



Alternatives to Conventional Pesticides for Crop Desiccation

9/30/2026

Douglas M. Troutman
Assistant Administrator
Office of Chemical Safety and Pollution Prevention
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

[Docket ID EPA-HQ-OPP-2026-3862](#)

Dear Assistant Administrator Troutman:

Introduction

The Biological Products Industry Alliance (BPIA) appreciates the opportunity to provide comments on the U.S. Environmental Protection Agency's (EPA) Request for Information (RFI) regarding the Innovation Challenge: Alternatives to Conventional Pesticides for Crop Desiccation.

EPA's Innovation Challenge presents a timely opportunity to advance practical alternatives for crop desiccation and harvest management. BPIA believes biological products should be fully considered as part of this effort, particularly where they can provide safe, effective, and scalable options for growers.

Representing more than 180 member companies, BPIA is the leading trade association representing the biological products industry in North America. BPIA champions the development, commercialization, and adoption of safe, effective, and environmentally responsible biological products used across diverse agricultural production systems. Our members develop, manufacture, distribute, and support a broad range of products, including biopesticides, biostimulants, biofertilizers, and other related biological products.

Executive Summary

BPIA applauds EPA for seeking stakeholder input on the design of its Innovation Challenge. While the RFI is focused on alternatives to conventional pesticide crop desiccation, BPIA believes the opportunity extends well beyond identifying individual replacement technologies. Rather, this initiative should accelerate the development, commercialization, and adoption of biological products that strengthen American agriculture.

Biological products are commercially available, scientifically validated, and increasingly integrated into a diverse agriculture production systems. Continued investment in biological innovation will provide growers

with additional tools to improve productivity, strengthen resilience, and meet evolving environmental and market demands.

Accordingly, BPIA recommends that EPA:

- Recognize biological products as a foundational pillar of agricultural innovation and prioritize biological solutions throughout the Innovation Challenge.
- Support research, field validation, demonstration, and commercialization that accelerate adoption of biological products.
- Encourage integrated crop management systems across conventional and organic production systems, including approaches where biological and conventional products are used in combination to improve crop productivity, resilience, and sustainability.
- Develop evaluation criteria that recognize the unique agronomic, environmental, and economic value biological products provide.
- Promote public-private partnerships among industry, academia, growers, USDA, and EPA to accelerate innovation and commercialization.
- Support regional demonstration projects that generate practical, real-world performance data and increase grower confidence.

I. The Role of Biological Products in EPA's Innovation Challenge

Biological products are increasingly integrated into modern agricultural production and provide growers with additional tools to support crop productivity, plant health, resilience, and sustainable production. Continued advances in microbiology, fermentation, formulation, and plant science are expanding their role across conventional and organic production systems.

EPA's Innovation Challenge provides an opportunity to build on this progress by supporting biological products that can contribute practical and scalable approaches to crop desiccation and harvest management. BPIA encourages EPA to ensure biological products are fully considered as part of the Challenge, with attention to field validation, commercialization, scalability, and grower adoption.

BPIA also encourages EPA to evaluate proposed solutions based on agronomic performance, economic feasibility, compatibility with existing production systems, commercial scalability, environmental benefits, and their ability to deliver meaningful value to growers.

II. Responses to EPA's Request for Information

Question 1. Current Crop Desiccation Practices

EPA asks: What types of crop desiccants do growers currently use?

Growers currently use several conventional pesticide active ingredients as pre-harvest desiccants or harvest aids, depending on the crop and registered use. These include paraquat, diquat, saflufenacil, carfentrazone, sodium chlorate, and glyphosate for certain pre-harvest uses. Product selection and application timing vary by crop, geography, crop maturity, and label requirements. While these tools are important for harvest management and quality, they also can leave residues on the harvested crop, are restricted use pesticides, or are banned in multiple states and countries.¹

Question 2. Existing Alternatives

EPA asks: What alternatives to conventional pesticide chemical desiccation are currently available?

Biological products offer an important and growing category of alternatives and complementary tools to conventional pesticide chemistry. Biologicals include biopesticides, which protect crops from insect pests and diseases through biological or naturally derived mechanisms; biostimulants, which enhance natural plant processes to support nutrient use efficiency, stress tolerance, crop quality, or other plant characteristics; and biofertilizers, which use microorganisms or other biological components to enhance nutrient availability and uptake. Together, these technologies can support crop health, resilience, productivity, and integrated crop management.

BPIA encourages EPA to consider biological solutions broadly within the Innovation Challenge, including technologies that can provide growers with new approaches to harvest management. Ensuring that these technologies have clear pathways for development and commercialization will be important to realizing their full potential as part of an expanded agricultural toolbox.

Few to no biological products currently exist in the plant desiccation area, however there is the potential for development. Biological products have typically focused on the categories of biopesticides, biostimulants, and biofertilizers, all aimed at the premise of growth stimulation or reducing stress (biotic or abiotic) that limits plant growth and productivity. There is room, however for the development of products in the desiccation space. For example, many organic herbicides are contact herbicides based on organic acids. In addition, there are other ‘contact’-type biological products that could have this desiccant effect, but have not been explored because of a limited market due to the standard use of conventional pesticide chemical desiccants.²

Question 3. Adoption Challenges

EPA asks: Why are alternatives not more widely adopted?

One of the most significant challenges to broader biological adoption is building and maintaining grower confidence in the category. Biological products can perform differently depending on crop, geography, environmental conditions, application practices, and other variables. Products entering the market without sufficient field validation or clear guidance on appropriate use can produce inconsistent grower experiences, which can undermine the credibility of biologicals more broadly.

At the same time, lengthy development and regulatory timelines, commercialization costs, limited opportunities for large-scale field demonstrations, and the need for greater grower and retailer education can make it more difficult for well-supported biological technologies to reach the market and establish a track record of success. Expanding high-quality field validation, demonstrations, and education would help strengthen confidence and accelerate adoption.

Conventional pesticide chemical desiccants are effective, readily available, and relatively inexpensive.³

Question 4. Equipment

EPA asks: Can existing equipment support alternatives?

In many cases, existing agricultural application equipment can support biological products, although compatibility will depend on the specific product and formulation. Research has demonstrated that biological agents can be successfully delivered through components commonly found in commercial agricultural spray equipment. However, factors such as temperature, pressure, agitation, formulation, and application method may affect the viability or performance of certain biological products.

EPA should therefore allow flexibility within the Innovation Challenge and evaluate equipment compatibility based on the characteristics of the particular technology rather than assuming that all alternatives will have identical application requirements.⁴

Question 5. Supply Chain Considerations

EPA asks: What characteristics are important throughout the supply chain?

Important supply-chain considerations for biological products include product stability and shelf life, storage and handling requirements, reliable manufacturing at commercial scale, formulation stability, distribution and product availability, and consistent product quality through storage and distribution.

These considerations can be particularly important for microbial products, where maintaining viability, stability, and product quality throughout production and storage can be critical to successful commercialization and performance. EPA should consider these characteristics when evaluating whether potential alternatives can be reliably produced, distributed, stored, and ultimately made available to growers at commercial scale.⁵

Question 6. Barriers

EPA asks: What barriers prevent adoption?

Key barriers to broader biological adoption include regulatory and commercialization timelines, the cost of developing and validating new technologies, limited opportunities for large-scale field demonstrations, grower familiarity and trust, and the need for greater education and technical support. Addressing these barriers can help proven biological technologies reach growers more efficiently and build confidence through demonstrated performance.

There are not many products available as alternatives. There has been a lack of commercial demand for alternative options to conventional pesticide chemical desiccants, leading to a lack of development by companies to provide safer and softer products in this space.⁶⁷

Question 7. Performance Standards

EPA asks: What standards should alternatives meet?

Alternatives should demonstrate reliable agronomic performance under real-world growing conditions while maintaining crop quality, harvest readiness, and operational efficiency. Performance standards should also consider economic feasibility, scalability, compatibility with existing production systems, and ease of adoption by growers.

For biological products in particular, EPA should recognize that performance may vary based on crop, geography, environmental conditions, application timing, and other agronomic factors. Accordingly, the Challenge should emphasize replicated field validation across representative conditions rather than requiring a single universal performance benchmark. Alternatives should demonstrate meaningful value to growers while maintaining appropriate standards for human health and environmental safety.⁸

Question 8. Limitations of Conventional Desiccants

EPA asks: Aside from human health and environmental concerns, what limitations exist?

Conventional desiccants can be constrained by crop-specific use requirements, application timing, pre-harvest intervals, crop maturity, and environmental and field conditions. Improper application timing can also negatively affect crop yield or quality.

These limitations reinforce the value of expanding the grower's toolbox, including through biological innovation. Biological products and other innovative approaches should be evaluated for their potential to complement existing practices and provide growers with additional options for crop and harvest management.⁹

Question 9. Existing Research

EPA asks: What research should EPA consider?

EPA should consider recent research examining grower experience with and adoption of biological products. In particular, BPIA encourages EPA to consider the *2026 Row Crop Biologicals Study* conducted by Stratovation Group, for which BPIA served as an industry partner. The study surveyed 604 U.S. corn,

soybean, and wheat growers and examined awareness, perceptions, adoption, purchasing behavior, usage patterns, and challenges associated with biological crop inputs. The findings provide useful insight into factors influencing grower confidence, product evaluation, and adoption of biological technologies.¹⁰

EPA should also consider the *2026 Global Regulatory Compendium for Agricultural Biological Products*, authored by Terry Stone and published by the Agriculture & Food Systems Institute (AFSI). The Compendium examines the laws, agencies, registration pathways, and oversight governing biopesticides, biofertilizers, and biostimulants across 32 jurisdictions and provides useful context regarding regulatory pathways affecting biological innovation and commercialization.¹¹

Question 10. Innovation Challenge Design

EPA asks: How should EPA structure the Innovation Challenge?

The Innovation Challenge should be structured to allow for commercial product development to meet future needs without being limited by existing market demands. Companies in both the biological products, and conventional chemistry industry have the capability, and potential products that have been partially developed and then stopped to fill this need. In addition contributions from individuals in this space can also greatly expand the ideas and innovation of new crop desiccants. The Innovation challenge should give clear guidelines as to what the product needs to do to meet the stakeholder demands (crops to be used on, efficacy relative to existing products, residue, environmental and human health hazards, application rate and concentration, cost to the grower, etc.). There should be opportunities for companies who have the capacity to manufacture and distribute the product as well as license the product to others for manufacturing and distribution. There will need to be a system in place to encourage the use of these new alternatives.

Conclusion

EPA's Innovation Challenge provides an opportunity to support practical, scalable alternatives that strengthen American agriculture and expand growers' access to effective crop management tools. BPIA encourages EPA to ensure biological products are fully considered as the Agency develops the Challenge, with appropriate attention to performance, commercialization, scalability, and grower adoption.

BPIA appreciates the opportunity to provide these comments and looks forward to continued collaboration with EPA as the Agency advances science-based approaches that support agricultural innovation and deliver meaningful benefits to growers, consumers, and the environment.

Sincerely,

Biological Products Industry Alliance



John W. S. Dunmore
Director of Government & External Affairs

References

1. North Dakota State University Extension, “Soybean Production Field Guide for North Dakota”; North Dakota State University Extension, “Canola Production: Desiccation”; U.S. Environmental Protection Agency, “Paraquat Dichloride.” <https://www.ndsu.edu/agriculture/extension/publications/soybean-production-field-guide-north-dakota> | <https://www.ndsu.edu/agriculture/extension/publications/canola-production> | <https://www.epa.gov/ingredients-used-pesticide-products/paraquat-dichloride>
2. Biological Products Industry Alliance, “Biopesticides”; Biological Products Industry Alliance, “Biostimulants and Biofertilizers.” <https://www.bpia.org/solutions-provided-by-biological-products-biopesticides/> | <https://www.bpia.org/biostimulants-and-biofertilizers/>
3. U.S. Environmental Protection Agency, “What Are Biopesticides?”; U.S. Environmental Protection Agency, “Biopesticide Registration.” <https://www.epa.gov/ingredients-used-pesticide-products/what-are-biopesticides> | <https://www.epa.gov/pesticide-registration/biopesticide-registration>
4. U.S. Department of Agriculture, Agricultural Research Service, “Effects of Agricultural Spray Equipment on a Biological Pesticide”; “Biological Pesticides and Conventional Hydraulic Spray Equipment.” <https://www.ars.usda.gov/research/publications/publication/?seqNo115=184438> | <https://www.ars.usda.gov/research/publications/publication/?seqNo115=181054>
5. U.S. Department of Agriculture, Agricultural Research Service, “Interaction of Water with Three Granular Biopesticide Formulations”; U.S. Environmental Protection Agency, “Product Chemistry Guidance for Biopesticides.” <https://www.ars.usda.gov/research/publications/publication/?seqNo115=238631> | <https://www.epa.gov/pesticide-registration/tips-avoiding-confidential-statement-formula-or-product-chemistry-issues>
6. U.S. Environmental Protection Agency, PestWise Biopesticide Demonstration Grant Program, “Challenges to Increased Adoption of Biopesticides.” <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P1006GHZ.TXT>
7. Congress.gov, H.R. 3783, Plant Biostimulant Act of 2025, 119th Congress. <https://www.congress.gov/bill/119th-congress/house-bill/3783>
8. U.S. Environmental Protection Agency, Innovation Challenge announcement; Conventional Reduced Risk Pesticide Program; PR Notice 97-3. <https://www.epa.gov/newsreleases/epa-launches-30-million-challenge-help-american-farmers-grow-healthy-food-fewer> | <https://www.epa.gov/pesticide-registration/conventional-reduced-risk-pesticide-program> | <https://www.epa.gov/pesticide-registration/prn-97-3-guidelines-expedited-review-conventional-pesticides-under-reduced>
9. North Dakota State University Extension, “Canola Production: Desiccation”; “Sunflower Production Guide”; University of Minnesota Extension, “Managing Wheat Before Harvest.”

<https://www.ndsu.edu/agriculture/extension/publications/canola-production> |
<https://www.ndsu.edu/agriculture/extension/publications/sunflower-production-guide> |
<https://extension.umn.edu/agriculture/crop-production/small-grains/managing-wheat-before-harvest>

- 10. Stratovation Group, “2026 Study Findings: Farmer Confidence in Ag Biologicals Rising as Biofertilizer, Biopesticide Adoption Accelerates.”** <https://stratovationgroup.com/farmer-confidence-in-ag-biologicals-rising-as-biofertilizer-biopesticide-adoption-accelerates/>
- 11. Agriculture & Food Systems Institute, 2026 Global Regulatory Compendium for Agricultural Biological Products.** <https://foodsystems.org/publication/afsi-global-regulatory-compendium-agricultural-biological-products-2026/>