

# FEATURED WEED: YELLOW AND DESERT ALYSSUM

Montana has two 'new' weeds to watch for.

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Montana landowners have two “new” weeds to watch for: yellow alyssum (*Alyssum alyssoides*) and desert alyssum (*Alyssum desertorum*). Both species are non-native, annual, weedy forbs (i.e., herbs) that are becoming more prevalent and problematic, especially in western, central, and southeastern Montana. Neither yellow alyssum nor desert alyssum is listed currently as a noxious weed by the state of Montana.

Yellow alyssum and desert alyssum are native to northern Africa, Eastern Europe, and western Asia. Brought to North America for medicinal reasons, these plant species are purported to cure hiccups, mental illness, and rabies. Yellow alyssum, also known as pale madwort, was first reported in Canada in 1896 and believed to have arrived in the U.S. even earlier. Desert alyssum, sometimes called dwarf alyssum or desert madwort, was first reported in the U.S. in 1941 and Canada in 1955. Together, these two weeds now infest 37 U.S. states and seven Canadian provinces.

Why the current concern about these weeds, several decades after their arrival in Montana? Why have these weeds become more abundant and widespread in recent years? Reasons for the expansion of yellow alyssum and desert alyssum are not

completely understood, but serious droughts that have weakened desirable plants; mild winters that favored seedling establishment of yellow alyssum and desert alyssum; and reduced tillage in cropland farming systems have most likely contributed.

## Identification and Biology

Yellow alyssum and desert alyssum both belong to the Mustard family (*Brassicaceae*). They grow from three to 10 inches tall, and each plant is usually multi-stemmed, branching from the base. Leaves (0.25- to 1-inch long) and stems are covered with tiny, flat, star-like shaped hairs that are visible with a magnifying glass. The hairs help the plants retain moisture and give the plants a pale to grayish appearance. The star-like shaped hairs of yellow alyssum each have six to 10 rays, whereas, the hairs of desert alyssum have eight to 20 rays. Both of these weeds grow in dry, gravelly areas on rangeland and cropland, with desert alyssum occupying harsher, rockier sites at lower elevations.

Yellow alyssum and desert alyssum have small, pale yellow flowers that typically bloom in May and June, with 30 to 40 flowers per plant. The small flowers are less than one-tenth of an inch wide. Seed pods contain two chambers, each capable of producing two seeds.

Yellow alyssum and desert alyssum are annual plants that grow from a seed, then flower, set seed, and die every year. Seeds sometimes germinate in spring, but yellow alyssum and desert alyssum often grow as “winter annuals,” with seeds germinating in autumn, plants overwintering as rosettes and resuming growth in spring, then producing seeds before the plants die in summer. Yellow alyssum and desert alyssum seeds must after-ripen on the soil surface for several weeks before they can germinate. Seed longevity in the soil seed bank is unknown, but most seeds of these weeds germinate every year.



Cold winter temperatures cause yellow alyssum and desert alyssum plants to mature and disperse their seeds early during the following summer. These seeds may germinate after a rain shower in July or August, but the seedlings usually die when surface soil moisture is depleted with the return of dry, summer weather. Without cold winter weather, yellow alyssum and desert alyssum plants flower about 100 days later and their seeds do not germinate until autumn when soil moisture is sufficient for seedling survival.



Yellow alyssum and desert alyssum plants look similar to hoary alyssum (*Berteroa incana*), a Priority 2A noxious weed in Montana. Hoary alyssum is taller (7-30 inches tall), with white flowers that bloom from May to September. Hoary alyssum leaves are also covered by star-like shaped hairs, but hoary alyssum leaves are larger (1-2 inches long) and broadest at the tip. Yellow alyssum and desert alyssum also can be mistaken for whitetop (*Cardaria draba*), a Priority 2B noxious weed in Montana. Whitetop is a tall (10-24 inches in height), perennial plant with white flowers. Whitetop leaves are covered by hairs but the hairs are straight, not star-like, and the base of each leaf clasps around the stem at the point of attachment.

## Impacts

Yellow alyssum and desert alyssum are shallow-rooted plants that accelerate soil erosion. These plants also extract surface soil moisture which impedes seedling establishment of more desirable plant species. Yellow alyssum is capable of invading undisturbed areas and coexisting with established perennial bunchgrasses such as Idaho fescue (*Festuca idahoensis*) and bluebunch wheatgrass (*Pseudoroegneria spicata*), although it rarely becomes dense unless sites are disturbed. Desert alyssum is a weak invader that requires sites be disturbed before it can establish, but both of these weeds can persist and dominate disturbed areas. Yellow alyssum and desert alyssum can coexist with spotted knapweed (*Centaurea stoebe*), a competitive Priority 2B noxious weed in Montana, and yellow alyssum and desert alyssum are relatively unpalatable to domestic livestock. On the positive side, the seeds and foliage of yellow alyssum and desert alyssum are eaten by western harvester ants, rabbits, pronghorn antelope, and sage-grouse. ■

**TABLE 1. Examples of herbicides that can be used to suppress yellow alyssum and desert alyssum. Consult herbicide labels for more information.**

Trade Name Herbicide Active Ingredient	Application Rate (Product per Acre)
Oust Sulfometuron	1.33 to 2 ounces
2,4-D 2,4-dichlorophenoxyacetic acid	3 pints
Tank Mix of Oust + 2,4-D Sulfometuron + 2,4-D	1.33 ounces Oust + 1.5 pints 2,4-D
Tank Mix of Milestone + 2,4-D Aminopyralid + 2,4-D	5 ounces Milestone + 1.5 pints 2,4-D
Tank Mix of Escort + 2,4-D Metsulfuron methyl + 2,4-D	0.5 ounces Escort + 1.5 pints 2,4-D
Cimarron Max Package Mixture Metsulfuron methyl + 2,4-D + dicamba	0.25 to 1 ounce Part A + 1 to 4 pints Part B
Opensight Package Mixture Metsulfuron methyl + Aminopyralid	2.5 ounces

Common chemical and trade names are used in this publication for clarity of the reader. Inclusion of a common chemical or trade name does not imply endorsement of that particular product or brand of herbicide and exclusion does not imply non-approval.