



Popular Kheti

Volume -3, Issue-3 (July-September), 2015

Available online at www.popularkheti.info

© 2015 popularkheti.info

ISSN: 2321-0001

Urdbean for Sustainable Agriculture and Nutritional Security in India

Ashutosh Kumar*, A. K. Parihar and Sanjeev Gupta

AICRP on MULLaRP, Indian Institute of Pulses Research, Kanpur-208024, U.P., India

*Email of corresponding author: ashutoshpnd07@gmail.com

Urdbean plays important role in sustainable crop production as it provides highly nutritive food and maintain soil alive and productive. It plays a variety of roles in maintaining good health being very rich in vegetable protein. At present, due to availability of powdery mildew and MYMV resistant varieties, urdbean can be used as the best alternatives to *rabi* crops. Additionally, urdbean has ability for nitrogen fixation and can fix 25-35 kg N/ha. Thus, cultivation of urdbean plays multipurpose role in improving socio-economic conditions of farmers, improving health, more yields of succeeding crops and maintaining soil chemical properties.

Introduction

Urdbean or blackgram or mashbean [*Vigna mungo* (L.) Hepper] is playing a crucial role in nutritional security and in sustainable agriculture in developing countries. It provides potential and digestible proteins to human diet. Urdbean has an excellent nutritive value and contains approximately 22-25% protein, 3.5% - 4.5% fiber, 4.5-5.5% ash and 60-65% carbohydrates on dry weight basis. Additionally, amino acids analysis indicates that the concentrations of sulphur containing amino acid (methionine and cystine) are low in pulses, however, high values of lysine make urdbean an excellent complement to rice in terms of balanced human nutrition. Due to excellent buttering quality it becomes an important ingredient for *idli* and *dosa* preparations. Urdbean crop is grown in all the season *viz.* *khariif*, *rabi* and summer but maximum area is covered under *khariif* season. Introduction of black gram in to rice based cropping system provides an economic achievement by increasing both the area and production of pulses. Therefore, it has been popularized in many districts of Andhra Pradesh as a *Rabi* crop under rice fallow. The major urdbean growing States are Maharashtra, Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, Tamilnadu, Karnataka, Bihar and Rajasthan.

India's population is increasing by 1.65 percent per year and would reach to 169 million at the end of 2030. Thus, pulse requirement will be 32 million metric tons with an expected required growth rate of 4.2%. For the purpose, a very important strategy can be adopted to increasing production by area expansion in all the season. In between *Rabi* and *Khariif* crops, spring urdbean can be used as catch crop as the best alternatives to less beneficial crops and a potential yield of 10-14 q/ha can be achieved under rice fallow.

Best Agronomic Practices

Selection of varieties: The success of urdbean in different season mainly depends on selection of varieties appropriate having resistance to yellow mosaic virus and with determinate growth habit. Some of the recommended varieties suitable for spring, kharif and rice fallow of urdbean are given in the following Table 1 and 2.

Table 1: Recently evolved varieties of urdbean recommended for different zones in India

Season	Varieties for different Zones				
	NEPZ	NWPZ	SZ	NHZ	CZ
Spring	KU 92-1 (Azad urd 1), WBU 109 (Sulata)	KU 300, KUG 479	LU 391	-	-
Kharif	IPU 94-1 (Uttara)	IPU 94-1 (Uttara)	IPU 02-43, IPU 07-3, VBG 04-008	NDU 99-2, Pant U 31, Pant U 40	KU 96-3, NUL7
Rabi	-	-	TU 40, TU 94-2, KU 301	-	-

Table 2: Blackgram varieties under rice fallow

Sowing time	Varieties under rice fallow
Normal sowing (Nov. 15 to Dec. 15)	LBG 402, LBG 611, LBG 22, LBG 645
Late sowing (Dec. 15 to 30)	LBG 685, LBG 752, LBG 22, LBG 645



Sowing time: Sowing time varies from season to season, as March-April in spring, onset of monsoon in kharif and November-December in rice fallow of Andhra Pradesh and Tamilnadu.

Seed rate and its treatment: the seed rate should be 20-25 kg/ha to maintain optimum plant population. Moreover, in rice fallow cultivation, 10-15 kg/ha extra seed is required for good crop stand. It is necessary to protect against seed borne diseases and therefore, treatment of the seeds is recommended before sowing with any fungicide like Carbendazim, Captan or Thirum. It is also suggested that, 200g *Rhizobium* culture should be used to treat 10.0 kg of seed, because it fixes atmospheric nitrogen by increasing root nodules. *Rhizobium* treatment must be applied after

fungicide treatment. It is very important to follow suitable spacing of row to row 30 cm and plant to plant 10 cm for proper growth and development of the crop.

Fertilizer requirement: It is recommended that decomposed manure should be applied @ 500 kg/ha. Besides manure, fertilizers should also be applied @ 25 kg nitrogen, 50 kg phosphorus, 20 kg potash, 20 kg sulphur and 15 kg zinc sulphate per hectare. However, under moisture stress conditions, foliar application of urea at 2 % is found beneficial.

Irrigation management: For proper development of plant roots and stem of urdbean require 2-irrigations, depending upon the soil type and climatic conditions. However, life saving irrigation at 30-35 days must be applied.

Weeds Management: Weeds population can be minimized by the use of weedicide like Pendimethalin @ 0.75 kg ai/ha in 800-1000 litre of water within 72 hours of sowing the crop. It is pre emergence weedicide and can be used without any damage to main crop. And for further infestation of weed, hand weeding is also recommended.

Pest management: Thrips, jassids, pod borer, whitefly, bihar hairy catter pillar, are the common critical insect pest, that lead to heavy losses and reduce the economic yield. Thrips attack on the flower and suck the sap and flower get dry and drop. Thus, for controlling thrips with the spray of Metasystox 0.03% at the time of flowering is beneficial.

Grain yield: The grain yield of urdbean generally ranges from 10-15 q/ha depending upon improved varieties, soil and climatic conditions.

It is very important to point out that introduction of urdbean in to rice based cropping system provides an economic achievement by increasing both the area and production of pulses. Andhra Pradesh and Tamilnadu, it is popular as a *Rabi* crop under rice fallow. For the cultivation under rice fallow sowing is done during November second fortnight to December first fortnight in Guntur and Krishna districts. Some farmers realized up to 25-30 q/ha under rice fallow in Krishna district.