

BLACK WALNUT TOXICITY

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Most old home places in the south have at least one black walnut tree. The black walnut is a wonderful tree except one thing. The roots of black walnut produce a substance known as juglone. Many plants such as tomato, potato, blackberry, blueberry, azalea, mountain laurel, rhododendron, red pine and apple may be injured or killed within one to two months of growth within the root zone of these trees. The toxic zone from a mature tree occurs on average in a 50 to 60 foot radius from the trunk, but can be up to 80 feet. The area affected extends outward each year as a tree enlarges. Young trees two to eight feet high can have a root diameter twice the height of the top of the tree, with susceptible plants dead within the root zone and dying at the margins.

Not all plants are sensitive to juglone. Some trees, vines, shrubs, groundcovers, annuals and perennials will grow in close proximity to a walnut tree. Black walnut has been recommended for pastures on hillsides of mountain regions. Trees hold the soil, prevent erosion and provide shade for cattle. The beneficial effect of black walnut on pastures in encouraging grasses appears to be valid as long as there is sufficient sunlight and water. Gardeners should carefully consider the planting site for black walnut if other garden or landscape plants are to be grown within the root zone of mature trees.

Horses may be affected by black walnut chips or sawdust when they are used for bedding material. Close association with walnut trees while pollen is being shed (typically in May) also produce allergic symptoms in both horses and humans. The juglone toxin occurs in the leaves, bark and wood of walnut, but these contain lower concentrations than in the roots. Juglone is poorly soluble in water and does not move very far in the soil.

Walnut leaves can be composted because the toxin breaks down when exposed to air, water and bacteria. The toxic effect can be degraded in two to four weeks. In soil, breakdown may take up to two months. Black walnut leaves may be composted separately, and the finished compost tested for toxicity by planting tomato seedlings in it. Sawdust mulch, fresh sawdust or chips from street tree prunings from black walnut are not suggested for plants sensitive to juglone, such as blueberry or other plants that are sensitive to juglone. However, composting of bark for a minimum of six months should provide a safe mulch even for plants sensitive to juglone, but to be sure test the toxicity with tomato seedling as described above.

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