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Orobanche cumana

(Sunflower Broomrape)

NATIONAL ALERT



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Orobanche cumana,

commonly called Sunflower Broomrape, is a devastating parasitic weed that can cause yield losses to sunflower. The first report of *Orobanche cumana* in the Western Hemisphere was in Bolivia in 2024. The first report in North America occurred in Yakima, Washington, in 2025, which was followed immediately by eradication efforts. *At the time of this writing, Orobanche cumana has not been found elsewhere in North America and has **NEVER** been observed in any major U.S. sunflower production area (commercial or seed).* This Extension Alert is designed to bring awareness and information to the North American sunflower communities in an effort to prevent future introduction and/or establishment of this parasitic weed on the continent.

Figure 1. *Orobanche cumana* susceptible (foreground and right) and resistant (background and left) sunflower hybrids. Many light-brown *Orobanche* plants parasitizing the susceptible sunflower hybrid are causing lower leaf yellowing, severe stunting and reduced head size. (Courtesy, Tatiana Antonova, VNIIMK)

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Why is *Orobanche cumana* a concern?

Broomrapes from the genus *Orobanche*, now reclassified to include the genera *Aphyllon* and *Phelipanche*, are noxious, *holoparasitic* weeds (entirely dependent on their host plants for nutrition). *Orobanche* plants have no chlorophyll and cannot manufacture their own nutrients. Consequently, all water and nutrients are taken from the roots of the parasitized plant, resulting in high yield loss to the host. Due to the potential yield threat to domestic plants, all non-native *Orobanche* species (including *O. cumana*) are on the U.S. Federal List of Noxious Weeds, making transport of their seeds illegal.

Orobanche cumana is a species that specifically parasitizes sunflowers and is thought to have originated in Russia and Eastern Europe. Spread of *O. cumana* followed the expansion of sunflower production across Ukraine, Moldova, Romania, Bulgaria and Hungary. It is now widespread in major sunflower-growing areas, including Spain, France, Italy, Romania, Hungary, Bulgaria and Ukraine. *Orobanche cumana* is also present

in Israel, China and Tunisia but was not found in the Western Hemisphere until 2024.

Parasitism by *O. cumana* can have devastating effects on sunflowers that result in high economic losses to the crop. Parasitism may cause yellowing (and eventual necrosis and death) of lower leaves, plant stunting and wilting (Figure 1). Surviving sunflowers may produce fewer seeds with reduced seed size, test weight and oil yields. Yield losses in severely infected fields in Europe and Russia have reached 50% or more.

How to identify *Orobanche cumana*

Orobanche cumana is commonly first observed as a plant (or cluster of plants) growing from the roots of a sunflower plant (Figure 2). A single parasitized sunflower plant may have one to several dozen *Orobanche* plants attached to the root system. Young *Orobanche* plants (prior to flowering) often appear similar to asparagus.

Each *Orobanche cumana* plant consists of a single, pale yellow-white to light brown stem, reaching 16-25 inches



Figure 2. *Orobanche cumana* stems emerging at the base of sunflower plants. (Courtesy Tatiana Antonova, VNIIMK)

(40-60 cm) in height. The stem has small, white-to-pale-blue flowers, slightly resembling a snapdragon (Figure 3). The corollas of the flowers are purple-tinted and curve downward.

Orobanche plants produce multiple flowers, with up to 100 flowers on large plants. Each flower produces a capsule containing up to 1,000 minute seeds roughly measuring 1/100-1/64 inch x 1/250-1/125 inch (0.25-0.4 mm x 0.1-0.2 mm) that resemble finely ground pepper. Seeds are very lightweight, with 2-3 million seeds weighing just 1 ounce (approx. 28 grams). The dustlike seeds are very difficult to see and are easily dispersed, increasing the risk of inadvertent spread. Seeds remain viable in soil for up to two decades, creating a seedbank that may number in the millions from a single parasitized sunflower.

While *Orobanche cumana* is the focus of this alert, multiple *Orobanche* species exist on many different hosts, including those native to North America. *Orobanche* species may be distinguished by stem size and the mode of branching, as well as flower color, size and shape. However, DNA testing may be needed for precise species confirmation in some cases.



Figure 3. Close-up of a cluster of *Orobanche cumana* flowers.
(Courtesy, Yakima County Noxious Weed Board)

Life cycle

Broomrape plants are annuals, germinating from seeds each year. *Orobanche cumana* has a narrow host range that includes cultivated, ornamental, volunteer and wild sunflower. Seeds are stimulated to germinate in the presence of chemical root exudates of potential hosts and form germ tubes that penetrate sunflower roots. Inside the sunflower root, specialized structures (haustoria) are formed that extract nutrients from the parasitized sunflower plant. Tubercles, initially appearing as small nodules and later enlarging to shoots, develop on the parasitized root surface (Figure 4). Tubercles develop into *Orobanche* stems that emerge approximately 35 days after forming. Flowers of *Orobanche* produce seed quickly, approximately 18-20 days after emergence. Seeds are easily spread by wind, water, livestock and animals. Humans can inadvertently spread seed, particularly in contaminated soil on machinery, vehicles and boots.



Figure 4. Multiple *Orobanche cumana* plants attached to one sunflower root system. Numerous tubercles (and the shoots of future stems that develop from them), at various stages of development, are attached to the sunflower roots. (Courtesy Tatiana Antonova, VNIIMK)



What to do if you suspect *Orobanche cumana* on your sunflowers.

Although it is unlikely you will ever see *Orobanche cumana*, BOLO (be on the lookout) whenever you see sunflowers. Early identification and eradication are critical to prevent of *O. cumana* in North America. If you suspect *Orobanche*, we recommend the following actions:

- ▶ DO NOT collect plants, as seeds can easily be inadvertently spread.
- ▶ Take pictures, with emphasis on close-up images of the flowers.
- ▶ Collect information on the source of the sunflower seed and field cropping history (if possible).
- ▶ Record the specific location of the plants so they can be found for future identification.
- ▶ Contact an expert. We recommend sending photos and information to a university diagnostic plant disease laboratory, an Extension plant pathologist or the state department of agriculture.
- ▶ Take reasonable steps to minimize the chance of inadvertent spread, should the plant be confirmed as *Orobanche cumana*. This could include carefully cleaning hands and clothing after touching plants, restricting access to the area if you own the property, etc.



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For More Information

Block, C., Gulya, T., Harveson, R., Markell, S., Ryley, M., Thompson, S., Antonova, T. 2026. Sunflower broomrape (*Orobanche cumana*), a serious parasitic weed identified for the first time in the U. S. Proceedings of the 48th National Sunflower Association Research Forum, January 7-8, 2026.

Presentation with photos available at:

https://www.sunflowernsa.com/uploads/179/15_revised_Charles.Block_Orobanche.cumana_2026.Forum.pdf

Presentation summary and Q and A:

<https://www.sunflowernsa.com/uploads/research/1468/NSAResearchsummaryonOrobanhecumana-2026.pdf>

WSDA - Washington State Dept. of Agriculture. 2025.

News Release: WSDA seeks help from sunflower growers after first North American detection of sunflower broomrape confirmed in Yakima.

<https://agr.wa.gov/about-wsda/news-and-media-relations/news-releases?article=44833>.

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