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Performance of cucumber (*Cucumis sativas*) germplasm

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Abstract

Fifteen genotypes of *Cucumis sativas* collected from different district of eastern Uttar Pradesh. All the treatments were replicated three times in randomized block design. Performance of all the genotypes was studied and L₉ was found the best in respect to the yield (3.39 Kg/plot).

Keywords: Cucumber, Genotypes

Introduction

Cucumber (*Cucumis sativas* L.) is considered one of the major vegetable crops and widely grown in India and world level. India ranks at 28th position producing about 0.17 Million tons annually on 26088 hectare of land with yield of 164 tons/hectare (FAO 2016). It is rich in vitamin B&C as well as minerals such as Calcium, Phosphorus, Iron and Potassium besides containing about 2.5% Carbohydrates, 0.4% Protein, 0.1% fat and 0.4% fibre (Singh 2001). It is a major warm season vegetable, grown throughout year in India. It is grown extensively in plain or diara land region of eastern Uttar Pradesh on a commercial scale. It is interesting to the growers used to spend lot of money to establish the browser system to the grow cucumber in this region at the rainy season. As this crop provides as salad crop. Looking to its significance efforts were made to collect and evaluated the germplasm from remote areas of eastern part of Uttar Pradesh.

Materials and Methods

The present investigation was carried out at main experiment station of the department of vegetable science, N. D. University of Agriculture & Technology, Kumarganj, Faizabad, on 15 genotypes of cucumber. All the genotypes (treatments) were replicated thrice in randomized block design. Seven plants of each genotypes were considered as a treatment in this study. Seeds of cucumber (15 genotypes) were already grown loamy soil at the spacing between row and plant were three meter into 50 centimeter in 3×3 meter plot size. The recommended agronomic practices adopted for raising a good crop. Five plants were randomly chosen and tagged to record data on eleven quantitative characters viz. days two anthesis first male flower, days two anthesis first female flower, nodal position of first male flower, nodal position of first female flower, number of primary vines per plant, length of fruit, diameter of fruit, number of fruits per plant, average weight of fruit, days to first harvest and yield of edible fruit per plant. Data were analysed statistically as per method of Panse and Sukhatme (1967) [2] for analysis of variance.

Result and Discussion

The observations on eleven traits are given in table 1 wide variability was recorded for eleven characters studies.

Days to anthesis of first male flower

The days to anthesis of first male flower ranged from 39.14 - 44.30 with overall average of 41.31. The maximum days to anthesis first male flower was recorded under L₁₂ which did not differ significantly from L₆, L₇, L₂, L₃ and L₈. The minimum days to anthesis of first male flower was recorded by L₁₅ which was found at par with L₉.

Days to anthesis first female flower

The days to anthesis first female flower varied from 40.12 - 46.94 with mean value of 46.46. The maximum days to anthesis first male flower was recorded in L₁₂ which was followed by L₅. The minimum days to anthesis of first female flower was recorded by L₁₅ which was much differ to other line.

Table 1: Mean Performance of cucumber genotypes with respect to different traits in summer season

Genotypes	Days to anthesis of first male flower	Days to anthesis of first female flower	Nodal position of first male flower	Nodal position of first female flower	No. of primary vines per plant	Length of fruit	Diameter of fruit	No. of fruits per plant	Average weight of fruit	Yield of edible fruit per plant	Days to fruit harvest
						(cm)	(cm)				
							5.2	17.18	0.15	2.6	51.2
L ₁	41.27	43.23	4.23	3.72	4.6	18.39	4.38	19.34	0.13	2.42	52.29
L ₂	43.52	44.54	3.33	3.24	5.24	13.89	5.15	18.17	0.18	3.25	51.6
L ₃	43.12	44.17	3.24	3.24	4.8	16.55	5.13	16.95	0.16	2.22	51.29
L ₄	41.15	44.55	3.26	4.28	5.58	13.55	4.74	18.34	0.15	2.4	51.11
L ₅	43.34	46.24	3.17	3.29	5.32	16.2	5.37	16.74	0.16	1.53	52
L ₆	44.22	45.26	4.28	4.21	4.33	13.75	4.31	23.38	0.18	3.24	51.84
L ₇	43.85	45.21	3.25	3.21	5.8	16.74	4.17	18.33	0.17	3.29	51.79
L ₈	43.16	44.15	2.37	4.01	4.69	14.4	4.6	19.91	0.14	3.39	52.72
L ₉	40.24	44.65	3.93	4.36	6.45	17.27	4.24	19.06	0.14	2.87	52.3
L ₁₀	41.57	42.79	3.84	4.83	5.32	16.38	4.26	17.57	0.14	2.04	51.89
L ₁₁	43.44	45.27	3.44	4.87	4.18	16.08	5.39	13.68	0.18	2.18	52.94
L ₁₂	44.3	46.94	4.31	4.49	4.26	16.53	4.29	14.24	0.17	3.22	53.19
L ₁₃	41.88	45.23	3.65	3.87	4.74	15.63	4.33	13.39	0.17	3.2	53.44
L ₁₄	40.23	42.59	2.27	2.78	4.95	14.42	4.35	15.45	0.12	3.11	52.11
L ₁₅	39.14	40.12	3.34	3.52	4.46	13.9	4.67	17.45	0.16	2.73	52.11
Total Mean	42.25	44.46	3.46	3.86	4.98	15.43	2.5	6.3	3.4	5.34	3.06
CV%	5.6	3.85	5.6	4.3	3.5	13.72	0.95	2.03	0.22	0.52	0.58
CD 0.05	1.35	0.95	1.1	0.79	0.5	1.78					

Nodal position of first male flower

The range of nodal position of first male flower varied from 2.37 – 4.28 the mean value 3.44. The nodal position of first male flower was recorded in L₁₂ followed by L₆, and L₁. However the lowest nodal position of first male flower was counted in L₁₄ and it was followed by L₈.

Nodal position of first female flower

The nodal position of first female flower ranged from 2.78 – 4.83 the overall average of 3.86. The highest nodal position of first female flower was recorded in L₁₁ which was found at par L₁₀, L₁₂, L₄, L₆, L₉, and L₈. The shortest nodal position first female flower was recorded by L₁₄.

Number of primary vines per plant

The number of primary vines per plant varied from 4.18 – 6.54 with the mean value 4.98 the maximum number of primary vines per plant was recorded in L₉ which was statistically at par L₇, L₄, L₅, and L₂ the minimum number of primary vines was found in the L₁₁ which did not differ significantly from the L₁₂, L₁₅, L₆, L₁ and L₃.

Length of Fruit

The length of fruit ranged from 13.7 – 18.39 with mean value 15.43. The L₁ proved best, among all the genotypes studied under this experiment for obtaining longest fruit. However, the minimum fruit length was recorded in L₄ and did not differ significantly from the L₆, L₃ and L₁₅.

Diameter of fruit

The diameter of fruit varied on 4.17 – 5.39 with the mean value 4.67 the maximum diameter of fruit was found in L₁₂ which was found statistically at par L₆, L₁, L₃ and L₄. The minimum diameter of fruit was found in L₇ which was noted at par the L₁₀, L₁₁, L₁₃, L₁₅, and L₂.

Number of fruits per plant

The range of number of fruits per plant varied from 4.17 – 5.39 with the mean value of 17.45. The highest number of fruits was recorded in L₇ followed by L₂, L₉ and L₁₀. However the lowest number of fruits was counted in L₁₄ and was noted as par in L₁₂.

Average weight of fruit

The highest average weight of fruit was found in L₃ and L₈ and lowest average weight of fruit was recorded in L₁₅.

Days to first harvest

The minimum days to first harvest was found in L₅ and the maximum days to first harvest was found in L₁₄.

Yield of edible fruit per plant:

The range of yield per plant was 1.53 – 3.39 Kg. with the mean value of 2.73 Kg. The highest yield 3.39 Kg. was recorded in L₉ which at par with L₈, L₃, L₇, L₁₃ and L₁₄. The lowest yield per plant was recorded by L₆ which at par L₁₁, L₁₂, L₄ and L₅.

Cucumber is native of Northern India and belong to family cucurbitaceae in which there are certain pockets of Eastern Uttar Pradesh where great diversity of this crop exists. Hence variable genotypes should be maintained in its original form. Days to anthesis first female flower, nodal position of first female flower, length and diameter of fruits are most important attributes which play major role in influencing the yield particular genotypes of cucumber.

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