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AGRICULTURAL COLLEGE AND EXPERIMENT STATION

White Snakeroot Poisoning

By ROBERT GRAHAM AND I. B. BOUGHTON



WHITE SNAKEROOT (*Eupatorium
urticaefolium*)

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WHITE SNAKEROOT, or Eupatorium, poisoning is a disease of cattle, horses, and sheep commonly called trembles because trembling is a prominent symptom. The disease is also called *milk sick* or *milk sickness*, since man may contract the disease by drinking the milk and eating the milk products from affected cows. Altho various causes of trembles and milk sick have been suggested, it is now well established that white snakeroot is responsible for at least one type of this disease.

There are many species of white snakeroot in Illinois, but only one species is poisonous. The plant generally grows in woodland pastures, reaching maturity in August and September. The white clusters of flowers of the poisonous snake-root frequently are gathered for ornamental purposes in the home.

Trembles, or milk sick, generally appears during late summer and autumn, especially when other vegetation is scarce because of drouth. Horses, cattle, and sheep grazing in pastures where white snakeroot is found may be fatally affected. Milk sickness occasionally is fatal to man and in case of recovery there is a long period of convalescence and often lasting debility.

Pastures known to be infested with white snakeroot should not be used for animals during the late summer or fall. White snakeroot can be eliminated from pastures by persistently pulling the plant each year.

White Snakeroot Poisoning

(Trembles or Milk Sick)

By ROBERT GRAHAM, Chief in Animal Pathology and Hygiene, and
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Trembles, or milk sick, was reported in Illinois and adjoining states of the Mississippi valley in the early part of the nineteenth century during the pioneer days of agricultural development. Many different causes of the malady were suggested. In 1861, however, evidence was produced which strongly suggested the relation of white snakeroot to the disease in cattle and the danger to man in using milk from affected animals. This evidence has since been repeatedly confirmed, altho some observations seem to indicate that white snakeroot plays no part in causing this disease.

Convincing evidence that white snakeroot may poison human beings was brought out in the personal experience of William Jerry, of Madison county, Illinois, in 1867. He described an illness, indistinguishable from the present conception of milk sickness, which followed the eating of white snakeroot that had been prepared as greens. More recently trembles has been recognized in Illinois by veterinarians and physicians at or near Minooka (1906), Beecher City (1914), Fancher City (1914), Hazel Dell (1918), Paxton (1922), Greenfield (1922), Olney (1923), Witt (1923), and St. Joseph (1924). The disease also has been reported by the Federal Bureau of Animal Industry, by the Purdue Experiment Station, and by the North Carolina Experiment Station. These institutions, thru experimental feeding tests, have confirmed the poisonous character of white snakeroot.

In view of the different theories advanced in the early days as to the cause of the disease, feeding tests were conducted at the University of Illinois following the Paxton outbreak in 1922. The results obtained in these tests clearly point to the poisonous character of white snakeroot for horses, cattle, and sheep, as well as for certain laboratory animals.

Weed Grows in Woodland Pastures

White snakeroot is known to grow in pastures in certain sections of Illinois, while it is found sparingly over a rather wide area in urban and rural communities. In the more highly cultivated, agricultural sections of the state, it has been found in orchard pastures on several occasions. It would be well for the farmer to learn to recognize white snakeroot and to distinguish the poisonous from the many non-poisonous species of this family.

The plant is a slender, erect, perennial herb which grows from one to five feet high. It generally is found in woodland pastures, but occasionally is seen growing in open fields. The leaves of white snake-root are opposite each other, are three to five inches long, broadly ovate, with sharply toothed, or serrated, edges. The leaf stalks are about one-fourth to one-half as long as the leaf. Each leaf has three main veins which extend from the base of the leaf and which give off many branches. These veins are prominent on the under surface. In the late summer the white flowers of the plant appear as compound clusters having eight to thirty flowers. In heavily infested woodlands, the pastures present an attractive appearance and it is not uncommon for persons

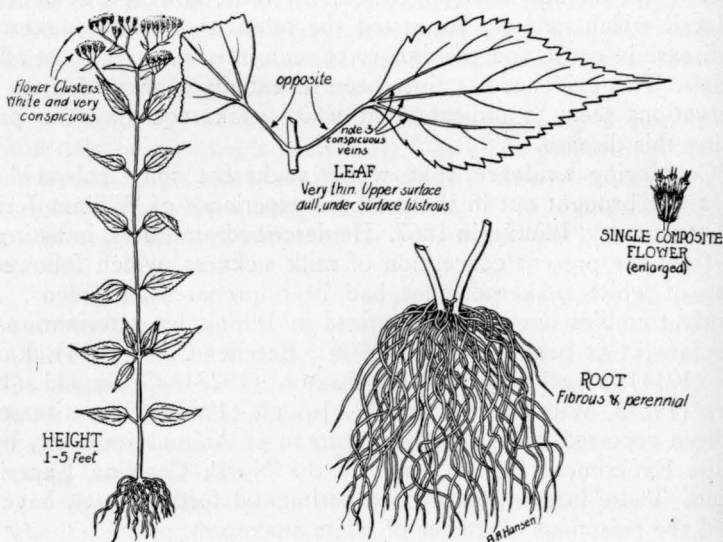


FIG. 1.—CHARACTERISTIC DETAILS OF WHITE SNAKEROOT

Altho occasionally seen growing in open fields, white snakeroot generally is found in woodland pastures. (Courtesy Purdue University Agricultural Experiment Station.)

to select clusters of the flowers for decorative purposes in the home. The diagrammatic illustrations of Fig. 1 show the characteristic features to be looked for in the plant.

Closely related but non-poisonous plants of the family grow more abundantly in open pastures and are often mistaken, upon casual observation, for the poisonous type. The one non-poisonous member of the same family which is prevalent in Illinois can be distinguished by its narrower leaf. Specimens of suspected plants may be sent to the Agronomy Department, or to the Laboratory of Animal Pathology and Hygiene, College of Agriculture, University of Illinois, Urbana, for identification.

Only Pastured Animals Affected

White snakeroot poisoning appears only in pastured animals—horses, cattle, and sheep being the ones naturally affected. These animals may be forced to eat white snakeroot, since it generally is green during the autumn, when pasture grasses usually are dry and dead. Grazing animals sometimes will eat the white snakeroot even tho pasture grass is abundant.

Attempts to discredit the poisonous character of white snakeroot may be due partly to the fact that symptoms somewhat resembling those of poisoning by this weed may be caused by other factors. However, the symptoms described in this circular are based upon experi-

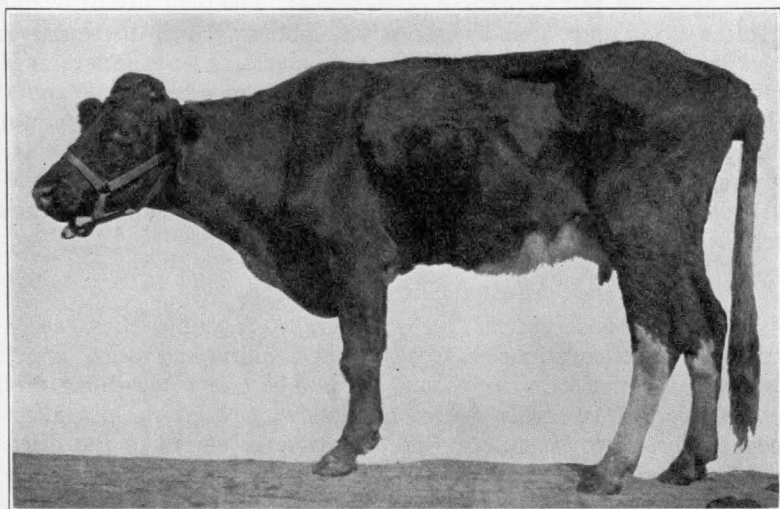


FIG. 2.—COW WITH WHITE SNAKEROOT POISONING

Loss of weight is one of the common symptoms of the disease in cattle.

mental work which conclusively proves the poisonous character of the weed. Symptoms of the disease in experimental animals cannot be distinguished from those which appear in animals that have had access to the plant in pastures.

Trembling Is Common Symptom

Cattle grazing on pastures infested with white snakeroot often become chronically affected. In this slow form the disease is marked by sluggishness and fatigue following exercise. The accepted method of diagnosing suspicious cases consists of moving the cattle and observing the tone of the voluntary muscles. A trembling of these muscles often indicates that the animal has the poisoning. However, this trembling

usually disappears after a rest. In severe cases, there is loss of appetite, constipation, increasing weakness, and loss of weight, followed by inability to stand. Animals that are helped up often show marked symptoms of trembling and difficult respiration. The breath has a peculiar, pungent odor. Not all the cattle in a herd, even tho kept under the same conditions, develop the disease, while the severity of the symptoms generally varies in different animals.

Paralyzes Horses' Throats

The disease runs a more rapid course in horses than in cattle. Naturally affected horses often die in two or three days after the symptoms of illness appear. The first symptoms are difficulty in swallowing and an unsteady gait suggestive of weakness. The difficulty in swallowing often is accompanied by excessive slobbering and distressed and heavy breathing. The breath of affected horses is of the same pungent odor as that noticed in cattle. The animal appears gaunt and dejected, loses weight rapidly, and moves reluctantly. These symptoms usually are accompanied by constipation and trembling of the large body muscles, altho the trembling generally is intermittent and not as marked as in cattle or sheep. Death generally follows in a few hours after the affected animals go down.

Affected Sheep Are Sleepy

Symptoms observed in sheep generally resemble those seen in cattle. Obstinate constipation, weakness or debility, and loss of appetite exist over a period of three to ten days. There is a trembling of the muscles that is especially noticeable following exercise, tho affected sheep are prone to lie quietly and, in the later stages of the disease, assume a sleeping attitude approaching coma.

Prevention Better Than Cure

Prevention of trembles is far more satisfactory than attempts to cure the disease. Giving purgatives, such as castor oil or Epsom salts, together with such stimulants as strychnine or coffee, is recommended. It should be borne in mind that partial or complete throat paralysis may be present, which makes the oral administration of drugs a dangerous proceeding. Each case, however, should be treated separately under the direction of a veterinarian. When symptoms of the disease appear, the animals should be moved promptly to non-infested pastures and, as a precautionary measure, given a laxative feed for a period of ten days or two weeks. Small herds can be given Epsom salts or oil as a remedial measure, if symptoms have not as yet been observed.

Prevention of milk sickness in man depends upon avoiding milk and milk products from affected animals. Milk from animals affected with the disease should not be used. Careful observation of the herd

from August to November should enable the owner to detect obscure cases. Careful inspection of animals and pastures in localities where white snakeroot is prevalent is recommended.

Weed Can Be Exterminated

White snakeroot can be eradicated with little effort if the pasture is small and the infestation limited. The systematic weeding of pastures is entirely practicable. This should be done in August or September, when the flowers are in bloom, and repeated in October. After the

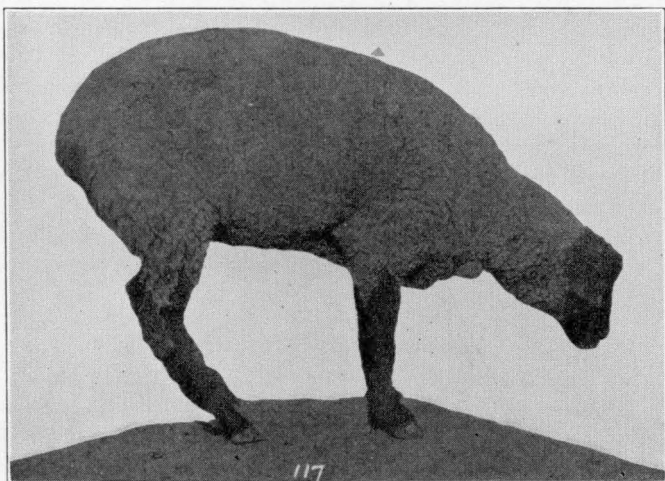


FIG. 3.—SHEEP POISONED WITH WHITE SNAKEROOT

Sheep in the late stages of white snakeroot poisoning assume a sleepy attitude.

plants have been pulled and allowed to dry, they should be burned in order to destroy the seed. The pulling and burning should be repeated each fall. No attempt should be made to eradicate white snakeroot by cutting. The roots are shallow and the plant can be pulled with little effort.

Badly Infested Pastures Best Avoided

If large pastures are heavily infested with white snakeroot, making it impractical to pull the plants, it is advisable to move horses, cattle, and sheep to new pastures about the first of July. Infested pastures, however, may be used for swine with little or no risk. The most practical method of preventing white snakeroot poisoning is to keep susceptible animals out of infested pastures from July 1 to December 1, or until the pastures are cleaned of the weed.