

## **A Potential and Spineless 48-1 Castor Variety for Drought Prone Areas of Northern Dry Zone of Karnataka**

Since 3-4 years, the sunflower crop in Northern Dry zone Karnataka is failing to establish properly or contributing very less yield due to persistent necrosis problem and irregular weather conditions. The sunflower growers are experiencing loss and are discontinuing cultivation especially in parts of Bijapur (shallow and medium deep soils), Koppal and Bellary districts. Hence, there is a need for suitable oilseed contingent crop, which is not much exploited in this area with disease resistance. At present, the best alternative to sunflower and lucrative crop with high yielding ability is castor in Northern Dry Zone of Karnataka. It has got wider plasticity in tolerating adverse weather conditions as it put forth good growth once moisture stress period is completed under rainfed situations. There is a felt need to identify the best suitable castor genotype among the existing nationwide genotypes which would fit into medium deep black and shallow soils and aberrant rainfall situations of this region.

A series of ICAR coordinated trials consisting of advanced materials of castor received from DOR, Hyderabad were conducted at Regional Research Station, Bijapur during 1997 1998, 1999 and 2000 under rainfed situations. Among the different advanced castor hybrids/ varieties evaluated in each year, 48-1 variety which is a national check gave consistently maximum bean yield (1781 kg/ha) and also recorded significantly superior bean yield over check variety DCS-9 (666 kg/ha) in all the four years and over

hybrid check GCH-4 (1039 kg/ha) in two years (Table 1). The oil percentage revealed that 48-1 (46.05%) possessed 1.58% higher oil content than the variety DCS-9 (44.47%), but recorded 2.14 % lesser oil content than the hybrid GCH-4 (48.19%).

Simultaneously, yield data (Table 2) of experiments on evaluation of castor entries over different dates of sowing conducted during 1998, 1999 and 2000 at Bijapur confirmed the higher yield potential of 48-1 variety over DCS-9 variety in all the four dates of sowing. It was also noticed that the best yielding ability of 48-1 could be exploited when sown during July 1st fortnight. 48-1 variety is a male parent of GCH-4 hybrid, which is also used as a national hybrid check in all ICAR coordinated trials being conducted elsewhere in the country. 48-1 is an introduced variety from Directorate of Oilseeds Research, Hyderabad and it was also simultaneously tested and developed at Regional Research station, Raichur.

The plants of this variety are tall (mean-92.0 cm) and generate more number of effective spikes per plant (mean-4.8). The seeds are bolder (mean-27.1g) as compared to both the checks (Table 1). The special and significant character of this 48-1 variety is that the capsules are spineless. Hence, they are relatively less prone to capsule diseases and pests. Any excess water on capsule due to heavy rainfall will not be retained due to non-spinyness and

Table1. Bean yield and its components of castor genotypes under dryland situations

Entries	Bean yield (kg/ha)					Oil %			Plant height (cm)	Pooled mean of 3 years			
										No. of nodes in primary raceme	No. of effective spikes/ plant	100-seed weight (g)	
	1997	1998	1999	2000	Mean	1997	1998	2000					Mean
48-1	2881	1717	1558	967	1781	52.20	37.23	48.72	46.05	92.0	12.3	4.8	27.1
OCS-9	430	710	999	524	666	47.26	40.97	45.18	44.47	65.6	10.2	3.7	22.4
Variety check)													
GGCH-4	841	985	1499	953	1039	51.60	42.32	50.66	48.19	79.6	10.7	4.7	25.3
Hybrid check)													
CD at 5%	860.39	369.76	300.07	203.34		2.50	1.85	2.79		24.57	2.74	1.64	2.89
CV %	14.72	11.37	9.81	11.02		3.03	2.43	3.24		16.23	13.60	10.18	7.52

waxy-coated capsules. The botrytis (grey rot) disease incidence (Anon.,2002) and damage due to heliothis capsule borer is very less in this variety. It is also tolerant to wilt and root rot disease as a result the plant stand will be always good in this field plot. It has got longer duration (180-240days) depending upon the rainfall and depth of the soil and one can harvest 3-4 pod pickings.

The variety can also be grown in summer under irrigated conditions. The spacing need to be followed is 90cm between the rows and 45cm between the plants as the plants of this variety grow gigantically. Other package of practices to be followed is similar as recommended for this zone. The variety can also be grown as an intercrop with groundnut and bajra crops in 1:5 ratios.

The utility of this variety is much appropriate in watershed areas due to hardy and deep rooted nature and it is obviously, a drought tolerant one. The variety is also being grown as a windbreak plant all along the bunds.

The added advantage of this 48-1 variety is that the seeds are available at lower cost and farmers can reuse the seeds for sowing continuously for 2-3 years without any significant yield reduction. The variety 48-1 has been recommended for Northern dry Zone of Karnataka under the packages to increase castor production (Anon.,2002).

*A Potential and Spineless . . . . .*

Table 2. Yield potential of 48-1 castor variety under different dates of sowing in dryland situations

Dates of sowing	Yield (kg/ha)							
	48-1				DCS-9			
	1998	1999	2000	Mean	1998	1999	2000	Mean
July 1 <sup>st</sup> fortnight	1127	3029	2135	2097	1192	2560	1457	1736
July 2 <sup>st</sup> fortnight	1009	1885	1063	1319	709	1331	518	853
August 1 <sup>st</sup> fortnight	832	1425	616	958	967	905	549	807
August 2 <sup>st</sup> fortnight	384	512	113	336	256	324	72	217
CD at 5%	1998	1999	2000	CV%	1998	1999	2000	
Between 2 dates of sowing	179.80	244.44	107.31		9.73	14.50	11.17	
Between 2 entries means	127.15	168.60	73.31		7.46	11.86	9.01	

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*(Received: October, 2002)*

**Reference**

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