

ProTerra Foundation

ProTerra Guidance on GMO Testing and Sampling v2.0¹

There is still a scientific debate about whether genetic engineering is harmless for animal and human health, as proponents of GMOs claim. However, the use of GMOs has led to changes in farming practices that have caused less crop diversity and an increase in herbicide-resistant weeds and therefore a higher use of pesticides, with all their related side effects (pollution of aquifers, detrimental effects on workers' health, loss of micro-biodiversity). It has also increased costs for producers. Many consumers and producers are concerned about GMO ingredients and want to make informed choices about where their food comes from. This includes understanding the social and environmental footprint of their choices.

Considering this, only organisations that produce non-GMO crops or products are eligible for certification under ProTerra.

The ProTerra Standard includes Principle 5 – No Use of Genetically Modified Organisms (GMO) with a set of requirements that must be met by the organisation to demonstrate the non-GMO status.

The applicability of this principle is determined by assessing the risk of GMO presence, contamination or use. The auditor should refer to the ProTerra Standard Appendix A for risk assessment. If the risk is non-existent, including the risk of contamination by admixes, other crops or products, Principle 5 does not apply.

Organisations must also follow the ProTerra Guidance on GMO Testing and Sampling (this document), as per Principle 5 of the ProTerra Standard. In the context of this guiding document, sampling exclusively refers to the physical collection of a small part of a ProTerra-certified material (crop or product), intended as representative of the whole material for the sake of testing for the absence of GMOs.

In the case of smallholders that are part of the supply chain of industrial processors, the implementation of all indicators that are under Principle 5 must be supported by the processor.

Organisations that are certified against "Ohne Gentechnik" Production and Certification Standard Version 22.01 (VLOG) holding a valid certificate at the time of the ProTerra certification, can be considered fully in compliance with the requirements of this Guidance.

¹ This document has been **revised on 23 April 2025** and developed using two main references: "Ohne Gentechnik" Production and Certification Standard Version 22.01 (VLOG), and The GMP+ Feed Certification - GMO Controlled GMP+ MI 105 Version EN: 27 February 2020.

Sampling and testing requirements

Sampling and analysis shall be carried out in accordance with the latest version of the GAFTA (The Grain and Feed Trade Association) rules for sampling and analysing.

Organisations must develop a GMO monitoring plan that takes into account at least the following aspects:

- Risk of GMO presence and cross-contamination;
- Potential presence of admix (presence of other crops that may be unintentionally mixed with the target commodity);
- Monitoring procedures for GMO risk over time;
- Internal audit on the compliance with the GMO monitoring plan requirements;
- Requirements for sample takers;
- Sampling method;
- Product to be sampled;
- Place of sampling;
- Method of taking final aggregate samples and retaining samples;
- Sample size and number of samples;
- Sealing and identification of samples;
- Storage duration of samples;
- Procedures in case of detection of GMO presence, including recall and communication;
- Recording documentation of samples, and
- Laboratory requirements.

The monitoring plan is to be revised annually or in the event of any change in regulations or non-compliance situation in relation to the presence of GMOs in a product or crop.

Test results must confirm that the applicable targeted tolerance thresholds for the presence of GMOs are met (refer to ProTerra indicator 5.1.2 for acceptable thresholds), noting that PCR testing must conclusively and explicitly indicate compliance with to targeted tolerance threshold. Testing must cover all known GM events for the crop (or input) under certification.

Immunological screening (strip tests) may only be used for unprocessed raw materials (inputs) as a complementary approach and in situations where rapid testing for the presence of GM contamination is relevant or needed.

Laboratories used for the purpose of compliance with this ProTerra Guidance must be certified against ISO 17025:2017 - General requirements for the competence of testing and calibration laboratories.

Table 1 below specifies **minimal** sampling and testing frequency for food and feed materials that are to be certified under ProTerra. The sampling and testing are calculated based on 88% dry matter content.

Table 1 is valid for genetic modification that can be technically detected through PCR tests. For other genetic² modifications please contact the ProTerra Foundation.

² This includes Cis-genesis, RNA interference, CRISPR/Cas, TALEN, Zinc finger nucleases and other “gene editing” techniques.

The organisation must establish a system for handling positive test results. This shall include appropriate measures such as blocking non-compliant products from ProTerra-certified production and a recall procedure. In case of contamination, appropriate corrective actions must be initiated and documented.

Table 1: ProTerra minimum sampling and testing requirements

Production activity	Incoming goods	Outgoing goods
ProTerra Level I - Agricultural production	<p>Crop production operations seeking certification under ProTerra Standard shall assure and demonstrate that the seeds used are not GMO and that there is no risk of contamination.</p> <p>Should risk exist:</p> <p>< 2,000 t/year: 1 sample/test</p> <p>≥ 2,000 to 5,000 t/year: 3 samples/tests</p> <p>≥ 5,000 to 10,000 t/year: 5 samples/tests</p> <p>≥ 10,000 to 50,000 t/year: 10 samples/tests</p> <p>≥ 50,000 to 100,000 t/year: 15 samples/tests</p> <p>≥ 100,000 to 200,000 t/year: 20 samples/tests</p> <p>≥ 200,000 to 300,000 t/year: 25 samples/tests</p> <p>For every additional 100,000 t/year: 5 additional samples/tests</p>	<p>< 2,000 t/year: 1 sample/test</p> <p>≥ 2,000 to 5,000 t/year: 3 samples/tests</p> <p>≥ 5,000 to 10,000 t/year: 5 samples/tests</p> <p>≥ 10,000 to 50,000 t/year: 10 samples/tests</p> <p>≥ 50,000 to 100,000 t/year: 15 samples/tests</p> <p>≥ 100,000 to 200,000 t/year: 20 samples/tests</p> <p>≥ 200,000 to 300,000 t/year: 25 samples/tests</p> <p>For every additional 100,000 t/year: 5 additional samples/tests</p>
ProTerra Level II - Transport, Storage, Traders and Dealers	<p>< 2,000 t/year: 1 sample/test</p> <p>≥ 2,000 to 5,000 t/year: 3 samples/tests</p>	
And		

<p>ProTerra Level III - Industrial Processing</p>	<p>≥ 5,000 to 10,000 t/year: 5 samples/tests</p> <p>≥ 10,000 to 50,000 t/year: 10 samples/tests</p> <p>≥ 50,000 to 100,000 t/year: 15 samples/tests</p> <p>≥ 100,000 to 200,000 t/year: 20 samples/tests</p> <p>≥ 200,000 to 300,000 t/year: 25 samples/tests</p> <p>For every additional 100,000 t/year: 5 additional samples/test</p>
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