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October 24, 2016

Via Electronic Transmission

Ms. Michelle Arsenault
Advisory Committee Specialist, National Organic Standards Board
1400 Independence Ave. SW, Room 2642-S
Washington, DC 20250-0268

Re: Agricultural Marketing Service Docket Number AMS-NOP-16-0049: Notice of Meeting of the National Organic Standards Board, 81 Fed. Reg. 50460 (August 1, 2016)

Dear Madam:

On behalf of the International Association of Color Manufacturers (IACM), we appreciate the opportunity to submit comments in response to the Agricultural Marketing Service's (AMS) request for comments regarding the upcoming National Organic Standards Board (NOSB) meeting November 16-18, 2016 in St. Louis, MO in support of beta-Carotene extract color.

I. Introduction

IACM is the trade association that represents the global color industry, comprised of manufacturers and end-users of coloring substances that are used in foods, including natural and synthetic colors. IACM members create colors for use in a wide variety of food and beverage products including those certified under the National Organic Program (NOP) regulations.

II. Executive Summary

The Organic Foods Production Act of 1990 (OFPA) (7 U.S.C. 6501-6522) authorized the NOP to establish the National List of Allowed and Prohibited Substances (National List). The National List identifies substances that may and may not be used in organic crop and livestock production. The National List also identifies nonorganically produced agricultural products, like colors, that may be allowed as ingredients in or on processed products labeled as "organic". 7 CFR §205.606(d). Those substances listed on the National List are required under the OFPA to be reviewed every five years (Sunset review) by the National Organic Standards Board (NOSB). The OFPA authorizes the NOSB to develop proposed amendments to the National List for submission to the Secretary of Agriculture during the Sunset review. 7 U.S.C. §6518(k)(2). Based on the proposals provided by the NOSB from the Sunset review, the Secretary of Agriculture has statutory authority to make amendments to the National List.

"Colors derived from agricultural products" were added to §205.606 of the National List after the 205.605 listing was allowed to Sunset off the National List in 2007. The §205.606(d) listing was updated in 2010 to clarify that they must not be produced using synthetic solvents and carrier systems or any artificial preservative (USDA, 2010). Beta-carotene extract color was originally added to the National List as the result of a 2007 petition and amended to annotate

the listing in 2009 as “derived from carrots or algae.” At its October meeting, the NOSB will consider the 2018 Sunset review for beta-Carotene extract color. IACM respectfully offers these comments to support that beta-Carotene extract color remain on §205.606(d) of the National List because beta-Carotene extract color is not commercially available in organic form.

“Commercially available” is defined in 7 CFR 205.2 as “the ability to obtain a production input in an appropriate form, quality or quantity to fulfill an essential function in a system of organic production or handling.” The beta-Carotene extract color, which is subject to the NOSB’s 2018 Sunset review, is not commercially available in organic form because there is either no established organic supply market for the color, the organic raw material commodity may be available generally, but the crop varietal available is not further manufactured for color use or the organic version of the color available is not standardized for color hue, strength or otherwise does not adequately function technically in the finished food. Beta-Carotene extract color should remain on 205.606(d) of the National List because the supply of this color in organic form is not sufficient to warrant its Sunset. Additionally, the NOSB must recognize that color is a critical factor in consumer perception and satisfaction. Being unable to provide the same shade in marketed organic processed products on a consistent basis, or at all, could cause significant consumer loss and brand dissatisfaction. IACM supports the re-listing of beta-carotene extract color until such time when it is sufficiently available in organic form.

III. Information on organic compliant beta-Carotene extract color

Beta-Carotene extract color is an agricultural ingredient that is widely used to color almost all types of food and beverage products including, but not limited to, beverages (including dairy beverages, juices and soft drinks), fruit preparations, cheeses, soups and sauces, yogurts, ice creams (milk and water based), pudding, confectionery, bakery products, breakfast cereals, batters, snacks and condiments.

Beta-Carotene extract color provides a bright warm yellow or orange shade in the above mentioned food and beverage products. If beta-Carotene extract color were not to remain on the National List, the other color options would be annatto, turmeric extract color or carrot juice color. However, both turmeric extract color and annatto provide a different shade and have different functionality than beta-Carotene extract. For example, turmeric extract color provides a yellowish-green shade and is therefore often used in lemon and banana flavored foods. Beta-Carotene extract color is often preferred in cheeses due to the shade provided and to avoid annatto in the whey. Carrot juice color is not as bright as a beta-Carotene extract color, so the provided shade would be much duller, particularly in fruit preparations. Carrot juice color will also often be cloudy in liquid solutions, so it is not suitable in a transparent beverage, such as a flavored water. It is also possible to obtain a broader spectrum of shades with beta-Carotene extract color compared to carrot juice color. Some other examples of applications that require beta-Carotene extract color, or where the color is preferred, as opposed to other colors, are milk beverages and bakery products (due to stability and shade), butter and margarine, milk ice creams, desserts and confectionary (due to shade).

Below is an example of the limitation of carrot juice color compared to solvent extracted beta-Carotene color in a baking mix application. While this illustration is of nature identical and fermented natural beta-Carotene color, solvent extracted algal carotene would have similar functionality. The orange color provided by carrot juice color is less concentrated, so the dosage required to obtain the same color as a beta-Carotene color is higher. The higher dosage can be an issue in some applications where additions such as water have to be limited. Furthermore

the higher dosage can have a flavor impact on the final product.



Organic compliant beta-Carotene extract color is mostly produced from natural strains of the algae *Dunaliella salina*, which is an algae grown in large saline lakes located in Whyalla, South Australia. IACM members confirm that algae derived beta-Carotene extract color uses extraction methods of carbon dioxide, ethanol, or vegetable oil. Not less than 96% total extracted coloring matter will be in the form of beta-Carotene extract color. Carrot derived beta-Carotene extract color is difficult to obtain without the use of synthetic extraction solvents. The majority of food and beverage products consist of a “water-based” matrix meaning that an oil-soluble extract would have to be either emulsified or made water dispersible. In order to comply with the NOP regulations, that formulation would have to be made with naturally sourced ingredients.

The carotenoids extracted from algae are distinct and unique molecules. They are different from anthocyanins and betalains as carotenoids are sensitive to light and heat, degrading rapidly under high heat and/or direct sunlight. Beyond these unique properties, carotenoids do not interact with substances used in organic food production and have no impact on the environment.

IACM members have not evaluated extraction of beta-Carotene extract color from seaweed, however note that seaweed could not be a source for algae carotene as defined in specifications for the color in the European Union¹ or by the Joint FAO/WHO Expert Committee on Food Additives (JECFA)². Per both, algal carotenes must be obtained from strains of the algae *Dunaliella salina*.

IV. Colors are essential to the continued success of the processed organic food sector

Colors play a critical role in expanding consumer access to organic food products. As the organic food sector has enjoyed incredible growth over the last several years, organic food product offerings have expanded well beyond fresh produce, meat and poultry products.

¹ Defined in Commission Regulation (EU) No 23/2012, available online: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2012:083:FULL&from=EN>

² http://www.fao.org/fileadmin/user_upload/jecfa_additives/docs/monograph4/additive-114-m4.pdf

Processed organic foods line traditional and natural grocery store shelves. Consumers interested in organic food products can purchase organic cookies, cereal, yogurt, chips, pasteurized juice beverages, soups and many other products – organic foods are no longer relegated to the perishable items in the grocery cart. As consumers have asked for more organic product offerings, the organic sector has answered by producing processed food products organically.

Colors have been and continue to be a critical ingredient in processed organic products because they increase palatability and provide enhanced visual appeal that consumers expect. The addition of natural colors compensates for the destruction of the original color by high temperature/low pH processing, allowing the finished organic food or beverage product to have the same visual appeal and attraction of their direct non-organic competition. Additionally, because colors are concentrated and very strong, they are used in products, including organic products, at very low levels of typically less than 1 percent. Restricting the use of colors in organic food production will negatively impact the palatability and access to processed organic food products.

V. Beta-Carotene Extract Color should remain on §205.606(d) of the National List because there is insufficient supply to warrant its Sunset

Beta-Carotene extract color is up for 2018 Sunset, but it should remain on §205.606(d) of the National List because there is insufficient availability of organic beta-Carotene extract color, sourced either from carrot or algae, to satisfy current demand. The quantity of available organic beta-Carotene extract color is limited by the underdeveloped downstream raw material supply. Until the market for organic beta-Carotene extract color from either or both carrots or algae is more fully developed, color manufacturers will continue to struggle to obtain consistent quantity and quality raw materials to produce certified organic beta-Carotene extract color. Removing beta-Carotene extract color from the National List will create lasting and significant market disruption in the processed organic food sector.

Color development and manufacturing is not a commoditized industry. Color manufacturers develop collaborative relationships with their finished food manufacturing customers in order to create customized color formulations that meet the specific color shade requirements and also function in the food application based on production, shelf-life and other quality requirements. Although over the last several years, color manufacturers have responded to market demands by producing organic compliant colors, organic color development continues to be limited by insufficient availability of organic raw materials. In fact, a survey of our membership demonstrates that our members cannot confirm adequate or consistent supply of organic beta-Carotene extract color from either carrots or algae available in the marketplace to satisfy current demand. Some members indicated they cannot find any supply of organic beta-Carotene extract color. Since there is insufficient commercial availability of organic beta-Carotene extract color from either carrots or algae to satisfy current demand, the NOSB should not recommend the removal of beta-Carotene extract color from §205.606(d) of the National List.

VI. Conclusion

IACM appreciates the opportunity to comment and urges your consideration of these important matters as you finalize the color Sunset review.

Sincerely,

A handwritten signature in black ink that reads "Sarah A. Codrea". The signature is written in a cursive style with a large initial 'S' and a distinct 'A'.

Sarah A. Codrea
Executive Director