

## PHALARIS STAGGERS AND POISONING

PHALARIS TOXICITY & STAGGERS are stock poisonings seen occasionally after grazing *Phalaris tuberosa* dominant pastures. Toxicity is worst on young rapidly growing plants, typically immediately following the autumn break or even after several heavy dews. The worst local outbreaks have occurred when rapid growth is checked by sudden adverse conditions eg sudden dry, or frost.

Two forms of phalaris poisoning can occur and may intermingle:

**Acute phalaris toxicity** and death is seen where individual animal are able to ingest large quantities of the toxic plant eg after introduction of hungry stock to toxic pasture, or in low stocking rate situations. Some sheep or cattle will develop signs of heart failure or polioencephalomalacia within 4 hours, most at 12 – 72 hours.

**Staggers syndrome** follows protracted or repeated smaller exposures. It is usually seen from 2 – 3 weeks after initial exposure with new cases occurring up to 6 weeks after removal from affected pasture. There are two types – a progressive weakness starting at the hindlimbs, and a tremorgenic form with mild to severe head and body tremors and incoordination.

### CAUSE

The exact toxic factors are still under debate. Methylated tryptamines,  $\beta$ -carbolines, hordenine & methyltyramines are all under suspicion. Various authorities are in conflict. *Phalaris* often has a bluish-green tinge when most toxic. As the plant matures, toxicity markedly reduces.

### CLINICAL SIGNS

Acute toxicity : Nervous control of the heart is affected causing racing of the heart, dropped beats and eventual cardiac arrest.

Stagger syndrome : Nervous function undergoes progressive degeneration (if the animal does not die acutely). Signs initially appear only when the animals are disturbed but progress to permanence.

- Excitability, muscle tremor, twitching of the lips, face and ears, head nodding and incoordination, gait stiffness, reluctance to bend hocks causing toe dragging, irregular uncontrolled movements of the eyes;
- Cattle characteristically suffer paralysis of the tongue leading to dropping food and dribbling;
- Severe cases lie on their side and paddle, with rapid breathing and heart rate, progressing to tetanic spasms. The animal will either die, or spontaneously recover and walk away (until the next attack).

Signs may be present for months after removal from toxic pasture. Deaths may occur for weeks after removal but rarely after the first week. Cattle usually show milder signs, but recovery is limited by problems with holding and chewing food, leading to weight loss.

### POST MORTEM

Few signs. Diagnosis is based on clinical signs, flock/herd history, pasture exam and ultimately the submission of the brain for pathology. In acute toxicity the animals are usually found dead on their side, head thrown back, legs stiff. Blood stained discharge from the nose and froth from the mouth and signs of struggle are common. There may be bloody congestion and small haemorrhages in the gut due to heart failure. In the chronic form brownish green pigment may occasionally be seen in the brain stem.

There are similar diseases requiring differentiation

- Pulpy kidney (enterotoxaemia) – note: high temp, rapid bloat & rotting;
- Thiamine or vitamin B1 deficiency – note: blindness, star-gazing before death, no heart signs, death not rapid.

TREATMENT of affected animals – none! Minimise handling or causes of stress.

### PREVENTION

Remove stock from pasture if possible.

If you have to use the pasture, introduce the animals into it gradually, drifting the stock in and out again to build up their exposure time. Avoid early morning grazing initially as this is when the pasture is most dangerous. Supplementary feed prior to grazing the toxic pasture to avoid gluttonising.

**Oral cobalt** administered as cobalt bullets, weekly foliar spraying, or blocks (none are 100% efficient) will help prevent chronic phalaris staggers. Note injectable vitamin B12 will not! There is NO PREVENTATIVE for the acute form of the disease. Low alkaloid *Phalaris* strains (such as *sirosa* and *sirolan*) are available, but still contain compounds attributable to the acute death form. They are less likely to cause staggers. It is of note that the worst single episode seen by one of our veterinarians was a sudden death syndrome in a freshly sown pasture using low alkaloid Phalaris.