

Allergens and Maple Syrup Production

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Processing maple syrup into value-added products can increase product diversity, sales and producer profits. When considering the variety of potential value-added products, such as salad dressings, coated nuts, seasoning products, and sauces, it is important to evaluate the ingredients for their allergen risk potential and add the proper allergen statements to food product labels. This will ensure that you produce quality products and protect potentially susceptible consumers.

According to researchers,¹ approximately 32 million people in the US have food allergies and food allergies among children have risen by 50% between 1997 and 2011.² The US Food Allergen Labeling and Consumer Protection Act was passed in 2004 and requires that food be labeled with the identity of eight major food allergens. This labeling is a critical part of a HACCP plan and the control of allergen cross-contact is required in the revised Food and Drug Administration's Current Good Manufacturing Practices for food producers and the Food Safety Modernization Act, Preventive Controls for Human Food rule. It is important for maple producers to understand how food allergies may impact their products and production practices.

While people have reported allergies to more than 170 different

foods, the US Food and Drug Administration recognizes eight major allergens:³ milk, egg, peanut, tree nuts, wheat, soy, fish, and crustacean shellfish. An allergy to sesame is also under review. Health Canada lists 12 allergenic foods of concern:⁴ crustaceans and mollusks, eggs, gluten, milk, mustard, peanuts, fish, sesame, soy, sulphites, tree nuts, wheat, and triticale. The European Union lists 14 food allergens:⁵ cereals containing gluten (wheat, barley, rye, etc.), crustaceans (prawns, lobster, crabs and crayfish), eggs, fish, peanuts, soybeans, milk, tree nuts, celery, mustard, sesame, sulfur dioxide, lupin, and mollusks.

Allergens arise from foods that contain allergenic proteins, which are natural constituents of the food. These proteins can pose a health risk to sensitive individuals. Some food components that are not technically proteins, such as sulfites, can also cause symptoms similar to allergenic proteins. Food allergy symptoms can include tingling sensations in the mouth, a swelling of the tongue and throat, nausea, difficulty in breathing, chest pain, hives, rash, itchy skin, vomiting, abdominal cramps, diarrhea, anaphylactic shock, and sometimes even death. Food allergy symptoms often develop suddenly, can be triggered by only a small amount of food, and can happen whenever that food is eaten. The symptoms are the

result of the immune system reacting to a specific food or an ingredient in the food. In many cases an allergenic protein may be derived from a food that is then used as an ingredient in the preparation of another food product. Salad dressings often contain allergenic proteins such as casein, lactose, and whey, which are derived from milk. Dried egg yolk powder may be found in salad dressings and pancake or waffle mixes. Cooking oils may be a hidden source of allergens if they are made from peanuts, soybeans, canola or sesame. These oils may be an ingredient in barbecue and condiment sauces of various types.

Consumers with food allergies must avoid those specific allergens to prevent potential life-threatening reactions. According to the Food Allergen Labeling and Consumer Protection Act, undeclared food allergens are considered chemical hazards. They can be accessed by consumers in food if manufacturers do not declare the allergenic ingredient on the product label. Allergens can also be included in foods due to cross-contact that occurs during preparation. It is important to note that cross-contact and cross-contamination are different aspects of food safety. Cross-contact occurs when proteins are transferred from one food to another food that does not normally contain the protein/allergen. Cross-contamination occurs when bacteria from one food product is transferred to another. Both cross-contact and cross-contamination can be adequately addressed by following good manufacturing practices and utilizing proper sanitation

procedures.

According to the final rule of the Food Safety Modernization Act, food allergen controls are written procedures a food manufacturer implements to control allergen cross-contact and the controls must ensure that allergens are listed correctly on the labels of packaged food products.

Allergen control programs to prevent cross-contact include some of the following Good Manufacturing Practices (GMPs) and Standard Operating Procedures (SOPs).

- Raw materials containing allergens are properly labeled and stored separately or below other food items to prevent contamination by accidental leakage by allergenic raw materials.
- Scheduling the timing when allergen containing ingredients/foods are placed into production to avoid potential cross-contact (for example, the last production run of the day).
- Procedures are in place to ensure complete removal of allergens from the processing area followed by strict cleaning procedures of all food contact surfaces.
- Documenting and recording the procedures used to control and prevent cross-contact.

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- Ensuring the proper label/packaging is placed onto the finished product.

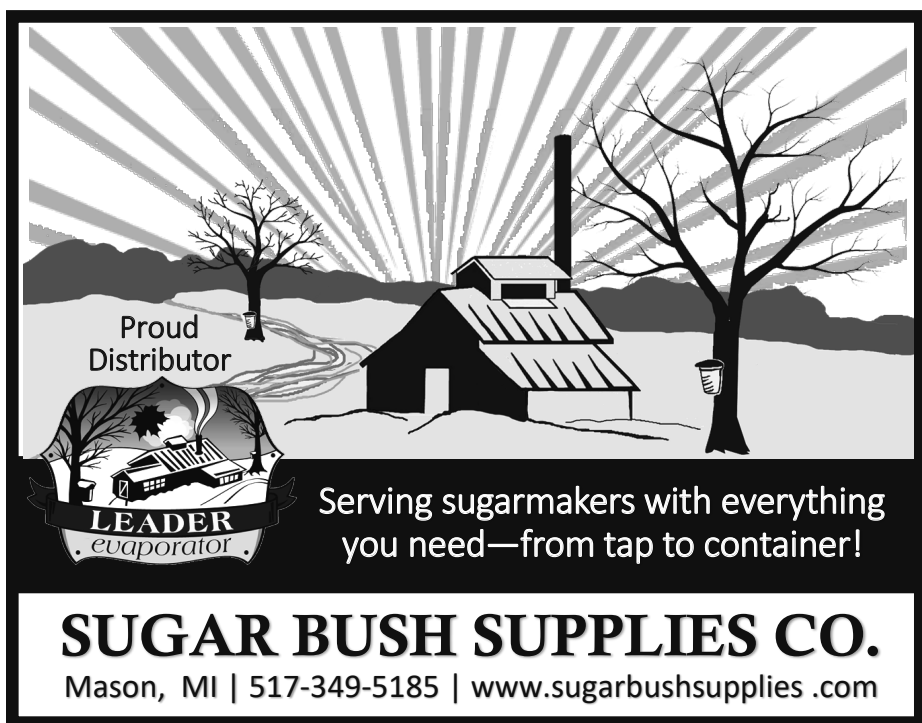
Records that can show your efforts to eliminate allergen cross-contact include:

- A written food safety plan that includes: a hazard analysis of the production process, development of preventive controls, development of a recall plan, and monitoring of potential hazard points, corrective actions, and process verification procedures.
- Implementation records may include: monitoring records,

corrective action records, validation documentation, calibration records, verification activity records, supply-chain management, and personnel training (including sanitation training records).

Some verification activities you should be employing include:

- Identifying, marking and/or color-coding allergen-containing ingredients when they are received.
- Storing allergen-containing materials separately.
- Scheduling production of products based on allergen-



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containing recipes and cleaning thoroughly all production areas and tools after the production process.

- Separate processes and/or facilities for non-allergen and allergen-containing products.
- Using dedicated cleaning utensils and equipment for allergenic products and identifying them by color coding.
- Reviewing each new batch of labels when received to ensure correct labeling of allergens. The wording for a “Contains” statement may be limited to just stating the word “Contains” followed by the names of the food sources of all major food allergens that either are in or are contained in ingredients used to make the packaged product.
- Training staff on quality assurance processes for applying the correct label to the correct product.

Allergen Labeling Statements

To provide full disclosure to consumers, most jurisdictions require some form of allergen labeling on packaged foods. The Food and Drug Administration (FDA) regulates allergen statements for the United States. To declare major food allergens, a statement should begin with the word “Contains” followed by the food allergens present in the same type and font size as the ingredient

list. The “Contains” statement must identify the names of the food sources for all major food allergens that either are in the food or are contained in the ingredients of the food.⁶

In Canada, the Canadian Food Inspection Agency provides requirements for food allergen labeling on packaged foods. Producers may either label the individual foods in the ingredient list with the allergens they contain or provide a separate list of allergens using a “Contains” statement on the label. Producers may also include a precautionary cross-contamination statement “May Contain” when a food allergen may unintentionally be present in the food even when employing good manufacturing practices.⁷

In the European Union, Article 21 of Regulation (EU) No 1169/2011 requires that allergens be declared in the list of ingredients where the name of the substance has to be emphasized through a typeset that clearly distinguishes it from the rest of ingredients, by means of the font, style or background color. If there is no list of ingredients, the allergens must be indicated by using the word “contains” followed by the name of the food allergen. The allergens declaration is also mandatory for foods offered for sale to the final consumer or to mass caterers without prepackaging, or where foods are packed on the sales premises at the consumers’ request or prepacked for direct sale.⁸

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Definitions

Cross-contact: The unintentional incorporation of undeclared allergens into foods that are not intended to include those allergens. Cross-contact can occur either between foods that contain different food allergens or between foods with and without food allergens. Introduction of an allergen through cross-contact may occur during receiving, handling, processing and storage of ingredients and foods, utensils, and packaging; through improper handling and cleaning of equipment, utensils, and facilities; and through improper facility design.

Food allergen: A major food allergen as defined in section 202(2)⁹ of

the Federal Food, Drug, and Cosmetic Act.

Food-contact surfaces: Any surface that contacts human food during the normal course of operations. “Food-contact surfaces” includes utensils and food-contact surfaces of equipment.

Preventive controls: Risk-based, reasonably appropriate procedures, practices, and processes that are employed for the safe manufacturing, processing, packing, or holding of food to significantly minimize the potential hazards identified under the hazard analysis; the preventive controls must be based on current scientific data of safe food manufacturing practices, such as processing,



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packing, or holding foods, and may require a validation study.

Where Are Allergens Found?

Crustacea: includes shrimp, krill, crab, lobster, prawn, and crayfish.

Egg: egg white (albumin) egg yolk, powdered eggs, mayonnaise, egg solids, and many pasta varieties.

Fish: bass, cod, flounder, tuna, salmon, Worcestershire sauce, fish sauce, imitation fish or crab, salad dressings.

Milk (Dairy): milk caseins, whey and whey powder, butter, cream, cottage cheese, yogurt, lactose, caseinates, cheese, lactose, half and half,

buttermilk, and sour cream.

Peanut: peanuts, peanut flour, peanut protein, hydrolysate, goobers, beer nuts.

Soy: soy, edamame, miso, natto, tempeh, tofu, soy milk, soy cheese, soy yogurt and soy ice cream, tamari and other soy sauces.

Tree Nuts: almonds, Brazil nuts, cashews, filberts/hazelnuts, macadamia nuts, pecans, pine nuts, pistachios, walnuts, almond paste, pesto, nut meal, shea nut, coconut and pine nuts.

Wheat: wheat, barley, oats (that are not listed as gluten-free), rye,

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Syrup producers take note! There are some suppliers promoting and selling *seedlings* of high-content parent trees; only vegetative cloning (tissue culture or cuttings) will reliably pass on the high sugar content trait to offspring!

Please contact Connor Hardiman at St. Lawrence Nurseries:
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spelt, bulgur, flour, wheat gluten, malt, wheat germ oil, matzoh, durum, couscous, Kamut, wheat bran and wheat gluten.

Sesame: sesame, tahini, gingelly, til seeds, benne, benniseed, and some cosmetics.

Sulphites (Sulfites): sodium/potassium sulfites, potassium or sodium bisulphates/metabisulphites (bisulfates/metabisulfites), sulfur dioxide, sulphurous/sulfurous acid, and sulfiting/sulfiting agents.

Mustards: mustard, mustard seed, canola meal, canola oil; can include some of the following condiments/foods: sauces, pickled products, salad dressings (including vinaigrette dressings), dehydrated mashed potatoes, soups, and marinades.

For More Information

Allergens USDA FSIS – Food Safety Inspection Service – PDF download

<https://www.fsis.usda.gov/wps/wcm/connect/f9cbb0e9-6b4d-4132-ae27-53e0b52e840e/Allergens-Ingredients.pdf?MOD=AJPERES>

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September 2020

[2F%24FILE%2Fchapter_11_allergen.pdf&usg=AOvVaw2wqy-F_FXANql-hMv9jkkx4](https://www.fda.gov/food/food-safety-modernization-act-fsma/fsma-final-rule-preventive-controls-human-food)

FSMA Preventive Controls for Human Food

<https://www.fda.gov/food/food-safety-modernization-act-fsma/fsma-final-rule-preventive-controls-human-food>

Food Allergen Labeling and Consumer Protection Act 2004

<https://www.fda.gov/food/food-allergensgluten-free-guidance-documents-regulatory-information/food-allergen-labeling-and-consumer-protection-act-2004-questions-and-answers>

Food Allergens/Gluten-Free Guidance Documents & Regulatory Information

<https://www.fda.gov/food/guidance-documents-regulatory-information-topic-food-and-dietary-supplements/food-allergensgluten-free-guidance-documents-regulatory-information>

Food Information to Consumers (EU)

https://ec.europa.eu/food/safety/labelling_nutrition/labelling_legislation_en

How to Label Allergens on Your Food Product Canadian Food Inspection Agency

<https://www.inspection.gc.ca/food-label-requirements/labelling/industry/how-to-label-allergens/eng/1462469921395/1462472833650>

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