

National Organic Standards Board (NOSB)
Materials Subcommittee (MS) Discussion Document
Induced Mutagenesis
Fall 2026

Introduction

This discussion document describes the Board’s work to determine whether induced mutagenesis (IM) is an excluded method prohibited in organic agriculture. It summarizes the feedback and discussions to date and identifies factors that make it difficult to reach a determination at this time. The Materials Subcommittee encourages future NOSB members to take the issue up again if the state of the seed industry has shifted such that barriers to oversight of IM are reduced.

Background

The Materials Subcommittee brought forward discussion documents on IM for the Fall 2024 and Fall/Winter 2025 NOSB meetings and further discussed the issue at the Spring 2026 meeting, following presentations from an expert panel on seed.

Definitions & Current Law To be sold as organic, products must be produced and handled without the use of “excluded methods” (7 CFR 205.105).

Current USDA organic regulations (7 CFR 205.2 Terms defined) define **excluded methods** as:

A variety of methods used to genetically modify organisms or influence their growth and development by means that are not possible under natural conditions or processes and are not considered compatible with organic production. Such methods include cell fusion, microencapsulation and macroencapsulation, and recombinant DNA technology (including gene deletion, gene doubling, introducing a foreign gene, and changing the positions of genes when achieved by recombinant DNA technology). Such methods do not include the use of traditional breeding, conjugation, fermentation, hybridization, in vitro fertilization, or tissue culture.

It is important to note that this definition refers to **means** not possible under natural conditions, not **results** not possible under natural conditions.

Excluded Methods Background

There are three key prongs to the excluded methods definition:

- (1) “methods used to genetically modify organisms or influence their growth and development”;
- (2) “by means that are not possible under natural conditions or processes”; and
- (3) “[by means that] are not considered compatible with organic production.”

The use of “and” to connect these prongs within the definition indicates that for a method to be excluded under the regulations, **all three elements must be met**.

The phrases “natural conditions or processes” and “not considered compatible with organic production” were intended to be “subject to interpretation,” because consumer and industry expectations may evolve over time and the NOSB can help resolve questions arising with regard to specific techniques (Proposed Rule, 65 Fed. Reg. 13512, 13521 (Mar 13, 2000)). In the fall 2025 discussion document on IM, the Materials Subcommittee recommended that the lack of available testing methods to detect the use of a particular

genetic modification technology should not prevent the NOSB from listing it as an excluded method if it otherwise fits the definition; rather, the NOSB should anticipate that appropriate testing or detection methods will develop over time.

Induced Mutagenesis Current Status

Currently, varieties bred using IM are in use in organic production. In vivo IM is on the NOSB's "[TBD list](#)" of potentially excluded methods, which includes methods that are controversial and have not yet had recommendations from the NOSB. Stakeholders, particularly organic seed breeders and producers, have pushed for resolution of TBD methods since the list was established in 2016.

The most recent Technical Review on induced mutagenesis was conducted by the Organic Materials Review Institute in 2023. As per the TR, "[i]nduced mutagenesis refers to a collection of methods used to create mutations in organisms. Researchers identify beneficial mutations within mutated entities and use those mutations in further breeding of organisms with desired traits."

Discussion

The Materials Subcommittee has received substantial feedback on IM from the rest of the NOSB and organic stakeholders. There seems to be general consensus that most, if not all, processes that would fall under the IM definition meet prongs 1 and 2 of the excluded methods definition, with a possible exception of radiation or certain substance exposure that could occur naturally in some form. On prong 3, many commenters concurred that exposing plant materials to toxic chemicals and radiation is not consistent with organic principles. However, many commenters also expressed practical concerns about losing access to existing IM varieties and/or restricting future variety development through IM techniques.

Concerns about the feasibility of enforcing a limitation on IM have also been raised. In particular, the Materials Subcommittee has been informed that in the current seed market, in which few companies control the vast majority of crop seeds, there is a risk that requiring an affidavit or some other form of verification to confirm that IM was not used in production of a particular seed could negatively impact commercial seed availability for organic producers. This might not be a significant concern for organic production in the future if there is an increase in certified organic seed availability, as more operations would be under NOP scope of enforcement and organic producers would be less reliant on the nonorganic seed sector. However, given that organic seed use and production have stagnated in recent years, at this time reaching a determination that IM is an excluded method and suggesting a verification method could inadvertently dramatically reduce access to seed for organic producers, including seed that is not actually produced using IM, because that verification might not be available.

The Materials Subcommittee recommends that the NOSB not reach a determination at this time but resume work on this topic in the future when market conditions are at a scale to achieve desired outcomes and implementation would have fewer risks to organic producers.

Questions to Stakeholders

None

Subcommittee Vote

Motion to accept the discussion document on Induced Mutagenesis

Motioned by: Cat McCluskey

Seconded by: Dilip Nandwani

Yes: 5 No: 0 Abstain: 0 Recuse: 0 Absent: 0