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Study on different levels of fertilizer on growth, yield and quality parameters of f1 hybrids of cucumber (*Cucumis sativus* L.) under Konkan agro climatic condition

PC Mali, HP Naik and AP Pawar

Abstract

Field experiment was conducted on Effect of different levels of fertilizer on growth and yield of F1 hybrids of cucumber (*Cucumis sativus* L.) under Konkan agro-climatic conditions at Department of Horticulture, College of agriculture, Dapoli, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Dist. Ratnagiri, (M.S.) during the *Rabi* season of 2014-15. A Split plot design was used with two replications, which included seven hybrids of cucumber. The sowing of the seeds of hybrids in the field during February 2015 with spacing 150 x 90 cm. Significant difference were observed among the hybrids for growth and yield parameters. The hybrid Ragini was found significantly superior than all the hybrids under study, recorded yield of 4.85 kg/vine and 32.63 mt/ha.

Keywords: Cucumber hybrids, level of fertilizers, growth, yield and quality parameters

Introduction

Cucumber (*Cucumis sativus* L.) is one of the most common and popular vegetables belonging to family Cucurbitaceae. It is originated from India. The area under cucumber cultivation in konkan region is about 460 ha. With annual production 5163 tonnes (Annon, 2014). Now a days cucumber hybrids were adopted by Indian farmers to make the optimum use of the land for increase production as well as productivity. The agroclimatic condition in konkan region is suitable for cultivation of cucumber. Due to high yield potential of cucumber hybrids adequate supply of essential plant nutrients is essential during its growth period. The suitability of agroclimatic condition of konkan region for cucumber cultivation it is necessary to investigate the comparative performance of cucumber hybrids at different fertilizer doses under konkan agroclimatic condition.

Materials and Methods

The studies were carried out at Nursery no. 4 at Department of Horticulture, College of agriculture, Dapoli, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Dist. Ratnagiri, (M.S.). The basic material for the study involved seven hybrids of Cucumber were grown in Split plot design with two replications during *Rabi* 2014-2015. Each experimental plot of 10 vines. 5 vines were randomly selected for recording observation on effect of different levels of fertilizers i.e. F1 (135:60:30 NPK kg/ha), F2 (200:100:50 NPK kg/ha) and F3 (250:100:50 NPK kg/ha) on growth characters, flowering characters, physical parameters, yield and attributing character and chemical composition of the cucumber hybrids.

Result and Discussion

The performance of various hybrids of cucumber under konkan agro climatic condition is presented in table 1.

Among the different levels of fertilizers the highest main vine length (5.89 m), number of branches (4.82) were recorded when hybrids were fertilized with F3 (250:100:50 NPK kg ha-1). The lowest main vine length (4.78 m), number of branches (4.35), were recorded in F1 (135:60:30 NPK kg ha-1).

The lowest days to appearance of first male flower (37.90 days), days to appearance of first female flower (43.90 days) were observed in F1 (135:60:30 NPK kg ha-1). While the highest

Days to appearance of first male flower (41.07 days) days to appearance of first female flower (46.07 days), observed in F3 (250:100:50 NPK kg ha⁻¹).

The highest length of the fruit (17.89 cm), diameter of fruit (4.92), weight of fruit (188.86 g), was observed in F3 (250:100:50 NPK kg ha⁻¹) while the lowest length of the fruit (15.77 cm), diameter of fruit (4.34 cm), weight of fruit (158.07 g) was produced in F1 (135:60:30 NPK kg ha⁻¹).

The highest number of fruits per vine (22.20), fruit yield per vine (4.12 kg), and fruit yield per hectare (27.04 t) was recorded in F3 (250:100:50 NPK kg ha⁻¹) whereas, the lowest number of fruits per vine (19.33 kg), fruit yield per vine (3.16 kg), and fruit yield per hectare (20.36 t) was recorded in F1 (135:60:30 NPK kg ha⁻¹).

The lower fertilizer dose F1 (135:60:30 NPK kg ha⁻¹), recorded the highest total soluble solids (3.99°B), ascorbic acid (6.89 mg/100g) and moisture content (92.93 %). While the lowest total soluble solids (3.87°B), ascorbic acid (6.80 mg/100g) and moisture content (91.43 %). was recorded in F3 (250:100:50 NPK kg ha⁻¹).

Conclusion

NPK had positive effect on growth, yield and quality attributes of cucumber as it enhanced cucumber production. Among different level of NPK, F3 (250:100:50 NPK kg/ha) was found to be optimum dose for maximization of yield of cucumber per ha under Konkan agroclimatic condition.

Table 1. Different levels of fertilizer on growth and yield of F1 hybrids of cucumber (*Cucumis sativus* L.) under konkan agro-climatic conditions.

Sr. No.	Observations	Fertilizer levels			Mean	S.Em ±	C.D (0.05)
		F1	F2	F3			
1.	Length of vine (m)	4.78	5.38	5.89	5.35	0.0058	0.017
2.	Number of branches	4.35	4.51	4.82	4.56	0.032	0.107
3.	No. of days to appearance of first male flower	37.90	38.77	41.07	39.25	0.297	0.882
4.	No. of days to appearance of first female flower	43.90	45.77	46.07	45.25	0.287	0.863
5.	Length of fruit (cm)	15.77	16.75	17.89	16.80	0.273	0.812
6.	Weight of fruit (g)	158.07	174.50	180.86	158.07	0.647	1.922
7.	Diameter of fruit (cm)	4.34	4.70	4.92	4.66	0.112	0.354
8.	No. of fruits per vine	19.33	21.70	22.20	21.08	0.118	0.343
9.	Fruit yield per vine (kg)	3.16	3.85	4.12	3.71	0.030	0.091
10.	Fruit yield per hectare (mt)	20.36	24.23	27.04	23.88	0.123	0.368
11.	Total soluble salts (mg/100g)	3.99	3.96	3.87	3.94	0.014	0.041
12.	Ascorbic acid (°B)	6.89	6.84	6.80	6.84	0.150	0.460
13.	Moisture content (%)	92.93	92.04	91.43	92.13	0.455	1.353

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