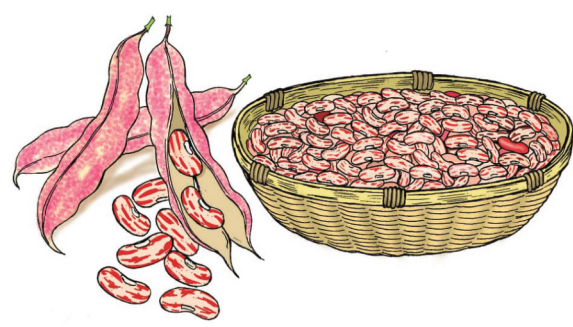



CLIMATE SMART SUGAR BEAN CULTIVATION




1. Benefits of sugar bean cultivation

- Valuable cash crop
- Enhances soil fertility through nitrogen fixation
- Valuable source of protein
- Easy to cultivate with the right inputs and effort



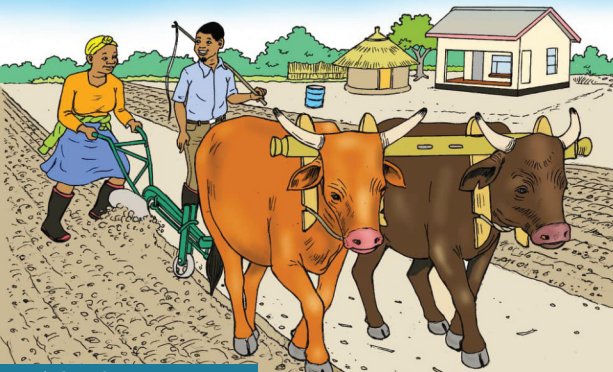
2. Climate and soil requirements

- Sensitive to frost
- Does not tolerate acidic soil
- Soil pH should be 5.0 - 6.5
- Rhizobia supplements helps form nodules and fix nitrogen




3. Time of planting

- 15 February to 15 April in the Lowveld (under irrigation)
- 15 January to 15 February (Middleveld)
- After winter in frost prone areas (end of July to 15 August)




4. Land preparation

- Clear land with hoe, animal power or a tractor
- Rotation scheme is important
- Alternate sugar beans with maize
- Use ridges or rows



5. Planting

- Quality seed ensures higher germination (rates)
- 100 - 120kgs of seed per hectare
- Plant in rows 20 - 30 centimeters apart
- Plant seeds 5 - 7 centimeters apart
- Plant 2.5 - 5 centimeters below the surface
- 250 - 300,000 plants per hectare



6. Fertilizer

- Applicable basal fertilizer types: Compound D (200 - 300kg/ha), Cereal Blend (150 - 250kg/ha), and Double D (100 - 150kg/ha)
- Manure can be used instead of fertilizer at the rate of 5 to 10 tons/ha
- Top dress with ammonium nitrate (AN) 2 - 4 weeks before flowering
- Recommended top dressing fertilizer rate is 150 - 200kg/ha on moist soil



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative



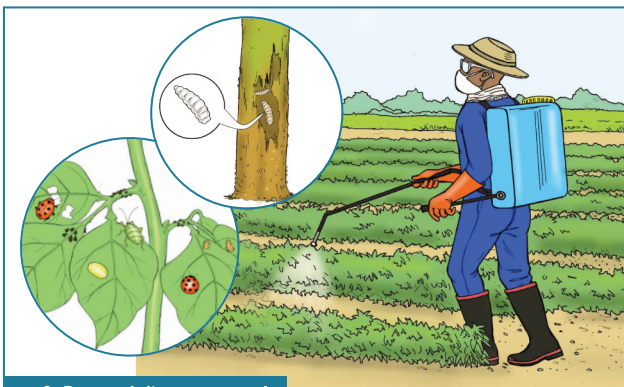
7. Irrigation

- **Germination:** irrigate soon after or before planting
- **Flowering:** irrigate sufficiently just before flowering to avoid irrigating a flowering crop
- **Pod setting:** irrigate soon after flowering. Irrigation should stop when leaves turn yellow to brown. Ensure plants receive adequate irrigation between flowering and pod maturity*



8. Weed control

- Control weeds to minimize competition for nutrients, water, sunlight and space
- Weed control can be manual or chemical, or both
- Choose herbicide based on types of weeds, crop rotation and cost



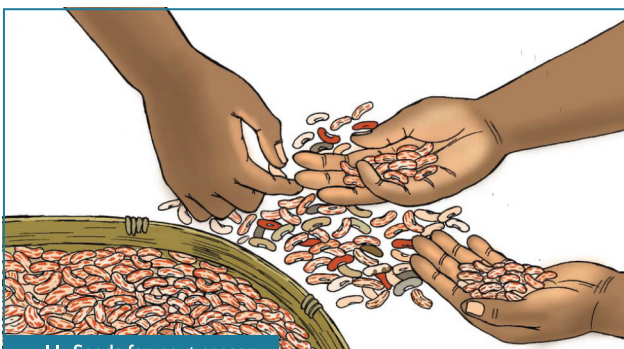
9. Pest and disease control

- Always monitor for insects
- Bean stem maggot, aphids, red spider mites, cutworm and blister beetle are common pests
- Dress seed with Apron Star to reduce disease
- Apply sugar bean specific pesticides



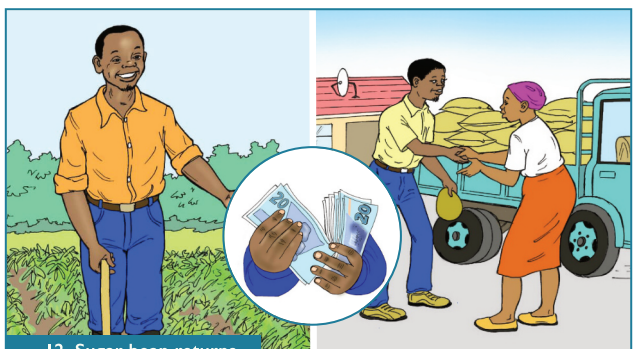
10. Harvesting

- Harvest when the leaves and pods are dry and yellow-brown
- Harvest by handpicking the plants and packing in heaps
- Dry the pods, thresh grains, dry and clean grains, store in clean bags or containers



11. Seeds for next season

- Before making any sales select the best seed for next season's crop
- Seed selection: high quality, clean, disease free, not broken or cracked
- Sugar beans self-pollinate and can be used for 3 - 4 growing seasons before introducing new seed
- Some farmers opt to bulk new quality certified seed after three years



12. Sugar bean returns

- One hectare of sugar beans can produce up to 1,500 kgs
- Ready market for sugar beans
- Sugar beans when cultivated successfully can return 2.5 to 3 times the investment



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