Achachairu—a Potential Fruit Crop for Florida

Sergio Gutierrez, Tatiana Sanchez, Zhaohui Tong, and Guodong Liu

Introduction

Garcinia humilis, commonly known as achachairu (ah-chachay-ROO), is a tropical-fruit bearing crop that is emerging in south Florida. Though native to the Amazon rainforest, achachairu also grows widely in the Caribbean and South and Central America (Oliver et al. 2018; USDA 2020). Its genus, Garcinia, falls under the Clusiaceae family—formerly known as Guttiferae—and includes several tropical and sub-tropical fruit species. The fruits have attracted certain US markets because achachairu is rich in vitamins, minerals, antioxidants, and many other nutrients. Achachairu’s current use is limited and localized. This publication provides an overview of achachairu growth in Florida to help Extension faculty, growers, crop consultants, certified crop advisors, environmentalists, agricultural-policy makers, and students to better understand the potential of achachairu (G. humilis).

Achachairu is also known as achacha, Bolivian mangosteen or pacuri (Lim 2012) (USDA 2020), and kamuru and guanabacoa (Lim 2012). Planters harvest achachairu in winter and early spring (https://www.trees.com/achacha-fruit-trees); Floridian fruit markets make the teardrop-shaped fruit available from October through January, given natural growth conditions. The fruits of Garcinia h. range from 2.5 to 3 inches (Figure 1) and have orange skin (USDA 1990) and white, sweet pulp (Barboza da Silva et al. 2018).

Figure 1. (A and B) Achachairu fruit. (C) The skin and pulp of Achachairu.
Credits: (A) Alejandra Cáceres, Santa Cruz, Bolivia; (B) Pablo Bauer, Santa Cruz, Bolivia; (C) Adhemar Gomes, São Paulo, Brazil

1. This document is HS1462, one of a series of the Horticultural Sciences Department, UF/IFAS Extension. Original publication date August 2023. Visit the EDIS website at https://edis.ifas.ufl.edu for the currently supported version of this publication.

2. Sergio Gutierrez, former student intern, Horticultural Sciences Department; Tatiana Sanchez, Extension agent II, commercial horticulture, UF/IFAS Extension Alachua County; Zhaohui Tong, former associate professor, Department of Agricultural and Biological Engineering; and Guodong Liu, associate professor, Horticultural Sciences Department; UF/IFAS Extension, Gainesville, Florida 32611.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. For more information on obtaining other UF/IFAS Extension publications, contact your county’s UF/IFAS Extension office. U.S. Department of Agriculture, UF/IFAS Extension Service, University of Florida, IFAS, Florida A & M University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Andra Johnson, dean for UF/IFAS Extension.
Achachairu leaves are glossy, dark green, coriaceous (leathery in texture), and opposite (Figures 2 and 3) (Duarte 2011; Joyner 2000). Monoecious—i.e. having both male and female reproductive organs in the same flower (Duarte and Paul 2015)—Garcinia h. grows creamy white flowers (Marinho 2019).

The tree adapts well to warm climates (Winterstein 2016) and moderately acidic to moderately alkaline soils. Optimal pH levels in soil range from 4.7 to 6.6 (Joyner 2000); grown in central Florida, achachairu thrives in well-drained alluvial soil with sufficient moisture (Lim 2012). Garcinia h. can reach a height of 20 to 50 feet (Figure 3) (Duarte 2011; Joyner 2000). There is a 7-acre farm in south Florida that sells achachairu online at https://miamifruit.org/products/achacha-achachairu-box.

Growing Achachairu

Mature achachairu-seeds are typically brown, cylindrical, recalcitrant (intolerant to dry conditions or temperatures lower than 50°F), and apomictic (reproducing asexually but by different propagation from cuttings; apomictically produced plants are genetically identical to the parent plant) (Duarte and Paul 2015). Immature seeds are lighter in color and softer than mature ones. The average achachairu has fewer seeds per fruit (1–2 [Duarte and Paul 2015]) than its close relative, the Malabar tamarind (Garcinia cambogia), which carries 6–8 seeds per fruit (Rasha et al. 2015). (Native to Southeast Asia, the Malabar tamarind is widely cultivated in India, Sri Lanka, Malaysia, and Africa [Rasha et al. 2015]. As a fruit crop, the G. cambogia is not classified as invasive.) Achachairu-seed germination can be problematic due to the seed recalcitrancy but improvable by seed coat removal or by applying gibberellic acid (Duarte and Paul 2015).

Direct seeding and grafting are both suitable for propagating achachairu. The seedlings may be transplanted once they reach a size of 16–20 inches (Figure 4). Achachairu scions are grafted onto 3- to 4-year-old ocoro (Garcinia madruno [Kunth] Hammel) at the rootstocks, 10–12 inches above the soil surface (Duarte and Paul 2015; Joyner 2000). Grafting is the preferred method; grafted plants can be harvested earlier for a better market price. Over-irrigation is detrimental, increasing the risk of root disease. In the orchard, achachairu plants should be spaced at 26–33 feet (SNV 2019). Achachairu trees can tolerate partial shade during the early growth stage (Paul and Duarte 2011) and can be intercropped with maize, bell peppers, eggplants, tomatoes, other fruit crops, and even vegetable crops (Figure 5).

There is no fertilizer recommendation available for commercial achachairu production in Florida. Achachairu growers may use the recommendations for litchi production (https://edis.ifas.ufl.edu/publication/MG051) for the time being because these two fruit-crops are similar in size.
and productivity in Florida. Pruning can make harvesting simpler and easier. Achachairu fruit species can be pruned in the early growth stage. Pruning older trees should be primarily limited to the damaged branches or those close to soil (Duarte and Paul 2015).

**Achachairu Consumption**

Achachairu have diverse applications. The trees can be grown as ornamentals (Joyner 2000). The achachairu rind can be used for winemaking (Lim 2012), and natural extracts of dry leaves have shown antibacterial properties (Osorio, Londoño, and Bastida 2013). Achachairu fruit can be consumed raw or incorporated into juices, pastries, sorbets, ice-cream, desserts, jams, or jellies (Winterstein 2016; Marino 2019).

**Summary**

Achachairu may turn a profit in Florida. This fruit crop can diversify Florida’s farming systems, fruit markets, and food supply, strengthening Florida’s fruit industry. Florida’s unique climatic conditions present many advantages for commercial achachairu production.

**Acknowledgements**

Dr. Edward Hanlon, professor emeritus at the Department of Soil, Water, and Ecosystem Sciences at UF/IFAS, reviewed and improved this manuscript.

**References and Further Reading**


