



## French bean cultivation in Africa

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### Requirements

Under tropical conditions, French beans are mainly grown during the dry season in the Sahel zone (Senegal and Burkina Faso). In Kenya, production zones are at different altitudes with different climates and so beans can be produced all the year round. Although it grows on many soil types, French bean does best in soils that are fairly heavy but not too much so as the plants are susceptible to root asphyxia. The vegetative cycle is very short, especially in Sahel areas, with harvesting beginning 45 to 60 days after sowing. The cycle is longer in highland zones in Kenya, lasting for a minimum of 60 days. For this, plant development must be enhanced, with rigorous attention paid to fertilisation and irrigation. In spite of its short vegetative cycle, green bean is subject to attacks by pests and diseases that can affect both produce quality and financial returns.



### Soil

Crop rotations are necessary to reduce fungal attacks after germination and emergence and to enhance field productivity. The best preceding crops are cereals. Leafy vegetables and Cucurbitaceae should be avoided. Soils with various textures (silty-sandy, clayey-sandy) can be chosen. Cultivation is possible on sealing soils (silty) but a few precautions are required during the sowing to emergence period. Bean has a short vegetative period and so must develop rapidly. This is why meticulous, rigorous attention must be paid to soil preparation. Soil suitable for growing French beans must have the following features:

- tilled to a minimum depth of 35 to 40 cm;
- homogeneous structure and a fine, aerated seed bed;
- satisfactory levelling to avoid wet areas (causing poor plant development and the risk of fungal attack).

The basal dressing must be placed when the soil is prepared so that it is located in the root development zone. Organic fertilisation is not recommended as it can increase susceptibility to pests and diseases in case of poor decomposition. Only well-rotted organic material turned in when the land is prepared can be applied.

### Sowing

Sowing must be performed so as to allow reasonable but not excessive vegetative development of the plants. Too high a density causes the etiolation of the plants, thus increasing fragility and sanitary risks. This is why the following factors must be taken into account in sowing densities:

- the variety and its vegetative development;
- the planting season (lower densities in wet periods);

- the irrigation method used (lower densities with furrow irrigation).

Registered, treated seed is recommended as this protects the seedlings against the first pests (bean fly) and is free of diseases of the *Fusarium* and common blight type. The quantity of seed required is some 30 kg per hectare for densities of about 200 000 to 250 000 plants per ha. When trickle irrigation is used, higher densities of up to 300 000 plants per ha are sown. In-terrow spacing is generally 30 to 40 cm and the plants are set out at 5 to 7 cm intervals along the rows. In rainy or very humid periods, greater spacing along

the row allows the plants to dry more quickly after rainfall. Seeds are sown at a depth of 2 to 5 cm on soil that has been left to drain well (if irrigation has been applied prior to sowing). Care should be taken not to sow at too shallow a depth in light filtering soil (sandy). In contrast, a depth of 2 to 3 cm is enough in heavy and/or sealing soil. Although irrigation is necessary and recommended in sandy soil, watering is not recommended between sowing and emergence in sealing soil. As a general rule, pre-sowing irrigation of silty-clayey soil is sufficient for germination and homogeneous, regular emergence in the field.