

LANDSCAPING AND GARDENING AROUND WALNUT AND OTHER JUGLONE PRODUCING PLANTS

Walnuts and hickories produce the chemical juglone, which is exuded from all parts of the plant. The production of juglone is a protective response by the plant to assure its survival. The most common symptoms of juglone sensitivity in landscape and garden plants is the yellowing and wilting of leaves, especially during the hot, dry periods during the growing season, ultimately resulting in wilting and death of the plant.

Juglone-induced wilting and wilting due to water stress are often confused. Wilting due to lack of water occurs slowly and can be reversed with watering. Juglone-induced wilting often occurs rapidly even when ample soil moisture is present. Early wilting symptoms may be reduced with supplemental water, however, later in the season, wilting does not respond to additional water. Leaves start to brown, and the plant dies.

Sensitive plants located beneath the canopy of a walnut tree are most susceptible to contact with juglone through direct root contact or accumulation of the toxin from leaves and nut hulls. Juglone toxicity may persist for years after a tree is removed, so impatience in replanting an area with juglone-sensitive plants is not advised.

Understanding the site to be landscaped is the first step in assuring successful plantings. Identifying trees and shrubs will avoid problems with toxicity among future landscape plantings:

- Choose landscaping sites away from black walnuts.
- Create raised beds to reduce root contact. Line the bottom of the bed with weed fabric and fill the bed with new topsoil.
- Improve soil drainage with organic matter.
- Prevent leaves, hulls, and stems from decomposing near planting areas.
- Avoid mulch containing walnut bark, wood, hulls, and leaves.

PLANTS THAT TOLERATE JUGLONE

TREES

Common Name	Latin Name
American Beech	<i>Fagus grandifolia</i>
American Elm	<i>Ulmus americana</i>
Arborvitae	<i>Thuja occidentalis</i>
Black Gum	<i>Nyssa sylvatica</i>
Black Cherry	<i>Prunus serotina</i>
Black Locust	<i>Robinia pseudoacacia</i>
Blackhaw Viburnum	<i>Viburnum prunifolium</i>
Callery Pear	<i>Pyrus calleryana</i>
Canada Hemlock	<i>Tsuga Canadensis</i>

SHRUBS

Common Name	Latin Name
American Holly	<i>Ilex opaca</i>
Black Raspberry	<i>Rubus occidentalis</i>
Current	<i>Ribes spp</i>
Daphne	<i>Daphne spp</i>
Elderberry	<i>Sambucus Canadensis</i>
Forsythia	<i>Forsythia</i>
Hazelnut	<i>Corylus americana</i>
Juniper	<i>Juniperus spp</i>
Koreanspice Viburnum	<i>Viburnum carlesii</i>

Carolina Silverbell	Halesia caroliniana
Catalpa	Catalpa bignoniodes
Dogwood	Cornus alternifolia
Eastern Red Cedar	Juniperus virginiana
Eastern Redbud	Cercis canadensis
Flowering Dogwood	Cornus florida
Fringetree	Chionanthus spp
Fruiting (cherry, plum, peach)	Prunus spp
Goldenrain Tree	Koelreuteria paniculata
Hawthorne	Crataegus spp
Hickory	Carya spp
Honeylocust	Gleditsia triacanthos
Maples (except Silver)	Acer spp
Oak	Quercus spp
Ohio Buckeye	Aesculus glabra
Pawpaw	Asimina triloba
Persimmon	Diospyros virginiana
Quince	Cydonia oblongata
River Birch	Betula nigra
Sassafras	Sassafras albidum
Serviceberry	Amelanchier
Staghorn Sumac	Rhus typhina
Sweetgum	Liquidambar styraciflua
Sycamore	Platanus occidentalis
Virginia Pine	Pinus virginiana
White Ash	Fraxinus americana
Yellow Poplar	Liriodendron tulipifera

Maple-leaved Viburnum	Viburnum acerifolia
Mockorange	Philadelphus spp
Pinxterbloom Azalea	Rhododendron periclymenoides
Rose of Sharon	Hibiscus syriacus
St. John's Wort	Hypericum prolificum
Smooth Sumac	Rhus glabra
Snowball Hydrangea	Hydrangea arborescent
Spicebush	Lindera benzoin
Sumac	Rhus copallina
Witchhazel	Hamamelis spp

VEGETABLES

Beans
Beets
Carrot
Corn
Melons
Onion
Parsnips
Squash

PERENNIALS/ANNUALS

Common Name	Latin Name
Anemone	Anemone spp
Aster	Aster spp
Astilbe	Astilbe spp
Bee Balm	Monarda spp
Bellflower	Campanula latifolia
Bleeding Heart	Dicentra spp
Bloodroot	Sanguinaria canadensis
Bugleweed	Ajuga reptans
Chrsyanthemum	Chrysanthemum spp
Christmas Fern	Polystichum acrostichoides

Vines

Common Name	Latin Name
Clematis	Clematis spp
Virginia Creeper	Parthenocissus quinquefolia
Wisteria	Wisteria spp

PERENNIALS/ANNUALS (cont)

Christmas Rose	Helleborus spp
Cinnamon Fern	Osmunda cinnamomea
Common Daylily	Hemerocallis spp
Coral Bells	Heuchera spp
Cranesbill Geranium	Geranium sanguine
Crested Wood Fern	Dryopteris cristata
Crocus	Crocus spp
Daffodil	Narcissus spp
Dog's Tooth Violet	Erythronium spp
Dutchman's Breeches	Dicentra cucullaria
Epimedium	Epimedium spp
European Wild Ginger	Asarum europium
Fibrous/tuberous Begonia	Begonia
Gentian	Gentian spp
Globeflower	Trollius spp
Glory of the Snow	Chionodoxa lucile
Grape Hyacinth	Muscari botryoides
Hollyhock	Alcea rosea
Hosta	Hosta spp
Iris	Iris spp
Jack in the Pulpit	Arisaema triphyllum
Jacob's Ladder	Polemonium reptans
Lamb's Ear	Stachys byzantia
Leopard's Bane	Doronicum spp
Liriope	Liriope spp
Lobelia	Lobelia spp
Lungwort	Pulmonaria spp
Mayapple	Podophyllum peltatum
Meadowrue	Thalictrum spp
Morning Glory	Ipomoea spp
Orange Hawkweed	Hieracium auranticum
Pansy/violet	Viola spp

Phlox	Phlox paniculata
Pot Marigold	Calendula officinalis
Primrose	Primula spp
Purple Coneflower	Echinacea purpurea
St. John's Wort	Hypericum spp
Shasta Daisy	Leucanthemum x superb
Siberian or Blue Squill	Scilla siberica
Snowdrop	Galanthus nivalis
Solomon's Seal	Polygonatum commutatum
Spanish Bluebell	Hyacinthoides hispanicus
Spiderwort	Tradescantia virginiana
Spring Beauty	Claytonia virginica
Stonecrop	Sedum acre/spectabile
Sunflower	Helianthus spp
Sweet Woodruff	Galium odoratum
Trillium	Trillium spp
Tulips	Tulipa spp
Virginia Bluebell	Mertensia pulmonariodes
Winter Aconite	Eranthis hyemalis
Yarrow	Achillea spp
Zinnia	Zinnia spp