

ERS Peer Review Plan

Preliminary Title: Biotechnology in U.S. Crop Production: Adoption, Costs, and Regulatory Structure

Type of Report (ERR, EIB, EB) EB

Agency: Economic Research Service [X] Influential Scientific Information
USDA [] Highly Influential Scientific Assessment

Agency Contact: Jeffrey Hopkins, jeffrey.w.hopkins@usda.gov

Subject of Review: Genetically engineered (GE) crop varieties have achieved widespread adoption in major field crops, accounting for over 90% of corn, soybean, and cotton acreage in the United States since 2013. This report examines adoption, costs, and regulatory structure of agricultural biotechnology, focusing on both transgenic GE and emerging gene-edited crops. Major findings highlight that farmers pay higher prices for GE seeds relative to conventional seeds, primarily because GE seeds provide improved pest control, yield stability, and labor savings. More recent gene-editing technologies can enable faster and lower-cost development of crop traits. These may be especially well-suited for specialty crops, potentially bringing innovations to market with less time and expense than is required for traditional GE traits. The regulatory environment plays a pivotal role: streamlined oversight, such as the regulatory system for GE crops and certain gene-edited crops that was in effect during 2021-24, can reduce compliance costs and shorten times to innovation. Key challenges, like weed and insect resistance to pesticides and bruising of apples and potatoes during transport, continue to spur innovations in new GE traits. However, data limitations and knowledge gaps constrain our understanding of the full public and private costs and benefits surrounding the development and commercialization of GE crops.

Purpose of Review: The purpose of the review is to ensure the high-quality of the economic analysis, transparent explanation of methods, objective interpretation of results, and effective communication to the intended audience.

Type of Review: [] Panel Review [X] Individual Reviewers
[] Alternative Process (Briefly Explain):

Timing of Review (Est.): Start: 6/18/2025 Completed:

Number of Reviewers: [] 3 or fewer [X] 4 to 10 [] More than 10

Primary Disciplines/Types of Expertise Needed for Review: Economists

Reviewers selected by: [X] Agency [] Designated Outside

Organization

Opportunities for Public Comment?

☐ Yes

☒ No

If yes, briefly state how and when these opportunities will be provided:

How:

When:

Peer Reviewers Provided with Public Comments?

☐ Yes

☒ No

Public Nominations Requested for Review Panel?

☐ Yes

☒ No