

The Black Walnut Tree: Welcome to the Dark Side

By Susan Camp

My husband's mother had a large black walnut tree in her yard. Every fall, she harvested the tough-hulled nuts, set them in rows on her gravel driveway and drove her car back and forth over them until the tough outer husks were crushed. She used the nuts in cakes and cookies. When we visited, she sometimes sent us home with grocery sacks of unshelled black walnuts.

Some people love the strong, unusual flavor of black walnuts. Others, like my husband, won't eat them. I can tolerate black walnuts in baked goods, but I can't stand the mess of removing the outer husks and shelling them, not to mention the way they stain everything they touch: driveway, hands, and clothing.

Black walnut (*Juglans nigra*) trees have many positive attributes. They are native to the eastern and midwestern states. They make beautiful shade trees in home settings. In the forest, they grow tall and straight, providing food and shelter for many species of wildlife. Black walnut heartwood is desirable for furniture and flooring production because of its tight grain, durability, and beautiful color. The nuts and hulls are used commercially in baked goods, cosmetics, abrasive cleansers, and for water filtration. The inner and outer hulls have been used for centuries to make dyes for crafts and clothing. The spring sap can be boiled into syrup.

Black walnut trees have a dark side. Have you ever wondered why some plants won't grow under a black walnut, or why other trees fail when planted nearby? All parts of black walnut trees produce a colorless, nontoxic chemical called hydrojuglone, which, when exposed to air and soil, oxidizes into juglone, a toxic compound. Secretion of juglone by black walnut trees results in wilting, yellowing of foliage, and eventual death of susceptible plants. English walnut, pecan, and hickory trees produce lesser amounts of juglone.

The area directly under the canopy of a black walnut is the most affected because of the heavy concentration of large roots and dropped leaves and nuts. Sensitivity of plants to juglone varies. Some plants will tolerate growing near a black walnut, but not beneath it. Other plants need to be located far away from black walnuts to prevent exposure to fallen leaves and dripping raindrops contaminated by leached juglone. Juglone sensitivity is affected by soil type, drainage, and the presence of soil microorganisms that ingest juglone.

Fresh black walnut debris should not be used as mulch for garden beds. Leaves and bark can be composted, as exposure to water, air, and bacteria will break down the toxin. Juglone can cause allergic reactions in humans and horses, and black walnut wood chips should not be used as bedding for horses.

Many helpful articles about juglone toxicity are available online. Virginia Cooperative Extension (VCE) Publication 430-021 offers information on how to decrease the effects of juglone and

presents lists of juglone sensitive and tolerant plants. Purdue University Cooperative Extension Service Publication HO-193-W includes vegetables in their plant lists. Ohio State University Fact Sheet HYG-1148-93 covers juglone toxicity to humans, horses, and plants.

About 35 years ago, when we lived in York County, we arrived home from a weekend mother-in-law visit with two paper grocery sacks filled with unshelled black walnuts. We didn't want to ruin our driveway with the stains left by crushing the hulls, so we set the bags in the carport and forgot about them. A few weeks later, I noticed squirrels scurrying madly around the yard, burying round objects. When I checked the bags, I found that the squirrels had chewed a hole into the side of each bag, so that black walnuts would tumble out from the bottom. The crafty critters had created squirrel gumball machines. Somewhere in York County, there may be a yard with a grove of black walnuts where nothing else will grow. I hope the property owners have checked out the VCE publications.

July 23, 2015