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Effect of soil and foliar application of micronutrients on growth and yield of guava (*Psidium guajava* L.)

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Abstract
The results of the present investigation clearly indicated that, different growth and yield parameters of guava were significantly influenced due to different treatments of micronutrients. The maximum increase in plant height (0.62m), shoot length (7.35cm) and tree spread (0.88m) was recorded with the soil and foliar application of 100g $ZnSo_4$ + 100g$FeSo_4$ + 25gBorax + 0.5%$ZnSo_4$+ 0.5% $FeSo_4$+0.2% Borax (T_9) and at par results were obtained with soil and foliar application 50g $ZnSo_4$+50g$FeSo_4$+12.5gBorax+0.5%$ZnSo_4$+0.5% $FeSo_4$+0.2% Borax (T_8). Regarding the yield parameters the maximum values of fruit set (67.76%), fruit retention (59.43%) and no. of fruits per tree (398.67) was recorded with soil and foliar application 50g$ZnSo_4$ + 50g$FeSo_4$ + 12.5gBorax + 0.5%$ZnSo_4$ + 0.5% $FeSo_4$ + 0.2% Borax (T_8) and at par results were noticed with the soil and foliar application of 100g$ZnSo_4$ + 100g$FeSo_4$ + 25gBorax + 0.5%$ZnSo_4$ + 0.5% $FeSo_4$ + 0.2% Borax (T_9). While, the average weight of fruit (155.37g) and yield (58.18 kg/tree and 16.18 t/ha) were recorded maximum with the soil and foliar application of 100g $ZnSo_4$+100g$FeSo_4$+25gBorax+ 0.5%$ZnSo_4$+ 0.5% $FeSo_4$+ 0.2%Borax (T_9) and at par values of these characters were observed with soil and foliar application 50g $ZnSo_4$+50g $FeSo_4$+12.5g Borax+0.5% $ZnSo_4$+0.5% $FeSo_4$+0.2% Borax (T_8).

Keywords: Soil, foliar, micronutrients, guava, *Psidium guajava* L.

Introduction
Guava (*Psidium guajava* L.) belongs to family Myrtaceae is grown in tropical and sub-tropical regions of the world. The Guava classified under genus *Psidium* that contains 150 species but only *Psidium guajava* L. is exploited commercially. The common Guava is diploid (2n=22), but natural and artificial triploid (2n=33) and aneuploid exists. The Guava is shallow rooted shrub or small tree that may grows 3-10 m in height with fairly thin trunk and scaly multi-coloured bark. It produce branches near to ground and often produces suckers from roots near base of trunk. It is long-lived and hardy tree. Flowers are auxiliary, solitary or in 2-3 flowered cymes. Fruit is a berry, globose, ovoid or pyriform. The yield and quality of guava fruits is influenced by large number of factors. One of the important factor is inadequate supply of plant nutrient. Nutrient requirement of guava vary with varieties and agroclimatic conditions. It gives good response to manuring and fertilization out of various major nutrients phosphorus play extremely important role in guava cultivation for optimum yield and performance. Use of micronutrients also play an important role to avoid hidden nutrient hunger. Micronutrients are essentially as important as macronutrients to have better better growth, yield and quality in fruit trees. The requirement of micronutrients (zinc, boron, iron, copper, chloride, molybdenum, manganese) is only in traces, which is partly met from the soil or through chemical fertilizers or through other resources. The major causes for micronutrient deficiencies are intensified agricultural practices, unbalanced fertilizer application including NPK, limited use of organic manures, depletion of nutrient and no replenishment. Horticultural crops suffer widely by zinc deficiency followed by boron, iron and Mo Deficiencies (Jeyakumar and Balamohan 2013) [4]. Furthermore, these micronutrients also help in uptake of major nutrients and play an active role in the plant metabolism process starting from cell wall development in respiration, photosynthesis, chlorophyll formation, enzyme activity, hormone synthesis, nitrogen fixation and reduction etc (Das, 2003) [1]. Neverthless, micronutrients can tremendously boots horticultural crop yield, improve quality and post harvest life of

horticultural produce (Raja, 2009) [9]. Macronutrient are quickly taken up and utilized by the tissue of the plants by catalyzing effect of micronutrients (Phillips, 2004) [7].

Material and Methods

The experiment was carried out during June 2019 to February2020. The Sardar guava trees grown on medium type soil planted at 6 x 6 m spacing of fifteen years age having uniform growth and vigor were subjected to bahar treatment by withholding irrigation water during April-2019. The experiment was conducted at Research Farm, college of Agriculture, Latur during 2019-20. The experiment was conducted in a Sardar guava orchard of fifteen years age during *Mrig bahar* 2019 on trees having uniform growth and vigor. All the cultural and horticultural practices were followed as per the recommendation. The pruning of criss-cross branches, diseased branches was done during May 2019. The experimental trees were applied 20 kg FYM and 400:400:400 g N, $P_2O_5$and K_2O per tree along with soil application of micronutrients as per treatment before onset of monsoon, remaining half dose of N_2 was applied at fruit set stage. Three foliar application of micronutrients as per treatment were taken 1st at 15 days after onset of monsoon, 2nd at fruit set stage and 3rd at fruit development stage. The observations on different growth and yield status were recorded as per the schedule.

Results and Discussion

The results of the present investigation showed that, all the parameters pertaining to vegetative growth and yield aspects of the guava and the soil fertility status of experimental orchard when studied under the influence of soil and foliar application of different levels of zinc, ferrous and boron showed significant effect on most of the traits studied. As regards to the vegetative growth parameters, the maximum increase in plant height (0.62m, 13.06%), shoot diameter (1.54m. 92.10%), number of leaves per shoot (6.47, 165.81), length of shoot (7.35cm, 279.59%), plant spread East-West (0.88m, 15.84%) and North- South (0.89m, 17.23%) were recorded with the soil and foliar application of 100g$ZnSo_4$ + 100g$FeSo_4$ + 25g Borax + 0.5%$ZnSo_4$ + 0.5%$FeSo_4$ + 0.2%Borax(T_9) and it was followed by the application of 50g $ZnSo_4$+50g $FeSo_4$+12.5g Borax+0.5% $ZnSo_4$+0.5% $FeSo_4$+0.2% Borax (T_8). The minimum values for these parameters were observed in control (T_{12}) treatment. Zinc is the main component in biosynthesis of tryptophan might have led to synthesis of auxins, which are responsible for overall growth of guava trees (Kumar *et al.* 2017) [5]. While, Boron has a key role in cell division and elongation, and there by increased vegetative growth in guava trees (Hada *et al.* 2017). Regarding the reproductive growth parameters like, days required for flowering, days required from flowering to fruit set and days required from fruit set to maturity were also significantly influenced due to the application of different levels of zinc, ferrous and boron. Minimum number of days required for flowering (34.44), days required for fruit set (27.20) were recorded with the soil and foliar application of 100g$ZnSo_4$ + 100g$FeSo_4$ + 25g Borax + 0.5%$ZnSo_4$ + 0.5%$FeSo_4$ + 0.2%Borax (T_9) and it was at par with the application of50g $ZnSo_4$+50g $FeSo_4$+12.5g Borax+0.5% $ZnSo_4$+0.5% $FeSo_4$+0.2% Borax (T_8). Minimum days required from fruit set to maturity (137.95) was recorded with soil and foliar application of 50g $ZnSo_4$+50g $FeSo_4$+12.5g Borax+0.5% $ZnSo_4$+0.5% $FeSo_4$+0.2% Borax (T_8) and it was at par with the application of 100g$ZnSo_4$ + 100g$FeSo_4$ + 25g Borax + 0.5%$ZnSo_4$ + 0.5%$FeSo_4$ + 0.2%Borax(T_9). While, maximum number of days for all these parameters were observed in control treatment (T_{12}). (Gaur *et al.* 2014) [2] reported that, the application of boron play an important role in translocation of carbohydrates, auxin synthesis and increased pollen viability and fertilization helps in increasing fruit retention percentage in guava. The lowest values for fruit set and fruit retention percentage and higher values of number of days required for flowering and days required for maturity were observed in control (T_{12}) treatment. This could be attributed to non availability of required quantity of nutrients required for vegetative as well as reproductive growth parameters of the trees under this treatment. The maximum values of yield parameters like number of fruits per tree (398.67) was recorded with soil and foliar application of 50g $ZnSo_4$+50g $FeSo_4$+12.5g Borax+0.5% $ZnSo_4$+0.5% $FeSo_4$+0.2% Borax (T_8) and it was at par with soil and foliar application of 100g$ZnSo_4$ + 100g$FeSo_4$ + 25g Borax + 0.5%$ZnSo_4$ + 0.5%$FeSo_4$ + 0.2%Borax(T_9). The average weight of fruit (155.37 g), yield (58.18 kg/tree), yield (16.18 t/ha) were recorded with soil and foliar application of 100g$ZnSo_4$ + 100g$FeSo_4$ + 25g Borax + 0.5%$ZnSo_4$ + 0.5%$FeSo_4$ + 0.2%Borax(T_9) and it was at par with the application of 50g $ZnSo_4$+50g $FeSo_4$+12.5g Borax+0.5% $ZnSo_4$+0.5% $FeSo_4$+0.2% Borax (T_8). The lowest values of these parameters were recorded in control (T_{12}) treatment. The yield contributing characters like number of fruits per tree, weight of fruit were significantly superior with the treatments of application of micronutrients through soil plus foliar application. This could be attributed to supply of these essential micronutrients at proper time as per the need of the crop, which in turn leads to better vegetative growth and by influencing the physiological processes of plant respectively in to higher fruit set. (Pawar *et al.* 2018) [6] also reported similar results due to application of zinc and boron in mango, which supports the results of present investigation. The increase in number of fruits due to soil and foliar application of micronutrients leads to production of auxins which were probably helpful for retention of fruits by reducing flower drop there by increasing the number of fruits (preethi *et al.* 2017) [8]. As zinc plays a vital role to promote, starch formation, iron is required for cell enlargement and cell division and boron is actively involve in translocation of carbohydrates in plant (Singh, *et al.* 2017) [10].

Table 1: Effect of soil and foliar application of micronutrients on growth attributes of guava tree

Tr. No	Treatments	Plant height (m)				Stem diameter (cm)			
		Initial	At harvest	Increase in height	Per cent increase in height	Initial	At harvest	Increase in stem diameter	Per cent increase in stem diameter
T_1	50g $ZnSo_4$ + 50g $FeSo_4$ + 12.5g Borax/ tree	4.17	4.48	0.32	7.60	12.77	13.05	0.28	2.22
T_2	100g $ZnSo_4$ + 100g $FeSo_4$ + 25g Borax/ tree	4.29	4.65	0.36	8.39	13.62	13.92	0.30	2.24
T_3	125g $ZnSo_4$ + 125g $FeSo_4$ + 37.5g Borax/ tree	4.65	5.07	0.42	9.03	14.55	14.87	0.32	2.18
T_4	150g $ZnSo_4$ + 150g $FeSo_4$ + 50g Borax/ tree	4.27	4.65	0.38	3.87	14.83	15.09	0.26	1.76
T_5	0.5% $ZnSo_4$ + 0.5% $FeSo_4$ + 0.2% Borax	4.49	4.94	0.45	10.10	13.26	13.59	0.33	2.49
T_6	1.0% $ZnSo_4$ + 1.0% $FeSo_4$ + 0.4% Borax	4.66	5.22	0.55	11.87	14.81	15.09	0.29	1.94

T_7	1.5% $ZnSo_4$ + 1.5% $FeSo_4$ + 0.6% Borax	4.62	5.01	0.39	8.36	14.72	14.97	0.24	1.65
T_8	50g $ZnSo_4$+ 50g $FeSo_4$+ 12.5g Borax+ 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	4.48	5.04	0.56	12.57	13.03	13.36	0.33	2.55
T_9	100g $ZnSo_4$+ 100g $FeSo_4$+ 25g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	4.72	5.34	0.62	13.06	13.54	13.93	0.39	2.89
T10	125g $ZnSo_4$+125g $FeSo_4$+37.5g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	4.81	5.26	0.45	9.29	17.57	17.91	0.34	1.95
T11	150g $ZnSo_4$+ 150g $FeSo_4$+ 50g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	4.84	5.25	0.41	8.47	15.30	15.61	0.31	2.03
T12	Control	4.33	4.61	0.28	6.47	15.55	15.80	0.26	1.64
	S.E±	0.28	0.10	0.03	-	0.96	0.95	0.07	-
	C.D at 5% level	N.S	0.30	0.09	-	N.S	N.S	N.S	-

Table 2: Effect of soil and foliar application of micronutrients on shoot diameter and no. of leaves per shoot of guava tree

Tr. No	Treatments	Shoot diameter (mm)				No. of leaves per shoot			
		Initial	At harvest	Increase in shoot diameter	Per cent increase in shoot diameter	Initial	At harvest	Increase in no. of leaves	Per cent increase in no. of leaves
T_1	50g $ZnSo_4$ + 50g $FeSo_4$ + 12.5g Borax/ tree	1.69	2.52	0.83	49.31	4.03	8.62	4.59	113.81
T_2	100g $ZnSo_4$ + 100g $FeSo_4$ + 25g Borax/ tree	1.68	2.57	0.89	52.98	4.13	8.93	4.80	116.30
T_3	125g $ZnSo_4$ + 125g $FeSo_4$ + 37.5g Borax/ tree	1.66	2.63	0.97	58.43	4.00	9.23	5.23	130.83
T_4	150g $ZnSo_4$ + 150g $FeSo_4$ + 50g Borax/ tree	1.66	2.42	0.76	45.93	4.17	9.03	4.86	116.63
T_5	0.5% $ZnSo_4$ + 0.5% $FeSo_4$ + 0.2% Borax	1.65	2.68	1.03	62.20	4.13	8.97	4.84	117.11
T_6	1.0% $ZnSo_4$ + 1.0% $FeSo_4$ + 0.4% Borax	1.64	2.73	1.09	66.34	4.07	9.23	5.16	126.86
T_7	1.5% $ZnSo_4$ + 1.5% $FeSo_4$ + 0.6% Borax	1.67	2.58	0.91	54.45	3.98	8.88	4.90	123.20
T_8	50g $ZnSo_4$+ 50g $FeSo_4$+ 12.5g Borax+ 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	1.64	3.05	1.41	85.71	3.83	10.17	6.34	165.45
T_9	100g $ZnSo_4$+ 100g $FeSo_4$+ 25g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	1.67	3.21	1.54	92.10	3.90	10.37	6.47	165.81
T10	125g $ZnSo_4$+125g $FeSo_4$+37.5g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	1.65	2.67	1.02	61.94	4.10	9.21	5.11	124.55
T11	150g $ZnSo_4$+ 150g $FeSo_4$+ 50g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	1.71	2.70	0.99	58.11	4.00	9.10	5.10	127.50
T12	Control	1.68	2.48	0.80	47.80	4.13	7.97	3.84	92.90
	S.E±	0.06	0.12	0.14	-	0.15	0.33	0.39	-
	C.D at 5% level	N.S	0.35	0.42	-	N.S	0.97	1.16	-

Table 3: Effect of soil and foliar application of micronutrients on shoot length of guava tree

Tr. No.	Treatments	Length of Shoot (cm)			
		Initial	At harvest	Increase in length of shoot	Per cent increase in length of shoot
T_1	50g $ZnSo_4$ + 50g $FeSo_4$ + 12.5g Borax/ tree	2.81	7.93	5.12	182.21
T_2	100g $ZnSo_4$ + 100g $FeSo_4$ + 25g Borax/ tree	2.59	7.84	5.25	202.70
T_3	125g $ZnSo_4$ + 125g $FeSo_4$ + 37.5g Borax/ tree	2.69	8.32	5.63	209.17
T_4	150g $ZnSo_4$ + 150g $FeSo_4$ + 50g Borax/ tree	2.57	7.61	5.04	196.24
T_5	0.5% $ZnSo_4$ + 0.5% $FeSo_4$ + 0.2% Borax	2.50	8.64	6.14	245.60
T_6	1.0% $ZnSo_4$ + 1.0% $FeSo_4$ + 0.4% Borax	2.79	8.73	5.94	213.02
T_7	1.5% $ZnSo_4$ + 1.5% $FeSo_4$ + 0.6% Borax	2.59	7.79	5.20	200.64
T_8	50g $ZnSo_4$+ 50g $FeSo_4$+ 12.5g Borax+ 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	2.55	9.86	7.31	274.43
T_9	100g $ZnSo_4$+ 100g $FeSo_4$+ 25g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	2.63	9.98	7.35	279.59
T10	125g $ZnSo_4$+125g $FeSo_4$+37.5g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	2.68	8.68	6.00	223.76
T11	150g $ZnSo_4$+ 150g $FeSo_4$+ 50g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	2.65	8.73	6.08	229.31
T12	Control	2.73	7.87	4.99	173.38
	S.E±	0.11	0.30	0.32	-
	C.D at 5% level	N.S	0.90	0.96	-

Table 4: Effect of soil and foliar application of micronutrients on plant spread of guava tree

Tr. No.	Treatments	Plant spread (m) (East- West)				Plant spread (m) (North- South)			
		Initial	At harvest	Increas e in plant spread	Per cent increase in plant spread	Initial	At harvest	Increase in plant spread	Per cent increase in plant spread
T_1	50g $ZnSo_4$ + 50g$FeSo_4$ + 12.5g Borax/ tree	5.14	5.57	0.43	8.30	5.03	5.57	0.54	10.73
T_2	100g $ZnSo_4$ + 100g$FeSo_4$ + 25g Borax/ tree	5.37	5.84	0.48	8.88	5.46	6.05	0.60	11.08
T_3	125g $ZnSo_4$ + 125g$FeSo_4$ + 37.5g Borax/ tree	5.29	5.83	0.54	10.28	5.50	6.15	0.68	12.49
T_4	150g $ZnSo_4$ + 150g $FeSo_4$ + 50g Borax/ tree	5.18	5.59	0.41	7.82	5.31	5.83	0.52	9.73
T_5	0.5% $ZnSo_4$ + 0.5% $FeSo_4$ + 0.2% Borax	5.44	6.08	0.64	11.73	5.60	6.26	0.66	11.79
T_6	1.0% $ZnSo_4$ + 1.0% $FeSo_4$ + 0.4% Borax	5.56	6.28	0.72	12.98	5.79	6.48	0.70	12.04
T_7	1.5% $ZnSo_4$ + 1.5% $FeSo_4$ + 0.6% Borax	5.16	5.62	0.46	8.99	5.25	5.82	0.46	8.61
T_8	50g $ZnSo_4$+ 50g$FeSo_4$+ 12.5g Borax+ 0.5% $ZnSo_4$+ 0.5%$FeSo_4$+ 0.2% Borax	5.56	6.37	0.82	14.66	5.39	6.17	0.83	15.62
T_9	100g $ZnSo_4$+ 100g $FeSo_4$+ 25g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	5.58	6.46	0.88	15.84	5.15	6.03	0.89	17.23
T10	125g $ZnSo_4$+125g $FeSo_4$+37.5g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	5.62	6.13	0.51	9.08	5.60	6.23	0.63	11.25
T11	150g $ZnSo_4$+ 150g $FeSo_4$+ 50g Borax +	5.63	6.05	0.43	7.58	5.23	5.76	0.53	10.14

	0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax								
T12	Control	5.47	5.87	0.40	7.32	5.18	5.69	0.45	8.55
	S.E±	0.18	0.13	0.07	-	0.15	0.17	0.06	-
	C.D at 5% level	N.S	0.38	0.21	-	N.S	0.52	0.18	-

Table 5: Effect of soil and foliar application of micronutrients on reproductive growth parameters of guava

Tr. No	Treatments	Days required for flowering (No.)	Days required from flowering to fruit set (No.)	Fruit set (%)	Fruit retention (%)	Days required from fruit set to maturity (No.)
T_1	50g $ZnSo_4$ + 50g $FeSo_4$ + 12.5g Borax/ tree	37.07	30.73	57.42	42.37	145.36
T_2	100g $ZnSo_4$ + 100g $FeSo_4$ + 25g Borax/ tree	36.33	30.10	58.53	45.02	144.04
T_3	125g$ZnSo_4$ + 125g$FeSo_4$ + 37.5g Borax/ tree	35.32	29.33	60.43	50.09	140.91
T_4	150g $ZnSo_4$ + 150g $FeSo_4$ + 50g Borax/ tree	36.48	31.77	56.26	42.99	143.03
T_5	0.5% $ZnSo_4$ + 0.5% $FeSo_4$ + 0.2% Borax	35.07	28.70	63.53	55.87	139.00
T_6	1.0% $ZnSo_4$ + 1.0% $FeSo_4$ + 0.4% Borax	36.78	30.47	60.78	51.44	143.17
T_7	1.5% $ZnSo_4$ + 1.5% $FeSo_4$ + 0.6% Borax	36.67	30.60	58.05	46.05	146.07
T_8	50g $ZnSo_4$+ 50g $FeSo_4$+ 12.5g Borax+ 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	35.39	28.37	67.76	59.43	137.95
T_9	100g $ZnSo_4$+ 100g $FeSo_4$+ 25g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	34.44	27.20	65.82	56.49	138.10
T10	125g $ZnSo_4$+125g $FeSo_4$+37.5g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	35.76	30.83	61.70	46.76	145.01
T11	150g $ZnSo_4$+ 150g $FeSo_4$+ 50g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	36.33	30.53	59.39	46.43	145.10
T12	Control	38.00	31.27	57.38	41.71	147.78
	S.E±	0.46	0.35	1.50	1.47	0.61
	C.D at 5% level	1.40	1.07	4.41	4.32	1.86

Table 6: Effect of soil and foliar application of micronutrients on yield parameters of guava

Tr. No	Treatments	No. of fruits/ tree	Average weight of fruit (g)	Yield kg/tree	Yield t/ha	Per cent increase in yield over control
T_1	50g $ZnSo_4$ + 50g $FeSo_4$ + 12.5g Borax/ tree	323.00	122.50	39.56	10.98	04.31
T_2	100g $ZnSo_4$ + 100g $FeSo_4$ + 25g Borax/ tree	350.50	125.53	43.99	12.23	17.14
T_3	125g $ZnSo_4$ + 125g $FeSo_4$ + 37.5g Borax/ tree	363.67	131.45	47.80	13.29	27.29
T_4	150g $ZnSo_4$ + 150g $FeSo_4$ + 50g Borax/ tree	348.17	118.34	41.20	11.46	09.77
T_5	0.5% $ZnSo_4$ + 0.5% $FeSo_4$ + 0.2% Borax	385.83	129.11	49.81	13.85	32.66
T_6	1.0% $ZnSo_4$ + 1.0% $FeSo_4$ + 0.4% Borax	368.50	131.12	48.31	13.43	28.63
T_7	1.5% $ZnSo_4$ + 1.5% $FeSo_4$ + 0.6% Borax	347.17	125.71	43.64	12.13	16.18
T_8	50g $ZnSo_4$+ 50g $FeSo_4$+ 12.5g Borax+ 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	398.67	141.27	56.32	15.66	45.21
T_9	100g $ZnSo_4$+ 100g $FeSo_4$+ 25g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	374.50	155.37	58.18	16.18	54.98
T10	125g $ZnSo_4$+125g $FeSo_4$+37.5g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	351.50	135.77	47.72	13.27	27.10
T11	150g $ZnSo_4$+ 150g $FeSo_4$+ 50g Borax + 0.5% $ZnSo_4$+ 0.5% $FeSo_4$+ 0.2% Borax	350.33	135.45	47.45	13.19	26.34
T12	Control	318.00	118.07	37.54	10.44	-
	S.E±	12.97	5.32	2.52	0.70	-
	C.D at 5% level	39.35	16.15	7.64	2.12	-

Conclusions

The guava trees planted at 6 x 6 m spacing along with recommended dose of N, P, K (800:400:400 g/tree) should be supplied with soil and foliar application of 100g$ZnSo_4$ + 100g$FeSo_4$ + 25g Borax + 0.5%$ZnSo_4$ + 0.5%$FeSo_4$ + 0.2%Borax. This dose was optimum for getting better growth and higher yield by maintaining the soil fertility. However, as the treatment of soil plus foliar application of 50g $ZnSo_4$+50g $FeSo_4$+12.5g Borax+0.5% $ZnSo_4$+0.5% $FeSo_4$+0.2% Borax produced at par results for most of the traits under study. Hence, it will be advisable to apply Zinc, Ferrous and Boron micronutrients @50-100g $ZnSo_4$+50-100g $FeSo_4$+12.5-25g Borax per tree through soil along with the recommended dose of N,P,K @ (800:400:400 g/tree) and foliar sprays of these nutrients should be given @0.5% $ZnSo_4$+0.5% $FeSo_4$+0.2% Borax as per the soil test report for guava trees for getting higher yield by maintaining the soil fertility.

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