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PAWPAWS IN THE GARDEN

By: The Pawpaw Foundation, August 1990

CLIMATE:

The pawpaw, *Asimina triloba*, is a tree of temperate humid zones, requiring warm to hot summers and rainfall spread rather evenly throughout the year, with the majority falling in spring & summer. It is hardy to zone 5 (-15F/-25C). Pawpaws are native over a wide range of latitude, from the Gulf Coastal plain to southern Michigan. Most named cultivars originated in the Midwest, which is the northern portion of the pawpaw's range.

SITE, SOILS, & HABITAT:

Although the pawpaw is capable of fruiting in the shade, optimum yields are obtained in open exposure, with some protection from wind (on account of the large leaves). Germinating seedlings, however, will not survive under those conditions because they are extremely sensitive to full sunlight, which can kill them. Shading for the first year, and sometimes the second, is normally required, and it is for this reason that pawpaws are almost always found in nature as an under story tree. The soil should be slightly acid (pH 5.5-7), deep, fertile, and well-drained. Good drainage is essential to success. Pawpaws will not thrive in heavy soil or water-logged soil. In habit it is a small tree, seldom taller than 25 feet. Grown in full sun, the pawpaw tree develops a narrowly pyramidal shape with dense, drooping foliage down to the ground level. In the shade, it has a more open branching habit with few lower limbs and horizontally held leaves.

PROPAGATION BY GERMINATION:

Pawpaw seed is slow to germinate, but not difficult if certain procedures are followed. Do not allow the seed to dry for long periods (i.e. months) because this can destroy the immature, dormant embryo. To break dormancy, the seed must receive a period of stratification (exposure to cold temperatures) for 90-120 days. This may be accomplished by sowing the seed late in the fall & letting it overwinter. The seed will germinate the following year in late July to late August. Another way is to stratify the seed in the refrigerator (32-40F/0-5C). In this case the seed should be stored in a plastic ziplock bag with a little moist sphagnum moss to keep the seed moist & suppress fungal/bacterial growth. After stratification, the seed should be sown in a well-aerated soil mix, pH 5.5-7, with an optimum temperature of 75-85F (25-30C). The root will normally emerge from the seed coat on the 18th day, develop into a taproot about 10 inches deep,

and then send up a shoot on day number 64. Germination is hypogeal: the shoot emerges without any cotyledons. For the first two years growth is slow as the root system establishes itself, but thereafter it accelerates. Fruit bearing normally begins when the sapling reaches 6 feet, which usually requires 6 to 8 years.

PROPAGATION BY VEGETATIVE MEANS:

Pawpaw clones are easily propagated by a number of grafting & budding techniques, such as whip-and-tongue, cleft, bark inlay, and chip budding. The only method that does not produce good results is T-budding. Shoot cuttings have proved virtually impossible to root, while root cuttings are usually successful. Although it is common for a pawpaw to sucker from the roots, & would therefore seem a natural way to propagate a clone through transplanting root suckers, in practice this is extremely difficult. Pawpaws are ordinarily quite difficult to transplant. They have fleshy, brittle roots with very few fine hairs. Experimentation has shown that, to be successful, transplantation should be done in the spring at the time that new growth commences, or soon after. (This is basically the same as for magnolia). If many roots are lost, it may be desirable to prune the top to bring it into balance with the remaining roots.

POLLINATION, NATURAL & ARTIFICIAL:

Pollination is the major limitation to pawpaw fruit set. The flowers are protogynous, meaning that the stigma (the female receptive organ) ripens before the pollen, and is no longer receptive when the pollen is shed. Thus the flower is designed not to be self-pollinated. In addition, pawpaw trees are self-incompatible, requiring pollen from a genetically different tree in order to be fertilized. Finally, the natural pollinators of the pawpaw, various species of flies and beetles, are not efficient or dependable. Although it requires a little extra labor, hand pollination can be well worth the effort and can be done as follows: Using a small, flexible artist's brush, transfer a quantity of fresh pollen from the anthers of the flower of one clone, to the ripe stigma of the flower of another clone. Pollen is ripe when the little ball of anthers is brown in color, loose and friable; pollen grains appear as yellow dust on the brush hairs. The stigma is ripe when the tips of the pistils are green & glossy, & the anther ball is still hard & green. Do not overburden the tree with fruit, as this will stress the tree, resulting in smaller than normal fruit, & may cause limbs to break under excessive weight.

PESTS:

In its native habitat the pawpaw has few pests of any importance. The worst pest is *Talponia plummeriana*, the pawpaw penduncle borer, a small moth larva (about 5mm long) that burrows in the fleshy tissues of the flower, causing the flower to wither & drop. In some years this borer is capable of destroying the majority of blossoms. Another pest is *Eurytides marcellus*, whose larvae feed exclusively on young pawpaw foliage, but never in great numbers. The adult butterfly is of such great beauty that this should be thought more a blessing than a curse. Sometimes the fruit surface may be covered with patches that are hard and black; this is a fungus infection, but it seldom has any effect on flavor or edibility. Deer will not eat the leaves, twigs or fruit.

Outside it's native region, the pawpaw is sometimes reported to be plagued by pests, improper soils and an unsuitable climate.

PAWPAWS IN THE KITCHEN

USES:

The primary use of pawpaws is for fresh eating. The easiest way to eat them is to cut them in half and scoop the flesh out with a spoon; the large seeds, scattered throughout the flesh, are then simply spit out. On a hike or picnic, you can tear an opening into one end & squeeze the flesh into your mouth. In cooking, the pawpaw is best suited to recipes that require little or no heat. Because the pawpaw's flavor compounds are very volatile, prolonged heating or high temperatures destroy their characteristic flavor. Pawpaw works well in ice cream, sorbet, chiffon pie, and mousse, and combines well with mint. On account of it's flavor resemblance to banana, it may be substituted in recipes such as banana bread.

RIPENESS:

Ripe pawpaws have a pronounced aroma that can fill an entire room (the way cantaloupe does) with a fragrance that is fruity and floral. When ripe, the fruits are soft and yield easily to gentle squeeze like a ripe avocado or peach. Visual clues of ripeness are sometimes subtle: the skin turns a lighter shade of green and may show some yellow. In the late stages of ripeness the skin develops brown blotches, streaks, and freckles like a banana. Inside a ripe pawpaw, the flesh will be yellow, soft, and mellow, resembling custard.

STORAGE:

Pawpaws are very perishable. They respire more than most fruits, and in the process can evolve quite a bit of moisture, heat, carbon dioxide, and ethylene (the fruit-ripening hormone). When perfectly ripe, pawpaws will last for only about two days at room temperature. Refrigerated at 40-45F, the same fruits may last a week. If the fruits are not quite ripe, they may be refrigerated for about two weeks, and then ripened at room temperature for several days. Storing pawpaws at less than 40F is not recommended since it often changes the flavor, producing caramel-like notes.

QUALITY:

Quality pawpaws compare favorably to the best pears, peaches, and mangoes of the world. They can vary considerably in size, depending on the cultivar and the number of seeds in each fruit, but should ordinarily weigh between 5 ounces and 1 pound. They should appear plump and round in shape-the largest, plumpest pawpaws often resemble mangoes. The flesh should be neither too soft or too firm: it should have a custardy texture that is smooth, melting, and luscious. The flavor should be sweet, fragrant and complex, with a satisfying and lingering aftertaste.

Your tax-deductible donation to the PawPaw Foundation is greatly appreciated.

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