

# What lies within

What dangers lurk in your horse's paddock? Vet **Linda Belton** identifies some common poisonous plants, and outlines the problems they can cause



Clockwise, from bottom left: Rhododendron, Foxglove, St Johns Wort, Deadly Nightshade, Poppy and bracken (centre).



**P**asture management is an important part of looking after horses. It is vital that you regularly check grazing land and keep it free from poisonous plants.

Many plants that are poisonous to horses cause serious neurological problems and liver failure, which can be life threatening. Make time to walk around your horse's paddock regularly and check out any plants that are unfamiliar to you – if in doubt, it's best to remove them.

Check boundary fences carefully for any trees or shrubs which may be in reach, and to ensure neighbours haven't disposed of any clippings into your horse's field.

After storms, look to see whether any branches have blown into the field. Remember that different plants may be prevalent at different times through the growing season, so remain vigilant.

Hay can also harbour potential plant toxins that can harm your horse. Carefully check the source of your hay and do your best to look through each bale for the presence of unknown plants.

### Plant toxins

Plants which are toxic to horses may contain one or more of the following toxins:-

- Alkaloids: these have a negative effect on the central nervous system.
- Pyrrolizidine alkaloids (PAs): PAs are produced by, among others, the ragwort family and can result in toxic damage to the horse's liver.
- Glycosides: found in foxgloves, for example, they can cause diarrhoea, heart arrhythmias, inhibition of iodine uptake (goitre) and the production of cyanide.
- Photosensitive agents: found in St John's Wort, these agents can cause skin

blistering and shedding after either ingestion or contact.

### Symptoms of poisoning

If a horse ingests a poisonous plant, he may suffer mild toxic effects, such as non-specific allergies, weight loss, lethargy and mild digestive problems, which sometimes go unnoticed.

However, plant poisoning fatalities are relatively rare in the UK (with the exception of deaths caused by ragwort), as most toxic plants are too unpalatable and bitter for the horse or pony to ingest, unless he is exceptionally hungry or has a craving.

The main symptoms of plant poisoning to watch out for include:-

- Mouth ulcers and difficulty eating.
- Colic.
- Skin blistering – usually on the limbs and muzzle, due to photosensitisation (see explanation below).
- Discoloured urine.
- Swelling of the legs.
- Behavioural changes.
- Inco-ordination.
- Ill thrift.

### Photosensitivity

Photosensitivity occurs when there is increased vulnerability to the effects of UV light. Sensitisation is caused by various agents which may be ingested from plants such as St John's Wort, or due to hepatotoxins causing liver disease.

Photosensitisation is different from phototoxicity, which is a dose-related response to UV light – sunburn. For photosensitivity to occur, there needs to be exposure to sunlight, plus the presence of photodynamic agents in the skin. The main signs of photosensitisation are

reddened, inflamed and tender skin. Blisters can appear on the surface and may ooze or form yellow crusting scabs. Some areas may become raw and bleed. Vasculitis can occur, especially in white limbs, which become swollen.

Some horses also suffer from itchiness, particularly in cases where there is underlying liver disease. If rubbed, the affected skin may fall off.

Photosensitisation is seen most commonly on hairless areas and on non-pigmented skin such as muzzles and white limbs, where there is less protection to UV exposure.

The success of treatment for skin lesions due to photosensitisation will depend on the underlying cause of the problem.

If the affliction is due to ingestion of plants containing photodynamic agents, then removing access to the plant and avoiding exposure to sunlight for one to two weeks, plus treatment of the skin lesions, should prove successful.

However, if there is underlying liver disease then recovery is less certain. Liver damage may be due to ingestion of hepatotoxic plants, such as ragwort, or the horse may have chronic liver disease unrelated to plant toxins.

Approximately 25 per cent of horses with chronic liver disease show evidence of photosensitisation. This happens because the diseased liver has a reduced ability to excrete a naturally-produced photodynamic agent called phylloerythrin. Therefore, treatment of the photosensitisation will depend on whether the treatment of the primary liver disease is successful.

Be aware that some medicines can actually cause photosensitisation long after discontinuation of the treatment.



### Common contenders

The most common causes of plant poisoning to horses are usually well known to owners, such as ragwort, yew, laburnum, bracken and acorns. However, there are many other plants that can be toxic and they could be lurking in your paddocks.

Plants to avoid include:-

- |                     |                           |                 |
|---------------------|---------------------------|-----------------|
| ● Black nightshade  | ● Hemlock                 | ● Sorrel        |
| ● Box privet        | ● Horseradish             | ● Water hemlock |
| ● Bracken           | ● Horsetail               | ● Yew           |
| ● Buttercup         | ● Laburnum                |                 |
| ● Charlock          | ● Lupin                   |                 |
| ● Chickweed         | ● Monkshood               |                 |
| ● Cowbane           | ● Oak (acorns and leaves) |                 |
| ● Deadly nightshade | ● Poppy                   |                 |
| ● Ergot             | ● Privet                  |                 |
| ● Fescue            | ● Ragwort                 |                 |
| ● Foxglove          | ● Rhododendron            |                 |
| ● Ground ivy        | ● St John's Wort          |                 |

*While not comprehensive, this list includes some of the commoner plants found in horse pastures in the UK. With all of the plants listed, it is best to assume all parts are poisonous and to avoid them completely.*

Many owners remember if their horse has been given treatment topically to the skin, but forget those given orally or by injection. Ask your vet for advice if you are worried.

Severe cases of photosensitisation can result in scar tissue and poor hair re-growth, further increasing exposure to UV light. In these situations, owners should, within reason, limit their horse's exposure to both sunlight and photosensitising agents for the duration of their life.

## Buttercups

Although buttercups are another common sight in pastures, they are potentially poisonous as they contain protoanemonin, which is an irritant to horses.

Common signs of buttercup poisoning include inflammation or ulceration of the mouth, excess salivation, blistering and swelling of the face. Occasionally it can even cause colic.

The disease, however, is usually self-limiting as the symptoms tend to prevent the horse or pony from eating.



## Acorns and oak leaves

Poisoning due to oak is usually seasonal, with the young buds and leaves being eaten in spring, while autumn brings the problem of acorns. Both contain tannic acid, which causes primarily gastrointestinal symptoms in horses.

While eating a small amount of leaves or acorns is usually harmless, some horses become addicted and actively seek them out. Some seem more susceptible to tannic acid poisoning than others.

There is no specific antidote to tannic acid and the severity of the symptoms vary from horse to horse, depending on the individual and on the amount of toxin it has ingested. The best advice? As with all potential poisons, avoidance is paramount and oak trees should be fenced off.

## Expert file

Linda Belton MRCVS is a partner at The George Veterinary Clinic, Malmesbury, Wiltshire. She and her team provide equine veterinary care throughout Gloucestershire and Wiltshire.



## The dangers of ragwort

Probably the best-known toxic plant is ragwort – all parts of the plant contain pyrrolizidine alkaloids (PAs), which cause irreversible liver damage.

Much effort has been made to raise public awareness as to its danger but, sadly, the sight of horses grazing amongst ragwort is a still not uncommon.

Although there are no officially recorded figures, it is estimated that around 500 to 1,000 horses die annually due to ragwort poisoning. Given that many cases are likely to go undiagnosed, the exact number is probably much higher.

The live plant has a bitter taste and is usually avoided by horses unless grazing is in short supply. However, the poison is not destroyed in the drying process and the presence of undetected ragwort in hay is a huge problem. In addition, dried ragwort loses its bitter taste and is more readily consumed by horses.

## Warning signs

Early signs of poisoning are difficult to detect as clinical signs will only appear after a large part of the liver is damaged. This is because the liver has a large reserve of function so signs of liver failure are only apparent after a course of a year or more.

Ragwort poisoning usually appears as an acute disease with signs of liver failure. The PAs are rapidly absorbed from the gut and pass to the liver where they are broken down to produce toxic compounds called pyrroles.

The result is fibrosis of the liver and this in itself may cause further damage to remaining liver cells, meaning damage to the liver is progressive.

The liver is able to maintain normal function until at least two thirds of its tissue has been destroyed. So, the toxins are able to wreak havoc without being detected and by the time the horse shows signs of liver failure, the damage is usually extensive and treatment, sadly, is often not possible.

The liver has many functions, which means the signs of ragwort poisoning are variable. The first indication may be weight loss, lethargy, photosensitisation or sudden changes in behaviour.

As the disease progresses, the behavioural abnormalities get worse and the horse may stagger about, wander aimlessly, become blind and stand with his head pressed against the wall. In some cases, the symptoms can develop very quickly and the horse may be found dead without warning.

Because of the delay in the onset of clinical signs, detecting ragwort poisoning early enough to prevent irreversible liver damage is not possible. The effects of the toxins are seen long after the plant is ingested – indeed the horse may have even changed ownership in that time.

## Diagnosis challenge

Blood tests to examine liver enzyme levels and function are useful but not specific to ragwort poisoning. A diagnosis of ragwort poisoning currently depends on finding typical microscopic changes in a biopsy sample of the liver.

In the absence of effective treatment, preventing ingestion of ragwort is the only way to avoid ragwort poisoning.

A research team at the University of Liverpool has attempted to develop a blood test to detect whether a horse is ingesting any ragwort. The test aims to recognise alterations in certain components of the blood cells due to the effects of the PA toxins.

A positive result indicates current or recent access to the toxin in feed. The idea is that the test will act as a preventative measure, allowing owners to make appropriate changes to their horse's feeding and management if there is evidence of toxin ingestion.

Stopping access to the contaminated food supply before significant levels of the toxin are absorbed by the horse or pony should prevent irreversible and progressive liver damage. Sadly, the test is not yet commercially available as a lack of funding prevents its continued development.