



MEMBERS ONLY

**WEEDS IN
AUSTRALIA:
YOUR GUIDE TO
TOXIN POISONING**



Exclusively Equine
VETERINARY SERVICES



TOXIC WEEDS IN AUSTRALIA

Your guide to toxic weeds in Australia, including where and when they grow.

This document is a basic field guide to weeds toxic to horses in Australia. It's a helpful resource that you can keep on file to identify and protect your horse from toxin poisoning.

Each weed has a code in brackets at the end of the name (i.e. Paterson's Curse PA), which relates to the type of toxin present.

The different types of toxins are listed at the end of this document, along with the symptoms your horse may display if poisoning has occurred.

Each weed is displayed in a photo for easy identification, along with information about the state it grows in, and the time of year it grows or flowers.

The level of toxicity present in each weed is also displayed, indicating whether it's mildly, moderately or highly dangerous to horses.

Horses are very selective when grazing. Most won't eat weeds unless there is no other option (i.e. in drought conditions) or if hay or feeds given are contaminated.

Some weeds in their dried form are still quite toxic to horses, so it's always advisable to check hay before giving it to horses for any foreign weeds.



Paterson's Curse (PA) | *Echium plantagineum*
[Boraginaceae]

(Salvation Jane, Lady Campbell Weed, Purple Bugloss, Riverina Bluebell, etc.)

Location: Located in all states. Declared noxious weed, except QLD and ACT.

Season: Short-lived Winter annual.

Danger Level: Highly dangerous, usually unpalatable to horses. All parts of the plant are toxic and the toxicity is not lost in dried plants. Paterson's Curse grows to 90cm. Flowering occurs in early Spring.

Crotalarias (PA) | [Fabaceae]

(Kimberly Horse Poison, Grey Rattlepod, Narrowleaf Rattlepod, Yellow Rattlepod, etc.)

Location: Not in VIC or TAS.

Season: Most species are annual, with some being perennial. Some species are native.

Danger Level: Highly dangerous, usually unpalatable to horses. Plants in *Crotalaria* genus are known as 'rattlepods' because the seeds rattle inside the deflated seedpod when shaken. A horse poisoned is said to be suffering 'Crotalism', 'Walkabout Disease' or 'Kimberly Horse Disease'.



Ragwort (PA) | *Senecio jacobaea*
[Asteraceae]

(Tansy Ragwort, Common Ragwort, Stagger Wort, Stinking Willy, St James' Wort, etc.)

Location: Declared noxious weed in VIC, TAS, NSW, SA and WA.

Season: Long-lived perennial that grows to 1.2m. Ragwort usually flowers in Summer. The flowers are bright yellow. The plant gives off an unpleasant smell when damaged.

Danger Level: Moderate danger.

Fireweed | *Senecio madagascariensis*
[Asteraceae]

(Madagascar Ragwort, Senecio Amarillo, etc.)

Location: The plant has spread rapidly in Australia, particularly in the past 30 years and is a significant problem for farmers. Declared noxious weed in QLD, NSW, ACT and WA.

Season: Short-lived annual that grows 10-50cm tall.

Danger Level: Moderate danger. Fireweed is native to southern Africa and Madagascar.





Blue Heliotrope (PA) | *Heliotropium amplexicaule* [Boraginaceae]
(Wild Verbena, Clasping Heliotrope, Purpletop, Turnsole, Wild Heliotrope, Creeping Heliotrope, etc.)
Location: QLD, NSW, VIC and SA. Declared noxious weed in NSW and WA.
Season: Summer-growing perennial that grows to 30cm. The plant produces a flush of growth from Autumn to Spring, and flowering usually occurs from November through Summer and into early Autumn.
Danger Level: Moderate danger.

Common Heliotrope (PA) | *Heliotropium europaeum* [Boraginaceae]
(Potato Weed, European Heliotrope, Barooga Weed, Wanderie Curse, Bishop's Beard, Caterpillar Weed, etc.)
Location: Declared noxious weed in WA and TAS, located in all states.
Season: Short lived annual that grows to 30cm.
Danger Level: Moderate danger.



Heliotropium Ovalifolium (PA) | [Boraginaceae]
(*Heliotropium coromandelianum* var. *ovalifolium*, *Heliotropium gracile*, etc.)
Location: WA, NT, QLD and SA.
Season: Perennial that grows 15-80cm.
Danger Level: Moderate danger.

Amsinckias | [Boraginaceae]
(*Amsinckia calycina*, *Amsinckia lycopoides*, *Amsinckia intermedia* and *Amsinckia menziesii*.)
(Amsinckia, Yellow Burrweeds, Fiddlenecks, etc.) It is thought these plants may not be separate species, but different forms of one species.
Location: Declared noxious weeds in VIC, SA and WA, located in all states.
Season: Short-lived perennial that grows 10-50cm. Flowering occurs from late Winter to Spring. The flowers are tube-shaped, and yellow or orange.
Danger Level: Moderate danger.





Blue Canary Grass (TA) | *Phalaris*

coerulescens [Poaceae]

Location: NSW, VIC and TAS.

Season: Short-lived perennial that survives for 3-4 years. It grows vigorously in Autumn and Spring, especially after rain. The grass continues its growth through Winter and has a Summer dormancy period. In cool, high rainfall areas, the grass maintains growth through Summer. Flowering occurs in late Spring.

Danger Level: Highly dangerous.

Paradoxa Grass (TA) | *Phalaris paradoxa*

[Poaceae]

Location: Located in all states, except TAS.

Season: Annual. It grows mainly in Winter and Spring, and can grow vigorously after rain. The seeds germinate in Autumn to early Winter. Flowering occurs in late Spring.

Danger Level: Highly dangerous.



Smooth Darling Pea | *Swainsona galegifolia*

[Fabaceae]

(*Swainsona*, etc.)

Location: QLD, NSW, VIC and NT.

Season: Perennial that grows to 1m. The plant flowers in Spring.

Danger Level: Highly dangerous.

Hairy Darling Pea | *Swainsona greyana*

Location: QLD, NSW and SA.

Season: Perennial that grows to 1.5m. The plant flowers in Spring.

Danger Level: Highly dangerous.





Grey Swainsona | *Swainsona canescens*

Location: WA, NT, QLD and SA.

Season: Perennial that grows to 60cm or higher in favourable conditions. The plant flowers from May through to December.

Danger Level: Highly dangerous.

Broughton Pea | *Swainsona procumbens*

Location: QLD, NSW and VIC.

Season: Perennial that grows 30-50cm. The plant flowers in Spring.

Danger Level: Highly dangerous.



Dwarf Darling Pea | *Swainsona luteola*

Location: QLD, NSW and SA.

Season: Perennial that grows to 50cm. The plant flowers in Spring.

Danger Level: Highly dangerous.

English Yew (TAX) | *Taxus baccata*

[Taxaceae]

Location: NSW, VIC and TAS.

Season: Evergreen tree that can grow to 20m. The tree has a dark trunk that is quite thick in mature plants. It flowers in Spring.

Danger Level: Highly dangerous.





Field Bindweed (TROP) | *Convolvulus*

arvensis [Convolvulaceae]

(Common Bindweed, Morning Glory, Field Morning Glory, etc.)

Location: Located in all states. Declared noxious weed in VIC, SA and WA.

Season: The vine flowers in Spring to early Autumn, with most flowers appearing in Summer.

Danger Level: Moderate danger, however, no cases of Field Bindweed poisoning have been reported in Australia.

Thornapples (TROP) | *Datura* spp

[Solanaceae]

The plants in the *Datura* genus are commonly known as thornapples. There are several native thornapples, but most of the species that grow in Australia were introduced as garden ornamentals.

Location: Located in all states.

Season: Summer-growing annual. They range in height from 50cm-2m, but most grow to 1m.

Danger Level: Moderate danger.



Angel's Trumpet (TROP) | *Brugmansia* spp

[Solanaceae]

Location: Located in all states, except NT.

Season: Grown in Australia as garden ornamentals and some species have naturalised in some areas of Australia. Perennial shrubs or small trees that can grow to 5m, but most are around 3m.

Danger Level: Low danger.

Poison Corkwood (TROP) | *Duboisia*

myoporoides [Solanaceae]

Location: East coast of Australia, SA and NT.

Season: Native to Australia. Shrub or tree that can grow to 9m. The bark of the tree is thick and 'corky', and is yellowish-brown to pale grey in colour. Poison Corkwood flowers in Winter and Spring.

Danger Level: Low danger.





Corkwood (TROP) | *Duboisia leichhardtii*
[Solanaceae]

(Poisonous Corkwood, Queensland Duboisia, Yellow Basswood, etc.)

Location: QLD and northern NSW.

Season: Native to Australia. A shrub or tree that can grow to 7.5m. Corkwood flowers mainly in Winter.

Danger Level: Low danger.

Hemlock (PIP) | *Conium maculatum*
[Apiaceae] (Fool's Parsley, Poison Root, Carrot Fern, Winter Fern, California Fern, Wild Carrot, Wild Parsnip, Wode Whistle, etc.)

Location: Located in all states, except NT. Declared noxious weed in VIC, NSW and WA.

Season: Hemlock is rarely grazed. The main danger is contamination of hay, chaff or feed. Horses may graze Hemlock if other forage is low. Short-lived biennial or annual plant that grows 1-2m. The seeds germinate in Autumn and can grow rapidly after rain.

Danger Level: Highly dangerous.



Lupins (QUIN) | *Lupinus* spp [Fabaceae]

Several species of lupins grow in Australia; some as ornamental garden plants and some introduced lupins have naturalised to become weeds. The lupins grown for human or livestock feed are low-alkaloid varieties and do not cause quinolizidine poisoning.

Location: Located in all states.

Season: Can be annual or perennial, and can grow to 1m. Flowering in Summer.

Danger Level: Low danger.

Golden Chain Tree (QUIN) | *Laburnum anagyroides* [Fabaceae]

Location: WA, NSW, VIC, SA and TAS. Grown in Australia as an ornamental garden tree.

Season: Deciduous and it usually grows to around 7m. Flowers from Spring to early Summer. The tree is known for its distinctive showy yellow flowers.

Danger Level: Low danger.





English Broom | *Cytisus scoparius* [Fabaceae]
(Scotch Broom, Broom, etc.)

Location: NSW, VIC, SA and TAS. Declared noxious weed in all states, except NA and QLD.

Season: Upright perennial shrub that usually grows 1-2m, but can grow up to 4m. Flowering usually occurs from Spring to early Summer, but flowers may appear at any time throughout the year.

Danger Level: Moderate danger.

Montpellier Broom | *Genista monspessulana* [Fabaceae] (*Cytisus monspellulanus*, *Teline Monspessulana*, etc.)

(Cape Broom, Canary Broom, French Broom, Madeira Broom, Broom, etc.)

Location: Located in all states, except NT. Declared noxious weed in all states, except NT and QLD.

Season: Upright and spreading shrub that usually grows 1-2m, but can grow up to 3m. Flowering usually occurs in late Winter and Spring.

Danger Level: Moderate danger.



Tobacco (PYR) | *Nicotiana* spp [Solanaceae]

Around 17 species of tobacco grow in Australia.

Location: Located in all states.

Season: Annual or short-lived perennial. The plants can be low-growing herbs or spindly shrubs.

Danger Level: Moderate danger.

Lobelia (PYR) | *Lobelia* spp [Lobeliaceae]

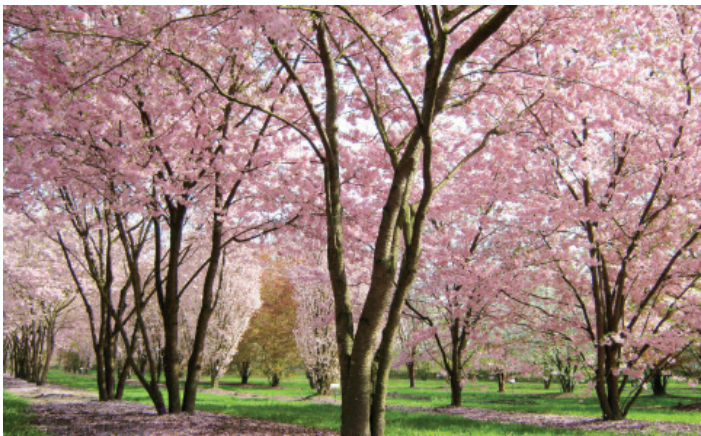
Around 20 species of native Lobelia grow in Australia.

Location: Located in all states.

Season: Annual or perennial herbs.

Danger Level: Low danger.





Prunus (CYA) | Prunus spp [Amygdalaceae]
Includes plums, peaches, apricots, cherries, nectarines and almonds. The ingestion of prunus leaves can be enough to cause poisoning. Toxin levels are highest when leaves are damaged or stressed from frost, storms, drought or seasonal whilting.
Location: Located in all states.
Season: Trees or shrubs are mostly deciduous. The plants produce white or pink blossoms that appear in Spring before new leaves.
Danger Level: Highly dangerous.

Johnson Grass (CYA) | Sorghum halepense [Poaceae] (Johnson Grass, etc.)

Distinguishing between different grasses can be extremely difficult.

Location: Located in all states. Major weed in pastures and crops. Declared noxious weed in NSW, NT and WA.

Season: Long-lived perennial grass that can grow to 1.5m. It reproduces by seed and creeping underground stems.

Danger Level: Moderate danger.



Sudan Grass (CYA) | [Poaceae]
(Sorghum sudanense, Sorghum drummondii, etc.)

Around 17 species of tobacco grow in Australia.

Location: QLD, NT and WA.

Season: Annual grass and very similar to Johnson Grass, except no underground shoots and seed head is longer.

Danger Level: Moderate danger.

Columbus Grass (CYA) | [Poaceae]

May be a hybrid of Sorghum halepense x alnum. Columbus Grass is very similar to Johnson Grass.

Location: QLD and NSW. Declared noxious weed in NSW and WA.

Season: Annual grass.

Danger Level: Moderate danger.





Grain Sorghum | *Sorghum bicolor* [Poaceae]
Grain Sorghum is similar to Johnson Grass, but does not have underground stems.
Location: Located in all states.
Season: Annual or short-lived perennial. The flower head of Grain Sorghum is denser than Johnson Grass.
Danger Level: Moderate danger.

Spotted Fuchsia (CYA) | *Eremophila maculata* [Myoporaceae]
(Native Fuchsia, Spotted Emu Bush, etc.)
Location: Located in all states, except TAS.
Season: Perennial shrub that grows to 2m. Flowers in Winter and Spring. Flowers can be shades of yellow or red.
Danger Level: Moderate danger.



Birdsfoot Trefoil (CYA) | *Lotus corniculatus* [Fabaceae]
Location: QLD, NSW, VIC, SA and TAS.
Season: Annual or perennial plant growing to 40cm. The Spring-Summer flowers are usually yellow with red veins.
Danger Level: Moderate danger.

Wattles (CYA) | *Acacia* spp [Fabaceae]
Acacia is the largest genus of flowering plants in Australia with 960 species.
Location: Located in all states.
Season: Trees or shrubs. Flowers are usually yellow.
Danger Level: Moderate danger.





Couch Grasses (CYA) | *Cynodon* spp [Poaceae]
Particularly African Star Grass (Coondai Couch),
Cynodon nlemfuensis and *Cynodon plectostachyus*.
Location: Located in all states.
Season: Perennial.
Danger Level: Moderate danger.

Native Couch (CYA) | *Brachyachne*
convergens [Poaceae] (*Cynodon convergens*, etc.)
(Spider Grass, etc.)
Location: QLD, NSW, VIC, WA and NT.
Season: Annual that grows to 50cm.
Danger Level: Moderate danger.



Linseed (Flax) (CYA) | *Linum usitatissimum*
[Linaceae] Heat pressed linseed meal does not
contain cyanogenic glycosides and is not a risk. Cold
pressed linseed meal that has not been treated with
heat poses some risk to horses.
Location: Located in all states.
Season: Feed supplement.
Danger Level: Moderate danger if incorrectly
processed.

Oleander (CAR) | *Nerium oleander*
[Apocynaceae] Widely grown in Australia as a garden
ornamental or street tree. The plant is extremely toxic
to all species, including humans. A study has shown
the ingestion of only 7 leaves can be fatally toxic to
an average-sized horse.
Location: Located in all states.
Season: Evergreen shrub or tree that can grow 2-5m.
The plant flowers, but many cultivars can also flower
in Spring and Autumn. Most are pink, but can be
white, red or yellow.
Danger Level: Extremely dangerous.





Yellow Oleander (CAR) | *Cascabela thevetia* [Apocynaceae] (*Thevetia nereifolia*, *Thevetia peruviana*, etc.)

(Captain Cook Tree, Cook Tree, Lucky Nut, Mexican Oleander, Dicky Plant, etc.)

Location: Located in all states. Widely grown as a garden ornamental. Declared noxious weed in QLD.

Season: Evergreen shrub or tree that can grow 2.5-3m. Occasionally, it can grow to 10m. The plant flowers mostly in Summer and Autumn, but can flower any time of year.

Danger Level: Extremely dangerous.

Rubber Vine (CAR) | *Cryptostegia grandiflora* [Asclepiadaceae] (Indian Rubber Vine, etc.)

Location: QLD, NT and WA. Declared noxious weed in QLD, NT, WA and SA. Considered one of Australia's worst weeds and is on the list of Weeds of National Significance.

Season: Woody shrub or climber. Can grow 1-3m without support, but it can grow to 30m when growing on vegetation. Flowers mainly in Summer. The flowers are white, or shades of purple or pink.

Danger Level: Highly dangerous.



Purple Rubber Vine (CAR) | *Cryptostegia madagascariensis* [Asclepiadaceae]

(Rubber Vine, Madagascar Rubber Vine, etc.)

Location: QLD, NSW, NT and WA. Declared noxious weed in QLD, WA and NT.

Season: Same as Rubber Vine above, but flowers are a deeper shade of pink or purple.

Danger Level: Highly dangerous.

Mother of Millions (CAR) | *Bryophyllum* spp [Crassulaceae]

Location: Located in all states, except TAS. Several species of *Bryophyllum* have been declared noxious weeds in QLD, NSW and WA.

Season: Perennial succulents that can grow to 1.8m. Flowering occurs in Winter to early Spring. Flowers contain the highest levels of toxins and are the most palatable part of the plant. May be eaten when fodder is scarce. Sometimes found as a contaminant of hay.

Danger Level: Highly dangerous.





One Leaf Cape Tulip (CAR) | *Moraea flaccida*
[Iridaceae]

Location: WA, NSW, VIC, ACT and TAS.

Season: Plant produces perennial underground 'bulbs', called corns. Leaves and stems die back annually. Usually grows to 60cm, but can occasionally grow to 75cm. The plant flowers in late Winter to early Spring.

Danger Level: Highly dangerous.

Two Leaf Cape Tulip (CAR) | *Moraea miniata*
[Iridaceae] *Homeria flaccida*, *Homeria miniata*, etc.)

Location: WA, NSW, VIC, ACT and SA.

Season: Plant produces perennial underground 'bulbs', called corns. Leaves and stems die back annually. Usually grows to 60cm. The plant flowers in late Winter to early Spring.

Danger Level: Highly dangerous.



Cotton Bushes (CAR) | *Gomphocarpus* spp
[Apocynaceae] (*Asclepias* spp, etc.)

Known as Milkweeds and some are known as Swan Plants.

Location: Located in all states. Narrow Leaf Cotton Bush (*Gomphocarpus fruticosus*) is declared noxious weed in WA.

Season: Perennial upright plant that usually grows 1-2m. Flowering can occur from Spring to Autumn.

Danger Level: Highly dangerous.

Foxglove (CAR) | *Digitalis purpurea*
[Scrophulariaceae]

Location: Located in all states.

Season: Perennial or biennial plant that grows to around 1.5m. Flowers in Spring to early Summer and can be white, purple or pink with mottled patterns.

Danger Level: Highly dangerous.





Ornithogalums (CAR) | *Ornithogalum* spp
[Hyacinthaceae]

Location: Located in all states.

Season: Annual plant, which grows from bulbs.

Flowering occurs mostly in Spring, but can occur at other times of the year.

Danger Level: Highly dangerous.

Blue Periwinkle (CAR) | *Vinca major*

[Apocynaceae]

(Greater Periwinkle, etc.)

Location: QLD, NSW, VIC, ACT, WA and TAS.

Season: Perennial that grows to 50cm. Flowering occurs in Spring and Summer, and are mauve or purple. Petals have a distinctive 'twist'.

Danger Level: Highly dangerous.



Pheasant's Eye (CAR) | *Adonis microcarpa*

[Ranunculaceae]

(Small Fruited Pheasant's Eye, Red Chamomile, Adonis, Autumn Pheasant's Eye, etc.)

Location: Located in all states. Declared noxious weed in SA and WA.

Season: Annual that usually grows 20-40cm, but can occasionally grow to 60cm. The plant flowers in late Winter to early Summer. The flowers are bright red or occasionally yellow.

Danger Level: Highly dangerous.

Celery-Leaf Buttercup (PRO) | *Ranunculus*

sceleratus [Ranunculaceae]

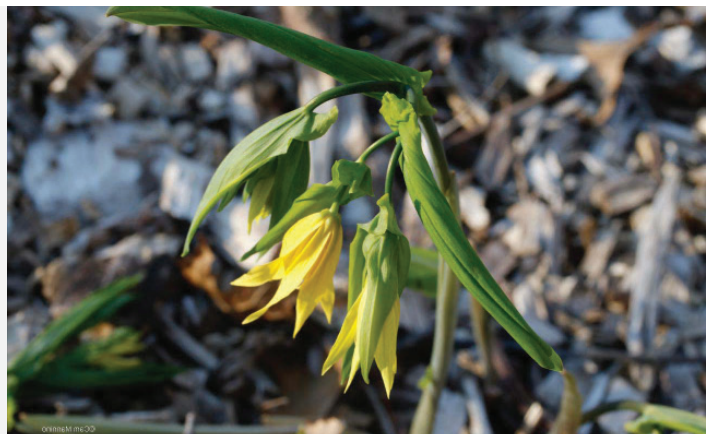
(Poison Buttercup, Cursed Crowsfoot, etc.)

Location: QLD, NSW, VIC, ACT, SA and TAS. Declared noxious weed in SA and WA.

Season: Annual that usually grows to 60cm.

Flowering occurs in Spring The flower has 5 yellow petals and 5 hairy bracts that are bent downwards.

Danger Level: Low danger.





Panicum (SPE) | Panicum spp [Poaceae]

Five species of Panicum have been associated with livestock and these are Giant Panic Grass (*Panicum antidotale*), Coolah Grass (*Panicum colaratum*), Guinea Grass (*Panicum maximum*), Millet Panic (*Panicum miliaceum*) and Red Switch Grass (*Panicum virgatum*).

Location: Located in all states.

Season: Annual or perennial. Distinguishing between the different panic grasses can be extremely difficult.

Danger Level: Low danger.

Noogoora Burr (CT) | Xanthium strumarium [Asteraceae]

(Cockly Burr, Hedgehog Burweed, Sheep's Burr, Ditchburr, Italian Cocklebur, Hunter Burr, Californian Burr, European Cocklebur, Large Cocklebur, Rough Cocklebur, etc.)

Location: Located in all states. Declared noxious weed in all states, except QLD.

Season: Annual that usually grows to 1m, but can occasionally grow to 2.5m. The plants produce two types of flowers in late Summer and Autumn.

Danger Level: Low danger.



Bathurst Burr (CT) | Xanthium spinosum [Asteraceae]

(Common Cocklebur, Spiny Cocklebur, Daggereed, Spanish Thistle, Burrweed, Prickly Burrweed, Thorny Burweed, Spiny Burweed, Clotbur, etc.)

Location: Located in all states. Declared noxious weed in all states, except QLD and ACT.

Season: Annual growing to 60cm, but it can occasionally grow to 1.2m. Produces two types of flowers in late Spring through to early Autumn.

Danger Level: Low danger.

Green Cestrum (CT) | Cestrum parqui [Solanaceae]

(Green Poisonberry, Willow Jasmine, Willow Leaved Jasmine, etc.)

Location: QLD, NSW, VIC, SA and ACT. Declared noxious weed in NSW, VIC and WA.

Season: Evergreen shrub that grows to 3m. Flowers throughout the year, but most appear in Spring. The tubular flowers are yellow.

Danger Level: Moderate danger.





Night Scented Jasmine (CT) | Cestrum nocturnum [Solanaceae]

(Lady of the Night, Night Jessamine, etc.)

Location: QLD, NSW, VIC and SA.

Season: Shrub that grows to 2.5m. Flowers in Summer and Autumn. The tubular flowers are greenish-white to yellow, and are fragrant during the night.

Danger Level: Low danger.

Day Jasmine (CAL) | Cestrum Diurnum [Solanaceae]

(Day Blooming Cestrum, Day Jessamine, White Cestrum, etc.)

Location: QLD and NSW.

Season: Shrub that grows to 2.5m. Flowers throughout the year. The tubular flowers are white or occasionally greenish-white, and they are fragrant during the day.

Danger Level: Moderate danger.



Oaks (TAN) | Quercus spp [Fagaceae]

Location: Located in all states, except NT.

Season: Deciduous or evergreen, and can range from 1-35m. Flowering occurs in Spring.

Danger Level: Moderate danger.

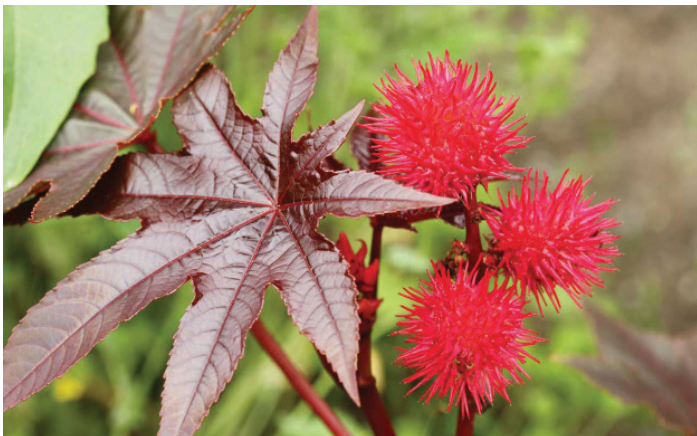
St John's Wort (QUI) | Hypericum perforatum [Clusiaceae]

Location: Located in all states, except NT. Declared noxious weed in NSW, VIC, TAS and WA.

Season: Perennial that usually grows 30-70cm. Flowering occurs during late Spring and Autumn.

Danger Level: Moderate danger.





Castor Oil Plant (LEC) | *Ricinus communis*
[Euphorbiaceae]

Location: Located in all states. Declared noxious weed in NSW, NT and WA.

Season: Perennial shrub that usually grows to 3m, but can occasionally grow to 4m. Flowering occurs in Summer. The flowers are elongated and grow in clusters near the tips of the branches.

Danger Level: Moderate danger.

Crab's Eye (LEC) | *Abrus precatorius*
[Fabaceae]

(Jequirity Bean, Rosary Bean, Gidee Gidee, etc.)

Location: QLD, NT and WA. Native to Australia.

Season: Deciduous climber that grows to 3.5m. Flowers are white to lilac-pink and flowering occurs in Summer.

Danger Level: Moderate danger.



Black Locust (LEC) | *Robinia pseudoacacia*
[Fabaceae]

Location: Located in all states, except NT.

Season: Deciduous tree that can grow 10-20m. Flowering occurs in Spring. The perfumed flowers are white, pink or purple.

Danger Level: Highly dangerous.

Bellyache Bush (LEC) | *Jatropha gossypifolia*
[Euphorbiaceae]

(Cotton Leaf Physic Nut, Black Physic Nut, etc.)

Location: QLD, NT and WA. Declared noxious weed in QLD, WA and NT.

Season: Shrub or small tree growing to 3m and occasionally to 4m. Flowering occurs in Summer and Autumn. The flowers have 5 purple or red petals with yellow centres.

Danger Level: Moderate danger.





Physic Nut (LEC) | *Jatropha curcas*

[Euphorbiaceae]

(Cuban Physic Nut, Brazilian Stinging Nut, Curcas Bean, Purge Nut, Black Vomit Nut, etc.)

Location: QLD and NT.

Season: Shrub or small tree growing to 4m. Flowering occurs throughout the year. The flowers are small and pale yellow to greenish in colour.

Danger Level: Moderate danger.

Allium (PD) | *Allium* spp [Alliaceae]

The *Allium* genus of plants includes onion, garlic, leek, shallot and chive. Three cornered garlic (*Allium triquetrum*) and crow garlic (*Allium vineale*) are declared noxious weeds in several states.

Location: Located in all states.

Season: Usually have an onion or garlic odour when crushed. The flowers are usually white or pink.

Danger Level: Low danger. However, take care when feeding garlic as a supplement, especially if fed over long periods.



Bracken (THI) | *Pteridium* spp

[Dennstaedtiaceae]

Location: Located in all states. Native to Australia and is considered a weed in most states.

Season: True fern that does not produce flowers or seeds.

Danger Level: Moderate danger.

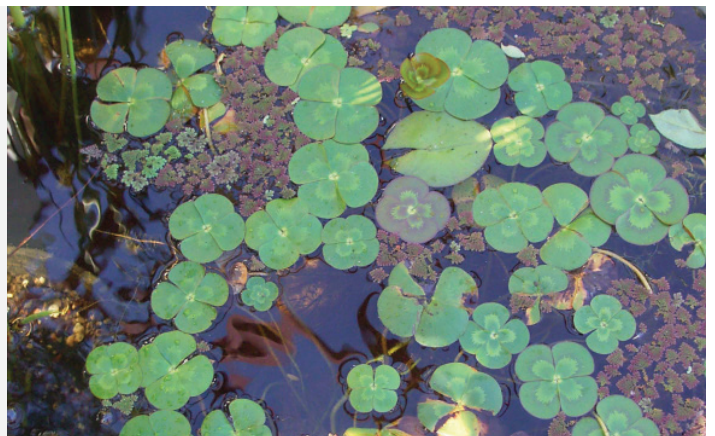
Nardoo (THI) | *Marsilea drummondii*

[Marsileaceae]

Location: Located in all states. Native to Australia.

Season: Aquatic perennial fern. Resembles a four-leaf clover.

Danger Level: Moderate danger.





Horsetails (THI) | Equisetum spp
[Equisetaceae]

Location: QLD, NSW, VIC and SA. Declared noxious weed in all states, except NT.

Season: Perennial that grows between 50cm and 1.2m, depending on the species.

Danger Level: Low danger.

False Caper (DIT) | Euphorbia terracina
[Euphorbiaceae]

(Geraldton Carnation Weed, Terracina Spurge, etc.)

Location: Located in all states. Declared noxious weed in SA and WA.

Season: Perennial. Flowering occurs in Spring and Summer. The flowers consist of several tiny male flowers and one female flower.

Danger Level: Low danger.



Petty Spurge (DIT) | Euphorbia peplus
[Euphorbiaceae]

(Milk Weed, etc.)

Location: Located in all states.

Season: Annual that grows to 50cm. Flowering occurs in Winter and Spring.

Danger Level: Low danger.

White Cedar (MEL) | Melia azedarach
[Meliaceae]

(Cape Lilac, Chinaberry, Persian Lilac, Texas Umbrella Tree, Tulip Cedar, Umbrella Cedar, etc.)

Location: Located in all states.

Season: Deciduous tree that usually grows to around 15m, but can grow taller. The tree bears mauve or lilac flowers in Spring to early Summer.

Danger Level: Moderate danger.





Black Bean (BB) | *Castanospermum australe*
[Fabaceae]

(Moreton Bay Chestnut, etc.)

Location: QLD, NSW and VIC. Native to Australia.

Season: Large tree that grows to 40m. The tree flowers in mid-late Spring, and bears sprays of red and yellow pea-shaped flowers.

Danger Level: Moderate danger.

Crofton Weed (CW) | *Ageratina adenophora*
[Asteraceae] (*Eupatorium adenophorum*, *Eupatorium glandulosum*, *Eupatorium pasdadense*, etc.)
(Catweed, Sticky Eupatorium, Mexican Devil, Sticky Snakeroot, etc.)

Location: Located in all states, except NT. Declared noxious weed in NSW and WA.

Season: Perennial that usually grows 1-2m, but can occasionally grow to 3m. Flowering usually occurs from Spring to early Summer in northern regions, and from late Summer to Autumn in southern regions.

Danger Level: Highly dangerous.



Mistflower (CW) | *Ageratina riparia*
[Asteraceae] (*Eupatorium riparium*, etc.)

(Creeping Crofton Weed, Small Crofton Weed, Cat's Paw, River Eupatorium, White Weed, etc.)

Location: QLD, NSW and VIC. Declared noxious weed in NSW, NT and WA.

Season: Perennial that usually grows 40-60cm, but can grow to 1m. Flowering usually occurs from late Winter to Spring, with most occurring mid-Spring. The flowers are very similar to Crofton Weed.

Danger Level: Highly dangerous.

Flatweed (AS) | *Hypochoeris radicata*
[Asteraceae] (*Hypochoeris radicata*, etc.)
(Catsear, False Dandelion, etc.)

Location: Located in all states, except NT.

Season: Perennial that grows to 80cm. Flatweed produces flowering stems that are bright yellow in Spring. The flowering stems die back when flowering has finished and the plant remains in a semi-dormant state as a rosette over Winter. New flowering stems are produced the following Spring.

Danger Level: Low danger.





Smooth Flatweed (AS) | *Hypochaeris glabra* [Asteraceae] (*Hypochaeris radicata*, etc.) (Smooth Catsear, etc.)

Location: Located in all states.

Season: Very similar to Flatweed above. Distinguishing feature is that Smooth Flatweed usually has hairless leaves, whereas Flatweed usually has hairy leaves.

Danger Level: Low danger.

Dandelion (AS) | *Taraxacum officinale* [Asteraceae] (Pissabed, etc.)

Location: Located in all states.

Season: Perennial that grows to 40cm. Flowers are bright yellow. The flowering stems die back when flowering has finished and the plant remains in a semi-dormant state as a rosette over Winter. New flowering stems are produced in the following Spring.

Danger Level: Low danger.



Blackberry Nightshade (NS) | *Solanum nigrum* [Solanaceae]

Location: Located in all states.

Season: Short-lived perennial shrub that grows to 1m. Flowering occurs in Spring and Summer. The plant produces round berries that are green when young and black or purple-black when mature. The berries measure up to 8mm across.

Danger Level: Moderate danger.

Apple of Sodom (NS) | *Solanum linnaeanum* [Solanaceae] (*Solanum hermannii*, *Solanum sodomeum*, etc.) (Dead Sea Apple, Bitter Apple, Poison Apple, Black-Spined Nightshade, etc.)

Location: Located in all states, except NT. Declared noxious weed in VIC, TAS and WA.

Season: Upright or spreading perennial shrub that usually grows to 1m. The plant flowers in Spring and Summer. The star-shaped flowers are usually purple and they appear in groups of 3-6 flowers.

Danger Level: Moderate danger.





Silverleaf Nightshade (NS) | Solanum

elaeagnifolium [Solanaceae]
(Bitter Apple, Silver Horsenettle, etc.)

Location: Located in all states. Declared noxious weed in all states, except NT and QLD.

Season: Perennial that usually grows 30-60cm. The plant flowers in late Spring and Summer. The star-shaped flowers can be purple, mauve, blue or violet, and they appear in groups of 1-4 flowers.

Danger Level: Moderate danger.

Buffalo Burr (NS) | Solanum rostratum

[Solanaceae]

(Spiny Nightshade, etc.)

Location: Located in all states, except NT. Declared noxious weed in VIC, NSW and WA.

Season: Upright or spreading annual that usually grows 20-50cm. Older plants can detach at ground level and become 'tumbleweeds'. The plant flowers in Spring and Summer. The star-shaped flowers are bright yellow and they appear in groups of 1-10.

Danger Level: Moderate danger.



Potato (NS) | Solanum tuberosum [Solanaceae]

Location: Located in all states.

Season: Green potato peelings are the most toxic part of this plant, particularly the peelings of sungreened potatoes. The leaves and other parts of the plant are also toxic.

Danger Level: Moderate danger.

Tomato (NS) | Lycopersicon esculentum

[Solanaceae]

Location: Located in all states.

Season: The leaves of the tomato plant and unripe tomatoes contain toxins that are potentially poisonous to horses.

Danger Level: Moderate danger.





Trefoil Rattlepod (CRO) | *Crotalaria medicaginea* var. *neglecta* [Fabaceae]
Formerly known as *C. trifolium*.

Location: Located in all states, except TAS and VIC.

Season: Annual or perennial that grows to 1m. Plant flowers throughout the year. The numerous pea-shaped flowers are yellow and sometimes streaked with red.

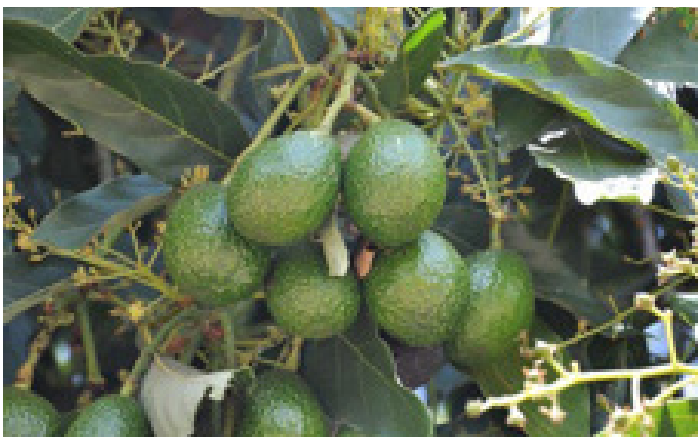
Danger Level: Moderate danger.

Chillagoe Horse Poison | *Crotalaria aridicola* ssp. *aridicola* [Fabaceae]
(Spiny Nightshade, etc.)

Location: QLD, WA and NT.

Season: Semi-upright perennial that grows 50-60cm. The plant flowers in Autumn to Winter. The pea-shaped flowers are yellow.

Danger Level: Moderate danger.



Avocado (PER) | *Persea americana* [Lauraceae]

Location: Located in all states, except TAS.

Season: Trees can be tall and upright or low and spreading, depending on the variety. The trees are evergreen, but the leaves shed and re-grow throughout the year. In cooler regions, the tree can be semi-deciduous. The tree has small greenish-yellow flowers that grow where the leaves join the branch. Flowering can occur at different times of year, depending on the variety.

Danger Level: Highly dangerous.

Coffee Senna (SEN) | *Senna occidentalis* [Fabaceae] Formerly known as *Cassia occidentalis*.
(Nigerian Senna, Ant Bush, Arsenic Bush, Sickie Pod, Stinkweed, Stinking Pea, Septicweed, etc.)

Location: Located in all states, except TAS. Declared noxious weed in NT and WA.

Season: Annual or biennial shrub that grows to 2.5m. Flowering occurs in Summer and Autumn. The 5 petalled flowers are bright yellow.

Danger Level: Moderate danger.





Sicklepod (SEN) | *Senna obtusifolia* [Fabaceae]

Formerly known as *Cassia obtusifolia* or *Cassia tora*. (Java Bean, Chinese Senna, Coffee Weed, Foetid Cassia, Arsenic Weed, etc.)

Location: QLD, NT and WA. Declared noxious weed in QLD, NT and WA.

Season: Annual or biennial shrub that can grow to 2.5m, but is usually less than 2m. Flowering occurs from late Summer through to early Winter. The 5 petalled flowers are bright yellow.

Danger Level: Moderate danger.

Red Clover (ALS) | *Trifolium pratense*
[Fabaceae]

Location: Located in all states, except NT.

Season: Depending on rainfall, but most flower in Winter and Spring. The pink or purple flower heads are spherical in shape.

Danger Level: Moderate danger.



Alsike Clover (ALS) | *Trifolium hybridum*
[Fabaceae]

Location: Located in all states, except QLD and NT.

Season: Depending on rainfall, but most flower in Winter and Spring. The white or pink flower heads are spherical in shape.

Danger Level: Moderate danger.

Privets (PRI) | *Ligustrum* spp [Oleaceae]

Location: QLD, NSW, ACT and VIC.

Season: Trees or shrubs ranging from 3-10m. All species are evergreen. Privet flowers are white or cream in colour and many are fragrant. Grown as garden ornamentals often.

Danger Level: Moderate danger.





Hardheads (ENE) | *Acroptilon repens* [Asteraceae] (*Centaurea repens*, etc.) (Russian Knapweed, Creeping Knapweed, Blueweed, etc.)

Location: Located in all states, except NT. Declared noxious weed in all states, except QLD, TAS and ACT.
Season: Perennial that usually grows to around 50cm, but can grow to 1m. The plant flowers in its second year during late Spring or Summer. Flowers are thistle-like, and purple, pink or occasionally white.
Danger Level: Highly dangerous.

St Barnaby's Thistle (ENE) | *Centaurea solstitialis* [Asteraceae] (Yellow Star Thistle, Golden Star Thistle, Yellow Cockspur, Knapweed, etc.)

Location: Located in all states. Declared noxious weed in WA, VIC and NSW.

Season: Annual or biennial that usually grows 30-60cm, but can grow to 90cm. The plant flowers in late Spring and Summer. The flowers consist of numerous yellow tubular florets.

Danger Level: Highly dangerous.



Gomphrena Weed (GOM) | *Gomphrena celosioides* [Amaranthaceae] (Soft Khaki Weed, etc.)

Location: Located in all states.

Season: Prostrate (creeping) annual or perennial that grows to 25cm. Flowering occurs in Spring and Autumn. The flower head appears at the end of the stems and it consists of a large number of crowded, small white flowers. The flowers are enclosed in shiny white papery bracts.

Danger Level: Moderate danger.

Small Flowered Mallow (SFM) | *Malva parviflora* [Malvaceae] (Marshmallow, etc.)

Location: Located in all states.

Season: Upright or sprawling annual that grows to 50cm. The plant flowers in Spring. The flowers can be mauve, pink or white and they are clustered in the leaf forks.

Danger Level: Low danger.





Red Maple (RM) | *Acer rubrum* [Aceraceae]

Location: Located in all states, except NT.

Season: A deciduous small to medium tree that can grow to 20m. The flowers are bright red. The plant produces clusters of fruit that are reddish in colour.

Danger Level: Highly dangerous.

Birdsville Indigo (BHD) | *Indigofera linnaei* [Fabaceae]

Location: Located in all states, except VIC and TAS.

Season: A spreading or prostrate (creeping) plant that grows to 50cm. The plant flowers throughout the year, usually after rain. Small red pea-shaped flowers.

Danger Level: Highly dangerous.



Creeping Indigo (BHD) | *Indigofera spicata* [Fabaceae]

Location: QLD, NT and NSW.

Season: Prostrate (creeping) plant that grows to 1m. Flowering occurs mostly in Spring. The flowers are pink or red.

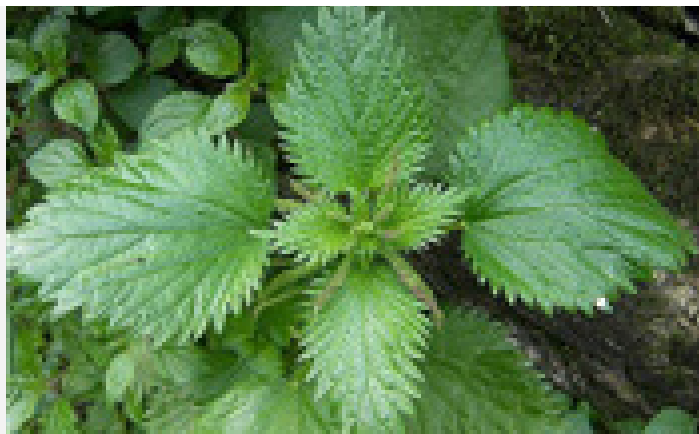
Danger Level: Highly dangerous.

Stinging Nettles (STI) | *Urtica* spp [Urticaceae]

Location: Located in all states.

Season: Annual or perennial plant that ranges from 60cm to 1.5m. The flowers are pale green or white and usually occur in Spring.

Danger Level: Low danger.





Gympie Stinger (GYM) | Dendrocnide

moroides [Urticaceae]
(Mulberry-Leaved Stinger, etc.)

Location: QLD and NSW.

Season: A native shrub that grows to 4m. The plant flowers in Summer, and the flowers are small and yellowish-green.

Danger Level: Highly dangerous.

Perennial Ryegrass (PRS) | Lolium perenne

[Poaceae]

Location: Located in all states.

Season: Densely tufted annual or short-lived perennial grass that grows to 80cm. The grass generally lies flat, but is upright during vigorous growth periods. The plant produces a flower spike that can be 10-25cm long.

Danger Level: Moderate danger.



Paspalum (PS) | Paspalum spp

[Poaceae]

Location: Located in all states.

Season: Tufted perennial that grows between 50cm-1.5m, but is usually around 1m. The plant produces one or more flower spikes that arise from the same stem.

Danger Level: Moderate danger.

Annual Ryegrass (RAT) | Lolium rigidum

[Poaceae]

Location: Located in all states.

Season: Annual that grows to almost 1m. The flowering stems are flat and grow to 30cm.

Danger Level: Moderate danger.





Blown Grass (RAT) | *Lachnagrostis filiformis*
[Poaceae] Formerly known as *Agrostis avenacea*.
Location: Located in all states.
Season: Upright or semi-upright annual or perennial grass that grows to 70cm.
Danger Level: Moderate danger.

Annual Beardgrass (RAT) | *Polypogon monspeliensis* [Poaceae]
Location: Located in all states.
Season: Loosely tufted annual that grows to 80cm.
Danger Level: Moderate danger.



TOXICITY CLASSIFICATION AND SYMPTOMS

Many of these groups have exactly the same broad clinical signs, so being able to identify weeds becomes an important part of clinical signs.

Pyrrolizidine alkaloid (PA)

Pyrrolizidine alkaloid poisoning can be acute or chronic, with the acute form being much less common.

Acute poisoning can occur through the accidental ingestion of significant amounts of toxic plants in contaminated hay or feed, or a horse may suffer acute poisoning when environmental conditions have allowed pyrrolizidine alkaloid plants to become the dominant species in pasture.

Chronic poisoning occurs when the horse ingests small amounts of the plants over time.

Signs of acute poisoning may include:

- > Food refusal
- > Depression
- > Jaundice (characterised by a yellow colouring of the mucous membranes)
- > Abdominal swelling
- > Signs of colic
- > Behavioural changes that may include nervousness or excitability
- > Death can occur in severe cases

Horses showing advanced signs of acute pyrrolizidine alkaloid poisoning rarely recover. Veterinary attention should be immediately sought if poisoning is suspected in your horse.

With chronic poisoning, signs may not appear for months or even years after the ingestion of pyrrolizidine alkaloid plants.

As loss of liver function gradually progresses, there is a corresponding progression in the severity of symptoms. When the liver is damaged to a critical point, liver failure progresses rapidly and death can occur soon after.

Signs of chronic poisoning may include:

- > Food refusal
- > Depression
- > Increasing signs of jaundice
- > Loss of condition
- > Secondary photosensitisation - redness and swelling of the skin in un-pigmented areas. (The nose, lips and around eyes are commonly affected. The skin may crack and weep fluid.)
- > Yawning
- > Head pressing - the horse may push its head against a wall or other surface
- > Incoordination
- > Aimless wandering
- > Death can occur in severe cases

There is no specific treatment for chronic pyrrolizidine alkaloid poisoning. Removal of the plants from the diet can slow the progression of symptoms. Horses with photosensitisation should be kept out of the sun to help the skin heal. Veterinary attention should be sought if chronic poisoning is suspected in your horse.

Tryptamine alkaloids (TA)

In most reported poisoning cases, the horse has been found dead in the paddock after no apparent ill health.

Of the few cases where owners were present, clinical signs included sudden instability, collapse and death. Another horse reared, collapsed then died and another galloped for 400m before collapsing and dying.

The action of the toxins found in these grasses is unknown, as post-mortems of affected horses have not shown conclusive findings. It is thought the cause of death might have been sudden heart failure.

If access to swainsonine-containing plants is restricted when symptoms first appear, there is a good chance the horse could make a full recovery.

Indolizidine alkaloids (IA)

Signs of poisoning do not usually occur until after the horse has consumed plants for at least 3-4 weeks.

Signs may include:

- > Depression
- > Circling
- > Incoordination
- > Unpredictable behaviour - some horses may fall down or rear while being ridden or otherwise handled

As the disease progresses, horses become increasingly depressed and some horses may appear to be asleep. The horse may become too weak to stand.

In severe cases, the horse may suffer convulsions followed by coma and death.

There are no current treatment options for swainsonine poisoning. If access to swainsonine-containing plants is restricted when symptoms first appear, there is a good chance the horse could make a full recovery.

However, if the symptoms are not recognised and the horse continues consuming swainsonine plants, the damage to the brain may be too extensive for the horse to fully recover. Such horses are dangerous to ride or handle because of their ongoing unpredictable behaviour.

Taxine alkaloids (TAX)

Horses will not intentionally eat the unpalatable leaves or seeds. Most horse poisoning cases have occurred when clippings have been placed in horse areas.

All parts of the plant are toxic and mature leaves in Winter are reported to be the most toxic. Horses are highly susceptible to poisoning by taxine alkaloids and only small amounts need be ingested for death to occur. In many reported poisoning cases, the horse has been found dead in the paddock.

The first signs of poisoning may appear within an hour of ingesting material from a yew tree and the progression of symptoms is rapid.

Signs may include:

- > Decreased tone in the lips and tail
- > Decreased blood flow - difficult to find an arterial pulse
- > Incoordination, staggering and trembling
- > The horse may appear paralysed
- > Breathing becomes difficult and noisy
- > In the final stages, the horse will collapse and die, either from heart failure or respiratory failure

There is no specific treatment for horses and, in most cases, death is likely to occur within 12 hours.

Veterinary attention should be immediately sought if it is suspected that a horse has suffered yew tree poisoning and supportive care may help with survival and subsequent recovery.

Tropane alkaloids (TROP)

Horses will not usually eat the unpalatable plants. Most reported cases occur through the ingestion of contaminated hay or other feedstuffs. However, horses may eat the plants if no other forage is available.

Signs and severity of tropane alkaloid poisoning varies between cases because of the variability in the type and amount of tropane alkaloids in particular plants.

The signs that may be seen include:

- > Loss of appetite
- > Depression
- > Colic
- > Rapid pulse and respiratory rate
- > Dilated pupils
- > Excessive thirst

In severe cases, death may occur within minutes, hours or days of ingesting the toxic plant material. Death can be due to respiratory paralysis, heart failure or rupture of the stomach. Veterinary attention should be sought if poisoning is suspected in a horse.

Piperidine alkaloids (PIP)

Signs of piperidine alkaloid poisoning include:

- > Muscle weakness
- > Incoordination - 'staggers'
- > Slobbering
- > Rapid pulse
- > Dilated pupils
- > Frequent urination and defecation
- > A distinctive 'mousey' odour on the breath

In severe cases, the horse may die from respiratory failure. There is no specific treatment available for hemlock poisoning in horses, but supportive veterinary care can assist with survival and subsequent recovery.

Quinolizidine alkaloids (QUIN)

The seeds and seedpods contain the highest concentration of toxic quinolizidines, but the leaves are also toxic.

The signs that may be seen in horses include:

- > Muscle tremors
- > Loss of appetite
- > Incoordination
- > Diarrhoea

Severely affected animals may die from respiratory failure. Veterinary attention should be sought if poisoning is suspected in a horse. Treatment and supportive care will help with recovery.

Pyridine alkaloids (PYR)

Signs of pyridine alkaloid poisoning include:

- > Muscle tremors and weakness
- > Excitement
- > Increased breathing rate
- > Incoordination
- > Coma, paralysis and death in severe cases

Mildly to moderately affected animals usually make a complete recovery. Affected horses should be kept in a quiet, safe area and veterinary attention should be sought.

Horses affected by chronic cyanide poisoning usually make a slow recovery once access to cyanogenic-containing plants has been removed.

Cyanogenic glycosides (CYA)

Cyanogenic glycosides can convert to the deadly toxin cyanide, also known as prussic acid.

Acute poisoning - signs develop rapidly after ingestion of the toxic plant material, with the first signs appearing within 10 minutes to an hour.

The signs that may be seen include:

- > Rapid breathing (hyperventilation)
- > Low blood pressure
- > Mucous membranes are characteristically bright red
- > Convulsions
- > Coma, respiratory failure and death

In the most severe cases, it may only be a matter of minutes between the onset of symptoms and death and, in other cases, there may be 1-2 hours before death occurs.

Chronic poisoning - chronic cyanide poisoning can occur if a horse consumes small amounts of cyanogenic glycoside plants over time. It is thought that low levels of cyanide damage parts of the spinal cord and long nerves.

The signs may include:

- > Hindlimb incoordination that is more noticeable when the horse is backed or turned
- > Urinary incontinence
- > Constipation
- > Weight loss

The horse may develop urinary tract infections that can be severe.

Horses affected by chronic cyanide poisoning usually make a slow recovery once access to cyanogenic glycoside plants has been removed. However, the prognosis may not be so good if hindlimb incoordination is advanced and/or serious urinary tract/kidney problems have developed.

Cardiac glycosides (CAR)

The ingestion of plant material containing cardiac glycosides can rapidly cause death in horses.

In many reported cases, the horse has been found dead in the paddock. Signs of poisoning appear soon after ingestion of toxic plant material.

Signs may include:

- > Colic
- > Lethargy and weakness
- > Diarrhoea
- > Abnormal heart beat and weak pulse
- > Cold extremities
- > Sweating
- > Shortness of breath
- > Death from heart failure usually occurs within 12-48 hours after ingestion of the toxic plant

There is no specific treatment available for cardiac glycoside poisoning. Immediate veterinary attention is critical. Horses that survive cardiac glycoside poisoning may be left with permanent damage to the heart.

In mild cases of protoanemonin poisoning, the affected horse will usually recover within a few days. In more severe cases, veterinary attention should be sought and treatment will aid recovery.

Protoanemonin (PRO)

Only poisonous in fresh plants because the toxins have converted to the non-toxic form, anemonin, in dried plants.

Signs of poisoning include:

- > Blistering and swelling of the skin in and around the mouth
- > Diarrhoea
- > Colic

In mild cases of protoanemonin poisoning, the affected horse will usually recover within a few days. In more severe cases, veterinary attention should be sought and treatment will aid recovery.

Steroidal saponins (STE)

The toxins reportedly cause liver disease with secondary photosensitisation in horses.

The signs that may be seen include:

- > Weight loss
- > Feed refusal
- > Photosensitisation - redness and swelling of the skin in unpigmented areas; the nose, lips and around eyes are commonly affected; the skin may crack and weep fluid
- > Lameness associated with photosensitisation of the skin near the coronary band has been reported to occur in some cases
- > Incoordination may develop in severe cases and death could occur

Affected animals should be removed from the pasture that contains panic grasses and veterinary advice should be sought.

Carboxyatractyloside (CT)

The seeds and first seedling leaves are the only parts of the plants that are toxic. Signs of carboxyatractyloside poisoning will not eat the burr.

The risk for poisoning in horses is through seed contamination of processed feeds or processed supplements, contamination of hay (although horses will usually selectively leave the burrs) or through the ingestion of seedlings.

Usually unpalatable to horses, however they may be eaten if other forage is scarce.

The signs that may be seen include:

- > Depression
- > Increased respiratory rate
- > Incoordination
- > Rigidity of limbs
- > Neck and limb muscle contractions
- > Convulsions, coma and death may occur in severe cases

There is no known treatment. Veterinary care should be sought if poisoning is suspected. In mild cases, the horse may make a full recovery with supportive veterinary care. In cases of severe liver disease, the prognosis is poor.

Calcinogenic glycosides (CAL)

The early signs of poisoning are subtle and may go unnoticed.

As the condition progresses, the signs that may be seen in horses include:

- > Depression
- > Weakness
- > Weight loss
- > Loss of appetite
- > Irregular and rapid heartbeat
- > Stilted gait progressing to lameness

A horse may lie down for prolonged periods. In severe cases, death can occur from heart and lung complications.

Mildly affected horses usually recover once the source of calcinogenic glycosides has been removed from the diet. Severely affected horses rarely recover to their previous level of performance and lameness problems may be permanent. Veterinary care should be sought if calcinogenic glycoside poisoning is suspected.

Severely affected horses rarely recover to their previous level of performance and lameness problems may be permanent.

Tannic acid (TAN)

The symptoms of oak poisoning can progress rapidly and the horse may die within days of the onset of symptoms.

The signs of oak poisoning include:

- > Depression
- > Weakness
- > Incoordination
- > Dehydration
- > Head pressing - the horse may push its head against a wall or other surface
- > Sweating
- > Diarrhoea
- > Red or brown urine
- > Convulsions then coma followed by death

Veterinary attention should be sought if oak poisoning is suspected in a horse.

Soluble oxalates (SOL)

Nutritional Secondary Hyperparathyroidism or 'Big Head'. This condition is primarily a problem in the northern areas of Australia.

Native grasses and many introduced temperate grasses are not associated with Big Head, and are safe to use as pasture species for horses. The soluble oxalates in introduced tropical grasses combine with calcium to form insoluble calcium oxalate crystals.

The formation of these crystals reduces the absorption of calcium from ingested fodder and alters the calcium to phosphorus ratio in the diet. In effect, the horse suffers a calcium deficiency.

This deficiency causes mobilisation of bone calcium to compensate for low blood calcium levels. Over time, the bones lose so much calcium they become soft and misshapen. Some or all horses grazing the same pasture may be affected.

Mares and foals have been reported to be more susceptible than stallions or geldings, but all horses can be affected.

The soluble oxalate content of tropical grasses is highest in periods of rapid pasture growth. Signs of the condition usually develop after 6-8 months of grazing soluble oxalate pastures. Some cases have been reported to occur after only two months.

Signs may include:

- > Stiff and shortened gait
- > Joint tenderness
- > Loss in condition even when plenty of pasture is available
- > Swollen jawbones - the upper, lower or both jawbones can be affected

Removal of the horse from the soluble oxalate pasture should see the resolution of lameness problems and the horse should regain condition. Facial swelling should also resolve, unless it is severe. If the swelling is severe supplements, are needed to reduce the bone swelling.

Quinones (QUI)

The toxin in St John's Wort is highest in the plant during rapid growth in Spring through to the end of flowering. Horses grazing pastures heavily infested with St John's Wort can develop photosensitisation within days of initial exposure.

Signs of poisoning may include:

- > Redness and swelling of the skin - the nose, lips, lower legs and the areas around the eyes are most commonly affected; the skin may blister, crack and weep fluid
- > The horse may appear to be sensitive to light
- > Lameness may occur in severe cases where skin damage occurs on the coronet and around joints
- > Some horses may appear restless
- > Diarrhoea

The skin usually heals when access to St John's Wort is restricted. The horse should be kept out of direct sunlight while the skin heals. Veterinary attention should be sought.

Lectins (LEC)

All parts of plants containing lectins are poisonous, but most cases of poisoning are associated with the ingestion of seeds, as this part of the plant contains the highest levels of toxins.

Poisoning is often the result of seed contamination of grain. The signs of poisoning can appear within hours or days after ingestion of the toxic plant material.

The signs that may be seen include:

- > Loss of appetite
- > Colic
- > Diarrhoea - in severe cases, the diarrhoea contains blood
- > Weight loss
- > Dehydration
- > In cases of black locust poisoning, the horse may have dilated pupils and develop heart irregularities

In severe cases of lectin poisoning where the horse has not received prompt treatment, death may occur through hypovolemic shock. There is no specific treatment for lectin poisoning. Veterinary attention should be sought. Horses do not often die from the ingestion of lectin-containing plants.

The toxin in St John's Wort is highest in the plant during rapid growth in Spring through to the end of flowering. Horses grazing pastures heavily infested with St John's Wort can develop photosensitisation within days of initial exposure.

Propyl disulphide (PD)

Signs of poisoning include:

- > Dark red-brown urine
- > Pale mucous membranes
- > Increased heart rate
- > Staggering and partial paralysis in severe cases
- > 'Onion breath' is a distinctive sign

Horses generally recover over the course of several weeks if the source of the propyl disulfide is removed. Abortion has been reported in pregnant mares suffering significant anaemia.

Thiaminase (THI)

Usually, the plant is unpalatable to horses. Poisoning could occur if horses are fed hay contaminated with plants containing thiaminase.

The symptoms are progressive and appear in the general order of :

- > Rapid weight loss, even if the horse has a good appetite
- > Lethargy
- > Irregular heart rate
- > Incoordination when asked to walk, 'staggers'
- > Wide stance with arched back.
- > The horse may appear to be 'crouching'
- > Severe tremors may develop and the horse may be unable to rise if it falls down
- > Pulse becomes fast and weak
- > The horse may lie down, convulse and die

After the initial symptoms appear, the disease progresses rapidly and, without veterinary attention, the horse may die within 2-10 days.

[Diterpene esters] are usually unpalatable to horses, but may be eaten if other pasture is scarce. Poisoning could also occur through the ingestion of contaminated hay.

Diterpene esters (DIT)

Diterpene esters are present in the sap of plants of the genus Euphorbia. The sap in euphorbias is toxic in fresh or dried plants. Most species have relatively low toxicity and cause only mild effects if ingested.

The plants are usually unpalatable to horses, but may be eaten if other pasture is scarce. Poisoning could also occur through the ingestion of contaminated hay.

The onset of symptoms can occur within minutes of ingestion of euphorbia plant material containing high levels of diterpene esters.

Signs may include:

- > Irritation and blistering of the mouth and the skin around the mouth
- > Salivation
- > Colic and diarrhoea can occur in severe cases

Topical ointments can be used to treat skin irritation. Veterinary attention should be sought, especially if symptoms are severe.

Meliatoxins (MEL)

All parts of the tree are extremely poisonous, but it is thought the fruits are most toxic.

Signs of poisoning may include:

- > Diarrhoea and straining
- > Colic
- > Excess salivation
- > Incoordination and excited behaviour
- > Seizures
- > Depression
- > Paralysis, coma and death

Signs of poisoning usually appear within two hours of ingestion and the symptoms are progressive. Immediate veterinary attention should be sought. Once the symptoms become severe, there is little chance of recovery.

Black bean (BB)

The ripe seeds of this tree contain an unknown toxin or toxins.

Signs of poisoning that may be seen include:

- > Depression
- > Weight loss
- > Diarrhoea that may contain blood; the faeces may appear dark and 'tarry'
- > Laboured breathing
- > Frequent urination
- > Sudden death can occur in some rare cases

Veterinary attention should be sought if poisoning is suspected in a horse.

Crofton Weed (CW)

Crofton weed poisoning in horses is known as 'Numinbah horse sickness' in New South Wales and 'Tallebudgera horse disease' in Queensland.

The symptoms of poisoning may develop after only a few weeks or after several months of grazing infested pasture.

Signs include:

- > Coughing, particularly during exercise
- > Exercise intolerance
- > Depression
- > Loss of condition
- > Laboured breathing
- > Respiratory failure leading to death

There is no known treatment for the condition and lung damage caused by these plants is largely permanent.

Moderately to severely affected horses may never again be capable of strenuous exercise and may be at risk of sudden respiratory failure if forced to exercise. Veterinary attention should be sought.

Australian stringhalt usually occurs in late Summer or early Autumn, and it most commonly occurs after a break in dry weather or drought conditions. Horses that graze poor quality pastures infested with a high concentration of the weeds seem to be most at risk.

Australian stringhalt (AS)

It is thought the development of Australian stringhalt may involve particular environmental factors or the growth of a soil fungus on the suspected weeds.

Australian stringhalt usually occurs in late Summer or early Autumn, and it most commonly occurs after a break in dry weather or drought conditions. Horses that graze poor quality pastures infested with a high concentration of the weeds seem to be most at risk.

The toxin or toxins that cause stringhalt in horses are unknown. The symptoms seen with this condition are a consequence of damage to the long nerves. The symptoms usually appear abruptly and may worsen over several weeks.

Signs of Australian stringhalt are involuntary flexion and delayed extension of the hocks. This exaggerated flexion of the hind limbs is more noticeable when backing or turning and the flexion can be so severe the front of the fetlock may strike the belly.

Horses sometimes adopt a 'bunny hop' gait. Both hind limbs are usually affected and the forelimbs are occasionally affected. Wasting of the muscles can occur around the hindquarters and occasionally around the forelimbs.

'Roaring' may develop if the nerves supplying the larynx are affected. Horses will usually recover if moved to paddocks that are free of flatweed and other suspected weeds.

The recovery time varies and may take days or up to 18 months, with the average recovery time being 6-12 months. Veterinary attention should be sought if Australian stringhalt is suspected in a horse.

Nightshades (NS)

Solanums are grown as garden ornamentals or for food (potatoes) and many species are important agricultural weeds. The closely-related tomato plant (*Lycopersicon esculentum*) contains toxins similar to those in plants of the *Solanum* genus.

The toxic effect that ingested solanum plant material will have on a horse depends on the species, the stage of growth of the plant, the part of the plant eaten and the amount of plant material consumed.

In general, the leaves and green fruits of solanums are the most toxic parts of the plants. Most solanum plants are unpalatable, but they may be eaten if no other forage is available. Poisoning could also occur through the ingestion of contaminated hay.

Signs of poisoning may include:

- > Depression
- > Drowsiness
- > Dilated pupils
- > Salivation
- > Laboured breathing
- > Incoordination
- > Muscle weakness
- > Involuntary urination
- > Convulsions
- > Paralysis
- > Colic
- > Diarrhoea that contain blood
- > Constipation and intestinal stasis

Veterinary attention should be sought. Mild to moderately affected horses should make a full recovery with supportive veterinary care.

In general, the leaves and green fruits of solanums are the most toxic parts of the plants. Most solanum plants are unpalatable, but they may be eaten if no other forage is available. Poisoning could also occur through the ingestion of contaminated hay.

Senna SEN

The toxins in plants of the Senna genus have not been identified. All parts of the plants are toxic, especially the seeds. The plants are unpalatable to horses and are usually avoided. Poisoning could occur through contamination of grain with senna seed or plant material.

Signs of senna poisoning include:

- > Depression
- > Muscle tremors
- > Incoordination and swaying gait
- > Shortness of breath
- > Heart irregularities
- > Death

Senna poisoning in horses is uncommon, but is usually fatal. Veterinary attention should be sought immediately if senna poisoning is suspected.

Avocado (PER)

All parts of avocado trees are poisonous to horses, but the leaves contain the highest levels of toxins. The leaves of avocado trees are toxic even when fallen and dried. The toxin in avocado trees is called persin, but the mechanism by which it causes toxicity in animals is not known.

The signs of avocado poisoning in horses are variable and may include:

- > Non-infectious mastitis and reduced milk production in lactating mares
- > Swelling of the lips, mouth, head, neck and chest
- > Colic
- > Diarrhoea
- > Lethargy
- > Loss of appetite
- > Shortness of breath and heart problems in severe cases

Severely affected horses may die suddenly from heart failure or respiratory failure. Veterinary attention should be sought immediately.

Most horses fully recover from avocado poisoning, although milk production may not return to normal levels in lactating mares. Horses displaying signs of heart and lung damage may have ongoing complications.

Chillagoe horse disease (CRO)

Horses will readily eat these species of crotalaria and may selectively graze the plants even when other forage is available. Horses are at an increased risk of developing Chillagoe horse disease when rain produces a flush of growth in these plants.

- > Signs of Chillagoe horse disease:
- > Ulceration of the oesophagus
- > Frequent licking of lips
- > Teeth grinding
- > Drooling
- > Unable to swallow food or water in severe cases

Severely affected horses can die if the oesophagus becomes completely blocked. Veterinary attention should be sought. Affected horses should be removed from pastures containing crotalaria.

Chewing disease (ENE)

Prolonged ingestion can result in a disease called equine nigropallidal encephalomalacia (ENE) or 'chewing disease'. The exact mechanism of poisoning is not completely understood.

Symptoms of poisoning in horses can occur after long periods (i.e. 1-2 months) consuming significant amounts of the plants. Horses will eat these plants if there is little alternative fodder and poisoning could occur if large amounts of the plants are consumed as contaminants of hay.

The signs that may be seen include:

- > Apparent inability to eat or drink - the horse may have trouble getting food into the mouth; the food often dribbles out of the mouth; the horse is able to swallow, but is unable to get food into a position for swallowing
- > Dehydration
- > Depression
- > Frequent yawning and lip curling.
- > Muscle tremors and incoordination are seen in some cases

No treatment options are available for this disease at present and the damage to the brain is thought to be irreversible. Once the symptoms occur, the disease is fatal and the horse will die of starvation if not humanely euthanased.

Red clover and alsike clover (ALS)(CW)

There is some evidence the toxic effects may be caused by a mycotoxin-producing fungus that is commonly associated with these clovers. The horse seems to be the only animal species susceptible to poisoning by red clover and alsike clover.

The condition can occur at any time of year, but it seems to occur most often after an unusually long and wet Spring. The effects of the toxins are cumulative and signs of poisoning can appear within 2-4 weeks of ingesting red clover or alsike clover but, in some cases, it may be months before signs appear.

The signs of poisoning are variable and may include:

- > Photosensitisation - redness and swelling of the skin in unpigmented areas; the nose, lips and around the eyes are areas commonly affected; the skin may crack and weep fluid
- > Depression
- > Aimless wandering
- > Head pressing - the horse may push its head against a wall or other surface
- > Incoordination
- > Loss of appetite
- > Yawning
- > Muscle tremors
- > Mild colic
- > Blindness
- > Inability to swallow
- > In severe cases, the horse may progress to episodes of violent excitation, then coma and death

There is no specific treatment for red clover and alsike clover poisoning. Veterinary attention should be sought if red clover or alsike clover poisoning is suspected in a horse.

Mild cases will usually recover if the toxic clover is removed from the diet. Horses displaying signs of photosensitisation should be kept out of the sun to help the skin heal. Horses showing signs of advanced liver disease have little chance of survival.

Privets (PRI)

All parts of the plant are thought to be poisonous and the risk of poisoning may be highest when new growth occurs in Spring.

The signs of privet poisoning are variable and are not well documented in horses, but may include:

- > Colic
- > Diarrhoea
- > Nasal discharge
- > Incoordination
- > Possible lung and heart problems - in severe cases, sudden death from heart failure can occur

Immediate veterinary treatment should be sought if privet poisoning is suspected in a horse. Very few animals poisoned by privet have survived.

Gomphrena weed (GOM)

Gomphrena weed poisoning is uncommon as the plants are usually unpalatable and a large amount must be eaten before signs of poisoning appear.

Signs of gomphrena weed poisoning include:

- > Depression
- > Gait abnormalities - the horse may sway and drag its hind feet when walking
- > Difficulty turning
- > Incoordination - the horse may fall and be unable to rise
- > Muscle tremors
- > Convulsions followed by death

In mild cases, the horse will recover if access to gomphrena weed is removed. Veterinary attention should be sought if gomphrena weed poisoning is suspected in a horse.

Small flowered mallow (SFM)

The toxin in this plant is unknown. Young animals seem to be most at risk.

Signs of small flowered mallow poisoning include:

- > Profuse sweating
- > Rapid breathing
- > Incoordination - 'stagers'
- > Muscle tremors

Symptoms worsen when the horse is forced to move or is otherwise stressed. Most horses recover when rested and access to small flowered mallow is restricted.

Veterinary attention should be sought if small flowered mallow poisoning is suspected in a horse.

Red maple (RM)

The bark and the dried or wilted leaves of red maple are known to be toxic to horses. Fresh green leaves are not toxic to horses.

Signs of red maple poisoning include:

- > Feed refusal
- > Weakness and depression
- > Increased respiratory rate and heart rate
- > Blue or purplish tinge to the skin, due to deficient oxygen in the blood
- > Jaundice (characterised by a yellow colouring of the mucous membranes)
- > Red-brown urine
- > Abortion in pregnant mares
- > Coma and death

Veterinary attention should be immediately sought if red maple poisoning is suspected in a horse. Horses with advanced signs of red maple poisoning have little chance of survival.

Birdsville horse disease (BHD)

The ingestion of these plants can cause poisoning in horses and such cases are said to be suffering 'Birdsville horse disease'. Signs of poisoning appear after around 10 days of grazing the plant.

The signs include:

- > Depression
- > Loss of appetite
- > Progressive incoordination
- > Splayed stance
- > Dragging of hind feet
- > Head and tail elevation
- > The horse may lose control of its hindquarters and fall when stressed or when cantering
- > In severe cases, the horse may lie down and death may follow

Veterinary attention should be sought if Birdsville horse disease is suspected in a horse. An affected animal should be kept calm and should be contained in a safe area to avoid injury brought about by its incoordination. Horses showing severe signs of incoordination have little chance of survival.

Veterinary attention should be immediately sought if red maple poisoning is suspected in a horse. Horses with advanced signs of red maple poisoning have little chance of survival.

Stinging nettles (STI)

The hairs of stinging nettles can cause intense irritation on contact. The hairs contain toxins that are a mixture of histamines and amines. All stinging nettles have the potential to act as irritants.

Horses will normally avoid stinging nettles, but the risk of exposure is high in paddocks containing large infestations of the weed.

Signs of stinging nettle poisoning include:

- > Skin irritation and discomfort
- > Hives may be seen around the muzzle if the plant is accidentally contacted while grazing
- > Hives can appear on any body part if the horse has rolled in a patch of stinging nettles
- > Incoordination and muscle weakness in severe cases

Symptoms of exposure to stinging nettles usually resolve within a few hours. In horses showing severe symptoms, veterinary attention should be sought. The administration of sedatives and analgesics will reduce discomfort.

Gympie stinger (GYM)

The stalks and leaves of the Gympie stinger are covered in tiny stinging hairs that contain a toxin called moiridin. If the stinging hairs penetrate the skin, the toxin causes intense pain that can last for days.

Signs of gympie stinger poisoning include:

- > Initial tingling sensation developing into intense pain
- > Horses have been reportedly driven to frenzy and self destruction by the pain

There are no known options for treatment and reports in the literature suggest that affected horses have not survived the self-destructive behaviour brought on by the pain of the toxin in this plant.

Perennial ryegrass staggers (PRS)

Recent research has shown almost all perennial ryegrass that grows in Australia contains mycotoxin-producing endophyte fungi.

Signs of perennial ryegrass staggers include:

- > The horse may appear normal while grazing, but will startle to sudden stimuli
- > If handled or otherwise disturbed, the horse may tremble and appear uncoordinated
- > If the horse is asked to move the legs may splay and hind limb flexion is exaggerated
- > The horse may collapse and then get back to its feet after a few minutes

Perennial ryegrass staggers usually resolves once access to ryegrass pasture has been removed. The risk to horses is injury caused by uncoordinated movements or a panicked response to stimuli. Veterinary attention should be sought if perennial ryegrass staggers is suspected in a horse.

Corynetoxins (RAT)

Corynetoxins are toxins produced by the bacteria *Rathayibacter toxicus*. This bacterium normally lives in the soil, but it can sometimes infect the seed heads of certain grasses.

Seed heads may look normal or they may be somewhat twisted and deformed, and some may exude a yellow slime. Grasses containing corynetoxins are poisonous to all livestock species. Horses are at risk if they ingest the infected grasses, the stubble after hay has been cut, or the hay of infected grasses.

Hay cut from infected grasses can remain toxic for years. The grasses that have been known to accumulate corynetoxins in Australia are annual ryegrass, blown grass and annual beardgrass.

Signs of corynetoxin poisoning occur abruptly and include:

- > Muscle tremors and shivering.
- > Incoordination, stumbling, stiff legged gait
- > Wide stance
- > Convulsions and death

Affected animals should be moved to a quiet area, and should be supplied with water and good quality food. Veterinary attention should be sought immediately if corynetoxin poisoning is suspected in horses. Horses that survive corynetoxin poisoning can take up to a month to make a full recovery.

In Australia, the main risk of a horse developing ergotism is through the ingestion of paspalum that has been infected with the fungi *Claviceps paspali*. Such horses are said to be suffering 'paspalum staggers'.

Paspalum staggers (PS)

Growth of fungi from the genus *Claviceps* on grass flower heads produces a substance known as honeydew. Honeydew is a sweet liquid that contains spores of the fungus. The honeydew is spread between grass flowers by insects.

Once the fungi have spread to new plants, the spores grow in the flower head and form an endophyte structure that is called an ergot. The ergot falls off the plant and remains in the soil over Winter.

In the following Spring, the ergot forcibly ejects spores to infect developing grass flower heads and the cycle starts over. Horses suffering the toxic effects of ingesting ergots are said to be suffering 'ergotism'.

In Australia, the main risk of a horse developing ergotism is through the ingestion of paspalum that has been infected with the fungi *Claviceps paspali*. Such horses are said to be suffering 'paspalum staggers'.

Paspalum staggers produces signs that are identical to the signs of perennial ryegrass staggers which include:

- > The horse may appear normal while grazing, but will startle to sudden stimuli
- > If handled or otherwise disturbed, the horse may tremble and appear uncoordinated
- > If the horse is asked to move the legs may splay and hind limb flexion is exaggerated
- > The horse may collapse and then get back to its feet after a few minutes

Paspalum staggers usually resolves once access to paspalum pasture has been removed. The risk to horses is injury caused by uncoordinated movements or a panicked response to stimuli.

The horse should be kept in a quiet, secure area to prevent excitement and possible injury. Veterinary attention should be sought if paspalum staggers is suspected in a horse.