Non-GMO Project Standard

Biennial public comment periods on the Standard in its entirety are held for 60 days beginning in April of even years (e.g., 2018, 2020). Comments may be submitted online during the public comment period at
http://www.nongmoproject.org/product-verification/non-gmo-project-standard/
Comments may be sent at any time to standard@nongmoproject.org.

Table of Contents

I. Introduction

The Non-GMO Project is a nonprofit organization committed to preserving and building sources of non-GMO products, educating consumers, and providing verified non-GMO choices. Terms used in this Standard are defined in Appendix A.

A. Purpose

The Non-GMO Project's Standard requires that all verified products have systems in place for:

1. **Testing:** Meaningful, ongoing testing of high GMO risk inputs
2. **Traceability:** Supply chain traceability, especially following input testing
3. **Segregation:** Protecting compliant inputs from commingling with non-compliant inputs
4. **Formulation:** Obtaining inputs in accordance with uniform and meaningful specifications
5. **Labeling:** Accurate and clear product labeling
6. **Quality assurance:** Maintaining operational consistency and addressing nonconformities promptly

B. Methodology and Approach

1. The Non-GMO Project's Product Verification Program ("Program") is based on a practice/process-oriented Standard that uses testing as a key strategic tool to confirm that practices/processes meet expectations.
2. A core goal of the Project is to identify, create, and/or maintain sources and practices that effectively minimize GMO risk to the supply chain.
3. Verification of products shall be contingent on products meeting requirements regarding Non-GMO Project Standard compliance, including traceability, segregation, and testing.
4. Continuous improvement on the part of Program Participants is required with the common goal of completely eliminating any GMO-risk inputs from the production chain.

II. Scope

The scope of the Non-GMO Project Standard and the Program encompass the following products, inputs, and activities.

A. Product Categories

1. The following types of products may be verified if found to be compliant with this Standard:
    a. Seed and other propagation materials

b. Products that are either ingested or applied directly to skin, such as human food, ingredients, supplements, and personal care products, including lotions, soaps, balms, makeup, etc.

c. Over the counter (OTC) drugs, including homeopathic remedies

d. Livestock feed and supplements

e. Products that are not ingested or applied directly to skin, such as packaging, cleaning products, and textiles

f. Pet food

2. The following types of products may not be verified under this Standard:

a. Products that include controlled substances under U.S. or Canadian law

b. Products that are not sold in the U.S. or Canada

c. Certain medicines and other medical products

d. Live animals

e. Products composed entirely of non-risk inputs and that are part of a non-risk category

B. Input Evaluation

1. **Mandatory input categories (input categories that must be evaluated):**

All inputs from the following categories must comply with the requirements of this Standard in order for the finished product to be verified.

a. Inputs present in the finished product, including but not limited to:

i. Unprocessed agricultural inputs, such as vegetables, grains, fruit, greens, herbs, other fresh foods, fibers, etc.

ii. Manufacturing inputs, including flavorings, seasonings, colorings, additives, and all other substances present in final, manufactured products

iii. Animal-derived inputs, including dairy, meat, eggs, bee-produced inputs, wool, hides, and seafood or inputs derived from aquaculture[1]

iv. Processed agricultural inputs or ingredients

v. Manufactured or processed food inputs or ingredients

vi. Packaging that is directly immersed or combined with liquid for the purpose of making the product available for human consumption[2]

vii. Livestock feed components, such as grains, vitamins, enzymes minerals, etc.

[1] Cloned animals and their progeny are not allowed.

[2] This includes, but is not limited to, tea, coffee, spice, and soup bags but does not include any part of the packaging other than the bag.

viii. Other inputs used in personal care and cosmetic products, and textiles

b. Dietary supplements, vitamins, and herbal preparations

c. Microbial starters and enzymes, media, and derivatives, including those used for livestock feed (e.g., silage or hay inoculants, fermentation solids, or similar products) or human food

Note: Addressing contamination of seed is a stated priority of the Non-GMO Project. Although traceability back to tested seed is not required for product verification, the Project is actively developing sources of compliant seed as the basis for a sustainable non-GMO supply chain.

2. **Eligible input categories (input categories for optional evaluation):**
In addition to the finished product, Participants may choose to verify inputs in the following categories in order to market them with reference to the Non-GMO Project verification mark or name. Verification of inputs listed in this Section II.B.2. is not required in order for a product to be verified. In order for the following inputs themselves to be marketed with reference to the Non-GMO Project verification mark or name, they must meet all of the relevant requirements of this Standard. Such inputs may then be marketed as the product itself (e.g., selling Non-GMO Project Verified packaging materials to a final consumer or product manufacturer) or denoted as part of another product (e.g., "This product's packaging is Non-GMO Project Verified."). When the product itself, as opposed to an input to another product, the inputs below must be verified in accordance with this Standard and are not optional.

   a. Seeds

   b. Other agricultural inputs, such as fertilizers, pesticides, and herbicides

      The scope of this Standard contains an exclusion for composted materials and animal manures. These may be used from any source, *except* manure from animals that have been genetically engineered. An example of an animal engineered to produce a novel material would be a goat that is genetically engineered to have antibiotics or hormones secreted in its milk. Examples of non-compliant fertilizers are oilcake/oilseed meal from genetically engineered soybeans, canola, or cotton, un-composted GMO cornstalks, etc. An example of a non-compliant pesticide is genetically altered *Bacillus thuringiensis* (Bt). An example of a non-compliant herbicide is corn gluten from genetically engineered corn.

   c. Cleaning products

   d. Packaging materials

   e. Veterinary inputs such as vaccines, hormones, and medicines; *not* including recombinant bovine growth hormone (rBGH) and recombinant bovine somatotropin (rBST), which are prohibited inputs

3. **Input categories that are out of scope:**

    a. Processing Aids used in the manufacture or processing of a finished product, ingredient, or input shall be out of the scope of review if present in the finished product at less than 0.5% and not declared on the retail ingredient panel or the input disclosure documentation of a wholesale product. For the purposes of this Standard, fermentation microorganisms are not considered to be Processing Aids.

    b. Purified Carbon Dioxide (CO_2) from either biological or non-biological sources

C. Activities

The scope of the evaluation encompasses the following types of activities and sectors of food and related production systems. When relevant to the verification of the product, the following activities are subject to review and must be found compliant with the Standard (Table 1).

Table 1. Activities

Type of Activity	Comment
Agricultural production—seeds and crops	Includes farm production, harvest, and post-harvest handling and storage on farm or farm-related facilities.
Handling	Includes any form of post-harvest movement, storage, transformation, or labeling of goods along the entire chain of custody from seed to consumer, except for products enclosed in final retail packaging.
Storage	Includes all links in the chain of custody from seed to finished product.
Distribution	This may or may not involve physical handling of goods.
Processing	Includes all conveyance, storage, processing, handling, assembly, or packaging of goods within any given production facility.
Manufacturing	Involves the production, and combination of, inputs to make the final product.
Packaging and labeling	Includes any and all events where the package or labeling of goods is altered.

D. Ingredient Classification

Each ingredient must be classified in accordance with this Section II.D. and meet all applicable requirements under this Standard to be included in a verified product. All ingredients[3] must be classified according to weight percentages in the finished product, not counting the weight of salt or added water present in the finished product. For livestock feed, the categories below are calculated based on the weight of the ingredient as a percentage of the ration fed to the animal.

[3] Excluded from the weight calculation are: 1) Processing Aids present in the finished product at less than 0.5% and not declared on the retail ingredient panel or the input disclosure documentation of a wholesale product, and 2) purified Carbon Dioxide (CO_2).

Unless a Verified-Status Input, the components to each compound Major or Minor Ingredient must be classified and evaluated back to the point in the input's supply chain where the input can be confirmed compliant with the Standard's requirements (e.g., sub-components can be confirmed as Low-Risk or meet an Action Threshold). If it is classified as an Exempt Micro Ingredient per Section II.D.3.b, a compound input does not require further breakdown and classification.

1. **Major Ingredients**, each of which represents 5% or more of the finished product or is a defining ingredient.
2. **Minor Ingredients**, each of which represents at least 0.5% but less than 5% of the finished product, and is not a defining ingredient.[4]
3. **Micro Ingredients**, each of which represents less than 0.5% of the finished product and is not a defining ingredient. The scope of review for these ingredients, including application of the limits in Section 3.b. below, shall be limited to the input used directly in the product, as opposed to growth medium or feed.
    a. **Micro Ingredients that require evaluation**:
        i. Any added nutrient, vitamin, or other active component contained in a finished supplement product must be non-GMO, regardless of amount.[5]
        ii. The following ingredients are not allowed if they are the direct product of genetic modification 1) For finished retail goods, if they are listed on the ingredient panel; or 2) For products sold without retail labeling, if they are listed on the input disclosure documentation:[6]
            a) Viable Microbes.
            b) Functional Enzymes.
            c) Products of synthetic biology (synbio).
    b. **Exempt Micro Ingredients**. All Micro Ingredients not listed in Section II.D.3.a. directly above are exempt from evaluation provided that any given product does not contain more than 0.9% total exempt Micro Ingredients.[7]

[4] Per Section VII.A., all Micro and Minor Ingredients of livestock feed are exempt from evaluation.
[5] This restriction takes effect on May 20, 2019.
[6] For retail consumer goods without ingredient panels, such as beer and wine, GM microbes, enzymes derived from GMOs, and products of synthetic biology, are not allowed in the final production stages. These consumer goods will be held to the same level of evaluation as those with ingredient panels.
[7] Until May 20, 2019, a product may contain up to 10 Exempt Micro Ingredients.

III. Risk Classification and Requirements

A. Input Categories

In order to focus the Program on inputs at risk for GMO contamination, the Standard classifies inputs into five categories (Table 2).

Table 2. Input Categories

Category	Definition	Required for Compliance
Non-Risk	Materials that are not derived from biological organisms and are not, therefore, susceptible to genetic modification.	Examine the complete input disclosure for compound inputs, including all components of the input in question, to confirm the absence of components with GMO risk.
Low-Risk	Inputs derived from biological organisms but that are not in the Monitored-Risk or High-Risk categories.	1. Examine the complete input disclosure to confirm the absence of components with GMO risk, including compound ingredients. 2. Verify that the input was produced under conditions designed to avoid cross-contamination with genetically modified (GM) materials. a. If the facility does not use any High-Risk Inputs, then demonstration of this fact is sufficient to fulfill this requirement. b. If the facility does use High-Risk Inputs, fulfillment of this requirement will involve demonstrating that procedures and systems are in place that effectively segregate the Low-Risk Input from potential sources of High-Risk contamination within the facility.
Monitored-Risk (see Appendix C)	Certain inputs for which GM organisms are in the research and development stages, which have been developed but are not widely commercially available, or for which known GM organism contamination has occurred.	See requirements for Low-Risk.

Category	Definition	Required for Compliance
High-Risk (see Appendix B)	Inputs for which GM versions are widely commercially available; this includes certain crops, their derivatives, and animal-derived inputs. [8]	1. Examine the complete input disclosure of the input to identify all High-Risk Inputs. For each unique input received from each supplier, a specification sheet or similar description disclosing all components contained in the input must be on file with the Technical Administrator (TA). 2. Comply with the traceability and segregation measures outlined in Section IV. 3. Comply with all applicable requirements in Section V. to Section VII. *For animal-derived inputs, verification is based on compliance with the requirements outlined in* Section VII.A.
Verified-Status	Inputs that have been verified under the Program as Verified Products, independent of the product for which they are an input.	1. Confirm the Verified-Status of the input. 2. Components of the input do not need to be re-evaluated. 3. Comply with the traceability and segregation measures outlined in Section IV.

[8] Animal-derived inputs are included in the list of High-Risk Inputs because livestock feed commonly contains High-Risk Inputs. In addition, injections of rBGH are sometimes used to increase milk production.

B. Reclassification of Risk

1. **From High-Risk to Low-Risk:**

   On a case-by-case basis, certain High-Risk Inputs may be downgraded to Low-Risk status based on source, documentation, protocols for contamination prevention/avoidance, and/or laboratory results demonstrating consistently low risk of GMO contamination (in accordance with this Standard). Individual inputs may only be downgraded by the TA with the approval of the Non-GMO Project.

   a. An example would be cornstarch produced in a country where GMOs are prohibited, Non-GMO Project Standard compliant seed was confirmed as having been used, and documented identity preservation (IP) procedures are in place for the manufacture and transport of the input.

2. **From High-Risk to Verified-Status:**

   High-Risk Inputs that have been verified under the Program as Verified Products (also referred to as Verified-Status Inputs) are subject to a modified evaluation, as described in Section III.A.

3. **From Low-Risk to High-Risk:**

   The Project maintains a surveillance program, one purpose of which is to evaluate GM risk and GM content on a Project-wide basis, using cumulative data. Using data from the surveillance program, the Project may re-classify a Low-Risk Input classified as a High-Risk Input. In such case, the verification of the input shall be carried out according to the requirements for High-Risk Inputs.

IV. Traceability, Segregation, and Inspections

A. Traceability

1. Each lot of Non-GMO Project Verified product must be traceable back to specific lots of the inputs used in its production. Systematic procedures shall be in place for tracking lot numbers and/or marking and labeling of packaging, containers, and storage facilities to ensure traceability of inputs, work-in-progress, and finished products at all points in the production process.
2. Traceability records shall explicitly trace and track the Non-GMO Project Standard compliant status of inputs and the finished product. If lots of a given input are co-mingled in storage before use in production of a certain lot of product, the lot numbers related to all lots commingled shall be linked to that particular lot of product.
3. Tracking of lot numbers and labeling/marking on packaging and containers shall be used as necessary to identify and segregate Non-GMO Project Standard compliant materials from non-compliant materials.

B. Cleanout and Segregation

1. Receiving, production, processing, manufacturing, transfer, and storage facilities, as well as shipping and transportation conveyances, shall be inspected and cleaned/purged as needed to remove sources of GMO contamination, and all relevant cleaning, purging, and inspections shall be documented.
2. Systematic procedures shall be in place during production to keep compliant inputs, work in progress, and finished products separate from all materials that are not compliant with the Non-GMO Project Standard.
3. Segregation measures are also required for instances where any required testing occurs after the input in question has entered the facility (e.g., when a Participant, rather than an ingredient supplier, is taking responsibility for testing).

C. Inspections

1. Unless the producing facility is exempt from inspection by an applicable part of this Standard, all facilities are required to be inspected annually.
2. Unless the TA finds cause for inspection, inspections are not required for:
    a. Products in which there are only Low-Risk Inputs
    b. Products in which the only Low-Risk and/or High-Risk Inputs are excluded from evaluation under Section II.D.3 or approved under Section VI.B.1.
    c. Products produced in a facility where there is no parallel processing of the specific Major High-Risk Inputs used in those products.
    d. Products of a facility that is dedicated to certified organic production, if no parallel processing of the specific Major High-Risk Inputs is occurring in the facility.
    e. Contract processors that comply with the requirements of Section IX.E.2.
3. At the TA's discretion, unannounced inspections may be used to ensure compliance with this Standard.

V. Testing

For use in a Verified Product, compliance with this Section V. is required for (1) Testable High-Risk Major or Minor Ingredients; (2) High-Risk Inputs present in feed of an animal-derived Major or Minor Ingredient;[9] and (3) Testable High-Risk Inputs present in the growth medium or feed of microbial Major or Minor Ingredients[10] (collectively referred to as "Testable High-Risk Inputs").[11] In order to be considered compliant under the Non-GMO Project Standard, tested samples are required to have sufficiently intact deoxyribonucleic acid (DNA).

[9] Compliance with Section VII.A. is also required for the animal-derived Major Ingredient.
[10] Compliance with Section VI. is also required for the microbial Major Ingredient.
[11] Compliance for Minor Ingredients may be established under Section VI. only if compliance with this Section V. is not available.

A. Action Thresholds

Absence of all GMOs is the target for all Non-GMO Project Standard Verified products. Continuous improvement practices toward achieving this goal must be part of the Participant's quality management systems. A key requirement of such quality management systems is to meet or continually be below the applicable Action Threshold. Testable High-Risk Inputs that do not comply with the testing requirements may not be intentionally used in Verified products.

The Non-GMO Project has established the following Action Thresholds for Testable High-Risk Inputs (Table 3).

Table 3. Action Thresholds

Category	Action Threshold
Seed and other propagation materials	0.25% [a]
Inputs to human food, ingredients, supplements, personal care products, and other products that are either ingested or applied directly to skin, and pet food	0.9%
Livestock feed and supplements, including those used for animal-derived inputs to human food products	5% [b]
Inputs to packaging, cleaning products, textiles and other products that are not ingested or applied directly to skin	1.5%

[a] For seeds of species not listed in Appendix B, and for all species not listed in Appendix B, there is no allowable presence.

[b] This Action Threshold is based on the annual average of all lots tested.

B. Compliance Requirements

1. Participants must demonstrate compliance with the applicable Action Threshold. In general, compliance should be demonstrated by ensuring that each batch of Testable High-Risk Input is compliant with this Section V.B. prior to its use in a Verified Product.
2. Testable High-Risk Inputs shall be compliant with the Standard if all of the following criteria are met:
    a. Appropriate laboratory controls indicate that the DNA of the input or the input's precursor is sufficiently intact to allow valid quantitative analysis by polymerase chain reaction (PCR). Inputs that do not meet this criterion, and are therefore not "testable" in this manner, must be verified by lot-specific traceability back to testable precursors for the input.
    b. The testing was conducted by an approved laboratory in compliance with Section V.C.4. and references by lot number the specific lot of input and precursor (if applicable) used by the Participant.
    c. A copy of the original result for the PCR test shows that the GMO content of the input or precursor in question is below the relevant Action Threshold.

   d. From the point of the PCR testing forward, an IP system is in place to ensure the given lot of the input and precursor (if applicable) in question has not been exposed to any other GM material. All such systems are subject to review and must be approved by the TA.

3. Test results must be submitted to the TA for review prior to initial verification and annual renewal to ensure compliance with the applicable Action Threshold.

4. In cases where the requirements of Section V.A. are demonstrated to be problematic to achieve for every batch, and the product is not planting seed or other propagation material and does not contain an animal-derived input, compliance may be demonstrated by ensuring that test results for all batches of High-Risk Input used during each 6-month period average at or below the relevant Action Threshold, with no single batch of input ever exceeding the relevant Action Threshold by more than a factor of 2. The Participant is responsible for ongoing monitoring of test results to ensure compliance for each period.

5. **When a non-compliant tested lot is mixed with a compliant tested lot**, the Participant must:

   a. Demonstrate that a homogenous blend was achieved prior to testing. In all cases, the finished lot tests below the relevant Action Threshold.

   b. Investigate and document the cause of any individual lot's contamination over the relevant Action Threshold.

   c. Implement and document practical continuous improvement practices to reduce, and ultimately eliminate, the need for any future blending of lots. An example of one such practice would be to help growers secure Non-GMO Project Standard compliant planting seed.

C. Genetics-based Testing Using the Real-Time or Digital PCR Method

1. **Genetics-based testing** of all Testable High-Risk Inputs is required before a finished product can be verified. The frequency and location of Real-Time or Digital PCR testing can be tailored to accommodate the Participant's supply chain.

2. **A statistically valid sampling and testing plan** shall be designed based on a risk assessment of the production/handling system, and shall reflect the level of monitoring appropriate for the risks inherent in the production/handling system, as well as industry standards.

   a. Risk assessment and monitoring must be done according to a sampling and testing plan approved by the TA.

   b. Compliant sampling and testing must occur at least once post-harvest, depending on contamination risks. Sampling plans must be designed to achieve 90% confidence in quantification of GMO at or below the applicable Action Threshold. When achieving this level of confidence through crop sampling cannot be done without destroying the consumer product (e.g., for large crops such as sweet corn, zucchini and papaya), the testing may be shifted to the seed level with limited post-harvest spot testing.

3. **Compositing samples**

   Statistical calculations can also be used to design compositing strategies through which portions of multiple samples can be combined and tested together for the purpose of reducing the number of tests required and therefore the cost for testing.

   a. Compositing must be done in a manner that ensures that any single sample in excess of the relevant Action Threshold produces a positive result for the composite sample as a whole. If a result is obtained for the composite which exceeds the relevant Action Threshold, the lot must be rejected, or if sub-lots were segregated and not commingled, then retesting of individual lot samples may be possible to salvage compliant lots.

4. **Approved laboratories**

   Testing shall be carried out by a laboratory that is accredited to ISO17025, and approved by the Non-GMO Project, and shall use methods that are included within the scope of their ISO17025 accreditation, for the input in question. Approved laboratories are listed on the Project's website.

5. **Laboratory testing** must target all commercialized GM events relevant to the input and the production system.

   a. Where quantitative results are required, the Real-Time or Digital PCR test must employ primers sufficient to accurately quantify the percent GM content for that event.

   b. Qualitative analysis using Real-Time PCR is sufficient if:

      i. The PCR limit of detection is 0.01%;

      ii. GMOs are not detected; and

      iii. Appropriate laboratory controls indicate that the DNA of the input is sufficiently intact to allow for valid quantitative analysis using PCR.

D. Immunological-based Testing Using Strip Tests

1. **In cases where lateral flow strip tests are permissible**, they must cover all commercialized GM events for the input in question.

2. **These methods shall be used when rapid,** qualitative in-field testing is needed and when accuracy, sensitivity, and ramifications of false negative results are not significant concerns. An example includes use of strip tests for the purpose of spot testing input samples. Compositing can be used for subsequent confirmatory Real-Time PCR testing. Frequency of Real-Time PCR testing and method of compositing to be determined such that there is 90% confidence in quantification of GMO at the relevant Action Threshold.

3. **A statistically valid sampling and testing plan** shall be designed on the basis of a risk assessment of the production/handling system and shall reflect the level of monitoring appropriate for the risks inherent in the production/handling system, as well as industry standards. Risk assessment and monitoring must be done according to a sampling and testing plan approved by the TA.
4. **Analysts must be trained and their performance verified** to ensure that they use the tests reliably. Participants shall document the in-house evaluation of performance.

VI. Affidavits

A. Non-Testable High-Risk Inputs

1. Non-Testable High-Risk Inputs are identified in Appendix B, Section B. An affidavit stating that any such Non-Testable High-Risk Input is not the product of genetic modification is required to establish compliance with this Standard.
2. For any Non-Testable High-Risk Input, an affidavit must be submitted to the TA for review prior to initial verification and upon renewal as required to ensure compliance with this Section VI.A.
3. Major High-Risk Inputs listed in Appendix B, Section A, having a precursor with sufficient DNA intact for PCR testing must be compliant with Section V. and are not eligible for compliance through an affidavit alone. High-Risk Inputs listed in both Appendix B, Section A, and Appendix B, Section B, must comply with Section V. and this Section VI.A.

B. Testable High-Risk Inputs as Minor and Micro Ingredients

1. Only in cases where GMO analytical certificates or traceability linked to analytical certificates of precursors is not available, compliant status of Testable High-Risk Minor and Micro Ingredients may be verified based on affidavits from suppliers, as long as these inputs are the product of a system that has been designed to avoid GMOs. Organic certification is an example of such a system. Suitability of other IP systems is subject to review by the TA with the approval of the Non-GMO Project.

C. Low-Risk Inputs

1. Affidavits may be used to confirm compliance of Low-Risk Inputs.
2. The affidavit must attest to compliance with the requirement for classification as Low-Risk as described in Section III.A.

D. Affidavit Requirements

1. Affidavits submitted under this Section VI. must be signed by the manufacturer of the input in question.
2. If appropriate, affidavits should be accompanied by supporting documentation.

3. When available, valid certificates from third-party certifiers are acceptable alternatives to affidavits under this Section VI., when the third-party certification program satisfies the requirements for which an affidavit would be used.

VII. Special Requirements for Specific Product Sectors

The following requirements are intended to complement other sections of the Standard. Where specific topics are addressed below (e.g., testing), these requirements are authoritative. Where special requirements are not given, requirements from elsewhere in the Standard apply.

A. Animal-Derived Inputs and Livestock Feed

Animal-derived inputs have no point in the production chain at which it is possible to identify GMO contamination using current testing methodologies. It is therefore necessary to control contamination based on testing feed and/or the seed used to grow the feed.

1. **Scope**
    a. Animal-derived inputs must be from animals that comply with the following life cycle feed guidelines:
        i. Meat animals (other than poultry): starting at birth (the feed of nursing mothers is not evaluated)
        ii. Poultry: starting from 2nd day after hatching
        iii. Dairy animals and laying hens: 30 days prior to initial verification and continuously thereafter
    b. Animal-derived Major Ingredients may be used in a verified product only if the feed of the animal from which the input is derived is compliant with this Section VII.A.
    c. Animal-derived Minor Ingredients may be used in a verified product either by demonstration of compliance with this Section VII.A. or by an affidavit that the animal-derived input is the product of a system that has been designed to avoid GMOs in compliance with Section VI.C.
    d. Animal-derived Verified-Status Inputs must comply with Section VI.C. and are exempt from review.
    e. Live animals may not be verified under this Standard.
2. **Feed compliance based on use of compliant seed**

    Under certain circumstances, compliance of livestock feed may be demonstrated based on use of compliant seed; in such cases post-harvest feed testing is not required.[12]

[12] From the date of initial enrollment, Participants have a transition period to bring all seed into compliance with the requirements in Section VII.A.2.a. During the transition period, seeds must be the product of a system designed to avoid GMOs or comply with Section VII.A.2.a.

a. **Strip testing below 0.25% Action Threshold.** Farmer-saved seed and seed purchased from any neighboring farmer who does not have a retail seed operation must be strip tested annually. Frequency of testing should increase if there are any changes that would significantly increase the likelihood of contamination (e.g., a new neighbor planting GMOs). If the strip test results are positive for levels over the Action Threshold set forth in Section V.A., samples must be submitted to a lab for quantitative PCR testing. If the seed is over the 0.25% Action Threshold, the seed may not be planted. This provision is only available in cases where farmers are growing their own feed onsite.

b. **High-moisture crops.** When post-harvest testing is not feasible for high-moisture crops, compliance may be demonstrated through seed testing.

   i. When test results are available from the seed supplier, each lot of seed planted must be compliant with Section V. of this Standard and test below the Action Threshold.

   ii. When test results are not available from the seed supplier, each lot of seed planted must have a receipt of the seed supplier seed tag, a letter from seed supplier establishing that the seed is non-GM, and an invoice and affidavit from the grower confirming planting location.

   iii. In all cases, the grower must demonstrate traceability from the planted field to the harvested feed crop.

3. **Feed compliance based on post-harvest testing**

   Compliance of commercially purchased or produced feed shall be demonstrated through evaluation of Major Ingredients, including testing of Testable High-Risk Major Ingredients.

   a. **Testing methodology.** The testing method must yield valid results for all Testable Major High-Risk Ingredients. When feed inputs can be isolated into their raw material components, strip testing may be used. When feed inputs are tested as a composite, PCR testing must be used.

   b. **Commercially purchased feed for certified organic operations in which products are pooled before final processing (e.g., dairy, ground meat, egg mixtures):**

      The sampling plan for certified organic operations shall be based on testing a composite sample of the High-Risk feed inputs from a representative selection of farms, with the intention of identifying and addressing any contamination occurring in the Participant's operation. The farms chosen for such testing shall be representative of the Participant's operations in a region.[13]

[13] Region, as used in Section VII.A.3.b., is defined as a geographic area with relatively homogenous farm operations and sources of livestock feed, typically encompassing one or more states, in which farms ship unprocessed livestock products to one or a few processors.

Quarterly sampling density:

- Fewer than 10 farms per region: minimum of 1 farm tested per region per quarter
- 10 to 20 farms per region: minimum of 2 farms tested per region
- 21 to 50 farms per region: 10% of farms tested per region
- 51 to 100 farms per region: 5% of farms tested per region
- Over 100 farms per region: minimum of 6 farms tested per region

The sampling plan within each region shall include a random selection of farms each quarter. Annual sampling plans shall be reviewed with the TA and may be adjusted over time to provide the most technically sound basis for continuous improvement. Adjustments shall be mutually agreed upon and might include increased/decreased sampling frequency or density in regions with unusually high/low percentages of samples over the Action Threshold.

Composite samples shall be tested on a quarterly basis. When more than one test is needed, results shall be averaged. Quarterly results or averages in excess of the Action Threshold shall trigger an assessment of the cause of contamination and appropriate steps to eliminate identified sources of contamination.

Participants shall provide a report upon renewal of any significant changes in the frequency of GMO presence in livestock feed, the percentage of samples exceeding the Action Threshold, and steps taken to secure feed below the Action Threshold.

c. **Commercially purchased feed for all non-organic operations in which products are pooled or not-pooled before final processing, and all certified organic operations in which products are not pooled before final processing (e.g., shell eggs, cut meat):**

The sampling plan for non-organic operations and for certified organic operations in which products are not pooled before final processing must include quarterly composite testing of feed samples for each shipment of feed purchased by each farmer in the Participant's operations. If more than 20% of the Participant's farmers fail to supply samples, it will be considered a major nonconformity, subject to Section IX.C.3.

d. **Commercially produced feed:**

Commercially produced feed may be verified on the basis of compliance of Major Ingredients, including the testing of Testable High-Risk Major Ingredients.

i. The testing method must yield valid results for all Testable Major High-Risk Ingredients.

ii. When feed inputs can be isolated into their raw material components, strip testing may be used as described in Section V.D.

iii. When feed inputs are tested as a composite, PCR testing must be used as described in Section V.C.

4. **Onsite inspections for farms**

   This section is in addition to the provisions of Section IV.C. Inspections may be completed via a group certification model. In order to be considered compliant, the Participants' internal control system (ICS) staff must conduct a documented assessment visit to each farm at least once every year.

   a. In addition to the ICS, third-party inspections must be conducted on 10% of all farms every year. Results of the third-party inspection will be compared with the results of the ICS assessment of the farms to verify the effectiveness of the ICS process.

   b. For certified organic operations, additional inspections (beyond those required for organic certification) are not required.

B. Honey and Bee-Produced Inputs

Honey and other inputs produced from bees must meet the following requirements:

1. The bees' forage area (defined as the area within a 4-mile radius of the hives) must be sufficiently free of GM commercial agriculture to minimize contamination of the bees with GM pollen.
2. Any non-forage feed for the bees must be evaluated for compliance with the required compliance measures listed in Section III.A. for High-Risk Inputs.

C. Wild-Caught and Farm-Raised Seafood

1. Wild-caught seafood shall be treated as Low-Risk Inputs if documentation or affidavit establish that the organism was caught in the wild.
2. Farm-raised seafood (in captivity from egg to harvest and/or where nutrient additions are provided) shall be fully evaluated as an animal-derived High-Risk Input and requires evaluation of feed and other inputs. Products or inputs derived from such seafood shall be evaluated in the same manner as animal-derived inputs in Section II.A. and Section VII.A.

D. Growth Media for Certain Vitamin and Supplement Inputs

Based on demonstrated lack of commercial availability, the growth media for probiotic microorganism inputs and microorganisms that produce enzyme inputs to vitamin and supplement products are temporarily outside the scope of evaluation.[14]

VIII. Product Specifications and Labeling

A. Specifications for Obtaining Inputs

1. For products verified under the Program, Participants shall not knowingly plant, purchase, or use inputs that are not compliant with the Standard.

[14] This temporary exclusion is in effect until after the 2020 comment period.

2. The written specifications for all inputs and products shall include requirements regarding Standard compliance and shall be updated when the Participant changes suppliers or inputs.
3. When spot purchasing is necessary, unverified inputs should be avoided; Participants must seek out Non-GMO Project Verified inputs. If a spot purchase of unverified input is made, the Participant must justify to the TA why a verified input was not used. Spot purchases of unverified inputs are only allowed on the following basis: Any Testable High-Risk Input that is spot purchased must be tested in accordance with the requirements of this Standard and must be below the relevant Action Threshold.
    a. Any non-testable High-Risk Input, Verified-Status Input, or Low-Risk Input that is spot purchased must be compliant with all applicable affidavit requirements of this Standard.
    b. The Participant must provide the TA with documentation of the purchase, including affidavits, sampling information, and test results. This reporting shall be done at least once per year, according to a schedule determined by the TA and the Participant.
    c. Constraints on spot purchasing may be enforced at the discretion of the TA. For example, repeated spot purchases from the same supplier could be grounds for this allowance to be revoked or restricted.

B. Labeling

1. **Labeling claims must be accurate and truthful** and must not mislead the consumer about the GMO content of the product. Any reference to the Non-GMO Project or use of the verification mark must be approved by a written agreement with the Non-GMO Project. Examples of claims that are not acceptable are “contains zero GMOs,” “GMO-free,” and “GE-free.”
2. **Certain products made with animal-derived, bee-produced inputs, or single compliant High-Risk Major Defining Ingredients may use a “made with” claim** in accordance with the following guidelines:
    a. Animal-derived and bee-produced inputs may not collectively constitute more than 25% of the product and may not be a defining ingredient.
    b. The product must contain compliant High-Risk Major Ingredients other than those from the animal-derived and bee-produced inputs (e.g., corn meal, soy flour) constituting more than 5% of the product.
    c. The “made with” claim may only be made in relation to approved compliant High-Risk Major Ingredients. For example, a corn chip with a seasoning blend containing more than 5% of an unverified dairy ingredient could claim “Made with Non-GMO Project Verified Corn.”

d. When a "made with" claim is being used for a product that does not contain any animal-derived or bee-produced inputs, the single compliant High-Risk Major Defining Ingredient must constitute at least 70% of the finished product (for example, an algae product in a vegetable capsule).

e. The "made with" claim is a text-only claim. The Non-GMO Project verification mark may not be used on products approved under Section VIII.B.2.

f. If the product contains dairy inputs, supplier affidavits must show that no rBGH or rBST was used.

3. The TA will review labels to assess compliance with these claim guidelines.

IX. Quality Assurance

A. Quality Assurance Systems

1. The Participant's quality assurance and quality control program shall be revised as needed to ensure compliance with the Standard.
2. Compliance with applicable requirements of the Standard shall be identified as a key quality indicator of the Participant's products and SOPs shall be revised, or added where necessary, to incorporate measures that ensure such compliance with the Standard.
3. Where needed, additional training shall be provided to staff to ensure that they are capable of fulfilling their duties in a manner that supports compliance of the operation, and the products produced, with the Standard.
4. Documents and forms shall be revised, as necessary, to include compliance with the requirements of the Standard as a key quality indicator and to ensure that the Participant operates in a manner that fulfills the requirements of the Standard.
5. All documents, forms, reference materials, and specifications needed by personnel to fulfill the requirements of the Standard shall be readily available to relevant personnel.
6. Records shall be retained for 3 years.

B. Monitoring of Critical Control Points

1. Monitoring and control of key parameters relevant to compliance with the Standard shall be incorporated into the Participant's quality assurance and quality control program. Key parameters include traceability, segregation, and testing for compliance with Action Thresholds.
2. The Participant shall monitor and verify the compliance of inputs purchased and products sold, and this shall be documented.

C. Nonconformities and Corrective Actions

1. Nonconformities in processes, procedures, inputs, or products, which could impact compliance with the Standard, shall trigger corrective actions.

2. Nonconformities discovered during the Program application or renewal process must be resolved in order to achieve or maintain compliance with the Standard. Mid-term nonconformities discovered through internal quality assurance processes, complaints from customers, or third-party surveillance, shall require corrective action as described below.
3. Major nonconformities shall be reviewed at the time of occurrence, documented, and immediately reported in writing to the TA by the Participant.
    a. Discovery of any major nonconformity must be followed by a timely root cause analysis. "Timely" is typically considered to be within 7 days and rarely longer than 30 days. Longer delays must be justified in writing including the planned root cause analysis. An explanation of the action steps already being taken must be provided along with the expected completion date of the root cause analysis.
    b. Findings of the root cause analysis must be reported in writing to the TA, together with the planned corrective actions to be undertaken.
    c. Corrective actions must be completed within 15 days of the completion of the root cause analysis. The TA will review and approve the planned corrective actions. Corrective action plans shall include the identification of persons responsible for their execution, defined timelines for actions, and the desired results of the corrective action plan. Documentary evidence must be submitted to the TA within 5 days of the completion of corrective actions. Such evidence might include new/modified quality assurance SOPs such as updates to training and record keeping or changes to sampling and testing plans, and, where possible, evidence that these updated SOPs are achieving compliance with the Standard. The TA will review and approve all corrective action evidence.
    d. Any delays in the timeline from reporting to completion of corrective actions must be justified in writing and approved by the TA.
4. Any major known nonconformity that goes unreported and/or uncorrected according to the requirements in Section IX.C.3. shall be cause for the product or the Participant to be removed from the Program. Prior to removing the Participant or product from the Program, the TA must notify the Participant via email of this intended action. The Participant will have 10 days from date of said notice to provide all required documentary evidence to avoid withdrawal from the Program.
5. Identification of nonconformities, corrective actions, root cause analyses, and successful remediation of the nonconformity shall all be documented.
6. Repeated nonconformance with the Action Threshold may require mid-term reevaluation of the product, possibly including an onsite inspection and/or input supplier verification.
7. Minor nonconformities shall be reviewed at the time of the annual evaluation. Verification renewal shall be contingent upon appropriate resolution of any such nonconformity.

D. Renewal

Renewal evaluation of every verified product shall be required at least annually. Renewal evaluation must ensure that no changes to the product or its manufacture and processing that would compromise the product's compliance with this Standard have occurred and that the product is compliant with any applicable Standard revisions. The TA may require a Participant to submit updates more frequently if history shows cases of major nonconformities occurring as a result of unannounced changes to the operation. Such changes could include the following: changes in product composition that involve High-Risk Inputs, changes in suppliers of High-Risk Inputs, changes in processes or procedures that alter the segregation or traceability of inputs or products, or changes in specifications of a High-Risk Input or of a final product that contains High-Risk Inputs.

E. Participation

1. **In addition to Participants,** suppliers and contract processors shall also provide information to TAs as necessary to verify compliance with the Standard.

    a. In some cases, inputs certified by other non-GMO certification programs may be approved as equivalent for use in verified products. A program would be acceptable as long as that program is fully equivalent to or exceeds the requirements of the Non-GMO Project Standard. The decision on equivalency will be made by the Non-GMO Project Board of Directors based on an evaluation of said program by the TA using a procedure duly approved by the Board of Directors. In such cases, certificates of compliance from such a program may be accepted as equivalent to verification by the Non-GMO Project.

2. Participants with Contract Processors

The Program follows a process-based approach that is supported by testing at strategic points in the supply chain. The Non-GMO Project acknowledges contractual agreements between certain Participants (e.g., brand owners) and their contract processors. Thus, any manufactured product that is made by an operation contracted by the Participant may be evaluated and approved under the Program as long as it is a product of a system that has been designed to avoid GMOs. Organic certification is an example of such a system. All such systems are subject to review by the TA, especially in cases where parallel processing occurs within the certified system (e.g., processing certified organic soybeans in both Non-GMO Project verified and non-verified forms). In such cases, lot-by-lot IPs will likely be necessary.

The Participant and/or the contract processor must provide evidence of testing as described in Section V. The contract processor's exemption from inspection under this Section IX.E.2. expires after 3 years, unless otherwise exempt from inspection. After that point, the Participant must EITHER:

a. Adopt a defined plan for bringing contract processor into full participation in the Product Verification Program and full standard compliance within a defined time frame; OR
b. Submit to a facility survey and onsite inspection for contract operations. Such inspections shall be completed by an approved inspector.

Appendix A –Terms and Definitions

Biotechnology – the application of:

a. in vitro nucleic acid techniques, including recombinant deoxyribonucleic acid (DNA) and the direct injection of nucleic acid into cells or organelles; or
b. fusion of cells beyond the taxonomic family, that overcame natural physiological, reproductive, or recombination barriers and that are not techniques used in traditional breeding and selection.

Compliant/Compliance – In accordance with the referenced and applicable requirement of this Standard. Compliance refers to particular requirements, as opposed to the Standard or Program as a whole.

Component – An input to an input (excluding processing aids).

Compost – Decayed organic material used as a fertility amendment in agricultural production, produced by a combination of actions over time by microbes, invertebrates, temperature, and other elemental factors (e.g., moisture content, aeration). Composted material shows practically no macroscopic indication as to the original substrate(s) from which it was made.

Defining Ingredient – A defining ingredient is an ingredient whose name appears in the name of the product.

Enzyme – A protein molecule produced by a living organism, which acts as a catalyst to bring about a specific biochemical reaction; specific examples include chymosin, catalase, and amylase.

Functional Enzyme – An enzyme that has not been denatured (e.g. by being subjected to high heat, harsh acids or bases, ultrafiltration, or centrifugation), and thus retains its catalytic functioning capability.

GM – Genetically Modified or Genetic Modification—A term referring to processes of biotechnology used to create GMOs.

GMO or Genetically Modified Organism – An organism in which the genetic material has been changed through biotechnology in a way that does not occur naturally by multiplication and/or natural recombination; cloned animals are included within this definition.

Growth Media – Materials or mixtures of materials designed to support the growth of microorganisms.

Ingredient – Any input, including an additive, used in the manufacture or preparation of a product and present in the finished product although possibly in a modified form.

Input – Any material or substance that becomes a part of the finished product, or a component of which becomes a part of the finished product, or is used otherwise in the production of a product. These include the following:

- Agricultural materials, such as seeds, fertilizers, and pesticides.

- Unprocessed agricultural materials, such as vegetables, grains, fruit, greens, herbs, and other fresh foods.
- Feed materials, such as grains, forage plants, vitamins, enzymes and minerals.
- Livestock production materials, such as vaccines, hormones, and other veterinary materials.
- Manufacturing and processing materials, including ingredients, flavorings, seasonings, colorings, additives, enzymes, cultures, and all other substances present in final manufactured products.

This definition does not distinguish between "mono" (composed of only one component) or "compound" (composed of more than one component) inputs. If the product is made of only one input, with no components (e.g., a "single input product"), the input and the product are the same.

Major Nonconformity – A major nonconformity is a deviation that could affect the compliance of an ingredient with the relevant Action Threshold, such as unintentional contamination of the ingredient with GM material, or that could affect the compliance of an input with Section VI.A.

Medicine (Veterinary) – (i) Any synthetic material other than vitamins, minerals, or amino acids given to livestock at any time; or (ii) Any non-synthetic material given to an animal on a non-routine basis for the purposes of maintaining or restoring health.

Microbe – A microorganism, especially a bacterium or fungus causing fermentation or otherwise metabolizing media. Specific examples include yeasts (e.g., *Saccharomyces*) and bacteria (e.g*., Lactobacillus*).

Minor Nonconformity – A minor nonconformity is a deviation that could not cause any of the relevant inputs to the product to exceed the relevant Action Threshold. This includes minor changes to procedures, recordkeeping, documentation, or anything else minor that does not have the potential to impact compliance with Action Threshold.

Non-GMO or Non-GM – An organism or derivative of such an organism whose genetic structure has not been altered by biotechnology.

Parallel Processing – The practice of using the same facility for handling both Non-GMO Project-compliant and non-compliant inputs or products.

Participant – A company that is seeking verification within the Product Verification Program and signs a License Agreement with the Project.

Processing Aid – An input that is (1) added during the processing of the product but is removed in some manner from the product before it is packaged in its final form; (2) added during the processing of the product and converted into constituents normally present in the product and which does not significantly increase the amount of the constituents naturally found in the product; or (3) added to the product for its technical or functional effect during processing but is present in the finished product at insignificant levels and does not have any technical or functional effect in the finished product.

Product – A unique branded formula and process, where process could be either the manufacturing or facility process. "Product" refers to products that are involved in the Non-GMO Project Product Verification Program.

Shall or Must – A mandatory requirement under the Standard.

Should or May – A non-mandatory recommendation or recommended practice.

Standard – The Standard for the Non-GMO Project Product Verification Program, which is this document.

Supplier – Any party from whom an input is obtained.

Synthetic Biology (synbio) –The development of novel, artificial nucleic acid sequences, biological pathways, organisms, or devices or the redesign of existing natural biological systems.

Technical Administrator or TA – A certification body approved by the Non-GMO Project to assess compliance with the Standard on behalf of the Project.

Unintentional Contamination – A contamination incident (event) will be deemed unintentional if available information confirms that: (i) the operator did not knowingly use GMOs or GMO-derived inputs; or (ii) the operator used all due diligence to prevent GMO contamination.

Verified – A finished product's status when the TA establishes that the product is compliant with all applicable requirements of this Standard. Verified refers to the Standard or Program as a whole, as opposed to particular requirements.

Viable Microbe – A microbe that performs metabolic functions and reproduces/multiplies.

Appendix B – High-Risk List[15]

A. Testable High-Risk Inputs

1. Crops

- Alfalfa
- Canola
- Corn (except popcorn)
- Cotton
- Papaya
- Soy
- Sugar beets
- Zucchini and yellow summer squash

2. Processed Inputs/Derivatives[16]

a. Livestock, Bee, and Aquaculture Feed[17]

b. Crop Derivatives

- Ascorbic acid, sodium ascorbate, vitamin C
- Citric acid, sodium citrate – derived from glucose syrup
- Ethanol – derived from corn or GMO sugar beets
- Corn syrup
- Hydrolyzed vegetable protein
- Maltodextrins
- Molasses – derived from sugar beets
- Monosodium glutamate
- Sucrose – derived from sugar beets
- Textured vegetable protein – including soy protein

c. Other Derivatives

- Amino acids
- Aspartame
- Flavorings, “natural” and “artificial” – including all carriers and co-formulants
- Lactic acid
- Microbial growth media

[15] Inputs for which GM versions are widely commercially available; this includes certain crops, their derivatives, and animal-derived inputs.

[16] This is a non-exhaustive list of derivatives that should be considered High-Risk when sourced from crops in Appendix B.A.1. It is meant to provide examples of materials that are considered High-Risk by the Non-GMO Project.

[17] Per Section VII.A., Section VII.B., and Section VII.C., verification of livestock, bee, and aquaculture products require the testing of feed.

- Vitamins – vitamin A (various forms), vitamin B6 (pyridoxine hydrochloride), vitamin B12 (cyanocobalamin), vitamin C (ascorbic acid), and vitamin E (various forms). Vitamins in general are often formulated with dispersants and related ingredients that also have GMO risk (e.g., corn oil)
- Xanthan gum
- Yeast products

B. Non-Testable High-Risk Inputs

1. Crops

- Canola (ODM)[18]
- Potato (RNAi)
- Soy (TALEN)[19]

2. Microbe and Enzyme Inputs

- Enzymes – including chymosin
- Microbial cultures and starters – including yeast
- Algae from aquaculture

3. Ingredients or Substances Potentially Sourced via Synthetic Biology

[18] Note that canola is also on the list of Testable High-Risk Inputs and must therefore be compliant with the requirements in both Section V and Section VI.

[19] Note that soy is also on the list of Testable High-Risk Inputs and must therefore be compliant with the requirements in Section V and Section VI.

Appendix C –Monitored-Risk List[20]

A. Testable Monitored-Risk Inputs

1. Crops

- *Beta vulgaris,*(e.g., chard, table beets) – cross pollination risk from GM sugar beets
- *Brassica napa* (e.g., rutabaga, Siberian kale) – cross pollination risk from GM canola
- *Brassica rapa* (e.g., bok choy, mizuna, Chinese cabbage, turnip, rapini, tatsoi) – cross pollination risk from GM canola
- *Cucurbita pepo* (e.g., acorn squash, delicata squash, patty pan squash, pumpkin, and spaghetti squash) – cross-pollination risk from GM squash
- Flax
- Mustard
- Rice
- Wheat

B. Non-Testable Monitored-Risk Inputs

1. Crops

- Apple
- Camelina (false flax)
- Corn (CRISPR-Cas9, INzyme®)[21]
- Mushroom
- Orange
- Pineapple
- Salmon
- Sugarcane
- Tomato

2. Ingredients or Substances Potentially Sourced via Synthetic Biology

- Spider silk

[20] Certain inputs for which GM organisms are in the research and development stages, which have been developed but are not widely commercially available, or for which known GM organism contamination has occurred.
[21] Note that corn is also on the list of Testable High-Risk Inputs and must therefore be compliant with the requirements in Section V.

Summary of Changes from Version 13 of the Standard (Hyperlinked)

Summary of Changes from v13 to v14 Published April 3, 2017

The table below identifies changes made from Version 13 (v13) to this Version 14 (v14) of the Standard. Column 1 provides links to the location of the revised text in v14 by section number. Titles are included only for Level 1 headers. When changes were made to a specific row in a table, the table row number is also provided. Sections identified in Column 1 that were deleted from v14 of the Standard have no links. Text that appears in orange in Column 2 identifies the specific revisions made to the text.

Standard v14 Section	Change
Cover	Public comment periods and standard ratification have been moved to a biennial cycle, as opposed to the annual cycle previously employed by the Project: Biennial public comment periods on the Standard in its entirety are held for 60 days beginning in April of even years (e.g., 2018, 2020). Comments may be submitted online during the public comment period at http://www.nongmoproject.org/product-verification/non-gmo-project-standard/ Comments may be sent at any time to standard@nongmoproject.org.
I. Introduction	Footnote 1 of v13 was deleted and a reference to "Appendix A-Terms and Definitions" is now made in the introductory paragraph: The Non-GMO Project is a nonprofit organization committed to preserving and building sources of non-GMO products, educating consumers, and providing verified non-GMO choices. Terms used in this Standard are defined in **Appendix A**.
I.A.	The global Purpose statement was clarified as follows: The Non-GMO Project's Standard requires that all verified products have systems in place for:
I.A.3.	The term "contamination" was replaced by "commingling" to add clarity: 3. **Segregation:** Protecting compliant inputs from commingling with non-compliant inputs.

Standard v14 Section	Change
I.B.1.	Throughout the Standard, the Non-GMO Project's Product Verification Program is now consistently referred to as the "Program" rather than "PVP": The Non-GMO Project's Product Verification Program ("Program") is based on a practice/process-oriented Standard that uses testing as a key strategic tool to confirm that practices/processes meet expectations.
I.B.3.	Methodology and Approach language was clarified by adding the word "verification" and striking "to the marketplace": 3. Verification of products shall be contingent on products meeting requirements regarding Non-GMO Project Standard compliance, including traceability, segregation, and testing.
I.B.4	The word "ingredients" was replaced with the word "inputs" to clarify the distinction between the two. See Appendix A for the revised definitions of "input" and "ingredient": 4. Continuous improvement on the part of Program Participants is required with the common goal of completely eliminating any GMO-risk inputs from the production chain.
II. Scope	The language explaining the scope of the Standard was clarified: The scope of the Non-GMO Project Standard and the Program encompass the following products, inputs, and activities.
II.A.	A new section, "Product Categories," was added to better address the scope of products that are eligible for evaluation and verification under the Standard. Section II.A.1 covers product types eligible for evaluation and verification: 1. The following types of products may be verified if found to be compliant with this Standard: Section II.A.2 covers product types that are ineligible for evaluation and verification: 2. The following types of products may not be verified under this Standard:
II.B.	Section II.B. was reorganized from a table format to a list format for clarity.

Standard v14 Section	Change
II.B.1.	Language was added to clarify the distinction between input categories the Standard requires to be evaluated and those that are optional (Section II.B.2.): 1. **Mandatory input categories (input categories that must be evaluated):** In addition, the following product categories were deleted from the Standard: Health-care products Other agriculturally derived mercantile products
II.B.1.a.	The following language was added: a. Inputs present in the finished product, including but not limited to:
II.B.1.a.ii.	"Ingredients" was removed from this language to indicate that ingredients are not only defined as "manufacturing inputs." "Processing inputs" was removed from mandatory evaluation to reflect that processing aids are now out of scope of evaluation: ii. Manufacturing inputs, including flavorings, seasonings, colorings, additives, and all other substances present in final, manufactured products.
II.B.1.a.iii.	"Animal products" was replaced with "Animal-derived inputs," a new category of mandatory inputs to be evaluated was added, and the comment regarding cloned animals was moved to a footnote: iii. Animal-derived inputs, including dairy, meat, eggs, bee-produced inputs, wool, hides, and seafood or inputs derived from aquaculture[1] [1]Cloned Animals and their progeny are not allowed.
II.B.1.a.iv.	"Products" was replaced with "inputs" and "and manufactured food products" was deleted from this sentence for clarity: iv. Processed agricultural inputs or ingredients.
II.B.1.a.v.	New language was added: v. Manufactured or processed food inputs or ingredients.
II.B.1.a.vi.	The comment "This includes but is not limited to, tea, coffee, spice, and soup bags, but does not include any part of the packaging other than the bag." was moved to footnote 2.
II.B.1.a.vii.	"And seed used to grow feed" was deleted from the following to better align with the requirements in Section VII.A.: vii. Livestock feed components, such as grains, vitamins, enzymes, minerals, etc.

Standard v14 Section	Change
II.B.1.a.viii.	New language combining personal care products, cosmetic products, and textiles was added to the mandatory input categories list: viii. Other inputs used in personal care and cosmetic products, and textiles.
II.B.1.c.	"Products" was replaced by "derivatives", "animal" was replaced by "livestock", and the sentence "Processing aids used by the Participant and present in the final product are also included in the scope of this Standard." was deleted in the following language: c. Microbial starters and enzymes, media, and derivatives, including those used for livestock feed (e.g., silage or hay inoculants, fermentation solids, or similar products) or human food.
II.B.2.	The following section was renamed and language was added for clarity: 2. **Eligible input categories (input categories for optional evaluation):** In addition to the finished product, Participants may choose to verify inputs in the following categories in order to market them with reference to the Non-GMO Project verification mark or name. Verification of inputs listed in this Section II.B.2. is not required in order for a product to be verified. In order for the following inputs themselves to be marketed with reference to the Non-GMO Project verification mark or name, they must meet all of the relevant requirements of this Standard. Such inputs may then be marketed as the product itself (e.g., selling Non-GMO Project Verified packaging materials to a final consumer or product manufacturer) or denoted as part of another product (e.g., "This product's packaging is Non-GMO Project Verified."). When the product itself, as opposed to an input to another product, the inputs below must be verified in accordance with this Standard and are not optional.
II.B.3.	Additional language was added to clarify that rBGH and rBST are prohibited inputs: 3. Veterinary inputs such as vaccines, hormones, and medicines; *not* including recombinant bovine growth hormone (rBGH) and recombinant bovine somatotropin (rBST), which are prohibited inputs.

Standard v14 Section	Change
II.B.3.	Inputs that meet the definition of processing aid, as defined in Appendix A, are now excluded from the scope of evaluation. To reflect this new change, a new section was added: 3. **Input categories that are out of scope**: All Processing Aids used in the manufacture or processing of a finished product, ingredient, or input shall be out of scope of review. For the purposes of this Standard, fermentation microorganisms are not considered to be Processing Aids.
II.C.	New language was added: The scope of the evaluation encompasses the following types of activities and sectors of food and related production systems. When relevant to the verification of the product, the following activities are subject to review and must be found compliant with the Standard (Table 1).
II.C. Table 1, Row 5	Under the type of activity "Processing," the reference to restaurants and other food service facilities was deleted in alignment with the deletion of v13 Section VI.B. Restaurant Made Products (RMPs): Includes all conveyance, storage, processing, handling, assembly, or packaging of goods within any given production facility.
II.C. Table 1, Row 6	The term "production" was added to the definition of manufacturing: Involves the production, and combination of, inputs to make the final product.

Standard v14 Section	Change
II.D.	This section was originally section II.A. in v13 of the Standard but has been moved to provide greater clarity. In addition, throughout Section II.D., the term "finished" was added to "product" for additional clarity. New language was added: Each ingredient must be classified in accordance with this Section II.D. and meet all applicable requirements under this Standard to be included in a verified product. All ingredients[3] must be classified according to weight percentages in the finished product, not counting the weight of salt or added water present in the finished product. For livestock feed, the categories below are calculated based on the weight of the ingredient as a percentage of the ration fed to the animal. Unless a Verified-Status Input, the components to each compound Major or Minor Ingredient must be classified and evaluated back to the point in the input's supply chain where the input can be confirmed compliant with the Standard's requirements (e.g., sub-components can be confirmed as Low Risk or meet Action Threshold). If it is classified as an Exempt Micro Ingredient per Section II.D.3.b, a compound input does not require further breakdown and classification. [3]Processing aids are excluded from the weight calculation.
II.D.1.	**Major Ingredients**, each of which represents 5% or more of the finished product or is a defining ingredient.
II.D.2.	**Minor Ingredients**, each of which represents at least 0.5% but less than 5% of the finished product, and is not a defining ingredient[4]. [4]Per section VII.A, all Micro and Minor Ingredients of livestock feed are exempt from evaluation.
II.D.3.	**Micro Ingredients**, each of which represents less than 0.5% of the finished product and is not a defining ingredient. The scope of review for these ingredients, including application of the limits in subsection b. below, shall be limited to the input used directly in the product, as opposed to growth medium, substrates or feed.
II.D.3.a.i.	a. **Micro Ingredients that require evaluation:** i. Any added nutrient, vitamin, or other active component contained in a finished supplement product must be non-GMO, regardless of amount[5]. [5]This restriction takes effect on May 20, 2019.

Standard v14 Section	Change
II.D.3.a.ii.	The Standard no longer distinguishes between viable and non-viable microbes, and functional and non-functional enzymes. "Viable" and "functional" were deleted from this section. In v14, the requirement for evaluation of enzymes and microbes that are the direct product of genetic modification, and products of synthetic biology is limited to those items that *are listed on the ingredient panel of a finished retail consumer good* or used in the final production stages of retail consumer goods without ingredient panels, such as beer and wine. ii. The following ingredients are not allowed if they are the direct product of genetic modification and if they are listed on the ingredient panel of a finished retail consumer good[6]: a) Microbes. Examples include yeasts used in beer (e.g., *Saccharomyces* spp.) and cultures used in yogurt (e.g., *Lactobacillus* spp.). b) Enzymes (e.g., chymosin) c) Products of synthetic biology (synbio) [6]For retail consumer goods without ingredient panels, such as beer and wine, GM microbes, GM enzymes, and products of synthetic biology, are not allowed in the final production stages. These consumer goods will be held to the same level of evaluation as those with ingredient panels.
II.D.3.b.	The Project is removing the option for a product to contain up to 10 exempt Micro Ingredients. Those products currently taking advantage of this exemption will have until May 20th, 2019 to comply with the new requirements: b. **Exempt Micro Ingredients.** All Micro Ingredients not listed in Section II.D.3.a. directly above are exempt from evaluation provided that any given product does not contain more than 0.9% total exempt Micro Ingredients[7]. [7]Until May 20, 2019, a product may contain up to 10 Exempt Micro Ingredients.
v13 Footnote 3	The content of footnote 3 of v13 was deleted in v14.
v13 Footnote 4	The content of footnote 4 of v13 wad deleted because the purified form of a direct product of genetic modification is no longer relevant in v14.

Standard v14 Section	Change
III. Risk Classification and Requirements	The Standard has added two risk categories, "Monitored-Risk" and "Verified-Status," for a total of five risk categories in v14: In order to focus the Program on inputs at risk for GMO contamination, the Standard classifies inputs into five categories (Table 2).
III.A.	The third column in the table listed under Section III.A. Input Categories has been renamed from "Required preventative measures" to "Required for Compliance" to provide clarity.
III.A. Table 2, Row 1	In the Non-Risk category, "Ingredient" was replaced with "input": Examine the complete input disclosure for compound inputs, including all components of the input in question, to confirm the absence of components with GMO risk.
III.A. Table 2, Row 2	The definition of Low-Risk was updated to reflect new changes to the Standard: Inputs derived from biological organisms but that are not in the Monitored-Risk or High-Risk categories. "Ingredient" and "product" were both replaced by "input" in the column titled Required for Compliance: 1. Examine the complete input disclosure to confirm the absence of components with GMO risk, including compound ingredients. 2. Verify that the input was produced under conditions designed to avoid cross-contamination with genetically modified (GM) materials. a. If the facility does not use any High-Risk Inputs, then demonstration of this fact is sufficient to fulfill this requirement. b. If the facility does use High-Risk Inputs, fulfillment of this requirement will involve demonstrating that procedures and systems are in place that effectively segregate the Low-Risk Input from potential sources of High-Risk contamination within the facility.
III.A. Table 2, Row 3	A new risk category titled "Monitored-Risk (see Appendix C)" was added with the following definition: Certain inputs for which GM organisms are in the research and development stages, which have been developed but are not widely commercially available, or for which known GM organism contamination has occurred. Monitored-Risk Inputs have the same requirements for compliance as Low-Risk Inputs.

Standard v14 Section	Change
III.A. Table 2, Row 4	The definition of High-Risk was updated to the following: Inputs for which GM versions are widely commercially available; this includes certain crops, their derivatives, and animal-derived inputs[13]. The footnote was moved from the body of the text to footnote 8: [8]Animal-derived inputs are included in the list of High-Risk Inputs because livestock feed commonly contains High-Risk Inputs. In addition, injections of rBGH are sometimes used to increase milk production. "Ingredient" was replaced by "input" and "animal products" was changed to "animal-derived inputs" in the updated compliance requirements for High-Risk Inputs: 1. Examine the complete input disclosure of the input to identify all High-Risk Inputs. For each unique input received from each supplier, a specification sheet or similar description disclosing all components contained in the input must be on file with the Technical Administrator (TA). 2. Comply with the traceability and segregation measures outlined in Section IV. 3. Comply with all applicable requirements outlined in Sections V. – VII. *For animal-derived inputs, verification is based on compliance with the requirements outlined in Section VII.A.*
III.A. Table 2, Row 5	A new risk category titled "Verified-Status" was added with the following definition: Inputs that have been verified under the Program as Verified Products, independent of the product for which they are an input. The requirements for compliance are: 1. Confirm the Verified-status of the input. 2. Components of the input do not need to be evaluated. 3. Comply with the traceability and segregation measures outlined in section IV. This new category was added in order to improve the evaluation process when using Non-GMO Verified Products as inputs to a final product.

Standard v14 Section	Change
III.B.1.a	In the example provided, “verified” was replaced with “confirmed” and “product” was replaced with “input”: An example would be cornstarch produced in a country where GMOs are prohibited, Non-GMO Project Standard compliant seed was confirmed as having been used, and documented identity preservation (IP) procedures are in place for the manufacture and transport of the input.
III.B.2.	New language was added to explain the reclassification from High-Risk to the new Verified-Status category: 2. From High-Risk to Verified-Status: High-Risk Inputs that have been verified under the Program as Verified Products (also referred to as Verified-Status Inputs) are subject to a modified evaluation, as described in Section III.A.
v13 III.B.3.	Section III.B.3. of v13, “Monitoring of Low-Risk Inputs with suspected contamination (See Appendix C)” has been deleted from v14 of the Standard.
III.B.3.	3. From Low-Risk to High-Risk: The Project maintains a surveillance program, one purpose of which is to evaluate GM risk and GM content on a Project-wide basis, using cumulative data. Using data from the surveillance program, the Project may re-classify a Low-Risk Input classified as a High-Risk Input. In such case, the verification of the input shall be carried out according to the requirements for High-Risk Inputs.
IV.A.1.	The wording “or input” was removed and “finished” was added to “products”: 1. Each lot of Non-GMO Project Verified product must be traceable back to specific lots of the inputs used in its production. Systematic procedures shall be in place for tracking lot numbers and/or marking and labeling of packaging, containers, and storage facilities to ensure traceability of inputs, work-in-progress, and finished products at all points in the production process.
IV.A.2.	“Finshed” was added to “product” for clarity: 2. Traceability records shall explicitly trace and track the Non-GMO Project Standard compliant status of inputs and the finished product.

Standard v14 Section	Change
IV.B.2.	"Non-GMO Project Program Verified" was removed from this sentence and clarified with the use of "compliant": 2. Systematic procedures shall be in place during production to keep compliant inputs, work-in-progress, and finished products separate from all materials that are not compliant with the Non-GMO Project Standard.
IV.C.2.d.	Footnote 8 from v13 was deleted and absorbed by Section IV.C.2.d., "ingredient" was replaced with "input," and "specific Major" was added to "High-Risk" Inputs for clarity: d. Products of a facility that is dedicated to certified organic production, if no parallel processing of the specific Major High-Risk Inputs is occurring in the facility.
IV.C.3.	A new section was added: 3. At the TA's discretion, unannounced inspections may be used to ensure compliance with this Standard.
V. Testing	Additional language was added to the introductory paragraph to clarify when testing is needed, particularly regarding new technology that is not testable: **V. Testing** For use in a Verified Product, compliance with this section V. is required for (1) Testable High-Risk Major or Minor Ingredients; (2) High-Risk Inputs present in feed of an animal-derived Major or Minor Ingredient;[9] and (3) Testable High-Risk Inputs present in the growth medium or feed of microbial Major or Minor Ingredients[10] (collectively referred to as "Testable High-Risk Inputs").[11] In order to be considered compliant under the Non-GMO Project Standard, tested samples are required to have sufficiently intact deoxyribonucleic acid (DNA). [9]Compliance with section VII.A. is also required for the animal-derived Major Ingredient. [10]Compliance with section VI. is also required for the microbial Major Ingredient. [11]Compliance for Minor Ingredients may be established under Section VI. only if compliance with this Section V. is not possible.

Standard v14 Section	Change
V.A.	Language referring to "Testable" High-Risk Inputs was incorporated into v14 of the Standard to indicate that not all GMOs are testable via genetic testing, and that section V.A. applies only to High-Risk Inputs where the GMO input is testable: A. Action Thresholds Absence of all GMOs is the target for all Non-GMO Project Standard Verified products. Continuous improvement practices toward achieving this goal must be part of the Participant's quality management systems. A key requirement of such quality management systems is to meet or continually be below the applicable Action Threshold. Testable High-Risk Inputs that do not comply with the testing requirements may not be intentionally used in Verified products.
V.A.	The phrase "and Products" was deleted from this language: The Non-GMO Project has established the following Action Thresholds for Testable High-Risk Inputs (Table 3).
V.A. Table 3, Row 1	To clarify that the Action Threshold for compliant seed used to grow livestock feed is different from that of verified seed and other propagation materials, a footnote was added: Seed and other propagation materials 0.25%[a,b] [b]Different Action Thresholds exist for compliant seed used for livestock feed. See Table 4 in Section VII.A.2 for Action Thresholds for compliant seed used to grow livestock feed.
V.A. Table 3, Row 2	The language was clarified in this section, and pet food was added: Inputs to human food, ingredients, supplements, personal care products, and other products that are either ingested or applied directly on skin, and pet food 0.9%
V.A. Table 3, Row 3	Language was added to this section: Livestock feed and supplements, including that used for animal-derived inputs to human food products 5%[c]
V.A. Table 3, Row 4	Language was added to this section: Inputs to packaging, cleaning products, textiles and other products that are not ingested or applied directly to skin 1.5%
V.B.1.	"Testable" was added to the language for clarity: 1. Participants must demonstrate compliance with the applicable Action Threshold. In general, compliance should be demonstrated by ensuring that each batch of Testable High-Risk Input is compliant with this Section V.B. prior to its use in a Verified Product.

Standard v14 Section	Change
V.B.2.	New language was added regarding Testable High-Risk Inputs: 2. Testable High-Risk Inputs shall be compliant with the Standard if all of the following criteria are met:
V.B.2.a.	This paragraph was originally in section V.B.4.a. of v13: a. Appropriate laboratory controls indicate that the DNA of the input or the input's precursor is sufficiently intact to allow valid quantitative analysis by polymerase chain reaction (PCR). Inputs that do not meet this criterion, and are therefore not "testable" in this manner, must be verified by lot-specific traceability back to testable precursors for the input.
V.B.2.b.	This paragraph was originally in section V.D.1.b. of v13: b. The testing was conducted by an approved laboratory in compliance with Section V.C.4. and references by lot number the specific lot of input and precursor (if applicable) used by the Participant.
V.B.2.c.	This paragraph was originally in section V.D.2.b. of v13: c. A copy of the original result for the PCR test shows that the GMO content of the input or precursor in question is below the relevant Action Threshold.
V.B.2.d.	This new language is based on section V.E.4. of v13: d. From the point of the PCR testing forward, an IP system is in place to ensure the given lot of the input and precursor (if applicable) in question has not been exposed to any other GM material. All such systems are subject to review and must be approved by the TA.
V.B.3.	This was originally Section V.A.2.a. of v13: 3. Test results must be submitted to the TA for review prior to initial verification and annual renewal to ensure compliance with the applicable Action Threshold.

Standard v14 Section	Change
V.B.4.	This section was originally in V.A.2.b. of v13 and "In this case, all test results are submitted to the TA for review at least annually" was deleted: 4. In cases where the requirements of Section V.A. are demonstrated to be problematic to achieve for every batch, and the product is not planting seed or other propagation material and does not contain an animal-derived input, compliance may be demonstrated by ensuring that test results for all batches of High-Risk Input used during each 6-month period average at or below the relevant Action Threshold, with no single batch of input ever exceeding the relevant Action Threshold by more than a factor of The Participant is responsible for ongoing monitoring of test results to ensure compliance for each period.
v13 V.A.2.c.	This section was deleted in v14.
V.B.5.	"Non-compliant" was added before "tested lot" for added clarity: 5. **When a non-compliant tested lot is mixed with a compliant tested lot**, the Participant must:
V.B.5.a.	Wording was changed to clarify the requirement that the blend must be homogenous and test below the relevant Action Threshold: a. Demonstrate that a homogenous blend was achieved prior to testing. In all cases, the finished lot tests below the relevant Action Threshold.
V.C.1.	The wording "Testable High-Risk Inputs" was added: 1. **Genetics-based testing** of all Testable High-Risk Inputs is required before a finished product can be verified.
V.C.2.b.	"Except for livestock products verified under Section VI.A." was deleted from the following: b. Compliant sampling and testing must occur at least once post-harvest, depending on contamination risks. Sampling plans must be designed to achieve 90% confidence in quantification of GMO at or below the applicable Action Threshold. When achieving this level of confidence through crop sampling cannot be done without destroying the consumer product (e.g., for large crops such as sweet corn, zucchini and papaya), the testing may be shifted to the seed level with limited post-harvest spot testing.

Standard v14 Section	Change
V.C.3.a.	New language was added: a. Compositing must be done in a manner that ensures that any single sample in excess of the relevant Action Threshold produces a positive result for the composite sample as a whole. If a result is obtained for the composite which exceeds the relevant Action Threshold, the lot must be rejected, or if sub-lots were segregated and not commingled, then retesting of individual lot samples may be possible to salvage compliant lots.
V.C.4.	The URL was replaced with language referencing that approved laboratories are listed on the Project's website: 4. Approved laboratories Testing shall be carried out by a laboratory that is accredited to ISO17025, and approved by the Non-GMO Project, and shall use methods that are included within the scope of their ISO17025 accreditation, for the input in question. Approved laboratories are listed on the Project's website.
V.D.1.	"Suitable" was replaced with "permissible" and "crop" was replaced with "input": 1. **In cases where lateral flow strip tests are permissible**, they must cover all commercialized GM events for the input in question.
V.D.3.	Language was added to clarify that sampling and testing plans must be TA approved: 3. **A statistically valid sampling and testing plan** shall be designed on the basis of a risk assessment of the production/handling system and shall reflect the level of monitoring appropriate for the risks inherent in the production/handling system, as well as industry standards. Risk assessment and monitoring must be done according to a sampling and testing plan approved by the TA.
VI. Affidavits	A new section regarding Affidavits was added in order to create a pathway for verification of products with non-testable High-Risk Inputs. These inputs cannot be tested for by current genetics testing methodologies and must therefore be evaluated via a different pathway.
VI.C.2.	This was originally Section V.E.2. in v13. It was simplified and moved to Section VI.C.2.: 2. The affidavit must attest to compliance with the requirement for classification as Low-Risk as described in Section III.A.

Standard v14 Section	Change
VI.D.1.	This was originally Section V.E.3. in v13: 1. Affidavits submitted under this Section VI. must be signed by the manufacturer of the input in question.
VI.D.2.	New language was added to clarify affidavit requirements: 2. If appropriate, affidavits should be accompanied by supporting documentation.
VI.D.3.	New language was added to clarify affidavit requirements: 3. When available, valid certificates from third-party certifiers are acceptable alternatives to affidavits under this Section VI., when the third-party certification program satisfies the requirements for which an affidavit would be used.
VII. Special Requirements for Specific Product Sectors	Previously Section VI. of v13, this section is now Section VII. in v14. The content was heavily amended and new subsections were added: VII. Special Requirements for Specific Product Sectors A. Animal-Derived Inputs and Livestock Feed B. Honey and Bee-Produced Inputs C. Wild-Caught and Farm-Raised Seafood D. Probiotic Growth Media and Enzyme Substrates
VII.A.	This content was moved from v13 Section VI. Livestock Products and Feed and renamed to “Animal-Derived Inputs and Livestock Feed”: **A. Animal-Derived Inputs and Products and Livestock Feed** Animal-derived inputs have no point in the production chain at which it is possible to identify GMO contamination using current testing methodologies. It is therefore necessary to control contamination based on testing feed and/or the seed used to grow the feed.

Standard v14 Section	Change
VII.A.1.	A new section, VII.A.1. Scope, was added to clarify the requirements of Animal-derived Inputs for verification. Included within this new section are the lifecycle guidelines previously found in v13 Section VI.A.2.b.: 1. **Scope** a. Animal-derived inputs must be from animals that comply with following life cycle feed guidelines: i. Meat animals (other than poultry): starting at birth (the feed of nursing mothers is not evaluated) ii. Poultry: starting from 2nd day after hatching iii. Dairy animals and laying hens: 30 days prior to initial verification and continuously thereafter b. Animal-derived Major Ingredients may be used in a verified product only if the feed of the animal from which the input is derived is compliant with this Section VII.A. c. Animal-derived Minor Ingredients may be used in a verified product either by demonstration of compliance with this Section VII.A. or by an affidavit that the animal-derived input is the product of a system that has been designed to avoid GMOs in compliance with Section VI.C. d. Animal-derived Verified-Status Inputs must comply with Section VI.C. and are exempt from review. e. Live animals may not be verified under this Standard.
VII.A.2.	A new section was added to summarize the idea that compliance of livestock feed can be achieved via two major pathways. In addition, v13 Section VI.A.1.a. was moved to footnote 12: 2. **Feed compliance based on use of compliant or verified seed** Compliance of livestock feed may be demonstrated based on use of compliant or verified seed according to any one of the options below; in such cases post-harvest feed testing is not required.[12] [12] From the date of initial enrollment, Participants have a transition period to bring all seed into compliance with the requirements in Sections VII.A.2.a.i or VII.A.2.a.ii. During the transition period, seeds must be the product of a system designed to avoid GMOs or comply with Sections VII.A.2.a.i or VII.A.2.a.ii.
VII.A.2.a.	New language was added for clarity: a. **Compliant seed.** Feed may be approved based on testing of seed (as opposed to use of verified seed).

Standard v14 Section	Change
VII.A.2.a.i.	This section was formerly v13 Section VI.A.1.c. Additional language was added: i. **Strip testing below 0.25% Action Threshold.** Farmer-saved seed and seed purchased from any neighboring farmer who does not have a retail seed operation must be strip tested annually. Frequency of testing should increase if there are any changes that would significantly increase the likelihood of contamination (e.g., a new neighbor planting GMOs). If the strip test results are positive for levels over the Action Threshold set forth in Section V.A., samples must be submitted to a lab for quantitative PCR testing. If the seed is over the 0.25% Action Threshold, the seed may not be planted. This provision is only available in cases where farmers are growing their own feed onsite.
VII.A.2.a.ii.	A new section outlining the use of Action Thresholds for compliant seed being grown for use as livestock feed was added. New crop-specific Action Thresholds are listed in Table 4.
VII.A.2.a.iii.	A new section addressing the testability of high-moisture crops for compliance of livestock feed was created and titled "**High-moisture crops**."
VII.A.2.b.	A section clarifying the difference between Action Thresholds and compliance requirements for compliant seed for livestock feed and verified seed for livestock feed was added: b. **Verified seed.** Feed may be approved based on use of verified seed in combination with appropriate segregation and traceability measures. In order to be verified, all seed types must test at or below the Action Threshold of 0.25% as listed in Section V.A.
VII.A.3.	Formerly v13 Section VI.A. Commercially Purchased Feed. The section was given a new title and the contents were rearranged to provide clarity: **3. Feed compliance based on post-harvest testing** Compliance of commercially purchased or produced feed shall be demonstrated through evaluation of Major Ingredients, including testing of Testable High-Risk Major Ingredients.

Standard v14 Section	Change
VII.A.3.a.	This section was moved from v13 Section VI.A.2.a. The term "feedstuffs" was replaced throughout this section with "feed inputs": a. **Testing methodology.** The testing method must yield valid results for all Testable Major High-Risk Ingredients. When feed inputs can be isolated into their raw material components, strip testing may be used. When feed inputs are tested as a composite, PCR testing must be used.
VII.A.3.b.	This section was moved from v13 Section VI.A.2.a. The term "region," as used in the context of this section, was defined in footnote 13: [13]Region, as used in Section VII.A.3.b., is defined as a geographic area with relatively homogenous farm operations and sources of livestock feed, typically encompassing one or more states, in which farms ship unprocessed livestock products to one or a few processors.
VII.A.3.c.	The introductory language was modified to provide greater clarity regarding the type of operations covered by this section: c. **Commercially purchased feed for all non-organic operations in which products are pooled or not-pooled before final processing, and all certified organic operations in which products are not pooled before final processing (e.g., shell eggs, cut meat):** The sampling plan for non-organic operations and for certified organic operations in which products are not pooled before final processing must include quarterly composite testing of feed samples for each shipment of feed purchased by each farmer in the Participant's operations. If more than 20% of the Participant's farmers fail to supply samples, it will be considered a major nonconformity, subject to Section IX.C.3.
VII.A.3.d.	d. **Commercially produced feed:** Commercially produced feed may be verified on the basis of compliance of Major Ingredients, including the testing of Testable High-Risk Major Ingredients. i. The testing method must yield valid results for all Testable Major High-Risk Ingredients. ii. When feed inputs can be isolated into their raw material components, strip testing may be used as described in Section V.D. iii. When feed inputs are tested as a composite, PCR testing must be used as described in Section V.C.

Standard v14 Section	Change
VII.A.4.	Formerly Section VI.A.4. of v13: 4. **Onsite inspections for farms and feed mills** This section is in addition to the provisions of Section IV.C. Inspections may be completed via a group certification model. In order to be considered compliant, the Participants' internal control system (ICS) staff must conduct a documented assessment visit to each farm at least once every year.
v13 VII.B.	Section VII.B. in version 13 of the Standard, Restaurant Made Products, was deleted from version 14 as this program has yet to be fully developed.
VII.B.	"Bee products" was changed to "Bee-Produced Inputs": **B. Honey and Bee-Produced Inputs** Honey and other inputs produced from bees must meet the following requirements:
VII.C.	A new section for seafood was added in order to clarify the evaluation process for wild-caught and farm-raised seafood.
VII.D.	A new section was created with an exemption for probiotic growth media and enzyme substrates: **D. Probiotic Growth Media and Enzyme Substrates** Based on demonstrated lack of commercial availability, growth media for probiotics and enzyme substrates, are temporarily outside the scope of evaluation[14]. [14]This temporary exclusion is in effect until after the 2020 comment period.
VIII.A.3.a.	Language was added to clarify the requirements when spot purchasing: a. Any non-testable High-Risk Input, Verified-Status Input, or Low-Risk Input that is spot purchased must be compliant with all applicable affidavit requirements of this Standard.
VIII.A.3.b.	The type of documentation that the participant must provide to the TA when spot purchasing now includes affidavits. b. The Participant must provide the TA with documentation of the purchase, including affidavits, sampling information, and test results. This reporting shall be done at least once per year, according to a schedule determined by the TA and the Participant.

Standard v14 Section	Change
VIII.B.2.	Throughout this section the term "livestock" was replaced with "animal-derived" and "bee inputs" was replaced with "bee-produced inputs." In addition, the scope of the "made with" claims section was expanded: 2. **Certain products made with animal-derived, bee-produced inputs, or single compliant High-Risk Major Defining Ingredients may use a "made with" claim** in accordance with the following guidelines:
VIII.B.2.d.	A new pathway was created for the use of a "made with" claim. There is no longer a requirement for a product to contain an animal-derived or bee-produced input in order to be eligible to use this claim: d. When a "made with" claim is being used for a product that does not contain any animal-derived or bee-produced inputs, the single compliant High-Risk Major Defining Ingredient must constitute at least 70% of the finished product (for example, an algae product in a vegetable capsule).
v13 VIII.D.1.b.	This language was deleted from v14.
IX. Quality Assurance	Throughout Section IX. Quality Assurance, the term "participant" was used to add additional clarity.
IX.C.6.	The term "facility" was replaced with the term "product" to clarify the level at which reevaluation would need to take place when repeated nonconformance occurs: 6. Repeated nonconformance with the Action Threshold may require mid-term reevaluation of the product, possibly including an onsite inspection and/or input supplier verification.
IX.D.	Section VIII.D.2. in v13 was moved to Section IX.D. and renamed "Renewal." Additional clarifying language was added: **B. Renewal** Renewal evaluation of every verified product shall be required at least annually. Renewal evaluation must ensure that no changes to the product or its manufacture and processing have occurred that would compromise the product's compliance with this Standard and that the product is compliant with any applicable Standard revisions.

Standard v14 Section	Change
IX.E.	Participation, formerly Section VIII.D. in v13, was moved to Section IX.E. Additional language was added to clarify: 1. **In addition to Participants,** suppliers and contract processors shall also provide information to TAs as necessary to verify compliance with the Standard.
Appendix A – Terms and Definitions	The following definitions were added or amended to better define and add clarity to the terms used throughout this Standard:
Biotechnology	**Biotechnology** – the application of: (a) in vitro nucleic acid techniques, including recombinant deoxyribonucleic acid (DNA) and the direct injection of nucleic acid into cells or organelles; or (b) fusion of cells beyond the taxanomic family, that overcame natural physiological, reproductive, or recombination barriers and that are not techniques used in traditional breeding and selection.
Compliant/Compliance	**Compliant / Compliance** – In accordance with the referenced and applicable requirement of this Standard. Compliance refers to particular requirements, as opposed to the Standard or Program as a whole.
Component	**Component** – An input to an input (excluding processing aids).
Compost	**Compost** – Decayed organic material used as a fertility amendment in agricultural production, produced by a combination of actions over time by microbes, invertebrates, temperature, and other elemental factors (e.g., moisture content, aeration). Composted material shows practically no macroscopic indication as to the original substrate(s) from which it was made.
Defining Ingredient	**Defining Ingredient** – A defining ingredient is an ingredient whose name appears in the name of the product.
Enzyme	**Enzyme** – A protein molecule extracted from a living organism, which acts as a catalyst to bring about a specific biochemical reaction capable of breaking down materials, and has not been denatured; specific examples include chymosin, catalase, and amylase.
Farming Operation	The definition for Farming Operation was deleted as this term was not used in v14 of the Standard.
Functional Enzyme	The definition for Functional Enzyme was deleted as this term was not used in v14 of the Standard.
GM	**GM** – Genetically Modified or Genetic Modification—A term referring to processes of biotechnology used to create GMOs.

Standard v14 Section	Change
GMO	**GMO or Genetically Modified Organism** – An organism in which the genetic material has been changed through biotechnology in a way that does not occur naturally by multiplication and/or natural recombination; cloned animals are included within this definition.
Ingredient	**Ingredient** – Any input, including an additive, used in the manufacture or preparation of a product and present in the finished product although possibly in a modified form.
Input	**Input** – Any material or substance that becomes a part of the finished product, or a component of which becomes a part of the finished product, or is used otherwise in the production of a product. These include the following: Agricultural materials, such as seeds, fertilizers, and pesticides. Unprocessed agricultural materials, such as vegetables, grains, fruit, greens, herbs, and other fresh foods. Feed materials, such as grains, forage plants, vitamins, enzymes and minerals. Livestock production materials, such as vaccines, hormones, and other veterinary materials. Manufacturing and processing materials, including ingredients, flavorings, seasonings, colorings, additives, enzymes, cultures, and all other substances present in final manufactured products. This definition does not distinguish between "mono" (composed of only one component) or "compound" (composed of more than one components) inputs. If the product is made of only one input, with no components (e.g., a "single input product"), the input and the product are the same.
Major Nonconformity	**Major Nonconformity** – A major nonconformity is a deviation that could affect the compliance of an ingredient with the relevant Action Threshold, such as unintentional contamination of the ingredient with GM material, or that could affect the compliance of an input with Section VI.A.
Minor Nonconformity	**Minor Nonconformity** – A minor nonconformity is a deviation that could not cause any of the relevant inputs to the product to exceed the relevant Action Threshold. This includes minor changes to procedures, recordkeeping, documentation, or anything else minor that does not have the potential to impact compliance with Action Threshold.
Non-GMO or Non-GM	**Non-GMO or Non-GM** – An organism or derivative of such an organism whose genetic structure has not been altered by biotechnology.

Standard v14 Section	Change
Participant	**Participant** – A company that is seeking verification within the Product Verification Program and signs a License Agreement with the Project.
Processing Aid	**Processing Aid** – An input that is (1) added during the processing of the product but is removed in some manner from the product before it is packaged in its final form; (2) added during the processing of the product and converted into constituents normally present in the product and which does not significantly increase the amount of the constituents naturally found in the product; or (3) added to the product for its technical or functional effect during processing but is present in the finished product at insignificant levels and does not have any technical or functional effect in the finished product. This definition is in alignment with the FDA's definition of processing aid.
Product	**Product** – A unique branded formula and process, where process could be either the manufacturing or facility process. "Product" refers to products that are involved in the Non-GMO Project Product Verification Program.
Restaurant-made products (RMPs)	The definition of Restaurant-made products (RMPs) was deleted.
Synthetic Biology	**Synthetic Biology (synbio)** –The development of novel, artificial nucleic acid sequences, biological pathways, organisms, or devices or the redesign of existing natural biological systems.
Verified	**Verified** – A finished product's status when the TA establishes that the product is compliant with all applicable requirements of this Standard. Verified refers to the Standard or Program as a whole, as opposed to particular requirements.
Viable microbe	The definition of Viable microbe was deleted.
Appendix B – High-Risk List	The Appendix B heading was simplified and the sub-header was deleted: **Appendix B – High-Risk List**[15] [15]Inputs for which GM versions are widely commercially available; this includes certain crops, their derivatives, and animal-derived inputs.

Standard v14 Section	Change
Appendix B – High-Risk List	The subsections of Appendix B were reorganized based upon testability: **A. Testable High-Risk Inputs** **1. Crops** **2. Processed Inputs/Derivatives[16]** **a. Livestock, Bee, and Aquaculture Feed[17]** **b. Crop Derivatives** **c. Other Derivatives** **B. Non-Testable High-Risk Inputs** **1. Crops** **2. Microbe and Enzyme Inputs** **3. Synthetic Biology Inputs** [16]This is a non-exhaustive list of derivatives with high GMO risk that are commonly used in food production. It is meant to provide examples of materials that are considered High-Risk by the Non-GMO Project. [17]Per Section VII.A., Section VII.B., and Section VII.C., verification of livestock, bee, and aquaculture products require the testing of feed. No new crops were added to the Testable High-Risk List in v14.
Appendix B.A.2.	A new section, **2. Processed Inputs/Derivatives[16]**, and new subsection, **a. Livestock, Bee, and Aquaculture Feed[17]**, were created and broken into crop derivatives and other derivatives.
v13 Appendix B.B.	Section B. Animal Derivatives of v13 was deleted.
Appendix B.B.1.	A clarification regarding the type of canola listed under the Non-Testable High-Risk Inputs section was made using footnote 18: Canola (RTDS[ODM][18]) [18]Note that canola is also on the list of Testable High-Risk Inputs and must therefore be compliant with the requirements in both Section V and Section VI.
Appendix B.B.2.	Appendix B, Section D of v13 was renamed to "**Microbe and Enzyme Inputs**" and moved to Appendix B.B.2.
Appendix B.B.3.	A new section, **3. Ingredients or Substances Potentially Sourced via Synthetic Biology**, was created.

Standard v14 Section	Change
Appendix C – Monitored-Risk List	Appendix C was renamed, reorganized, and updated to accurately reflect ongoing monitoring of GM Inputs: Appendix C – Monitored-Risk List[19] A. Testable Monitored-Risk Inputs 1. Crops B. Non-Testable Monitored-Risk Inputs 1. Crops [19]Certain inputs for which GM organisms are in the research and development stages, which have been developed but are not widely commercially available, or for which known GM organism contamination has occurred.
Appendix C.A.1.	Appendix C.A.1. was Appendix C of v13. "Mustard" was added to the list of testable monitored-risk inputs, and "Potato" was moved down to v14 Appendix C.B.1.
Appendix C.B.1.	This section was created to reflect current developments in GM crops. All crops listed are new to v14, except for potato, which was moved from Appendix C of v13. Corn appears in Appendix B and Appendix C because GM varieties exist in both Testable and Non-Testable forms. Non-Testable corn varieties have been generated using CRISPR-Cas9 and INzyme® technologies. B. Non-Testable Monitored-Risk Inputs 1. Crops •Apple •Camelina (false flax) •Corn (CRISPR-Cas9, INzyme®)[20] •Mushroom •Orange •Pineapple •Potato •Salmon •Sugarcane •Tomato [20] Note that corn is also on the list of Testable High-Risk Inputs and must therefore be compliant with the requirements in Section V.

Summary of Changes from Version 14 of the Standard (Hyperlinked)

Summary of Changes from v14 to v14.1 Published May 19, 2017

The table below identifies changes made from Version 14 (v14) to this Version 14.1 (v14.1) of the Standard. Column 1 provides links to the location of the revised text in v14.1 by section number. Titles are included only for Level 1 headers. When changes were made to a specific row in a table, the table row number is also provided. Sections identified in Column 1 that were deleted from v14.1 of the Standard have no links. Text that appears in orange in Column 2 identifies the specific revisions made to the text.

Standard v14.1 Section	Change
II.B.3.b.	Purified carbon dioxide was taken out of the scope of review to better align with the USDA's National Organic Program: 3. **Input categories that are out of scope:** a. All Processing Aids used in the manufacture or processing of a finished product, ingredient, or input shall be out of the scope of review. For the purposes of this Standard, fermentation microorganisms are not considered to be Processing Aids. b. Purified Carbon Dioxide (CO_2) from either biological or non-biological sources
Footnote 3	Purified carbon dioxide, having been removed from scope in v14.1, no longer affects the weight calcuation when classifying inputs into the Major, Minor, and Micro Ingredient categories: Footnote 3: Processing Aids and purified Carbon Dioxide (CO_2) are excluded from the weight calculation.

Standard v14.1 Section	Change
II.D.3.a.ii.	The Micro Ingredient section was reworded to clarify the compliance requirements for both products sold without retail labeling (e.g., wholesale) and retail products. Both Products sold without retail labeling and retail Products are held to the same level of scrutiny so Verified-Status Products are compliant at multiple levels of the supply chain: ii. The following ingredients are not allowed if they are the direct product of genetic modification 1) For finished retail goods, if they are listed on the ingredient panel; or 2) For products sold without retail labeling, if they are listed on the input disclosure documentation:[6] Footnote 6: For retail consumer goods without ingredient panels, such as beer and wine, GM microbes, GM enzymes, and products of synthetic biology, are not allowed in the final production stages. These consumer goods will be held to the same level of evaluation as those with ingredient panels.
II.D.3.a.ii.a)	The concept of viable microbes was reintroduced in v14.1 to allow for products verified at wholesale to be used as Verified-Status Inputs to retail products seeking verification and still be considered compliant. In addition, "Examples include yeasts used in beer (e.g., *Saccharomyces* spp.) and cultures used in yogurt (e.g., *Lactobacillus* spp.)." was deleted to avoid restricting the scope of evaluation to the examples listed in the Standard: a) Viable Microbes.
II.D.3.a.ii.b)	The concept of functional enzymes was reintroduced in v14.1 to allow for products verified at wholesale to be used as Verified-Status inputs to retail products seeking verification and still be considered compliant. In addition, "(e.g., chymosin)" was deleted to avoid restricting the scope of evaluation to the examples listed in the Standard: b) Functional Enzymes.
VII.A.4.	A typo was corrected in v14.1; "and feed mills" was deleted from the title of Section VII.A.4.: 4. **Onsite inspections for farms**

Standard v14.1 Section	Change
VII.D.	v14.1 restricts the temporary exclusion for probiotic growth media and enzyme substrates to vitamin and supplement products: **D. Probiotic Growth Media and Enzyme Substrates** Based on demonstrated lack of commercial availability, the growth media and substrates of probiotic and enzyme inputs to vitamin and supplement products are temporarily outside the scope of evaluation.[14] Footnote 14: This temporary exclusion is in effect until after the 2020 comment period.
IX.E.2.	Two typos in v14 were corrected in v14.1. "EITHER" and "OR" were added back into v14.1 Section IX.E.2., formerly v13 Section VIII.D.3.: **2. Participants with Contract Processors** The Program follows a process-based approach that is supported by testing at strategic points in the supply chain. The Non-GMO Project acknowledges contractual agreements between certain Participants (e.g., brand owners) and their contract processors. Thus, any manufactured product that is made by an operation contracted by the Participant may be evaluated and approved under the Program as long as it is a product of a system that has been designed to avoid GMOs. Organic certification is an example of such a system. All such systems are subject to review by the TA, especially in cases where parallel processing occurs within the certified system (e.g., processing certified organic soybeans in both Non GMO Project verified and non-verified forms). In such cases, lot-by-lot IPs will likely be necessary. The Participant and/or the contract processor must provide evidence of testing as described in Section V. The contract processor's exemption from inspection under this Section IX.E.2. expires after 3 years, unless otherwise exempt from inspection. After that point, the Participant must EITHER: a. Adopt a defined plan for bringing contract processor into full participation in the Product Verification Program and full standard compliance within a defined time frame; OR b. Submit to a facility survey and onsite inspection for contract operations. Such inspections shall be completed by an approved inspector.

Standard v14.1 Section	Change
Appendix A – Terms and Definitions	The following definitions were added or amended to better define and add clarity to the terms used throughout this Standard:
Enzyme	The definition of enzyme was updated for technical accuracy by deleting "capable of breaking down materials and has not been denatured": **Enzyme** – A protein molecule produced by a living organism, which acts as a catalyst to bring about a specific biochemical reaction; specific examples include chymosin, catalase, and amylase.
Functional Enzyme	In keeping with changes made to v14.1 Section II.D.3.a.ii.a), the v13 definition of functional enzyme was reintroduced: **Functional Enzyme** – An enzyme that has not been denatured (e.g. by being subjected to high heat, harsh acids or bases, ultrafiltration, or centrifugation), and thus retains its catalytic functioning capability.
Microbe	A typo was corrected and "*Aspergillus*" was replaced by "*Saccharomyces*," because *Aspergillus* is not a yeast: **Microbe** – A microorganism, especially a bacterium or fungus causing fermentation or otherwise metabolizing media. Specific examples include yeasts (e.g., *Saccharomyces*) and bacteria (e.g., *Lactobacillus*).
Substrate	An enzyme substrate, as used in v14.1 of the Standard, is the growth medium used to propagate the organism from which the enzyme is harvested. The substrate definition was updated to reflect its definition in the industry: **Substrate** – See Growth Media.
Viable Microbe	In keeping with changes made to v14.1 Section II.D.3.a.ii.a), the v13 definition of viable microbe was reintroduced: **Viable Microbe** – A microbe that performs metabolic functions and reproduces/multiplies.

Standard v14.1 Section	Change
Appendix C – Monitored-Risk List	Two additions were made to the Non-Testable Monitored-Risk list: **B. Non-Testable Monitored-Risk Inputs** **1. Crops** • Apple • Camelina (false flax) • Corn (CRISPR-Cas9, INzyme®) • Mushroom • Orange • Pineapple • Potato • Salmon • Soy (TALEN) • Sugarcane • Tomato **2. Ingredients or Substances Potentially Sourced via Synthetic Biology** • Spider silk

Summary of Changes from Version 14.1 of the Standard (Hyperlinked)

Summary of Changes from v14.1 to v14.2 Published September 22, 2017

The table below identifies changes made from Version 14.1 (v14.1) to Version 14.2 (v14.2) of the Standard. Column 1 provides links to the location of the revised text in v14.2 by section number. Titles are included only for Level 1 headers. When changes were made to a specific row in a table, the table row number is also provided. Sections identified in Column 1 that were deleted from v14.2 of the Standard have no links. Text that appears in orange in Column 2 identifies the specific additions made to the text. Text that has been struck identifies specific deletions made to the text.

This table is not the Standard and should not be used to evaluate Products, Ingredients, or Inputs for verification. Should text in Column 2 not match text published in v14.2 exactly, text published in v14.2 always takes precedence.

Standard v14.2 Section	Change
II.A.1.	A new category of Products eligible for verification was added to v14.2: 1. The following types of products may be verified if found to be compliant with this Standard: a. Seed and other propagation materials b. Products that are either ingested or applied directly to skin, such as human food, ingredients, supplements, and personal care products, including lotions, soaps, balms, makeup, etc. c. Over the counter (OTC) drugs, including homeopathic remedies d. Livestock feed and supplements e. Products that are not ingested or applied directly to skin, such as packaging, cleaning products, and textiles f. Pet food
II.A.2.	The term “drugs” was deleted in v14.2 Section II.A.2.: 2. The following types of products may not be verified under this Standard: a. Products that include controlled substances under U.S. or Canadian law b. Products that are not sold in the U.S. or Canada c. Certain ~~Drugs,~~ medicines~~,~~ and other medical products d. Live animals e. Products composed entirely of non-risk inputs and that are part of a non-risk category

Standard v14.2 Section	Change
II.B.3.a.	The language surrounding the removal of certain processing aids from the scope of review was updated for clarity: 3. Input categories that are out of scope: a. ~~All~~ Processing Aids used in the manufacture or processing of a finished product, ingredient, or input shall be out of the scope of review if present in the finished product at less than 0.5% and not declared on the retail ingredient panel or the input disclosure documentation of a wholesale product. For the purposes of this Standard, fermentation microorganisms are not considered to be Processing Aids.
Footnote 3	Footnote 3 was updated to reflect the clarifying language added to v14.2 Section II.B.3.a. Footnote 3: Excluded from the weight calculation are: 1) Processing Aids present in the finished product at less than 0.5% and not declared on the retail ingredient panel or the input disclosure documentation of a wholesale product, and 2) purified Carbon Dioxide (CO_2). ~~are excluded from the weight calculation.~~
II.D.3.	"Substrates" was deleted in v14.2 Section II.D.3. to align with the removal of the term from the Standard: 3. **Micro Ingredients**, each of which represents less than 0.5% of the finished product and is not a defining ingredient. The scope of review for these ingredients, including application of the limits in Section 3.b. below, shall be limited to the input used directly in the product, as opposed to growth medium~~, substrates~~ or feed.
Footnote 6	The term "GM enzymes" has been replaced with more technically accurate language in the following footnote: Footnote 6: For retail consumer goods without ingredient panels, such as beer and wine, GM microbes, ~~GM~~ enzymes derived from GMOs, and products of synthetic biology, are not allowed in the final production stages. These consumer goods will be held to the same level of evaluation as those with ingredient panels.
v14.1 Section V.A. Table 3., Footnote b	The following footnote was deleted from v14.2 because the compliant seed for livestock feed pathway has been removed: Footnote b: Different Action Thresholds exist for compliant seed used for livestock feed. See Table 4 in Section VII.A.2 for Action Thresholds for compliant seed used to grow livestock feed.
v14.1 Section V.A., Table 3., Footnote c	v14.1 Section V.A., Table 3., Footnote c has been retained as v14.2 Section V.A., Table 3., Footnote b.

<table>
<tr><th>Standard v14.2 Section</th><th>Change</th></tr>
<tr><td>VII.A.2.</td><td>“Or verified seed” was removed in v14.2 Section VII.A.2.:
2. Feed compliance based on use of compliant seed ~~or verified seed~~
Under certain circumstances, compliance of livestock feed may be demonstrated based on use of compliant ~~or verified~~ seed ~~according in compliance with Section VII.A.2.a.to any one of the options below~~; in such cases post-harvest feed testing is not required.</td></tr>
<tr><td>v14.1 Section VII.A.2.a.i.</td><td>v14.1 Section VII.A.2.a.i. (Strip testing below 0.25% Action Threshold) has been retained in v14.2 and has become v14.2 Section VII.A.2.a.</td></tr>
<tr><td>v14.1 Section VII.A.2.a.ii.</td><td>The following compliance pathway was deleted in v14.2:
ii. Testing according to Table 4.
Feed may be approved based on traceability, segregation, and test results for seed showing compliance with the thresholds set forth in Table 4. In such cases testing must be done in accordance with the requirements set forth in Section V. Segregation may be demonstrated through best practices such as buffer zones, strategic planting schedules and other measures to protect in-field crops grown from compliant seed from cross-pollination with GM crops.
Table 4. Compliance Action Thresholds for Seeds Used to Grow Livestock Feed Inputs Seed Type Action Threshold
<table>
<tr><th>Seed Type</th><th>Action Threshold</th></tr>
<tr><td>Corn</td><td>0.9%</td></tr>
<tr><td>Alfalfa</td><td>0.5%</td></tr>
<tr><td>Soy</td><td>0.5%</td></tr>
<tr><td>Cotton</td><td>0.9%</td></tr>
<tr><td>Canola</td><td>0.9%</td></tr>
<tr><td>Beets</td><td>0.5%</td></tr>
</table>
In the event that post-harvest surveillance testing conducted by the Project on livestock feed grown from compliant seed returns PCR test results above the Action Threshold for animal feed, this will be treated as a major nonconformity pursuant to Section IX.C.3. to Section IX.C.6.</td></tr>
<tr><td>v14.1 Section VII.A.2.a.iii.</td><td>v14.1 Section VII.A.2.a.iii. (High-moisture crops) has been retained in v14.2 and has become v14.2 Section VII.A.2.b.</td></tr>
</table>

Standard v14.2 Section	Change
v14.1 Section VII.A.2.b.	The following compliance pathway was deleted in v14.2: b. **Verified seed.** Feed may be approved based on use of verified seed in combination with appropriate segregation and traceability measures. In order to be verified, all seed types must test at or below the Action Threshold of 0.25% as listed in Section V.A.
VII.D.	Clarity was given surrounding the meaning behind the temporary exclusion for the growth media required to cultivate probiotics used in vitamins and supplements, and the growth media used to cultivate the microorganisms from which enzymes are derived, if those enzymes are being used as Inputs or Ingredients to vitamins and supplements. This temporary exclusion of growth media from the scope of review only applies to the probiotics and enzymes used as Inputs or Ingredients to vitamin and supplement products. **D. ~~Probiotic~~ Growth Media for Certain Vitamin and Supplement Inputs ~~and Enzyme Substrates~~** Based on demonstrated lack of commercial availability, the growth media for probiotic microorganism inputs and microorganisms that produce enzyme ~~and substrates of probiotic and~~ inputs to vitamin and supplement products are temporarily outside the scope of evaluation.
Substrate	The following was deleted in v14.2: **Substrate** – See Growth Media.
Appendix B – High-Risk List, Footnote 16	Footnote 16 was edited to convey the idea that derivatives of crops that are on the High-Risk list (i.e., alfalfa, canola, corn, cotton, papaya, soy, sugar beet, and zucchini and yellow summer squash) are also considered High-Risk. For example, maltodextrin derived from corn is considered High-Risk. Footnote 16: This is a non-exhaustive list of derivatives that should be considered high-risk when sourced from crops in Appendix B.A.1. ~~with high GMO risk that are commonly used in food production.~~ It is meant to provide examples of materials that are considered High-Risk by the Non-GMO Project.

Summary of Changes from Version 14.2 of the Standard (Hyperlinked)

Summary of Changes from v14.2 to v14.3 Published October 31, 2018

The table below identifies changes made from Version 14.2 (v14.2) to Version 14.3 (v14.3) of the Standard. Column 1 provides links to the location of the revised text in v14.3 by section number. Titles are included only for Level 1 headers. When changes were made to a specific row in a table, the table row number is also provided. Sections identified in Column 1 that were deleted from v14.3 of the Standard have no links. Text that appears in orange in Column 2 identifies the specific additions made to the text. Text that has been struck identifies specific deletions made to the text.

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Standard v14.3 Section	Change
VI.A.1.	The following language was edited to reflect the ever-evolving testing landscape. Additional edits to maintain conceptual consistency are forthcoming: **A. Non-Testable High-Risk Inputs** 1. ~~For~~ Non-Testable High-Risk Inputs are ~~(~~identified in Appendix B, Section B~~), no point in the production chain exists at which the GM can be identified using current testing methodologies~~.
Appendix B, Section B.1.	The crop "Potato" was moved from the Non-Testable Monitored-Risk List (v14.2 Appendix C, Section B.1.) to the Non-Testable High-Risk List (v14.3 Appendix B, Section B.1.) and rewritten as "Potato (RNAi)."
Appendix B, Section B.1.	The crop "Soy (TALEN)" was moved from the Non-Testable Monitored-Risk List (v14.2 Appendix C, Section B.1.) to the Non-Testable High-Risk List (v14.3 Appendix B, Section B.1.).
Footnote 19	A footnote was added to indicate that soy is now present on both the Testable and Non-Testable High-Risk Lists: Footnote 19: Note that soy is also on the list of Testable High-Risk Inputs and must therefore be compliant with the requirements in Section V and Section VI.
Footnote 20	v14.2 Footnote 19 became v14.3 Footnote 20.
Footnote 21	v14.2 Footnote 20 became v14.3 Footnote 21.