

Pre-storage seed treatment

- Treat with Carbendazim @ 2 g / kg of seed along with carbaryl @ 200 mg / kg of seed.
- Treat seeds with Halogen mixture ($\text{CaOCl}_2 + \text{CaCO}_3 + \text{arappu}$ (*Albizzia amara*) leaf powder mixed in the ratio of 5:4:1 @ 3 g / kg as eco-friendly treatment.

Storage

- Store the seeds with a seed moisture content of 10 - 12 % in gunny or cloth bags for short term storage (8 - 9 months).
- Store the seeds with a seed moisture content of 8 - 10 % in polylined gunny bag for medium term storage (12 - 15 months).
- Store the seeds with a seed moisture content less than 7 % in 700 gauge polythene bag for long term storage (more than 15 months).

(x) SWORD BEAN (*Canavalia gladiata* L.)**CLIMATE REQUIREMENT**

T_Max°C	T_Min°C	Optimum °C	Rainfall mm	Altitude m MSL
38	10	15 - 30	700 - 4200	1500

Tropical and subtropical warm and moist climate. It is widely cultivated in the humid tropics. tolerates salinity and waterlogging. This crop can grow in light shade under trees to serve as a nitrogen - fixing cover crop.

CROP IMPROVEMENT

Sword bean SBS 1 is an introduction and is one of the vegetables with photo-insensitivity. It matures in 110 - 120 days. It can be grown throughout the year and gives good response to irrigation. Tender pods are ready for harvest from 75 days after sowing. As a pure crop it gives an average grain yield of 1356 kg/ha and green pod yield of 7500 kg/ha. This can also be grown as border crop, intercrop and a shade crop.

I. SEASON

June - July (Rainfed), September - October (Rabi), February - March (Summer).

II. DESCRIPTION OF VARIETY - SBS 1

Year of release	1990
Plant habit	Dwarf, erect, bushy
Pigmentation	Green
Branches (No)	4 - 6
Inflorescence	Axillary raceme
Flower	Bold, light purple

Pods	Long, pendulous, green, flat and fleshy (for vegetable use). Becomes very hard on maturity.
100 seed weight (g)	131.6
Seed colour	Milky white
Days to 50% bloom	45 - 50
Salient features	Early duration (110 - 120 days) Vegetable cum grain crop Free from beany odour Highly nutritious and delicious (25.9% protein) No major pests and diseases

III. MANAGEMENT OF FIELD OPERATIONS

- Seed rate (kg/ha) : 110-120 (Pure crop)
- Fertilizers (kg/ha) : 25 N 50 P₂O₅
- Spacing : 45 x 30 cm (irrigated), 30x20 cm (rainfed)

INTEGRATED PEST MANAGEMENT FOR PULSE PESTS

1. Stem fly

- It attacks blackgram, greengram and cowpea.
- Adult fly is blackish and lay eggs on the young leaves
- Affected plants get dried
- Immature stage will be inside the stem
- Economic threshold level is 10% damage

2. Aphids

- Attacks blackgram, greengram, lab lab, cowpea and redgram.
- Congregated on the growing shoots, leaves, flowers and pods.
- Affected plants will be weak and stunted
- Because of honeydew ant movements will be there

3. Whiteflies

- Attacks blackgram, greengram, cowpea and soyabean
- Act as vector for yellow mosaic virus disease

4. Bugs

- Desap the flowers and pods
- Affected pods show shriveled grains

5. Pod borers

- Gram pod borer, spotted pod borer, blue butterflies, pod fly and blister beetles are the major borers
- Blister beetles feed on flower buds, flowers and young pods
- Spotted pod borers web the flowers and young pods
- Gram pod borer, plume moth and blue butterflies bore into the pods
- Pod fly feed on the seeds of redgram.

IPM

- Take up the sowing of blackgram from September to November with increased seed rate (25 kg/ha) in stem fly endemic areas.
- Remove alternate hosts
- Use of pheromone traps @ 12/ha for Gram pod borer
- Spray insecticides like Methyl demeton or Dimethoate or Monocrotophos @ 500ml/ha to reduce the sucking insects
- Spray Neem seed kernel extract (25 kg/ha) against pod borers
- Avoid insecticidal spray when parasitoids and predators activity is high.

6. Storage pests

- Dry the seeds adequately to reduce moisture level to 10 %.
- Use pitfall traps or two in one model trap to assess the time of emergence of field carried over pulse beetle in storage and accordingly sun-dry the produce.
- Seed: Mix any one of the following for every 100 kg : Activated kaolin 1 kg
Malathion 5 D 1 kg TNAU Neem oil 60 EC (C) 1lit. Pungam oil 1lit.
Monocrotophos 36 SL 400 ml
- Pack in polythene lined gunny bags for storage