

windbreak, cover crop, traditional medicine and green manure for vegetables. Green immature seeds are canned in the Carribbean.

Acknowledgement

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Pigeon peas



**agriculture,
forestry & fisheries**

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

Pigeon peas



Scientific name: *Cajanus cajan* L.

Common names: Pigeon peas; Lethlodi; Ndozi; Duifert; Udali; Dithlodi; Tintoji

Background

Pigeon peas originated in India and appeared about 2000 BC in West Africa, which is considered to be their second major centre of origin. Pigeon peas are currently widespread throughout the tropics and subtropics. They are cultivated in India, Malaysia, Indonesia, the Philippines, the Caribbean, East and West Africa.

Production areas

Limpopo—Bohlabela, Capricorn and Mopani districts
Mpumalanga—Gert Sibande, Ekangala, Ehlanzeni South and North districts

Agronomic requirements

Climatic requirements

Pigeon peas grow well under temperatures of between 18 and 35 °C. Bright sunshine is needed for optimum yield. The plants are sensitive to waterlogging and frost.

Soil requirements

The crop grows well in all types of soils, varying from sandy to heavy loams, with well-drained medium heavy loams being best. It requires a pH level ranging from 5,0 to 7,0. Excessive acidity inhibits nodulation; the plants become chlorotic and suffer die-back disease.

Rainfall

Pigeon peas are drought tolerant but are frost intolerant legume crops. These also have a wide range of rainfall intolerance, however optimal rainfall ranging between 600 and 1 000 mm per annum is preferable. Under dry areas with less than 600 mm annual rainfall, pigeon peas produce seeds abundantly owing to the crop maturing early and the incidence of pest damage being low. Pigeon peas prefer moist conditions for their first two growing months and drier conditions during flowering and harvesting.

Cultural practices

Propagation material

Pigeon peas are best established by direct seeding in a well-prepared seedbed. Seed inoculation is not usually needed, however a cowpea group strain of *Rhizobium* can be used.

Soil preparation

Pigeon peas thrive best in a seed bed prepared by deep tillage to reduce weeds. Primary tillage in the autumn helps the soil to dry and warm up faster in spring and makes earlier seeding possible.

Planting

Planting starts from October to December and placement of the seeds is from 4 to 5 cm deep; the deeper figure being in hand dibbling. Seeds can be spread at a seed rate of 45 to 67 kg/ha, alternatively a maize planter can be used for seeding. The long and medium duration plants are planted at an interspacing of 70 to 90 cm.

Fertilisation

Normally, plants show little response to nitrogen fertilisers and phosphorus and require enough calcium, potassium and magnesium. Such plants need to be inoculated with *Rhizobium* to enhance nitrogen fixation. Pigeon peas have the ability to survive and give good economic returns in a drought-prone environment and low-input farming systems. The root nodules of the peas enrich the soil by adding about 40 kg of nitrogen per hectare. Pigeon peas can be used as a green manure crop.

Irrigation

Under dry areas with less than 400 mm annual rainfall per annum, water can be supplemented by irrigation for the first two growing months. From flowering to harvesting, the irrigation should cease in order to reduce damage by pests and diseases.

Weed control

Pigeon peas are very sensitive to weed competition, especially in the first 45 to 60 days of growth, owing to its slow initial growth rate. Effective weed control at the early growth stages of the crop is one of the most important factors contributing to high yields, especially during the first 4 to 8 weeks. Thereafter, herbicides such as Alachlor and Metolachlor should be applied at 1,25 litres per hectare within 2 to 3 days after planting.

Pest and disease control

Insect pests such as pod-sucking bugs (*Clavigralla* spp.), pod fly (*Melanagromyza* spp.) and pod borers (*Helicoverpa armigera*) and diseases, namely: rust, downy mildew and *Cercospora* leaf spot have an adverse impact on the productivity of pigeon peas; they also lead to poor-quality seed. Pests and diseases reduce the plant stand, however, they can be controlled by the use of pest-resistant cultivars, crop rotations, weed removal and inoculation with a cowpea group strain of *Rhizobium* and intercropping with cereals.

Harvesting methods

Most of the seed pods are picked by hand, although mechanical harvesting can be used too. The mature crop is harvested by cutting the entire plant with a sickle. For dry grain, harvest when 80% of the pods are fully matured and have turned brown. The pods may be hand picked at maturity when a second ratoon crop is needed.

Uses

Human uses

Pigeon peas are used primarily as a vegetable food crop that serves as a source of protein, carbohydrates and other minerals. The flavourful seeds are eaten both in fresh, shelled, dried and flour form. In Africa and Indonesia, the mature seeds are soaked for several hours and pounded and fried or steamed. The local South African population of Mpumalanga uses the whole seed for making porridge and soup with or without meat.

Animal consumption

Pigeon peas are an excellent form of fodder that can be used for animal and poultry feed.

Other uses

Pigeon peas are also essential to nitrogen fixation and good for intercropping and crop rotation. The branches and stems can be used for baskets and fuel. It can also be used as a shadow crop,