

Seed Production of Black Gram

Akanksha Tiwari¹, Piyusha Singh², Dharendra Kumar Singh and
Vijay Laxmi Rai³

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Introduction

In India generally, most of the peoples are vegetarian and they are depending on the grains and beans. Every human requires a big amount of protein for a healthy life and black gram is the great source of protein. So we must increase the manufacture of Black Gram Cultivation. It is used as a nutritive fodder for milch cattle. It is a rich source of protein (20.8 to 30.5 per cent) with total carbohydrates ranging from 56.5 to 63.7 per cent. It contains a wide variety of nutrients and is popular for its fermenting action and thus it is largely used in making fermented foods. Blackgram is cultivated as a sole crop and intercrop.

Local Names:

Hindi- Urad dal, **Telugu-** Minumulu, **Tamil-** Ulundu Paruppu, **Malayalam-** Uzhunnu Parippu, **Kannada-** Uddin belle, **Bengali-** Masakalai dala.

Climate requirement:

Black gram cultivation is suitable for moist and hot weather condition. Normally, the farmers sowing this black gram in summer and Kharif or rainy seasons. The temperature in between 25 to 35°C is perfect for the black gram cultivation in India. Black gram cultivation process requires the 60 to 75 cm annual rainfall but heavy rain damage the flower. Black gram farming is done successfully at 1800 meters high from the sea level.

In north parts of the country where the temperatures during winter are quite low, it is cultivated during rainy and summer season. In the Eastern states, it is also grown during winter. In Central and Southern states, where there is not much variation in the climate, it is cultivated during winter and rainy seasons. Maturity crop period should coincide with the dry weather the condition for high yield and good quality seeds, this is the main criteria to decide the time of planting.

Soil requirement

Black gram can be grown on variety of soils ranging from sandy soils to heavy cotton soils. Alkaline and saline soils should be avoided. The most ideal soil is a well drained loam with pH of 6.5 to 7.8.

Sowing

Seed should be free from insect, pest and diseases, inert matter i.e. dust particles, weed seeds etc. It should be purchased from Agril. Research station, universities, KVK's and registered seed companies /Agri. Service centers/Agriclinics.

- **Kharif:** during kharif season 12-15 kg seed/ha. The crop should be sown at a distance of 30-45 cm with 10 cm plant spacing
- **Rabi:** About 18-20 kg seed/ha for upland and 40 kg/ha for rice fallows with a crop geometry of 30 cm X 15 cm.
- **Summer:** about 20-25 kg seed/ha.
 1. Second fortnight of June (15to 30 June) is the proper time of black gram sowing in kharif season.
 2. In summer, sowing should be done from third week of Feb. to First week of April.
 3. Late sowing should be avoided.
 4. Seeds should not be sown more than 5 to 6 cm in depth. Treat the seed with Thiram (2g) + Carbendazim (1g)/kg seed to control the soil and seed germinated disease.
 5. Land should be free of volunteer plants.
 6. The previous crop should not be the same variety or other varieties of the same crop.
 7. It can be the same variety if it is certified as per the procedures of certification agency

Isolation

For certified / quality seed production leave a distance of 5 m all around the field from the same and other varieties of the crop

Varieties: Some released varieties of Blackgram/Urdbean in India

Varieties	Yield (q/ha)	Days to maturity	Salient features
Pant U 7 (PU 10-	8-9	80-85	MYMV and PM resistant

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Pant U 8 (PU 11-14)	9-10	80-85	Res. To MYMV, BLS and PM
Pant U 9 {PU 11-25)	10-11	80-85	Res. To MYMV, CLS and PM
IPU 13-1	9-10	70-80	Resistant to MYMV
IPU 10-26	8-10	70-80	Resistant to MYMV
IPU 11-02	8-10	70-80	Resistant to MYMV
DU-1	14-15	80-85	High yielded bold seeded and erect growth habit, moderately susceptible to Cercospora leaf spot & powdery mildew
Tirupati Minumu -1 (TBG 104)	15-16	75-80	Tolerant to MYMV
VBN 9 (VBG 12-111)	12-13	70-75	Suitable for rice fallow cultivation in SZ ,Moderately resistant to MYMV, ULCV, PM and LC disease
Pant Urd 10 (PU 10-23)	12-13	80-85	Resistance to MYMV, ULCV and CLS disease
VBN 8	13-14	65-75	Semi erect and determinate plant type with broad to narrow Lenceolate terminal leaflet.

Source: - Project Coordinator's Report, AICRP on MULLaRP , ICAR, IIPR, Kanpur. 2017-18 & 2020

Fertilizer

For sole crop 15-20kg/ha Nitrogen, 40-50 kg/ha phosphorous, 30-40 kh/ha potash, 20 kg/ha sulphur should be applied at the time of last ploughing. Use of gypsum @100kg/ha would ensures availability of calcium and sulphur at economical rates.

Weed management:



One or two hand weeding should be done up to 40 days of sowing depending upon the weed intensity. Weeds can be controlled by the use of herbicides i.e. Fluchloralin (Basalin) 1 kg a.i. / ha in 800-1000 litres of water as pre-planting application.

Plant Protection Measures

Insect pests

- 1. Spotted Pod Borer:** Foliar spray with quinalphos 2ml/lt or carbaryl@3g/lt at 50% flowering stage. Physical shaking of the infested plants over the vessels of oil and water or oily cloth help to reduce the population.
- 2. White flies:-** Foliar spray with Acephate 1.5g/ltr or chlorpyriphos 2.5ml/lt are effective measures to control the white flies.
- 3. Tobacco Caterpillar:** Collection and destruction of egg masses and newly hatched larvae can reduce infestation. Spray Malathion 50 EC @2.0 ml/lit or foliar application of Novaluron 10 EC @0.75 ml/lit.
- 4. Aphids:** Spray with 5% crude neem extract or 2% neem oil 3000 ppm or spray with Dimethoate 30 EC (1.7 ml/lit) can help to reduce the aphid population.

Diseases

- 1. Yellow mosaic virus:** Diseased plants should be rogued out to prevent further spread of the disease. In order to prevent whitefly infestation spray with triazophos 40 EC @2.0 ml/lit. at 10-15 days intervals if required.
- 2. Powdery Mildew:** Delayed sowing of urdbean with wider spacings considerably reduce the disease severity. Spray with NSKE @ 50 g/litre of water or neem oil 3000 ppm @20 ml/lit twice at 10 days interval from initial disease appearance.
- 3. Leaf Blight:** Basal application of zinc sulphate @ 25kg/ha or neem cake @ 150 kg/ha or soil application T. viride @ 205 kg/ha+50 kg of well decomposed FYM at the time of sowing helps in prevention of the disease.

Harvesting of Black Gram

The harvesting of the black gram cultivation takes place when the black gram Pods and plants are dried, black gram beans become dry and hard. At the time of harvesting at list 20-22 % of moisture require in the black gram cereal. A pod break down during the harvesting is a general trouble in a pulse so, immediately harvest the black gram pods when it

is mature. When black gram pods are dried completely then cereal are threshed from the pods by using a machine or manually.

Seed grading

- Grade the seeds using BSS 7 x 7 wire mesh sieve for large seeded varieties.
- Do not select the discoloured and broken seeds for seed.

Yield:

A well managed crop, as indicated above, may produce 12 to 15 quintals of grain per hectare.

Storage

- Store the seeds in gunny or cloth bags for short term storage (8-9 months) with seed moisture content of 8 – 9%.
- Store the seeds in polylined gunny bag for medium term storage (12- 15 months) with seed moisture content of 8 – 9 %.
- Store the seeds in 700 gauge polythene bag for long term storage (more than15 months) with seed moisture content of less than 8.

Key points to achieve higher production

- Deep summer ploughing once in 3 years
- Seed treatment should be done before sowing
- Weed control should be done at right time
- Adopt integrated approach for plant protection.