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Illinois Grazing Manual Fact Sheet

SPECIES • POISONOUS PLANTS

Bracken (or Brake Fern)

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Plant Characteristics

Pteridium aquilinum (L.) Kuhn, vars. latiusculum (Desv.) Underw., pseudocaudatum (Clute) Heller, and pubescens Underw.: Bracken is a typical fern with large fronds that grow up to 5 feet tall. The broadly triangular blades that terminate the erect, stiff, straw-colored stipes are 8 to 30 inches long, and are divided into 3 main parts, with each part bipinnately or tripinnately subdivided. Numerous fronds arise from the long, black, creeping rootstocks. For this reason, bracken usually grows in colonies. Spores are produced in specialized structures, the sori, that form a continuous line along the margins on the lower surfaces of the mature blades. Spores mature in late summer. In addition to spores, rootstocks also spread bracken.

Occurrence

Bracken is a plant of dry, sterile, sandy or stony soil of open woods and railroad trackways. The typical variety is grown in Europe and Africa. Three varieties occur in North America, with variety latiusculum (Desv.) Underw., ranging throughout much of the Midwest. The variety pseudocaudatum (Clute) Heller is chiefly found in the Coastal Plain, but its range extends northward in the interior to southern Ohio, southern Illinois, southern Missouri, and eastern Oklahoma. The third variety, pubescens Underw., has a more western range, but occurs in South Dakota and Michigan.

Conditions of Poisoning

Bracken is usually the cause of poisoning in late summer when there is little pasture available. The plant is occasionally found in hay meadows; and since it retains its toxic principle even when in the dry state, it may be a problem during the winter months. Horses, sheep, and cattle have been poisoned by eating bracken. Clinical signs in horses differ greatly from those in cattle and sheep.

Toxic Principle

The toxic principle has not been definitely identified, although in horses it has thiaminase activity.

Clinical Signs Horses

Loss of condition and weight and minor incoordination are observed when the horse is made to walk. It will not move unless forced, becomes lethargic, and stands with its feet apart in a crouched position with the back arched. If an attempt is made to turn the ani-mal, it will usually cross its front legs. When forced to move, a severely affected horse will often develop extensive twitching of the muscles that progresses to severe tremors, and it may be unable to remain standing. The horse will frequently regain its feet only to undergo another series of tremors that almost reach the convulsive stage. It will usually stop eating or is prevented from eating by muscle twitchings and trembles. Marked cardiac irregularities occur, particularly a slow heartbeat.

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Necropsy

No significant gross lesions characteristic of this disease are observed in horses on postmortem examination. A clinical pathological examination discloses marked lowering of the blood thiamine, increased pyruvate concentration, and a decrease in platelet count. In horses that have survived for a number of days after the onset of clinical signs, there is also a reduction in the red blood cells.

Treatment

Large doses of thiamine, 0.25 to 0.5 milligram per kilogram of body weight, are given intravenously. Some veterinarians recommend a comparable dose administered intramuscularly.

Clinical Signs Ruminants

Clinical signs in ruminants are sudden in onset, and death may occur in 4 to 8 days. Sheep are somewhat more resistant than cattle. Before severe clinical signs appear, the animals usually develop a rough hair coat and become listless. A mucous discharge from the nostrils may also be observed during this period. As the first severe clinical signs appear, the body temperature may become elevated, with readings as high as 109° F. There is rapid weight loss, dyspnea, salivation, bleeding from the nose, and congested or hemorrhagic mucous membranes and conjunctivae. In young cattle, edema in the throat region develops early. The clot-retraction procedure is an aid in diagnosing bracken poisoning. When blood from ruminants that have not been poisoned is collected in a clean glass tube and incubated at 37° C., the clot will retract and squeeze out the serum. This condition does not occur with blood from bracken-poisoned ruminants.

Necropsy

In typical cases of ruminants, almost every organ is splashed with hemorrhages varying from petechiae to ecchymoses. Ulcers are commonly found in the intestine, and occasionally in the abomasums. Bacteria may be isolated from the liver or other tissues. These appear to be secondary invaders, and fatalities have occurred in animals from which no pathogenic organisms have been recovered. Examination of the blood of a severely affected animal will reveal a marked reduction in the platelets, leucocytes, and red blood cells if hemor-rhage has occurred, and examination will reveal hypoplasia of the bone marrow.

Treatment

Batyl alcohol supported by anti-infective agents, anti-heparin, and antihistamine therapy has reportedly given good results in bracken-poisoned ruminants. A blood transfusion often effects a dramatic improvement in the animal's condition.

References

Evers, Robert A., and Roger P. Link. Poisonous Plants of the Midwest and Their Effects on Livestock, 1972. Special Publication 24, College of Agriculture, University of Illinois at Urbana-Champaign.

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