

Pigeonpea (*Cajanus cajan*) Culture in Central Florida

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Also known as gandul, Congo pea, no-eye-pea, red gram, dhal, toor, Gunds pea and alverja.

Language	Common names
English	Congo pea, pigeon pea, red gram, yellow dahl
French	Ambrévade, pois d'Angole
German	Straucherbse
Indian	Arhar, tuver
Portuguese	Feijoa-guandu, guandú, guisante-de-Angola
Spanish	Cachito, gandul, quinchoncho
Mandarin	Kachang



Green pigeonpea pods.

This legume is a common protein source in tropical countries around the world. The green seeds as well as the seed pods are used as principal ingredients in many dishes of different cultures. Its definite origin is unknown, but the cultivars used in Central Florida can be traced back to India and Africa where this plant has been used for thousands of years.

Characteristics

Pigeonpea plants are a perennial legume which can reach a height between 3 and 12 feet. The compound leaves of this plant consist of three green leaflets which have a pubescence and darker color on the upper side and a gray-green color on the underside. The flowers are yellow with red lines or completely red on the exterior. The vegetative growth of the pigeonpea starts slowly, but accelerates when the plant reaches 2 to 3 months. The root system of pigeonpea consists of fine lateral roots as well as a large taproot which can reach a depth of 6 feet. This root provides the pigeonpea with the capacity to overcome moderate drought periods.

Adaptability

Pigeonpeas are adapted to a broad range of soil conditions and types. They prefer well drained soils and do not tolerate waterlogged ground. Plants can be grown in soil containing a pH ranging from 4.5 to 8.4.

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Plants will reach optimal growth in warm temperatures (65 – 95°F). Temperatures below 32F will cause defoliation and limb damage, nevertheless in zones where freezes are a threat pigeonpeas can be ratooned all the way to 1 to 2 feet in height, and the trunk protected from freeze (if soil temperatures stay above freezing).

The pigeonpea has been documented to survive prolonged droughts of up to 6 months, but as a result from this, flowering has been delayed. In areas where excess moisture is a problem, pigeonpeas can be mounded on beds of 12 to 24 inches and 4 to 6 feet wide. The mounds will provide a good drainage surface where lateral roots can develop.

Flowering

Many varieties of pigeonpeas have been selected on specific growth habitats and photoperiod (day length) responses depending on where they were developed. Nevertheless, older pigeonpea varieties generally flower during short days. There are early varieties which are day-neutral. These flower 50 to 320 days after planting. Photoperiod sensitive varieties flower 175 to 430 days after planting.

Culture

Plant the seed at a depth of 1.5 inches. Space between plants should be 1 to 3 feet for smaller varieties while bigger varieties should be planted every 6 to 10 feet. Place 2 to 3 seeds per furrow. After these emerge thin plants and leave the one that looks stronger. The spacing between rows typically is 2 to 10 feet depending on the variety.

In the majority of the soils in Central Florida occurs a strain of *Rhizobium* if there has been some type of legume planted previously. This bacteria is essential for the development of root nodules. These structures will help legumes such as pigeonpea sequester atmospheric nitrogen which the plant will use to form proteins to build tissue and fitochemicals. There are commercial forms of *Rhizobium* which you can purchase and inoculate the seed before or at planting.

Generally pigeonpeas do not require much fertilization, but it responds well to sulfur on soils that lack this element.

Pigeonpea germination will depend upon soil temperature. At soil temperatures above 60°F, pigeonpeas will germinate within 2 weeks if sown directly in the ground.

Management

Pigeonpeas can be considered as an annual shrub in areas susceptible to freeze such as North and Central Florida. In India, this plant is strip-cropped with sorghum, cotton, pineapple, sesame, and/or corn.

In Florida and the Caribbean, pigeonpeas are harvested by hand when seeds reach their maximum size within the pod chamber, while the pod still green. During this period, the seed has a sweet flavor. For most varieties, as the seed matures its color changes from green to white to cream and light tan when it dries in the pod.

In semi-tropical zones, the pigeonpea can be planted in pots during mid to late winter months (January in the Northern Hemisphere) inside a greenhouse or protected structure for a few months. When the chance of frost has expired (in Central Florida this generally refers to mid-March), transplant the seedlings directly in the field. The pigeonpea must be planted in full sun and watered constantly for the first 2 months. Water is important during this time until the root system develops.

Common Varieties

There are 86 different known varieties of pigeonpeas which vary in plant height, response to photoperiod and size of the seedpod. These plants have been selected from lines original to Africa or India. Below you can find a list of known commercial varieties:

Variety	Growth Habit	Description
Flavus	Early	Dwarf variety of early maturation. Yellow flower. Originated in India.
Bicolor	Late	Perennial variety. Late maturing. Flower with red exterior and yellow interior. Purple seedpod. Green seeds contain purple spots.
Amarillo	Early	Dwarf variety of early maturation. Yellow flower. Originated in Florida.
Hunt	Early (65 – 80 days)	Neutral in response to photoperiod. Grows to a height of 3 feet.
Quantum	Early (65 – 80 days)	Neutral in response to photoperiod. Similar in growth to Hunt but produces a bigger yield.
Quest	Early (50 – 75 days)	Neutral in response to photoperiod. Similar in growth to Hunt and Quantum. Seeds are lighter in color.
Norman	Early	Resistant to nematode <i>Meloidogyne incognita</i> .
FL81d	Early	Resistant to nematode <i>Meloidogyne incognita</i> .
ILRI 16555	Late	Developed in Ethiopia and Nigeria. Late maturing variety. Flowers during short days. Well adapted to acidic soils.

Pigeonpeas can cross-pollinate when two or more varieties are planted close by. Although crosspollination it is not well understood in this crop, to maintain the purity of a cultivar, it should be planted 2 miles away from any other variety.

Additional Uses

Aside from being an important food source in the tropics, pigeonpeas are being used as a source of browse for livestock as well as a cover crop and green manure source which enriches the soil composition.

In several countries, home remedies are produced from processing pigeonpea leaves to treat respiratory diseases such as bronchitis and pneumonia. It has also been documented that the pigeonpea has been used in India to reduce swelling. In Chinese stores pigeonpea roots are sold to be used in the confection

of anthelmintic, expectorants and sedatives. The leaves have been used to relieve toothaches and as oral rinses. It has also been documented that in some countries this plant has been used in confections used during parturition, and to cure diarrhea. The scorched seeds are commonly used as an additive to coffee to relieve headache and dizziness.

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