

## CASTOR VARIETY EVALUATION BASED ON SEED PRODUCTION AND OIL PERCENTAGE IN SEMI-ARID FARMING ENVIRONMENT

DINESH HANS\*, DINESH K. AGRAWAL and S. SUNDARAMOORTHY

Laboratory of Plant Ecology, Department of Botany, Jai Narain Vyas Univeristy, Jodhpur - 342001, India.

\* Govt. L.B.S. P.G. College, Kotputli (Jaipur), India.

In this communication an attempt has been made to evaluate the thirteen castor varieties on the basis of seed production and oil percentage. Seed production wise variety RHC-1 is better producing 117g seeds plant<sup>-1</sup> and maximum (53%) oil content was observed in GCH-4.

**Keywords :** Castor; Oil content; Seeds yield; Semi-arid farming.

Castor (*Ricinus communis* L) is basically a warm region perennial crop but can also be grown in temperate and tropical regions of the world. The plant varies greatly in its growth habit, colour of foliage and stems, seed size, colour and oil content. Some are large perennial often developing into small trees, others behave as short lived annuals and every gradation between these two extremes can be found<sup>1</sup>. Choice of season and planting time has significant bearing on field and ultimate returns from seed producing plants. According to available experimental data, the best period for taking up field and hybrid seed production is from August first fortnight to March end in Gujarat, Rajasthan and adjoining states and from September second fortnight to March end in Southern states. Any further delay/advancement in planting beyond the recommended time schedule will have undesirable effect on sex expression of female parent. Hence one must strictly follow the stipulated planting time for different regions<sup>2</sup>.

Sheshaderi and Muhammad<sup>3</sup> observed from their spacing experiments that wider inter-row spacing of 40cm x 90cm is optimum for TMV-2 castor variety and similar results were also reported<sup>4</sup> for SA-1 castor variety. In both the castor varieties, wider spacing increased branching but decreased plant height. However close spacing far out weighed the advantage of increased branching and give higher seed yield. Experiments of Zimmerman<sup>5</sup> and Kulkarni and Ramanamurthy<sup>6</sup> also showed that closer spacing resulted in higher seed yield.

Keeping all this in view i.e., spacing, irrigation, manuring and plot size, the experimant was designed to evaluate thirteen castor varieties in semi-arid farming.

Thirteen released castor varieties viz., Aruna, Bhagya, DCS-9, SKI-73, 48-1, GCH-4, RHC-1, SH-41, TVC-31, TVC-15, TMV-5, NES-6 and CO-1, seeds were sown in the three microplots of 20m x 10m size, following the randomized block design with lines representing each varieties . Growth parameters such as height, number of branches, nodes, spikes, seed yield (first and second pickings), weight of fifty seeds and total seed yield (g plant<sup>-1</sup>) were observed for all thirteen varieties. Two years data are pooled so as to overcome the season's variability. The oil content was estimated using soxhlet extraction with petroleum ether as solvent.

Maximum yield (117g plant<sup>-1</sup>) was observed for variety RHC-1 and minimum for variety DCS-9 (52g plant<sup>-1</sup>) and oil percentage wise variety GCH-4 possessed maximum oil percentage (53%) where as variety TVC-15 seeds possessed minimum (34%; Table 1). The statistical evaluation<sup>7</sup> revealed that plant height, number of spikes and seed yield varied significantly due to varieties.

During the course of presenting the results of the experiment the significant variations obtained among different treatment were reported that mediated to discuss the variations exerted in all the growth parameters including seed yield by the crop under effect

**Table 1.** Mean of two years-showing growth characteristics of seed yield and oil percentage for thirteen castor varieties.

Varieties	Height (cm)	Number of			Total No. of Seeds		Wt. of 50 Seeds	Cummul -ative seed yield (g plant <sup>-1</sup> )	Oil con- tent (%)
		Bran- ches	Nodes	Spikes	Ist Picking	IInd Picking			
ARUNA	58	03	13	06	132	74	15	70	48
BHAGYA	57	01	12	06	72	46	17	71	45
DCS-9	71	02	15	05	75	43	19	52	47
SKI-73	74	02	15	05	157	59	22	64	35
48-1	82	04	17	05	183	89	20	89	36
GCH-4	76	03	15	07	169	82	18	100	53
RHC-1	87	02	15	06	185	96	21	117	39
SH-41	75	03	14	05	185	98	16	99	41
TVC-31	78	02	15	05	154	88	18	96	50
TVC-15	73	02	14	03	148	68	12	62	34
TMV-5	77	02	15	06	182	90	19	92	46
NES-6	59	02	12	05	139	68	23	80	45
CO-1	56	04	21	04	152	--	25	101	48
CD	18.42*	NS	NS	2.85**	NS	NS	NS	192.63*	NS

NS = Non-significant,

\* and \*\* Significant at 5 and 1 percent probability levels, respectively.

of different treatments and their combination. It has been attempted to establish the effect and cause relationship in light of research work done and possible explanations were given for the variations observed.

The variety RHC-I that showed maximum seed production in semiarid farming may be due to highly significant contribution from the number of spikes can be the main reason for higher seed production, as the spikes containing large number of capsular fruits and these fruits having seeds in them, and thus producing the large number of seeds. Sundramurthy<sup>8</sup> has confirmed similar information on the seed yield. The results obtained are in conformity with that of Sheshadari and Muhammed<sup>3</sup> and Khan<sup>9</sup>. The oil content ranged from 34-53% in the selected varieties and the variation due to varieties was non significant.

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