Plant Archives Vol. 25, Supplement 2, 2025 pp. 2181-2189 e-ISSN:2581-6063 (online), ISSN:0972-5210

Plant Archives

Journal homepage: http://www.plantarchives.org
DOI Url : https://doi.org/10.51470/PLANTARCHIVES.2025.v25.supplement-2.277

YIELD AND PLANT NUTRIENT CONTENT OF GUAVA (*PSIDIUM GUAJAVA* L.) CV. LAL BAHADUR AS INFLUENCED BY PRUNING TIME, BORIC ACID AND POTASSIUM SILICATE

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(Date of Receiving : 02-04-2025; Date of Acceptance : 10-06-2025)

ABSTRACT

An experiment "Effect of pruning time, boric acid and potassium silicate on yield and quality of guava (*Psidium guajava* L.) cv. Lal Bahadur" was carried out at Horticultural Research Farm, B. A. College of Agriculture, Anand Agricultural University, Anand, during the years 2023 and 2024. The experiment was laid out in Completely Randomized Design with Factorial concept having three repetitions and sixteen treatment combinations of three factors. A.) Pruning time (P_1: Last week of April and P_2: Last week of May), B.) Levels of boric acid as foliar spray (B_0: No spray - Control, B_1: 0.4 % Boric acid, B_2: 0.8 % Boric acid and B_3: 1.2 % Boric acid) and C.) Levels of potassium silicate as foliar spray (S_0: No spray - Control and S_1: 4 ml/L Potassium silicate). From the two years of experiment, it can be concluded that pruning in last week of May resulted in increased the yield and plant nutrient contents. In case of levels of boric acid, foliar application of 0.8 % boric acid increased the yield while, 1.2 % boric acid enhanced plant nutrient contents. For levels of potassium silicate, foliar application of 4 ml/L potassium silicate increased the yield and plant nutrient contents.
***Keywords*:** Boric acid, Guava, Plant nutrient content, Potassium silicate, Pruning time, Yield.

Introduction

Guava (*Psidium guajava* L.), also known as "apple of the tropics" or "poor man's apple," belongs to Myrtaceae family and originates from Tropical America, ranging from Mexico to Peru (Radha and Mathew, 2007). India is one of the leading producers, with 358 thousand hectares under cultivation and a production of 5.35 million tonnes (Anon., 2025), mainly grown in Madhya Pradesh, Uttar Pradesh, Bihar, West Bengal, Punjab, Gujarat, Maharashtra, Karnataka, and Andhra Pradesh. Lal Bahadur guava, a variety released in 2020 by Anand Agricultural University has a compact, spreading growth habit with dense pubescence on the leaf underside. The fruits are oval, pointed at the stalk end, with pale green to yellow skin and pinkish-red flesh. It offers high yield, is rich in carotenoids, TSS, zinc, manganese, and shows reduced fruit fly infestation. Pruning is an essential operation in guava cultivation to regulate growth, improve productivity, and enhance fruit quality. The timing of pruning affects leaf and shoot growth, which in turn influences the fruit development. Without pruning, trees may overgrow vegetatively, reducing fruit size, yield, and quality. Therefore, regular and timely pruning is essential for maintaining balanced growth and consistent high-quality fruit production. Boron is necessary for plant functions like flowering, fruiting, cell division and nutrient uptake. It is immobile, builds up in leaves and its deficiency disrupts carbohydrate metabolism. Fruit crops especially need boron during flowering and fruit set, which can be effectively supplied through foliar spray of boric acid (H_3BO_3). Silicon enhances plant resistance to biotic and abiotic stresses by improving drought tolerance, water balance, photosynthesis and leaf strength (Melo *et al*., 2003). It increases growth, yield, pollination, disease resistance (Gillman *et al*., 2003) and nutrient uptake. Because of these benefits, silicon is included in integrated nutrient management.

Foliar application of potassium silicate (K_2SiO_3) supplies silicon along with potassium, reducing stress and improving fruit yield and quality.

Materials and Methods

The experiment was conducted at Horticultural Research Farm, B. A. College of Agriculture, Anand Agricultural University, Anand during the years 2023 and 2024. The variety under study was Lal Bahadur and the plants were 5 years old and were planted at a spacing of 5 m x 5 m. The experiment was laid out in Completely Randomized Design with Factorial concept having three repetitions and sixteen treatment combinations of three factors. A.) Pruning time (P_1: Last week of April and P_2: Last week of May), B.) Levels of boric acid as foliar spray (B_0: No spray - Control, B_1: 0.4 % Boric acid, B_2: 0.8 % Boric acid and B_3: 1.2 % Boric acid) and C.) Levels of potassium silicate as foliar spray (S_0: No spray - Control and S_1: 4 ml/L Potassium silicate). Boric acid and potassium silicate were sprayed twice, *i. e.*, first one at the time of flowering and second one month after the first spray. All the plants were supplied with 40 kg FYM per plant and RDF of 500 : 250 : 250 g NPK per plant.

All the selected plants were almost uniform in growth and vigour and were given uniform cultural operations. Observations on plant nutrient contents, *i.e.*, potassium, calcium, magnesium, iron, zinc, manganese, copper, boron and silicon, from leaves (before and after spray) and fruits were recorded during experimentation. Statistical analysis was done by using method of analysis of variance (ANOVA) for Completely Randomized Design with Factorial concept by Gomez and Gomez (1976).

Results and Discussion

The results revealed that different pruning times did not significantly affect the nutrient contents in leaves-before spray and fruits. While, P_2 (Pruning in last week of May) resulted in higher number of fruits per plant (237.52, 238.61 and 238.07), fruit weight (110.21, 111.67 and 110.94 g), yield (26.25, 26.73 and 26.49 kg/plant), plant nutrient contents after sprays, *i.e.*, potassium (0.584, 0.587 and 0.586 %), calcium (1.137, 1.133 and 1.135 ppm), magnesium (0.3496, 0.3495 and 0.3496 ppm), boron (97.78, 97.62 and 97.70 ppm), iron (132.91, 132.97 and 132.94 ppm), manganese (29.35, 29.28 and 29.31 ppm), zinc (5.15, 5.23 and 5.19 ppm), copper (3.90, 3.91 and 3.91 ppm) and silicon (0.2642, 0.2704 and 0.2673 %). It might be because pruning in last week of May enhances the nutrient content in leaves by promoting vigorous vegetative regrowth and improving nutrient uptake efficiency. Timely pruning reduces competition between vegetative and reproductive growth, allowing the plant to allocate more nutrients to the newly emerged shoots and leaves. The enhanced root activity following pruning improves nutrient absorption from the soil, resulting in higher potassium, calcium, magnesium, boron, copper, zinc, iron, manganese and silicon content in the leaves. Additionally, the increased light penetration and air circulation due to reduced canopy density enhance photosynthesis and metabolic activity, further boosting nutrient assimilation. The efficient nutrient translocation to actively growing leaves ensures a higher concentration of both macronutrients (potassium, calcium, magnesium) and micronutrients (boron, copper, zinc, iron, manganese, and silicon), improving the overall nutritional status and physiological efficiency of the plant. Similar result was obtained by Liu *et al.* (2022) in tea.

Different levels of boric acid did not significantly affect the nutrient contents in leaves before spray and fruits. B_2 (0.8 % boric acid) resulted in maximum number of fruits per plant (209.47, 211.86 and 210.66), fruit weight (123.08, 124.42 and 123.75 g) and yield (25.98, 26.55 and 26.27 kg/plant) while, B_3 (1.2 % boric acid) resulted in maximum plant nutrient contents after sprays, *i. e.*, potassium (0.589, 0.609 and 0.599 %), calcium (1.145, 1.130 and 1.138 ppm), magnesium (0.3517, 0.3508 and 0.3513 ppm), boron (98.29, 98.54 and 98.42 ppm), iron (127.60, 127.69 and 127.69 ppm), manganese (29.33, 29.32 and 29.33 ppm), zinc (5.22, 5.25 and 5.23 ppm), copper (4.02, 4.08 and 4.05 ppm) and silicon (0.2642, 0.2704 and 0.2673 %). It might be due to foliar application of boric acid markedly boosts the nutrient composition in leaves by enhancing nutrient absorption, mobilization and overall physiological efficiency. Boron plays a crucial role in cell wall development, membrane integrity and nutrient translocation, which facilitates the efficient movement of macronutrients (potassium, calcium, magnesium) and micronutrients (copper, zinc, iron, manganese, and silicon) to the foliage. By strengthening cell walls and improving membrane permeability, boron promotes better nutrient uptake and retention, resulting in higher concentrations in the leaf tissues. Additionally, boron stimulates root activity and enhances the plant's ability to draw nutrients from the soil, further enriching the leaf nutrient profile. The direct absorption of boron through foliar application also activates enzymatic functions and metabolic pathways, leading to improved nutrient assimilation and accumulation in the leaves. Similar finding was reported by Ullah *et al.* (2012) in kinnow mandarin.

Table 1 : Effect of pruning time, boric acid and potassium silicate on number of fruits per plant, fruit weight, yield and potassium content in leaves and fruits of guava cv. Lal Bahadur

Treatments	Number of fruits per plant			Fruit weight (g)			Yield (kg/plant)			Potassium content (%)								
										Leaves						Fruits		
										Before spray			After spray					
	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled
Factor A: Pruning time (P)																		
P_1	157.57	161.47	159.52	105.29	105.71	105.50	16.80	17.29	17.46	0.535	0.532	0.534	0.566	0.568	0.567	0.423	0.4163	0.419
P_2	237.52	238.61	238.07	110.21	111.67	110.94	26.25	26.73	26.49	0.525	0.536	0.530	0.584	0.587	0.586	0.432	0.4275	0.429
S. Em.±	2.51	2.11	1.64	1.28	1.25	0.89	0.33	0.35	0.24	0.005	0.004	0.003	0.006	0.006	0.005	0.005	0.005	0.003
C. D. at 5 %	7.24	6.08	4.63	3.69	3.61	2.53	0.96	1.00	0.68	NS	NS	NS	0.018	0.019	0.013	NS	NS	NS
Factor B: Levels of boric acid as foliar spray (B)																		
B_0	183.12	184.31	183.71	87.75	88.42	88.08	16.12	16.31	16.22	0.533	0.518	0.525	0.543	0.543	0.543	0.420	0.413	0.417
B_1	193.89	199.77	196.84	102.50	103.67	103.08	19.99	20.84	20.41	0.532	0.541	0.536	0.582	0.563	0.572	0.425	0.417	0.421
B_2	209.47	211.86	210.66	123.08	124.42	123.75	25.98	26.55	26.27	0.528	0.534	0.531	0.588	0.595	0.591	0.430	0.424	0.427
B_3	203.68	204.24	203.96	117.67	118.25	117.96	24.01	24.33	24.17	0.528	0.543	0.535	0.589	0.609	0.599	0.435	0.433	0.434
S. Em.±	3.55	2.99	2.32	1.81	1.77	1.27	0.47	0.49	0.34	0.007	0.006	0.005	0.008	0.009	0.006	0.007	0.008	0.005
C. D. at 5 %	10.23	8.59	6.55	5.22	5.09	3.58	1.35	1.42	0.96	NS	NS	NS	0.025	0.026	0.018	NS	NS	NS
Factor C: Levels of potassium silicate as foliar spray (S)																		
S_0	193.42	194.62	194.01	104.96	105.83	105.39	20.54	20.86	20.69	0.526	0.531	0.529	0.555	0.555	0.555	0.423	0.418	0.420
S_1	201.66	205.47	203.57	110.54	111.54	111.04	22.51	23.16	22.84	0.535	0.536	0.535	0.596	0.599	0.598	0.433	0.426	0.429
S. Em.±	2.51	2.11	1.64	1.28	1.25	0.89	0.33	0.35	0.24	0.005	0.004	0.003	0.006	0.006	0.005	0.005	0.005	0.004
C. D. at 5 %	7.24	6.08	4.63	3.69	3.61	2.53	0.96	1.00	0.68	NS	NS	NS	0.018	0.019	0.013	NS	NS	NS
Year	-	-	NS	-	-	NS	-	-	NS	-	-	NS	-	-	NS	-	-	NS
Significant interactions	-	-	P x B, P x S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C. V. %	6.23	5.17	5.72	5.82	5.64	5.73	7.57	7.75	7.66	4.85	3.76	4.33	5.25	5.50	5.38	5.70	6.22	5.96

Table 2 : Effect of pruning time, boric acid and potassium silicate on calcium and magnesium content in leaves and fruits of guava cv. Lal Bahadur

Treatments	Calcium content (ppm)									Magnesium content (ppm)								
	Leaves						Fruits			Leaves						Fruits		
	Before spray			After spray						Before spray			After spray					
	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled
Factor A: Pruning time (P)																		
P_1	0.855	0.859	0.857	1.063	1.037	1.050	0.1562	0.1571	0.1567	0.2504	0.2579	0.2542	0.3308	0.3307	0.3308	0.2246	0.2238	0.2242
P_2	0.859	0.873	0.866	1.137	1.133	1.135	0.1620	0.1588	0.1604	0.2567	0.2579	0.2573	0.3496	0.3495	0.3496	0.2288	0.2254	0.2271
S. Em.±	0.005	0.006	0.004	0.011	0.011	0.008	0.0021	0.0020	0.0015	0.0028	0.0032	0.0021	0.0048	0.0047	0.0034	0.0023	0.0021	0.0016
C. D. at 5 %	NS	NS	NS	0.034	0.031	0.022	NS	NS	NS	NS	NS	NS	0.0137	0.0138	0.0096	NS	NS	NS
Factor B: Levels of boric acid as foliar spray (B)																		
B_0	0.868	0.862	0.865	1.020	1.016	1.018	0.1575	0.1542	0.1558	0.2517	0.2558	0.2538	0.3241	0.3242	0.3242	0.2233	0.2233	0.2233
B_1	0.861	0.853	0.857	1.098	1.097	1.097	0.1567	0.1558	0.1563	0.2608	0.2592	0.2600	0.3391	0.3392	0.3392	0.2258	0.2217	0.2238
B_2	0.844	0.874	0.859	1.138	1.096	1.117	0.1608	0.1600	0.1604	0.2567	0.2617	0.2592	0.3458	0.3467	0.3463	0.2267	0.2258	0.2263
B_3	0.856	0.876	0.866	1.145	1.130	1.138	0.1617	0.1617	0.1617	0.2450	0.2550	0.2500	0.3517	0.3508	0.3513	0.2308	0.2275	0.2292
S. Em.±	0.008	0.009	0.006	0.016	0.015	0.011	0.0029	0.0029	0.0021	0.0040	0.0045	0.0030	0.0067	0.0068	0.0048	0.0033	0.0030	0.0022
C. D. at 5 %	NS	NS	NS	0.047	0.044	0.032	NS	NS	NS	NS	NS	NS	0.0194	0.0195	0.0136	NS	NS	NS
Factor C: Levels of potassium silicate as foliar spray (S)																		
S_0	0.862	0.870	0.865	1.073	1.054	1.063	0.1591	0.1575	0.1583	0.2525	0.2613	0.2569	0.3325	0.3329	0.3327	0.2250	0.2229	0.2239
S_1	0.853	0.862	0.857	1.128	1.115	1.122	0.1592	0.1583	0.1588	0.2546	0.2546	0.2546	0.3479	0.3475	0.3477	0.2283	0.2263	0.2273
S. Em.±	0.005	0.007	0.004	0.012	0.011	0.008	0.0021	0.0020	0.0015	0.0028	0.0032	0.0021	0.0048	0.0048	0.0034	0.0023	0.0021	0.0016
C. D. at 5 %	NS	NS	NS	0.034	0.031	0.022	NS	NS	NS	NS	NS	NS	0.0137	0.0138	0.0096	NS	NS	NS
Year	-	-	NS	-	-	NS	-	-	NS	-	-	NS	-	-	NS	-	-	NS
Significant interactions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C. V. %	3.24	3.72	3.49	5.18	4.85	5.02	6.48	6.33	6.41	5.49	6.05	5.78	6.84	6.91	6.87	5.01	4.68	4.86

Table 3 : Effect of pruning time, boric acid and potassium silicate on boron and iron content in leaves and fruits of guava cv. Lal Bahadur

Treatments	Boron content (ppm)									Iron content (ppm)								
	Leaves						Fruits			Leaves						Fruits		
	Before spray			After spray						Before spray			After spray					
	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled
Factor A: Pruning time (P)																		
P_1	52.52	53.51	53.01	87.26	86.96	87.11	21.28	21.26	21.27	86.77	87.48	87.12	116.71	116.10	116.41	16.00	15.89	15.95
P_2	52.84	53.63	53.24	97.78	97.62	97.70	21.39	21.38	21.39	89.78	87.73	88.76	132.91	132.97	132.94	16.16	15.85	16.01
S. Em.±	0.46	0.44	0.32	0.97	0.79	0.63	0.23	0.24	0.16	1.05	1.01	0.73	1.06	1.04	0.74	0.21	0.22	0.15
C. D. at 5 %	NS	NS	NS	2.78	2.29	1.77	NS	NS	NS	NS	NS	NS	3.05	3.00	2.10	NS	NS	NS
Factor B: Levels of boric acid as foliar spray (B)																		
B_0	52.64	52.86	52.75	84.75	84.72	84.73	20.93	20.93	20.93	87.27	87.73	87.49	121.33	120.85	121.09	15.67	15.53	15.60
B_1	52.50	53.28	52.89	90.04	89.68	89.86	21.13	21.11	21.12	88.93	86.22	87.57	124.01	124.04	124.03	15.91	15.69	15.80
B_2	52.83	53.87	53.35	97.01	96.23	96.62	21.58	21.56	21.57	90.12	90.38	90.25	126.29	125.57	125.93	16.21	15.98	16.09
B_3	52.75	54.28	53.51	98.29	98.54	98.42	21.72	21.68	21.70	86.79	86.10	86.45	127.60	127.69	127.65	16.54	16.29	16.42
S. Em.±	0.66	0.62	0.45	1.37	1.12	0.88	0.32	0.34	0.23	1.49	1.43	1.03	1.50	1.48	1.05	0.29	0.32	0.22
C. D. at 5 %	NS	NS	NS	3.93	3.24	2.49	NS	NS	NS	NS	NS	NS	4.32	4.25	2.97	NS	NS	NS
Factor C: Levels of potassium silicate as foliar spray (S)																		
S_0	52.80	53.55	53.18	90.98	90.37	90.68	21.24	21.21	21.22	87.67	87.29	87.48	122.74	122.47	122.60	15.99	15.80	15.90
S_1	52.55	53.58	53.07	94.07	94.21	94.14	21.44	21.43	21.43	88.88	87.91	88.39	126.88	126.60	126.74	16.17	15.94	16.05
S. Em.±	0.46	0.44	0.32	0.97	0.79	0.63	0.23	0.24	0.16	1.05	1.01	0.73	1.06	1.04	0.74	0.21	0.22	0.15
C. D. at 5 %	NS	NS	NS	2.78	2.29	1.77	NS	NS	NS	NS	NS	NS	3.05	3.00	2.1	NS	NS	NS
Year	-	-	NS	-	-	NS	-	-	NS	-	-	NS	-	-	NS	-	-	NS
Significant interactions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C. V. %	4.32	4.02	4.17	5.11	4.22	4.69	5.17	5.50	5.34	5.83	5.67	5.75	4.16	4.10	4.13	6.29	6.89	6.59

Table 4 : Effect of pruning time, boric acid and potassium silicate on manganese and zinc content in leaves and fruits of guava cv. Lal Bahadur

Treatments	Manganese content (ppm)									Zinc content (ppm)								
	Leaves						Fruits			Leaves						Fruits		
	Before spray			After spray						Before spray			After spray					
	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled
Factor A: Pruning time (P)																		
P_1	19.18	19.20	19.19	27.47	27.42	27.44	3.83	3.85	3.84	3.96	3.99	3.98	4.95	4.97	4.96	4.45	4.47	4.46
P_2	19.95	19.42	19.68	29.35	29.28	29.31	3.83	3.84	3.84	4.07	4.03	4.05	5.15	5.23	5.19	4.54	4.53	4.54
S. Em.±	0.27	0.29	0.20	0.35	0.26	0.22	0.04	0.04	0.03	0.04	0.04	0.03	0.04	0.04	0.03	0.04	0.05	0.03
C. D. at 5 %	NS	NS	NS	1.01	0.75	0.62	NS	NS	NS	NS	NS	NS	0.12	0.12	0.08	NS	NS	NS
Factor B: Levels of boric acid as foliar spray (B)																		
B_0	19.88	19.75	19.82	26.78	26.68	26.73	3.77	3.77	3.77	3.98	4.00	3.99	4.86	4.95	4.91	4.41	4.45	4.43
B_1	19.45	19.41	19.43	28.23	28.15	28.20	3.78	3.80	3.79	3.98	4.04	4.01	5.01	5.03	5.02	4.46	4.46	4.46
B_2	19.34	18.74	19.04	29.29	29.23	29.26	3.87	3.88	3.88	4.03	4.01	4.02	5.11	5.16	5.13	4.52	4.51	4.51
B_3	19.58	19.34	19.46	29.33	29.32	29.33	3.91	3.92	3.91	4.06	4.00	4.03	5.22	5.25	5.23	4.59	4.58	4.59
S. Em.±	0.39	0.41	0.28	0.49	0.37	0.31	0.06	0.06	0.04	0.06	0.06	0.04	0.06	0.06	0.04	0.06	0.07	0.05
C. D. at 5 %	NS	NS	NS	1.42	1.06	0.87	NS	NS	NS	NS	NS	NS	0.17	0.17	0.12	NS	NS	NS
Factor C: Levels of potassium silicate as foliar spray (S)																		
S_0	19.62	19.41	19.51	27.76	27.10	27.43	3.81	3.83	3.82	3.97	3.99	3.98	4.99	5.02	5.00	4.48	4.48	4.48
S_1	19.51	19.21	19.36	29.06	29.59	29.32	3.85	3.85	3.85	4.06	4.04	4.05	5.12	5.18	5.15	4.51	4.52	4.51
S. Em.±	0.27	0.29	0.20	0.35	0.26	0.22	0.04	0.04	0.03	0.04	0.04	0.03	0.04	0.04	0.03	0.04	0.05	0.03
C. D. at 5 %	NS	NS	NS	1.01	0.75	0.62	NS	NS	NS	NS	NS	NS	0.12	0.12	0.08	NS	NS	NS
Year	-	-	NS	-	-	NS	-	-	NS	-	-	NS	-	-	NS	-	-	NS
Significant interactions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C. V. %	6.84	7.32	7.08	6.03	4.50	5.32	5.32	5.44	5.38	5.15	4.87	5.01	4.06	3.92	3.99	4.79	5.21	5.00

Table 5 : Effect of pruning time, boric acid and potassium silicate on copper and silicon content in leaves and fruits of guava cv. Lal Bahadur

Treatments	Copper content (ppm)									Silicon content (%)								
	Leaves						Fruits			Leaves						Fruits		
	Before spray			After spray						Before spray			After spray					
	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled	2023	2024	Pooled
Factor A: Pruning time (P)																		
P_1	2.94	2.97	2.95	3.75	3.78	3.76	2.76	2.78	2.77	0.0805	0.0804	0.0805	0.2521	0.2542	0.2531	0.1771	0.1779	0.1775
P_2	2.93	2.94	2.94	3.90	3.91	3.91	2.83	2.83	2.83	0.0808	0.0816	0.0812	0.2642	0.2704	0.2673	0.1775	0.1783	0.1779
S. Em.±	0.03	0.02	0.02	0.04	0.05	0.03	0.03	0.04	0.03	0.0007	0.0007	0.0005	0.0039	0.0034	0.0026	0.0022	0.0022	0.0016
C. D. at 5 %	NS	NS	NS	0.13	0.13	0.09	NS	NS	NS	NS	NS	NS	0.0113	0.0099	0.0074	NS	NS	NS
Factor B: Levels of boric acid as foliar spray (B)																		
B_0	2.89	2.99	2.94	3.53	3.63	3.58	2.74	2.77	2.75	0.0802	0.0813	0.0808	0.2317	0.2200	0.2258	0.1725	0.1742	0.1733
B_1	2.99	2.92	2.95	3.75	3.78	3.76	2.78	2.78	2.78	0.0805	0.0809	0.0807	0.2417	0.2475	0.2446	0.1775	0.1750	0.1763
B_2	2.97	2.96	2.96	4.00	3.92	3.96	2.81	2.83	2.82	0.0802	0.0809	0.0805	0.2683	0.2850	0.2766	0.1783	0.1800	0.1792
B_3	2.92	2.94	2.93	4.02	4.08	4.05	2.85	2.84	2.85	0.0818	0.0810	0.0814	0.2908	0.2967	0.2938	0.1808	0.1833	0.1821
S. Em.±	0.04	0.03	0.03	0.06	0.06	0.04	0.05	0.06	0.04	0.0009	0.0010	0.0007	0.0056	0.0049	0.0037	0.0032	0.0032	0.0023
C. D. at 5 %	NS	NS	NS	0.18	0.18	0.13	NS	NS	NS	NS	NS	NS	0.0160	0.0139	0.0104	NS	NS	NS
Factor C: Levels of potassium silicate as foliar spray (S)																		
S_0	2.95	2.95	2.95	3.76	3.78	3.77	2.79	2.80	2.79	0.0813	0.0809	0.0811	0.2508	0.2513	0.2510	0.1763	0.1763	0.1763
S_1	2.93	2.95	2.94	3.89	3.91	3.90	2.80	2.81	2.80	0.0800	0.0812	0.0806	0.2654	0.2733	0.2694	0.1783	0.1800	0.1792
S. Em.±	0.03	0.02	0.02	0.04	0.05	0.03	0.03	0.04	0.03	0.0007	0.0007	0.0005	0.0039	0.0034	0.0026	0.0022	0.0023	0.0016
C. D. at 5 %	NS	NS	NS	0.13	0.13	0.09	NS	NS	NS	NS	NS	NS	0.0113	0.0099	0.0074	NS	NS	NS
Year	-	-	NS	-	-	NS	-	-	NS	-	-	NS	-	-	NS	-	-	NS
Significant interactions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C. V. %	4.36	3.94	4.16	5.69	5.75	5.72	5.96	7.00	6.50	4.22	4.45	4.37	7.46	6.42	6.94	6.20	6.22	6.21

As the results indicated, different levels of potassium silicate, did not significantly affect the nutrient contents in leaves before spray and fruits. While, S_1 (4 ml/L potassium silicate) resulted in higher number of fruits per plant (201.66, 205.47 and 203.57), fruit weight (110.54, 111.54 and 111.04 g), yield (22.51, 23.16 and 22.84 kg/plant), plant nutrient contents after sprays, *i. e.*, potassium (0.596, 0.599 and 0.598 %), calcium (1.128, 1.115 and 1.122 ppm), magnesium (0.3479, 0.3475 and 0.3477 ppm), boron (94.07, 94.21 and 94.21 ppm), iron (126.88, 126.60 and 126.74 ppm), manganese (29.06, 29.59 and 29.32 ppm), zinc (5.12, 5.18 and 5.15 ppm), copper (3.89, 3.91 and 3.90 ppm) and silicon (0.2654, 0.2733 and 0.2694 %). It might be because the foliar application of potassium silicate considerably enhances the nutrient profile in leaves by boosting nutrient uptake, translocation and overall physiological performance. Potassium plays a vital role in regulating osmotic pressure and activating metabolic enzymes, which facilitates the absorption and distribution of macronutrients (potassium, calcium, magnesium) and micronutrients (boron, copper, zinc, iron, manganese, and silicon) to the foliage. Silicate fortifies cell walls and enhances membrane permeability, enabling better nutrient retention and assimilation in leaf tissues. Furthermore, foliar application delivers a direct and easily accessible supply of potassium and silicon, raising the nutrient concentration in the leaves. Silicon also mitigates oxidative stress and strengthens the plant resilience against environmental stresses, promoting healthier foliage with superior nutrient accumulation. The synergistic effect of potassium and silicon also stimulates root function and soil nutrient absorption, further enriching the nutrient content in the leaves. The result was in accordance with the findings of Ma *et al.* (2002) in rice.

Maximum number of fruits per plant was recorded with pruning in last week of May with 0.8 % boric acid foliar spray (P_2B_2) in pooled analysis, *i. e.*, 243.84, which was at par with P_2B_1 and P_2B_3. It might be due to better allocation of assimilates due to pruning at appropriate time and better translocation of carbohydrates and nutrients by boron, which increased number of fruits per plant.

Table: 6 Interaction effect pruning time and boric acid on number of fruits per plant in guava cv. Lal Bahadur

Number of fruits per plant (Pooled)				
Pruning time (P)	**Levels of boric acid as foliar spray (B)**			
	B_0	**B_1**	**B_2**	**B_3**
P_1	136.77	157.44	177.48	166.39
P_2	230.66	236.23	243.84	241.54
S. Em.±	3.28			
C. D. (P=0.05)	9.27			

Maximum number of fruits per plant was recorded in last week of May pruning and 4 ml/L potassium silicate (P_2S_1) spray, *i. e.*, 239.86 in pooled analysis, which was at par with P_2S_0. It might be due to better allocation of assimilates due to pruning at appropriate time and imparting resistance against environmental stresses by potassium silicate, which reduced fruit drop and increased number of fruits per plant.

Table 7 : Interaction effect pruning time and potassium silicate on number of fruits per plant in guava cv. Lal Bahadur

Number of fruits per plant (pooled)		
Pruning time (P)	**Levels of potassium silicate as foliar spray (S)**	
	S_0	**S_1**
P_1	151.77	167.27
P_2	236.27	239.86
S. Em.±	2.32	
C. D. (P=0.05)	6.55	

Conclusion

From the two years of field experiment, it can be concluded that pruning in last week of May resulted in higher yield and plant nutrient contents. Foliar application of 0.8 % boric acid, at flowering stage and at one month after the first spray, increased the yield while, 1.2 % boric acid, resulted in maximum plant nutrient contents. And foliar application of 4 ml/L potassium silicate, at flowering stage and at one month after the first spray, resulted in higher yield and plant nutrient contents.

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