

5881 (2)47

## VB-3: A PROMISING BLACK GRAM VARIETY WITH WIDE ADAPTABILITY

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### ABSTRACT

VB-3 black gram, is a spontaneous mutant selection from the variety Type-9. It matures in 65 days. It is an erect dwarf with an average height of 25 to 30 cm. It is resistant to yellow mosaic virus disease, suitable for *kharif* season. The average grain yield is about 1000kg per ha. It has wider adaptability to varied climatic zones such as South, Central and North Himalayan zones of India. Based on the yield superiority over the check varieties, VB-3 has been identified by the Central varietal identification Committee for release in 1995.

**KEY WORDS:** VB-3, Black Gram Wide adaptability, High yield.

Black gram (*Vigna mungo* (L.) Hepper) is a protein rich pulse containing amino acids in quantities than any other cereals and pulses. In Tamil Nadu, it is grown in 2.1 lakh ha (20% of the total pulse area) with a production of 0.65 lakh tonnes (22% of the total pulse production) and state average yield of 370 kg/ha. Breeding for improved black gram varieties in earlier days resulted in the release of 14 varieties which are longer in duration (110 to 85 days) and susceptible to yellow mosaic virus disease and lack wider adaptability. Hence an attempt was made to evolve a suitable variety with higher yield potential, shorter duration, resistance to yellow mosaic virus disease with wider adaptability. As a result VB-3 was released during 1995 for general cultivation in south, central and North Himalayan zones in India as a national variety.

### MATERIALS AND METHODS

A spontaneous mutant plant with more number of glabrous pods and free from yellow mosaic virus disease was identified during *kharif* 1987 in the variety Type-9 in the experimental plot and was selected, forwarded as single plant progenies during *rabi* 1987 and *kharif* 1988 season and high yielding single plant selections were made, the seeds were bulked and multiplied and evaluated from *kharif* 1989 onwards in various trials against the local checks (Co 5 and VBN-1) and high yielding national check varieties (Pant U 19, Pant U 30 and Type 9) in Research Stations and various locations in India under All India Co-ordinated Pulses Improvement Project (AICPIP).

Table 1. Performance of VB-3 in station trials at Vamban

Season	Trials	Grain yield (kg/ha)			
		VB-3	Vamban-1	Co-5	T-9
<i>Kharif</i> 1989	AVT	682	603	132	-
<i>Rabi</i> 1990	AYT	349	214	254	-
<i>Kharif</i> 1991	AVT	595	-	-	278
<i>Kharif</i> 1991	IET	725	645	-	-
<i>Rabi</i> 1992	AVT	906	684	679	643
<i>Kharif</i> 1993	IET	514	500	477	381
<i>Kharif</i> 1993	AYT	479	440	329	404
<i>Rabi</i> 1993	AVT	553	583	457	-
Mean		600.4	490.7	386.2	426.3
Percentage over check :					
	Vamban-1	22.4			
	Co-5	55.5			
	T-9	40.8			

Table 2. Performance of VB-3 in multilocation trials

Station	Grain yield (kg/ha)			
	VB-3	Pant U 30	Vamban-1	Co-5
Vamban	1567	1299	1530	200
Coimbatore	168	174	183	164
Vellore	304	274	259	234
Tindivanam	236	233	200	82
Pattukottai	902	836	895	697
Mean	635.4	563.0	613.4	276.0
Percentage over check :				
Pant U 30	12.9			
Vamban-1	3.6			
Co 5	130.2			

## RESULTS AND DISCUSSIONS

The spontaneous mutant selection from Type 9 has been tested as culture VB-3 for yield performance from *kharif* 1989 onwards at the National Pulses Research Centre, Vamban. It has recorded a mean grain yield of 600 kg/ha as against 491, 386 and 426 kg/ha recorded by Vamban-1, Co 5 and Type 9. The percentage of increase was 22.4 over Vamban-1, 55.5 over Co-5 and 40.8 over Type-9 (Table 1).

This selection was also tested in five Research Stations as multilocation trials along with check varieties. It recorded an average yield of 635 kg/ha as against 563, 613 and 276 kg/ha recorded

Table 4. Reaction of VB-3 to yellow mosaic virus disease (%) at Vamban

Year	Season	VB-3	Vamban-1	Co-5
1991	<i>Kharif</i>	0	0	100.0
1991-92	<i>Rabi</i>	0	0.7	16.9
1992-93	Summer	0	2.0	17.2
1993	<i>Kharif</i>	3.0	8.6	100.0
1993-94	<i>Rabi</i>	0.9	1.4	56.2
1994	Summer	1.1	6.5	29.8
Mean score		0.83%	3.20%	53.5%

by Pant U 30, vamban-1 and Co-5 respectively (Table 2).

In the AICPIP Trials conducted through out India during 1991-92 (IET), 1992-93 (AVT 1) and 1993-94 (AVT 2) *kharif* seasons in 44 locations it yielded higher than the national check varieties Pant U 19, Pant U 30 and Type 9 in South, Central and North Himalayan Zones. It has recorded an average yield of 831, 1224 and 1019 kg/ha in South, Central and North Himalayan Zones respectively (Table 3) as against 722 kg/ha, 1043 kg/ha and 610 kg/ha (Pant U 19) and 680 kg/ha and 852 kg/ha (Pant U 30). Hence the selection VB-3 has been identified for South, Central and North Himalayan Zones of India based on the superiority of the yield performance over the check varieties by the Central varietal identification Committee held on 27.4.95 at JNKVV, Jabalbur.

Table 3. Yield performance of VB-3 in AICPIP trials in different zones of India

Trials	Pant U 19	Pant U 30	Type-9	VB-3
North Himalayan Zone				
IET (1991-92)	838 (1)	977 (1)	1074 (1)	1143 (1)
AVT-1 (1992-93)	1966 (3)	2492 (3)	2732 (3)	2742 (3)
AVT-2 (1993-94)	1247 (1)	793 (1)	710 (1)	1208 (1)
Weighted mean	610	852	903	1019
% over best checks	67	19.6	12.8	-
Central zone				
IET (1991-92)	7867 (4)	-	2915 (2)	9202 (4)
AVT-1 (1992-93)	6929 (8)	-	3412 (8)	7370 (8)
AVT-2 (1993-94)	6073 (8)	-	5981 (8)	7917 (8)
Weighted mean	1043	-	1017	1224
% over best checks	17.4	-	20.4	-
South Zone				
IET (1991-92)	1188 (2)	1638 (3)	-	2001 (3)
AVT-1 (1992-93)	4473 (6)	4972 (7)	5903 (7)	6331 (7)
AVT-2 (1993-94)	3731 (5)	2225 (3)	4545 (5)	2472 (3)
Weighted mean	722	680	871	831
% over best checks	15.1	22.2	4.6	-

VB-3 is a spontaneous mutant selection from the variety Type 9. It matures in 65 to 70 days. It is an erect dwarf with an average height of 25 to 30 cm. It is resistant to yellow mosaic virus disease (Table 4) and suitable for *kharif* season. Stem pink pigmented and flowers are yellow in colour. Pods are glabrous with 5 to 6 seeds and 4-5cm long. Seeds are black with prominent white hilum. The average grain yield is about 1000 kg/ha suited to

both irrigated and rainfed conditions. Field tolerant to pod borer damage. This selection was highly acceptable to the farmers and consumers. Being earlier, high yielding, resistant to yellow mosaic virus disease and wider adaptability to various climatic zones and hence released as VB-3 black gram variety for commercial cultivation in India.

(Received: August 1995 Revised : September 1995)

Madras Agric. J., 82(12): 621-623 December 1995

## ADT 1: A NEW SOYBEAN VARIETY FOR CAUVERY DELTA RICE - FALLOW CULTIVATION

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### ABSTRACT

A culture UGM 33, is a pureline selection from 'Hill'. It was high yielding under Cauvery delta rice - fallow cultivation and released as ADT 1. It possesses erect, compact and medium plant stature (70 cm), with cream coloured seeds, 2 to 3 in a pod with velvety hairs. The duration is 85 - 90 days. Main yield is 1274 kg/ha. Seeds contain 30% protein and 29% oil and no beany flavour.

KEY WORDS : ADT1 - Soybean Variety, Cauvery Delta, Rice - Fallow

In the recent past, soybean was introduced for cultivation in rice-fallow of Cauvery delta zone. It was also found to be suitable for summer cultivation. With introduction of Co1 variety, the area under rice-fallow soybean has greatly increased. At present the coverage is about 10-12 thousand ha. The yield potential of Co1 is about 900 - 1000 kg/ha. Hence, there is an impreative need to develop high yielding soybean variety better than Co1 for rice-fallow land area.

### MATERIALS AND METHODS

The continued evaluation and screening of various soybean genotypes from 1985 to 1989, at the Tamil Nadu Rice Research Institute, Aduthurai has resulted in the identification of a high yielding culture UGM 33. It is a pure line selection from variety Hill

### RESULTS AND DISCUSSION

The UGM 33, registered increased yield over Co 1 by 57 per cent in 80 days in 1985, by 22 per cent in 82 days in 1986 and by 51 per cent in 86 days in 1987 (Table 1) During 1988, it recorded a grain yield of 2226 kg/ha in 87 days. In 1989 rice -

fallow season, UGM 33 has recorded 683 kg/ha grain yield in 86 days with an increase of 19 per cent yield over Co1. Thus the culture has recorded an average yield of 1274 kg/ha as against 1063 kg/ha recorded by Co1 registering 20 per cent increased yield in the trials conducted at the Tamil Nadu Rice Research Institute, Aduthurai from 1985 to 1989. (Table 1). In the multilocation trial at the Agricultural Research Station, Pattukkottai during

Table 1. Performance of UGM 33 soybean at Tamil Nadu Rice Research Institute, Aduthurai under rice-fallow conditions (grain yield in kg/ha)

Year	UGM 33	Co.1	Per cent increase over Co.1
1985	536 (81)	342 (82)	57
1986	1542 (82)	1260 (83)	22
1987	1381 (86)	914 (86)	51
1988	2226 (87)	2226 (87)	0
1989	683 (86)	572 (87)	19
Mean	1274	1063	20

(Figures in parentheses indicate crop duration in days)