

Product Formulation and Organic Composition

Narrator ([00:20](#)):

When you decide to create an organic product, the journey begins long before the item hits the grocery store shelf. It starts in your recipe book with what the industry calls product formulation. It's the precise list of every ingredient and processing aid and the amounts that goes into your product. Getting these details right is crucial because your formulation directly dictates what you are legally allowed to claim on your final product label.

Aileen Mannion ([00:51](#)):

When a new product is developed, so you have to fill out all the forms submitted as part of your application. So that's product application, product formulation, supplier list, and the percentage of each ingredients. So making sure that your ingredients have designated organic, based on the formula sheet that you submitted.

Narrator ([01:16](#)):

Today, we will detail how to build an organic formulation, explore the different composition categories for human food, and learn the specific math used to calculate your organic percentage for product composition.

Narrator ([01:37](#)):

Every organic product you produce must have a specific repeatable formulation approved by your certifier. To do this, you must categorize every input as either an ingredient or a processing aid. Your certifier will review your product profile, also known as a product formulation sheet. They must verify that every agricultural ingredient you claim as organic is actually certified and that any nonorganic ingredients or processing aids you use are permitted by the USDA's National List of Allowed and Prohibited Substances. The National List has two sections relevant to handlers. Section 205.605 for nonagricultural substances like baking soda or citric acid and Section 205.606 for nonorganic agricultural ingredients. Those can only be used if they are not commercially available as organic.

Debbie Byrne ([02:34](#)):

The easiest thing that you can do for yourself is to make sure you have backups for every single thing that you use in case you run short in supply. So if you need to change your formulations, you're already approved.

Narrator ([02:54](#)):

The USDA organic regulations divide products for human consumption into four distinct categories based on their organic content. The highest tier is 100% organic. For this category, every single ingredient and processing aid must be certified organic. Second is the organic category. To qualify here, at least 95% of the product ingredients must be certified organic. The remaining up to 5% must



be compliant nonorganic or nonagricultural substances that are specifically permitted under the National List, and any nonorganic agricultural ingredients may only be used if an organic version is not commercially available. You cannot use both an organic and nonorganic version of the same ingredient in the product. For both of these first two categories, all ingredients must not be produced using genetic modification, ionizing radiation, or sewage sludge. Additionally, no sulfites, nitrates, or nitrites may be added during the production or handling process.

Narrator ([04:04](#)):

The third category is called made with organic. These products must contain at least 70% organic ingredients. All ingredients in this category must also not be produced with genetic modification, ionizing radiation, or sewage sludge, but they are exempt from the prohibition on sulfites, nitrates, nitrites, the commercial availability requirement, and using both organic and nonorganic versions of the same ingredient. The made with organic category is more flexible for product formulation, but the trade-off comes with more restrictive claims that can be made on the product label. The fourth and final category is products made with less than 70% organic ingredients. The organic ingredients must be produced in compliance with the USDA organic regulations, but the nonorganic ingredients are exempt from all of the restrictions described in the other categories. In fact, operations that only produce products in this less than 70% category, without making any organic claims on the principle display panel may not be required to hold organic certification at all.

Narrator ([05:24](#)):

How do you know which category your product belongs to? You have to do the math, and the USDA has a very specific formula for calculating organic content. You cannot just guess based on how much of an ingredient you used.

Genevieve Albers ([05:39](#)):

Okay, when we're formulating, how do we make sure we fall into the right category? If you want to be in an organic product, you have to have at least 95% organic materials. Each ingredient has its own organic percentage, and when you formulate, you take each ingredient and its organic percentage, add them all up, and then divide one by the other and you get your final organic percentage.

Narrator ([06:02](#)):

To accurately calculate your organic percentage, you divide the total net weight or volume of your combined organic ingredients at the time of formulation by the total weight or volume of all your ingredients. One thing to watch though, if an ingredient you're using is certified organic rather than 100% organic, your certifier will typically assume it contains 95% organic content in your calculation, not 100%, unless you obtain documentation proving otherwise. But here is the critical rule that trips up many new handlers. Water and salt added as ingredients at formulation must be explicitly excluded from the total formula weight. You simply pretend they don't exist in the recipe for the purpose of calculating your organic percentage.

Narrator ([06:55](#)):



Let's take a look at an example. First, add up your weights. Then once you divide those numbers, you must always round down to the nearest whole number. If your math comes out to 94.9%, your product is 94% organic. It does not qualify for the 95% organic tier, and it cannot bear the USDA seal. Now, this example is a straightforward one, and your product formulations may be quite a bit more complex. Your certifier will provide you with a product profile form that will guide you through the math and often auto-calculate your percentage for you. While the math must be exact, certifiers understand that agricultural ingredients can vary. If your recipe requires seasonal flexibility, you can work with your certifier to build that into your product profile.

Mike Dill ([07:53](#)):

And sometimes what's in season differs, and so it was really hard for them to have like a standard formulation. So what we actually did, when I developed their Organic System Plan, is for their product formulations, we actually put a range of the percentage for every ingredient instead of saying like, "This salad bowl is going to have 10% strawberries, 15% melon, you know, yada yada all the way down." We said, you know, depending on the season, it could be 10 to 40%. And at the end of the day, what really matters is that the batch records actually show what you used.

Narrator ([08:41](#)):

Now, if your facility processes livestock feed instead of human food, you must operate under a different set of rules for product composition. The most critical difference is that the made with organic and less than 70% categories do not exist for livestock feed. Feed can only be categorized as 100% organic or organic. Furthermore, there is no 95% organic threshold to earn the organic category for feed. Instead, the rule is that all agricultural ingredients in the feed must be certified organic. The remaining ingredients can be natural substances such as enzymes or yeasts or synthetic substances that are allowed in livestock feed, such as vitamins and minerals. Nonorganic ingredients need to be verified as non-GMO and cannot be irradiated or come from slaughter byproducts. So bone-based mineral carriers, for example, are prohibited. Feed ingredients can be confusing, so planning your formula and any changes with your certifier is best.

Tracey Vanfield ([09:50](#)):

One of the most important aspects of the OSP for Scratch and Peck Feeds are formulations. We have changes in our formulations due to the types of inputs that we're using. For example, since we're an organic program, we cannot control year to year the output of the protein and other measurable inputs that happened on our crops. We are reliant upon the grace of mother nature. So when those things change from year to year, we have to provide different laboratory analysis that will then help us reformulate our products to ensure that we are meeting the AAFCO requirements. I would say this is probably the greatest area that we make our most changes in in the OSP.

Narrator ([10:29](#)):

Product formulation and categorization are at the heart of the organic promise. The math must be exact, the ingredients must be verified and compliant, and the category percentage determines the label design that you are eligible to use.



Jessica Jones (10:45):

The joy of organic certification is that there is limitations. You have this box of things that you can operate in and it makes you more creative, because you don't have every option in the world. I have this box of options and what are all the possible things that I can do with it? Like, think about organic certification as a mother sauce. Cool, I've got Béchamel, what are the 30 sauces I can do with it? And there's just tiny tweaks that make a whole world of difference. Organic certification is the same thing. You've got this box, here's the limitations, what's every permutation of the thing you're doing.

Narrator (11:21):

By keeping your product profiles updated, understanding your exact product composition category, and never guessing on your composition calculations, you will be well positioned to move into designing a compliant and compelling product label.



United States Department of Agriculture
Agricultural Marketing Service
National Organic Program



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