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Creeping Indigo (*Indigo spicata*) - Toxic to Livestock

Creeping Indigo, is a highly toxic, prostrate perennial plant. It has been in the U.S. since 1933. In south Florida livestock deaths have been reported since 1973 but little has been known about it in Central Florida. By, February 1, 2015 it has been confirmed in three geographically distinct locations in Volusia County. It is generally accepted that creeping indigo caused the neurologic syndrome known as “Grove Poisoning.” Problems are commonly observed in late summer or fall. Consumption quantities to cause neurologic and non-neurologic are unclear. Agriculturalists should not confuse Creeping indigo, rarely getting above 3” tall with Hairy Indigo which is planted as cattle feed and may grow up to 3 feet tall.

Creeping indigo can be hard to find in pastures, and is easily overlooked even though it may be quite prevalent. It is low growing with its stems lying flat on the soil underneath the grass canopy. Literature suggests that there are two closely related species of creeping indigo, *Indigo spicata* and *Indigo hendecaphylla*.

Both species, are prostrate to sub-erect with branched runners fanning out in all directions from the crown of a white, slender, tapering taproot that may be up to 40” deep. Those familiar with it, report it rarely gets taller than 3 inches. The seed pods are very identifiable. They are dense downward pointing clusters, stiff and sharp-tipped.



Seed head of Indigo spicata. Note the downward arrangement. Photograph by S. Gamble

In Central Florida, it will freeze but grows back from the tap root system. The inflorescence (flower structure) may be red to salmon colored and resemble a much smaller version of that of Hairy indigo. The major differences between hairy indigo and creeping indigo are the habit and hairiness. Hairy indigo is upright, hairy, and grows up to 3 feet tall, whereas creeping indigo grows prostrate, is hairless and rarely exceeds 3-4 inches in height.

Non-neurologic signs:

May included weight loss, lack of appetite, high heart and respiratory rate, labored breathing, high temperature (rare) hyper-salivation /foaming from the mouth, dehydration, pale mucous membranes, feed retention in cheeks, bad breath, watery discharge, squinting, light sensitivity, corneal opacity, corneal ulceration and neovascularization, sever ulceration of the tongue and gums and prominent digital pulses without other signs of laminitis.

Neurological signs:

Early signs include personality changes with the animal becoming quieter and less energetic with degrees of depression. Head carriage may be low. Blink response from eyes may be absent or reduced. Animal seems to avoid bright lights and pupils constrict. An abnormal gait develops, which may include, interference of hooves, buckling of joints, weakness “crab-like” gait and abnormal posturing at rest. The head and body may be twisted to one side. Progression can occur from days to weeks.

Toxins:

To date, toxins are implicated. 3-nitropropionate (3-NPA) and indospicine. Indospicine causes the non-neurologic signs while 3-NPA causes the neurologic signs. 3-NPA is metabolized quickly and is unlikely to be found in blood serum. Its affect is non-reversible.

Control:

To date there is no data regarding control of this plant although inferences are that the herbicide GrazonNext HL at 24 oz. per acre may be the most promising. A ranchette owner in Lake County has had success controlling existing plants with GrazonNext HL at this application rate, but realizes that monthly scouting is necessary to ensure that no plants have escaped treatment.

Learn to locate and recognize the weed in pastures. Lightly frosted and mature seed pods will have a smoky/grey haze appearance in the grass areas. Physically remove plants/seed heads and/or spray pastures. Seeds may remain viable for many years. GrazonNext HL has pre-emergent activity but seeds may germinate after pre-emergent activity has ceased. Retreatment will likely be necessary.

Manure from treated fields should not be composted due to the residual activity of aminopyralid in GrazonNext HL. Manure from animals grazing on infected fields should not be land-spread as the potential for increasing seed distribution is greatly increased. Sanitation of shoes and machinery is necessary to keep from becoming vectors.

Remember that dead plants retain toxicity. Poisonous plants that have been herbicide treated are often sought out by livestock. Because this plant can grow so close to the ground, mowing to remove it and its seed heads can be challenging. Once established, vigilance in scouting is highly recommended.



Indigo spicata hidden under bahiagrass. There was a large plant under the grass.



Indigo spicata leaflets pulled to the surface of bahiagrass—look for “runners.” There are seed heads in this photo but are difficult to see. Photograph by S. Gamble



Tap root of Indigo spicata. It is difficult to pull out by hand and get the root. Photograph by S. Gamble

Photos:

This field had significant Indigo spicata growing. These photographs demonstrate how hidden this weed can be in a healthy pasture.

References:

Rob MacKay BVSc (Dist), PhD, Dip. ACVIM, Professor, Large Animal Medicine UF 2014. Creeping Indigo Toxicity

Morton, Julia.1989. Creeping indigo (*Indigofera spicata*forsk.) (Fabaceae) – A hazard to herbivores in Florida. Economic Botany. July/Sept. Issue 3, pp 314-327