

2018 Late Winter Hemlock Control Demonstrations



Conducted by Johnny Gunsaulis and Blair Griffin, Cooperators were Don Chamberlain and Dillon Butler

Poison hemlock is a toxic, invasive weed that is common across Benton County. It is most commonly found in roadside ditches, stream banks, fence lines and fields. The plant was introduced to the US from Europe as an ornamental plant, probably during the 1800s. Poison hemlock contains toxins called alkaloids that can kill most species of livestock.

During the early growth stage, the plants foliage resembles wild carrot. As it matures, the plant develops branching tall stems that can grow to 6 feet or taller, and the stems are mottled with small, purple spots and a white flower. The plant has a pungent, unpleasant odor that is described as being similar to mouse urine.

All parts of the plant are poisonous to animals. Due to the offensive taste of the leaves, most animals do not prefer to eat the plant if other forage is available; however, the toxic plant can end up in baled hay making the animal less likely to detect it before consuming it. Toxicity most commonly occurs in the late winter and early spring when the green weeds begin to emerge and other adequate forage may be limited.

Effects from consumption of the plant include rapid death due to the toxic effects to the nervous system, and cattle have died from eating as little as 0.2-0.5% of their body weight in hemlock (as fed basis). Clinical signs of poisoning include anxious behavior, trembling, vocalizing, loss of coordinated movement, pupil dilation, a slowed heartrate, recumbency, and death. These symptoms can occur within 1 to 2 hours in cattle after the plant has been consumed. If only a small amount of the plant is consumed, rather than killing the cow, it may lead to abortion or birth defects during pregnancy. The birth defects can lead to fetal deformity with misshapen, contracted joints and limbs causing a “curly calf” appearance to affected calves.

Management of the toxic plant usually focuses on chemical control utilizing herbicides. Late winter and early spring application is best for targeting poison hemlock.

Dr. Jeremy Powell

Methods:

Two roadside sites were selected. One site along Arkansas Highway 59 just north of Siloam Springs across from the airport and the other site was along Fairmount Road just east of Siloam Springs across from the Gallatin Fire Department.

Plots were treated on January 30, 2018 using 7 different treatments. All plots had young hemlock plants approximately 1-4" tall.

Treatments:

- 1) 2,4-D applied at a rate of 1 quart per acre
- 2) Metsulfuron applied at 0.3 ounces per acre
- 3) Weedmaster applied at 1 quart per acre
- 4) Grazon P + D applied at 1 quart per acre
- 5) Grazon Next sprayed at 1 quart per acre
- 6) Grazon Next sprayed at 1 quart per acre + 200 pounds of ammonium nitrate fertilizer
- 7) Grazon Next mixed on 200 pounds of ammonium nitrate fertilizer and applied in fertilizer form

Weather was very chilly on the day of application. Some of the sprays were actually partially frozen at the first application site. High of the day was 38 degrees.

Plots were evaluated for control at 45 days and 82 days after treatment.

Fairmount Road site



Close view of hemlock growing along the roadside. Considerable grazing pressure was occurring on the pasture side of the fence.



Looking north along Fairmount Road just south of the Gallatin Fire Department.
January 30, 2018

Fairmount plots observed 16 days after treatment



Treatment 1, 2,4-D; plants visibly twisted and some yellowing.



Treatment 2, metsulfuron: Plants yellowed, but no obvious twisting.



Treatment 3, Weedmaster; obvious injury from the treatment.



Treatment 4 Grazon P + D; considerable injury and yellowing.



Grazon Next spray; Considerable injury.



Grazon next spray plus fertilizer application; Again, considerable injury.



Grazon next applied on a fertilizer application; minimal injury.

Unfortunately these plots were not able to be rated at the 45 and 82 day treatment ratings due to severe flood damage along this stretch of road. However, the injury observed on these plots was basically identical to the plots on Hwy 59 highway which were rated.



Two significant rain events caused these plots to be covered with gravel before final results could be evaluated.

Highway 59 Plots

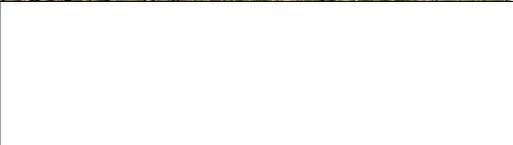


January 30th, taken looking north just on the west side of Highway 59 just north of Siloam Springs.





Metsulfuron treatment on March 5, 2018; all plants severely yellowed and stunted but still present. 80 % control.



Grazon P+D on March 5, 2018; very few plants present; those that were showed considerable iniurv. 100% effective control.



Grazon Next spray treatment along with fertilizer application on March 5, 2018; Essentially 100% control of hemlock, obviously more grass growth than other plots.



Grazon Next applied on fertilizer treatment on March 5, 2018; Plants still present, some yellowing observed.



Grazon Next Treatment on April 23, 2018; showed minimal injury to hemlock plants. Most of the yellowing observed earlier was gone. There was some control but not nearly as evident in the other 6 treatments.

Final ratings of plots on April 23, 2018:

- 1) 2,4-D at 1 quart per acre - 95 % control
- 2) Metsulfuron at 0.3 ounces per acre - 100% final control
- 3) Weedmaster at 1 quart per acre - 100 % final control
- 4) Grazon P + D at 1 quart per acre - 100% final control
- 5) Grazon Next sprayed at 1 quart per acre – 100% final control
- 6) Grazon Next sprayed in addition to fertilization - 100% final control
- 7) Grazon Next applied on fertilizer - 60% final control.

Final Comments: Although this weed continues to increase in infestation in Benton County, there are several spray options to control it. Early identification and treatment make this plant easy to control. Later controls using spot spray treatments were evaluated by Ryan Neal. These treatments also provided satisfactory control. The key is to begin some sort of control program before the plants are mature.

The Grazon Next spray treatments actually showed the quickest control of this weed. It is theorized that the problem with the use of this herbicide on fertilizer is only related to the application and not the herbicide. This application may have provided different results if applied later in the year in warmer weather.