

Investigating the Performance of growth, flowering and yield characters at different treatment trials of varieties of cucumber varieties under prayagraj agro-climatic conditions

Abstract

Nine cucumber varieties were evaluated at the vegetable research farm at Department of Horticulture SHUATS, Prayagraj in Randomized Block Design with three replications during rainy season September -2022 for growth, yield and fruit qualities. The varieties Cucumber Green Wonder gave maximum mean value for fruits per plant (5.20 kg), fruit weight (174.33 g), fruit yield per plot (39.33 kg), number of node per vine (15.33) yield (42 q), number of male flower per plant (65.00), number at which first female flower (5.33) was observed in same varieties, maximum numbers of male flowers per plant in variety Cucumber Green Wonder (65.00) maximum length has been found in Cucumber Green Wonder (151.67) Minimum days were recorded for first Appearance of male flower in KH 10 Green Long (51.67). The variety Green 4 Barsati has taken minimum (48.00) days to first harvesting followed by F999 (53.00), cucumber green wonder was found superior based on overall performance in terms of growth, yield, quality & Economic returns. The highest cost benefit ratio was found for cucumber variety Cucumber Green Wonder under Prayagraj Agro-climatic conditions.

Keyword: cucumber, varieties, Economic returns, cost benefit ratio, Agro-climatic conditions.

Introduction

Cucumber (*Cucumis sativus* L.) is one of the most important and popular vegetable of the family cucurbitaceae with a chromosome number $2n=14$. It is an ideal summer vegetable crop grown extensively throughout the tropical and subtropical region of the world, which comprises of 117 genera and 825 species. It is a thermophilic and frost-susceptible horticultural crop usually cultivated in fields during spring-summer period (Bacciet *et al.*, 2006) or in greenhouse in different seasons. Better growth and higher yields in the greenhouse grown cucumber requires the optimum temperature of 26-27 °C and maintain minimum temperature of 20 °C and the relative humidity should not go beyond 80 %. Cucumber is regarded as second most widely cultivated cucurbit after watermelon and it is considered as fourth most important vegetable crop after tomato, cabbage and onion in Asia (Tatlioglu, 1993). It belongs to the tribe Cucurbitaceae in the family of cucurbitaceae. It closely resembles the wild form *Cucumis hirsutus* which is a native of Himalayas and originated in India. It is believed to have been domesticated in India for 3000 years and in Eastern Iran and China probably for 2000 years. Now it is grown all around the world and is thought to be one of the oldest vegetable crops being grown for at least five thousand years (Shetty and Wehner 2002). As per the first advance estimates data of National Horticulture Board (2018-19), among the horticultural crops, vegetable occupies an area of 10.435 million Ha with an annual production of 187.474 million MT. Compared to this the corresponding figures for Bihar state are 852.57 thousand Ha and 15.974 million MT. In India cucumber is cultivated in 107-thousand-hectare area with an annual production of 1658 thousand MT. Hill farmer gets remunerative prices for cucumber from the month of July to October since cucumber are not produced in the adjoining plains.

Materials and Methods

The present investigation was carried out during the rainy season of the year, 2022 at vegetable research farm, Department of Horticulture, Naini Agricultural Institute, Sam Higginbottom University of Agriculture, Technology & Sciences, Prayagraj (U.P.). The details of materials used, procedures followed and criteria adopted for evaluation of treatment during the course of investigation are presented in this chapter.

Results and Discussion

The result of the experiment conducted under the present study recorded during the period of research in vegetable Research Field of Sam Higginbottom University of Agriculture Technology of Science Uttar Pradesh during Sep to Nov 2022 .

Growth Characters

Days to germination
Days to first true leaf stage
Vine length at last harvest
Node per vine at last harvest

Flowering Characters

Days to first male flowers appearance
Days to first female flowers appearance
Number of male flowers
Number of female flowers

Yield Character

Days to first fruits harvest
Average fruits weight(g)
Fruit length(cm)
Diameter of fruit(cm)
Volume of fruit
Surface area of fruit
Fruit yield per plant (kg)
Yield per plot (kg)
Yield per acre(q)

Table 1: Performance of different varieties of cucumber under prayagraj agro-climatic conditions.

Treatment	Germi Nation (days)	First true leaf Stage (days)	Vine length (cm)	Node per vine (no)	First male flower appearance (days)	First female flower appearance (days)	Male flowers appearance (no)	Female flowers appearance (no)	First fruit harvest (days)	Average fruit weight (g)	Length of fruit (cm)	Diameter of fruit (cm ³)	Volume of fruit (cm ³)	Surface area of fruit (cm ³)	Yield per plant (kg)	Yield per plot (kg)	Yield per acre (quintals)
T1	6.33	12.00	141.33	15.67	41.00	47.00	51.67	4.67	54.00	141.67	18.33	11.33	272.00	561.67	4.20	31.67	35.57
T2	6.67	11.67	141.00	16.67	42.00	48.00	54.33	4.33	53.00	145.00	14.67	10.33	278.33	575.67	4.33	32.67	34.33
T3	7.33	11.67	146.33	16.67	40.33	46.67	56.33	5.33	52.00	159.67	21.67	9.00	317.67	564.33	4.20	30.00	33.29
T4	8.00	12.33	149.00	19.33	42.00	48.33	55.67	5.33	51.33	152.33	18.00	11.67	299.33	565.33	4.53	37.33	40.39
T5	7.33	12.67	151.67	15.33	45.00	51.00	65.00	5.33	50.00	174.33	22.67	12.00	367.00	601.33	5.20	39.33	46.99
T6	7.67	11.67	142.33	16.67	42.33	50.67	59.67	5.00	50.67	161.33	19.33	9.67	244.33	597.00	4.60	33.00	42.50
T7	8.00	12.33	150.00	14.33	41.00	46.67	52.67	5.67	52.33	162.67	17.33	10.33	272.67	552.33	4.10	31.00	37.31
T8	7.67	12.33	141.33	14.67	42.67	48.67	57.33	5.00	51.33	152.33	15.00	11.67	314.67	578.33	4.10	30.33	31.72
T9	6.33	9.67	140.00	17.00	40.33	44.00	61.00	5.67	48.00	140.00	11.33	11.00	219.33	547.67	4.87	36.00	40.94
F-test	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
S.Ed (±)	0.66	0.66	1.44	0.84	0.94	1.56	1.78	0.62	0.88	1.96	1.42	0.66	8.30	7.88	0.08	1.36	0.89
C.D (P=0.05)	1.68	1.38	3.03	1.77	1.98	3.27	3.75	1.30	1.85	4.12	2.99	1.38	17.44	16.56	0.23	2.85	1.86
C.V	12.29	12.29	1.36	7.07	3.07	4.43	4.25	16.41	2.33	1.73	11.00	8.28	3.93	1.88	3.38	5.51	3.16

Conclusion

The result of the present investigation concluded the cucumber treatment cucumber Green_Wonder Recoded_with maximum average fruit weight(174.33)g and average fruit yield per acre (46.99)quintals . Analysis of variance was significant for all characters under the study which was recorded of day of germination (7.33)days , length of vine (151.67)cm , day to first appearance of male flower (45.00) ,day to first appearance of female flower(51.00) , number of days of first harvest(50.00) , fruit length(22.67)cm, fruit diameter(12.00)cm³ , volume of fruit(367.00)cm³ ,surface area of fruit(601.33)cm³ , number of fruit yield per pant(5.20)kg , was obtained in Cucumber Green Wonder.

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