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Cultivation of *Dracaena reflexa* in different spacing pattern as an intercrop in custard apple block

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Abstract

The present investigation “Cultivation of *Dracaena reflexa* in different spacing pattern as an intercrop in custard apple block” was conducted in Research Field, Department of Horticulture, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj, during September 2020 to March 2021. The plants were planted at a plot of 1 meter with various spacing pattern. The experiment was laid out with nine treatments replicated thrice in Randomized Block Design. The plants were watered immediately after planting and at weekly intervals during growing period. Based on the present investigation it is concluded that T5 75cm x 75cm spacing pattern as an intercropping system in Custard apple (*Annona squamosa* L.) gave best plant height (cm), number of leaves per plant, plant spread (E-W and N-S), leaf area (cm²), leaf length (cm), leaf width (cm) fresh leaf weight (g), dry leaf weight (g), Days taken for sprout formation after harvest and Vase life (days) of *Dracaena reflexa*.

Keywords: Spacing, randomized block design, growth, yield and *dracaena reflexa*

Introduction

Song of India (*Dracaena reflexa*), a member of the family Asparagaceae, is one of the important cut foliage crops used in country. It is exported to different countries from India. It is native to Madagascar and other Indian Ocean islands. It is also an important indoor and cut foliage crops of Spain, Mauritius, Mozambique, Rodrigues, Reunion, Italy, Belize, Central African Republic, Sri Lanka. The present-day *Dracaena* has been developed from single form of wild species. The generic name of song of India *Dracaena* comes from the Ancient Greek word, *Drakaina*, meaning 'female dragon', due to many a green thumb likening the red stems often found in *Dracaena* to the color of dragon blood. This tree like plant is fairly easy to grow and maintain. Its vibrant chartreuse foliage and long vase life have made it as a popular cut foliage. In India it is grown for diverse purposes. Its cultivation is becoming popular around the cities for its extensive use as cut foliage, in making bouquets, flower arrangement, in ornamental gardening it is used for indoor gardening, Edges and as pot plants etc. It is one of the plants used in the NASA Clean Air Study and has shown to help remove formaldehyde. It is an effective air cleaner and is said to be among the best plants for removing xylene and trichloroethylene.

It is also found suitable for intercropping in rubber, cocoa and coffee plantations. In India it is grown on a large scale in Kerala, Karnataka, and Kolkata and found to be more profitable than the main crop. As it is shade loving plant without much care it can be grown well with the main crop. Intercropping means the growing of short terms cash crops in the intervening or inter space available between two rows of main crop till it attains to proper bearing age. This will be provided greater opportunity for proper management practices under the guava plantation through intercropping *dracaena* plants. Intercropping can not only improve the health of orchard but also generate additional income and employment to the farmers, without any adverse effect on guava production.

Increased leaf production, Quality of leaf (leaf length, Leaf colour), Increased vase life are the important objectives to be reckoned in commercial foliage production. Although it requires less fertilizer for good quality leaves 19:19:19 is recommended. Over fertilizing Song of India will cause salts to build up & can burn the roots of the plant. Be sure to avoid fertilizing a plant which is stressed, i.e. bone dry or soaking wet.

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Materials and Methods

The present investigation “Cultivation of *Dracaena reflexa* in different spacing pattern as an intercrop in custard apple block” was carried out at Horticultural Experimental Field, Department of Horticulture, Naini Agriculture Institute, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj, during Rabi season of 2020-2021. The experiment was laid out with nine treatments replicated thrice in Randomized Block Design. Different treatment combinations were different spacing pattern that is T1(75cm x 75cm), T2(75cm x 70cm), T3(75cm x 65cm), T4(75cm x 60cm), T5(75cm x 55cm), T6(65cm x 55cm), T7(65cm x 60cm), T8(65cm x 65cm), T9(65cm x 70cm). The objectives were to assesses growth and yield of *Dracaena reflexa* when it is planted as an intercrop in custard apple, the growth and yield of *Dracaena reflexa* ‘song of India’ when planted in less spacing than the recommended, To study vase life of leaf in distilled water. The observations were recorded on the parameters like plant height (cm), number of leaves per plant, plant spread (E-W and N-S), leaf area (cm²), leaf length (cm), leaf width (cm) fresh leaf weight (g), dry leaf weight (g), Days taken for sprout formation after harvest and Vase life (days).

Results and Discussion

The findings of the present experiment entitled, “Cultivation of *Dracaena reflexa* in different spacing pattern as an intercrop in custard apple block”. Are being presented and discussed in the following pages under appropriate headings. Data on vegetative growth and bunch weight and yield observations were analysed and discussion on experiment findings in the light of scientific reasoning has been stated.

Effect of cultivation of *Dracaena reflexa* (song of India) as an intercrop in custard apple in different spacing pattern

The experimental findings based on parameters are summarized below.

The maximum plant height (27.53,29.72,33.28,36.50,42.57 and 51.21cm) at 30, 60, 90, 120, 150 and 180 DAT was observed in T₅ 75 cm x 75 cm whereas the lowest value plant height (21.96,22.78,24.38,28.59,32.76,39.94cm) at 30, 60, 90, 120, 150 and 180 DAT was observed in T₆ 65 cm x 55 cm. The maximum number of leaves per plant-1

(34.52,43.37,51.68,57.47,62.20,6.04) at 30, 60, 90, 120, 150 and 180 DAT was observed in T₅ 75 cm x 75 cm followed by T₄ 75 cm x 70 cm, T₃ 75 cm x 65 cm, T₂ 75 cm x 60 cm and T₁ 75 cm x 55 cm, whereas the lowest value number of leaves per plant-1 (23.85,31.74,37.33,42.36,48.78,57.14) at 30, 60, 90, 120, 150 and 180 DAT was observed in T₆ 65 cm x 55 cm.

The maximum plant spread (cm) (E-W) (12.74, 13.93, 15.74, 18.34, 21.78, 24.73) at 30, 60, 90, 120, 150 and 180 DAT was observed in T₅ 75 cm x 75 cm followed by T₄ 75 cm x 70 cm, T₃ 75 cm x 65 cm, T₂ 75 cm x 60 cm and T₁ 75 cm x 55 cm, whereas the lowest value plant spread (cm) (E-W) (7.68,9.91,11.96,12.60,14.37,16.05) at 30, 60, 90, 120, 150 and 180 DAT was observed in T₆ 65 cm x 55 cm. maximum plant spread (cm) (N-S) (13.08, 14.22, 15.99, 18.60, 22.03, 24.94) at 30, 60, 90, 120, 150 and 180 DAT was observed in T₅ 75 cm x 75 cm followed by T₄ 75 cm x 70 cm, T₃ 75 cm x 65 cm, T₂ 75 cm x 60 cm and T₁ 75 cm x 55 cm, whereas the lowest value plant spread (cm) (N-S) (7.91, 10.18, 12.11, 12.82, 14.57, 16.86) at 30, 60, 90, 120, 150 and 180 DAT was observed in T₆ 65 cm x 55 cm. The maximum leaf area (35.78cm²) was found in T₅ 75 cm x 75 cm followed by T₄ 75 cm x 70 cm, T₃ 75 cm x 65 cm, T₂ 75 cm x 60 cm and T₁ 75 cm x 55 cm, whereas the lowest leaf area (25.99cm²) was observed in T₆ 65 cm x 55 cm. and maximum bunch weight (26.87g) was found in T₆ 65 cm x 55 cm followed by T₉ 65 cm x 70 cm, T₈ 65 cm x 65 cm and T₇ 65 cm x 60 cm, whereas the lowest bunch weight was observed in T₅ 65 cm x 55 cm. The maximum root length (16.63cm) was found in T₅ 75 cm x 75 cm followed by T₄ 75 cm x 70 cm, T₃ 75 cm x 65 cm, T₂ 75 cm x 60 cm and T₁ 75 cm x 55 cm, whereas the lowest root length (9.56cm) was observed in T₆ 65 cm x 55 cm. The minimum days taken for sprout formation after harvest (18.22) was found in T₅ 75 cm x 75 cm followed by T₄ 75 cm x 70 cm, T₃ 75 cm x 65 cm, T₂ 75 cm x 60 cm and T₁ 75 cm x 55 cm, whereas the highest days taken for sprout formation after harvest (25.23) was observed in T₆ 65 cm x 55 cm. The maximum vase life (25.68 days) was found in T₅ 75 cm x 75 cm followed by T₄ 75 cm x 70 cm, T₃ 75 cm x 65 cm, T₂ 75 cm x 60 cm and T₁ 75 cm x 55 cm, whereas the highest vase life (17.78days) was observed in T₆ 65 cm x 55 cm.

Table 1: Shows in plant height and number of leaves plant⁻¹

Treatment notation	Treatment combination	Plant Height(cm)	Number of leaves plant ⁻¹	Plant spread (cm) (E-W)	Plant spread (cm) (N-S)	leaf area (cm ²)	bunch weight (g)	Root length (cm)	Days taken for sprout formation after harvest	Vase life (days)
T1	75cm x 75cm	49.30	72.60	20.45	20.69	29.64	20.64	12.64	24.22	20.32
T2	75cm x 70cm	49.79	73.89	20.86	21.02	30.43	18.97	12.85	23.82	21.55
T3	75cm x 65cm	50.03	72.96	21.96	22.15	30.55	18.34	14.76	20.70	22.97
T4	75cm x 60cm	50.11	74.11	23.94	24.09	32.87	16.29	15.67	19.59	23.43
T5	75cm x 55cm	51.21	76.01	24.73	24.94	35.78	13.13	16.63	18.22	25.68
T6	65cm x 55cm	39.94	57.14	16.65	16.86	25.99	26.87	9.56	25.23	17.78
T7	65cm x 60cm	45.35	61.42	19.46	19.65	29.27	24.47	10.05	24.23	19.44
T8	65cm x 65cm	45.62	66.17	19.58	19.74	29.19	23.43	10.16	23.24	19.63
T9	65cm x 70cm	46.04	70.24	20.08	20.23	29.59	22.32	10.43	26.08	20.10
F-Test		S	S	S	S	S	S	S	S	S
C.D at 0.5%		1.232	2.346	0.730	0.739	1.991	1.754	1.448	2.874	1.108
S.Ed. (±)		0.381	1.107	0.344	0.349	0.939	0.827	0.683	1.356	0.522

Conclusion

From the present investigation it is concluded that individual T₅ 75 cm x 75 cm spacing pattern as an intercropping system in custard apple gave best vegetative growth and bunch weight

and yield of *Dracaena reflexa*.

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