



2020 Certified Non-GMO by A Greener World (Certified Non-GMO by AGW) Standards

Certified Non-GMO by AGW (CNGMO) represents the most transparent, practical standards for Non-GMO certification. The seal may be applied to raw materials and finished products only once a valid certificate has been issued.

The standards may be applied to the following: Products for human consumption such as crops, meat, eggs, and dairy; ingredients used in the production of food products such as processing aids, livestock feeds, and silage inoculants; ingredients intended for human use such as cosmetics and clothing.

For the purpose of these standards, gene editing and gene silencing are considered genetic modification and are prohibited.

CNGMO can be applied to two categories:

Category 1: Products that contain any animal product (All standards apply)

Category 2: Products that contain no animal products. (The following standards do not apply: 18.01, 18.02, 18.03, 18.04, 18.1.3, 18.1.7, 18.1.8)

Note: AGW reserves the right not to certify products that do not meet the overall aims of all the AGW programs.

For Category 1 certification, when a product contains or is derived from any animal products, the livestock they originate from must also be approved under the Certified Animal Welfare Approved by AGW (AWA) species-specific standards.

Non-AWA livestock farmers are not permitted to apply to the CNGMO programme prior to AWA program application; however, applications may occur simultaneously.

For information on animal management, health care, pasture management, housing and shelter, transport and other requirements please see the AWA standards for individual species at <https://agreenerworld.org.za/certifications/animal-welfare-approved/standards/>.

The CNGMO standards apply to all livestock that produce the meat, dairy, fibre and eggs that are to carry certification, the crop species that are grown on- and off the farm to feed them and the inputs used to produce both the crops and the animals.

Emerging biotechnology: In addition to genetic modification of organisms, AGW recognises biotechnology, including (but not limited to) gene editing and gene silencing, pose specific risks to our food system. Due to emerging biotechnology and breeding techniques such as meganucleases and clustered regularly interspaced short palindromic repeats (CRISPR), transcription activator-like effector nucleases (TALEN), zinc finger nucleases (ZFN), RNA interference (RNAi)—as well as other techniques— detection of these methods can be



difficult. For the purpose of the CNGMO standards, all emerging biotechnology will be considered “GMO,” and as such, the CNGMO standards apply accordingly.

Ensuring Informative Labeling: While CNGMO is designed to differentiate non-GMO products from their GMO counterparts, AGW may consider certifying products or ingredients which are not known to be genetically modified under one or more of the following circumstances:

- There is a documented risk of supply chain or processing contamination. Any label use must be accompanied by a phrase indicating that while raw ingredients are not commonly genetically modified, AGW certification ensures no GMO contamination in processing.
- There is a need for consumer education or to provide accurate information about genetic modification in food. Any label use must be accompanied by a phrase indicating that the product in question is not known to be genetically modified.

18.0 Transition periods

- 18.0.1 CNGMO meat products from cattle, sheep, goats, pigs and fish must come from animals whose mothers were managed to these standards from at least the last third of gestation onwards.
- 18.0.2 CNGMO dairy products must come from animals that have been managed to these standards for at least 12 consecutive weeks prior to certification.
- 18.0.3 CNGMO meat products from poultry must come from birds that were managed to these standards from hatch onwards.
- 18.0.4 CNGMO eggs must come from poultry that have been managed to these standards for at least 12 consecutive weeks prior to certification.

18.1 Inputs for livestock, crop production and processing

- 18.1.1 CNGMO products must be produced without the use of *Genetically Modified Organisms* (GMOs).

18.1.1.1 For farms that raise non-GMO animals, but grow GMO crops, there must be documented commitment to transition the farm to a fully non-GMO operation within 3 years.

Note: Farmers with complete segregation may be considered for derogation.

- 18.1.2 CNGMO products must be free of contamination from GMOs.

Note: There must be no contamination with GMOs during production, processing, storage and transport of feed, other inputs or livestock products.



- 18.1.3 Livestock must not be fed grains, concentrates, supplements, vitamins, minerals, feed additives and carriers containing GMOs.
- 18.1.4 If a CNGMO product contains fish as an ingredient, the fish must come from fisheries with a valid certificate of sustainability or from byproducts of fish or aquatic species intended for human consumption.
- 18.1.5 The use of fertilisers containing GMOs or their derivatives must not be used on crops or range/pasture land used for feeding and raising livestock that will produce CNGMO meat, milk or eggs or on land that will produce crops used in a CNGMO product.

Note: Examples of non-compliant fertilisers are plant-based fertilisers derived from GMO crops – e.g. oil cake from GMO canola.

Composts and manures derived from animals fed GMO feeds are not included in this standard.

- 18.1.6 The use of pesticides containing GMOs or their derivatives must not be used on crops or range/pasture land used for feeding and raising livestock that will produce CNGMO meat, milk or eggs or on land that will produce crops used in a CNGMO product.

Note: An example of a GMO pesticide is modified Bacillus thuringiensis.

- 18.1.7 The use of inoculants containing GMOs or their derivatives is prohibited for any input used in the production of CNGMO products (e.g. milk, eggs or meat cannot be produced from livestock fed a GMO-inoculated crop).

Note: Inoculants for hay, silage and haylage and rhizobium inoculants may contain GMOs.

- 18.1.8 Knowingly using veterinary and health care products containing GMOs or their derivatives is prohibited. This includes the use of medicines, vaccines, and parasiticides.
- 18.1.9 If there is no alternative to the use of a veterinary or health care product that contains GMOs or their derivatives, the animal must be treated, the treatment must be recorded and the meat, milk or eggs from that animal must not be sold under the CNGMO label.

18.2 Testing

- 18.2.1 If there is a risk that products used to produce CNGMO products are GMO or are contaminated by GMO material, samples must be tested.

Note: This could include products that are otherwise classed as “low risk” that have (for example) come from sources with previous contamination incidences.



If a viable commercial test is not available, other forms of validation may be considered on a case by case basis.

AGW recognises testing of finished product may not effectively identify all cross-contamination events. AGW may accept valid documentation in lieu of testing samples on a case by case basis.

18.2.2 Testing of high-risk inputs, or products containing high-risk inputs when those are accompanied by valid Non-GMO documentation must occur at least quarterly. (See Standard 18.2.1.6.)

18.2.3 Testing of high-risk inputs or products containing high-risk inputs that are not accompanied by valid Non-GMO documentation must occur with every batch bought.

Note: If no high-risk products are grown, used or fed on farm; routine testing is not required but see also 18.2.1.

18.2.4 Testing using equipment owned by the farm or farmer group is permitted. However, risk products must be tested at least annually by a laboratory certified to ISO 17025, using methods within the scope of that accreditation.

Note: The auditor will collect random sample(s) at initial or annual audit, spot audit or other unannounced visits and submit these for laboratory testing. The number of samples will depend on the number of risk ingredients and storage points on farm.

18.2.5 Anyone carrying out testing must be trained and demonstrate proficiency in the particular method of testing by a qualified expert.

18.2.6 Every at-risk seed lot should be tested annually via a PCR test done on a representative sample of 10,000 seeds.

18.2.7 If high-risk products are imported onto the farm or into a facility, whether as individual products or as part of a blend, a Non-GMO declaration or valid Non-GMO certificate must be provided by the supplier.

Note: A Non-GMO declaration does not replace the requirement to test.

18.2.8 High-risk products may be downgraded to low risk on a case by case basis in certain circumstances.

Note: For example, while soy is a high-risk product, Certified Organic soy is likely to be lower risk than non-organic soy.

18.2.9 Where the presence of GMO material is adventitious or technically unavoidable the action thresholds must not be exceeded. The action thresholds are as follows:

- Seed 0.1%
- Animal feed and supplements 0.9%



- Food ingredients 0.9%

Note: If the presence of GMO material is deliberate or could have been avoided, there is no tolerance for any contamination.

18.2.10 Documentation of disposition of non-compliant product must be kept.

18.2.11 AGW must be notified of any test result exceeding the action threshold(s) and the corrective actions taken. (See Standard 18.2.9)

18.3 Types of testing

Note: The type of testing must be matched to the potential risk.

18.3.1 Lateral flow strip tests can be used as the sole test for products deemed to be moderate or high risk only if a quantitative PCR analysis is performed, at minimum, annually.

Note: An example of a low risk product would be crops grown by a neighbour with no surrounding GMO crops of the same species or any other risk of contamination with GMO crops that could result in a GMO event.

18.3.2 Qualitative PCR tests can only be used as the sole test for products deemed to be low-to-moderate risk.

18.3.3 If qualitative PCR tests are used, they must be conducted using equipment where the limit of detection is 0.01%.

Note: Qualitative tests determine whether or not GMO DNA is present or absent in a sample.

18.3.4 If strip tests or qualitative tests prove positive, the samples must be submitted for quantitative PCR testing.

Note: Quantitative tests provide an assessment of the level of GMO DNA in a sample.

18.3.5 Quantitative PCR testing must be used for products deemed to be high risk that are grown, fed, or otherwise used for the production of CNGMO products.

18.4 Testing protocols

Note: See appendix for lists of high and moderate risk crops/feeds.

18.4.1 Each operation must have an implemented, written, statistically valid sampling and testing protocol that provides at least 90% confidence in quantifying GMOs to the threshold levels specified in standard 18.2.9.



The protocol must cover high risk feeds and inputs and must include:

18.4.1.1 A risk analysis of all feeds and other inputs and implemented procedures to mitigate risk (See Appendix 1 to determine risk).

18.4.1.2 The feeds and other inputs used by the farm or facility in the production of CNGMO products.

18.4.1.3 The types of testing used by the farm or facility (i.e. qualitative or quantitative, strip tests, PCR tests) and which tests are used for which products and why.

18.4.1.4 The frequency of testing.

18.4.1.5 The tolerances for detection of GMOs and the action taken when samples exceed these.

18.4.1.6 The volume and use of high-risk products.

Note: Farms or facilities that only have low risk feeds and inputs – for example farms that only have pasture or rangeland and only have Certified Grassfed by AGW livestock - do not need to have a testing protocol.

18.4.2 The testing protocol must be reviewed and revised as necessary, at least annually.

18.4.3 The protocol must detail the process that is followed when these thresholds are exceeded.

18.5 Land where GMO crops have been or are grown

18.5.1 If you are a new applicant you must inform AGW if you have grown any GMO crops in the last three years.

18.5.2 To prevent contamination you must not grow a GMO crop of the same species as any Non-GMO crops on any part of a farm or group of farms you own or manage.

18.5.3 Any GMO crops grown on any part of a farm or group of farms you own or managed must be declared annually to AGW.

18.5.4 AGW must be informed if the farmer is aware of any GMO crops of the same species as their Non-GMO crops being grown on neighbouring land.

Note: The wind and bees may carry GMO pollen that can cross-contaminate Non-GMO crops of the same species (See Appendix 1).

18.6 Avoidance of contamination



18.6.1 Dedicated Non-GMO equipment and facilities for harvest, cleaning, receiving, production, processing, manufacturing, storage and transport must be used when available.

18.6.2 If dedicated Non-GMO equipment and facilities for harvest, cleaning, receiving, production, processing, manufacturing, storage and transport are not available, there must be documented cleaning procedures including the quantity of product required for bleed or purge runs if appropriate between use for GMO or potential GMO inputs and use for CNGMO products. A record of cleaning must be kept.

18.6.2.1 A risk assessment must be carried out to demonstrate lack of contamination (e.g. cleanliness). If contamination is found, action must be taken to mitigate risk.

18.6.3 Segregation measures, including labeling, must be in place during production to keep compliant inputs, work in progress, and finished products separate from all materials that are not compliant with CNGMO standards.

18.6.4 Corn for use (e.g. as animal feed) for any CNGMO product must not be grown alongside any known crops of GMO corn.

Note: The definition of "alongside" for this standard is a field that shares a boundary with any field used to grow GMO corn. Planting schedules must be developed to prevent cross-pollination either by distance, planting cycles, or barriers.

18.6.5 Corn for any CNGMO product should be grown a minimum of two miles from any known crops of GMO corn.

Note: Pollen from GMO corn can travel a long way and Non-GMO corn crops should be grown as far away from GMO corn crops as possible.

18.6.6 Corn for use for any CNGMO product should be planted at least a week apart and preferably three to four weeks apart from any known GMO corn crops so pollination takes place at different times.

18.6.7 Soya for use (e.g. as animal feed) for any CNGMO product must be grown a minimum of 50 ft. from any known crops of GMO soya.

Note: Soya is considered a low-risk candidate for contamination, as it is a self-pollinating crop. In addition, pollen from soybeans is too heavy for wind transport.

18.6.8 Any volunteers, feral populations, and/or wild relatives of CNGMO crops must be controlled when these occur in proximity to the Non-GMO crop.

18.6.9 When pollinators are rented, CNGMO farms should ensure that these have not previously been used in proximity to fields where GMO crops were grown within the past 24 hours.



18.7 Further processed products

- 18.7.1 Further processed products labeled as CNGMO must not contain any GMO ingredients, flavourings, seasonings, colourings, additives or any other substance present in the final product.
- 18.7.2 A further processed product must not make any claim to contain CNGMO products unless the entire finished product is CNGMO.
- 18.7.3 Ingredients purchased must either be accompanied by a Non-GMO declaration from the supplier or carry a Non-GMO certification from a program at least equivalent with the requirements of the CNGMO program.
- 18.7.4 There must be records for each batch of CNGMO further processed products to enable full traceability of each ingredient covering quantities, lot or batch numbers, sources, dates received and their Non-GMO status.
- 18.7.5 Exemptions from on-site inspections may be granted in the following circumstances:
 - 18.7.5.1 In facilities where there is no processing of high-risk ingredients.
 - 18.7.5.2 In facilities dedicated to certified organic production.
 - 18.7.5.3 In facilities previously approved for another CNGMO product.

Note: For 18.7.5, verification of the supply chain must be completed.
- 18.7.6 Employees must be trained to ensure CNGMO product integrity. Records of the training must kept.
 - 18.7.6.1 At minimum, employees must receive initial and annual refresher training.
- 18.7.7 Documented records of supplier approval and monitoring process of inputs to be CNGMO must be kept.
- 18.7.8 The recordkeeping system must demonstrate the facility has bought or received sufficient Non-GMO ingredients for the quantity sold or dispatched of CNGMO labeled products so that a mass balance can be carried out.

18.8 Labeling

- 18.8.1 Products approved under the CNGMO module can be labeled as Non-GMO* or Non-GE*.
- 18.8.2 If products are labeled as Non-GMO* or Non-GE*, the following statement must be clearly legible somewhere on the packaging:
 - * Certified by AGW.



18.8.3 The phrases “no GMOs”, “no GEs,” contains “zero GMOs,” and contains “Zero GEs” must not be used.

18.8.4 If there is a need for consumer education or to provide accurate information about genetic modification in food, a phrase indicating that the product in question is not known to be genetically modified must be clearly legible somewhere on the packaging.

18.9 Complaints

18.9.1 A complaints record relating to complaints about CNGMO certified livestock or products must be maintained and be available at annual inspection. The record must list both the complaint and the action taken by the farm or business.

Appendix 1 – High, Moderate and Low Risk Products

High-risk products are those products that are genetically modified and grown on a large scale. High-risk products include the following crops that are commonly found in animal feeds either as the harvested crop or as a by-product.

- *Soy (and soy products)*
- *Maize and Sweet Corn*
- *Canola*
- *Beets (which may be used for molasses based mineral licks and tubs)*
- *Alfalfa*
- *Cotton (and cotton products)*
- *Creeping Bentgrass*
- *Kentucky Bluegrass*

High-risk products also include the following, though these are much less likely to be found in feed or other inputs or additions to CNGMO livestock products.

- *Salmon*
- *Papaya*
- *Courgette and yellow summer squash*
- *Aubergine*
- *Orange*
- *Sugarcane*
- *Tomato*
- *Potato*
- *Pineapple*
- *Apple*
- *Mushroom*
- *Rice*
- *Spider Silk*



Products otherwise listed as low or moderate risk will be considered high-risk if imported from the following countries:

- *China*
- *Egypt*
- *Kazakhstan*
- *Moldova*
- *Russian Federation*
- *Turkey*
- *Ukraine*

Moderate risk products include the following:

- *Camelina (false flax)*
- *Mustard*
- *Flax*
- *Beta vulgaris, (e.g., chard, table beets)*
- *Brassica napa (e.g., rutabaga, Siberian kale)*
- *Brassica rapa (e.g., pak choy, mizuna, Chinese cabbage, turnip, rapini, tatsoi)*
- *Curcubita pepo (e.g., acorn squash, delicata squash, patty pan squash, pumpkin, and spaghetti squash)*

Low risk products are those for which no genetically modified version is known, or where the only genetically modified versions are used solely in controlled/laboratory conditions and are not in commercial use and where there is no risk of cross-contamination with other GMO crops.

Useful references:

Protecting Organic Seed Integrity: The Organic Farmer's Handbook to GE Avoidance and Testing Organic Seed Growers and Trade Association.

Available at <https://www.osgata.org/resources>.