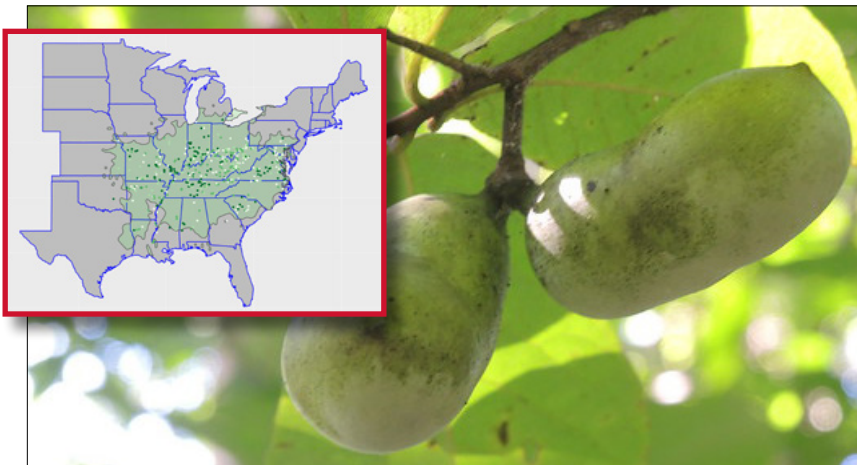


NTFPs from Trees: Nontimber Forest Products that Support our Society and Economy

PAWPAW

Product: Pawpaw fruit
Plant parts used: Fruit

Pawpaw (*Asimina triloba* [L.] Duna.) is a small understory tree that can grow to 40 feet in height. Pawpaw is the only temperate genus of the family Annonaceae, as most are distributed in the tropics. The native range is most of eastern North America, from Ontario and Michigan and Wisconsin, south into Florida, and west into Nebraska, Kansas, Oklahoma, and eastern Texas (shown in green on the map below). Pawpaw trees are often found as thickets in the understory, seldom in coastal ecosystems. Pawpaw fruit is the largest tree fruit native to the United States.



Nontimber Uses

- Native Americans domesticated pawpaw and used its fruit and bark for a variety of purposes (e.g., fresh and dried food, cordage for securing loads).
- Pawpaw fruit is highly nutritious compared to other temperate fruits. It is high in calories, proteins, vitamins A and C, and minerals.
- Powerful natural compounds found within the pawpaw plant have potential commercial applications, including for pesticides, and for topical medicinal and dietary supplements.
- Extracts from pawpaw twigs and leaves have insecticidal properties and can be found in shampoos to treat lice, fleas, and ticks, and in sprays for plants.

Markets

- Pawpaw fruit is a specialty forest food being promoted through producer associations, community festivals, niche restaurants, and internet enterprises. The fresh and processed fruit is predominantly marketed seasonally through farmers markets, organic food stores, select restaurants, and other specialty retail venues.
- Due to a short shelf life, low fruit yields, and challenges in harvesting and shipping, pawpaw is not common in large markets; refrigeration and improved processing could expand markets.
- Value-added economic opportunities are developing for the use of pawpaw pulp in juices, ice cream, yogurt, and baked goods. Pawpaw has been promoted as a substitute for bananas and mangos.

Key Points

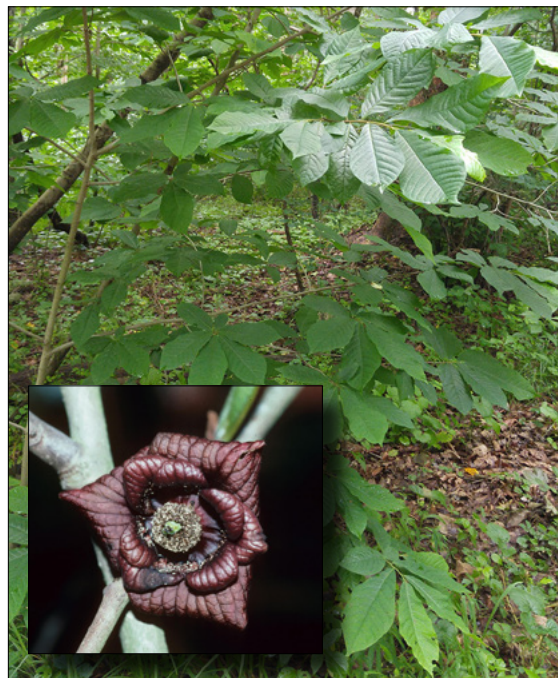
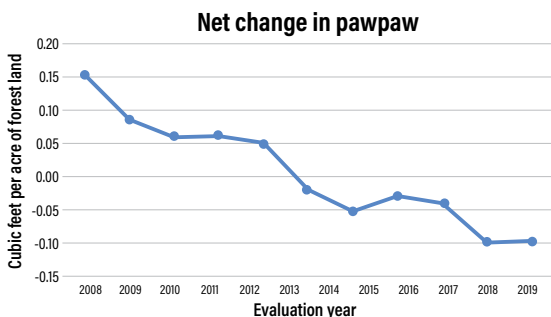
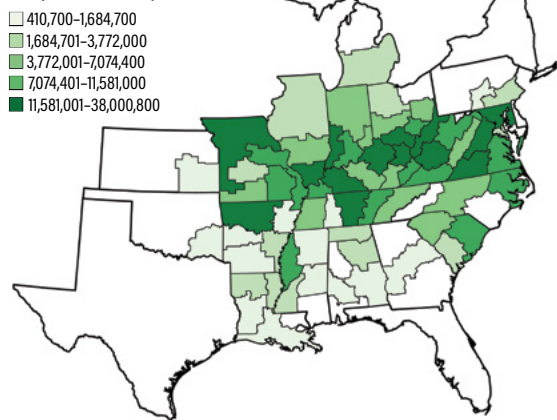
- Pawpaw is an underutilized small fruit tree that provides limited economic benefits to rural communities that could be expanded with improved handling, distribution, and processing.
- Current horticultural knowledge suggests that pawpaw has potential as a forest farming crop that could aid in habitat restoration as well as improve food security and livelihood.
- There are not many pawpaw trees per acre across the range of the species, and there has been a steady decline in volume (measured in cubic feet per acre) since 2009.
- Pawpaw is native to and adapted to diverse climatic conditions across its range, yet increases in mortality and declines in growth could have significant consequences on fruit production.

Any medical or pesticide use described in this publication is for reader information and does not imply endorsement by the U.S. Department of Agriculture.

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Number of pawpaw trees by FIA unit (~1 million acres), 2016



Markets, cont.

- Pawpaw has potential as a new forest product and offers diverse economic opportunities because of its nutritional food value, its promise for a variety of commercial applications, and its part in “edible” landscapes.
- Pawpaw is important to rural communities that benefit from local markets for the fruit, as well as nursery production of planting stock that could be used for habitat restoration.

Status^a

- Pawpaw has been found in Forest Inventory and Analysis (FIA) plots in 20 States.
- The estimated number of pawpaw trees per acre in the latest evaluation year (2019) across all States is about 200,^b ranging from 75^c (Oklahoma) to 366^d (South Carolina).
- The highest concentration of trees is located across Maryland, Virginia, West Virginia, Ohio, Kentucky, and into southern Illinois and Indiana (see the map to the left). Significant changes in the number of trees in FIA units can be found across Tennessee, throughout Virginia, and in South Carolina.
- The net change (i.e., difference between growth and sum of mortality and removals) across all States over 2009–2019 trended negative; net change decreased from 0.15 cubic feet per acre to -0.10 cubic feet per acre (see the chart to the left).

^a Estimates are based on observations of at least one specimen of the species in an inventory plot (representing about 6,000 acres of forest land). They are not based on all forest land for the State.

^b At 68-percent confidence level, standard error is ± 4.52 percent of estimate.

^c At 68-percent confidence level, standard error is ± 0.00 percent of estimate, indicating that there is only one data point.

^d At 68-percent confidence level, standard error is ± 21.09 percent of estimate.

Management and Implications

- Most harvesting takes place from natural pawpaw populations. With current production methods, forest farming of pawpaw could enhance habitat restoration while improving rural economic opportunities.
- Pawpaw is native to—and well adapted to—a variety of climatic conditions found across a wide span of the United States.
- Increasing mortality and decreasing growth could have significant implications for fruit production.
- Inventory methods to estimate fruit production could provide valuable information to improve forest valuation for this product and improve economic opportunities for rural communities.

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