



MINISTRY OF AGRICULTURE

# SUGAR BEANS

## FACT SHEET



## **1.0 Background**

Sugar beans are an important food crop grown for both household food security and commercial purposes. It is a widely consumed crop and is a good source of proteins (20 – 25%) and dietary fibre. They also contribute to soil improvement.

## **2.0 Adaptability**

Sugar beans can be grown in all agro-ecological regions; provided climatic conditions are favourable during the growth period

### **2.1 Climatic and soil conditions**

Sugar beans require warm to cool temperatures, full sunlight and frost-free period

2.1.1 Rainfall – optimal – 650 – 750 mm; but with a minimum of 400 mm, well-distributed over the growing period. They are sensitive to drought during flowering and pod-set.

2.1.2 Temperatures – optimal temperature – 18 – 24°C; temperatures above 30°C during flowering and pod-set cause abortion and blind pods

2.1.3 Soil conditions – dry beans require well-drained soils i.e. sandy loam, sandy clay loam or clay loam soils (clay content of 15 – 30%). The crop is sensitive to acid soils (grow well in pH between 5.5 to 6.5)

## **3.0 Varieties**

Choose variety based on:

- Market preference
- Yield potential
- Growth habit,
- Disease tolerance/resistance, among other factors.

Varieties can be determinate or indeterminate.

Short season varieties take 85-95 days; medium season varieties take 95-104 days; Long season varieties take 105-120 days

Locally available varieties include: Kranskorp, PAN 148, PAN 9216, CAP 2000, LAKE 101 and NUA 45 (bio-fortified)

## **4.0 Cultivation practices**

Sugar beans can be produced under conventional or minimum tillage practices. Soil depth should be at least 0.3m

**4.1** Land preparation - good seedbed, free of weeds with minimal clods are essential for seed germination and early growth stages

**4.2** Seed rate – 60 – 120kg/ha; depending on spacing and agro-ecological zone, planted at 5cm depth

- 4.3** Spacing – 45 to 60 cm between rows and 7.5 to 10 cm between plants; depend on agro-ecological zone, dry-land or irrigated
- 4.4** Plant population – 166, 666 to 300, 000 plants/ha
- 4.5** Planting depth – 5 – 7 cm (depend on seed size)
- 4.6** Planting time; recommendations:
  - Highveld; October to February
  - Moist Middleveld and Lubombo plateau - Sept/October and January to March
  - Dry Middleveld and Lowveld – Feb to March and mid-July (under irrigation)
- 4.7** Fertilizer requirement
 

Fertilizer requirement is usually determined through soil test results  
Seed inoculation with appropriate rhizobium is highly recommended

Nevertheless, these estimates can be used:

BASAL: 200 – 300 KG/HA OF 2.3.2(22) or 100 – 150 kg/ha 2:3:2 (37); applied at planting

Side dressing: 100 – 150 kg/ha LAN (depending on agro-ecological zone). Application of side-dress can be done on the onset of bud-formation

## **5.0Crop protection (weeds, insects and diseases)**

- 5.1** Weed management
 

Beans planted in a clean seed bed and correct spacing reduce weeding frequency

Beans should be weed free for the first five (5) weeks after planting. Weeding at bean flowering should be avoided

Weed management can be done through integrated weed management (IWM); a combination of:

  - Preventative strategy (use clean seed, clean implements, etc.)
  - Cultural (crop stand, mulching, etc.)
  - Mechanical (use of hand hoe, cultivators, etc.)
  - Chemical (use pre- and post-emergence herbicides)

- 5.2** Insect pests' management
 

Major insect pests are: Bean fly (Bean stem maggot), CMR beetles, stink bugs, pod borers and bruchids

Control measures can be integrated pest management (IPM) that includes:

  - Scouting
  - Preventative i.e. improve soil fertility, use tolerant varieties, removal of volunteer crops
  - Physical i.e. manual removal of insect pests or heavily infested plant
  - Cultural i.e. early planting, timely weeding, sanitation
  - Chemical i.e. use of registered seed dressings and insecticides

- 5.3** Disease Management

Major diseases include: bacterial (common blights), fungal (rust, anthracnose, leaf spots) and viruses (Bean common mosaic virus)

Management practices - Integrated Pest management (IPM) that includes:

- Scouting and rouging
- Preventative i.e. use of certified seed, use of tolerant varieties, sanitation
- Cultural i.e. crop rotation, timely planting and weeding, removal of crop debris and volunteer plants, intercropping with cereals
- Chemical i.e. use of registered seed dressings, bactericides, fungicides

## **6.0 Harvesting, threshing, drying and storage**

Harvest when pods have turned from yellow to khaki/light brown

Use plant, pod and seed indicators to check if beans are ready for harvesting

### 6.1 Harvesting and harvesting tips

Harvesting should be done early in the morning; mechanized harvesting should be done if there is no danger of rainfall

### 6.2 Drying (unshelled)

Spread beans in thin layer on concrete floored /threshing yard/black tarpaulin/polyethylene sheet

### 6.3 Threshing

By tractor or light motor vehicle raving too and fro on spread beans covered by sail, use bean thresher or thresh in bags (small-scale)

### 6.4 Drying (shelled)

Freshly threshed beans until they reach recommended moisture content for storage

### 6.5 Grading

Remove dirt, foreign material, diseased, weed seed, discolored and split

### 6.6 Storage

At recommended moisture content on clean, suitable bins or silos and protect produce against bruchids

## **7.0 Potential yield**

2 t/ha under good management and favourable climatic conditions and up to 3.0 mt/ha under irrigation