



September 6, 2019

Ms. Michelle Arsenault  
National Organic Standards Board  
USDA-AMS-NOP

**Docket:** AMS-NOP-19-0038

**RE: Celery Powder (Sunset 2021)**

**-DRAFT-  
FOR OTA MEMBERS ONLY**

Dear Ms. Arsenault:

Thank you for this opportunity to provide comment on the 2021 Sunset Review of celery powder listed on 205.606 of the National List (7 CFR § 205.606 - non-organically produced agricultural products allowed as ingredients in or on process products labeled as organic).

The Organic Trade Association (OTA) is the membership-based business association for organic agriculture and products in North America. OTA is the leading voice for the organic trade in the United States, representing over 9,500 organic businesses across 50 states. Our members include growers, shippers, processors, certifiers, farmers' associations, distributors, importers, exporters, consultants, retailers and others. OTA's mission is to promote and protect organic with a unifying voice that serves and engages its diverse members from farm to marketplace.

The Organic Trade Association supports the continued listing of celery powder on the National List due to the fact that it is an essential ingredient used in processed organic meat products, and an organic alternative is not commercially available.

Celery powder has been in use for over a decade as a "curing" agent in certain processed meat products as an alternative to sodium and potassium nitrate and nitrite. Since 2007, conventionally grown celery powder has been allowed for use in certified organic meat products. During this time, the organic processed meat industry has grown to an estimated \$150 million. As the demand for organic processed meats increases, the organic industry wants to replace the use of conventional celery powder with an organic alternative. Significant work and investment to achieve this goal are underway, and significant and measurable progress is being made. Therefore, we request that celery powder remain on the National List until the time that organic celery powder becomes commercially available.

We offer the following more detailed comments:

***Non-organic celery powder is essential for the production of ORGANIC processed meats***

Celery powder continues to be the only natural source of nitrate allowed as a curing agent in processed certified organic meat. Organic forms of celery powder that meet the required functionality for processed organic meats are not commercially available, and at this time we are not aware of other organic crops that can deliver the same attributes. Celery powder is being used by many organic meat

and poultry processors producing organic meat products where synthetic chemicals (nitrate and nitrite) are not permitted. If celery powder is removed from the National List, organic bacon and other cured organic meats will cease to exist. This would have a devastating impact on an already struggling organic livestock sector and its associated supply chain. Retaining celery powder on the National List until an organic alternative is commercially available is important to organic livestock producers and for consumers who choose to support organic practices.

Celery powder contains natural forms of nitrate that are converted to nitrite when added to meat, which, in turn, function as a curing agent for products such as organic ham, hot dogs and bacon. Additionally, “pre-converted” forms are used where an incubation with a nitrate-reducing bacterium produces celery powders that are high in nitrite. The use of celery powder eliminates the need for conventional purified nitrate and nitrite curing ingredients. The essential function of nitrate/nitrite in processed meats is most importantly related to food safety with antimicrobial properties versus *Clostridium botulinum* and *Listeria monocytogenes*, which are very important for protection of public health. Additionally shelf life is improved. Historically, manufacturers struggled to develop traditionally cured products such as ham, bacon and hot dogs that were accepted by consumers without nitrate from either natural or synthetic sources. These products failed the consumer testing, and consumers were not willing to pay more money for lower quality products. Celery powder was placed on the National List to fill a void while the organic sector ramped up organic meat production, and organic forms of celery powder were developed by manufacturers of natural celery powder.

The goal continues to be the commercial availability of organic celery powder. While the organic industry would like to see non-organic celery powder removed from the National List, an appropriate and effective alternative needs to be commercially developed first. The original petition for celery powder foresaw no difficulty in the future production of an organic version. To date, however, a viable, functional version has not been successfully developed. There are several technical and production issues that have proven to be barriers. For example, some of the alternative varieties that achieve the necessary nitrate levels impart too strong of a flavor in the meat products, and would not be acceptable to consumers. Other factors include harvest and post-harvest conditions and the time and distance between harvest and processing, and how those variables impact nitrate level retention. The organic meat market also continues to be relatively small.

The greatest barriers perhaps are our ability to secure the additional funding we have been requesting to continue the research needed to address standardization of nitrogenous compounds in appropriate organic celery and/or other crop varieties and the time needed to complete extensive commercial testing on the potential alternatives being trialed. **See our comments on research efforts below.**

***There is not enough organic celery being produced to support the meat industry***

To the best of our knowledge, the organic celery grown in the United States is not grown for use as a natural curing agent. It is grown for fresh vegetable consumption, as a nutritional juice or supplement, or for seasoning. **The varieties used for culinary and nutritional consumption are not the same as the ones used to produce nitrite.** The question is whether there is enough organic celery of the correct variety being produced to support the meat industry. As far as we know, very little organic celery is being grown at commercial scale for the meat industry, but research efforts and trials are underway. In terms of other natural or organic sources that could provide the same function, there are in fact other vegetables and minerals that contain natural nitrates including beets, Swiss chard, spinach and sea salt. However, each has its benefits and challenges, and none are an identical equivalent to

natural celery powder in quality, form and function. The most promising of the potential alternatives that we are aware of is Swiss chard. More research and testing are needed.

***There is a need to develop an organic alternative that is consistent with organic principles***

The Organic Trade Association is working toward developing an organic alternative that is consistent with organic principles. Our focus is on finding a solution that works in an organic production system, rather than gathering information on current conventional techniques and trying to mimic those practices. The research driven by the Organic Celery Powder Working Group is focusing on organic variety selection and understanding the post-harvest impacts. If additional N is needed to produce organic source plants with enough nitrate for meat curing, it should be done in an environmentally friendly way that supports organic principles (and complies with organic regulations). Regardless, the fate of excess N is the same whether it is organic or synthetic. We are no better off unless we find an alternative systems-based strategy rather than input substitution, and that has been our approach.

***Significant progress is being made on the production of organic celery for powder production***

In the fall of 2015, the Organic Trade Association in collaboration with The Organic Center (TOC) convened the “National List Innovation Working Group” consisting of members interested in investing in applied research to identify alternatives to materials currently on the National List including organic, natural, or more compatible synthetics. The Working Group topics and participants vary, based on the needs and projects identified by the organic sector. Participants are investors in the development of alternatives, or by invitation of investors working in collaboration with public and private research institutions and extension personnel.

The first project (initiated by the Celery Powder Working Subgroup) was to find an organic alternative to non-organic celery powder. To begin to address the issues, the Working Group focused the first six months on establishing research partners, identifying funding opportunities and working in collaboration with the University of Wisconsin on the submission of a proposal for an Organic Research and Extension Initiative (OREI) planning grant. The planning grant proposal, submitted in early March 2016 and awarded later that year, helped to develop the roadmap of integrated research and extension activities needed to adequately address and overcome production challenges. An additional proposal to Farmers Advocating for Organics (FAFO) was also awarded.

The money from the OREI planning grant was used to identify the needed partners, crops, data and research questions that, in turn, informed the full \$2 million OREI grant that was applied for on January 19, 2017, again in 2018 and most recently in May 2019. It was also used to fund the national stakeholder meeting held at the EcoFarm conference in, Asilomar, CA, in 2017. The FAFO grant money funded initial varietal testing in organic celery crops and broader testing of production-scale organic celery harvested in fall 2016. Unfortunately, the 2017 and 2018 OREI funding proposals were not accepted, slowing research progress down significantly.

Despite the setback, the efforts continue in full force, and **another \$2 million OREI grant was submitted in April 2019**. We are encouraged by the feedback received, and we expect to be able to announce the results in person at the Pittsburg meeting. The working group research project sets out to identify potential varieties of organic crops that would meet the chemical specification needed for curing, while being easily incorporated into current crop rotation systems. It will also identify potential management protocols that need to be developed to achieve target nitrate levels in the curing

crop to produce the required shelf life, prevent bacteria in the cured meat, and produce the desired flavor, color and texture in food. The project also aims to identify crops that could act as an incentive for expanding organic acreage, given the economic opportunity to partner with contractors that produce curing agents for organic processed meat products. Additionally, the project is investigating potential challenges and pitfalls associated with the production of a high nitrate crop, such as environmental concerns for run-off and excess nutrient leaching.

Identifying solutions for the organic processed meat industry's need for a curing powder is extremely complex, and the timeline to develop an effective organic alternative does not happen overnight. It requires a very deliberate and well-researched road forward, it takes a multiregional, multi-stakeholder coordinated effort, it requires substantial funding, and it relies on consumer demand. Although the lack of funding to date has put the project behind schedule, we believe significant progress is being made, and the commitment and organization of the Celery Powder Working Group and our research partners have presented a solid model on how to best carry out the process for developing alternatives to a National List material. **See Attachment A.**

The Organic Trade Association, in partnership with The Organic Center and the University of Wisconsin, looks forward to continuing our research and sharing updates with NOSB over the next five years.

On behalf of our members across the supply chain and the country, the Organic Trade Association thanks the National Organic Standards Board for the opportunity to comment, and for your commitment to furthering organic agriculture.

Respectfully submitted,



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Vice President, Regulatory and Technical Affairs  
Organic Trade Association

cc: Laura Batcha  
Executive Director/CEO  
Organic Trade Association

**Attachment A:** Developing Natural and Organic Alternatives



# A model for developing ORGANIC AND NATURAL INPUTS for use in organic food and farming

