



THE SOIL PROFILE

**A newsletter providing
information on issues
relating to soils and
plant nutrition in
New Jersey**

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Edible Landscaping, Natural Companion to Organic Lawn Care

Edible landscaping is a system of growing woody perennials for both landscape purposes and food. Landscapes are often designed primarily for viewing pleasure, shade, and ground cover. Edible landscaping is a way of serving these needs while at the same time producing local fruits and nuts from a selection of woody plant species.

Including edible plantings is becoming popular along with a movement towards Organic Land Care. The Rutgers Organic Land Care program already includes edible landscaping in its core curriculum. As one of the instructors for this Extension program, I have been teaching the section on edible landscaping. My teaching is largely based on my first-hand experience with what grows well as edible landscape plantings on my homestead. Locations ranged from homesteads in Middlesex and Hunterdon Counties and in some cases plantings on Rutgers New Jersey Agriculture Experiment Station landscapes.

The previous issue of The Soil Profile newsletter provided an overview of cultural practices and philosophy involved in organic lawn care. This newsletter will summarize my lecture on Edible Landscaping. The newsletter

issue about organic lawn care is available at: <https://njaes.rutgers.edu/pubs/soilprofile/>

Homes and office parks are often built upon arable lands with some of the most desirable soils for agriculture. Construction activities, unfortunately, disturb and degrade these otherwise good soils for plant growth. New Jersey ranks as the most urbanized state. Public response to the loss of soil resources and open space has also inspired New Jersey to become a national leader in the preservation of farmland. But urbanized lands are not entirely lost as a resource for food production when they are “cropped” with edible landscape plants.



An edible landscape with blueberry.

Many of these lands that were once used for commercial crops still have good levels of soil fertility. Soil pH and soil test levels for P and K and micro-nutrients are often in favorable ranges for a wide variety of plants. Nevertheless, soil testing should be performed to evaluate the specific soil fertility status at each individual planting site. The measurement for soil pH is particularly important. If liming (or if soil acidification) is needed, amendments should be applied well before planting. Link to Rutgers University Soil Test Laboratory: <https://njaes.rutgers.edu/soiltestinglab/>

Most often the challenge for edible landscape plantings is the need to rehabilitate compacted and degraded soil conditions caused by heavy construction traffic. To some degree, soil physical conditions can be restored by using deep tillage to break up compacted soil layers and by adding compost or other soil amendments.

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Soil compaction caused by construction equipment.



A backhoe used to break compaction.

Applying 1 to 2 inches of compost or peat and working the organic amendments into the top 6 inches can help to restore soils for good performance of landscape plantings. Generally, compost application will also suffice as a soil fertility amendment without further need for supplemental fertilizer. Compost made primarily from yard trimmings, shade tree leaves, grass clippings, and wood chips are good whereas composts made from animal manures are often too rich in nutrients. Besides supplying a modest amount of nutrients, one of the most valuable attributes of good compost is that it feeds the living organisms of the soil, acts as a physical conditioner, and improves the ability of the soil to store moisture.

It is often assumed that fertilizers must be applied to encourage the growth of trees and

other woody landscape plantings. Woody perennials and trees, however, differ significantly in demand and uptake pattern for nutrients from the soil. The nature of woody perennials is such that they can effectively store and recycle significant quantities of nutrients within bark, stem, and root tissue from season to season. This physiological advantage of stored nutrients makes woody plants more conservative with nutrients than annual plants that must begin new growth every spring from a seed. The details and differences in soil fertility nutrient management requirements between perennial and annual plants were explained in The Soil Profile newsletter in 2002. That newsletter issue is available at NJAES link: <https://njaes.rutgers.edu/pubs/soilprofile/>

Moreover, research conducted by Dr. Dan Herms at The Ohio State University has shown that fertilizers applied to tree plantings may even be counterproductive. This is because growth promoted by fertilizers makes foliage more vulnerable to insect attack. Thus, a modest amount of nutrients supplied by compost or decomposition of surface organic mulches, along with a soil's indigenous fertility, should generally suffice for most edible landscape plantings.

Watering woody landscape plantings during dry spells, especially during the early years of establishment, is more important than fertilizer application. Also controlling competing vegetation in the surrounding area with surface mulch can be very beneficial. The mulch layer should be enough to suppress weeds and conserve moisture but not more than a 2 inch layer.



Oak tree mulched with wood chips

Once an edible landscape planting is well established, it generally demands minimal care while annually producing fruits, nuts, or berries. From firsthand experience with edible landscape plantings in Central New Jersey, I have had good success growing a wide range of tree and bush sized woody landscape plants. In the small tree category there is paw paw, persimmon, mulberry and hazelnut. As for larger trees I have successfully grown several varieties of northern pecans, hickory, heartnut, and black walnut. And as bushes I have grown blueberry, Juneberry and elderberry. All of the plants I have listed here are for practical purposes almost pest free when grown as part of a bio-diverse landscape.

One might also think of growing apples, peaches, plums, and pears for edible landscaping. However, the number of pest and disease problems associated with these common fruit trees can be rather discouraging, especially in the context of organic land care.

The urban agriculture movement is demonstrating many creative ways cities can make accommodations for food production. Intensively cultivated vegetable gardens are of course examples. But beyond the typical annual crops found in vegetable gardens, there are many species of fruit or nut producing woody perennials that should more frequently find a setting in Garden State landscapes. It is the woody perennial plants that play the primary role in edible landscape designs. A web search for edible landscape nurseries or specific plant species will help locate nursery stock.

PAWPAW (*Asimina triloba*)

High on my list of trees for edible landscaping is the pawpaw. It produces a large fruit which ripens in late August to early October, depending on variety. Its flavor is often described as tropical like with a hint of pineapple, mango, and banana.

Pawpaw is a Native American tree that grows to a medium size and has several good ornamental characteristics. The leaves are large and glossy giving the tree a tropical appearance. In the fall, the leaf color changes to an attractive

golden yellow. Pawpaw trees grow well in deep moist well drained soils and will tolerate some shading. The soil pH level should range from moderately acid to neutral.

My plantings of pawpaw trees began bearing fruit at about four years after planting. At least two trees should be planted to ensure good pollination. Pawpaw flowers are rather unusual in that they rely on flies and other insects, rather than honeybees, for cross pollination.

Few plants are as pest and disease free as the pawpaw. If you have ever tried to grow apples or peach without spraying pesticides, you will really appreciate how easy it is to grow pawpaw.

Pawpaw would seem to be an especially easy crop to produce organically. The fruit however has very limited shelf life. Green fruit picked from the tree never seem to ripen. Pawpaw fruit are best when eaten not more than one or two days after it falls from the tree. The intense aroma is a good indicator of ripeness'. Some say that the pulp makes a great flavoring for ice-cream.

While, this short "shelf life" is a limitation for pawpaw to ever become a commercially available fresh fruit, it is a really good reason to grow it fresh on your home landscape.



Pawpaw Tree



Pawpaw flowers and fruit

Although, grafted cultivars of pawpaw trees are available from nurseries, I have also grown good pawpaw trees from saved seed. To encourage germination, the seed should be stratified in moist peat or compost for 60 days at 41F.

Here are several good websites for further information about growing pawpaw:

- <http://www.pawpaw.kysu.edu/>
- <http://www.pawpaw.kysu.edu/reports.htm>
- <http://attra.ncat.org/attra-pub/PDF/pawpaw.pdf>

JUNEBERRY or SASKATOON BERRY (Amelanchier alnifolia)

Juneberry is a bush somewhat similar in size and appearance to the blueberry. This edible berry goes by many other names including Amelanchier, saskatoon berry, or serviceberry. Juneberry describes it well when it is covered with an abundance of fruit ripening over a period of weeks in June for good fresh eating from the bush. In my opinion Juneberry fruit is tasty but not quite as good as my favorite the blueberry. However, it easy to grow on many

soils not suitable for blueberry. Also, Juneberry tends to ripen a few weeks before the July blueberry harvest season.

A Juneberry bush can provide an attractive accent along a garden path. Besides tasty fruit, Juneberry has other worthy ornamental characteristics. The white flowers cover the bush in abundance in early spring. In fall the leaves turn orange to purple.



Juneberry grows as a cluster of woody branches that may reach 10 to 15 feet tall and 10 feet wide. The bush can be kept smaller by pruning out branches that have become too large for a given space.

I carefully placed several Juneberry plants on my farm along pathways such I can enjoy some handpicked fruit on the way to the mail box or on the way to the barn to feed my farm animals.

AMERICAN PERSIMMON (Diospyros virginiana)

Another worthy candidate for edible landscaping is the American Persimmon. This tree grows into a modest size; about 20 to 50 feet tall. The trees are dioecious, meaning that

the flowers are either male or female. Thus, if you want fruit, you will need to grow a female tree. Male trees are useful for pollination but may be unnecessary to plant if there are enough wild trees growing in a nearby forest.

Pest free is an important attribute for edible landscaping. Persimmon, like pawpaw and Juneberry, are all relatively pest free plants.



Ripe fruit of Persimmon

Persimmon fruit are orange, sweet, and luscious when fully ripe but can very astringent while green. Fruits ripen in October, not all at once but rather over several weeks. A very productive and easy to grow persimmon in the Mid-Atlantic region is the variety Meader. This cultivated variety is available from many nursery companies you can find with a web search.

Although persimmon has small flowers that do not put on a big spring show, the tree does have great fall color with a display of orange and scarlet leaves. The summer leaves are dark green and glossy on the upper surface.

In my experience American Persimmon is very easy to grow and a reliable fruit producer. A single tree will likely produce far more fruit than a family can eat. Surplus fruit is said to make good feed to fatten pigs.

PECAN (*Carya illinoensis*) and SHAGBARK HICKORY (*Carya ovata*)

Landscapes capable of accommodating large trees should consider the pecan or the hickory. These closely related tree species have even been crossed to give a hybrid called the Hican. As shade trees they can grow into tall (60 ft) and picturesque specimens. The leaves are dark

green in summer and turn to a yellow golden fall color. The hickory has an ornamental shaggy bark.

These trees are not as widely used in landscaping because they are said to be difficult to transplant. It is the very large taproot that makes transplanting a challenge. However, if one is willing to make the effort at digging into the earth, it can be done with a high rate of success. Usually the trees are purchased as grafted bare rootstock and often times the taproot (may be 3 ft. long) will be longer than the shoot.

In the first couple of years after transplanting, growth is rather slow but pace of growth improves significantly once they become well established. In about 6 to 14 years they may be expected to begin bearing nuts. Grafted cultivars of pecan and hickory almost always produce better nuts than trees in the wild. Northern varieties of pecan are best for New Jersey. Some pecan cultivars that have performed well in Central Jersey are Pawnee or Major. There are about a half dozen good cultivars of hickory suitable for growing in New Jersey. Burton is moderately productive Hican cultivar that grows well in Central Jersey. Nut trees generally produce bigger crops when several varieties are planted together.



Burton Hican Tree (Year 12)

Pecan and hickory nuts ripen in October. Just collect and enjoy the nuts as they drop from the trees. Nuts of both species are delicious, but many consider the kernels from the hickory to have the richest flavor.



Pecan Tree with Nuts.

BLACK WALNUT (*Juglans nigra*)

Black walnut trees are highly prized for wood used to make furniture. This species may not have the most desirable attributes as a shade tree but it is worth considering within the context of an edible landscape because it produces an abundance of delicious nuts. When transplanting black walnut one faces the same challenges as described above with other nut tree species.

One important concern with walnut trees is that they excrete a compound (juglone) that is toxic to certain other crops. Tomato plants are especially sensitive. The trees should not be planted near vegetable gardens. The trees should also not be planted where the nuts can stain pavement. Kentucky bluegrass lawns tend to grow very well under the light shade cast by black walnut.

Black walnut planted on deep fertile soils grows rapidly and often begin producing nuts after only a few years. The nut is surrounded by a thick husk that is messy to remove. Preparing black walnut for drying, storage, and cracking may be more work than other species, however, the richly flavored nut kernels are very nutritious.



Black Walnut Tree Loaded with Nuts

Black Mulberry (*Morus nigra*)

While some see no landscape value in the mulberry family, I am a fan of the black mulberry for its tasty easy to grow fruit. The “Illinois Everbearing” variety is especially good for producing a steady supply of large black berries over an extended period – early July into August.



Mulberry is easy to transplant and is tolerant of poor soils. On fertile soils it grows very rapidly, and with appropriate pruning can be shaped into an attractive tree.

Mulberry should not be planted near sidewalks, driveways, or patios as the expanding root growth may crack pavement. Also, the fruit attracts birds and fallen fruit may leave stains.

Oak (Quercus)

The oak family includes many species with a wide range of landscaping attributes. Many of the species are highly valued as shade trees. The northern red oak (*quercus borealis maxima*) is the official the state tree of New Jersey.

In certain years, under some oak trees, the acorns are so abundant that they practically cover the ground. Acorns a recognized as a food for wildlife but are less well known as a potential food source for people. However, acorns are not suitable for eating until they been soaked and leached with water to remove tannic acid. Once properly soaked and prepared acorns can made into flour and used in many recipes. Acorns can also be used to feed and fatten pigs.

Sugar Maple (Acer saccharum)

Highly valued as a shade tree, sugar maples trunks greater than ten inches in diameter may be tapped in late winter for its sap. The sap can be boiled to make maple syrup (about 40 gallon of sap boil down to 1 gallon of syrup) or some people like to drink the sap fresh.



Sugar maple is a slow growing shade tree especially prized for it brilliant fall colors. But other maple species can also be tapped. Silver maple is a much faster growing species and tolerates a wider range of soil conditions. Its sap has a sugar concentration comparable to that of the sugar maple.

Other Plants

Many other species are worth considering for edible landscapes. Other trees to consider include hazelnut, chestnut, and heartnut. For bush sized plants consider growing figs, blueberry, elderberry, beach plum, etc.



Hazelnut with reddish nuts



Chestnut



Heartnut



Fig



Elderberry
Flower
& Fruit



A grove of edible landscape plants displaying fall colors.

Hermes, D.A. 2002. *Effects of fertilization on insect resistance of woody ornamental plants: reassessing an entrenched paradigm. Environmental Entomology* 31:923-933. [http://www.oardc.ohio-state.edu/hermslab/images/Hermes_2002_EnvirEntomol_Fertilization_and_Insect_Resistance\(1\).pdf](http://www.oardc.ohio-state.edu/hermslab/images/Hermes_2002_EnvirEntomol_Fertilization_and_Insect_Resistance(1).pdf)

Nourishing Traditions by Sally Fallon (Recipes for making “Crispy Nuts” with pecans and walnuts)

Manual of Woody Landscape Plants by Michael A. Dirr

Uncommon Fruits for Every Garden by Lee Reich

Edible Landscaping by Rosalind Creasy

Organic Orchardng: A Grove of Trees to Live In by Gene Logsdon

Maple Sugaring at Home, A Guide to Collecting Maple Sap and Making Maple Syrup at Home by Joe McHale

Further information about edible landscape plants and recipes for preparing nuts:

The Northern Nut Growers Association is good resource for learning more about growing nut trees. <http://www.northernnutgrowers.org/>

Tree Crops: A Permanent Agriculture by J. Russell Smith.

Landscaping with Fruit by Lee Reich

Restoration Agriculture by Mark Shepard

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