

Birdsville Disease

(Birdsville indigo - Indigofera linnaei)

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INTRODUCTION

Birdsville disease is a toxic condition of horses caused by eating Birdsville indigo (*Indigofera linnaei*).

Indigofera is a low, spreading plant with a thick taproot that enables it to withstand drought conditions and respond rapidly to rainfall. It has numerous thin woody stems that form a mat up to 1.5 m across. In the higher rainfall areas, the weed displays a more erect habit, uncommonly growing to a height of 30 to 45 cm.

The leaves are fern-like and consist of seven to nine wedge-shaped leaflets 3 to 6 mm long that tend to fold upwards along the midrib.

Flowers are very small and occur in dense clusters in the forks of the leaves. They are red in colour turning blue as the leaves dry out.

Seed pods are grey, very narrow, sharply pointed at the tip and contain two cube-shaped seeds that are separated by a partition. The pods are about 6 mm long.



DISTRIBUTION

Indigofera is considered an Australian native but also extends from India through Malaysia and Indonesia. In Australia, it is widespread throughout sub-tropical and arid regions of Western Australia, the Northern Territory (NT) and Queensland.

In the NT, it inhabits a wide range of soil conditions from the Gulf of Carpentaria to the South Australian border but appears more prevalent on the red soils south of Tennant Creek.

TOXIN

Indigofera contains two toxins, the hepatotoxin indospicine and the neurotoxin 3 nitropropionic acid (3-NPA). The neurological signs in horses, which are associated with Birdsville disease, are due to the effect of 3-NPA, which is released during the digestion of *I. linnaei*. Although highly susceptible to the effects of 3-NPA, horses appear to be resistant to the hepatotoxic effects of indospicine.

Although the toxins are present in the leaves and seeds of the plant at all times (green or dry), disease outbreaks commonly occur in spring or summer, after rains. At these times, the plant responds more quickly than other plant species to moisture. On pastoral stations, up to 100% mortality has been reported in susceptible horses within an eight-week period, although more commonly, only 10% of horses become affected during an outbreak.

Under normal grazing conditions, the toxins do not appear to cause clinical disease in cattle.

SYMPTOMS

Affected horses may show a variety of signs, including general weakness and nervousness, particularly depression, incoordination, shivering, twitching and swaying.

Incoordination and general weakness are more evident when the animal is, or has been, under physical stress and may be quite hazardous to the rider. As the toxic effects are often permanent, a degree of incoordination will remain after access to the plant is denied.

The first signs of poisoning observed in horses at rest are loss of appetite and depression. Bad breath may be noticed. Signs may develop after only 10 days of feeding on indigofera. Protracted cases exhibit weight loss and toe-dragging, which results in a characteristic wear of the front of the hoof. Continual ingestion of the plant will result in death.

In some cases the disease may be diagnosed without seeing the horses but by observing their tracks. Toe-drag marks are distinctive and may be continuous.

MANAGEMENT

Awareness of this disease and monitoring of the horses during critical periods of the year is important. Horses should be grazed in paddocks where they have limited access to indigofera. If this is difficult, supplementary feeding is required during critical periods, such as after spring or summer storms when feed is not plentiful.

Protein supplements containing high levels of arginine were thought to be useful in preventing the disease when it was believed to be caused by indospicine. Feeding lucerne hay (5 kg/day), or peanut meal (½ kg/day) or linseed meal (¾ kg/day) has been recommended as a preventative measure.

Affected horses in the advanced stages of the disease (severe incoordination) should be euthanised. Less severely affected horses may be drenched with 400 g gelatine every day and fed an arginine-rich feed (see above). Recovered horses will suffer residual effects of toxicity and may behave unpredictably and be unsuitable for further work. Intravenous treatment of affected horses with Aminolyte® solution has been claimed to have curative benefits.

Raw and cooked meat from affected horses is poisonous to dogs due to the presence of indospicine. Meat from such horses, which appear clinically normal, may cause severe liver damage and death and should not be used as pet food. As a precaution, avoid feeding pets horse meat if it originates from an area where Birdsville disease is known to occur.

For further information, please contact your local departmental office in Tennant Creek or Alice Springs.

Please visit us at our website:

www.nt.gov.au/d

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