting and post-harvest activities. For organic soybean, each phase requires producers to comply with good practices.

**1- From planning to maintenance**

*Site selection and development.*

* Choose a plot far from a road used by vehicles and other machines that emit polluting gases, or road used by many passers-by. The plot should be located at least 200 metres from living areas or conventional crops.
* In organic farming, the first concern is to avoid contamination of the crop by synthetic chemicals. By isolating the plot, it is possible to avoid contamination by fumes from machinery and synthetic chemicals on surrounding conventional crops as much as possible. Using synthetic chemicals (herbicides, fungicides, insecticides, and chemical fertilizers) is strictly prohibited.
* If the plot has been used for conventionally-grown crops, a conversion period equivalent to two years of chemical-free cultivation must be observed in order to make the plot suitable for organic cultivation.
* Organic soybeans should not be grown for more than two years in a row on the same plot. Another chemical-free crop is required in the third year. This can be a cereal or a tuber crop, but not maize. As it is almost impossible to grow maize successfully in Togo without fertilizers and other chemicals, the producer would lack proof that he has been able to grow maize without chemicals. Over four years, producers grow organic soybeans for two years, a cereal crop that can take advantage of the nitrogen left by the soybeans in the third year, and finally a tuber crop before resuming the cycle with soybeans.
	+ Producer should take other steps to avoid choosing a plot that is easily contaminated. For example, on a sloping field, the plot should be high above conventional crops.
	+ Once the plot is chosen, a safety strip must be installed around it. The minimum width of this strip is usually two metres. But this can be re-evaluated according to individual circumstances by the certifying officer assigned to the producer. Another chemical-free crop may also be grown in this safety strip. Tall crops (for example, sorghum, pigeon peas, and cassava) are recommended for the safety strip because they can provide a barrier against chemicals from surrounding plots and divert the attention of insects and other pests such as rabbits.
	+ It is important to keep some useful trees on the plot. This will maintain soil moisture while protecting the soil, and ensure the presence of birds and other insects favourable to soybeans.

*Choosing inputs*

* Producers must obtain certified organic and non-genetically modified seeds. There are several seed supply stores who carry organic seeds. Often, aggregators and other partners deliver seeds to producers on planting day. This is an arrangement required by each aggregator to avoid seed contamination.
* It is recommended that producers be guided by an agronomist/expert or the certifying body with which they are affiliated to purchase seed and possibly other inputs from a recognized supplier. Each time the farmer makes a purchase, they must carefully keep the receipt as proof of the origin of the seeds and other inputs.
* Soybeans are resistant to pest attack and disease infection. However, the organic certifying agent assigned to the producer may recommend organic products against serious problems.

*Other management and protection practices*

* Good cultural practices are recommended to sustainably maintain soil fertility. For example, if the land is on a slope, ploughing in the direction of the slope encourages erosion, which carries away valuable soil. Therefore, when plowing on sloped ridges, plow perpendicular to the slope.
* Avoid burning. All crop residues and plants on the plot should be put to good use. They can be gathered in piles, which can be used as compost after decomposition.
* Farm equipment (hoes, machetes, boots and other footwear, clothing, etc.) used in conventional fields must be thoroughly washed before being introduced to an organic field. Thus, a farmer cannot go directly from a conventional field to an organic soybean field. There is a risk that chemical residues may be carried over to pollute the organic crop.
* Producers must declare all their fields of conventional and organic soybeans. This gives certifiers confidence that producers are being transparent about their production. In Togo, a producer who does not declare all his fields (organic or not) may be excluded from certification and his entire organic soybean production downgraded to conventional soybeans or a lower grade of organic soybean. Buyers in the export chain have technical equipment capable of detecting a small amount of conventional soy mixed with tonnes of organic soy. Thus, thousands of tonnes of organic soybeans could be rejected from the certification process because of a small amount of conventional soybeans mixed with organic soybeans. Therefore, measures for collecting soybeans are very strict at the producer’s level.
* Producers are required to participate in meetings and trainings to better understand procedures.

**2 - Harvest and post-harvest phase**

Even at maturity, organic soybeans are still at risk of contamination. Here again, producers are required to observe strict precautions to avoid downgrading their soybeans.

*Harvesting*

* Harvesting must be done at the right time, not too early or too late. If harvested too early, the seeds do not detach easily from the pods, making winnowing difficult. Also, when harvested soybeans are not well dried, drying requires extra labour with further risks of contamination. If harvested too late, the pods of some varieties of soybean shatter and large amounts of seed may be lost in the field well before harvest.
* When stems and leaves are dry and the seeds rattle in the pods, the crop is ready to harvest.
* Harvest by cutting the soybean stalks rather than pulling them out. This sometimes makes organic crops labour-intensive and more expensive, but necessary to preserve soil fertility.
* Harvested soybeans must be threshed the same day to avoid contamination.
* Every piece of equipment used for harvesting and winnowing, including tarpaulins, basins, machetes, knives, etc. must be washed and dried before use to be free of chemicals.
* Specific bags (often new bags) are used to store organic soybeans. The bags are often provided by the aggregator.

*Post-harvest procedures*

Beyond adherence to organic criteria, buyers value clean soybeans. Good winnowing and storage practices are important for good quality organic soybeans.

* Sifting and sorting the soybeans helps to remove immature and unfit seeds. Soybeans that are too dirty can be downgraded. This step is easier if soybeans are harvested at the right time.
* Use a sieve with the appropriate mesh size for the size of the soybeans.
* The partner company or aggregator provides bags marked with an identifier specific to the producer. This makes it possible to trace each producer’s soybeans until they are exported and to identify the source of any problems.
* Harvesting, sorting, winnowing, and bagging are conducted exclusively in the field. From there, soybeans are transported directly to the community store designated for storage of organic products.
* The producer is present at the storage place during all quality and weight checks of the crops for which he/she will be paid.
* Producers are required to fulfil all their financial commitments after selling their produce, for example, by ensuring that all hired labourers who helped with harvesting and winnowing are paid.

***3- Marketing***

There is a high degree of competitiveness in the organic soybean marketing sector in Togo. There is no local market for organic soybeans in the system, so all production is destined for export. Indian and Vietnamese traders are often involved in crop marketing may offer attractive purchase prices to acquire the organic soybeans that they sometimes supply to their partners within a conventional soybean purchasing circuit. Attracted by the money, some producers sell their crops to these traders, to the detriment of their partners—aggregators or buyers with whom they had signed contracts and who helped them meet technical standards during production.

But in general, the traditional organic soybean marketing circuit is follows:

* When the soybeans are mature, the certifier comes to the farm well before harvest to estimate the amount of soybeans produced by the farmer. On the basis of this estimate, the controller provides suitable bags, with a personal identifier on the bags to distinguish the products of each producer.
* After harvest, farmers are required to put the harvested soybeans in the bags provided by the controller. From the field, the bags must be transported to the community's organic storage facility against a receipt indicating the quantity.
* On the day of loading, the aggregators come to the farm to complete other formalities before transporting the soybeans to the port of Lomé, where further analyses are made prior to loading the soybeans for transportation to the importing countries.
* Some aggregators or buyers pay the storage facility immediately after determining the quantity and checking the organic quality. Others make deferred payment. In any case, it is recommended that producers sell only to the partners with whom they have signed a contract and who have provided a controller to assist them during the entire production season.

**Where can I find other resources on this topic?**

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Contributed by: Lemou Alo, Journalist and Editor.

Reviewed by: Mr. Komivi Wolako Tete, Agronomist, Soybean Value Chain Expert, ProCIV. GIZ-Togo

Interviews:

Mr. Komivi Wolako Tete, Agronomist, Soybean Value Chain Expert, ProCIV. GIZ-Togo, May 09, 2021.

Mr. Mabewa Antona, Agronomist, Head of the Organic Agriculture Extension Module, ProCIV. GIZ-Togo, May 11, 2021.

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