

## Oak

Krishona Martinson, PhD; Lynn Hovda, DVM, MS;  
Mike Murphy, DVM, PhD; and Patrick Weicherding, PhD



*Providing research-based information to Minnesota horse owners*



Newly emerging oak leaves or buds



Green acorns

**Scientific Name:** *Quercus* species.

**Origin:** The oak group is one of the most important groups of hardwoods found on the North American continent. The oak genus is comprised of 500 to 600 species, and about 60 are native to the United States.

**Lifecycle:** Like many slow-growing trees, oaks may attain a considerable age, in some instances a maximum of 500 to 600 years.

**Identification:** Leaves are deciduous (drop in the fall), and often clustered at the ends of the twigs. Dead leaves often remain on the tree over winter. Acorns are nuts with a tough leathery shells that mature in one or two seasons. The oaks are classified into two groups: red and white oaks. Red oaks have pointed leaves with bristle-tipped lobes, while white oaks have rounded lobes or large regular teeth.

**Distribution:** Oaks are widely distributed throughout the temperate regions of the Northern Hemisphere.

**Habitat:** Oaks are found in nearly all upland hardwood forests. Most oaks are intolerant or moderately tolerant of shade and competition, depending on species.

**Control:** Oak trees in horse pastures should not be cut down, but branches should be kept out of reach of horses (i.e., trimmed above their reach). Young or small oak trees should be fenced for protection. Horses should be fenced out of areas where acorns are plentiful.

**Toxin:** Tannins and gallotannins have historically been reported as the toxic agents in oak toxicosis. Tannins that can be hydrolyzed are more associated with toxicity. For example, high doses of gallic acid (a gallotannin) have been associated with renal toxicity. However, all chemicals in oak that may cause toxicity have not been clearly identified.

**When Toxic:** The oak buds in the spring, and green acorn hulls in the autumn are associated with toxicosis.



Oak leaves

**Toxicity:** The concentration of hydrolyzable tannins is highest in immature leaves, members of the black and red oak species, and immature acorns.

**Signs:** Animals ingesting large amounts of oak buds or acorns for two to three days to a week or more may develop anorexia, constipation, diarrhea, colic, edema of neck and abdomen, and polyuria (frequent urination). Liver damage rarely occurs in horses.

**Treatment:** Supportive treatment for kidney and gastrointestinal tract damage, including fluid and electrolyte therapy, may be needed for several weeks.

**Other Information:** The safety of a preventative feed containing calcium hydroxide developed for cattle has not been researched as a horse feed and should not be fed to horses.

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In Partnership...



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