

BACKGROUND

Origin

The green bean was born in the hot region of the Americas, India and China.

Climatic requirements

The green bean is a summer crop that is very sensitive to frost. Temperatures only a few degrees below freezing usually cause severe damage to the plants. The optimum mean daily temperature for growth, yield and quality is 16 to 21°C. Temperatures above 35 °C, particularly when accompanied by dry winds, tend to cause the flowers and young pods to drop, the result being poor crops. If the night temperature often drops to 5 °C or lower, a large percentage of hollow pods will form. Frequent low night temperatures will also give rise to short, misshapen pods. Green beans are grown widely as a winter crop in the relatively frost-free areas of the Lowveld. However, it is evident that, although a certain area may be relatively frost free, it will not necessarily be suitable for winter production. The night temperatures may drop too low for normal pod formation. Similarly, good midsummer yields cannot be expected in areas where the day temperatures often rise above 30 °C. In the Lowveld, production will therefore be limited to autumn, winter and spring.

Soil requirements

Green beans are sensitive crops with a short growing season. They require a deep, Well-drained but water-retaining soil that will promote rapid establishment and an uninterrupted growth period. Green beans can nevertheless be cultivated with success on soils that vary from sandy to relatively heavy clay. Soils with a high

organic material content produce luxuriant growth but poor yield. The optimal pH value for green beans varies from approximately 6 to 6,5. Soils with a pH above 6,8, particularly strong alkaline soils, may cause a manganese deficiency and must be avoided. Acidic soils (below pH 5,5) can be used, provided that agricultural lime is applied prior to planting.

Uses

Fresh green beans add colour and variety to meals. Beans are also a good source of Vitamin A and C if cooked for a short time in a very small quantity of boiling water until just tender. Do not cook too long or the beans will become mushy and lose their bright green colour. The

pods are cooked and eaten as a vegetable or used in tossed salads, soups or canned. Dry seeds are cooked and eaten.

CULTURAL PRACTICES

Planting

It differs in the various production areas. In the Mpumalanga Middleveld planting can be started at the end of August until mid-February, however, the best time to plant is September and mid-January to mid- February to avoid bacterial blight. In the Lowveld planting time is usually from February to September. Green beans are planted in spacings of 5 cm in the row and 45 cm



between the rows. The seed size of the cultivar could require a change in the planting space.

Fertilisation

The application of fertiliser should be based on test results of the soil. Fertiliser recommendations can only serve as rough guides because no two soils will have exactly the same fertility. For a correct recommendation, soil analysis is therefore a prerequisite. Green beans, like all legumes, form a symbiotic relationship with a specific soil bacterium. *Rhizobium* spp. make atmospheric nitrogen available to the plant by a process called nitrogen fixation.

Irrigation

Irrigation is a necessity for beans on light, sandy soils and even on heavier soils. Adequate irrigation during flowering and pod development is needed for best yields.

Sprinkler irrigation

Sprinkler irrigation can be used to prevent the rapid exsiccation of the soil or the formation of a hard crust; it is ideal during the germination stage of the seed.

Flood irrigation

It is less labour intensive and has a more favourable effect on the structure of the soil.

Weed control

Cultivation and hoeing, which are employed primarily to keep down and destroy weeds, should start when the bean plants first appear above the soil and should be shallow, especially as the plants approach maturity. Many of the feeding roots of beans are close to the surface and are damaged easily by deep cultivation.

Pests and their control

Major pests that attack green beans are the bean weevil, root-knot nematode, aphids and bollworms.

Control

Use registered chemicals/pesticides. Plant only certified seeds. An integrated pest management programme can be followed.

Diseases and their control

Anthrachnose and brown rust are major diseases of green beans.

Control

An integrated pest management programme can be followed. Plant early. Dust regularly with maneb/sulphur or mancozeb/sulphur. Some of the registered chemicals that can be used include mancozeb or maneb or plant only certified seeds.

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