

Varietal characteristics

- Plant height: 33.0 cm
- Number of primary branches: 6 to 7
- Pod length: 8-9 cm
- Seeds per pod: 11-12
- Pod per plant: 40-45
- Duration: 65-70 days
- Grain yield: 14-15 q/ha

Agronomic practices

Field preparation

- Prepare the land to get fine tilth.
- Apply the soil with FYM @ 12.5 t/ha.

Time of sowing

- December to January

Seed rate

- Use 20 kg seeds per hectare
- Dibble the seeds adopting a spacing of 30 x 10 cm.

Seed treatment

- Treat the seed with Thirum (2gm.) + Carbendazim (1gm.) or Carbendazim & Kepton (1gm + 2gm) to control the soil & seed germinated disease. For sucking pest control seed treatment with Imidacloprid 70 WS @ 7g/kg seed.
- It is also desirable to treat the seed with Rhizobium and PSB culture (5-7gm/kg seed).

Fertilizer application

- Apply fertilizers basally before sowing with the following composition 25 kg N + 50 kg P2O5 + 25 kg K2O

Water management

- Irrigate immediately after sowing, followed by life irrigation on the third day.
- Irrigate at intervals of 7 to 10 days depending upon soil and climatic conditions.
- Irrigating the field is compulsory during the flowering and pod formation stages as they are critical stages.

Weed management

- Apply any preemergent herbicide before sowing.
- If herbicide is not applied give two hand weeding on 15 and 30 days after sowing.

Plant protection measures

There are several important diseases and pests of mungbean. Yellow mosaic and anthracnose are important diseases while Aphids and Thrips are important insect pests.

Yellow Mosaic virus

- Rogue out diseased plants to prevent further spread.
- To prevent whitefly (*Bemisia* spp.) infestation, use triazophos 40 EC @ 2.0 ml/l, malathion 50 EC @ 2.0 ml/l, or oxydemeton methyl 25 EC @ 2.0 ml/l at 10-15 day intervals if required.

Leaf curl

Treat seeds with imidacloprid 70 WS @ 5ml/kg. Apply foliar spray of dimethoate 30 EC @ 1.7ml/ha on the 30th day after sowing.

Anthracnose

- Seed treatment with carbendazim 50 WP @ 2g/kg of seed helps eliminate seed-borne infection.
- Spray the crop with carbendazim @ 2g/liter of water at the first appearance of symptoms, and repeat after 15 days if necessary.

Aphids

- Treat seeds with dimethoate 30 EC @ 5ml/kg.
- Apply foliar spray of triazophos 40 EC @ 2.0 ml/l or malathion 50 EC @ 2.0 ml/l at 10-15 day intervals if required.

Thrips

- Treat seeds with thiomethoxam 70 WS @ 2 ml/kg seed.
- Perform foliar spray of thiomethoxam 25 WG at 0.2 g/liter of water for effective control.
- Use neem seed kernel extract (50 g/l) and neem oil 3000 ppm @ 20 ml/l.

Harvesting

- Hand pluck the matured pods after 60-70 days.

Storage

- Dry the seeds to reduce the moisture level below 10-12%.
- Add finely grounded Tirphal / Boric acid powder @ 2 g / kg of seeds to reduce storage pest.

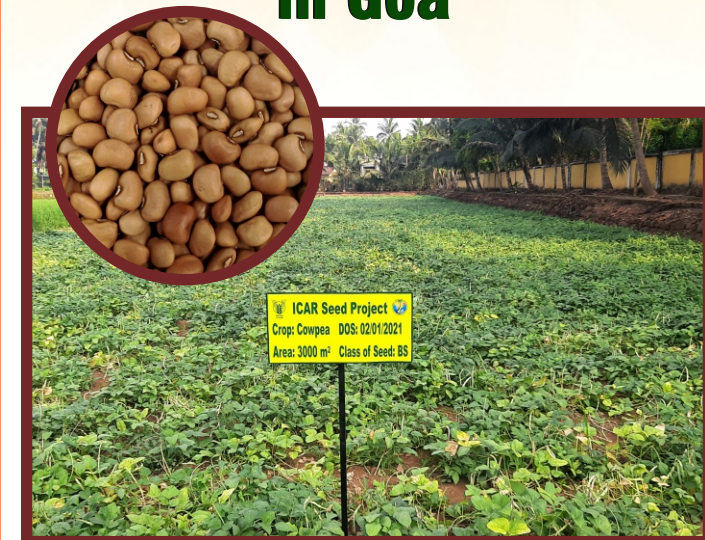


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A glimpse of Cowpea and Moong Varieties recommended for rice fallow area in Goa



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Cowpea Var Goa cowpea 3

Cowpea is a major pulse crop of Goa State, traditionally grown in the rice fallows under residual moisture conditions. Goan cowpea (locally called Alsondo) is a bold-seeded type with viny growth up to 3 m producing higher biomass. The local cowpea is preferred in many culinary preparations owing to its unique taste, bold size, and better cooking quality. An attempt has been made to purify this local cowpea through pure-line breeding to evolve Goa Cowpea 3. Goa Cowpea 3 is a selection from germplasm collections of Cowpea from Utorda village in the South Goa district of Goa State.



Varietal characteristics

- Variety name: Goa Cowpea 3
- Parentage: Selection from local germplasm collection
- Source: Utorda, Salcette (Tq), South Goa (Dt)
- Breeding method: Pure line selection
- Growth habit: Semi-spreading and viny
- Plant height: 25-30 cm
- Days for 50% flowering: 68-70
- Maturity in days: 100-110 days
- Number of primary branches/plant: 4 to 5
- Pod length: 23-25 cm
- Pod number per plant: 14-20
- Seeds per pod: 13 to 17
- 100 seed weight: 24.5-25.6 g
- Grain yield: 12-14 q/ha
- Haulm yield: 3.0-3.5 t/ha.
- Protein content: 25%
- Volume expansion: 2.45 times

Agronomic practices

Field Preparation

Prepare the land to get fine tilth
Apply the soil with FYM @ 12.5 t/ha

Seed rate

Since Goa Cowpea 3 is semi spreading type variety, normally 30-35 kg seeds are required for sowing one hectare area.

Seed treatment

- Treat the seeds with Carbendazim or Thiram 2 g/kg of seed 24 hours before sowing (or) with talc formulation of *Trichoderma viride* @ 4g/kg of seed (or) *Pseudomonas fluorescens* @ 10 g/kg seed.
- Biocontrol agents are compatible with biofertilizers. First treat the seeds with biocontrol agents and then with *Rhizobium*. Fungicides and biocontrol agents are incompatible.

Fertilizer application

- Apply fertilizers basally before sowing @ 25 kg N + 50 kg P₂O₅ + 25 kg K₂O

Sowing

- Sow seeds at a spacing of 60 cm between rows and 30 cm between hills, with two to three seeds per hill.
- Dibble the seeds at 5 cm depth at a given spacing.

Water management

- Irrigate immediately after sowing and at 7 to 10-day intervals.
- Critical irrigation periods are flowering and pod formation stages. Avoid water stagnation.

Weed management

- Apply preemergent herbicide before sowing.
- If herbicide is not used, provide two hand weedings on 15 and 30 days after sowing.

Plant protection measures

Pests of Cowpea: Aphids and Pod borer are the major insects affecting Cowpea crop.

Aphid management: Spray chloropyriphos @ 2 ml/litre of water.

Pod borer management: Spray quinalphos 25 EC @ 1000 ml/ha after noticing the incidence.

Diseases of Cowpea: Damping-off and Root rot are

the major diseases.

Disease Management:

- Seed treatment with carbendazim or Thiram @ 2g/kg of seeds
- Use pathogen-free seeds for sowing

Harvesting

- Pluck the pods on maturity (100–105 days after sowing) once they turn brown

Storage

- Dry seeds to reduce moisture level below 10-12%.
- Add finely grounded Tirphal/Boric acid powder (2 g/kg of seeds) to minimize storage pests.



Moong Var TM 96-2

A high yielding powdery mildew resistant large seeded moong variety suitable for rice fallow areas during the rabi season. The variety developed at BARC, Mumbai, and found suitable for cultivation in the residual moisture condition of Goa state after the rice fallows.



Varietal characteristics

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- Number of primary branches: 4 to 5
- Pod length: 8-9 cm
- Pod per plant: 33-35
- Seeds per pod: 11-12
- Duration: 65-70 days
- Grain yield: 14-15 q/ha

Moong variety IPM 2-14

A high yielding variety with resistant to mungbean yellow mosaic, leaf crinkling and powdery mildew diseases. The variety was developed at ICAR-IIPR, Kanpur, and found suitable for cultivation in the residual moisture condition of Goa state. The variety is adopted for cultivation under residual moisture conditions in rice fallow areas during *rabi* season.

