



DEATH CAMAS

Death camas (*Zigadenus* spp.) is a native, cool-season forb that occurs throughout the western half of North America. It is a perennial plant that can grow between 6-28 inches tall. The bulb of the plant is found between 2-8 inches below the soil surface. Its grass-like leaves grow mainly from the base of the stem. The leaves are V-shaped and can reach up to a foot long and be over 3/8-inch wide.

The two most prevalent species are meadow death camas (*Z. venenosus*) and mountain death camas (*Z. elegans*). While both species can be found in Montana, meadow death camas is the most common and can be found in foothills and on range. Meadow death camas stems generally produce a single bolt with a cone-shaped head of flowers that have a greenish-white to cream coloring. While mountain death camas has the same coloring, the flowers are less densely packed at the top of the bolt. In foothills, flowering generally occurs in April or May, whereas in higher elevations, it generally flowers from late June into July.

All parts of the death camas plant have a toxic alkaloid present. Seeds are the most toxic, followed by the bulbs, leaves, and then stems. There are, however, multiple factors that vary the plant's toxicity. Some of these include the species of death camas (i.e. meadow or mountain), moisture levels, growth stage, and geographical location. At least one study has shown that soil moisture stress increases toxic alkaloid levels within death camas plants.

Death camas has a broad habitat preference. It can live in moist meadows to dry rocky hillsides, in shade or full sun, in shrub, grassland, or pine communities, and in elevations between 1,400 and 8,000 feet. Range management can affect its presence in an area. Overgrazed, stressed lands are apt to have an increase in death camas, and therefore death camas poisonings in livestock.

Early spring growth of death camas ahead of other forages creates an environment where livestock are more likely to eat death camas plants, especially in overgrazed pasture. While death camas is generally non-palatable to livestock, a lack of other vegetation pushes them towards grazing available green forage.

Other times to be on the lookout for death camas consumption by livestock is after spring snow storms, when it can be the only available plant above the snow, or after fire when the underground bulb re-generates leaves and again, is the only green plant readily available for consumption.

All livestock, including cattle, horses, and sheep, are susceptible to poisoning from death camas alkaloids. Because sheep are more likely to graze forbs than other livestock, they tend to be poisoned most often, however, cattle are more sensitive to alkaloids present in death camas. A 100-pound sheep may die eating only half-pound of green foliage (Panter, et al., 2011). In other cases, it may take up to two pounds of green foliage consumption to be deadly.

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Symptoms of death camas poisoning can occur several hours to one day after ingestion. These may include bloody, frothy salivation, depression, nausea and vomiting, and grinding of teeth. More severe symptoms include loss of coordination, weakness and staggering, a fast pulse that is weak, labored breathing and gasping, coma and eventual death due to heart failure (Panter, et al., 2011).

There is no known treatment for death camas poisoning, so prevention is key. Well-fed animals are less likely to ingest death camas that may be present. Do not turn out livestock on pasture that has a lot of death camas without enough other vegetation for them to graze. Do not harvest and bale meadows with death camas present; the leaves will still be toxic when fed at a later date.

Wild onion looks similar to death camas. There have been a few cases of persons mistakenly consuming death camas, thinking they were eating wild onion. One major difference between the two plants is that wild onion has a strong onion odor, whereas death camas has no odor to any part of the plant. If unsure which plant it is, do not consume it.

Death camas can be controlled in the early spring when the plant has three to six leaves by spraying 2,4-D at the rate of 1 1/2 to 3 pounds of active ingredient per acre (Panter, et al., 2011). When flowering bolts appear, it is too late for the herbicide to be effective. If it is a small area, hand pulling the entire plant, including the bulb, out of the ground is also an option. Death camas is only toxic when consumed, so when hand pulling be sure to wear gloves and wash hands when finished so cross-contamination doesn't occur. When infestations are low with other quality vegetation, death camas consumption is usually avoided. ■

Do not confuse wild onion, box right, with meadow death camas, top left page, or mountain death camas, far right.

