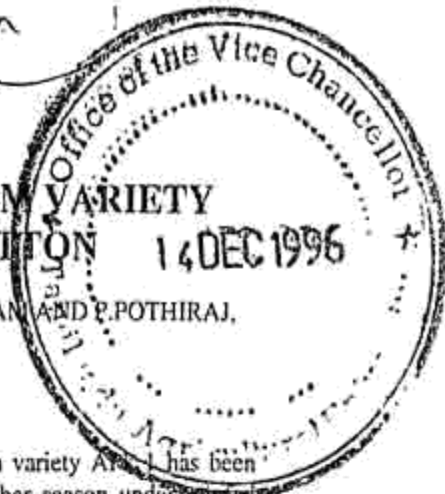


AMILNAD LIBRARY
 21 APR 1999



APK.1 - A HIGH YIELDING BLACK GRAM VARIETY FOR INTERCROPPING WITH COTTON

S. RAJARATHINAM, K. RENGANAYAKI, P. SHANMUGASUNDARAM AND P. POTHIRAJ,

Regional Research Station
 Tamil Nadu Agricultural University
 Kovilangulam 627 107

A new high yielding short duration (70-75) days) black gram variety APK.1 has been released for cultivation as intercrop with cotton during September-October season under rainfed conditions in Kamarajar and Chidambaranar districts of Tamil Nadu. This variety is a hybrid derivative of ADT.2 x RU.1. APK.1 recorded an average grain yield of 530 kg/ha which was 28.0 per cent higher than the check, Co.5.

KEY WORDS : APK 1 Black gram, Cotton, Intercrop

Black gram (*Vigna mungo*, L.) is an important pulse crop of Tamil Nadu and it occupies an area of about 2.1 lakh ha mostly under rainfed conditions as intercrop or mixed crop. The average productivity of black gram is about 342 kg/ha which is very low. In southern zone, black gram is mostly raised as an intercrop with cotton, under rainfed conditions. Co.5 black gram which is suitable for cultivation as pure is mostly cultivated as intercrop with cotton. Hence a varietal improvement programme in black gram to evolve a variety exclusively for intercropping with cotton under rainfed conditions was initiated at the Regional Research Station, Kovilangulam and the results obtained are reported hereunder.

cotton, germplasm collections were made from different research stations. Among them, one compact short duration culture, COBG 304 collected from the Department of Pulses, Tamil Nadu Agricultural University, Coimbatore was found promising. The culture was developed by pedigree method of selection by crossing ADT 2 x RU.1. This culture COB 304 was evaluated in replicated yield trials in comparison with the existing variety, CO 5 from 1986 onwards. It was also evaluated in 23 on-farm trials (OFT) during 1990-91 and 1991-92 in Kamarajar and Chidambaranar districts of Tamil Nadu. On its superior performance culture COBG 304 was released as APK.1 black gram 1993.

MATERIALS AND METHODS

In order to develop an early and high yielding black gram type suitable for intercropping with

RESULTS AND DISCUSSION

Black gram COBG 304 (APK.1) was tested for its yield performance in six station trials since

Table 1. Performance of COBG 304 as intercrop with MCU 10 cotton in 1:1 ratio over 6 years at the Regional Research Station, Kovilangulam

Year and season	MCU 10 + COBG 304			MCU 10 + CO 5			MCU 10 Pure crop	
	Cotton yield (kg/ha)	Pulses yield (kg/ha)	Money value (Rs.)	Cotton yield (kg/ha)	Pulses yield (kg/ha)	Money value (Rs.)	Cotton yield (kg/ha)	Money value (Rs.)
1986-87 - Rabi	1612	489	14242	1232	490	11587	1402	9812
1987-88 - Rabi	1099	379	13075	319	532	6114	887	8870
1988-89 - Rabi	786	855	11488	657	558	8504	1073	7511
1989-90 - Rabi	860	815	13490	562	723	9958	1672	10320
1990-91 - Rabi	1353	944	18108	821	420	9918	950	8075
1991-92 - Rabi	1296	667	20554	877	593	14972	1469	17628
Mean	1168	692	15160	745	553	10176	1126	10369

On Money value

% increase over MCU 10 + CO 5 (Check) = 48.97

% increase over MCU 10 pure crop = 46.20

Yield

% increase over MCU 10 + CO 5 (Check) = 28.0

Table 2. Overall performance of black gram culture COBG 304 as intercrop - rabi season

Trials	Location	MCU 10 + COBG 304			MCU 10 + CO 5		
		Kapas yield (kg/ha)	Pulses yield (kg/ha)	Money value (Rs.)	Kapas yield (kg/ha)	Pulses yield (kg/ha)	Money value (Rs.)
Station	6	1168	692	15160	745	553	10176
On-farm	23	440	368	6907	361	275	5501
Mean		804	530	11034	553	414	7839
% increase on check		45.4	28.0	40.8			

1986 at the Regional Research Station, Tamil Nadu Agricultural University, Kovilangulam. This culture recorded a mean grain yield of 692 kg/ha as compared to 553 kg/ha by CO 5 registering an increased yield of 25.1 per cent (Table 1). In OFT it

Table 3. Bio-chemical characteristics of APK 1

Characteristics	COBG 304	CO 5
Total carbohydrate (%)	65.00	67.00
Protein (%)	23.88	22.97
Methionine (mg/100 mg of protein)	0.96	0.87

Table 4. Sensory evaluation of APK 1

Characteristics	Idli (%)		Vadai (%)	
	COBG 304	CO 5	COBG 304	CO 5
Appearance	100.00	99.66	90.00	90.00
Colour	96.66	90.00	86.66	86.66
Flavour	90.00	100.00	96.66	86.66
Texture	100.00	100.00	90.00	86.66
Taste	100.00	100.00	100.00	80.00

exhibited its superiority over CO 5. The overall performance of this culture (Table 2) clearly shows its superiority over CO 5. When compared to CO 5, COBG 304 had registered 28.0 per cent increased grain yield under cotton based intercropping system. The kapas yield also increased by 45.4 per cent when cotton was intercropped with black gram, COBG 304. The total money value also increased by 40.8 per cent when intercropped with COBG 304. Besides its high yielding potential, it is also shorter in duration by 7 days as compared to CO 5.

The incidence of yellow mosaic virus and powdery mildew was relatively low under field conditions in this culture. It was also found to be tolerant to stem fly and pod borer.

The morphological description of APK 1 are:

Habit	: Erect
Plant height	: 35 cm
Pigmentation	: Purple
Branching	: 5-11

Leaves	: Trifoliate
Inflorescence	: Axillary raceme
Flower colour	: Yellow
Pods	: pubescent
Pod length	: 5 cm
Seeds per pod	: 6-8
100 grain weight	: 4.6 g.
Days to 50% flowering	: 40-42 days
Days to maturity	: 70-75 days

The bio-chemical characteristics and sensory evaluation test of the product also revealed the high preference of this variety (Tables 3, 4)

As this culture is having high yielding potential coupled with quality aspects, COBG 304 was released as APK 1 black gram variety suitable for cultivation as intercrop with cotton during September - October season under rainfed conditions in the Kamarajar and Chidambaranar districts of Tamil Nadu in 1993.