



EFFECT OF ORGANIC AND INORGANIC INPUTS ON GROWTH AND YIELD OF JASMINE (*JASMINUM AURICULATUM* L.) MULLAI

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Abstract

The present experiment was carried out during October 2014 to June 2015 in Department of Horticulture, Faculty of Agriculture, Annamalai University, Tamil Nadu. The experiment was conducted in Randomized Block Design (RBD), with twelve treatments, replicated thrice. The treatments were T₁, RDF (60:120:120 kg NPK ha⁻¹) T₂ FYM 20 t ha⁻¹ +100% RDF T₃ FYM 20 t ha⁻¹ + 75% RDF (45:90:90 kg NPK ha⁻¹) + Azophos 2 kg ha⁻¹ + Humic acid @ 1% T₄ FYM 20 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Panchagavya @ 3 % T₅ FYM 20 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Panchagavya @ 3 %+ Humic acid @ 1% T₆ VC 5 t ha⁻¹ +100% RDF T₇ VC 5 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Humic acid @ 1% T₈ VC 5 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Panchagavya @ 3 % T₉ VC 5 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Panchagavya @ 3 %+ Humic acid @ 1% T₁₀ Coir compost 5 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Humic acid @ 1% T₁₁ Coir compost 5 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Panchagavya @ 3 % T₁₂ Coir compost 5 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Panchagavya @ 3 %+ Humic acid @ 1% From the present experiment treatment T₈ found to best in terms of maximum plant height, number of primary and secondary branches plant⁻¹ plant spread, Number of branches, productive shoots, DMP, Number of flower bud per plant, flower Yield per plant, flower Yield per hectare and minimum days taken for flower bud initiation, days for flower bud weight also found in treatment T₈ followed by treatment T₆ where a minimum was recorded in treatment the T₀ (Control) in all the parameters

Keywords : Organic and Inorganic inputs, yield, *Jasminum auriculatum* L.

Introduction

Jasmine (*Jasminum auriculatum* L.) Mullai is a highly valued ornamental plant for home gardens and commercial cultivation. Flowers and buds are used for making garlands, bouquets and for religious offerings, while making veni, strings is used as adorning and decorating hair. The flowers are also used for the Production of perfume, hair oils and attars. Jasmine essential oil has a sweet and floral aroma. It is regarded as unique, as it blends well with other floral extracts and which is highly valued throughout the world for its high grade perfumes, which is used in soap and cosmetic industries and in flavoring mouth wash liquids. The flowers should preferably be picked at night for extraction of essential oil. Jasmine fragrance is said to give a feeling of optimism, confidence and euphoria, and is helpful against depression, nervous exhaustion and stress related conditions. Jasmine is also used for catarrh, coughs, laryngitis, dysmenorrhea, labor pains, uterine disorders and many skin problems. In India, jasmines are commercially cultivated in the states of Tamil Nadu, Karnataka and West Bengal. India, jasmines occupy an area of 8000 ha with an annual production of flower worth Rs. 80 to 100 million. Tamil Nadu has the largest area under jasmine cultivation

followed by Karnataka, which together account for 98 per cent of the total cultivated area.

Materials and Methods

The Experiment was conducted in Randomized Block Design (RBD) with 12 treatments and 3 replications in the Department of Horticulture, Faculty of Agriculture, Annamalai University, Tamil Nadu. Total number of treatments were twelve viz T₁, RDF (60:120:120 kg NPK ha⁻¹) T₂ FYM 20 t ha⁻¹ +100% RDF T₃ FYM 20 t ha⁻¹ + 75% RDF(45:90:90 kg NPK ha⁻¹) + Azophos 2 kg ha⁻¹ + Humic acid @ 1% T₄ FYM 20 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Panchagavya @ 3 % T₅ FYM 20 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Panchagavya @ 3 %+ Humic acid @ 1% T₆ VC 5 t ha⁻¹ +100% RDF T₇ VC 5 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Humic acid @ 1% T₈ VC 5 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Panchagavya @ 3 % T₉ VC 5 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Panchagavya @ 3 %+ Humic acid @ 1% T₁₀ Coir compost 5 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Humic acid @ 1% T₁₁ Coir compost 5 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Panchagavya @ 3 % T₁₂ Coir compost 5 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Panchagavya @ 3 %+ Humic acid @ 1% All the cultural operations viz., weeding, irrigation, pest control

etc. were carried out as and when required. Observations on various vegetative characters viz., days for sprouting, sprouts plant⁻¹, number of primary and secondary shoot⁻¹, productive shoot plant⁻¹, plant spread, DMP, and flowering parameters like weight of 100 flower buds, flower buds plant⁻¹ and flower yield plant⁻¹ were recorded and analyzed statistically by the method suggested by Panse and Sukhatme (1995).

Results and Discussion

The present investigation was conducted on four years old Jasmine Plants of cultivar of Chidambaram Local. Planted at a spacing of 1.5 m x 1.5 m were tagged for the recording observations. The findings of the experiment were summarized hereunder. In growth parameters, maximum Plant height (203.16cm), Plant spreads (227.6cm) and Number of branches (197.64) was found in treatment T₈ (25% RDF + 15.5 kg FYM) at 60, 120 and 180 days respectively after application of NPK and organic manures followed by T₆ (50% RDF + 3.7 kg Vermicompost) with (200.00 cm), (2.22 cm) and (193.97) Plant height, Plant spreads and Number of Branches respectively at 180 days, whereas minimum

Plant height, Plant spreads and Number of Branches was recorded in treatment T₀ (Control) at 180 days respectively. Similar results were also reported by Singh 2015 and Bhattacharjee *et al.* (1994) found in jasmine. Flowering parameters like Days to flower bud initiation (earliness) minimum (60.04 days Whereas maximum Days to first Flower bud initiation, Days to flower bud development and minimum Flowering period (days) was recorded in treatment T₀ (Control). Similar results were also reported by Hugar (1994) Bhattacharjee *et al.* (1994), Jayamma *et al.*, 2008, found in jasmine. In terms of weight of 50 flower bud maximum, Number of flower bud plant⁻¹ maximum (3328.64 g), flowers yield plant⁻¹ maximum and flower yield of ha⁻¹ was recorded in treatment T₈ VC 5 t ha⁻¹ + 75% RDF + Azophos 2 kg ha⁻¹ + Panchagavya @ 3 % after application of NPK and organic manures followed by T₆ VC 5 t ha⁻¹ +100% RDF, Number of flower bud plant⁻¹, Yield of flower plant⁻¹ and flower Yield ha⁻¹ where as minimum was recorded in treatment T₀ (Control) in all the yield parameters. Similar results were also Vasanthi 1992 and Bhattacharjee *et al.* (1994) in jasmine.

Table 1 : Effect of Organic inputs on Growth and yield of Jasmine (*Jasminum auriculatum*.L) Mullai

Treatments	Plant height	Primary shoot	Secondary shoot	Productive shoot	Plant spread	Days taken for first flowering	hundred flower buds weight (g)	Flower yield plant ⁻¹ (g)	Flower yield (kg ha ⁻¹)
T ₁ RDF (60:120:120 kg NPK ha ⁻¹)	157.20	182.06	36.4	150.18	1.42	75.04	7.23	2004.56	5011.40
T ₂ FYM 20 t ha ⁻¹ +100% RDF	196.73	219.86	71.26	189.84	2.14	64.06	8.85	3250.43	8126.07
T ₃ FYM 20 t ha ⁻¹ + 75% RDF(45:90:90 kg NPK ha ⁻¹) + Azophos 2 kg ha ⁻¹ + Humic acid @ 1%	186.68	208.04	60.82	178.01	1.93	67.18	8.38	3125.72	7814.30
T ₄ FYM 20 t ha ⁻¹ + 75% RDF + Azophos 2 kg h-1 + Panchagavya @ 3 %	200.00	223.58	74.86	193.97	2.22	63.02	9.00	3290.05	8225.12
T ₅ FYM 20 t ha ⁻¹ + 75% RDF + Azophos 2 kg ha ⁻¹ + Panchagavya @ 3 %+ Humic acid @ 1%	179.63	200.54	53.62	170.14	1.79	69.42	8.06	3042.53	7606.32
T ₆ VC 5 t ha ⁻¹ +100% RDF	183.42	204.26	57.18	174.08	1.86	68.34	8.21	3085.18	7712.95
T ₇ VC 5 t ha ⁻¹ + 75% RDF + Azophos 2 kg ha ⁻¹ + Humic acid @ 1%	190.00	211.78	64.08	181.98	2.03	66.21	8.55	3168.28	7920.70
T ₈ VC 5 t ha ⁻¹ + 75% RDF + Azophos 2 kg ha ⁻¹ + Panchagavya @ 3 %	203.16	227.06	78.80	197.64	2.27	60.04	9.15	3328.64	8321.60
T ₉ VC 5 t ha ⁻¹ + 75% RDF + Azophos 2 kg ha-1 + Panchagavya @ 3 %+ Humic acid @ 1%	160.67	185.76	39.58	154.22	1.51	73.98	7.44	2047.36	5118.40
T ₁₀ Coir compost 5 t ha-1 + 75% RDF + zophos 2 kg ha ⁻¹ + Humic acid @ 1%	176.21	193.14	46.78	162.12	1.64	71.84	7.75	2944.56	7361.40
T ₁₁ Coir compost 5 t ha ⁻¹ + 75% RDF + zophos 2 kg ha ⁻¹ + Panchagavya @ 3 %	176.24	196.88	50.04	166.18	1.71	70.66	7.91	2986.29	7465.72
T ₁₂ Coir compost 5 t ha ⁻¹ + 75% RDF + zophos 2 kg ha ⁻¹ + Panchagavya @ 3 %+ Humic acid @ 1%	193.25	216.12	67.04	185.94	2.07	65.15	8.71	3209.86	8024.65
SEd	0.02	1.43	1.65	1.83	0.02	0.43	0.07	19.27	12.33
CD (p=0.05)	0.05	3.43	3.30	3.67	0.05	0.86	0.14	38.54	24.67

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