

EVALUATION DIFFERENT BRINJAL VARIETIES FOR GROWTH, YIELD AND ECONOMICS FOR NORTH EASTERN TRANSITION ZONE OF KARNATAKA

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Abstract: The field experiment was conducted during the year 2014 – 2015 with six varieties of brinjal viz., V₁ – Arka Neelkanth, V₂ – Arka Shirish, V₃ – Arka Kusumkar, V₄ – Arka Keshav, V₅ – CVK, V₆ – Brinjal Green Round and four replication, at College of Horticulture, Bidar which is situated in the North Eastern Transition Zone i.e., zone-II of region-I in Karnataka state. The study revealed that among the different varieties, significantly higher plant height (61.83, and 94.13 cm at 60 and 90 DAT respectively) was observed in V₂ (Arka Shirish), followed by V₃ (Arka Kusumkar) (51.03 and 80.73 cm at 60 and 90 a DAT, respectively). Significantly higher fruit yield per hectare (13.01 t/ha) was recorded in V₅ (CVK) compared to all the other genotypes, while the fruit yield per hectare was found to be the least (6.94 t/ha) in V₆ (Brinjal Green Round). Higher B: C ratio (2.80) was recorded in the variety, CVK. Whereas, lower B: C ratio (1.51) was recorded in Brinjal Green Round.

Keywords: Different Varieties, Growth, Yield and Economics.

Introduction: Brinjal (*Solanum melongena* L.) is one of the most important fruit vegetables belonging to the family Solanaceae, [10] mentioned that its centre of origin was the Indo-Burma region. It has been a stable vegetable in our diet since ancient times. Both poor and rich like it, contrary to the common belief, it is quite high in nutritive value and can well be compared with tomato [1]. The unripe brinjal fruit is primarily used as cooked vegetable for preparation of various dishes in different regions of the world. It has got much potential as raw material in pickle making and dehydration industries. Brinjal is also valued for its medicinal properties and has got de cholesterolizing property primarily due to presence of fatty acids (linoleic and linolenic) presence in flesh and seeds of fruits higher amount. Edible parts of brinjal are matured fruits and bitterness is due to glycoalkaloids. Among the Solanaceous vegetables, brinjal is the most common, popular and principal vegetable crop grown in many geographical parts in India.

The area under brinjal cultivation is estimated at 680.00 ha with total production of 11896.00 mt and productivity of 17.5 mt/ha [4]. Since productivity level is very low in Bidar, hence an investigation is carried out to identify suitable cultivar with higher productivity in this region.

Material and method: Field experiment was conducted during 2014 to 2015 at College of Horticulture, Bidar, to evaluation different brinjal varieties for growth, yield and economics for North Eastern Transition zone of Karnataka. The experiment was laid out using RCBD design with total six varieties with four replications viz., V₁ – Arka Neelkanth, V₂ – Arka Shirish, V₃ – Arka Kusumkar, V₄ – Arka Keshav, V₅ – CVK, V₆ – Brinjal Green Round. The spacing adopted for planting was 60x 45 cm. The plots were irrigated immediately after the transplanting. Thinning of excess seedlings and gap

filling was undertaken. All cultural practices have followed as per package of practices of UHS, Bagalkot. The observations viz., Plant height, Number of branches, Stem girth at 30, 60 and 90 days after transplanting, Days to 50% flowering, Yield per plot, Yield per ha and Economics were worked out. The collected data were subjected for statistical analysis.

Results and Discussion: The data on number of branches per plant at varying stages of plant growth as influenced by different genotypes is presented in Table 1 and depicted in Fig. 1.

Plant height of brinjal influenced significantly due to different genotypes at all the stages of growth (30 and 60 DAT) except 30DAT. The significantly higher plant height (61.83, and 94.13 cm at 60 and 90 DAT respectively) was observed in V₂ (Arka Shirish), followed by V₃ (Arka Kusumkar) (51.03 and 80.73 cm at 60 and 90 DAT, respectively). Whereas significantly lower plant height of 42.01 and 65.23 was recorded in V₁ (Arka Neelkanth) and V₆ (brinjal green round) at 60 and 90 DAT respectively The results are in accordance with findings of [9] and [2].

The data on number of branches per plant at varying stages of plant growth as influenced by different genotypes is presented in Table 1 and depicted in Fig. 1.

Number of branches per plant recorded significantly higher in V₅ (CVK) (6.40, 12.20 and 20.0 at 30, 60 and 90 DAT, respectively) over the rest of the genotypes. Whereas V₄ (Arka Keshav) recorded significantly lower number of branches of 2.93, 7.53 and 14.27 at 30, 60 and 90 DAT, respectively. The girth of brinjal stem was influenced significantly due to different genotypes at all the stages of growth. Maximum girth of stem (4.21, 16.05, and 18.63 mm) were observed in V₆ (Brinjal Green Round), at 30, 60 and 90 DAT. While significantly lower stem of girth was recorded in V₄ (Arka Keshav) (3.54 and 10.92 mm at 30 and 60

DAT, respectively) this results is fall in the view of [8].

The data on days taken for 50 per cent flowering is presented in Table 2. Significantly higher number of days took for 50 per cent flowering (56.00 days) was recorded in genotype V₃ (Arka Kusumakar) compared to all other genotypes this result is accordance with [3]

The data on yield tons per hectare are presented in Table 2.

Significantly higher fruit yield per hectare (13.01 t /ha) was recorded in V₅ (CVK) compared to all the other genotypes, while the fruit yield per hectare was found to be the least (6.94 t/ha) in V₆ (Brinjal Green Round) The similar pattern of result was reported by [7], [6] and [5]

Economics: The data on economics of different brinjal varieties are presented in Table 3. Among the different varieties, the variety, CVK obtained highest yield (13.01 t/ha) and net income (Rs. 66917.2/ha), gross income (Rs. 104080/ha). The lowest yield (6.94

t/ha) was recorded in Brinjal Green Round with net income of Rs. 18657.2 per hectare, gross income of Rs. 55520 per hectare.

Higher B: C ratio (2.80) was recorded in the variety, CVK. Whereas, lower B:C ratio (1.51) was recorded in Brinjal Green Round.

T₃(GA₃50ppm+1 January 2015) Lower yield was recorded in T₁(GA₃20 ppm+1 January 2015) of 31.08 mm. this result fall in view of [5].

Among the treatments imposed, the treatment T₃ obtained highest yield (71.3 t/ha) and net income (Rs.83,416/ha), gross income (Rs.142600/ha) This was followed by T₂ which produced 62.25 tons per hectare with Rs.66216 per hectare, Rs. 124500 per hectare per hectare of net income, gross income, respectively. The lowest yield (41.53 t/ha) of radish was recorded in T₁₁ with net income of Rs.26125.6 per hectare, gross income of Rs. 83,060 per hectare.

Higher B: C ratio (2.41) was recorded in the treatment T₃, Whereas, lower B: C ratio (1.46) was recorded in the treatment T₁₁.

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Genotypes	Plant height (cm)			Number of branches		
	30 DAT	60 DAT	90 DAT	30 DAT	60 DAT	90 DAT
V ₁ Arka Neelakanth	9.67	42.01	68.13	3.20	8.13	15.20
V ₂ Arka Shirish	11.95	61.83	94.13	4.33	9.93	17.07
V ₃ Arka Kusumakar	10.56	51.03	80.73	3.47	9.07	17.33
V ₄ Arka Keshav	8.99	42.79	68.95	2.93	7.53	14.27
V ₅ CVK	10.44	49.34	65.80	6.40	12.20	20.00
V ₆ Brinjal Green Round	12.03	46.94	65.23	4.87	8.80	16.73
Mean	10.60	48.99	73.83	4.20	9.27	16.76
S.Em±	2.01	2.86	3.76	0.60	0.68	1.05
C. D. at (5%)	6.36	9.01	11.87	1.91	2.15	3.31

NS - Non significant

Genotypes	Stem girth (mm)			Days to 50 per cent flowering	Yield per plot (kg)	Yield per hectare (tons)
	30 DAT	60 DAT	90 DAT			
V ₁ Arka Neelakanth	3.78	11.20	16.62	52.67	7.99	8.88
V ₂ Arka Shirish	4.05	12.38	17.96	55.67	6.26	6.96
V ₃ Arka Kusumakar	3.64	11.49	15.07	56.00	11.24	12.49
V ₄ Arka Keshav	3.54	10.92	16.49	55.00	8.63	9.59
V ₅ CVK	3.92	14.31	19.23	51.00	11.71	13.01
V ₆ Brinjal Green Round	4.21	16.05	18.63	48.00	6.24	6.94
Mean	3.85	12.72	17.33	53.05	8.68	9.64
S.Em±	0.25	0.65	0.977	1.13	1.23	1.37
C. D. at (5%)	0.79	2.07	3.08	3.58	3.90	4.33

NS - Non significant

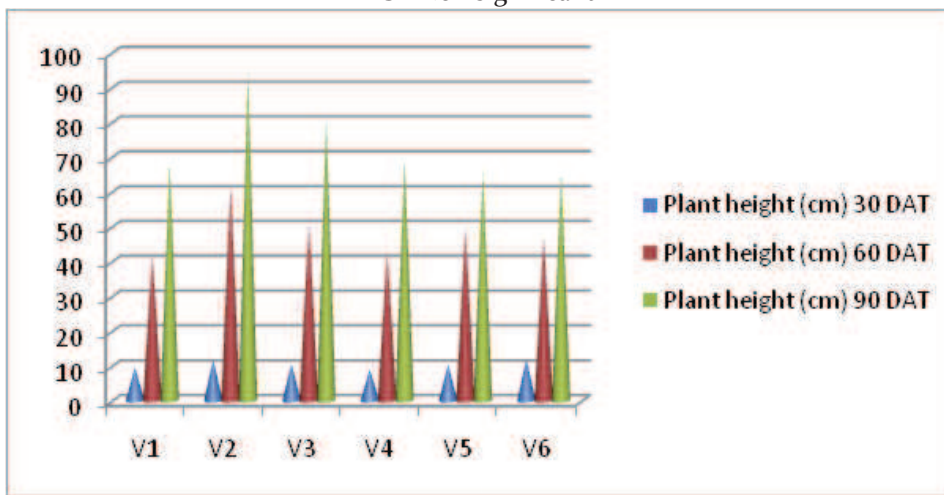


Fig.1 Performance of different brinjal Varieties for plant height at different growth stages

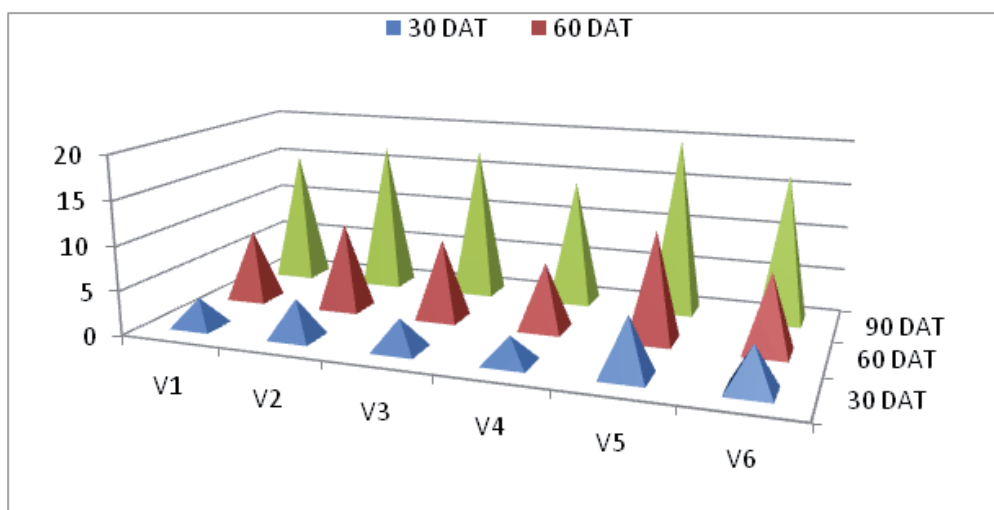


Fig.2 Performance of different brinjal Varieties for number of branches at different growth stages

Tables 3. Economics of Different Brinjal Varieties					
Genotypes	Yield Per hectare (kg)	Cost of cultivation	Gross returns	Net returns	B:C
V1	8880	37212.8	71040	33827.2	1.91
V2	6960	37212.8	55680	18467.2	1.51
V3	12490	37212.8	99920	62707.2	2.69
V4	9590	37212.8	76720	39507.2	2.06
V5	13010	37162.8	104080	66917.2	2.80
V6	6940	36862.8	55520	18657.2	1.51

*price of fruit Rs. 8 kg

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