Suckleya Suckleyana

A Poisonous Plant

EXTENSION SERVICE
COLORADO STATE COLLEGE
FORT COLLINS
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For years there have been reported from various counties in the plains area of eastern Colorado heavy losses of cattle and sheep from some cause then unknown. Most of the deaths occurred in the vicinity of water holes, lakes, and reservoirs.

Animals that were apparently all right in the morning would be found dead in the evening or the following morning.

Because of the deaths occurring in close proximity to water, many owners believed that the water was poisonous and samples of water were sent to the college with the request that they be analyzed for poisons. These tests proved negative for any of the known poisons.

Bacterial examinations of specimens taken from the dead animals were also negative for infectious diseases.

Various weeds were suspected of being responsible for the losses but it was not until the late summer of 1937 that information was obtained that led to the solution of the problem.

Suckleya suckleyana, a supposedly rare plant, was found to be very abundant. Chemical tests and feeding experiments conducted by the Experiment Station proved definitely that the deaths were due to the eating of this plant.

The poisonous principle was found to be hydrocyanic (prussic) acid, a very virulent poison. (This is the same chemical that causes death of cattle and sheep from eating stunted, frost-bitten and second-growth sorghums.)

Description

Poison suckleya (suckleya suckleyana) is a low growing plant that spreads out on the ground from a single long tap root. The stems are fleshy and slightly reddish in color. The leaves are rather round with the margins slightly notched. The seeds are triangular in shape with the outer angle or point notched. (The shape of the seeds and their manner of growth are very characteristic and provide an accurate means of identification.)

Growth of the seeds begins near the base of the plant in the axils of the first leaves. As the plant grows, the seeds continue

*Retired, 1940.
to develop in the axils throughout the entire length of the stem. Development of the seeds continues, with those first formed reaching maturity much earlier than the later ones. It is believed that the first seeds formed will mature and may germinate and produce plants later the same season.

Seeds remain dormant throughout the winter in both soil and water. Germination begins early in the spring and is first seen as two long narrow cotyledons near the surface of the ground. The leaves and seeds appear soon after.

Poison suckleya is a water-loving plant and is most frequently seen along the border of water holes, lakes, and reservoirs. As the water recedes from evaporation or is drawn off for irrigation the plants follow the water line and are often seen in the bottom of water holes after all surface water has disappeared.

Plants are occasionally seen along the banks of streams and irrigation ditches.

In at least two instances they have been seen growing prolifically in wet piles of blow sand.
One gallon of ground up plants containing .036 percent of hydrocyanic acid mixed with water and administered by stomach tube was fatal for cattle and a quart administered in the same manner killed ewes. Aqueous extracts of the plant killed rabbits and guinea pigs.

Plants growing in different localities may vary in hydrocyanic acid content. In some localities it appears that they may be eaten without producing noticeably bad results. They are all of them, however, potentially dangerous and should be avoided. Probably the most dangerous time is when other forage is dry and scarce and this naturally succulent plant is eaten more readily.

Cattle and sheep on the range are usually poisoned about noon or soon thereafter. After drinking and lying down for a while they start grazing on their way out and when poison suckleya is available in sufficient quantity it may be consumed in sufficient quantities to cause fatal poisoning within a short time.

Figure 2.—Left, leaf of poison suckleya; upper right, seed; lower right, notch-tipped scales enclosing seed; all figures greatly enlarged.
The partaking of water immediately before or soon after eating the plant seems to increase the activity of the poison.

Sheep are poisoned earlier in the spring than cattle due to the fact that they can obtain poisonous quantities of the plant before it is large enough for cattle to graze upon it.

**Symptoms**

First symptoms shown by affected animals are anxiety and distress, muscular twitchings, dribbling of urine and staggering. Breathing becomes labored and the tongue, mucous membranes and white portions of the skin have a bluish cast. The animal goes down and convulsions occur that are soon followed by paralysis of respiration, and death.

**Treatment**

Treatment of animals poisoned by hydrocyanic acid is quite technical and should be administered by a veterinarian. The most effective antidotes are sodium nitrite and sodium thiosulphate. The dose of sodium nitrite for cattle is 40 cc of a 10-percent solution (1 dram to 1¼ oz. distilled water) followed immediately by a 40 or 50 cc of a 20-percent solution of sodium thiosulphate. (2 to 2½ drams in 1½ to 2 oz. distilled water.) The solutions should be fresh and administered intravenously to cattle and intraperitoneally to sheep. Sheep require about one-fourth the amount recommended for cattle.

If recovery is not prompt the sodium thiosulphate may be repeated in fifteen minutes. Sodium nitrite should not be repeated.

If treatment is to be successful the antidotes must be administered before or soon after symptoms occur. It may even be advisable to treat the exposed animals rather than attempt to save those animals that are near death. A veterinarian could advise the best procedure to follow.

**Control**

Because of the abundance of seeds produced and the different times that they mature it does not appear probable that the weed can be completely eradicated from infested areas. Control methods have, however, been effective in reducing the
number of plants to the point where animals are unable to secure enough of the plant to cause difficulty.

Methods recommended are:

1. Plowing, disk ing or cultivating infested areas. These should be done as often as the plants appear in sufficient quantities to become dangerous.

2. Large areas can be cleaned by the use of a road grader.

3. Fencing of infested areas.

   If the infested water holes are necessary for stock water they may be fenced, leaving a lane down to the water and the weeds kept clear from the lane.

   Oils and chemicals have possibilities but we have no knowledge of their having been tried on this weed.

Details of the experimental work done with this plant are described in Technical Bulletin No. 22 of the Colorado Experiment Station and the Journal of the American Veterinary Medical Association, N. S. Volume 47, No. 3. March 1939.