

ADVICE ON

The DANGERS of RAGWORT



THE HOME
Of REST
for HORSES

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The British Horse Society
Registered Charity No. 21016

Ragwort Poisoning

Ragwort is a common weed that grows throughout the British Isles. Ragwort has always been a problem but recently it has become apparent that the weed may be getting out of control and potentially posing a real threat to the horse population.

Ragwort, also known as *Senecio jacobea*, contains the toxic compounds pyrrolizidine alkaloids. Horses are particularly susceptible to ragwort poisoning although other grazing animals are also at risk. Pyrrolizidine alkaloids principally damage the liver, resulting in severe disease and in many cases death.

Ragwort

The Life of Ragwort

Ragwort is normally a biennial - taking two years to fully grow and flower. Seedlings have a spade shaped leaf that is notched at the top. In the first year of growth ragwort has a dense rosette of leaves low to the ground.

Plants in their second year grow to between 30 and 100cm high and have woody stems and dark green leaves with ragged, irregular edges. They produce bright yellow, densely packed flowers from May to October.

Ragwort can behave like a perennial (flowering every year) if the long stems are cut or mown. Each plant produces thousands of seeds that are dispersed widely by the wind resulting in the rapid spread of the weed. Seeds can also lie dormant for years before germinating.



Ragwort and Horses

Ragwort thrives on wasteland, road verges and railway land and from these locations it can spread to pasture. Poor quality and poorly managed horse pastures are particularly susceptible to ragwort infestations. Closely growing grass sward prevents ragwort growth but when the grass becomes thinned out, due to poaching or over grazing, the seeds are able to germinate in the exposed soil.

Most animals will avoid eating ragwort as long as they have an alternative source of good food. This can therefore be a problem on sparse, overgrazed pastures which ragwort can thrive on.

There are anecdotal reports that some horses can develop an acquired taste for the plant, especially if there is little else to eat.

When cut or wilted (during hay or haylage making) ragwort loses its bitter taste and becomes more palatable to horses. Drying does not destroy the toxins and dried grass, hay and haylage are common sources of ragwort poisoning.

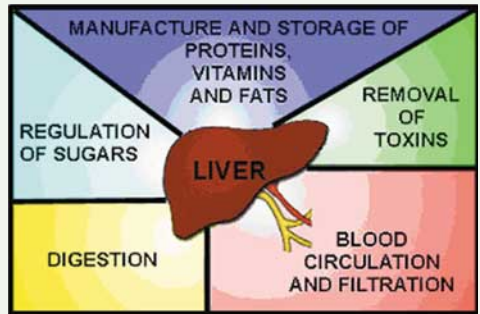
Ingestion of the pyrrolizidine alkaloid toxin contained in ragwort typically results in the delayed onset of chronic, progressive liver failure.

The Normal Liver of a Horse

The liver plays a vital role in the body and is one of the most active organs. The majority of nutrients absorbed from the intestines pass straight to the liver for “processing”. The liver is responsible for regulation of these nutrients to ensure the body has enough protein, carbohydrate and fats.

The liver’s other functions include manufacture of many of the proteins essential for life, removal of toxins from the body, aiding the intestinal digestion of food, as an important part of the immune system and storage for several vitamins and trace minerals.

Large cells called hepatocytes perform most of the liver’s work. The liver is constantly regenerating itself - hepatocytes die and are replaced by new cells on a regular basis.



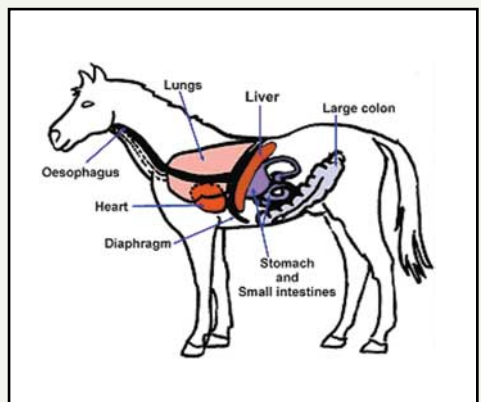
Functions of the liver

Liver failure (or hepatic failure) occurs when the liver can no longer perform its essential functions. Liver failure only tends to happen when at least 80% of the liver has been damaged. The liver is able to regenerate under certain conditions.

Liver Damage by Ragwort

The effects of ragwort toxins are cumulative, thus it is common for ragwort poisoning to occur following consumption of small quantities of the plant over a long period of time. Development of disease can be delayed from four weeks to six months after eating the plant. Different individuals appear to have different susceptibilities to the toxin.

When a horse eats ragwort the pyrrolizidine alkaloids are absorbed into the body from the intestines. The alkaloids



then pass straight to the liver where they are further metabolised to produce toxic agents that damage liver cells. These damaged liver cells can no longer manufacture protein and cannot multiply in order to replace themselves.

When these cells die they are replaced by fibrous tissue. Slowly, as more and more cells are damaged, the liver shrinks and becomes more fibrous in structure. Eventually there are not enough functional liver cells left to conduct the essential functions of the liver and liver failure is inevitable.

Ragwort Poisoning - Clinical Signs

The clinical signs (or symptoms) of ragwort poisoning tend to only become apparent when liver failure has occurred. There is often no warning of impending failure. The signs of liver failure are a direct reflection of the loss of liver function.

A principle sign is bizarre or depressed behaviour due to altered mental status. This is thought to occur because the liver is no longer able to remove chemicals or toxins from the blood that have harmful effects on the brain.

A second common clinical sign is inflammation of white, unpigmented areas

of the skin when they have been exposed to sunlight, known as photosensitization. The degradation of grass in the intestines produces a photodynamic agent (that reacts to sunlight). This agent is normally removed and eliminated by the liver. In hepatic failure this does not occur and concentrations of the agent increase in the body. In areas of unpigmented skin the activation of the photodynamic agent by sunlight causes damage to and inflammation of the skin. This is not the same as the common problem of sunburn, as suffered by some horses. Other clinical signs of liver failure may also occur, these include jaundice, weight loss and diarrhoea.

Diagnosis

Diagnosis of liver failure can be aided by laboratory analyses of blood samples that often show evidence of liver damage and reduced liver function. Performing a liver biopsy can make a definitive diagnosis but is

difficult and potentially dangerous. It is hoped that a simple blood test will soon be available to detect early signs of ragwort poisoning before significant, untreatable damage is done to the liver.

Treatment

Treatment is difficult once liver failure has occurred. It relies on supportive therapies in the hope that the liver can regenerate.

Unfortunately in many cases the liver is too damaged for this to occur, although some horses can survive.

Field Companions

Attention should also be turned to companion horses that are showing no clinical signs of liver failure. It is essential

that the possible source of ragwort be eliminated from their diet.



Prevention

Prevention of ragwort poisoning is the best option. Control methods for ragwort such as pulling, spraying and cutting should all be viewed as short-term methods. Maintaining or improving the quality of pasture should be the long-term priority to ensure the prevention of ragwort growth. If ragwort begins to grow in a paddock it must be immediately removed before it can spread new seed.

Pulling ragwort Plants Up

This is the most basic control method and is particularly appropriate when the ragwort is not an extensive problem. Rubber gloves should be worn, as the plants are potentially harmful to humans. Fragments of root will remain in the ground so new growth will have to be monitored and removed, year after year.

All pulled plant material should be removed and burnt to prevent all animals (including cows and sheep) from eating it.

Mowing / Cutting

Cutting will not kill the ragwort plant; in fact it may actually encourage growth. However, in an emergency situation mowing may prevent seed production.

Chemical Spraying

This is effective against the less mature rosette form of ragwort; however, older stemmed plants are more resistant. Spring is the ideal time for spraying pasture for grazing, but is too late if hay production is intended. Spraying for hay production should be carried out in the previous autumn.

All affected paddocks should be sprayed at the same time to avoid ragwort spreading to the bare areas left by dead weeds. As the ragwort dies it should be removed and burnt before pasture can be grazed.

Improving Pasture Quality

Ploughing is very effective at removing ragwort as long as it is ensured that the grass reseeded produces a healthy, thick sward. Fertiliser encourages thick, vigorous sward growth. Good grazing management to prevent overstocking, overuse and poaching is essential.

What to do if you are concerned about ragwort spreading to your land.

The control of Ragwort comes under two government acts the Weeds Act 1959 (for the whole of the UK) and the Ragwort Act 2003 (England and Wales only). Under these laws governmental authorities can serve clearance notices to prevent the weed from spreading. If appropriate, in the first instance, approach the owner/occupier of the land on which ragwort is growing and request them to take steps to clear the weed.

Ragwort on road verges

If ragwort is growing on the verges of motorways or trunk roads the Highways Agency should be contacted.

If the ragwort is on the verges of minor roads the complaint should be directed to the local highway authority.

Telephone: 08457 50 40 30 website: <http://www.highways.gov.uk>

Ragwort on railway land

Where ragwort is growing on land associated with the railways Network Rail should be contacted.

Telephone: 0845711 41 41 Website: <http://www.networkrail.co.uk>

Governmental Agencies

In England and Wales the Department of Environment, Farming and Rural Affairs (Defra) is responsible for enforcing the Weeds Act 1959 and Ragwort Act 2003. If the problem of ragwort growing on adjacent land cannot be resolved then a Weed Act complaint form can be completed. These forms, and further information, can be obtained from either:

Website: <http://www.defra.gov.uk/rural/horses/topics/ragwort.htm>.

Or from the following rural development services (depending on the region)

Bristol - South West Rural Development Service

Block 3

Government Buildings

Burghill Road

Westbury-on-Trym

Bristol BS10 6NJ

Tel: 0117 959 8622

Crewe - North West Rural Development Service Office

Electra Way

Crewe

Cheshire CW1 6GJ

Tel: 01270 754262

In Scotland the responsibility for the Weed Act 1959 is that of the Scottish Executive Environment and Rural Affairs Department (SEERAD) and pressure is underway to update legislation inline with that in England and Wales.

Conservation Branch

Scottish Executive Rural Affairs Department

Pentland House

47 Robb's Loan

Edinburgh EH14 1TY



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Welfare Department

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