

# DRY BEANS GROWING

## Ecological requirements

Common beans grow within a range of temperatures of 17.5 - 27°C. In temperatures above 30°C flower buds are likely to fall and seeds are rarely formed at temperatures over 35°C. They are sensitive to night frost. Common beans are usually grown at altitudes between 600 - 2000 m above sea level.

A moderate well-distributed rainfall is required (300 - 400 mm per crop cycle) but dry weather during harvest is essential. Both drought and waterlogging are harmful. Suitable soil types range from light to moderately heavy and to peaty soils with near-neutral pH and good drainage. Common bean is susceptible to salinity.

Yields of up to 10 bags per acre can be obtained but low rainfall, poor crop management, low fertility; high bean fly incidence and use of inappropriate seed variety can hinder this.

## Common Bean Varieties

Bean type	Agro-Ecological Zones
Canadian wonder	Medium rainfall areas
Mwitmania	Low –high rainfall areas
Red haricot	High rainfall areas
Rose coco	Medium-high altitude areas
Wairimu dwarf	Low rainfall areas
Mwezi moja	Low-medium rainfall

## Seed

Good quality seeds of the appropriate variety should always be used for high yields.

### Certified Seeds

It is recommended that you buy certified seed from reputable companies like Kenya Seed Company. Certified seeds have almost 100% germination and are free from diseases.

If you are to use your own seed, select seeds that are:

- Uniform variety
- Free from seed-borne diseases and pest damage

- Free from inert materials
- Not shrivelled, mouldy or cracked
- Not rotten or discoloured

### Own Seed

If you use your own seed, treat with APRON STAR from Syngenta at the rate of 20g for each 4kg of seed.

### **Land preparation**

Prepare land to a fine tilth 2-4 weeks before onset of rains to allow organic materials to fully decompose. Hoes, oxen plough and tractors can be used for ploughing.

### **Time of planting**

Timely planting is crucial and sowing should be at the on-set of the rains after a minimum of 30mm of rainfall has been received.

### **Seed rate**

40-50kg/ha (16-20kg/acre), 2 seeds per hill

### **Spacing:**

Plant at 45cm between rows, and 20cm between plants for sole crop (put 2 seeds per hill).

Beans are excellent for inter cropping with other food crops, such as maize and can help supply the other crops with nitrogen to a limited degree.

When inter-cropping with maize, inter plant 2 bean rows between the maize rows at 15cm within the row and put 1 seed per hill

### **Fertilizer**

Use of Farmyard Manure (6-8 ton/acre) is recommended especially where soils are low in organic matter. DAP fertilizer should be applied at the rate of 1/2 bag/acre (25kg/acre) during planting. The fertilizer should be thoroughly mixed with soil before covering the seed.

### **Using an Inoculant like Bio-fix**

It is recommended to use an inoculant to help beans get Nitrogen from the air. When bean seeds are inoculated with Bio-fix, it increases the crop's Nitrogen intake to levels higher than those experienced with mineral fertilizers. The result is faster growth and higher yields of beans. BIO-FIX is not expensive and is available in various quantities. Put 2 spoons sugar/30g gum arabic in the pack in 300ml lukewarm water and mix well with 15KG seed as per instructions on the pack. Make sure all seeds are wet and then pour 100g / 10 teaspoonful of inoculant to the wet seeds and put in the shade covered with a sack. Plant the same day. READ INSTRUCTIONS ON THE PACK

## **Weeding**

The first weeding should be done 2-3 weeks after emergence and the second 3 weeks later (before flowering).

## **Crop Protection**

Insect pests include:

- Bean fly at seedling stage
- Black bean aphid - common during cool dry periods
- Bean leafhopper - during vegetative stages
- Pod borers - during pod formation
- Bean weevil - during storage.

## Control

It is important to regularly inspect your crop to see whether there is attack and to control the pests early. If you control early there will be less damage and you will spend less money on control. Osho and Syngenta has good insecticides to control all the above insects. These insecticides are available in agro-vet stores.

## **Diseases**

Beans are attacked by various diseases. These are in 3 broad categories: Bacterial, Fungal and Viral.

### Bacterial Diseases

- Halo blight
- Common Blight

### Fungal Diseases

- Anthracnose
- Angular Leaf Spot
- Bean Rust
- Fusarium Root Rot
- Bean Scab

### Viral Diseases

- Bean Common Mosaic Virus

## **Control**

Many of the above diseases can be controlled by:

- Good field sanitation
- Use of certified seeds
- Rouging and destroying infected plants
- Planting resistant varieties
- Crop rotation
- Seed dressing like Apron Star from Syngenta
- Using recommended chemical application (Syngenta has good chemicals for control of many of these diseases)

## **Harvesting and Storage**

Harvest Beans when pods are dry and turn brown, before they start to open and grains drop. Do not wait too long. Dry the pods in the sun before threshing.

Protect Beans from pests in store. Use ACTELLIC SUPER DUST at 50g for 90kg seed. Put seed on clean surface and spread the dust over seed and gently mix them. Re-dust again every 6 months.