



QUICK START GUIDE:

# **FORMULATING MULTIPLE INGREDIENT PRODUCTS**

Oregon Tilth's Quick Start Guide series is designed to provide clients with all of the basics necessary to jump right in and get started on certification-related actions immediately.



# FORMULATING MULTIPLE INGREDIENT PRODUCTS

Getting started on formulating multiple ingredient organic products involves knowledge of some fundamental definitions, calculators and compliance requirements. The Quick Start Guide for Multiple Ingredient Products is intended to ask (and answer) the most important questions as well as provide you with mini case studies, templates and tools to use when starting the process on your own.

## IMPORTANT QUESTIONS & GUIDELINES:

**HOW DO I  
CALCULATE THE  
“ORGANIC-NESS”  
OF MY  
MULTI-INGREDIENT  
PRODUCT?**

**WHAT IS THE  
NATIONAL LIST  
AND WHY DOES IT  
MATTER FOR MY  
PRODUCT?**

**WHAT PROCESSES  
ARE ALLOWED AND  
PROHIBITED?**

**HOW DO I TRACK  
AND DOCUMENT  
INGREDIENTS?**

## LET’S GET STARTED!





# HOW DO I CALCULATE THE “ORGANIC-NESS” OF MY MULTI-INGREDIENT PRODUCT?

The formula you should use to calculate the percentage of organic ingredients in your product is simple. Use the following calculation:

TOTAL NET WEIGHT OR VOLUME OF  
COMBINED ORGANIC INGREDIENTS\*

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TOTAL WEIGHT OF ALL COMBINED INGREDIENTS\*

\*excluding salt and water

## DEFINED: INGREDIENT

Any substance used in the preparation of an agricultural product that is still present in the final commercial product as consumed.

## DEFINED: PROCESSING AID

(a) A substance that is added to a food during the processing of such food but is removed in some manner from the food before it is packaged in its finished form;

(b) a substance that is added to a food during processing, is converted into constituents normally present in the food, and does not significantly increase the amount of the constituents naturally found in the food; and

(c) a substance that is added to a food for its technical or functional effect in the processing but is present in the finished food at insignificant levels and does not have any technical or functional effect in that food.



# HOW DO I CALCULATE THE “ORGANIC-NESS” OF MY MULTI-INGREDIENT PRODUCT?

## MINI CASE STUDIES

The following mini case studies show you how to this formula applies to a few examples of multiple ingredient product types:

### VANILLA SUGAR COOKIES

MADE WITH ORGANIC FLOUR AND EGGS

**BULK/RETAIL:**  
RETAIL

**COMPOSITION CATEGORY:**  
MADE WITH ORGANIC \*

**ACTUAL PERCENTAGE:**  
75%  
(ROUNDING DOWN)

Ingredients	%
OG Wheat Flour	33
OG Sugar	25
OG Eggs	17.5
Butter	22
Baking Soda	0.1
Vanilla Extract	2
Salt (excluded)	0.4
-----Total	-----
	100
Weight of organic ingredients	75.5
Weight of formula w/o H2O and salt	99.6
Percent of organic ingredients	75.8

### ORGANIC PALE ALE BEER

**BULK/RETAIL:**  
RETAIL

**COMPOSITION CATEGORY:**  
95% - ORGANIC

**ACTUAL PERCENTAGE:**  
97%  
(ROUNDING DOWN)

Ingredients	%
OG Malted Barley	13.00
OG Hops (Cascade)	00.80
Carbon Dioxide	00.30
Water (excluded)	85.90
-----	-----
Total	100
Weight of organic ingredients	13.80
Weight of formula w/o H2O	14.10
Percent of organic ingredients	97.80
<b>Processing Aids</b>	
Brewing Yeast	NA
Carageenan	NA
CaCl2 - water treatment	NA
Filter Sheets (cellulose pads w/ diatomaceous earth)	NA

### ORGANIC WHOLE WHEAT BREAD

**BULK/RETAIL:**  
RETAIL

**COMPOSITION CATEGORY:**  
95% - ORGANIC

**ACTUAL PERCENTAGE:**  
98%  
(ROUNDING DOWN)

Ingredients	%
OG Whole Wheat Flour	80
OG Barley Flour	10
Baking Soda	1
Water (excluded)	8
Salt (excluded)	1
-----	-----
Total	100
Weight of organic ingredients	90
Weight of formula w/o H2O and salt	91
Percent of organic ingredients	98.9
<b>Processing Aids</b>	
Organic oil – pan release	NA

## TOOL TIPS: FORMULA CALCULATOR SPREADSHEET

We’re not expert mathematicians and don’t expect you should be either. The Oregon Tilth Product Formulation Sheet is a quick calculator to plug in all of your data from time of product formulation to determine the percentage of your organic ingredients.

Download the Product Formulation Calculator in our [Resource Library](#).

For more information about the Made with Organic category, read our [Organic Product Labeling & Composition Guide](#).



# WHAT IS THE NATIONAL LIST AND WHY DOES IT MATTER?

Simply put, the National List catalogs all non-organic materials allowed for use as ingredients, seasonings or processing aids in your organic products. These include common ones such as baking soda, yeast and citric acid. The following are some of the most common questions we receive regarding the National List materials and ingredients:

## **Why does it matter?**

The National List provides the only allowable non-organic ingredients and processing aids materials for use in your product.

## **What if I'm having trouble finding commercial sources of agricultural ingredients?**

We understand that it isn't always easy to find certain agricultural ingredients as certified organic for your product. But several resources exist to guide you to producers with organic agricultural products, including those on the 205.606 National List. Please consult the Tool Tips below.

## **What if I still can't find an ingredient certified as organic?**

Call us! We're here to be of service to you and see if we can't help you find what you need. You will need to demonstrate that a 205.606 product is not commercially available and the best place to start is a conversation with the Oregon Tilth certification team.

## **Is cost a viable indicator of commercial (un)availability?**

Cost does not constitute commercial unavailability.

## **If an item is found on the National List and is allowed, can I use it any way I want?**

No. There are often restrictions in the form of "annotations" for individual materials. Restrictions often apply to sourcing, identification, form, use and composition of the material. You must supply the certifier with documentation demonstrating compliance with all restrictions.

## **WHAT TYPES OF THINGS ARE ON THE NATIONAL LIST?**

### **§ 205.605**

#### **LISTS ALLOWED NON-AGRICULTURAL SUBSTANCES**

605(A) LISTS NON-SYNTHETIC SUBSTANCES, SOME W/ ANNOTATIONS

605(B) LISTS SYNTHETIC SUBSTANCES, SOME W/ ANNOTATIONS

### **§ 205.606**

**LISTS ALLOWED NON-ORGANIC, AGRICULTURAL INGREDIENTS (IF NOT COMMERCIALY AVAILABLE AS ORGANIC THAT CAN BE USED IN PRODUCTS LABELED AS ORGANIC)**



# WHAT IS THE NATIONAL LIST AND WHY DOES IT MATTER?

## MINI CASE STUDIES

The following materials are shown to demonstrate specified restrictions per annotations on the National List:

### CITRIC ACID

PRODUCED BY  
MICROBIAL  
FERMENTATION OF  
CARBOHYDRATE  
SUBSTANCES

### ENZYMES

MUST BE DERIVED  
FROM EDIBLE,  
NONTXIC PLANTS,  
NONPATHOGENIC FUNGI,  
OR NONPATHOGENIC  
BACTERIA

### CELLULOSE

FOR USE IN  
REGENERATIVE CASINGS,  
AS AN ANTI-CAKING AGENT  
(NON-CHLORINE BLEACHED)  
AND FILTERING AID

## TOOL TIPS: FINDING ORGANIC AGRICULTURAL PRODUCTS

A listing of searchable databases and websites to source difficult-to-find (and common) agricultural products that are listed in 205.606.

### [Oregon Tilth Find Organics Tool](#)

A searchable database of all agricultural (and processed) products certified organic by Oregon Tilth, updated daily.

### [606organic](#)

A searchable list of organic sources of ingredients currently allowed on the National List when commercial sources are not available.

### [OTA Organic Pages](#)

A comprehensive list of organic sources of a variety of materials and ingredients.

### [NOP Certified Operations List](#)

National Organic Program list of certified operators producing agricultural products as well as processed products.





# WHAT PROCESSES ARE ALLOWED AND PROHIBITED?

The majority of mechanical and biological processing used for multiple ingredient products is allowed under the National Organic Program. For quick reference, we'll break down what is allowed and what is prohibited:

## ALLOWED

- From ingredients to product: Cooking, baking, curing, heating, drying, mixing, grinding, churning, separating, distilling, extracting, slaughtering, cutting, fermenting, eviscerating, preserving, dehydrating, freezing, chilling or otherwise manufacturing
- From product to retail ready: Packaging, canning, jarring and otherwise enclosing food in a container
- Advanced methods: High pressure processing, infrared dehydrating/cooking, freeze drying, various purification technologies

As new technology comes on the market, the process or device may not have been evaluated by a certifier to determine compliance. Oregon Tilth recommend notifying the certifier prior to purchase and implementation in order to evaluate the new technology to determine compliance.

## PROHIBITED

- **Genetic modification or engineering:** Genetically modify organisms or influence their growth and development by means that are not possible under natural conditions or processes
- **Ionizing radiation:** Consult Food and Drug Administration regulation, 21 CFR 179.26
- **Sewage sludge**

The "Big 3" prohibited processes apply to organic and allowed non-organic ingredients from the National List. The general guideline for prohibited processes is that all certified § 205.105 products must be produced and handled without the use of (a) non-agricultural substances, except for those in § 205.605 (National List), and (b) non-organic agricultural substances except for those in § 205.606 (National List).

## DEFINED: PROCESSING (MECHANICAL/BIOLOGICAL METHODS)

Cooking, baking, curing, heating, drying, mixing, grinding, churning, separating, extracting, slaughtering, cutting, fermenting, distilling, eviscerating, preserving, dehydrating, freezing, chilling, or otherwise manufacturing and includes the packaging, canning, jarring, or otherwise enclosing food in a container.



# WHAT PROCESSES ARE ALLOWED AND PROHIBITED?

## MINI CASE STUDIES

### EXCLUDED PROCESS 1:

## GENETIC

MODIFICATION + ENGINEERING

Includes cell fusion, microencapsulation and macroencapsulation, and recombinant DNA technology (including gene deletion, gene doubling, introducing a foreign gene, and changing the positions of genes when achieved by recombinant DNA technology).

*Does not include the use of traditional breeding, conjugation, fermentation, hybridization, in vitro fertilization, or tissue culture.*

### EXCLUDED PROCESS 2:

## IONIZING

RADIATION

Use of cobalt-60, cesium-137, and other sources of radiation for controlling microbial contaminants, pathogens, and pests in food.

*Does not include FDA-approved applications of X-rays for inspecting food.*

### EXCLUDED PROCESS 3:

## SEWAGE

SLUDGE

A solid, or liquid residue generated during the treatment of domestic sewage in a treatments work.

*Does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works.*

## TOOL TIPS: VERIFICATION FOR NON-ORGANIC INGREDIENTS

Use the OTCO Non-organic Ingredient Declaration (NOID) form to receive proper verification for allowed non-organic ingredients in your product.

Download the Non-organic Ingredient Declaration on our [website](#).





# HOW DO I TRACK AND DOCUMENT INGREDIENTS?

Ingredient documentation requires the use of declarations and affidavits to verify sourcing and allow for ease of traceability. The most common ways to accomplish transparent documentation is through use of:

## **Non-organic Ingredient Declarations**

To be used to address compliance with the "Big 3" prohibited processes and certain annotations for items on the National List

## **Manufacturer Statements**

Allowable if information provided is clear and adequate

## **Certifier Forms**

Certifiers often supply ingredient documentation form sheets for use with your suppliers

# INGREDIENT DOCUMENTATION 101

## **WE NEED TO KNOW:**

- What's in it?
- Who made it?
- How was it made?

## **WHY WE NEED TO KNOW IT:**

- To show compliance to the regulation

## **COMMON MISTAKES:**

- Lack of ingredient declarations on specification sheets
- Atypical ingredients being included in a non-organic ingredient that may not be allowed within the standard



# HOW DO I TRACK AND DOCUMENT INGREDIENTS?

## MINI CASE STUDIES

The following mini case studies show you how to take the right steps for ingredient documentation:

### SAMPLE INGREDIENT **VITAMINS**

PROVIDE A SPECIFICATION SHEET LISTING ALL INGREDIENTS FOUND IN THE VITAMIN

COMPLETE A DECLARATION OF NUTRIENT VITAMINS AND MINERALS (DNV). NEED TO VERIFY THAT THE VITAMINS AND MINERALS FALL WITHIN THE ANNOTATION REQUIREMENTS FOR THE FDA NUTRITIONAL QUALITY GUIDELINES FOR FOOD.

VERIFY THAT YOU'VE MET THE REQUIREMENTS FOR THE BIG 3 PROHIBITIVE PRACTICES

### SAMPLE INGREDIENT **606 ITEM**

**(NOT COMMERCIALY AVAILABLE AS ORGANIC)**

ONLY APPLIES TO PRODUCTS CERTIFIED IN THE "ORGANIC" CATEGORY

COMPLETE A COMMERCIAL AVAILABILITY SEARCH FORM (CAF) TO SHOW THAT AN ORGANIC FORM IS NOT COMMERCIALY AVAILABLE FROM AT LEAST THREE SOURCES

MUST COMPLETE A NON-ORGANIC INGREDIENT DECLARATION (NOID) TO CONFIRM BIG 3

## TOOL TIPS: INGREDIENT AND INVENTORY MANAGEMENT

In addition to providing all of the above information, keeping excellent track of your ingredients for production lot codes and batches is equally important and parallels your documentation process.

Learn more about inventory management with the [Oregon Tilth Sample Audit Documentation Tool](#).



# PRODUCT SUBMISSION CHECKLIST

When you need to add a product to your organic certificate, please be sure to include the following information:



## **LABEL**

- Draft of label
- Does it need a Private Label Agreement?



## **ORGANIC INGREDIENTS**

- Master Ingredient List (updated)
- Certificates for new suppliers



## **FORMULATION**

- OTCO Formulation Sheet



## **NON-ORGANIC INGREDIENTS\***

(\*for new ingredients)

- Non-organic Ingredient Declaration (NOID)
- Natural Flavor Questionnaire (NFQ)
- Commercial Availability Form (CAF)
- Declaration for Nutrient Vitamins and Minerals