

## CO(Gg) 7 – An early maturing, high yielding Greengram variety

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**Abstract :** Greengram culture COGG912 was developed from a cross MGG366 COGG902. It is an early determinate, compost type with pods visible at the top of the canopy, medium bold grains, green and shiny seeds. In All India co-ordinated trials this culture recorded an average yield of 798 kg ha<sup>-1</sup> which is 24.3, 14.0 and 11.8 per cent increase over ML5, PDM 54 and ML131 respectively. This culture recorded an average yield of 978 kg ha<sup>-1</sup> which is 23.5 per cent increase over the check CO6 (792 kg ha<sup>-1</sup>) in state trials. Hence it was released and notified as National variety for South Zone (Tamil Nadu, Andhra Pradesh and Orissa) during 2005 for *kharif* season. This culture was also released as CO(Gg) 7 for commercial cultivation to the farmers of Tamil Nadu during 2006.

**Key words:** *Greengram, variety.*

### Introduction

Greengram (*Vigna radiata* (L.) Wilczek) is an important short-duration grain legume in Asia, particularly in the Indian subcontinent and South East Asia. Greengram has high protein content ranging from 18.5 to 29.5 per cent. It is an excellent source of cheap but high quality and easily digestible protein. In addition, greengram is rich in vitamins

A, B<sub>1</sub>, B<sub>2</sub> and C and niacin as well as minerals such as potassium (K), Iron and calcium (Ca). The average yield of greengram is low not only in India but in entire tropical and subtropical Asia. In Tamil Nadu it is cultivated in 1.15 lakh hectares with a production of 0.58 lakh tonnes. The average productivity is 408 kg ha<sup>-1</sup>. Besides management factors, the prime cause for the low productivity is

**Table 1. Grain yield (kg ha<sup>-1</sup>) performance of GOGG912 during *kharif* season.**

Variety	Grain yield (kg ha <sup>-1</sup> )			Weighted mean (kg ha <sup>-1</sup> )	% increase over check varieties
	2001	2002	2003		
<b>AICRP trials</b>					
COGG 912	827	974	710	798	-
ML 131 (ch)	678	818	703	714	11.76
PDM 54 (ch)	651	926	645	700	14.00
ML 5 (ch)	-	701	620	642	24.30
<b>State trials</b>					
COGG912	980	962	992	978	-
CO 6 (ch)	821	795	760	792	23.50

**Table 2. Reaction of COGG912 to pest and disease.**

Pest / Disease score	COGG 912		CO 6	
	<i>Khairf</i> 2002	<i>Kharif</i> 2003	<i>Kharif</i> 2002	<i>Kharif</i> 2003
Stem fly (%)	5.5	5.5	12.1	7.0
YMV (0-9 scale)	5	3	9	3

**Table 3. Performance of greengram culture COGG 912 for quality characters.**

Quality Parameters	COGG 912	CO 6
<b>Nutritional quality</b>		
Crude protein (%)	25.2	24.8
<b>Cooking quality</b>		
Initial weight of greengram (g)	50	50
Cooked weight of greengram (g)	150	160
Cooked weight ratio	1:3.0	1:3.2
Water absorption (ml)	490	550
Cooked volume (ml)	165	175
Expansion ratio	1:2.50	1:2.35
Bulk density (g/cc)	0.70	0.70
<b>Organoleptic evaluation</b>		
Colour and appearance	4.00	3.80
Flavour	4.00	3.60
Texture	4.25	3.70
Taste	4.00	3.40
Overall acceptability	4.00	3.40

its existing cultivars of low yield combined with susceptibility to pest and disease. Hence, an attempt was made to improve the yield potential coupled with resistance to major pest and diseases of greengram.

#### Materials and Methods

The greengram culture COGG912 was developed at the Department of Pulses, Tamil Nadu Agricultural University, Coimbatore. The crosses were made between MGG 366 x COGG 902. Elite plants were selected from F<sub>2</sub> progenies and further evaluation resulted in

the identification of COGG 912, as the best culture (Pedigree method of breeding). This culture was evaluated in various State and National trials between 2001 and 2003 during *kharif* and *rabi* seasons. Field screening of COGG 912 was also carried out for its reaction to major pests and diseases. The grain quality parameters were also tested as per the standard procedure.

#### Results and Discussion

Greengram is highly photo-thermo sensitive crop. The culture COGG 912 performed well

**Table 4. Agro-morphological features of COGG 912.**

Characters	Remarks
Duration	62 days
Plant height	32.5 cm
Plant type	Erect
Leaves	Compound, lanceolate, dark green
Petiole colour	Green
Branches	1-3
No. of pods / plant	18-25
100 seed weight	3.8 g
Seed coat colour	Green, shiny
Seed shape	Medium bold

during *kharif* season than in *rabi*. The average yield of the greengram culture COGG 912 in various trials during *kharif* season is presented in Table 1. The culture COGG 912 was tested under All India Coordinated Research Project trials (AICRP) in south zone consisting of Tamil Nadu, Andhra Pradesh, Karnataka and Orissa from 2001 to 2003. It recorded an average yield of 798 kg ha<sup>-1</sup> which is 24.3 per cent higher than the check ML 5, 14 per cent over PDM 54 and 11.76 per cent over ML 131 respectively. In the State trials, it recorded an average yield of 978 kg ha<sup>-1</sup> which is 23.5 per cent increase over the check CO 6 (792 kg ha<sup>-1</sup>).

The reaction of the culture COGG 912 against the major pests and diseases are given in Table 2. The culture COGG 912 was tolerant to stem fly, a major pest of greengram in Tamil Nadu. It is also tolerant to major disease Yellow Mosaic Virus (YMV).

The data on quality characters in COGG 912 over Check CO 6 are given in Table 3. The crude protein content is higher (25.2%) compared to the check, CO 6 (24.8%). The overall acceptability of the dhal is also higher. The organoleptic evaluation revealed that COGG 912 had good flavour, texture, appealing colour and taste as compared to check variety CO 6.

The culture COGG 912 is having the distinguishable features like early maturing, determinate, compact plant type with pods visible at the top of the crop canopy, medium bold grains, green and shiny seeds and high protein content (Table 4). Considering its superior performance, COGG912 has been released and notified as National variety for South zone including the States of Tamil Nadu, Karnataka, Andhra Pradesh and Orissa during the year 2005 for *kharif* season. Further, it was released as a CO (Gg) 7 for commercial cultivation to the farmers of Tamil Nadu during the year 2006.