

'Āina Exotics: How to choose shade tolerant plants as an understory in tropical food forest systems

When designing self-sustaining tropical food forest systems one way to achieve maximum productivity is to carefully strategize planting the understory. The understory layer can include climbing vines, ground covers, herbs, shrubs, root crops and dwarf fruit trees. These can provide a great diversity of potential harvest of medicinal plants and food in a space that might otherwise go unused. Many of the plants included in the understory are economically viable, niche market crops.

Timing: When considering planting understory crops the timing is a key factor. It may be some time before the shade of a fruit tree provides enough shade to plant understory species. Some understory species can be installed early in the system to provide support for the fruit trees in the form of mulch, shade and nitrogen fixing qualities. In the early stages, many of the layers of the understory can be filled in with more productive sun loving vegetable crops. However, after more than four years some of the trees will provide enough shade to start implementing shade tolerant understory plantings.

Growth rate and weed characteristics: Some plants may have very vigorous growth that could potentially compete with fruit trees. In a shade dominant system this can be less of a problem, however rampancy of growth and “weediness” should always be considered before introducing a plant into the system.

Many of the understory plants can also grow well in sun but tolerate shade. It is important to research what species are right for you and when to introduce them into the system. Annual vegetables can be grown in the earlier stages of implementing a food forest system or a new orchard. The annual vegetables listed below have a higher tolerance to shade than others, but still need some filtered sunlight to produce.

Root crops/rhizomes

Ginger
Galangal
Cardamom
Turmeric
awapuhi
Sweet potato
Kava
Arrowroot
Yacon
Yam
Taro
Cassava
Ape Elephant Ear

Annual Veggies

Amaranth
Beans
Beets
Broccoli
Calendula
Celery
Chervil

Cress
Cucumber
Endive
Fava
Kale
Kohlrabi
Leeks
Nasturtium
Parsnip
Peas
Pumpkin
Purslane
Radish
Salsify
Sorrel
Turnips

Other

Pineapple
Ferns
Comfrey
Kang kong
Vanilla

Sissoo spinach
Lilikoi
Black pepper
Bamboo
Monstera
Yerba Mate
Guayusa

Small trees and shrubs

Coffee
Tea
Edible hibiscus
Palms
Mulberry
Katuk
Surinam cherry
Jaboticaba
Cacao
Mamaki