



BEYOND PESTICIDES

701 E Street, SE ■ Washington DC 20003
202-543-5450 phone ■ 202-543-4791 fax
info@beyondpesticides.org ■ www.beyondpesticides.org

September 19, 2017

Ms. Michelle Arsenault
National Organic Standards Board
USDA-AMS-NOP
1400 Independence Ave. SW.,
Room 2648-S, Mail Stop 0268
Washington, DC 20250-0268

Re. CS: Anaerobic digestate petition §205.203

These comments to the National Organic Standards Board (NOSB) on its Fall 2017 agenda are submitted on behalf of Beyond Pesticides. Founded in 1981 as a national, grassroots, membership organization that represents community-based organizations and a range of people seeking to bridge the interests of consumers, farmers and farmworkers, Beyond Pesticides advances improved protections from pesticides and alternative pest management strategies that reduce or eliminate a reliance on pesticides. Our membership and network span the 50 states and the world.

The petitioner asks that anaerobic digestate (AD) that results from the petitioner's process of methane production be allowed without the restrictions imposed for manure in §205.203. Thus, the motion considered by the NOSB would allow anaerobic digestion as an alternative to composting.

Although the current restrictions on AD –those which the petitioner seeks to avoid— are concerned with reducing potential pathogens, the hazards of applying AD to organic farms goes beyond microbial contamination. Since this is a material that is “otherwise prohibited” by the Organic Food Production Act (OFPA), it is subject to the same required procedure and criteria as synthetic crop inputs. Thus, the Crops Subcommittee must address the OFPA criteria, that it:

- (i) would not be harmful to human health or the environment;
- (ii) is necessary to the production or handling of the agricultural product because of the unavailability of wholly natural substitute products; and
- (iii) is consistent with organic farming and handling.¹

The Crops Subcommittee must also consider impacts during manufacture, use, misuse or disposal. In particular, the following issues should be addressed (among others):

¹ OFPA §6517(c)(1)(A).

- Since the petitioned substance is derived from methane production, and methane is a potent greenhouse gas, are there releases of methane during production? Are other volatile chemicals released?
- Since manure from nonorganic farms is frequently contaminated with antibiotics that can be taken up by plants,² and aerobic composting destroys at least some antibiotics,³ are antibiotics, parasiticides, and other veterinary medicines destroyed in the anaerobic digestion process?⁴
- Plant and animal products may also be contaminated with pesticides, which may or may not be broken down to harmless metabolites.⁵ We are concerned that the petitioner has not characterized the source of inputs into the digestion process or the fate of such contaminants.
- Does anaerobic digestate confer the same microbial benefits to soil microbiota as compost from aerobic processes?

We are particularly concerned about the potential for adding a new source of unknown contaminants just as we are studying contamination from current sources. Therefore, we request that the consideration of this petition be conducted in tandem with the examination of contaminated farm inputs, even if it delays NOSB consideration of this petition.

Beyond Pesticides opposes the listing of this material because it does not meet the criteria of essentiality and compatibility with organic production. The health and environmental impacts of AD depend on the process used and, more importantly, the feedstock. If the NOSB were to decide that AD meets the criteria of essentiality and compatibility, then an appropriate approach would be to develop an annotation that limits the process and feedstock to those that are not harmful to humans or the environment.

² Kumar, K., Gupta, S.C., Baidoo, S.K., Chander, Y. and Rosen, C.J., 2005. Antibiotic uptake by plants from soil fertilized with animal manure. *Journal of Environmental Quality*, 34(6), pp.2082-2085.

³ Wang, L., Oda, Y., Grewal, S., Morrison, M., Michel Jr, F.C. and Yu, Z., 2012. Persistence of resistance to erythromycin and tetracycline in swine manure during simulated composting and lagoon treatments. *Microbial ecology*, 63(1), pp.32-40. <http://link.springer.com/article/10.1007/s00248-011-9921-9>. Dolliver, H., Gupta, S. and Noll, S., 2008. Antibiotic degradation during manure composting. *Journal of environmental quality*, 37(3).

https://www.researchgate.net/profile/Holly_Dolliver/publication/5400224_Antibiotic_Degradation_during_Manure_Composting/links/548067c70cf250f1edc18dfd.pdf. Kim, K.R., Owens, G., Ok, Y.S., Park, W.K., Lee, D.B. and Kwon, S.I., 2012. Decline in extractable antibiotics in manure-based composts during composting. *Waste Management*, 32(1), pp.110-116.

https://www.researchgate.net/profile/Yong_Sik_Ok/publication/51593417_Decline_in_extractable_antibiotics_in_manure-based_composts_during_composting/links/00463527bfa05c73f7000000.pdf.

⁴ Anaerobic digestion was found to be not as effective as composting by Massé, D.I., Saady, N.M.C. and Gilbert, Y., 2014. Potential of biological processes to eliminate antibiotics in livestock manure: an overview. *Animals*, 4(2), pp.146-163. <http://www.mdpi.com/2076-2615/4/2/146/htm>.

⁵ Battersby, N.S. and Wilson, V., 1989. Survey of the anaerobic biodegradation potential of organic chemicals in digesting sludge. *Applied and environmental microbiology*, 55(2), pp.433-439. <http://aem.asm.org/content/55/2/433.full.pdf>.

Anaerobic digestate is not essential for organic production.

AD contributes organic matter to the soil. There are many natural materials that can be used to add organic matter to the soil, so AD is not essential for organic production. AD may not be as good for the soil as compost or unprocessed organic matter.⁶ The technical review (TR) identifies some of the available sources of organic matter, including: “aerobic compost, vermicompost, raw manure, various mulches such as straw and leaves, and various plant and animal by-products with fertilizer value, such as blood meal, bone meal, fish meal, soybean meal, alfalfa meal and cottonseed meal.”⁷ The TR also identifies practices that can be used to enhance soil organic matter:

The NOP regulations require the use of soil fertility and crop nutrient management practices in accordance with §205.203. Organic growers rely on crop rotations that include cover crops grown as green manure to cycle nutrients, as well as organic soil amendments, particularly compost. Nutrient cycling without the use of off-farm inputs can be done by growing cover crops and grazing livestock.⁸

Anaerobic digestate is not comparable to compost.

While both anaerobic digestate and compost add organic matter to the soil, an important function of compost is boosting the population of aerobic soil organisms that, through their life and death cycle, feed other soil organisms, and ultimately, crop plants.

Anaerobic digestate requires annotation to avoid environmental and health impacts.

The health and environmental impacts of AD depend on the process used and, more importantly, the feedstock.

Feedstocks –food wastes and manure– may include materials that pose problems for the organic producer. A serious source of chemical contamination is manure from concentrated animal feeding operations (CAFOs), which is a major source of feedstock for commercially produced AD.⁹ According to the TR, “Manure from conventional farming operations may contain antibiotics, anthelmintics, other animal drugs and pesticides, as well as various other chemicals used as production aids. Feedstocks from conventional agriculture—including food waste from crops grown with pesticides—can be contaminated with pesticide residues. While the digestion process may decompose some of these substances, some are more persistent than others. Crop residues from conventional farms may also have the potential to be contaminated with pesticides prohibited in organic production.”¹⁰

⁶ TR lines 711-721.

⁷ TR lines 875-878.

⁸ TR lines 952-957.

⁹ TR lines 665-666.

¹⁰ TR lines 627-632.

The TR says, "The most likely chemical contaminants of AD [from food waste] are considered to be phthalates from degraded plastics and pesticides."¹¹ The sources are plastic contaminants in waste and residues of pesticide and their metabolites in nonorganic food. The TR also cautions, "With the increased use of nanomaterials in conventional agriculture and food processing, these are expected to become a potential source of contamination."¹² Antibiotic resistance is likely to be a serious problem in AD from food waste, as well as that produced from CAFO manure because antibiotic resistant bacteria that are present may be cultured by the process. Even if those bacteria are not pathogens, the antibiotic resistant plasmids may be transferred to pathogens.¹³

Conclusion

Beyond Pesticides opposes the petition for anaerobic digestate because it is not essential and poses environmental and health hazards. The health and environmental problems associated with its use have not been thoroughly investigated. If the NOSB chooses to go forward with listing this material, it must do so with an annotation that limits the feedstocks and processes used to protect farmers and consumers, and only in concert with the development of guidance to avoid contaminated inputs into organic agriculture.

Thank you for your consideration of these comments.

Sincerely,



Terry Shistar, Ph.D.
Board of Directors

¹¹ TR lines 622-623.

¹² TR lines 656-657.

¹³ TR lines 690-694.