

[The list of organic pesticides approved by the USDA \(agdaily.com\)](https://www.agdaily.com)

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## The pesticides approved in organic farming are largely natural ones, though a limited amount of synthetic substances are permitted

While much about modern farming techniques centers around the use of synthetic pesticides (a catch-all term that includes herbicides, insecticides, and fungicides) on large acreage, organic producers of all sizes also use a variety of chemicals to control weeds and bugs on their farms. This article contains a list of organic pesticides **approved by the United States Department of Agriculture** for use on non-conventional farms.

The decisions about which substances are allowed under the USDA's **National Organic Program** are made by a board that includes organic growers, handlers, retailers, environmentalists, scientists, USDA-accredited certifying agents, and consumer advocates. Contrary to popular belief, pesticides approved for use on organic farms do include some synthetic substances, though the vast majority are natural toxins. That said, it should be clear that not all natural toxins are permitted — for example, strychnine and arsenic are natural but not allowed to be used in organic farming and gardening.

One of the most controversial natural pesticides, the insecticide Rotenone, was removed from the Federal Register listing allowable organic pesticides in January 2019. Rotenone, which is derived from the roots of plants from the Leguminosae family, is highly toxic, and concern had long been growing about the damage it was doing to the environment.

Of course, genetic engineering is not allowed in organic production. To meet the USDA organic regulations, farmers and processors must show they aren't using GMOs (in this case, meaning high-tech modern plant breeding techniques) and that they are protecting their products from contact with substances associated with GMOs from farm to table.

Just because a pesticide product is natural doesn't mean it is less toxic than its synthetic counterpart. The dose, frequency of application, and mode of action all contribute to toxicity, and the severity is determined by the United States Environmental Protection Agency.

Below are many of the substances, both synthetic and non-synthetics, used in organic farming and gardening (this list includes the **rule update that was finalized in January**

**2019**). These substances can be sold under **a variety of brand names**, which are further detailed in the OMRI Generic Materials List.

A complete list of allowed synthetic substances and prohibited natural substances **can be found here**.

## List of major substances

Bacillus subtilis

Bacillus thuringiensis

Beauveria bassiana

Boric acid: Structural pest control, no direct contact with organic food or crops.

Coniothyrium minitans

Copper: Copper hydroxide, copper oxide, copper oxychloride, includes products exempted from EPA tolerance, provided that copper-based materials must be used in a manner that minimizes accumulation in the soil and shall not be used as herbicides.

Copper sulfate: Application rates are limited to levels which do not increase baseline soil test values for copper over a timeframe agreed upon by the producer and accredited certifying agent.

Corn gluten

Cydia pomonella granulosis

### **Diatomaceous earth**

### **Gibberellic acid**

Horticultural vinegar

### **Hydrogen peroxide**

Lime sulfur: Including calcium polysulfide

Minerals such as elemental sulfur, bicarbonate, or kaolin clay

Myrothecium verrucaria

Non-detergent **insecticidal soaps**: As a pesticide, fungicide, or algacide for food crops

Oils, including petroleum, vegetable, and fish oils: Types include dormant, suffocating, and summer oils

Peracetic acid: For use to control fire blight bacteria. Also permitted in hydrogen peroxide formulations at a concentration of no more than 6% as indicated on the pesticide product label

Pheromones and pheromone traps

Plant-derived substances such as **neem**, caraway oil, seed fennel, quassia, or ryania

Ryania/Ryanodine

Sabadilla

**Spinosad**

Streptomycin sulfate and tetracycline

Sticky traps

Vitamin D3: As a rodenticide

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Tags: organic pesticides, organic farming, synthetic pesticides, GMOs, organics