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Recent advancement in URD Bean (*Vigna mungo*) production technology: A review

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Abstract
Vigna mungo is the important pulse crop found through India. Seeds consist of moisture10g/100gm, proteins 24.5g/100 gm, Fats 1.5 g/100gm, Fibers 0.9 g/100 gm, Carbohydrates 59.8 g/100 gm and minerals 3.0 g/100 gm. Among the other substances reported to be present in the seeds and seedling of black gram mention may be made of allantoin, glutathione, plant growth regulators and lignin precursors. A saponin is reported to be present in the seeds. Farmer can get good yields from the cultivation of Urd by keeping some important agricultural activities in mind and using them. Because, for good yields it is necessary to know the advanced farming techniques and the advanced varieties.

Keywords: *Vigna mungo*, allantoin, glutathione

Introduction
Urd is easily grown in Kharif, Rabi and Zaid seasons. In northern India, it also be grown during summer. In southern India, Urd is grown in the Rabi season. When crop receive too much rain, the crop is damaged. Area where 60 to 70 centimeters rains annually is suitable condition for urd. It comprises 24–26 percent protein, 55–60 percent carbohydrat. It also help the soil to increase the fertility of soil. It has been found here in various fields by the Faculty of Agriculture of PK University that in the Bundelkhand region where irrigation facilities are not well available, farmers can get more benefits by cultivating Urd.

Season and Varieties

District/Season	Varieties
Adipattam (June-August) All districts except Kanyakumari and Nilgiris	VBN (Bg) 4, VBN(Bg) 5, TNAU (Black gram) VBN 7
Puratasipattam (September-November) Vellore, Tiruvannamalai Dharmapuri, Salem, Namakkal, Perambalur, Erode, Coimbatore, Madurai, Dindigul, Theni, Pudukottai, Sivagangai, Ramanathapuram, Virudhunagar, Thoothukudi and Tirunelveli.	VBN 3 (To avoid Yellow Mosaic Virus treat the seeds with Imidachlorphid @ 1 ml / kg seed) VBN(Bg) 4, VBN (Bg) 5, TNAU (Blackgram), VBN 6, TNAU (Blackgram) Co 6, APK 1
Markazhi – Thaipattam(Winter Irrigated) All districts except Kanyakumari and Nilgiris	VBN 3, VBN (Bg) 4, VBN (Bg) 5, TNAU (Blackgram) VBN 6, TNAU (Blackgram) Co 6, TMV 1
Rice fallows (January) Thanjavur,Tiruvarur, Nagapattinam, Cuddalore, Villupuram and Kanchipuram	ADT 3
Chithiraipattam (Summer Irrigated) Thanjavur, Tiruvarur, Nagapattinam, Cuddalore, Villupuram, Tiruchirappalli, Perambalur, Thiruvallur, Kancheepuram	ADT 5

Fig 2: Blackgram Co 6

Table 1: Description of black gram varieties

Particulars	T 9	CO 5	ADT 3	VBN 1
Parentage	**Selection from Bareilly, U.P**	**Pureline selection from Musiri -**	**Pureline selection from Tirunelveli local**	**KM 1xH 76-1**
Year of release	1972	1981	1981	1987
50% flowering (days)	30 - 35	35 - 40	30 - 35	30 - 35
Maturity duration (days)	65 - 70	70 - 75	70 - 75	60 - 65
Grain yield (kg/ha)				
Rainfed	-	740	..	700
Irrigated	1000	1270	-	850
Rice fallows			720	
Height (cm)	35 - 40	30 - 35	50	30 - 35
Clusters	10 - 12	10 to 12	10 - 15	12 – 13
Hairiness of pods	Glabrous	Hairy	Hairy	Hairy
Colour of grain	Black & Dull	Black & Dull	Black & dull	Black
100 grain wt (g)	4.0	5.7	3.6	5.1

Field Preparation

- Prepare the land to fine tilth and form beds and channels.
- Amendments for soil surface crusting: To tide over the soil surface crusting apply lime at the rate of 2t /ha along with FYM at 12.5 t/ha or composted coirpith at 12.5 t/ha to get an additional yield of about 15-20%

Fig 3: Field Preparation

Seed Rate

Table 2: Quantity of seed required kg/ha

Strain	Pure crop	Mixed crop
T 9, CO 5, TMV 1, VBN 1, VBN 2, VBN 3, VBN (BG) 4 ADT 5, TMV 1	20	10
(Rice fallows) ADT 3	25	..

Optimum plant population 3,25,000/ha

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* @ 10g/kg seed. Bio control agents are compatible with bio fertilizers. First treat the seeds with Bio control agents and then with Rhizobium. Fungicides and bio control agents are incompatible.

Note: Seed treatment will protect the seedlings from seed borne pathogens, root-rot and seedlings diseases.

Fig 4: Seed Treatment

Seed Treatment with Biofertlizer

Treat the seeds with 3 packets (600 g/ha) of Rhizobial culture CRU-7 + 3 packets (600 g/ha) of PGPR and 3 packets (600 g/ha) of Phosphobacteria developed at TNAU using rice kanji as binder. If the seed treatment is not carried out apply 10packets of Rhizobium (2000 g/ha) + 10 packets of PGPR (2000 g/ha) and 10 packets (2000 g) of Phosphobacteria with 25 kg of FYM and 25 kg of soil before sowing.

Fertilizer Application

- Apply fertilizers basally before sowing.
  Rainfed: 12.5 kg N + 25 kg P2O5 + 12.5 kg K2O +10 kg S*/ha Irrigated: 25 kg N + 50 kg P2O5 + 25 kg K2O + 20 kg S*/ha
- Soil application of 25 kg ZnSo4/ha under irrigated condition Soil application of TNAU micronutrient mixture @ 5 kg/ha as Enriched FYM (Prepare enriched FYM at 1:10 ratio of MN mixture & FYM; mix at friable moisture &incubate for one month in shade).

Sowing of Seeds

1. For irrigated crop dibble the seeds adopting 30 x 10 cm spacing.
2. For rainfed crop dibble the seeds adopting 25 cm x 10 cm spacing.

Water Management

Irrigate immediately after sowing, followed by life irrigation on the third day. Irrigate at intervals of 7to 10 days depending upon soil and climatic conditions. Flowering and pod formation stages are critical periods when irrigation is a must. Avoid water stagnation at all stages. Apply KCl at 0.5 per cent as foliar spray during vegetative stage if there is moisture stress.

Fig 5: Water Management

Weed Management

Pre emergence application of Pendimethalin 3.3 litres/ha under irrigated condition 2.5 litres/ha under rainfed condition on 3 days after sowing using Backpack/Knapsack/Rocker sprayer fitted with flat fan nozzle using 500 litres of water for spraying one ha. followed by one hand weeding at 20 DAS (or) EPOE application of quizal of OP ethyl @ 50 G.A.I/ha^{-1} and imazethapyr @ 50 G.AI ha^{-1} on 15-20 DAS. If herbicides are not applied give two hand weedings on 15 and 30 days after sowing.

For the irrigated blackgram PE isoprotwron @ 0.5 kg ha^{-1} followed by one hand weeding on 30 DAS.

Time of Sowing

Third week of January – Second week of February

Sowing of Seeds

1. For relay cropping broadcast the seeds in the standing crop 5 to 10 days before the harvest of the paddy crop uniformly under optimum soil moisture conditions so that the seeds should get embedded in the waxy mire.
2. For combined harvesting areas, broadcast the seeds before harvesting the paddy crop with machinery.

Spraying of Diammonium Phosphate, NAA and Salicylic Acid

Foliar Spray of NAA 40 mg/lt and Salicylic acid 100 mg/lt once at pre-flowering and another at 15 days thereafter Foliar spray of DAP 20 g/lt once at flowering and another at 15 days thereafter Foliar spary of salicylic acid 100 mg/litre once at prefloweing in another and 15 days there after.

Harvesting and yield

Picking the matured pods, drying and processing uprooting or cutting the whole plants, heaping, drying and processing. Urd crop produce APPROX 12-15 quintals grains/ha.

References

1. Abha Tiwari, Markam Neha, Dubey MK. Factors Responsible for Adoption of Improved Pea Production Technology among the Pea Growers. Int. J. Curr. Microbiol. App. Sci. 2019;8(3):933-938.
2. Anonymous, ICRISAT website. Black gram (*Vigna mungo* (L.) Hepper).
3. Chandawat M, Parmar A, Sharma P, Singh B. Knowledge of improved cultivation practices of gram

among the farmers of Kheda district of Gujarat. International Journal of Farm Sciences. 2014;4(2):215-220.
4. Hulagur B, Tulasiram J, Maraddi GN. A Study on Adoption Level of Recommended Cultivation Practices of Black gram Growers in North Eastern Karnataka, India. Int. J Curr. Microbiol. App. Sci. 2018;7(2):567-574.
5. Khare AL. Adoption of improved cultivation practices of gram by the farmers. M. Sc. (Agri.) Thesis (Unpub.) Dr. PDKV. Akola; c2013.
6. Lohare R. Knowledge and adoption of chickpea production technology among the farmers in Trila block of Dhar district. M.Sc. (Agri.) Thesis, (Unpub.), RVSKVV, COA, Gwalior; c2017.
7. Mane SS. Knowledge and adoption of recommended production technology of green gram. M.Sc. (Agri.) Thesis (Unpub.) MAU, Parbhani; c2012.
8. Zunjar RP. Constraints faced by cotton growers in adoption of integrated pest management. M. Sc. (Agri.) Thesis (Unpub.) MKV, Parbhani; c2011.