

Meeting clean label expectations with natural colors and flavors

by Holly McHugh

INSIDER's take

- Consumers are increasingly looking for cleaner, natural products free from artificial colors and flavors.
- Natural colors can impart beautiful hues and health benefits, but heat, light and pH can reduce vibrancy.
- Brands opt for natural flavors made from raw materials, essences and extracts to ensure clean labels.

Consumer concerns about the perceived health risks of synthetic ingredients

have propelled the clean label movement from a trend to an expectation. Products identified as natural, organic and environmentally friendly are believed to be healthier, safer and contribute to one's overall wellbeing, according to Packaged Facts' 2018 report "[Organic and Clean Label Food Consumer in the U.S.](#)" Brands are responding by formulating, or reformulating, with natural sources and using "free from" claims to position products as better-for-you.

The benefits of using natural colors and flavors sometimes go beyond their primary function. Many of these natural enhancers have inherent health benefits like powerful antioxidants, relaxation support and anti-inflammatory properties. However, realities like cost and shelf life need to be considered while also meeting consumer expectations for what a product should look or taste like when using these ingredients.

Color

Consumers are trained from an early age to believe color represents flavor profile, freshness and overall quality of a product. For that reason, it's important to consider appearance and source of colorants to achieve the ideal experience for your target consumer.

Natural colors, or colors that are exempt from certification, come from natural sources like vegetables, minerals or even animals. Thirty-eight colorants are exempt from certification for food and beverage, such as grape color extract for purple, beet juice for red, and turmeric for yellow.

In addition to imparting color, many of these ingredients have functional benefits. Spirulina, one of the most common natural color sources for blue or green, has essential amino acids and is rich with calcium, niacin, potassium, magnesium, B vitamins and iron.¹ Beta-carotene, an antioxidant found in many vegetables,² is used to create a red-orange color in products like Izze clementine flavored sparkling juice and Kellogg's Strawberry Krispies cereal.



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Of course, the benefits of these ingredients are dependent on the amount incorporated into the product, which is why some brands use them at higher levels to impart color, flavor and function. Ingredients like blue algae, beet, matcha and turmeric make beautiful beverages full of health benefits. One of the rising stars in beverage is turmeric because of its bold color and anti-inflammatory properties.³ Several brands such as Rebbi and Pop & Bottle have launched ready to drink (RTD) golden milk products, and a handful of third-wave coffee shops are serving lattes with turmeric for its inherent health benefits and the Instagram appeal of the bright yellow beverage.

While natural colors offer many advantages, these types of ingredients can be challenging when formulating RTD beverages. Before clean label became common, most beverages were colored artificially using synthetic colors to maintain color intensity, so bright, bold colors are something consumers have come to expect. Natural colors are more sensitive to pH as well as fading due to heat during processing and light; therefore, product developers must choose natural colors that will maintain intensity throughout processing and on the shelf. Despite these challenges, certain methods can protect the integrity of the product when formulating with these colors, such as masking agents and packaging with a UV barrier.



Increasing the levels of a color can also create bolder colors, though too much color can impact the flavor profile of a product.



Knowing the target pH of a product can help inform what natural color will maintain the desired appearance through processing and shelf life. For example, reds at a certain pH will turn purple and get dark or muddy, so it's important to choose a natural color that works within the beverage matrix. Increasing the levels of a color can also create bolder colors, though too much color can impact the flavor profile of a product. Cold-pressed juices are an exception because they use high-pressure processing (HPP) instead of a thermal heating process, which results in a much brighter, fresher product. However, the shelf life of cold-pressed juices is much less than traditionally pasteurized juices.



Flavor

Marketing claims are driving choices for flavor sources because brands want to position products as clean label and differentiate them from the competition. Demand for clean label has led many brands to formulate with natural flavors only, even steering clear of WONFs (with other natural flavors) that come from natural sources and help flavorists highlight finer nuances to complete a flavor profile that an essential oil or fruit juice lacks. Instead, more brands are opting for natural flavors made from raw materials, essences and extracts.

Botanical flavors, which have experienced significant growth during the last few years, are ideal for natural flavors because many flowers, herbs and spices are available as raw materials. Flavorists can create a solid flavor profile that captures the subtle notes of botanical ingredients and since the raw materials descend from nature, they can sometimes be less expensive than an artificial version. These flavors can also have functional benefits to the consumer, such as the calming effects of lavender⁴ or digestion support from ginger.⁵

Nuts and berries are also popular flavors available as raw materials, but many brands want these natural flavors to be allergen-friendly, which is counterintuitive if it's coming from the authentic source. However, these flavors can be crafted using different flavor components to meet the desired taste profile. Fantasy flavors that are man-made creations like s'mores, cotton candy or birthday cake also require more flavor expertise and ingredients to simulate them with natural ingredients, which makes them more expensive than an artificial flavor created with a synthetic raw material.

Another trend in the flavor industry is organic flavors, especially since the guidelines for flavors in certified organic products will [change at the end of the year](#). These changes will require brands using certified organic claims to use only organic flavors, unless an organic version of that flavor is not achievable because the organic extracts and/or oils needed are not commercially available.

Incorporating organic flavors can make a product appear more healthful since the raw materials are produced with no synthetic pesticides. However, the taste profiles of an organic flavor are distinctly different because the raw materials are produced using a cleaner process that makes crops more vulnerable to environmental factors. This can create a challenge for brands with products on the market that are transitioning from organic compliant to certified organic because the flavor profile will likely change. Additionally, environmental factors can affect supply chain, which impacts cost of raw materials.

