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Voluntary Labeling Indicating Whether Food Has or Has Not Been Derived From Genetically Engineered Atlantic Salmon: Guidance for Industry

Draft Guidance

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For questions regarding this draft document contact the Center for Food Safety and Applied Nutrition (CFSAN) at 240-402-2371.

**U.S. Department of Health and Human Services
Food and Drug Administration
Center for Food Safety and Applied Nutrition
Center for Veterinary Medicine**

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Voluntary Labeling Indicating Whether Food Has or Has Not Been Derived From Genetically Engineered Atlantic Salmon: Guidance for Industry¹

This draft guidance, when finalized, will represent the current thinking of the Food and Drug Administration (FDA or we) on this topic. It does not establish any rights for any person and is not binding on FDA or the public. You can use an alternative approach if it satisfies the requirements of the applicable statutes and regulations. To discuss an alternative approach, contact the FDA staff responsible for this guidance as listed on the title page.

I. Introduction

This document provides guidance intended to assist food manufacturers that wish to voluntarily label their food products or ingredients (for humans or animals) derived from Atlantic salmon as either containing or not containing products from genetically engineered (GE) Atlantic salmon.² This document also provides guidance on voluntary statements that may be appropriate for species of salmon that have no GE counterparts. FDA's main concern within the context of this guidance is that such voluntary labeling be truthful and not misleading.

¹ This guidance has been prepared by the Office of Nutrition and Food Labeling in the Center for Food Safety and Applied Nutrition and the Office of the Director in the Center for Veterinary Medicine at the U.S. Food and Drug Administration.

² In July 2016, the National Bioengineered Food Disclosure Standard (NBFDS), PL 114-216, was signed into law. This law amended the Agricultural Marketing Act and charged the U.S. Department of Agriculture's (USDA) Agricultural Marketing Service (AMS) with developing a national mandatory standard for disclosing the presence of bioengineered material in human food. The term "bioengineered" as defined in that law includes products that are GE. The law primarily applies to human food derived from plants; however, it does apply to some animal-derived foods, including salmon. As a result, Federal law now requires that human food that is derived from or contains GE Atlantic salmon must bear a disclosure on the label that conforms to the national standard, as further defined through final USDA regulations. Therefore, FDA no longer has authority over voluntary labeling to indicate the presence of GE content in human foods, including salmon. FDA retains jurisdiction over labeling statements to indicate the absence of GE content in human food. The NBFDS does not apply to animal food. In light of the NBFDS and its implementing regulations issued on December 20, 2018, FDA is reviewing this draft guidance to consider what additional or new recommendations may be needed for the kinds of products or statements, including claims of non-GE content, that are not covered by the NBFDS.

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FDA's guidance documents, including this guidance, do not establish legally enforceable responsibilities. Instead, guidances describe FDA's current thinking on a topic and should be viewed only as recommendations, unless specific regulatory or statutory requirements are cited. The use of the word *should* in FDA guidances means that something is suggested or recommended, but not required.

In this guidance, we use the terms "bioengineering," "bioengineered," and "genetic engineering" to describe the use of modern biotechnology. Modern biotechnology means the application of *in vitro* nucleic acid techniques, including recombinant deoxyribonucleic acid (DNA) and direct injection of nucleic acid into cells or organelles, or fusion of cells beyond the taxonomic family, that overcome natural physiological reproductive or recombinant barriers and that are not techniques used in traditional breeding and selection (Ref. 1). The term "modern biotechnology" may alternatively be described as "recombinant DNA (rDNA) technology," "genetic engineering," or "bioengineering." These terms are often used interchangeably by industry, federal agencies, international bodies, and other interested stakeholders and are used in this guidance to refer to foods developed using modern biotechnology. For the purpose of this guidance, FDA will primarily use the term "genetic engineering" or "GE" to describe the use of modern biotechnology in Atlantic salmon. FDA considers the term "genetic modification" to be a much broader term that encompasses other means of altering the genome of an organism including selective breeding, and lab-based *in vitro* methods. Genetic engineering is thus a subset of genetic modification³.

With regard to animals, FDA regulates GE animals under the new animal drug provisions of the Federal Food, Drug, and Cosmetic Act (the FD&C Act). We described our process and authority for regulating GE animals in a 2009 Guidance for Industry, 187, "Regulation of Genetically Engineered Animals Containing Heritable Recombinant DNA Constructs" (GFI 187). (Ref. 2).

As explained in GFI 187, in general, a new animal drug must be the subject of an approved new animal drug application (NADA) unless it is the subject of an investigational exemption or is used in conformance with regulations promulgated under sections 512(a)(4) or (a)(5) of the FD&C Act (21 U.S.C. 360b(a)(4) or (a)(5)).

On November 19, 2015, FDA approved a new animal drug application (NADA) for an rDNA construct in a line of farm-raised Atlantic salmon known as AquAdvantage Salmon.⁴ This is FDA's first approval of a NADA related to a GE animal intended for use as food. AquAdvantage Salmon is genetically engineered to reach market size in a shorter period of time than do non-GE farm-raised Atlantic salmon. Because section 201(f)(1) of the FD&C Act (21

³ For a more detailed discussion, please see

<http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/ucm059098.htm>

⁴ The NADA is for approval of the integrated α -form of the *opAFP-GHc2* gene construct at the α -locus in the EO-1 α line of Atlantic salmon under the conditions of use specified in the application, however, for ease of reference, this document refers to the application as being for approval of the AquAdvantage Salmon.

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U.S.C. 321(f) defines “food” as “articles used for food or drink for man or other animals,” the food from GE and other Atlantic salmon addressed in this guidance include Atlantic salmon (and the products derived from Atlantic salmon) used as food for humans as well as for animals.

For simplicity we use the term “genetically engineered Atlantic salmon” in this guidance to refer to food products that are derived from genetically engineered Atlantic salmon, as well as to the GE Atlantic salmon itself.⁵

II. Background

The FD&C Act prohibits the introduction or delivery for introduction into interstate commerce of any food that is misbranded. 21 U.S.C. § 331(a). Under section 403(a)(1) of the FD&C Act, a food is misbranded if its labeling is false or misleading in any particular. 21 U.S.C. § 343(a)(1). Section 201(n) of the FD&C Act (21 U.S.C. 321(n)) provides that labeling is misleading if, among other things, it fails to reveal facts that are material in light of representations made or suggested in the labeling, or material with respect to consequences that may result from the use of the food to which the labeling relates under the conditions of use prescribed in the labeling, or under such conditions of use as are customary or usual. 21 U.S.C. § 321(n).

The FD&C Act does not define the term “material” within the context of section 201(n) of the FD&C Act. Historically, FDA has interpreted the term, within the context of food, to mean information about the attributes of the food itself. For example, FDA has required additional labeling in cases where the absence of such “material” information may: (1) pose special health risks (e.g., a warning statement on protein products used in very low calorie diets (21 CFR 101.17(d)) (Ref. 3), or a caution statement not to feed animal food products that contain animal-derived protein to cattle or other ruminants (21 CFR 589.2000(c)(1)(i)) (Ref. 4)); (2) mislead the consumer in light of other statements made on the label (e.g., a requirement for quantitative nutrient information when certain nutrient content claims are made about a product (21 CFR 101.13(j)) (Ref. 5)); or (3) in cases where a consumer may assume that a food, because of its similarity to another food, has nutritional, functional, or other essential characteristics of the food it resembles when in fact it does not (e.g., a statement that reduced fat margarine is not suitable for frying (21 CFR 101.13(d)(1)) (Ref. 6)). Further, section 403(i) of the FD&C Act and FDA regulations require that each food bear a common or usual name or, in the absence of such a name, an appropriately descriptive term (21 U.S.C. § 343(i); 21 CFR 101.3, 501.3).

In a 1992 “Statement of Policy: Foods Derived from New Plant Varieties” (1992 Policy) (Ref. 7), FDA explained its interpretation of the FD&C Act with respect to foods from new plant varieties, including varieties developed using bioengineering. In the 1992 Policy, FDA stated

⁵ Technically, it is the animal that is GE (an Atlantic salmon in this case) rather than the food derived from the animal (i.e., the genetic engineering is directed at the animal and not the food).

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that it is not aware of any information showing that bioengineered foods differ from other foods in any meaningful or uniform way, or that, as a class, foods developed by the new techniques present any different or greater safety concern than foods developed by non-GE plant breeding (Ref.7). Further, FDA concluded that the method of development of a new plant variety (including the use of new techniques such as rDNA technology) is generally not material information within the meaning of section 201(n) of the FD&C Act and would not usually be required to be disclosed in labeling for the food. This determination was reviewed and upheld by the court in *Alliance for Bio-Integrity v. Shalala*, 116 F. Supp. 2d 166, 178–79 (D.D.C. 2000) (finding that FDA’s determination that genetic engineering, alone, is not a material fact that warrants food labeling was entitled to deference) (Ref 8). Labeling provided by manufacturers on a wholly voluntary basis regarding whether a food was or was not bioengineered as described in this guidance is acceptable to FDA, provided that such labeling is truthful and not misleading. Some consumers are interested in the information provided in such labeling

Furthermore, on January 18, 2001, FDA issued a draft guidance for industry entitled, “Voluntary Labeling Indicating Whether Foods Have or Have Not Been Developed Using Bioengineering.” In this document, FDA noted we were not aware of any data or information that would form a basis for concluding that use of bioengineering alone is a material fact that must be disclosed under sections 403(a) and 201(n) of the FD&C Act. On November 19, 2015, we published a final version of this guidance (<http://www.fda.gov/foodguidances>). For many years, FDA has consistently noted that the method of development of a new plant variety is generally not material information within the meaning of section 201(n) of the FD&C Act and would not usually be required to be disclosed in the labeling for the food.

FDA similarly noted in GFI 187 that labeling of food from GE animals would be subject to the same requirements as food from non-GE animals, and that as with food from GE plants, the fact that the animal from which food was obtained was genetically engineered would not be material information with respect to labeling. However, if food from a GE animal is significantly different from that of its non-GE counterpart (for example if it has a different nutritional property) in general that difference would be material information that would have to be revealed in labeling.

On September 21, 2010, FDA held a public hearing regarding the labeling of food derived from AquAdvantage Salmon (Ref. 9). At the hearing, FDA explained relevant legal principles for food labeling and asked for information and views on the application of these principles to the labeling of food derived from AquAdvantage Salmon. FDA asked the public to comment on two questions: (1) “which facts about the AquAdvantage Salmon seem most pertinent for FDA’s consideration of whether there are any ‘material’ differences between foods from this salmon and foods from other Atlantic salmon” and (2) “if FDA determined there are ‘material’ differences, how would those differences be described on a food label in a way that is truthful and non-misleading.” See 75 FR 52602. We received more than 30,000 written comments in

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response to the public hearing; many of these comments requested mandatory labeling of GE salmon should FDA approve it.

After reviewing data and information submitted in response to the public hearing, we did not find any data or information showing that AquAdvantage Salmon is materially different from other Atlantic salmon in a manner that would require additional labeling in accordance with sections 403(a) and 201(n) of the FD&C Act.

Based on our assessments of food derived from the AquAdvantage Salmon, we have determined that the term “Atlantic salmon” is the appropriate common or usual name for such food within the meaning of section 403(i) of the FD&C Act because AquAdvantage Salmon meets FDA’s regulatory standard for Atlantic salmon (Ref. 10) and the composition and basic nature of food from AquAdvantage Salmon does not significantly differ from its non-GE counterpart—non-GE farm-raised Atlantic salmon. In addition, we have determined that food derived from AquAdvantage Salmon is as safe and nutritious as food from other farm-raised Atlantic salmon. For these reasons, we have concluded that there is no material difference between food derived from AquAdvantage Salmon and food derived from other non-GE, farm-raised Atlantic salmon that is required to be disclosed in the labeling of food derived from AquAdvantage Salmon under the relevant provisions of the FD&C Act, as explained above. See 21 U.S.C. 321(n) & 343(a).

Nonetheless, we recognize that some consumers are interested in knowing whether a food is derived from genetically engineered Atlantic salmon, and some manufacturers may want to respond to this consumer interest. FDA supports voluntary labeling and is providing this guidance to assist manufacturers that wish to voluntarily label their foods as being made with Atlantic salmon or ingredients derived from Atlantic salmon that has or has not been genetically engineered.

III. Guidance

A. General principles

In determining whether a food is misbranded, FDA generally reviews labeling statements, including statements about the use of foods or ingredients derived from plants, animals, or microorganisms that have been produced through modern biotechnology, under sections 403 and 201(n) of the FD&C Act, and if applicable, other sections of the FD&C Act. A food is misbranded under section 403(a)(1) of the FD&C Act if its label or labeling is false or misleading in any particular. For example, the label on a package of crab cakes cannot declare that the crab cakes contain ingredients, such as celery and onions, if those ingredients are not actually present in the crab cakes.

Under section 201(n) of the FD&C Act, both the presence and the absence of information are relevant to whether labeling is misleading. Put another way, food labeling may be misleading if

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it makes or suggests certain representations, or if it fails to disclose facts that are material in light of representations made or suggested in the labeling, or facts that are material with respect to the consequences that may result from use of the food to which the labeling relates. In determining whether a labeling statement about a food is misleading under sections 201(n) and 403(a)(1) of the FD&C Act, FDA takes into account all labeling for that food, including the label of the food itself or any of its containers or wrappers and other information accompanying the food, such as labeling for the food that is on the internet.

In addition, section 403(i) of the FD&C Act and FDA regulation require that a food bear a common or usual name or, in the absence of such a name, an appropriately descriptive term (21 U.S.C. § 343(i); 21 CFR 101.3, 501.3).

These labeling requirements apply to foods generally, including food from GE animals or plants. Accordingly, if a GE derived food presents characteristics that are materially different from those of comparable foods (e.g., differences in the basic nature of the food, material differences in the consequences of use, material differences in the nutritional properties, or contained any allergens that the consumer would not expect to be in the food), then additional labeling would be required. Thus, with regard to food from Atlantic salmon:

- If food derived from genetically engineered Atlantic salmon were significantly different from its non-GE counterpart (i.e., non-GE farm-raised Atlantic salmon) such that the common or usual name no longer adequately described the new food, the name would have to be changed to a term that adequately and sufficiently described the new food. See 21 CFR Parts 101.3, 201.3; and 102.5, 502.5.
- If food derived from genetically engineered Atlantic salmon differed from its non-GE counterpart in terms of how the food is used or with respect to the consequences of its use, a statement would have to be made in the labeling to describe the difference(s) in use or the consequences of its use.
- If food derived from genetically engineered Atlantic salmon had a significantly different nutritional property compared to its non-GE counterpart, the labeling of that food would have to describe such difference.
- If food derived from genetically engineered Atlantic salmon contained an allergen that consumers would not expect to be present, the presence of that allergen would have to be disclosed on the food label.

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B. Statements about food products or food ingredients derived from Atlantic salmon or other salmon species that have not been genetically engineered

Food manufacturers may label food products or food ingredients as being derived from Atlantic salmon that have not been genetically engineered, as long as such information is truthful and not misleading. For food products or food ingredients derived from Atlantic salmon that was not genetically engineered, examples of statements that manufacturers may voluntarily use include:

- “Not genetically engineered.”
- “Not genetically modified through the use of modern biotechnology.”
- “We do not use Atlantic salmon produced using modern biotechnology.”

Other terms are sometimes used by manufacturers in food labeling regarding whether a food was not derived from genetic engineering, including “not genetically modified” and claims using the acronym “GMO” (genetically modified organism). In light of potential confusion regarding the meaning of the acronym “GMO,” FDA encourages manufacturers to use terms such as “not bioengineered,” “not genetically engineered,” and “not genetically modified through the use of modern biotechnology.” However, FDA does not intend to take enforcement action against a label using the acronym “GMO” in a statement indicating that the product (or an ingredient) was not produced through the use of modern biotechnology, as long as the food is, in fact, not derived from a genetically engineered source and the food’s labeling is not otherwise false or misleading, as further discussed in this guidance. Similarly, we do not intend to take enforcement action against a label using the acronym “GMO” in a statement indicating that the product (or an ingredient) was produced through the use of modern biotechnology, as long as the statement was true and the food’s labeling is not otherwise false or misleading.

As noted above, under section 403(a)(1) of the FD&C Act, a food is misbranded if its labeling is false or misleading in any particular. Both the presence and absence of information on labeling can be misleading. Regarding the absence of information, section 201(n) of the FD&C Act provides in relevant part that labeling is misleading if it fails to reveal facts that are material in light of representations made or suggested in the labeling, or material with respect to consequences that may result from use of the food to which the labeling relates under the conditions of use prescribed in the labeling, or under conditions of use as are customary or usual.

An example of a statement in food labeling that may be false or misleading could be the statement “None of the ingredients in this food is genetically engineered” on a food where some of the ingredients are incapable of being produced through genetic engineering (e.g., salt). It may be necessary to carefully qualify the statement where modern biotechnology is not used to produce a particular ingredient or type of food.

Further, a statement may be false or misleading if, when considered in the context of the entire label or labeling (as noted in Section IIIA. above), it suggests or implies that a food product or

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ingredient is safer, more nutritious, or otherwise has different attributes than other comparable foods because the food was not genetically engineered. For example, the labeling of a box of frozen Atlantic salmon croquettes that states that they were “not produced through modern biotechnology” could be misleading if, in addition to this statement, the labeling contains statements or vignettes that suggest or imply that, as a result of not being produced through modern biotechnology, such food is safer, more nutritious, or has different attributes than other foods solely because the food was not produced using modern biotechnology.

We recognize that consumers may not distinguish among different types of salmon. Since the AquAdvantage Salmon is a farm-raised Atlantic salmon, its only direct non-GE counterpart is farm-raised Atlantic salmon that is not genetically engineered. If sellers of other types of salmon, such as Sockeye salmon, want to assist consumers in avoiding confusion about the limited scope of fish products on the market that are genetically engineered, they may wish to label their products in a way that makes this point clear, such as “Not genetically engineered. No Sockeye salmon is genetically engineered.”⁶

C. Statements about Atlantic salmon, or food products or food ingredients derived from Atlantic salmon that has been genetically engineered

The following are examples of some voluntary statements that food manufacturers might make in the labeling of food products or food ingredients derived from AquAdvantage Salmon.

- “Genetically engineered” or
- “This salmon patty was made from Atlantic salmon produced using modern biotechnology.”

These kinds of simple statements above—that Atlantic salmon was developed using genetic engineering—are not likely to be misleading. Similarly, the following statement explaining why the salmon was genetically engineered is not likely to be misleading.

- “This Atlantic salmon was genetically engineered so it can reach market weight faster than its non-genetically engineered counterpart.”

D. Substantiation of labeling statements

A manufacturer that claims that food products or food ingredients derived from Atlantic salmon that either has or has not been genetically engineered should substantiate that the claim is truthful

⁶ The labeling of any food as having not been produced through the use of genetic engineering could be misleading if, in addition to this statement, the labeling contains statements or vignettes that suggest or imply that, as a result of not being produced through modern biotechnology, the food is safer, more nutritious, or has different attributes than other foods solely because the food was not produced using modern biotechnology.

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and not misleading. Documentation of handling practices and procedures may be used to substantiate a claim. Manufacturers should consider appropriate recordkeeping to document whether food comes from Atlantic salmon that has or has not been produced using genetic engineering. This could include documentation of valid segregation procedures sufficient to ensure that its labeling is not false or misleading.

For food products or food ingredients derived from salmon other than Atlantic salmon, substantiation that the products or ingredients have not been genetically engineered is not necessary at this time because FDA has not approved an application concerning a GE salmon other than AquAdvantage Salmon. Consequently, other GE fish are not available on the market.

IV. References

The following references marked with an asterisk (*) are on display in the Dockets Management Staff (HFA-305), Food and Drug Administration, 5630 Fishers Lane, Rm. 1061, Rockville, MD 20852, and are available for viewing by interested persons between 9 a.m. and 4 p.m., Monday through Friday; they also are available electronically at <https://www.regulations.gov>. References without asterisks are not on public display at <https://www.regulations.gov> because they have copyright restriction. Some may be available at the website address, if listed. References without asterisks are available for viewing only at the Dockets Management Staff. FDA has verified the website addresses, as of March 6, 2019, but websites are subject to change over time.

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6. Food and Drug Administration. 1993. "Food Standards: Requirements for Foods Named by Use of a Nutrient Content Claim and a Standardized Term" *Federal Register*. Vol. 58, pp. 2431 at 2437, January 6, 1993.*
7. Food and Drug Administration. 1992. "Statement of Policy: Foods Derived From New Plant Varieties; Notice" *Federal Register*. Vol. 57, May 29, 1992, pp. 22984-23005.*
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