

# WALNUT TOXICITY

Black walnuts (*Juglans nigra* L.) make great shade trees and are highly valued for their tasty (and hard to crack) nut and high quality lumber. But as garden companions, they make bad neighbors!

**What makes Black Walnuts bad for the garden?** Black walnuts contain a chemical called “juglone” which can be toxic to other plants. This comes in contact with plants through roots or nut hulls and starts wilting the plant almost immediately which can eventually lead to the plant’s death. This walnut toxicity can extend an unbelievable 50-60’, and up to 80’, out from the trunk and continues to increase in area as the tree matures. Toxicity is also intensified by poor drainage and heavy compacted soil. All walnuts produce some juglone, as do other trees in the walnut family: bitternut and shagbark, hickory and pecan. However the amount of juglone produced is insignificant compared to the black walnut and the effect on other plants is minimal, if any.

**Are all plants sensitive to juglone?** Until recently not a lot of research had been done to test walnut toxicity, however several universities have been working on compiling a more thorough list of sensitive plants. Many factors can affect toxicity and it is important to remember that what might grow under one walnut tree might not grow under another. Juglone toxicity can also remain in the soil for years after a tree is removed, especially if the roots are not removed along with the tree.

**What do I do?** The best way to avoid problems is to plant as far away from the walnut tree as possible. If planting closer can’t be avoided, create raised beds to improve drainage which lessens the effects of juglone. You can also add screening to the planting holes to decrease contact with tree roots. And remember to clean your beds and be careful that nuts and debris from the black walnut tree don’t accumulate. And finally, choosing juglone tolerant plants will help your garden as well!

**Can I compost Black Walnut leaves?** Research has shown juglone can degrade in a compost pile in 2-4 weeks, however it should never be used around sensitive plants. If you do want to compost the leaves consider keeping them in a separate pile.



**Plants Sensitive to Juglone**

**Perennials**

Aquilegia (Columbine)  
 Chrysanthemum (Some Varieties)  
 Baptisia  
 Lilium  
 Narcissus (Daffodil Var)  
 Peonies (Some Varieties)

**Annuals**

Nicotiana  
 Petunias

**Trees**

Acer saccharinum  
 Alnus glutinosa  
 Betula (White Birch)  
 Celtis occidentalis  
 Malus (Crabapple)  
 Picea abies  
 Pinus mugo  
 Pinus resinosa  
 Pinus strobes  
 Tilia heterophylla

**Shrubs**

Aronia  
 Hydrangea  
 Kalmia  
 Ligustrum  
 Lonicera  
 Potentilla  
 Syringa  
 Taxus

**Edibles**

Apple  
 Asparagus  
 Blackberry  
 Blueberry  
 Cabbage  
 Eggplant  
 Peppers  
 Potatoes  
 Rhubarb  
 Tomatoes

**Plants Tolerant of Juglone**

**Trees & Shrubs**

Acer palmatum  
 Acer saccharum  
 Asimina triloba (Paw Paw)  
 Betula nigra  
 Catalpa  
 Cercis canadensis  
 Cornus florida  
 Daphne  
 Euonymus  
 Forsythia  
 Gleditsia triacanthos  
 Hibiscus syriacus  
 Ilex  
 Juniperus  
 Kerria  
 Koelreuteria paniculata  
 Lonicera tartarica  
 Parthenocissus quenequefolia  
 Philadelphus  
 Populus  
 Prunus  
  
 Pyrus  
  
 Quercus  
  
 Rosa multiflora  
  
 Sambucus  
  
 Thuja occidentalis  
  
 Tsuga canadensis  
  
 Viburnum

**Bulbs**

Glory of the Snow Crocus  
 Spanish Bluebell  
 Winter Aconite  
 Snowdrop  
 Hyacinth 'City of Harlem'  
 Grape Hyacinth  
 Narcissus (Daffodil Var)  
 Siberial Squill  
 Tulips (Some Varieties)

**Annuals**

Begonia (fibrous, tuberous)  
 Calendula  
 Impatiens  
 Heavenly Blue Morning Glory  
 Pansy  
 Viola  
 Zinnia

**Edibles**

Black Raspberry  
  
 Jerusalem Artichoke  
  
 Beans  
  
 Carrots  
  
 Corn  
  
 Melons  
  
 Onions  
  
 Squash

**Perennials**

Ajuga  
 Hollyhock  
 Am Wood Anemone  
 Jack-in-the-Pulpit  
 Wild Ginger  
 Astilbe  
 Bellflower  
 Turtlehead  
 Claytonia  
 Lily-of-the-Valley  
 Dutchman's Breeches  
 Bleeding Heart  
 Leopard's Bane  
 Crested Wood Fern  
 Coneflower  
 Sweet Woodruff  
 Cranesbill Geranium  
 Sneezeweed  
 Common Daylily  
 Hesperis  
 Heuchera

Hosta (Some Varieties)  
 Siberian Iris  
 Monarda  
 Sweet Cicely  
 Primrose  
 Sensitive Fern  
 Cinnamon Fern  
 Summer Phlox  
 Creeping Phlox  
 Mayapple  
 Jacob's Ladder  
 Solomon's Seal  
 Lungwort  
 Bloodroot Sedum  
 Lamb's Ear  
 Spiderwort  
 Trillium  
 Big Merrybells  
 Periwinkle  
 Viola



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