

CAUSES OF LIVER DISEASE IN HORSES	
Toxic causes	
pyrrolizidine alkaloid toxicosis (e.g., <i>Senecio spp.</i> , <i>Amsinckia spp.</i>)	
alsike clover	
Panicum grasses	
Excess iron intake	
Mycotoxins – rarely cause liver failure	
Infectious causes:	
Cholangiohepatitis	
Tyzzler's disease	
Inflammation	
chronic active hepatitis	
neoplasia	
granulomatous disease	
Metabolic causes	
hepatic lipidosis	
hyperammoninemia in horses with gastrointestinal diseases	
hyperammoninemia in Morgan foals	
Obstruction	
biliary stones	
right dorsal colon displacements	
papillary stricture – foals with duodenal ulcers	
neoplasia	
hepatic torsion	
portal vein thrombosis	
Theiler's disease	
following neonatal isoerthrolysis	

SIGNS OF LIVER DISEASE IN HORSES
Weight loss

Anorexia
 Nervous symptoms
 Jaundice
 Increased heart rate
 Abdominal pain
 Ventral oedema
 Muscle tremors
 Diarrhoea/constipation
 Trouble swallowing
 Photosensitization, pruritis
 Orange/red urine & frequent urination
 Haemorrhage in gums, eyelids and nose bleeds

usually in white areas of the muzzle & legs, but eyes & other membranes may be affected

PLANTS ASSOCIATED WITH LIVER DISEASE IN HORSES	Botanical name	Distribution in Australia
Onion	<i>Allium cepa</i>	WA, NT, Q, SA, NSW, Vic, Tas
Chives	<i>Allium schoenoprasum</i>	WA, NT, Q, SA, NSW, Vic, Tas
Death cup	<i>Amanita phalloides</i>	ACT
Red shank	<i>Amaranthus cruentis</i>	Q, SA, NSW, Vic
Pig root	<i>Sisyrinchium iridifolium</i>	Q, NSW, Vic
Capeweed	<i>Acrctotheca calendula</i>	WA, NT, Q, SA, NSW, Vic, Tas
Mexican poppy	<i>Argemone mexicana</i>	WA, NT, Q, SA, NSW, Vic
Redhead cottonbush	<i>Asclepias currassivica</i>	WA, Q, NSW, Vic
Doolan	<i>Acacia salicina</i>	NT, Q, SA, NSW, Vic
Golden mould	<i>Aspergillus flavus</i>	WA, NT, Q, NSW
Byfield fern	<i>Bowenia serrulata, B spectabilis</i>	Q
Corn gromwell	<i>Bulbine alata</i>	Q, SA
Verbena	<i>Callicarpa longifolia</i>	Q
Green cestrum	<i>Cestrum diurnum</i>	WA, NT, Q, SA, NSW, Vic, Tas
Orange-flowered cestrum	<i>C parqui</i>	Q, NSW, Vic
Gall on annual ryegrass	<i>Corynebacterium rathyi (on rye grass)</i>	WA, SA, NSW, Vic
Sunn Hemp	<i>Crotalaria juncea</i>	NT, Q
Bird flower	<i>Crotalaria laburnifolia</i>	Q
Rattlepod	<i>Crotalaria linifolia,</i>	NT, Q
Yellow rattlepod	<i>C mitchellii</i>	Q, NSW

New Holland rattlepod	<i>C novae-hollandiae</i>	NT, Q, SA
Wedge-leaf rattlepod	<i>C retusa</i>	WA, NT, Q
Yellow rattlepod	<i>C smithiana</i>	NT, Q, SA, NSW
Rattlepod	<i>C medicaginea</i>	WA, NT, Q, NSW
Rubber vine	<i>Cryptostegia grandiflora</i>	Q
Prickly paddymelon	<i>Cucumis myriocarpus</i>	WA, NT, Q, SA, NSW, Vic
Zamia	<i>Cycas species</i>	WA, NT, Q
Emu bush	<i>Eremophila latrobei</i>	WA, NT, Q, SA, NSW
Berrigan	<i>Eremophila longifolia</i>	NT, Q, SA, NSW, Vic
Drooping ironbark	<i>Eucalyptus caleyi</i>	Q, NSW
Mist flower	<i>Eupatorium riparium</i>	Q, NSW
Naked lady	<i>Euphorbia tirucalli</i>	WA, NT, Q, SA, NSW, Vic, Tas
Rock, mallet, river, berry, horned, runner poison	<i>Gastrolobium species</i>	WA, NT, Q
Cotton	<i>Gossypol hirsutum</i>	WA, NT, Q, SA, NSW, Vic, Tas
Bitter weed	<i>Helenium amarum</i>	Q
Woolly everlasting	<i>Helichrysum blandowskianum</i>	SA, NSW, Vic
Heliotrope	<i>Heliotrope species</i>	WA, Q, SA, NSW, Vic
Wax flower	<i>Hoya australis</i>	WA, NT
Australian indigo	<i>Indigofera australia</i>	WA, Q, SA, NSW, Vic, Tas
Creeping indigo	<i>Indigofera spicata</i>	Q
Shrubby morning glory	<i>Ipomoea carnea</i>	WA, NT, SA, NSW
Poison sage	<i>Isotropis atropurpurea</i>	WA, NT, Q, SA, NSW
Lamb poison	<i>Isotropis cuneifolia</i>	WA
Button weed	<i>Ixiolaena brevicompta</i>	Q, SA, NSW
Zamia	<i>Lepidozamia hopei</i>	Q
Saw-fly larvae (infecting iron barks)	<i>Lophyrotoma interrupta</i>	Q
West Australian blue lupins	<i>Lupinus cosentini</i>	WA, SA
Yellow lupin	<i>Lupinus luteus</i>	WA
Wild pineapple	<i>Macrozamia species</i>	WA, NT, Q, NSW
Milk vine	<i>Marsdenia rostrata</i>	Q, NSW, Vic
Flax-leaf paperbark, snow-in-summer	<i>Melaleuca linariifolia</i>	NT, Q, NSW
White cedar	<i>Melia azedarach</i>	Q, NSW
Morgan flower	<i>Morgania floribunda</i>	WA, NT, Q, SA, NSW
Boobialla	<i>Myoporum species</i>	WA, NT, Q, SA, NSW, Vic, Tas

Water bloom	<i>Nodularia spumigena</i>	WA, NT, Q, SA, NSW, Vic, Tas
Granite, slender, box, marlock, rigid-leaf, Roe & brother poison	<i>Oxylobium species</i>	WA
Native millet	<i>Panicum decompositum</i>	WA, NT, Q, SA, NSW, Vic
Hairy panic	<i>P effusum</i>	WA, NT, Q, SA, NSW, Vic, Tas
Guinea grass	<i>P maximum</i>	WA, NT, Q, NSW
French millet	<i>P miliaceum</i>	WA, NT, Q, SA, NSW, Vic, Tas
Yabia grass	<i>P queenslandicum</i>	Q, NSW
Sweet grass	<i>P schinzii</i>	WA, Q, NSW, Vic
Pepper grass	<i>P whitei</i>	WA, NT, Q, SA, NSW
White passion flower	<i>Passiflora subpeltata</i>	Q, NSW
Blue moulds	<i>Penicillium species</i>	WA, NT, Q, SA, NSW, Vic, Tas
Australian phalaris	<i>Phalaris aquatica</i>	WA, Q, SA, NSW, Vic, Tas
Lupin mould	<i>Phomopsis on lupins</i>	WA, Q, SA, NSW
Pokeweed	<i>Phytolacca americana</i>	WA, NT, Q, SA, NSW, Vic, Tas
Flaxweed	<i>Pimelea elongata, P continua, P trichostachya</i>	WA, NT, Q, SA, NSW, Vic, Tas
Queen-of-the-bush	<i>P linifolia</i>	Q, SA, NSW, Vic, Tas
Desert rice flower	<i>P simplex</i>	Q, SA, NSW, Vic
Rye grass fungus	<i>Pithomyces chartarum</i>	WA, Q, SA, NSW, Vic, Tas
Wild radish	<i>Raphanus raphanistrum</i>	WA, NT, Q, SA, NSW, Vic, Tas
Castor oil plant	<i>Ricinus communis</i>	WA, NT, Q, SA, NSW, Vic
Commonwealth weed	<i>Senecio bipinnatisectus</i>	Q, SA
Dusty miller	<i>S cineraria</i>	WA, NT, Q, SA, NSW, Vic, Tas
Ragwort	<i>S jacobaea</i>	WA, SA, NSW, Vic, Tas
Fireweed	<i>S linearifolius</i>	NSW, Vic, Tas
African daisy	<i>S pterophors</i>	SA, Vic
Cotton fireweed	<i>S quadridentatus</i>	WA, NT, Q, SA, NSW, Vic, Tas
Groundsel	<i>S vulgaris</i>	WA, SA, NSW, Vic, Tas
Setaria	<i>S anceps, S sphacelata, S trinervia</i>	WA, Q, SA, NSW
Narrawa burr	<i>Solanum cinereum</i>	Q, SA, NSW, Vic
White horenettle, silver-leaf nightshade	<i>S elaeagnifolium</i>	Q, SA, NSW, Vic
Wild tomato	<i>S quadriculatum</i>	NT, Q, SA
Brazilian nightshade	<i>S seafortianum</i>	Q, NSW
Russian comfrey	<i>Symphytum uplandicum</i>	WA, NT, Q, SA, NSW, Vic, Tas
Yellow wood	<i>Terminlia oblongata</i>	Q

Peach-leaf poison bush	<i>Trema aspera</i>	WA, NT, Q, NSW
Caltrop	<i>Tribulus terrestris</i>	WA, NT, Q, SA, NSW, Vic
Camel bush	<i>Trichodesma zeylanicum</i>	WA, NT, Q
Supple jack	<i>Ventilago viminalis</i>	WA, NT, Q, NSW
Crownbeard	<i>Verbesina encelioides</i>	Q, NSW, Vic
Broad bean	<i>Vicia faba</i>	SA, NSW
Yellow daisy	<i>Wedelia asperrima</i>	NT, Q
Californian burr	<i>Xanthium californicum</i>	SA, NSW, Vic
Cockle burr	<i>X. cavanillesii</i>	NSW
Noogoora burr	<i>X. pungens</i>	NT, Q, SA, NSW, Vic
Bathurst burr	<i>X. spinosum</i>	WA, NT, Q, SA, NSW, Vic

Plants containing pyrrolizidine alkaloids	Botanical name	Distribution in Australia
Common groundsel	<i>Senecio vulgaris</i>	WA, SA, NSW, Vic, Tas
Ragwort or stinking willie	<i>Senecio jacobaea</i>	WA, SA, NSW, Vic, Tas
Tarweed	<i>Amsinckia intermedia</i>	WA, NT, Q, SA, NSW, Vic
Rattleweed	<i>Crotalaria</i>	WA, NT, Q, SA, NSW
Paterson's curse or Salvation Jane	<i>Echium lycopsis</i>	WA, NT, Q, SA, NSW, Vic, Tas

Plants causing photosensitivity due to liver damage	Botanical name	Distribution in Australia
Blue-green algae (water bloom)	<i>Anacystis</i>	Q, NSW
Palisade grass, signal grass	<i>Brachiaria brizantha</i>	WA, Q, NSW
Heliotrope	<i>Heliotropium europaeum</i>	WA, Q, NSW, SA, Vic
Lantana	<i>Lantana camara</i>	WA, NT, Q, NSW
New Zealand blue lupins	<i>Lupinus angustifolius</i>	WA, SA, Vic, Tas
Coolah grass	<i>Panicum coloratum</i>	NT, Q, NSW, Vic
Native millet	<i>P. decompositum</i>	WA, NT, Q, SA, NSW, Vic
Hairy panic grass	<i>P. effusum</i>	WA, NT, Q, SA, NSW, Vic, Tas
Sweet grass	<i>P. schinzii</i>	WA, Q, NSW, Vic
Guinea grass	<i>P. maximum</i>	WA, NT, Q, NSW
Pepper grass	<i>P. whitei</i>	WA, NT, Q, SA, NSW
Ragwort	<i>Senecio jacobea</i>	WA, SA, NSW, Vic, Tas
Caltrops	<i>Tribulum terrestris</i>	WA, NT, Q, SA, NSW, Vic
Common verbena	<i>Verbena officianalis</i>	NT, Q, NSW, Vic