

Harvesting maturity

The beans can be harvested within 75 to 90 days when pods are mature and dry but before they start shattering or when one-half to two-thirds of the pods are mature or when the seed moisture content is 14 to 16%.

Uses

Mung bean is used in several food products, both as a whole seed and in processed form. Its principal use is sprouts production and it can also be used for dhal in ethnic cooking. It is a staple legume in many diets round the world. Processed mung beans are used as a soup base and for bean flour which is used for making noodles.

Acknowledgement

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Mung bean

Vigna radiata



agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

Scientific name: *Vigna radiata*
Family: Fabaceae
Common names: Mung bean, Dithlodi, Mungboontjie,
Green gram

Origin and distribution

The mung bean was domesticated in India, where it has been used for 3 500 years. It was selected from a wild species of mung bean (subsp.sublobata), which is widely distributed in Asia and Africa. The crop is produced on a large scale in southern and eastern Asia. China, Australia, the US and other countries have started growing these crops.

Production areas in South Africa

The major production areas in South Africa are the Limpopo and Mpumalanga provinces.

Description of the plant

Mature plant

Mung bean is an erect plant which is highly branched and about 60 to 76 cm tall. It looks more like a garden bean.

Roots

They are deep rooted just like the roots of the black-eye bean.

Stems

The growth habit includes both upright and vine types, with plants varying from 0,5 m to 1,3 m in length.

Leaves

They are trifoliolate like those of other legumes.

Flowers

The pale yellow flowers are borne in clusters of 12 to 15 near the top of the plant.

Pods

They are small, thin, cylindrical and the colour varies from black and brown to pale grey when matured. They are 7,5 cm to 10 cm long, each having 10 to 15 seeds. They develop in clusters at a leaf axil, with typically 30 to 40 pods per plant.

Seeds

Seed colour exhibits a wide range of variations at maturity from yellow, greenish yellow, light green and shiny green to dark green, dull green, black, brown and green mottled with black.

Essential parts

The seeds are the essential part of the plant.

Climatic and soil requirements

Temperature

Mung bean is a warm season crop, requiring 90 to 120 days of frost-free conditions from planting to maturity, depending on variety. The optimum temperature range for growth is between 27 and 30 °C. Seed can be planted when the minimum temperature is above 15 °C.

Rainfall

Adequate rainfall is required from flowering to late pod fill. High humidity and excess rainfall late in the season can result in disease problems and harvesting losses owing to delayed maturity.

Soil requirements

Mung beans do well on fertile, sandy loam soils with good internal drainage and a pH of between 6,3 and 7,2. The crop requires slightly acid soil for best growth and does not tolerate saline soils as it triggers severe iron chlorosis.

Cultivation practices

Propagation

Mung beans are propagated through seeds.

Soil preparation

A well-prepared seedbed with good moisture content is preferred for mung beans. Laser levelled fields with a relatively steep position are preferred.

Planting

Mung beans should be planted between late November and early December like other legumes. A population density of 200 000 to 350 000 plants per hectare under dryland conditions and 400 000 plants per hectare under irrigation is recommended. Seeds should be sown directly, at least 2 weeks after the end of frost at a depth of 4 cm with good soil moisture and at 7,5 cm if the soil layer is dry. In full sun, set the seeds 5 cm to 10 cm apart and 2,5 cm deep in beds that are slightly elevated for better drainage. Eventually the plants should be thinned to 15 cm apart. Seed germination is rarely higher than 50% to 60%.

Fertilisation

Phosphate fertiliser is usually required at 5 to 10 kg/ha on dryland crops and 10 to 20 kg/ha on irrigated crops. It is always advisable to conduct soil tests and follow the recommended applications, while considering the anticipated yield. If the soil pH is below 6,3, lime should be applied to raise the pH to the desired level.

Irrigation

Mung beans are sensitive to waterlogging and therefore require less water than many other crops. The most critical time of irrigation is during flowering and early pod fill.

Weed control

Weed control is essential, because competition between the beans and weeds is reduced, therefore ensuring high yields. Black and hairy nightshade, yellow nutsedge and annual summer grasses are the major weeds that are encountered. Hand weeding at about 40 days after planting is beneficial. Intertillage by hand should be performed once or twice. Rotatory hoeing should be performed as needed to remove weeds until flower initiation. Cultivation of damp plants should be avoided, because this could result in the spread of bacterial and fungal diseases.

Pest and disease control

Insect pest control is also important if one wants to achieve high seed quality. The main insect pests of mung beans include the plant/leaf bugs (*Lygus*), bean fly (*Ophiomyia phaseoli*), *Ophiomyia*, *Melanagromyza sojajae*, bruchid beetle (*Callosobruchus maculatus*), stinkbugs (*Nezara viridula*).

Other important pests include aphids, cucumber beetles, mosquitoes and several species of worms; however, these cause minimal damage. Chemical control involving the use of chemicals is usually necessary, but care should be taken when choosing the insecticides and they should be applied at the right time in order to achieve maximum control.

Mung bean, like any other leguminous plant, is susceptible to diseases caused by fungi, bacteria and viruses. The crop is attacked by mung bean yellow mosaic virus (MYMV), powdery mildew, *Cercospora* leaf spot, *Sclerotium* blight, leaf blight, scab and charcoal rot. Various leaf and stem pathogens such as powdery mildew and bacterial blight are frequently seen but do not cause extensive damage. Control measures include the use of resistant varieties, fungicides, deep planting and removal of crop debris and weed hosts during planting.