

Guajillo Poisoning of Sheep

D. A. PRICE, D.V.M., and W. T. HARDY, D.V.M.

Sonora, Texas

CURRENT PUBLICATIONS dealing with plants poisonous to livestock fail to list *Acacia berlandieri*, commonly known as guajillo (pronounced wah-heé-o). The fact that this plant is poisonous under certain conditions has been known for more than a decade in the areas where it is indigenous. The present report is made in the interest of making the information a proper part of veterinary literature.

DESCRIPTION OF THE PLANT

Cory¹ lists three general areas of Texas where this species of acacia is found: the Rio Grande Plains, Edward's Plateau, and the Trans Pecos. In a personal communication² he has provided the following botanical description.

prickles or none; leaf-branches 3-9 pairs; leaflets numerous, usually 24-45 pairs, oblong-linear, oblique, acutish, veiny, 3-6 mm. long (usually more than 4); peduncles axillary; flowers in dense heads, white to yellowish, sweet-scented; legumes (fruit) flat, valves and margins thick, broadly linear, usually straight, obtuse, narrowed at base into a stipe, velvety-canescens (white when young) with a very soft short pubescence, 10-15 cm. long and 2-3 cm. wide.

Guajillo occurs in the Mexican states of Coahila, Tamaulipas, and Neuvo Leon, and in Texas along the Rio Grande from Cameron to southern Brewster counties. Its area of greatest abundance in Texas is from Eagle Pass to Langtry, in which area there are thousands of acres of range land dominated by this species. In places, it is the only source of forage on the range. Where sheep and goats are grazed extensively on such ranges, guajillo plants are

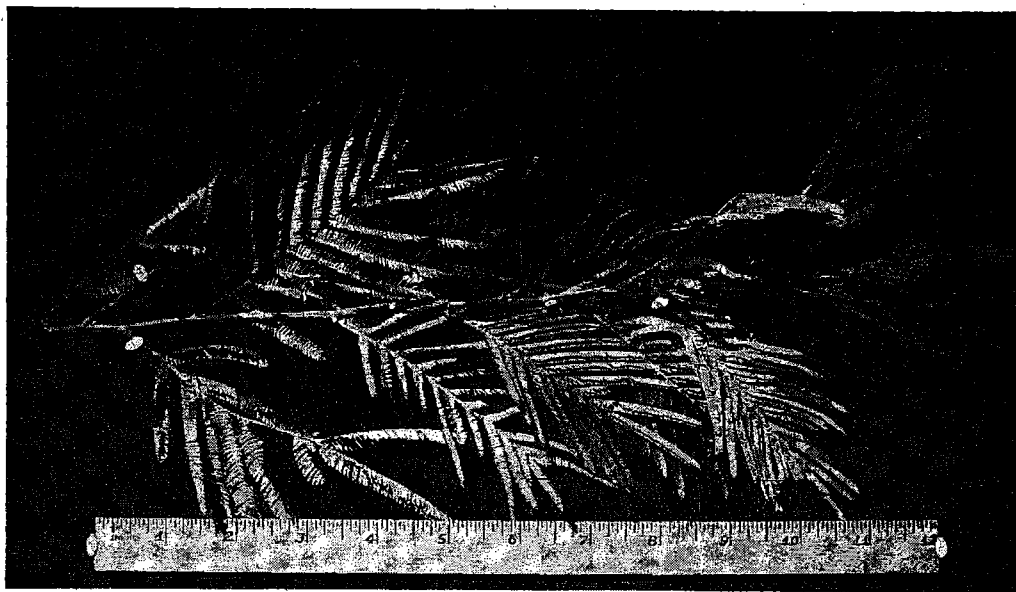


Fig. 1—Branch of guajillo plant, showing leaf arrangement.

Acacia berlandieri Benth. (guajillo, frequently and erroneously spelled huajillo) was described from Monterrey, Nuevo Leon, Mexico, in 1842. It is held in great esteem both as a honey and as a forage plant. It is a shrub or small tree, 1-4.5 m. high, pubescent, with sparse

¹Superintendent (Hardy) and assistant veterinarian (Price) of Substation No. 14, Texas Agricultural Experiment Station, Sonora.

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cropped to the extent that they become low and spreading (1 or 2 ft. high) and the sparse growth of herbaceous forage plants become eliminated from the range; thus making guajillo the only source of forage.

Actually, the value of this plant is such that some of the semiarid regions could not maintain a sheep industry without it. The fruit compares quite favorably with cottonseed meal or corn, as shown by the following analysis;³ protein, 17.09

per cent; ether extract, 3.74 per cent; crude fiber, 6.86 per cent; nitrogen-free extract, 58.72 per cent; water, 10.76 per cent; and ash, 2.83 per cent. Foliage alone gives the following analysis:⁴ protein, 16.4 per cent; ether extract, 4.02 per cent; crude fiber, 19.96 per cent; nitrogen-free extract, 44.96 per cent; water, 8.16 per cent; and ash, 6.5 per cent.

DESCRIPTION OF AFFECTED SHEEP

During periods of extended drought, guajillo may be eaten almost exclusively by range sheep for perhaps six to nine months or longer. It is toward the end of such a period that some individuals develop a locomotor ataxia referred to locally as "guajillo wobbles" or "limberleg." While appearing bright, alert, and retaining their appetite, the affected sheep manifest varying degrees of ataxia which is often ludicrous in nature and fairly defies accurate description, except by means of motion pictures. The most common affection is the "rubbery" action of the rear limbs. The casual observer gains the impression that the hocks bend back and forth laterally. Some may walk with a stilted gait of the rear limbs, combined with a side-to-side swinging of the hips, while others may walk normally upon arising but stumble and fall suddenly after a few minutes. Still others show a front limb affection, and appear to be planting the forefeet several inches above the ground level. Any of these symptoms may be seen separately or in combination. Affected animals may ex-

hibit symptoms to only a slight extent or not at all when at rest, but typically develop exaggerated symptoms when made to move about, and may even be prostrated within a few minutes.

Losses are negligible during years of average or favorable rainfall, but one of us (Hardy) has observed the mortality to be as high as 50 per cent in a period of extended drought.

Similar symptoms are manifested by goats, but since they subsist mainly on browse even in good seasons, they can not be successfully maintained on ranges where guajillo is plentiful.

EXPERIMENTAL WORK

A brief summary of the results of their feeding trials involving a limited number of animals was reported by Boughton and Hardy⁵ in 1941. They force-fed a ewe the leaves and flowers of *A. berlandieri* until "limberleg developed, on the 291st consecutive day. The total weight of the plant material consumed was equivalent to 1,589.65 per cent of the body weight of the ewe. Daily feedings varied from 0.63 per cent to 6.0 per cent of the body weight. This ewe recovered within three months on a ration of alfalfa hay and cottonseed meal only. Then, when placed on a ration of *A. berlandieri* leaves exclusively, she again developed typical symptoms on the one-hundredth day and died on the 132nd day.

An Angora nanny was fed leaves and fruit of *A. berlandieri* exclusively for 245 days, rested for 121 days on alfalfa hay and cottonseed meal, then returned to the plant ration until typical symptoms were noted on the 494th day from the be-

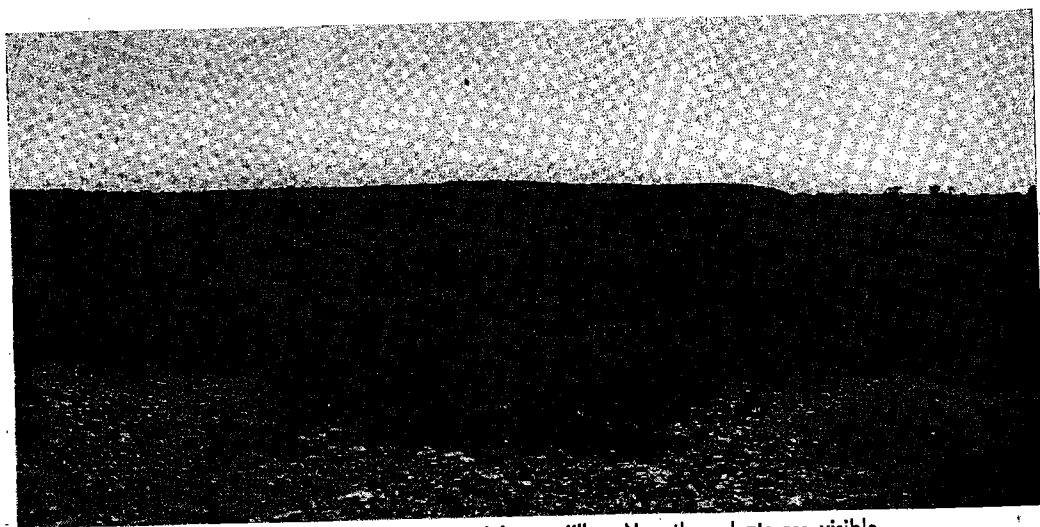


Fig. 2—Typical range dominated by guajillo. No other plants are visible.

ginning of the trial. She was found dead on the 499th day.

Necropsy reports contain no significant findings with respect to gross pathology.

MANAGEMENT

Where local conditions and facilities make it practicable to move the flock to range free of guajillo when symptoms first appear, little trouble is experienced. Even after symptoms have become well established, the affected individuals can be placed on a good ration with the expectation of marked improvement or recovery of quite a few of them in a matter of two or three months. More often, ranch economy dictates a *laissez-faire* policy, and the casualties merely take their place in the annual death loss from all causes.

SUMMARY

1) Toxicity of *Acacia berlandieri* for sheep and goats is reported to occur during

extended periods of drought.

2) A botanical description of the plant is provided, its value as a feed is emphasized, and locomotor symptoms produced in sheep are described.

3) Experimental feeding trials are reviewed.

4) Special management of afflicted animals is not often practicable; as a rule, they die or recover unaided.

References

¹Cory, V. L., and Parks, H. B.: Catalogue of the Flora of Texas. Texas Agric. Exper. Sta. Bull. No. 550, 1937.

²Cory, V. L., field botanist, Southern Methodist University: Personal communication to the authors dated Feb. 13, 1952.

³State Chemist, College Station, Texas: Analysis No. 57894, Sept. 17, 1940.

⁴State Chemist, College Station, Texas: Personal communication to the authors dated Feb. 7, 1952.

⁵Boughton, I. B., and Hardy, W. T.: Fifty-Fourth Ann. Rep., Texas Agric. Exper. Sta. (1941):159.

A Case of Egg-Borne Aspergillosis

M. J. EGGERT, D.V.M., M.S., and
J. V. BARNHART, M.S.
Richmond, Virginia

Aspergillosis of poultry is generally considered to affect chicks or poults a week old or older and to be due to moldy litter. This disease is characterized principally by dyspnea and, on autopsy, by the finding of small, hard, gray or white nodules scattered throughout the lungs, from which *Aspergillus fumigatus* may readily be isolated. The case to be reported here is unique in that it demonstrates the occurrence of this disease by transmission through the egg-shell during incubation.

History and Findings.—Twenty-five 4-day-old chicks were submitted, on Oct. 17, 1952, to the diagnostic laboratory with the history that they were from a lot culled at the hatchery where some from this lot had already died. The symptoms were difficult breathing, diarrhea, and weakness. On autopsy, 12 of the 25 exhibited small, yellow, seedy foci in the lungs. This material was ground in a mortar and inoculated on Sabouraud's medium. Good growth of *A. fumigatus* developed in three days.

Dr. Eggert is director of laboratories, and Mr. Barnhart is bacteriologist, Division of Animal Industry, Richmond, Va.

On October 22, 25 additional chicks were submitted from the same hatchery, representing a lot of 1,800 which had just been hatched. Many of the latter had died and others showed gasping symptoms. Autopsy findings again suggested aspergillosis and the infective agent was easily isolated from the lungs of 10 of these chicks, while 5 more showed curled toes, leg weakness, and soft bones. A diagnosis of aspergillosis, riboflavin deficiency, and vitamin D deficiency was made.

On the same day, 2 hens from the parent flock were submitted for diagnosis because they were in poor condition, had swollen wattles containing cheesy pus, and had suffered from a respiratory condition for over a month. Careful examination of these birds revealed the presence of fowl cholera, intestinal coccidiosis, and a heavy infestation with lice.

Comment.—It is significant that aspergillosis was found in the second lot of chicks which had never been on litter but had come directly from the incubator, and it is also significant that both lots of chicks were derived from a flock of chickens which obviously lacked good management. We feel that a predisposition for aspergillosis was present in these chicks during their incubation, and that the fungus easily penetrated the eggshells and gained a foothold in the devitalized embryos.

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