



Overview

[Organophosphates](#) are a class of pesticides that are responsible for pollinator decline. They are primarily used in the agriculture, landscaping, and mosquito management industries. Although their ubiquity declined in 2001 after the EPA made discoveries regarding their adverse effects on human, wildlife, and ecosystem health, they still account for [33%](#) of all insecticides on the market. Some examples of organophosphates include: chlorpyrifos, glyphosate, malathion, diazinon, and disulfoton. While organophosphates are [not solely responsible](#) for pollinator decline, they are an important contributor. Their effect is similar to [neonicotinoids](#), another class of pesticides often included in state policies. Organophosphates target the nervous system of insects, inhibiting pollinators' capacity to function properly. Exposure to organophosphates often [disrupts bees' ability](#) to find pollen and return to the hive, leaving the colony vulnerable to developing colony collapse disorder. Overall, additional restrictions or regulations on use of these insecticides would be beneficial to pollinator health.

Legislation

The EPA committed to upholding its [ban](#) on chlorpyrifos and published its [final rule](#) as of February 2022. Below is additional legislation that regulates or restricts organophosphates' use.

- **[Maine L.D. 316 \(2021-Enacted\)](#)**: Prohibits the use of chlorpyrifos and was enacted prior to EPA ban.
- **[Maine L.D. 125 \(2021-Passed both houses\)](#)**: Prohibits the aerial spraying of glyphosate and other synthetic herbicides for the purpose of silviculture.
- **[Washington S.B. 6518 \(2020-Introduced\)](#)**: Recognizes the potential for organophosphates to harm aquatic ecosystems and wildlife, as well as their link to neurological issues.
- **[Vermont H15 \(2021-Introduced\)](#)**: Prohibits the sale of the organophosphate glyphosate unless authorized by the Secretary of Agriculture, Food, and Markets upon determination of a threat to Vermont crops requiring glyphosate.
- **[New York A.4588 \(2019-Introduced\)](#)**: Implements mandatory testing for the presence of organophosphates for all pesticide handlers, including applicators and mixers of pesticides.

KEY POINTS

- The ingestion of organophosphate particles interferes with bees' memory and learning capability, reducing their survival ability ([Freethink](#)).
- Research shows that bees that interacted with organophosphates had mortality rates up to 100% ([Zhu et al.](#)).
- Frequent, low exposure to organophosphates is found to increase the risk of developing neurological disorders, while incidences of high exposure have led to death in humans ([National Geographic](#)).
- Migrant farm workers are most at risk to organophosphates due to the frequent exposure nature of their work, especially during the application process ([Medical News Today](#)).
- Scientists developed a means of detoxifying organophosphates before they are absorbed and harm the bee ([Cornell](#)).

Other Resources

- [Earthjustice's guide](#) for which organophosphate pesticides are used on certain products.
- The company [Beemunity's products](#) protect bees against pesticides by feeding the bees pesticide detoxifying microparticles.
- The [EPA's ban](#) on the use of chlorpyrifos, an organophosphate.
- [Study](#) - showing that organophosphates are a POP, a "Persistent Organic Pollutant."