

Introduction : Globally legumes play a vital role in human nutrition since they are a rich source of protein, calories, certain minerals and vitamins. Among which soybean is probably the largest source of vegetable seed oil (20%) and protein (40%). Owing to the nutritional and health benefits of soybean, it excited the growers in recent years. Similarly other pulse crops like red gram, black gram, Moong, Bengal gram, Urad dal has good nutritive value and the area under pulses production is taken up in different states in India.



Soil and Climate:

Well drained and fertile loam soils with a pH between 6.0 and 7.5 are most suitable for the cultivation of pulses. Sodic and saline soils inhibit germination of seeds. Water logging is also injurious to the crop. Pulses grow well in warm and moist climates. A temperature of 26 to 30°C appears to be the optimum. Soil temperatures of 16°C or above favor rapid germination and vigorous seedling growth. Day length is the key factor in most of the pulses, as they are short day plants.

Field preparation:

Prepare the main field by ploughing and harrowing and 4 to 5 tons per acre of FYM or compost is applied at the time of field preparation. Add 90 - 100 kg of Bio organic Manure ([Multiplex Annapurna](#) or Mangala Biogold plus), 1 to 2 kg Bio Jodi (Consortium of Bacillus subtilis and PSEUDOMONAS FLUORESCENS) and 5 kg Bio-activator mixture (Navajeevan - G) per acre. In case of problematic soils with root grubs & termites apply [Multiplex Soldier](#) (Entamopathogen) @ 1 kg/acre along with Bio organic Manure . These pests can also be controlled by application of 5 kg Cartap Hydrochloride 4G (Nagtap or Cartox G or Boregan G).

Seed rate and Spacing :

Crop	Seed Rate (kg/acre)	Spacing rows x plants (cm)
Soybean (rainfed)	Pure crop - 25	30 x 10
	Mixed crop - 15	
Soybean (irrigated)	Pure crop - 25	30 x 10
	Mixed crop - 15	

Note: When grown as a mixed crop add about 20 % of the recommended quantity of NPK fertilizers of the main crop.

Package of Practices (POP) SOYA BEANS

Nutrient Management :

All legume crops have the ability to supply their own nitrogen needs provided they have been inoculated with nitrogen fixing bacteria (Sunrise, Azab, Aadhar) along [Srushti](#) @ 5 kg per acre. The fertilizers should preferably be placed, at sowing time, about 5-7 cm away from the seed at a depth of 5-7 cm from seed level.

Fertilizer Application.

Recommended dose of Fertilizer Application: NPK – 10:20:40 kg/ per acre

Weed management :

1. Flumioxazin 50% WP (Chateau, Nozomi, Pledge, Terreiin, Valor) @ 18-20 g/acre and Diclosulam 80% WDG @ 8 g/acre as pre-emergence were found to be promising herbicides for the management of weeds in pulses.
2. The tank mix combination of Chlorimuron ethyl 25% WP (Almix, ricestar, whip super) @ 3.6 g/acre + quizalofop tefuryl 4% EC @ 16 g/acre could effectively control the monocot as well as dicot weeds in pulses.
3. Alachlor 50 EC (Lasso) @ 1.6 liter or Fluchloralin 45 EC (Basalin) @ 1.2 litre per acre, dissolved in 400 liters of water and sprayed after two days of sowing with sufficient soil moisture.

Pest and Disease Management:

Pests

To control white flies

[Fenvalerate](#) (Nagfen or Tatafen) 2 ml/liter OR [Quinalphos](#) (Nagin or Ekalux or flash) 2 ml/liter OR [Neem oil 1500 ppm](#) (Multi neem or Neem Baan) 3ml/L OR Spinosad 480 SC (Tracer or Taffin) 0.375 mL/L OR Plant extract ([Biostrike](#)) 3 ml/lit

To control Sucking pests

[Acephate](#) ([Nagace](#) or Tamron® Gold or Hunk or acemain or Asataf) 2 g/litre OR [Imidacloprid 30 %](#) ([Brightstar](#) or [Confidor Super](#)) 0.3 mL/L OR

[Imidacloprid 70 %](#) ([Hotstar](#) or Cohigan WG or [Admire](#)) [Imidacloprid 17.8 %](#) (Nagmida or Imidacel or Confidor or Cohigan) 0.5 ml /liter OR [Neem oil 1500 ppm](#) 3ml/L OR Spinosad 480 SC (Tracer or Spintor or Taffin) 0.375 mL/L OR Plant extract ([Biostrike](#)) 3 ml/liter.

To control leaf Flower feeder and Fruit borer

[Monocrotophos](#) (Nagphos or Monomain) 2 ml/liter OR [Chlorpyriphos](#) (Nagpyriphos or Tricel) 2 ml/liter. OR Plant extract ([Biostrike](#)) 3 ml/liter.

To control Nematodes

[Multiplex SafeRoot](#)(consortium of PAECILOMYCES LILACINUS + TRICHODERMA HARZIANUM) 2 kg/acre.

Diseases Management:

To control leaf spot, stem rot, fruit rot, dieback and Downy mildew

[Copper EDTA](#) (Neel Cu) 0.5/L OR [Copper Oxychloride](#) (Nagcoper or Maincop or Blue Copper or TRUCOP or Blitox) 2 g/liter with Multiplex Multi Laxin 4 ml/liter OR Kocide 2 g/litre + [Bactinash](#) 0.4 g/liter.

To control Anthracnose Bendaco or Macoban C) 2 g/L OR [PSEUDOMONAS FLUORESCENS + BACILLUS SUBTILIS](#) (Multiplex Bio Jodi) 5 g/liter.

To control Damping Off

Drench [Metalaxyl + Mancozeb](#) ([Ridomil gold 80WP](#) or Krilaxyl Gold) + [Bactinash](#) @ 0.4 g/liter + [Humic acid](#) (Jivras) @ 3 ml/liter (100 – 150 ml/plant drenching).

To control Bacterial Leaf Spot

[PSEUDOMONAS FLUORESCENS + BACILLUS SUBTILIS](#) (Multiplex Bio jodi) @ 5 – 10 g/liter OR [Copper Oxychloride](#) (Nagcoper or Blue Copper or Blitox) @ 2 g/liter OR [Copper EDTA](#) (Neel Cu) @ 0.5 g/liter + [Bactinash](#) @ 0.4 g/liter OR K – Kycline 0.15 g/liter.

To control Rust

[Propiconazole](#) (Nagcamazol) 0.5 ml/liter OR [PSEUDOMONAS FLUORESCENS + BACILLUS SUBTILIS](#) (Multiplex Biojodi) 5 g/liter or [Hexaconazole](#) (Contaf plus, Nagzol or Sergeant 1-1.5 ml/liter.

Harvesting.

The maturity period ranges from 50 to 140 days depending on the varieties. When the plants reach maturity, the leaves turn yellow and drop and soybean pods dry out quickly. There is a rapid loss of moisture from the seed. At harvest, the moisture content of the seeds should be 15 per cent. Harvesting can be done by hand, breaking the stalks on the ground level or with sickle and threshing.

