

POISON HEMLOCK

Our cool, wet Cache Valley spring has been especially favorable for an abundant growth of poison hemlock (*Conium maculatum*). This non-native plant originated in Europe and was brought to the United States as a garden ornamental. Poison hemlock is a concern because all parts of the plant are highly toxic to humans and livestock. It is allegedly the plant used to poison the Greek philosopher Socrates in 339 B.C. and was reportedly used as arrow poisons by North American Indians.

Poison hemlock prefers moist conditions and can often be seen growing along fence lines, ditch banks, road sides, and field edges. This resilient herb grows as a biennial, forming a rosette of basal leaves the first year, overwintering, and then flowering the second year. Stems are erect, stout, and purple-spotted. Leaves are shiny green, finely pinnately divided and leaflets are segmented. White flowers are borne in many umbrella-shaped clusters, each supported by a stalk. This weed usually grows from 3 to 8 feet tall.

Poison hemlock is also characterized by a rank, disagreeable odor that is detectable when one is near the plant, or has crushed a leaf or stem. This odor is associated with the alkaloids that the plant contains. The alkaloids have two major toxic effects. They cause acute degradation on the nervous system, and they can cause birth defects. The symptoms of poisoning include nervousness, trembling, loss of motor skills, pupil dilation, weakened heart function, coldness in the extremities, coma, and death through respiratory failure. Concentrations of the alkaloids are highest in the seeds. A lethal dose for a horse is four to five pounds of leaves; cattle may be poisoned with one to two pounds, and sheep and goats with a half pound or less. Due to its unpleasant odor, animals usually do not graze poison hemlock so long as other feed is available. It is more likely that the plant is consumed as a contaminant in baled hay or when pastures are overgrazed and other sources of feed have been depleted.

It is important to prevent small infestations of these hemlocks from becoming larger. Inspection of the land for newly invading plants is time well spent, as young plants can easily be removed with a sharp shovel, mowing, or spot treatments of herbicide. Plants can also be hand pulled out of the ground if the soil is moist. Wear gloves and protective clothing when handling these plants. Poison hemlock remains toxic after being pulled or mowed. Therefore it is wise not to leave the dead plants where they might be nibbled by livestock, wildlife or children.

Unfortunately, a single mowing will not provide complete control of poison hemlock. Repeated mowing will reduce its competitive ability, deplete carbohydrate energy reserves in the taproot and prevent seed production. Mowing close to the ground will also reduce the amount of leaf material available for livestock grazing. Preventing infestations of the plants from producing seed is vital to ultimate control.

If extensive areas are covered with poison hemlock, chemical controls are simpler and less labor intensive. Post emergence application of phenoxy herbicides or glyphosate can be effective, with best results when applied in early spring. 2,4-D in moderate doses does not kill grasses and has been shown to be effective as a control for poison hemlock. 2,4-D plus dicamba is another proven herbicide combination. Repeated applications may be necessary to get ahead of established stands of poison hemlock. Always follow label directions when using herbicides.

The European palearctic moth (*Agonopterix alstroemeriana* C.) is demonstrating success for biological control. The larvae of the hemlock moth can cause severe defoliation by consuming leaves, young stem tissue, flowers and seeds. We have some sites in the county where these bio-control agents have been released. We also ordered additional insects from a Montana Insectary that will be delivered in July. We have already identified the sites where these control agents will be released. We will work closely with cooperating land owners to monitor biological success.