

## **Cultivation of Black Gram (*Vigna mungo*) L. in Dimapur**

Black Gram is one of the important pulse crop grown throughout India. Generally it is consumed in the form of 'Dal'. It is the chief constituent of 'papad, idly and dosa. For milch cattle, it is used as nutritive fodder. It is also used as green manuring crop. It controls soil erosion and compete with weeds effectively due to its deep root system and foliage cover.

It contains protein (25%), carbohydrates (60%), fat (1.3%) and rich in phosphoric acid 8. It accounts 13 % total pulses area and 10 % total pulses production in India. It fixes atmospheric nitrogen into soil and improve the soil fertility. Black gram is cultivated in Dimapur district of Nagaland as pulse crop during main Kharif season, covering an area of 150 ha and production 120 MT with average yield of 8.0 q/ha.

**Climate:** Black Gram is generally grown in kharif/rainy and summer season. It grows best in hot and humid condition with ideal temperature range between 25 to 35°C. It can be grown successfully from sea level up to an elevation of 1800 meters. Heavy rains during flowering are harmful. It is best suited to areas having an annual rainfall of 60 to 75 cm.

**Soil:** Black gram does well on heavier soils such as black cotton soils which retain moisture better. It can be grown all types of soils ranging from sandy loam to heavy clay, except the alkaline and saline soils. Loam or

slightly heavy soils with neutral pH are best suited for urd bean. Soil should be well drained and having good water holding capacity. Waterlogged, saline and alkaline soil should be avoided.

**Land preparation:** Good land preparations are necessary for better yield of black gram. Land should be ploughed in summer followed by two to three harrowing at pre-monsoon for kharif season. For summer black gram, after harvest of Rabi crops, field prepare with criss-cross moghda once followed by two harrowing. Land should be well levelled. The weeds, previous crops stubbles, stones should be removed to clean the field for sowing. Mix five to six tons of FYM or compost at last harrowing. If necessary, one pre-sowing irrigation should be given.

### **Sowing:**

**a. Selection of seed:** Seed should be free from insect, pest and diseases. It should be free from any 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 centres /Agri-clinics. Seeds should be viable and genetically pure.

**b. Method of sowing:** Sowing should be done in line sowing\drilling method with tractor drawn ferti-cum-seed drill or by bullock drawn ferti-cum-seed drill/tifan. Ferti-cum-seed drill should be used for the application of fertilizers and seed sowing at a time. Seeds should not be sown more than 5 to 6 cm in depth.

**c. Time of sowing:** Second fortnight of July (15 to 30 July) is the proper time of black gram sowing in kharif season. If sown early the more foliage and less flowering and sometimes no flowering. In summer, sowing should be done from third week of Feb. to First week of April. Late sowing should be avoided.

**d. Seed treatment:** Seed should be treated with captaf/ captan @ 2.5 g / kg seed to avoid any fungal infection. It should be treated with rhizobium culture for atmospheric N fixation @ 200gm/kg of seed

**e. Seed rate and spacing :** For Kharif season 12-15 kg/ha with spacing of 30x10 cm<sup>2</sup> and Summer Black gram 20-25 kg/ha with spacing of 20-25 cm row to row and 10 cm plan to plant is recommended.

**Details of varieties:** The black gram varieties are classified depending on seed size as bold small, medium size etc. The suitable varieties for Dimapur are : Type-9, BDU-1,TAU-1, TPU-4, TAU-2, Pant U-35, Pant U-30, Pant U-19, Azad-1, Naveen, Pusa-1, Krishna, Prabha and AKU-4, etc.

**Fertilizer management:** The recommended fertilizer dose for black gram is 20:40:40 kg NPK/ha. Fertilizer dose should be applied as per soil test report. 44 kg urea ,250 kg SSP and 67 kg MOP as Basal application at the time of sowing with ferti-cum-seed drill

### **Irrigation management:**

Irrigation is not needed in rainy season, but in summer season irrigation should be given as per critical stages and availability of irrigation water. Number and frequency of irrigation depend upon the soil type and weather. The crop should get irrigation at an interval of 10-15 days. From flowering to pod development stage, there is need of sufficient moisture in the field.

**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.

### **Disease and insect pest control:**

1. YM virus- Grow resistant varieties like Pusa-1, KM-2. Spray Metasystox & Melathion to control the vector i.e. whitefly.
2. Leaf curl- caused by virus and has no control measures. 2-3 sprays of Metasystox at 10 days interval to control vector can help in reducing the infection.
3. Seed/seedling rot- Seed treatment with Thiram/carbendazim/ captaf/ Captan@ 3-5 g/kg seed.
4. Anthracnose- Spray Mancozeb/zineb @2 kg in 1000 lit. of water to control the fungal infection.
6. Hairy caterpillar- Dusting 20 % methyl parathion @25-30kg/ha.

7. Leaf hopper- Spray Dimethoate @ 2ml /liter of water to control the insect.

8. Jassids- Spray Dimethoate @2ml/liter of water to control the insect.

**Signs of maturity, harvesting & threshing:** Pods and plant dried, Grains become hard, and moisture percent in grain at harvesting should be 20-22 %. Pod shattering is common problem in pulse. Therefore picking should be done as soon as pods mature. Harvesting should be done 2-3 pickings. The pods or whole crop after complete drying should be threshed manually or by machine.

### **Yield:**

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

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