

**AGRICULTURE**

**Impact of Pesticide Regulation on Innovation in the United States and European Union**

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Regulations are an integral part of society and can be used for many purposes, such as preventing market failure and protecting the environment. However, there is controversy concerning whether regulations hamper innovation. One example of how regulations can be detrimental is in the pesticide industry. With the purpose of keeping untargeted organisms and the environment safe, pesticide regulation is necessary, but at what point does it hamper the creation and use of products that pose minimal harm? This research seeks to compare the United States’ and European Union’s methods of regulation and provide insight as to whether they hinder innovation.



This word cloud was made using the most prevalent words from my complete research paper.

The United States uses an evidence and risk-based approach to regulate pesticides. The Environmental Protection Agency (EPA) uses tests, which can exceed 100 in number, and gathers scientific evidence to determine whether a chemical poses an unacceptable risk. The European Union uses the precautionary principle, which starts with the assumption that a pesticide is harmful until proven to pose a low enough risk. There is no set definition for the precautionary principle, which creates uncertainty as to what is safe. Development and approval through either method can take upward of 10 years and millions of dollars.

These processes became more difficult over time. As J. Tait’s 2001 article, “Pesticide Regulation, Product Innovation, and Public Attitudes,” in the *Journal of Environmental Monitoring* says, in 1972 it took 10,000 chemicals being screened before one made it to market; by 2001, that number became 200,000. The answer as to whether these processes hinder innovation is very complex, but findings indicate that there could be improvements to both systems.

*Research advisor Otto Doering writes: “Writing about regulation is almost a no-win game unless one joins the ‘for’ or the ‘against’ camp. Brooke has taken on the complexity and trade-offs that are the reality of regulation and regulatory policy for pesticides. She recognizes and demonstrates that the world is a complex place without simple solutions for complex problems.”*