Arvum Plant Labs Project Report Form

Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

Objective:

The primary goal of this experiment is to determine the efficacy of EVE-pn on cannabis. This supplement (EVE) was applied in addition to a standard fertilizer regiment. EVE is a supplemental fertilizer that provides micronutrients in a bioavailable format. Growth, yield, potency, terpene content, and mineral nutrient concentration of the leaves will all be considerations in the efficacy of the product. A total of four treatments will be utilized in the overall efficacy of the study.

Materials & Methods:

Wedding Crashers were the strain selected for this study. A total of four treatments were utilized in this trial using four replicates per treatment. The EVE will be applied at the following rates: 2, 4, and 8 oz per gallon. A standard fertilizer regiment will be applied to each of the treatments. The total growth cycle of the plants will be 12 weeks. Leaf tissues samples were collected every two weeks and analyzed for mineral nutrient concentrations. The samples will be analyzed on a dry weight basis using inductively coupled plasma optical emission spectroscopy (ICP-OES) and combustion analysis. In addition, yield, potency, and terpene content were measured. Potency was measured using a high pressure liquid chromatograph (HPLC) with a diode array detector. Terpenes were measured using headspace gas chromatography couple with mass spectrometry (HS-GC/MS)

Use Site:	Palomar Craft Cannabis
Crop Cultivar/Source:	Wedding Crasher (Indica Dominate Hybrid)
Date of Transplanting:	March 24th, 2022
Date of Flowering:	April 25th, 2022
Potting/Rooting Media:	Greenlite for 1 gal and Roots Original Organic Soil 5 gal by Aurora Innovations
Growth Stage Used:	Entire Harvest Cycle

Experimental Design: EVE will be applied at three different rates
Number of Reps per treatment: 4 replicates
Pot Size & Spacing: 1 gal pots in a 6”x6” space and 5 gal pots in a 1.77’x1.77’ space

Treatment Code	EVE- Treatment	Varietal	Application type
1.	No Application	Wedding Crasher	N/A
2.	2 oz/gal	Wedding Crasher	Foliar Spray
3.	4 oz/gal	Wedding Crasher	Foliar Spray
4.	8 oz/gal	Wedding Crasher	Foliar Spray

Table 1. Treatment rates and application type

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Treatments were applied on the following dates: 4/19, 4/26, 5/3, 5/10, 5/17, and 5/24

Results:

The Wedding Crasher that were treated with the EVE foliar spray on average produced larger flowers than the untreated replicates. The 4 oz/gallon treatment had the greatest overall yield with 240 grams of total sellable flower and trim, a 10.09% increase in total biomass. All of the treatments had a greater percentage of large (Bigs) flowers (148g average vs. 123g from the control) versus the control. 4oz resulted in an 20.33% increase in yield, and a 20.33% increase in revenue. The potency values were roughly equivalent across all treatments. The total terpene concentration was 17.05% higher (1.76% vs. 2.06% average) in the treated plants.

Yield

The plants were dried, cured, and trimmed prior to separation and weighing.

Treatment	Trim	Popcorn	Smalls	Bigs	Total Flower
Control	90g	7g	88g	123g	218g
2 oz/gal	72g	1g	55g	148g	204g
4 oz/gal	84g	4g	88g	148g	240g
8 oz/gal	73g	6g	7g	139g	222g

Table 2. Yield data

Potency

There was not a substantial difference in potency values from the control sample and the treated samples.

Treatment	THCA
Control	20.5%
2 oz/gal	19.9%
4 oz/gal	19.8%
8 oz/gal	19.4%

Table 3. Potency data

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Terpenes

The total terpene concentration of the control was less than that of the treated samples. The largest jump was from the control to the 2 and 4 oz applications.

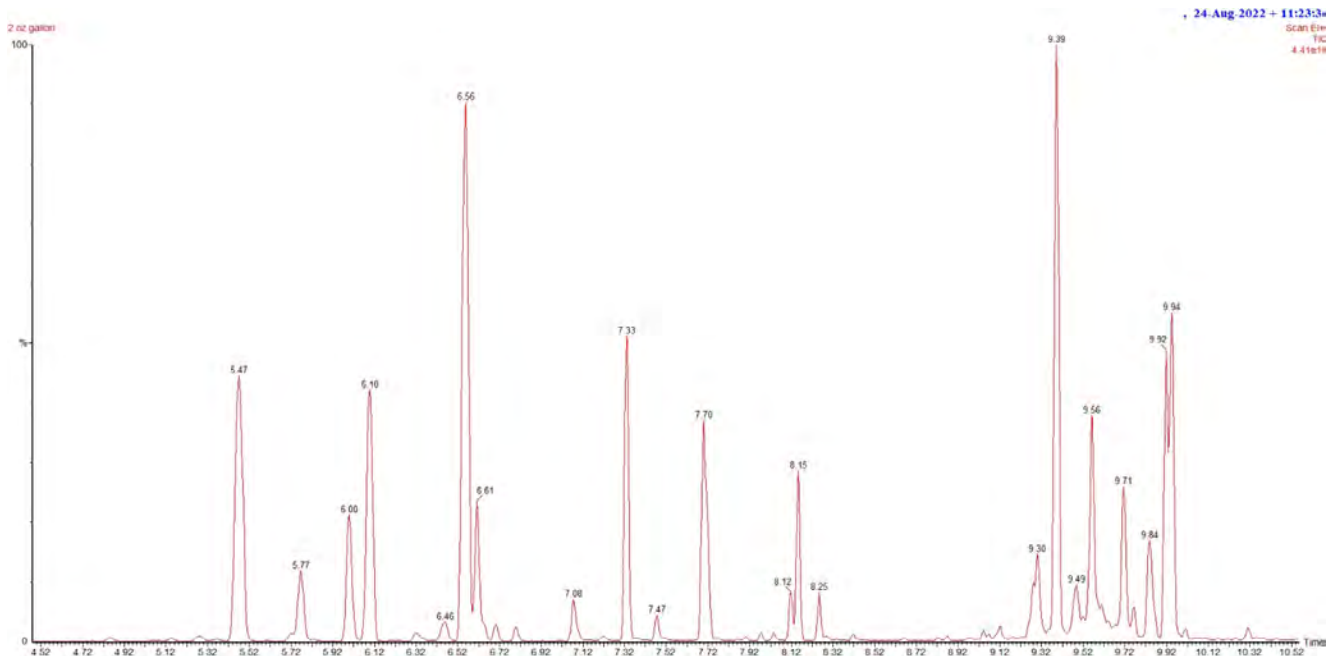

Figure 1. Terpene chromatogram from the 2 oz/gallon treatment

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Analyte	Control (µg/g)	2 oz/gal (µg/g)	4oz/gal (µg/g)	8oz/gal (µg/g)
a-Pinene	41.8	34.6	35.9	33.8
Camphene	128.5	48.1	53.8	54.0
b-Myrcene	14.1	154.8	159.5	150.2
b-Pinene	1798.3	2138.0	2252.9	2101.0
3-Carene	3258.8	5021.3	4497.1	3717.4
a-Terpinene	3168.6	3572.5	3928.2	3789.7
Limonene	21.8	47.5	59.5	25.6
p-Cymene	615.8	774.4	722.0	639.4
Ocimene	498.8	633.7	595.0	575.7
Eucalyptol	51.2	44.3	59.5	45.9
y-Terpinene	529.7	753.4	735.7	668.9
Terpinolene	468.0	595.7	554.5	513.3
Linalool	32.0	148.0	107.7	53.3
Isopulegol	138.9	139.9	86.7	117.4
Geraniol	2919.2	3011.0	2939.5	3044.0
Caryophyllene	1314.8	1363.2	1362.8	1476.9
a-Humelene	1536.7	1530.1	1589.9	1678.8
Trans-Nerolidol	658.7	746.2	759.0	773.1
Cis-Nerolidol	260.3	268.4	234.4	223.4
Caryophyllene Oxide	29.7	15.2	15.3	15.3
a-Bisabolol	87.3	78.8	76.9	39.8
Total (µg/g)	17573	21119	20826	19737
Total (%)	1.76%	2.11%	2.08%	1.97%

Table 4. Terpene data

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Mineral nutrient analysis of the leaf tissue

a. N, P, K, Ca, Mg, S, B, Cu, Fe, Mn, Mo, and Zn were measured on a bi-weekly basis. The data was be compared to Figure 1. The analytical data for the mineral nutrient analysis is included in the appendix.

Primary	Deficient	Low Range	High Range	Excessive
Nitrogen (N)	<2.50%	2.5%	5%	>6.0%
Phosphorus (P)	<0.15%	0.2%	0.75%	>1.0%
Potassium (K)	<1.00%	1.5%	5.5%	>6.0%
Secondary	Deficient	Low Range	High Range	Excessive
Calcium (Ca)	<0.5%	1.0%	4.0%	>6.0%
Magnesium (Mg)	<0.2%	0.25%	1.0%	>1.5%
Sulfur (S)	<0.2%	0.25%	1.0%	>1.5%
Micro	Deficient	Low Range	High Range	Excessive
Boron (B)	<10 ug/g	10 ug/g	200 ug/g	>200 ug/g
Zinc (Zn)	<20 ug/g	20 ug/g	100 ug/g	>100 ug/g
Iron (Fe)	<50 ug/g	100 ug/g	500 ug/g	>500 ug/g
Copper (Cu)	<5 ug/g	5 ug/g	30 ug/g	>30 ug/g
Manganese (Mn)	<25 ug/g	25 ug/g	300 ug/g	>300 ug/g
Molybdenum (Mo)	<0.10 ug/g	0.1 ug/g	2 ug/g	>5 ug/g

Table 3. Target analytical values for leaf tissue analysis

Discussion:

There was an overall increase in yield at the 4 oz/gallon treatment rate. The average flower size increased with the treated plants. Potency values did not change from the treated to untreated samples. The total terpene concentration increased from the control to the treated samples. The application of EVE does not negatively

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affect the chemical profile of the plant. Powdery mildew was observed on the control plants. None of the treated plants exhibited symptoms of powdery mildew. Further studies will be conducted to confirm the efficacy of EVE treatment on powdery mildew.

Financial Increase performance based on Palomar Craft Cannabis pricing

	Grams	% Change from Control	Price/lb ($)	Total Revenue	% Revenue Increase
2 oz/gal: Total Flower = 204g					
Bigs	148	120.33%	$1,200	$391	20.33%
Smalls	55	62.50%	$750	$91	-37.50%
Pocorn	1	14.29%	$500	$1	-85.71%
Trim	72	80.00%	$40	$6	-20.00%
Total Biomass	276	89.61%		$489	**0.69%**
4 oz/gal: Total Flower = 240g					
Bigs	148	120.33%	$1,200	$391	20.33%
Smalls	88	100.00%	$750	$145	0.00%
Pocorn	4	57.14%	$500	$4	-42.86%
Trim	84	93.33%	$40	$7	-6.67%
Total Biomass	324	105.19%		$548	**12.80%**
8 oz/gal: Total Flower = 222g					
Bigs	139	113.01%	$1,200	$367	13.01%
Smalls	77	87.50%	$750	$127	-12.50%
Pocorn	6	85.71%	$500	$7	-14.29%
Trim	73	81.11%	$40	$6	-18.89%
Total Biomass	295	95.78%		$508	**4.43%**
Control (0 oz/gal): Total Flower = 218g					
Bigs	123	100.00%	$1,200	$325	
Smalls	88	100.00%	$750	$145	
Pocorn	7	100.00%	$500	$8	
Trim	90	100.00%	$40	$8	
Total Biomass	308	100.00%		$486	

Bigs	$1,200
Smalls	$750
Pocorn	$500
Trim	$40

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Pictures:

Control (0 oz/gal)

5/3/22

5/10/22

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6/24/22

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Treatment #1 (2 oz/gal)

4/19/22

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5/10/22

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5/17/22

Arvum Plant Labs Project Report Form

Researcher(s): Adam Floyd and Josh Cosgrove **Date: 8/19/2022**

Project Title: EVE-pn Efficacy Cannabis Growth Trial

5/24/22

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6/24/22

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Treatment #2 (4 oz/gal)

4/19/22

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Project Title: EVE-pn Efficacy Cannabis Growth Trial

5/3/22

Arvum Plant Labs Project Report Form

Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

Arvum Plant Labs Project Report Form

Researcher(s): Adam Floyd and Josh Cosgrove **Date: 8/19/2022**

Project Title: EVE-pn Efficacy Cannabis Growth Trial

5/9/22

Arvum Plant Labs Project Report Form

Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

Arvum Plant Labs Project Report Form

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5/10/22

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6/2/22

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Treatment #3 (8 oz/gal)

4/19/22

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The concentrated EVE-pn Minerals Solution was determined to contain approximately 5200 µg/g total N by combustion analysis, 4000 µg/g $^{+}NH_4$-N, 1642 µg/g phosphorus, 4991 µg/g potassium, 2709 µg/g calcium, 2695 µg/g magnesium, 5524 µg/g sulfur, 1465 µg/g iron, 442 µg/g zinc, 106 µg/g manganese, 66 µg/g boron, 63 µg/g copper, and 12 µg/g molybdenum.

The label of the EVE-pn Minerals Solution reported to contain, "0.50 % organic matter (montmorillonite and potassium humate), 0.45 % humic acids (montmorillonite and potassium humate), 0.05 % hydrophobic fulvic acids, (montmorillonite and potassium humate), 0.36 % carbon (montmorillonite and potassium humate), and 99.14 % total other non-amending ingredients (water, montmorillonite and potassium humate).

TABLE 1. Concentrations of Nutrients Within EVE-pn Minerals and Nutrients."

Nutrient	µg/g
Total N	5200
$^{+}NH_4$-N	4000
P	1642
K	4991
Ca	2709
Mg	2695
S	5524
Fe	1465
Zn	442
Mn	106
B	66
Cu	63
Mo	12

TABLE 2. Nutrient Concentrations Determined in Treatments for Samples Collected on 4/26/22

	(%)						(ppm)					
Sample	**N**	**P**	**K**	**Ca**	**Mg**	**S**	**Fe**	**Zn**	**Mn**	**B**	**Cu**	**Mo**
Control	5.56	0.714	2.81	2.94	0.534	0.572	93.2	73.0	59.8	26.0	11.7	0.447

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2oz/Gal	5.22	0.681	2.98	3.36	0.642	0.513	101.4	60.6	38.3	26.4	9.9	0.524
4oz/Gal	5.22	0.657	2.86	3.57	0.677	0.515	103.1	56.3	40.1	32.2	9.9	0.465
8oz/Gal	5.68	0.725	3.01	2.64	0.525	0.570	106.1	63.5	39.0	23.8	11.3	0.276

TABLE 3. Nutrient Concentrations Determined in Treatments for Samples Collected on 5/03/22

	(%)						(ppm)					
Sample	**N**	**P**	**K**	**Ca**	**Mg**	**S**	**Fe**	**Zn**	**Mn**	**B**	**Cu**	**Mo**
Control	5.14	0.568	2.70	8.17	1.323	0.557	95.1	76.2	87.9	53.2	9.2	0.553
2oz/Gal	5.15	0.542	2.51	7.22	1.213	0.545	123.0	64.5	61.8	53.5	10.9	0.379
4oz/Gal	5.39	0.558	3.00	6.56	1.157	0.583	125.8	68.1	47.1	54.2	11.5	0.622
8oz/Gal	5.41	0.567	2.85	6.86	1.172	0.562	162.9	71.0	45.6	49.7	11.5	0.518

TABLE 4. Nutrient Concentrations Determined in Treatments for Samples Collected on 5/10/22

	(%)						(ppm)					
Sample	**N**	**P**	**K**	**Ca**	**Mg**	**S**	**Fe**	**Zn**	**Mn**	**B**	**Cu**	**Mo**
Control	5.43	0.654	2.76	2.51	0.375	0.409	80.7	49.2	23.2	23.3	13.2	0.469
2oz/Gal	5.99	0.609	2.56	4.88	0.675	0.464	95.8	58.3	33.3	35.5	12.3	0.298
4oz/Gal	5.43	0.611	2.84	3.73	0.531	0.424	90.9	56.5	30.1	29.4	12.0	0.661
8oz/Gal	5.58	0.621	2.76	3.40	0.516	0.443	98.8	57.7	26.9	27.3	13.0	0.410

TABLE 5. Nutrient Concentrations Determined in Treatments for Samples Collected on 5/17/22

	(%)						(ppm)					
Sample	**N**	**P**	**K**	**Ca**	**Mg**	**S**	**Fe**	**Zn**	**Mn**	**B**	**Cu**	**Mo**
Control	5.09	0.593	2.68	6.78	0.877	0.419	113.7	65.9	32.8	49.2	11.2	0.384
2oz/Gal	5.13	0.571	2.88	5.86	0.768	0.385	102.0	55.2	30.0	41.5	10.8	0.359
4oz/Gal	5.08	0.592	2.74	6.65	0.818	0.414	140.8	66.9	33.1	49.0	11.4	0.459
8oz/Gal	5.14	0.579	3.00	7.83	0.996	0.431	174.5	77.3	34.8	54.0	11.7	0.717

TABLE 6. Nutrient Concentrations Determined in Treatments for Samples Collected on 5/23/22

	(%)						(ppm)					
Sample	**N**	**P**	**K**	**Ca**	**Mg**	**S**	**Fe**	**Zn**	**Mn**	**B**	**Cu**	**Mo**

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Control	3.80	0.525	2.57	6.91	0.860	0.351	91.8	53.3	29.2	53.4	9.3	0.332
2oz/Gal	3.83	0.474	2.74	5.23	0.696	0.312	116.3	57.9	26.0	42.8	8.9	0.474
4oz/Gal	4.22	0.539	2.83	4.44	0.597	0.345	140.8	55.0	23.0	46.1	10.2	0.820
8oz/Gal	3.94	0.504	2.92	5.43	0.717	0.349	193.1	60.9	26.5	46.1	10.8	0.824

TABLE 7. Nutrient Concentrations Determined in Treatments for Samples Collected on 6/2/22

	(%)						(ppm)					
Sample	**N**	**P**	**K**	**Ca**	**Mg**	**S**	**Fe**	**Zn**	**Mn**	**B**	**Cu**	**Mo**
Control	4.29	0.531	3.31	6.35	0.822	0.316	97.3	49.3	19.9	80.0	7.2	0.347
2oz/Gal	4.10	0.485	2.78	6.43	0.789	0.309	127.1	56.3	24.9	86.7	7.5	0.387
4oz/Gal	4.01	0.492	2.92	6.00	0.723	0.287	151.6	55.8	20.1	83.2	7.5	0.430
8oz/Gal	4.02	0.512	3.33	5.93	0.701	0.315	239.7	61.0	24.2	81.6	9.9	0.822

TABLE 8. Nutrient Concentrations Determined in Treatments for Samples Collected on 6/8/22

	(%)						(ppm)					
Sample	**N**	**P**	**K**	**Ca**	**Mg**	**S**	**Fe**	**Zn**	**Mn**	**B**	**Cu**	**Mo**
Control	3.62	0.510	2.82	5.62	0.689	0.303	89.6	45.2	18.6	114.1	6.4	0.184
2oz/Gal	3.59	0.449	2.81	6.02	0.700	0.293	117.0	49.3	21.2	110.2	6.9	0.331
4oz/Gal	3.67	0.485	2.61	5.86	0.647	0.290	120.0	52.1	18.5	110.8	6.0	0.262
8oz/Gal	3.54	0.479	2.88	5.94	0.684	0.297	168.5	49.0	20.7	125.7	7.9	0.445

TABLE 9. Nutrient Concentrations Determined in Treatments for Samples Collected on 6/14/22

	(%)						(ppm)					
Sample	**N**	**P**	**K**	**Ca**	**Mg**	**S**	**Fe**	**Zn**	**Mn**	**B**	**Cu**	**Mo**
Control	2.96	0.322	3.78	5.54	0.860	0.244	69.2	27.3	12.5	112.5	5.5	0.074
2oz/Gal	3.06	0.336	3.42	5.91	0.770	0.238	90.6	32.8	16.0	106.7	5.5	0.162
4oz/Gal	3.02	0.320	3.70	6.37	0.859	0.260	132.5	32.8	17.3	105.3	6.8	0.296
8oz/Gal	3.19	0.370	3.51	7.54	0.914	0.289	201.1	43.8	21.6	115.8	7.7	0.507

TABLE 10. Nutrient Concentrations Determined in Treatments for Samples Collected on 6/22/22

Sample	**(%)**	**(ppm)**

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Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

	N	P	K	Ca	Mg	S	Fe	Zn	Mn	B	Cu	Mo
Control	2.67	0.322	3.63	7.23	0.856	0.261	98.1	32.6	14.5	167.5	5.1	0.208
2oz/Gal	2.84	0.329	3.41	7.53	0.777	0.250	140.0	39.5	15.6	143.5	5.7	0.250
4oz/Gal	2.86	0.336	3.83	6.43	0.683	0.261	128.8	36.5	16.7	139.1	6.1	0.199
8oz/Gal	2.96	0.314	3.15	7.91	0.769	0.275	213.5	49.2	19.1	142.2	7.3	0.609

TABLE 11. Nutrient Concentrations Determined in Treatments for Samples Collected on 7/1/22

	(%)						(ppm)					
Sample	N	P	K	Ca	Mg	S	Fe	Zn	Mn	B	Cu	Mo
Control	2.39	0.361	3.97	9.80	0.986	0.311	117.9	43.6	16.7	237.4	7.8	0.240
2oz/Gal	2.46	0.316	3.44	8.69	0.842	0.270	109.9	45.0	14.9	186.0	6.5	0.114
4oz/Gal	2.33	0.340	3.73	8.15	0.846	0.275	125.8	40.7	17.4	184.4	7.4	0.415
8oz/Gal	2.46	0.377	3.65	8.36	0.832	0.282	150.9	51.9	15.8	188.5	7.8	0.442

TABLE 12. Nutrient Concentrations Determined in Treatments for Samples Collected on 7/5/22

	(%)						(ppm)					
Sample	N	P	K	Ca	Mg	S	Fe	Zn	Mn	B	Cu	Mo
Control	2.17	0.333	4.08	9.79	1.027	0.296	96.0	33.7	15.0	231.4	6.8	0.045
2oz/Gal	2.07	0.314	3.47	9.85	0.952	0.281	127.9	40.3	17.5	216.6	6.9	0.435
4oz/Gal	2.39	0.332	4.77	7.86	0.849	0.279	138.0	43.1	18.0	174.4	8.2	0.434
8oz/Gal	2.44	0.371	4.15	9.67	0.914	0.295	184.9	41.5	20.7	215.3	7.9	0.363

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Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

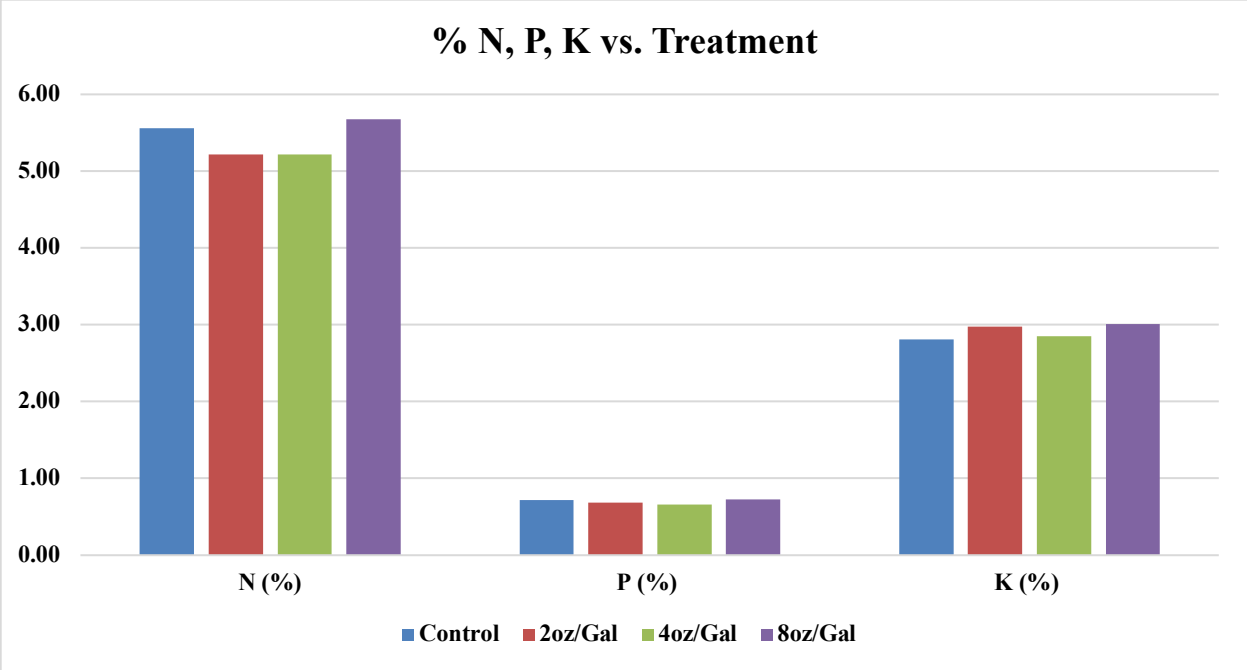
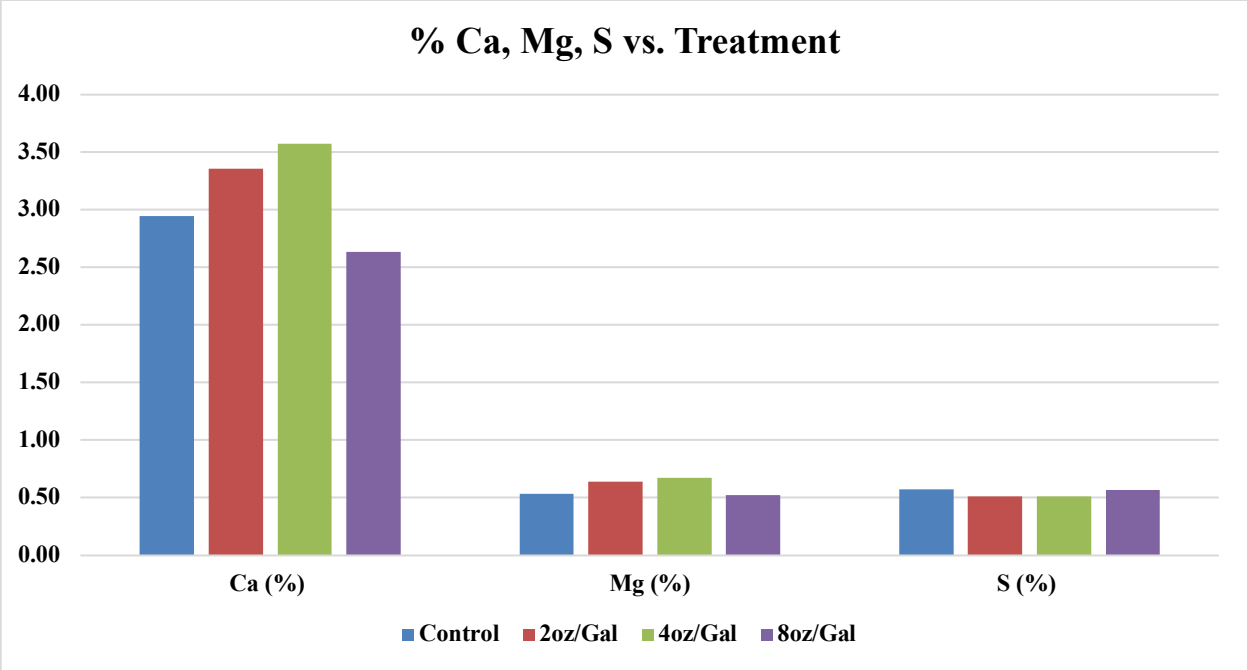


Figure 1. N, K, P (%) vs. Treatment for Samples Collected on 4/26/22.



Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022
Project Title: EVE-pn Efficacy Cannabis Growth Trial

FIGURE 2. Ca, Mg, S (%) vs. Treatment for Samples Collected on 4/26/22.

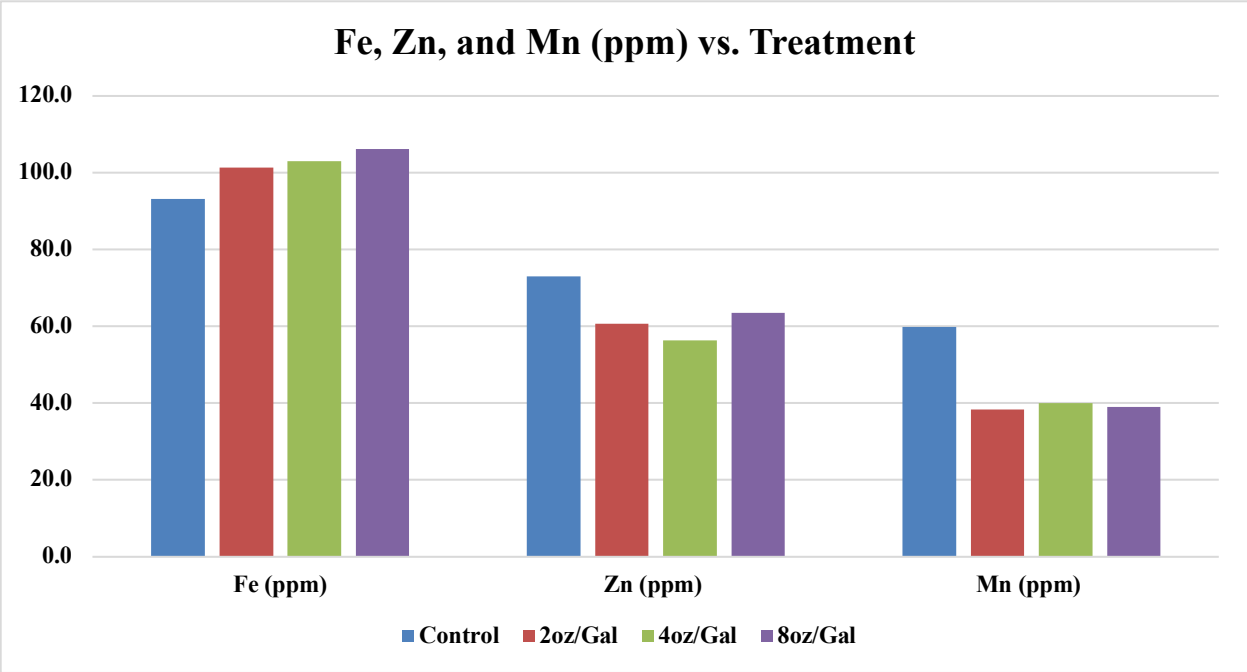


FIGURE 3. Fe, Zn, and Mn (ppm) vs. Treatment for Samples Collected on 4/26/22.

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Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

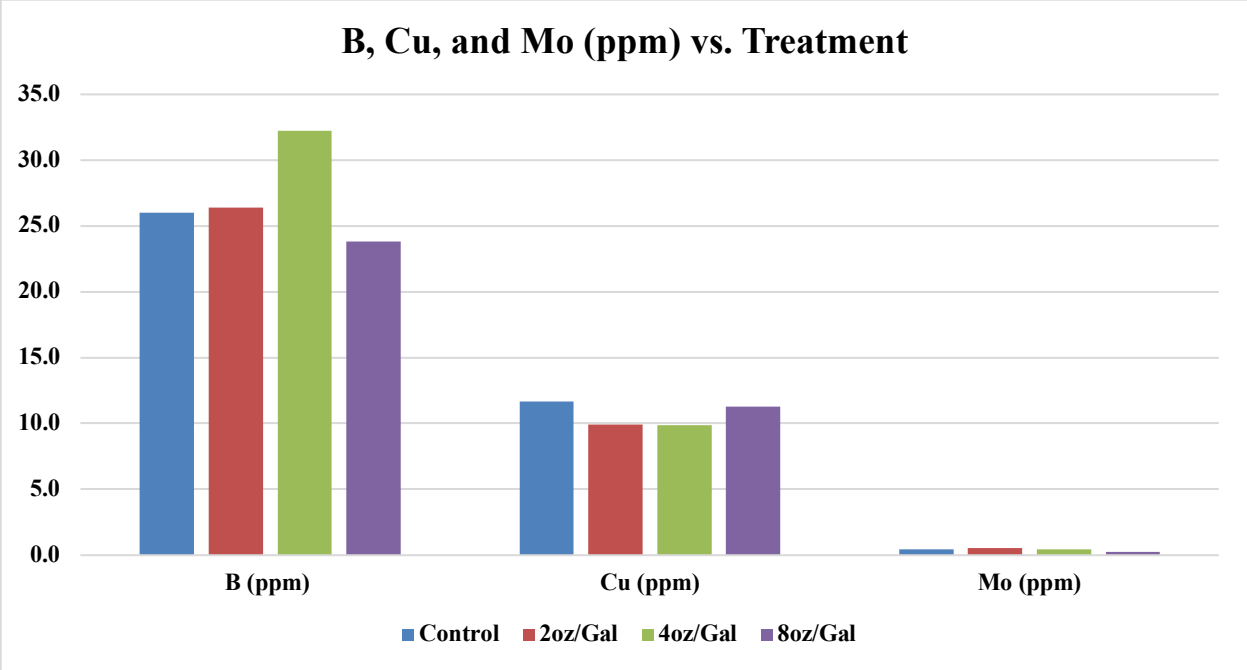
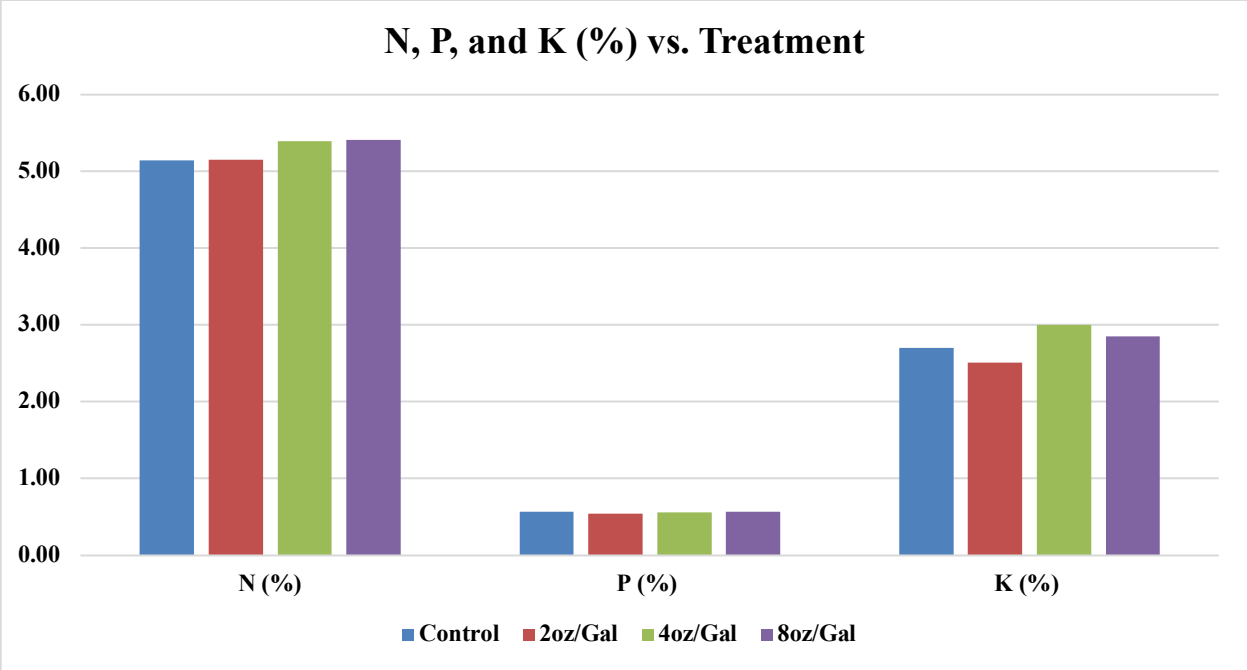


FIGURE 4. B, Cu, and Mo (ppm) vs. Treatment for Samples Collected on 4/26/22.



Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022
Project Title: EVE-pn Efficacy Cannabis Growth Trial

FIGURE 5. N, K, and P (%) vs. Treatment for Samples Collected on 5/03/22.

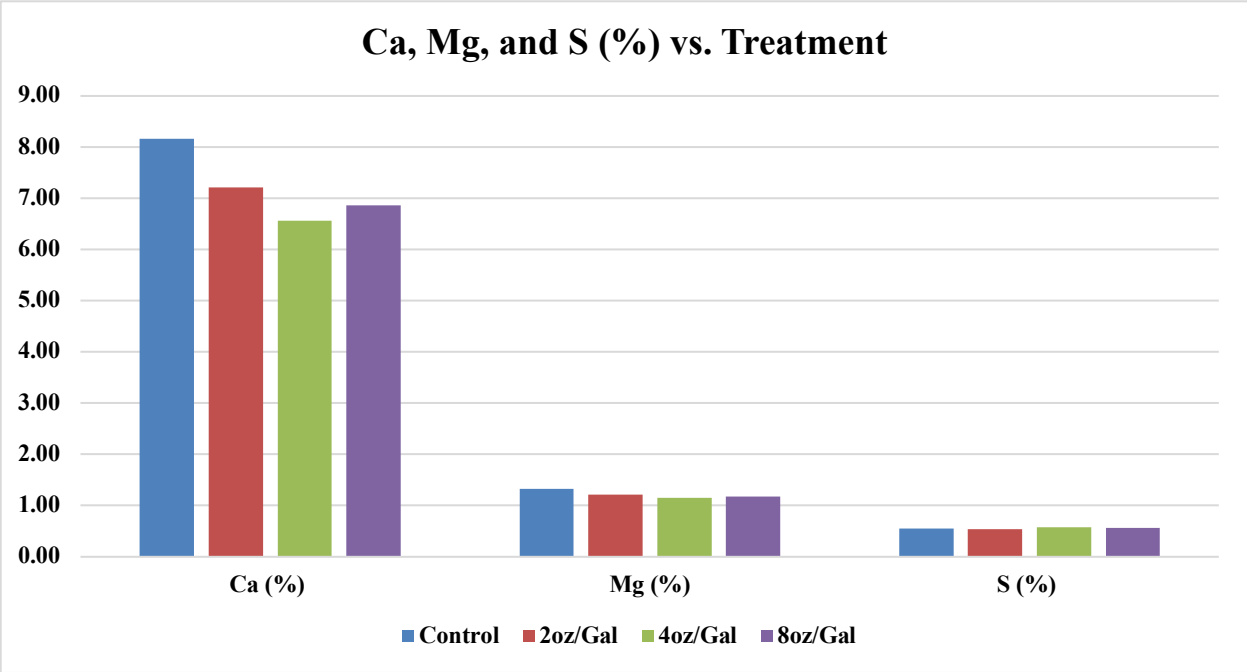


FIGURE 6. Ca, Mg, and S (%) vs. Treatment for Samples Collected on 5/03/22.

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Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

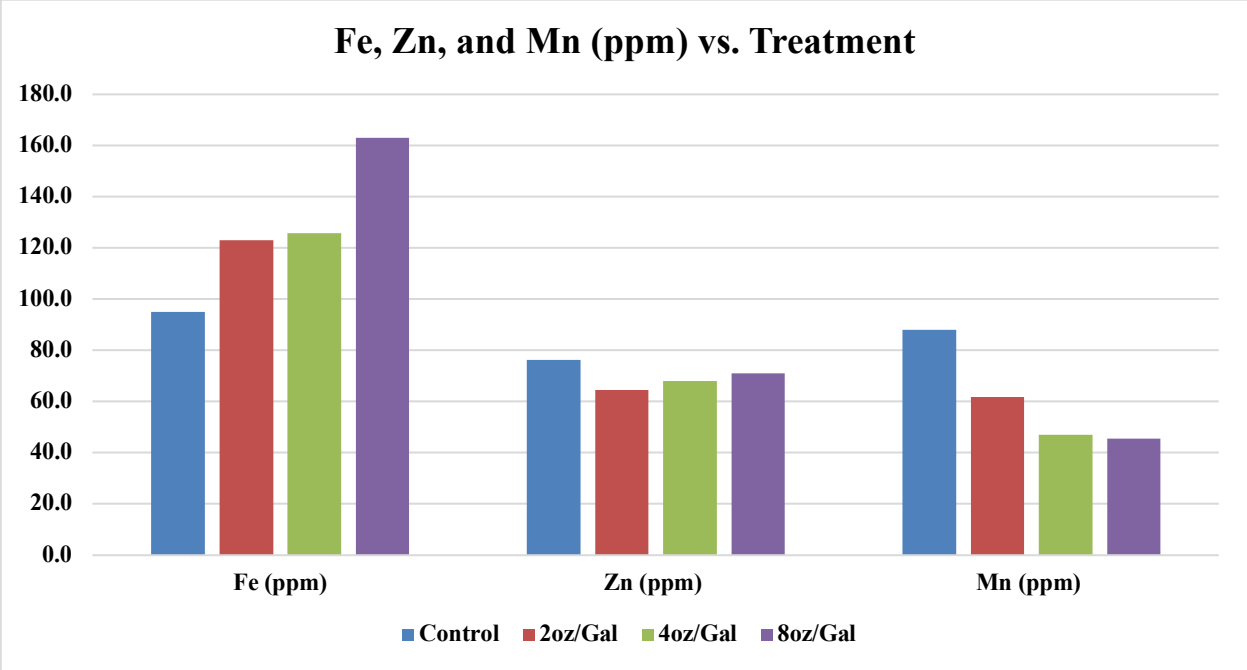
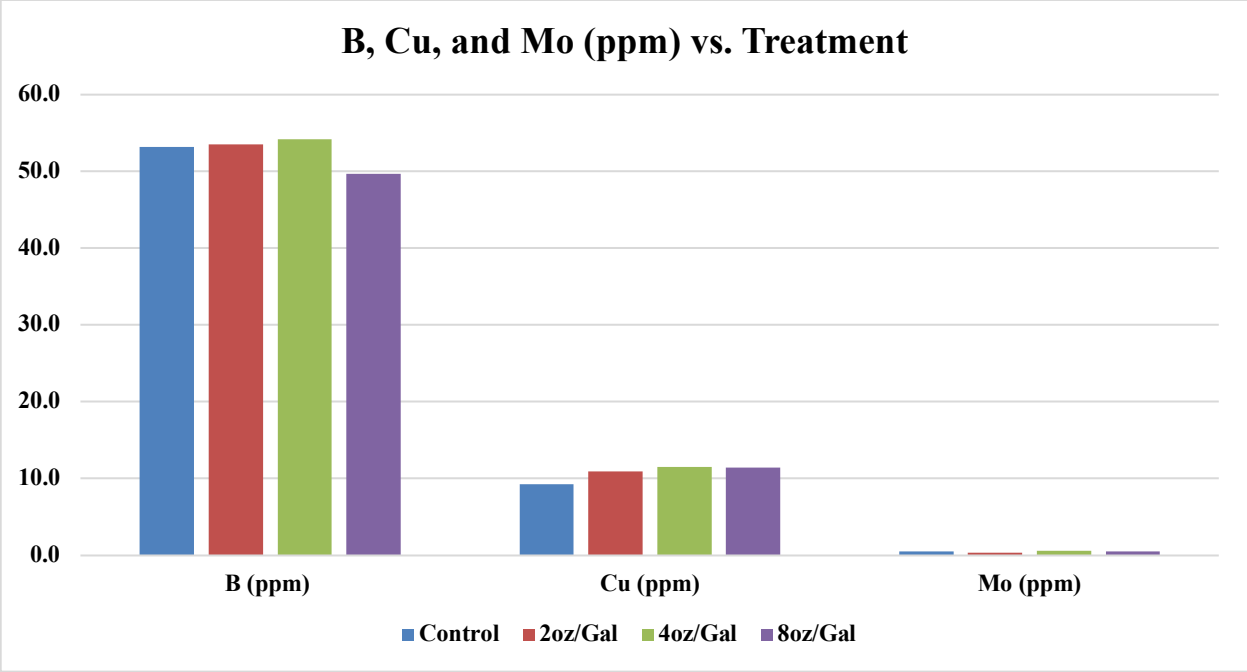


FIGURE 7. Fe, Zn, and Mn (ppm) vs. Treatment for Samples Collected on 5/03/22.



Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022
Project Title: EVE-pn Efficacy Cannabis Growth Trial

FIGURE 8. B, Cu, and Mo (ppm) vs. Treatment for Samples Collected on 5/03/22.

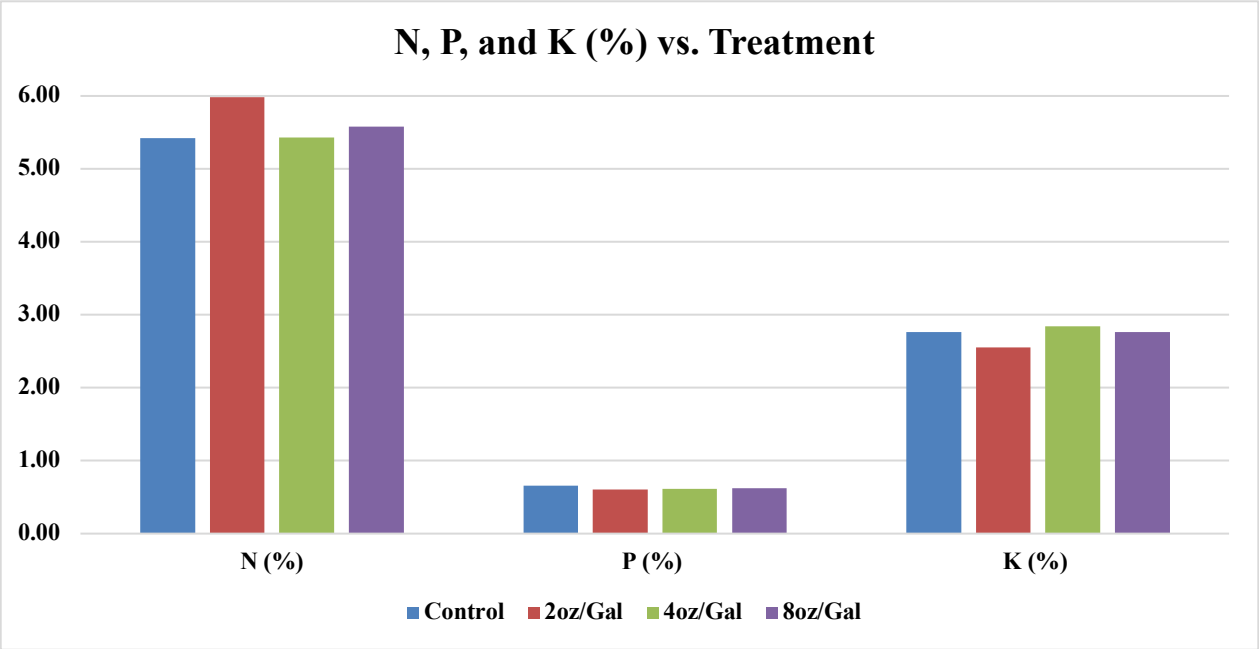


FIGURE 9. N, K, and P (%) vs. Treatment for Samples Collected on 5/10/22.

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Project Title: EVE-pn Efficacy Cannabis Growth Trial

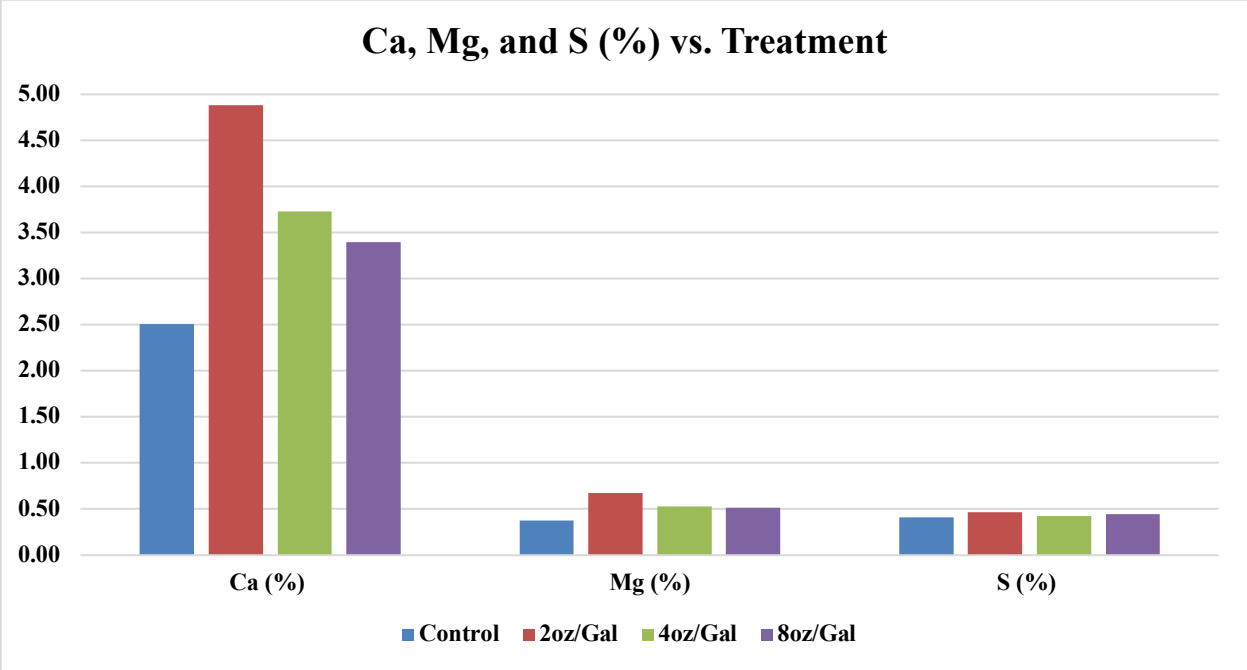
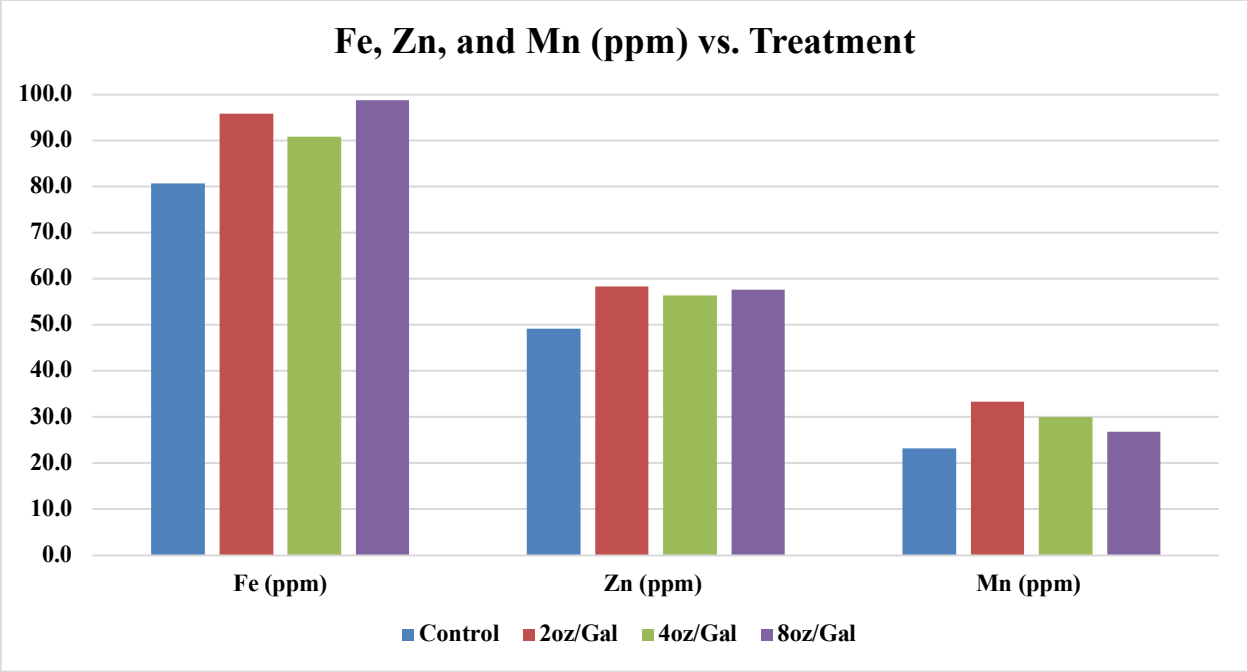


FIGURE 10. Ca, Mg, and S (%) vs. Treatment for Samples Collected on 5/10/22.



Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022
Project Title: EVE-pn Efficacy Cannabis Growth Trial

FIGURE 11. Fe, Zn, and Mn (ppm) vs. Treatment for Samples Collected on 5/10/22.

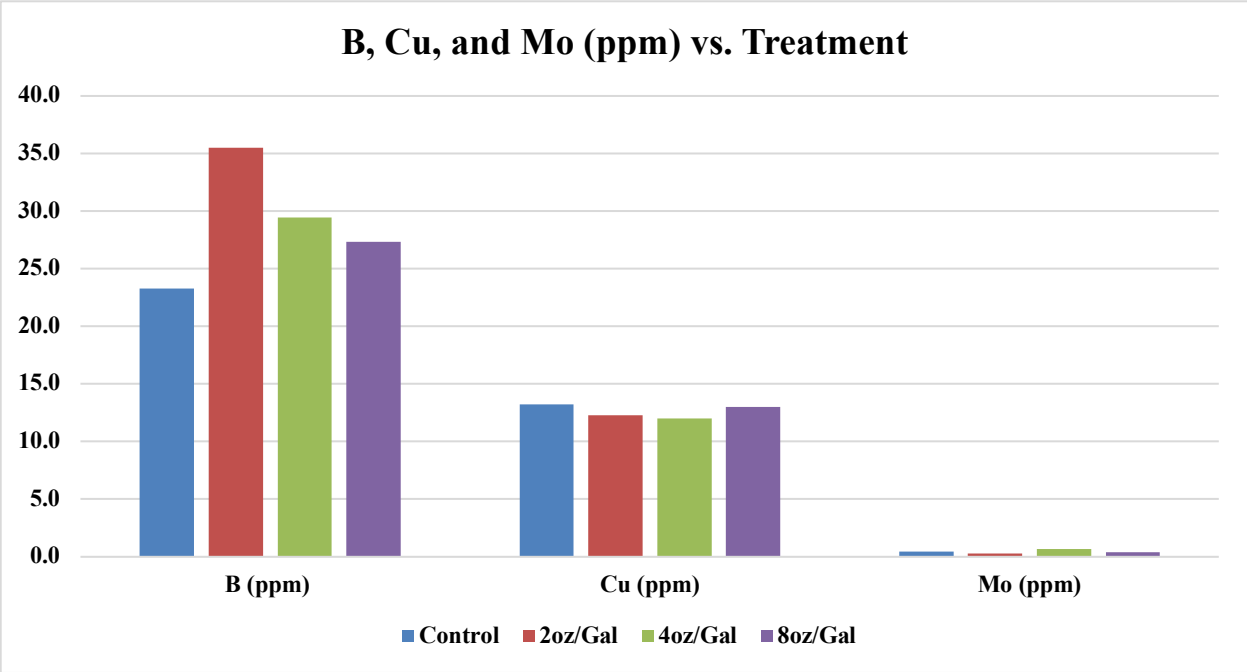


FIGURE 12. B, Cu, and Mo (ppm) vs. Treatment for Samples Collected on 5/10/22.

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Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

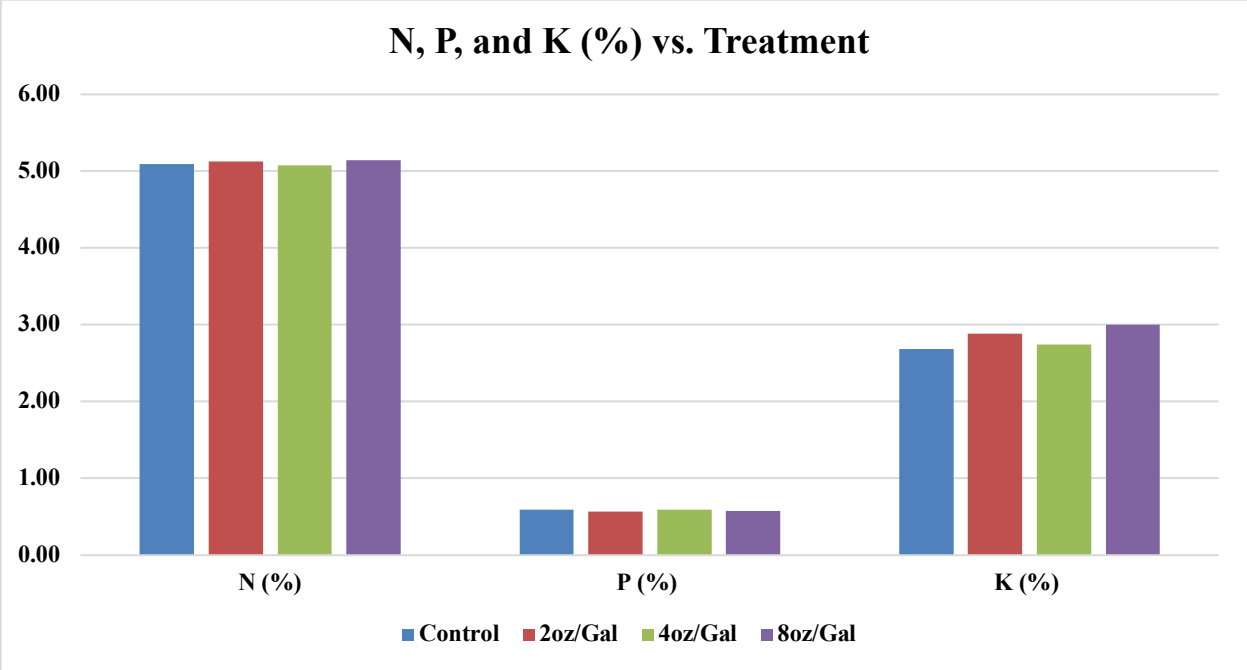
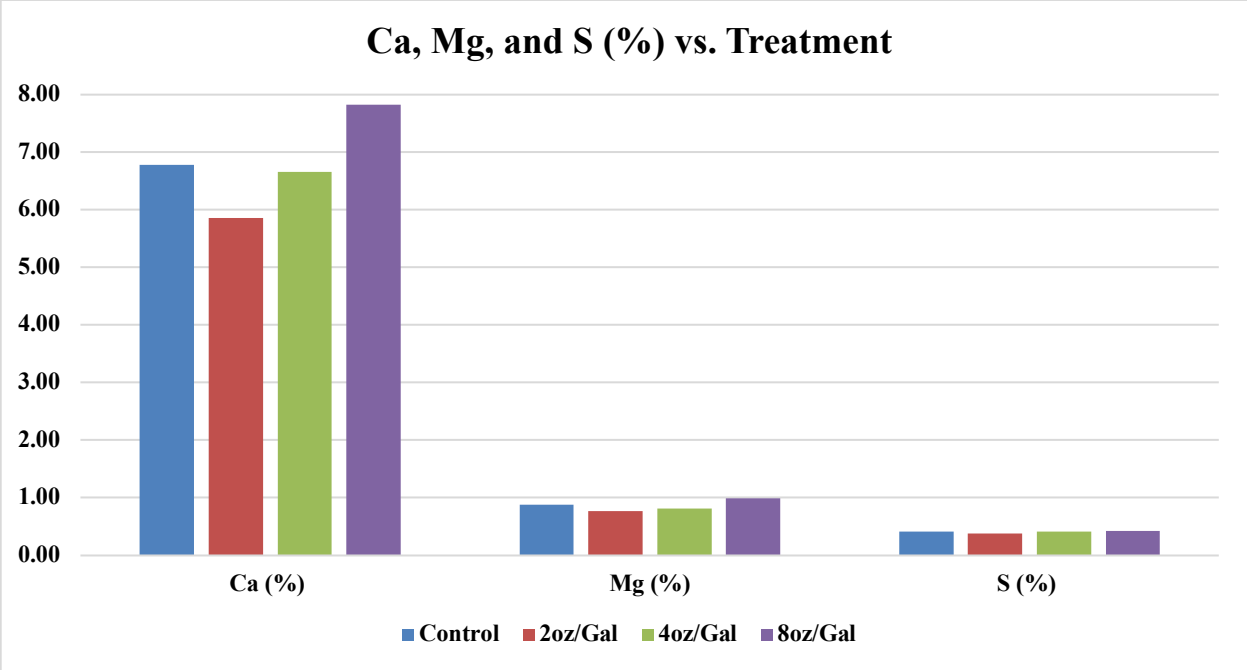


FIGURE 13. N, K, and P (%) vs. Treatment for Samples Collected on 5/17/22.



Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022
Project Title: EVE-pn Efficacy Cannabis Growth Trial

FIGURE 14. Ca, Mg, and S (%) vs. Treatment for Samples Collected on 5/17/22.

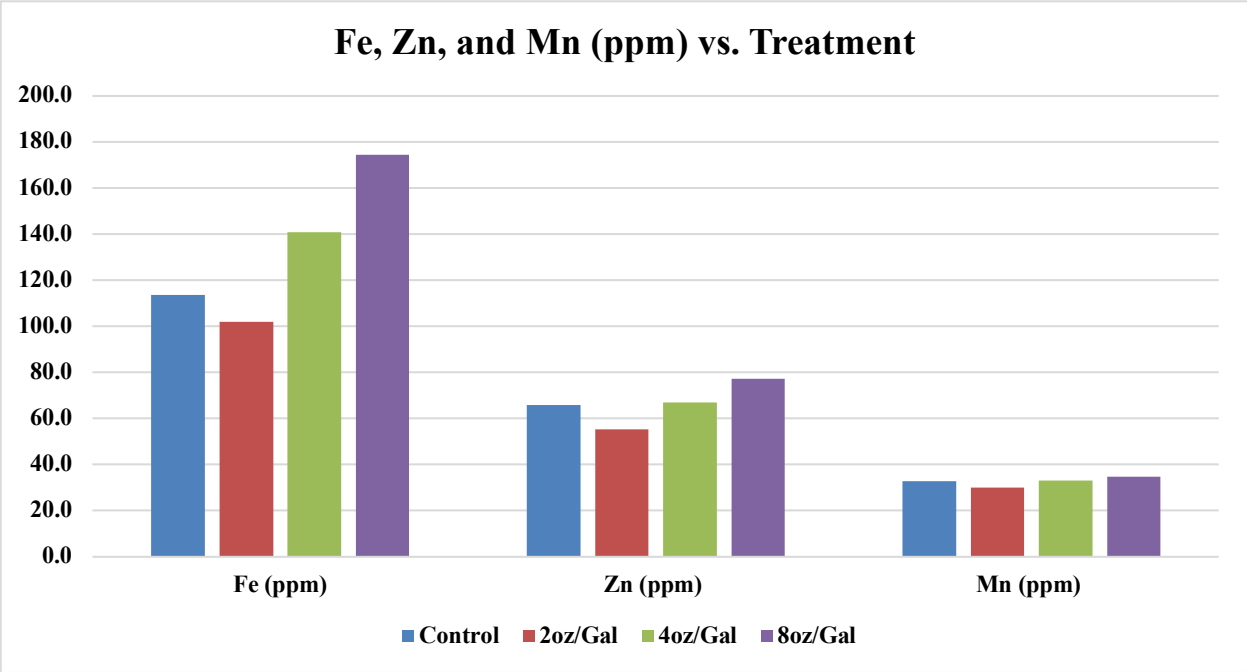


FIGURE 15. Fe, Zn, and Mn (ppm) vs. Treatment for Samples Collected on 5/17/22.

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Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

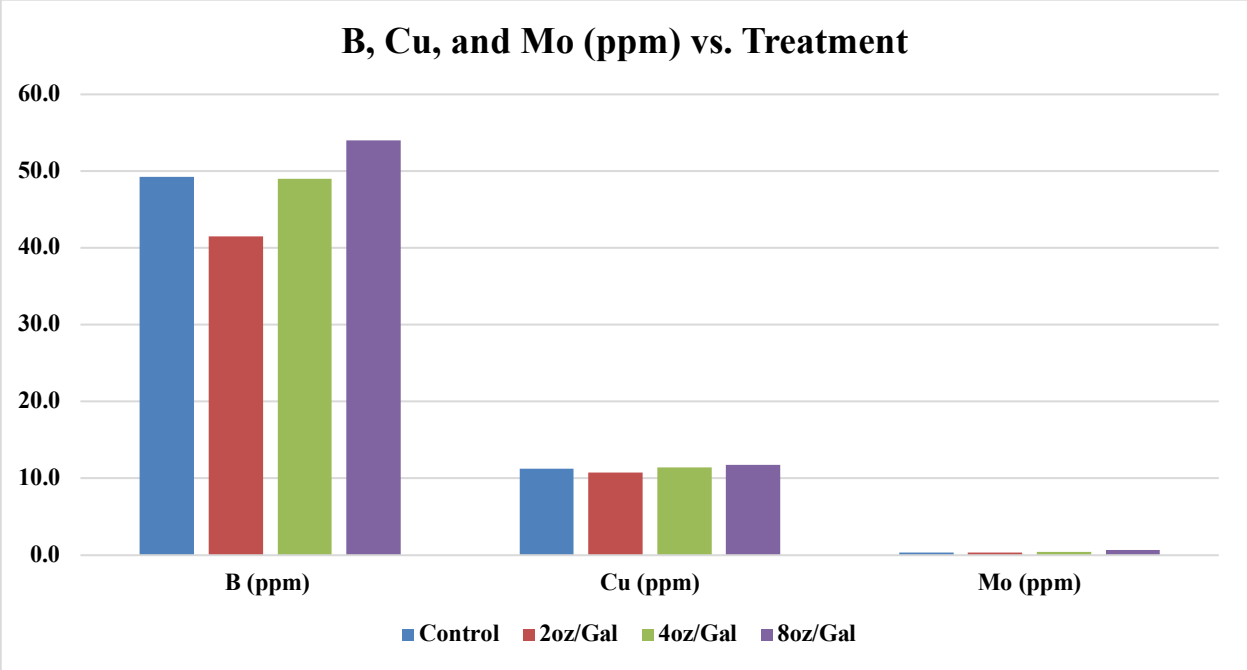
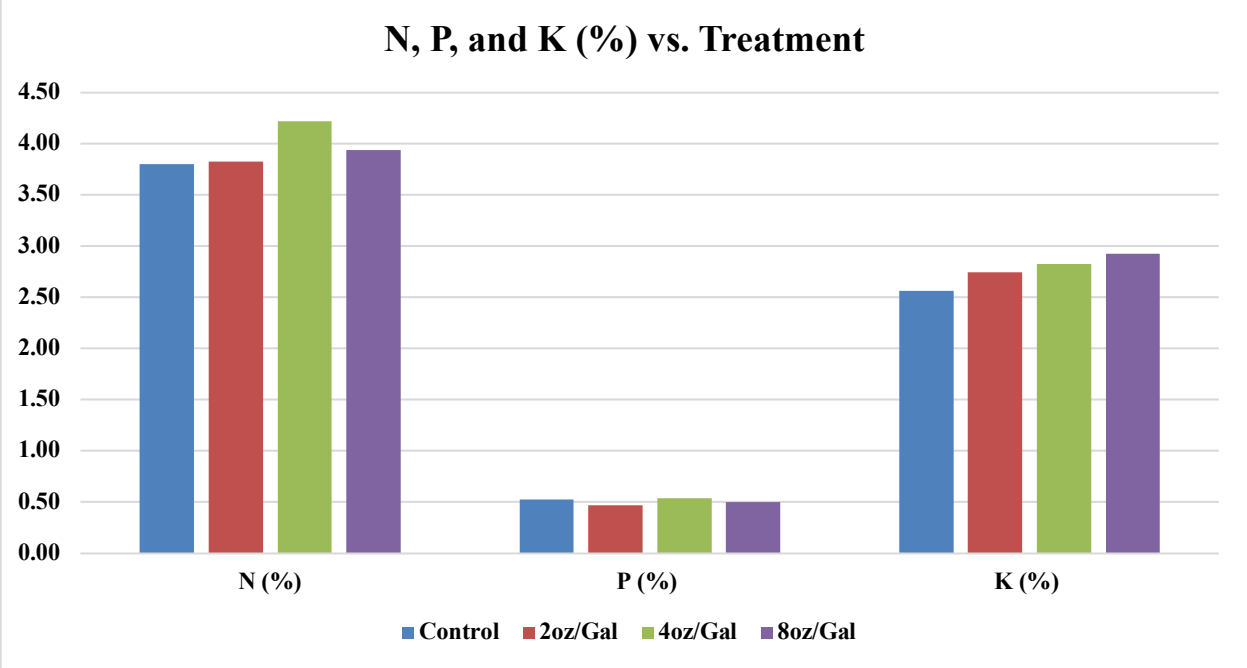


FIGURE 16. B, Cu, and Mo (ppm) vs. Treatment for Samples Collected on 5/17/22.



Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022
Project Title: EVE-pn Efficacy Cannabis Growth Trial

FIGURE 17. N, K, and P (%) vs. Treatment for Samples Collected on 5/23/22.

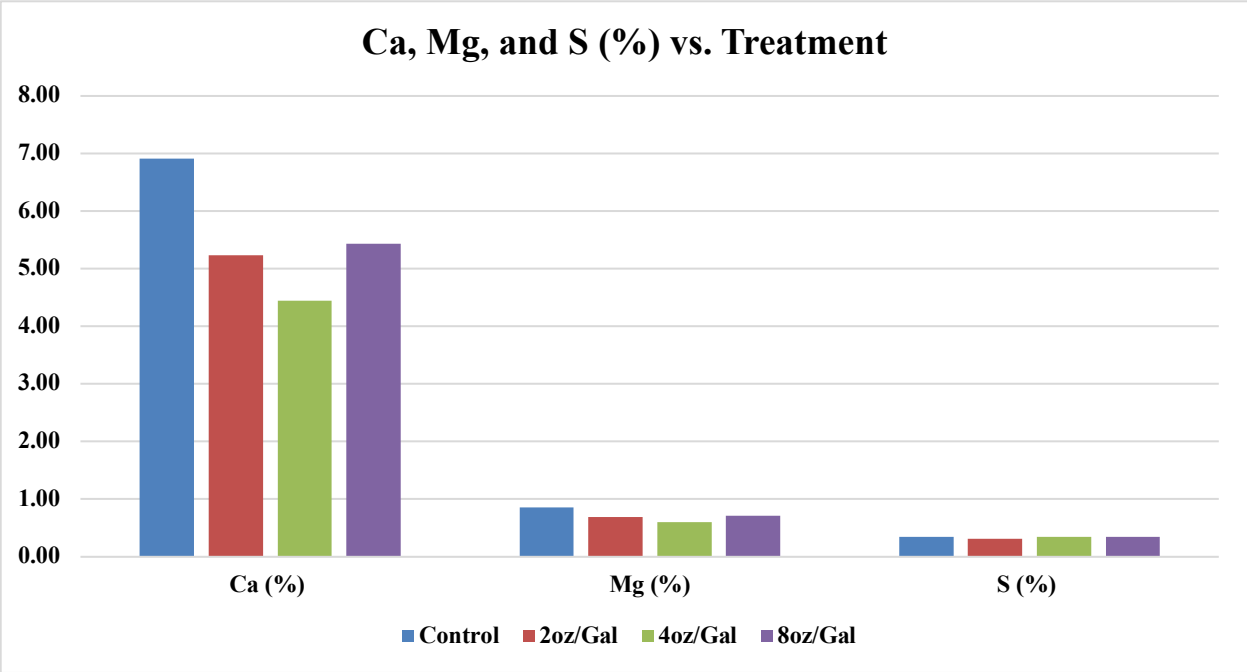


FIGURE 18. Ca, Mg, and S (%) vs. Treatment for Samples Collected on 5/23/22.

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Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

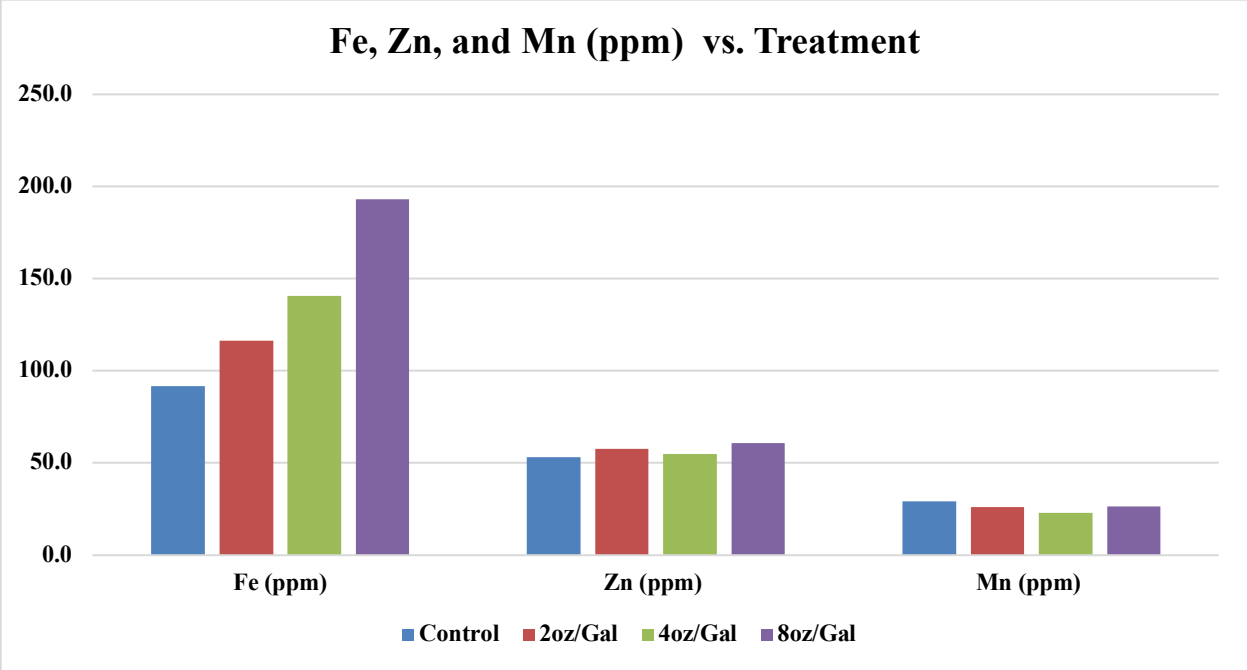
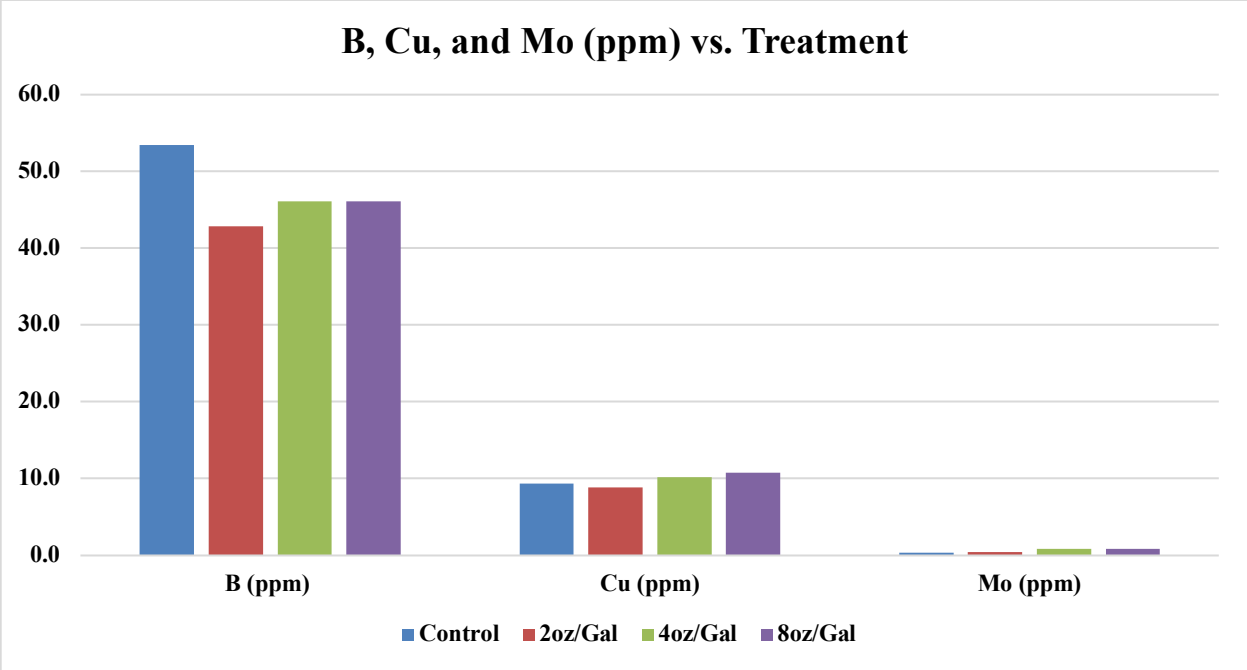


FIGURE 19. Fe, Zn, and Mn (ppm) vs. Treatment for Samples Collected on 5/23/22.



Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022
Project Title: EVE-pn Efficacy Cannabis Growth Trial

FIGURE 20. B, Cu, and Mo (ppm) vs. Treatment for Samples Collected on 5/23/22.

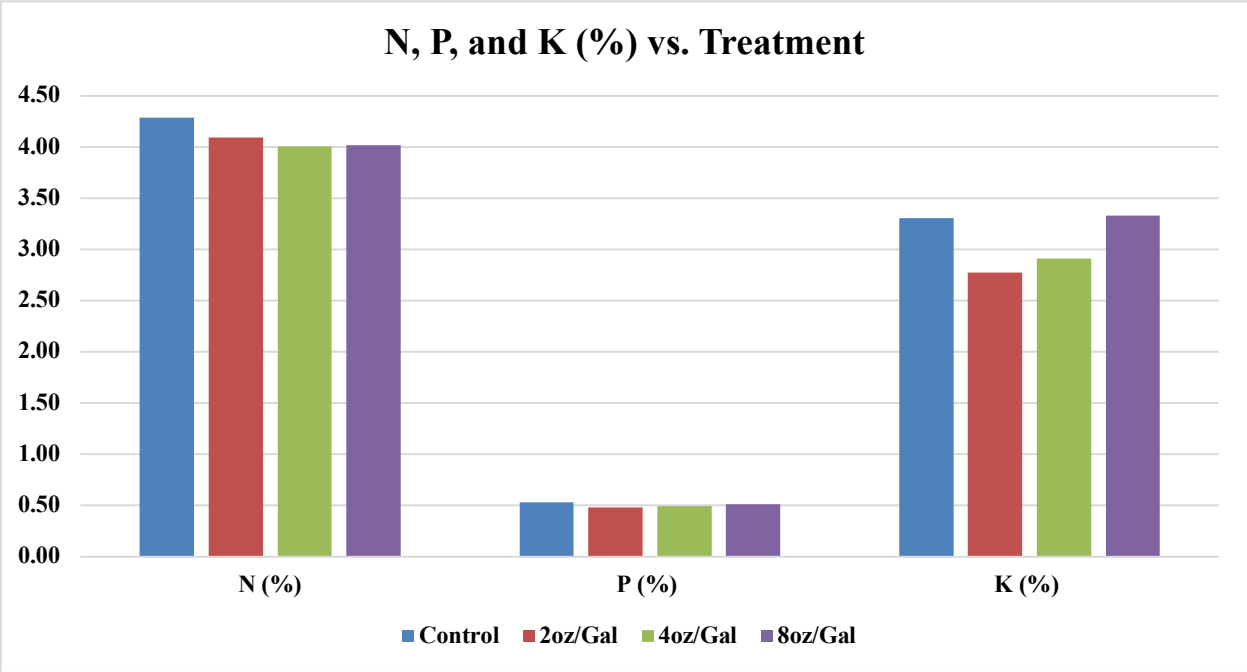


FIGURE 21. N, K, and P (%) vs. Treatment for Samples Collected on 6/2/22.

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Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

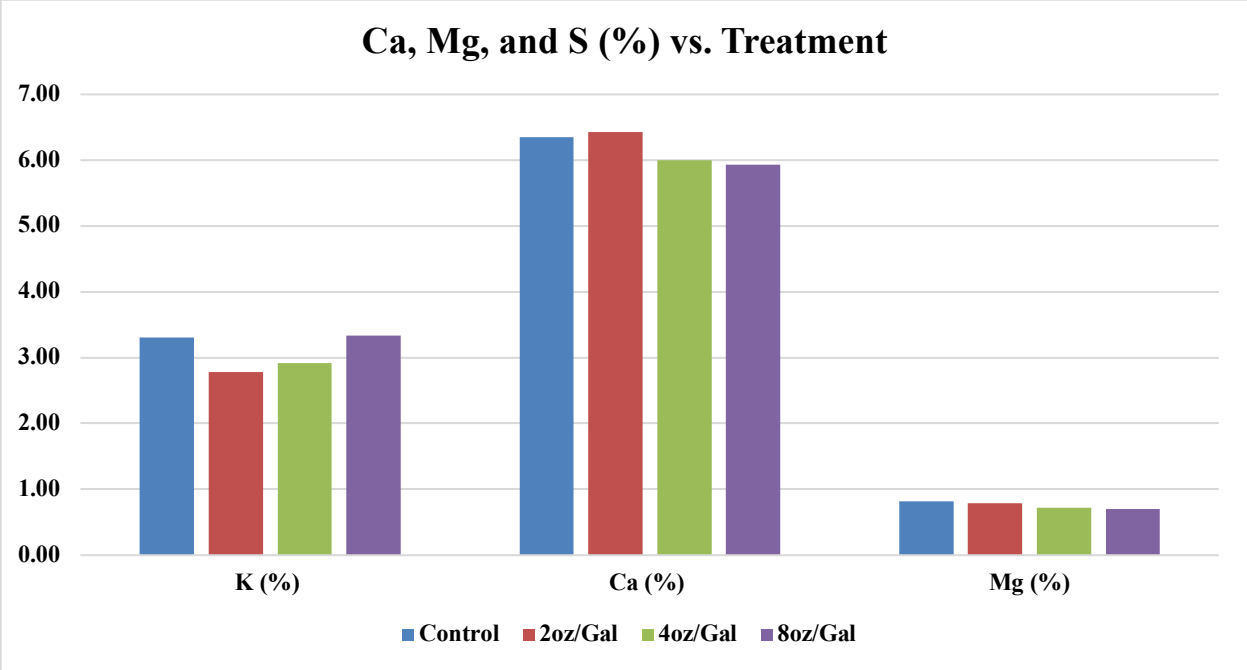
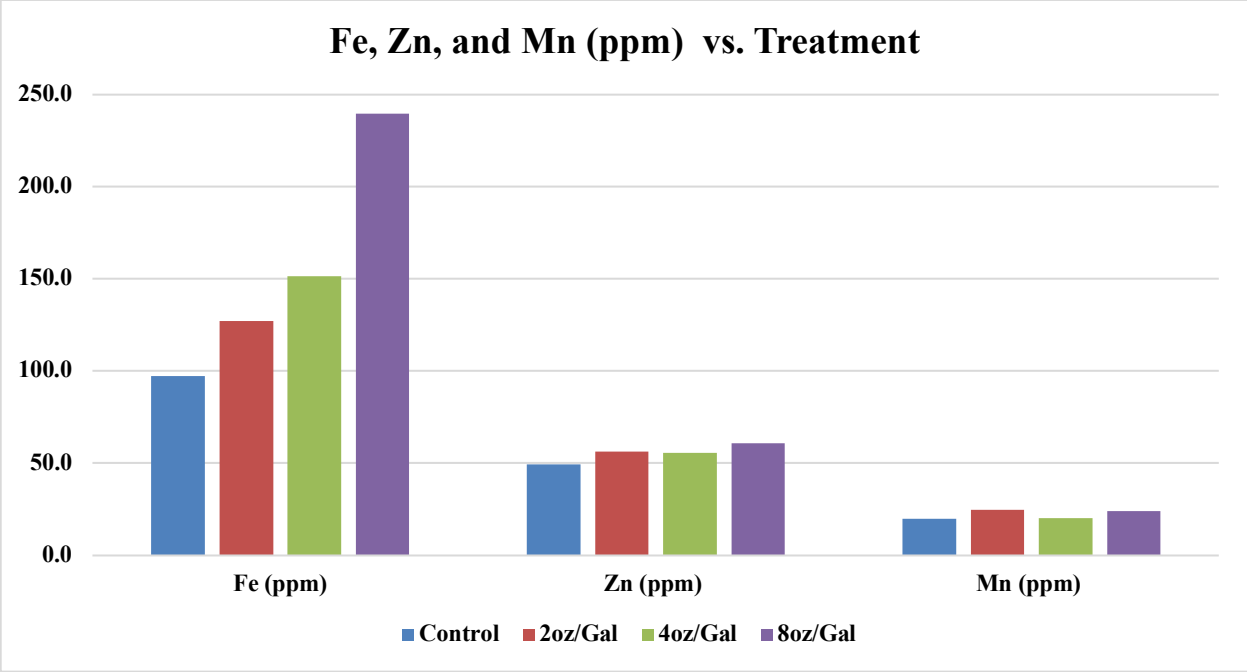


FIGURE 22. Ca, Mg, and S (%) vs. Treatment for Samples Collected on 6/2/22.



Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022
Project Title: EVE-pn Efficacy Cannabis Growth Trial

FIGURE 23. Fe, Zn, and Mn (ppm) vs. Treatment for Samples Collected on 6/2/22.

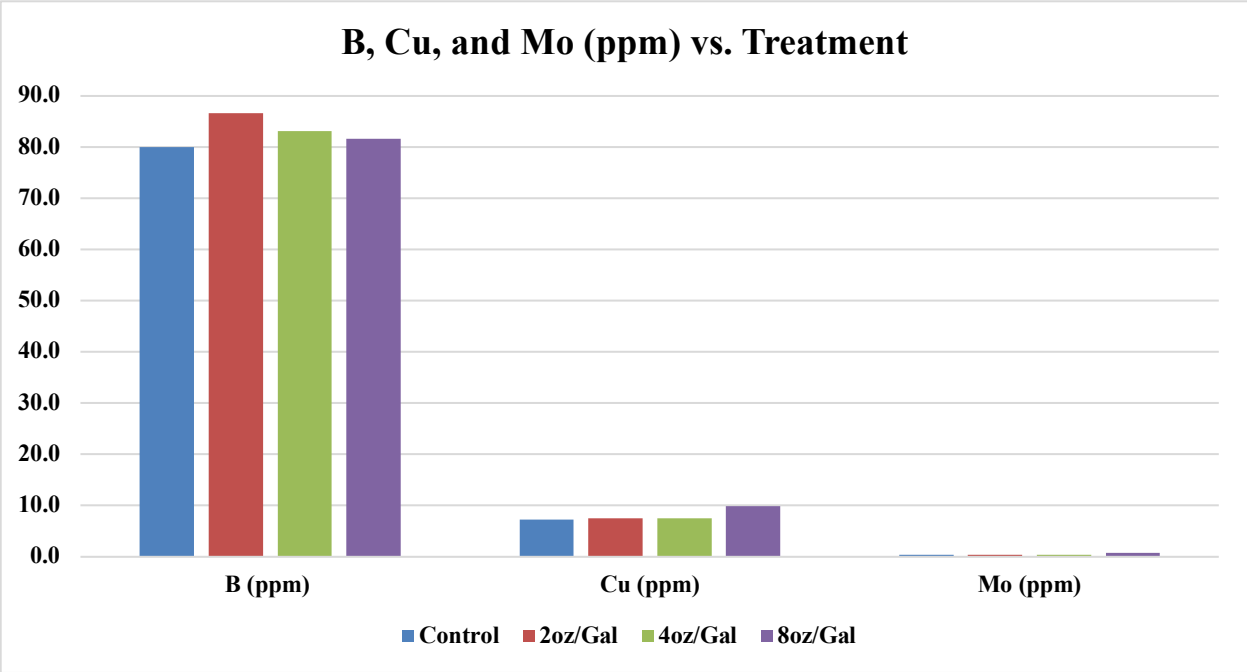


FIGURE 24. B, Cu, and Mo (ppm) vs. Treatment for Samples Collected on 6/2/22.

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Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

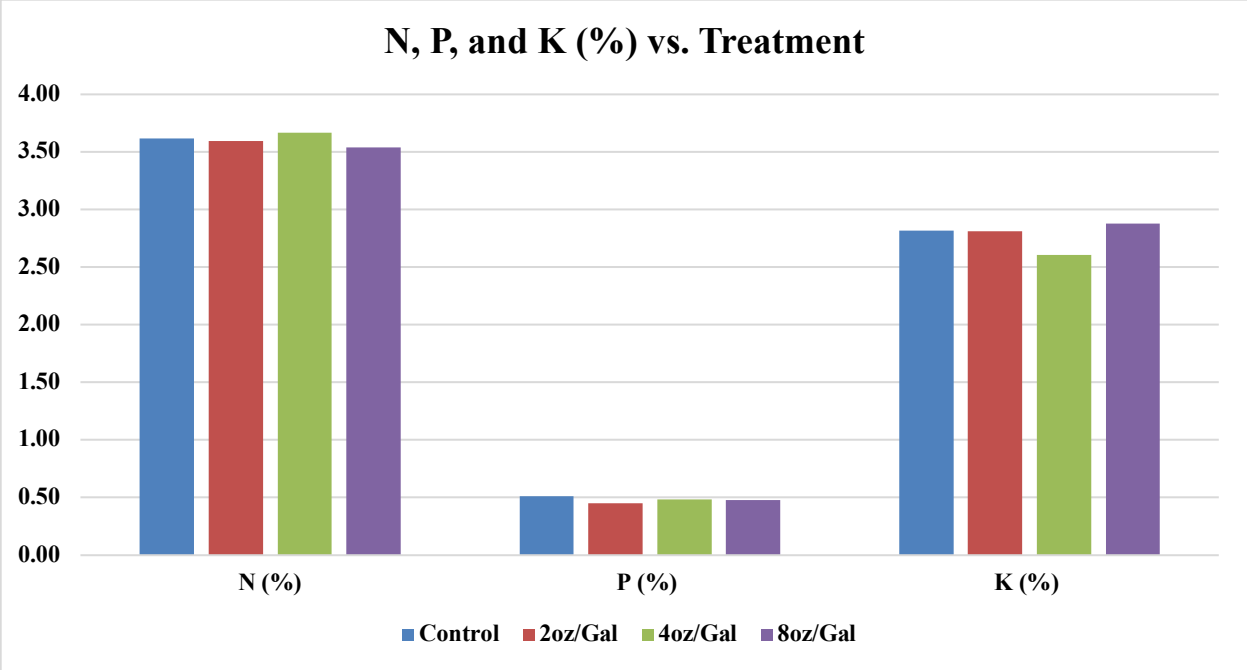
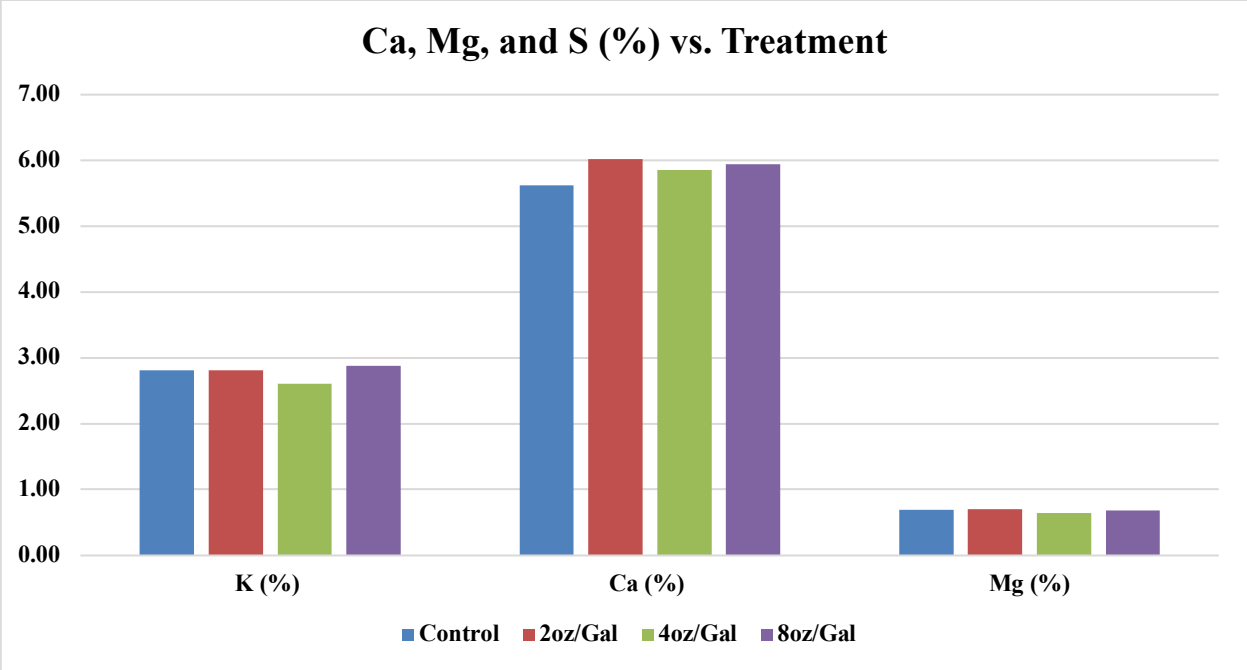


FIGURE 25. N, K, and P (%) vs. Treatment for Samples Collected on 6/8/22.



Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022
Project Title: EVE-pn Efficacy Cannabis Growth Trial

FIGURE 26. Ca, Mg, and S (%) vs. Treatment for Samples Collected on 6/8/22.

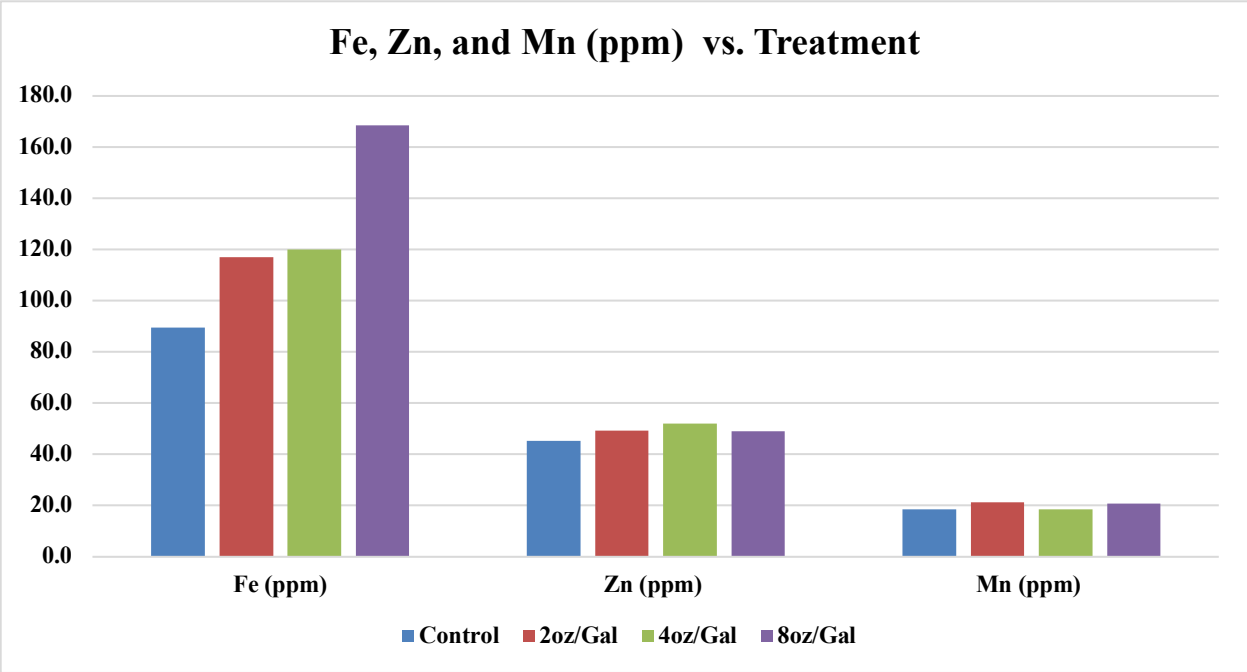


FIGURE 27. Fe, Zn, and Mn (ppm) vs. Treatment for Samples Collected on 6/8/22.

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Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

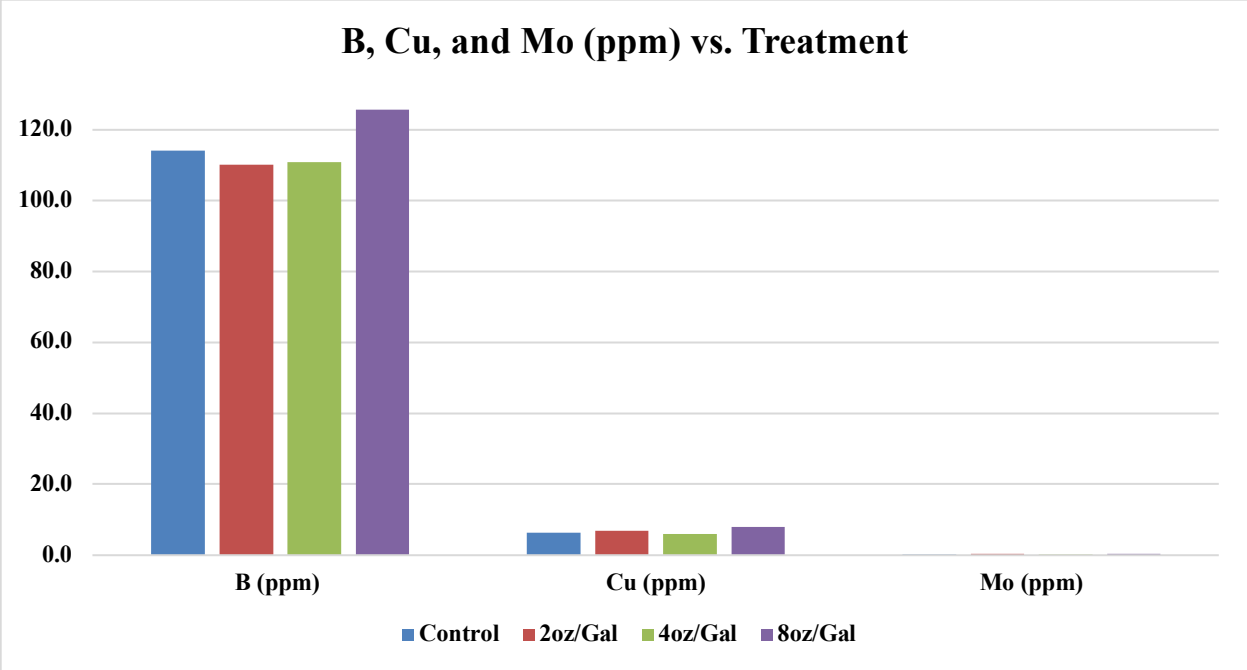
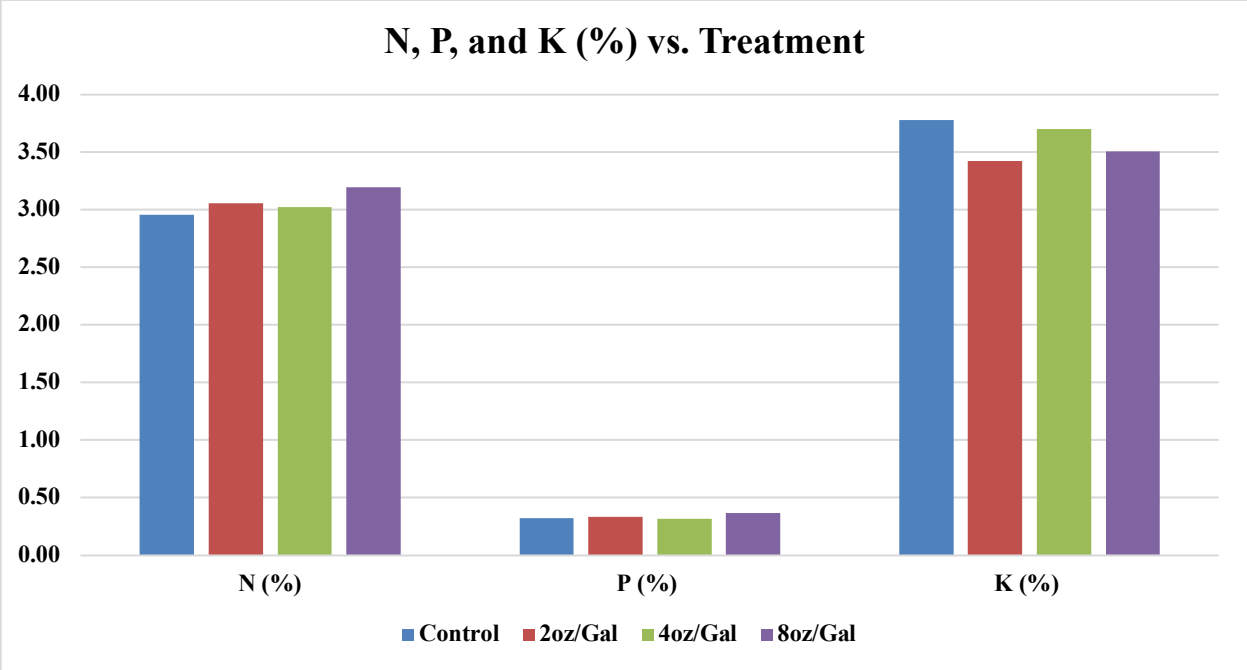


FIGURE 28. B, Cu, and Mo (ppm) vs. Treatment for Samples Collected on 6/8/22.



Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022
Project Title: EVE-pn Efficacy Cannabis Growth Trial

FIGURE 29. N, K, and P (%) vs. Treatment for Samples Collected on 6/14/22.

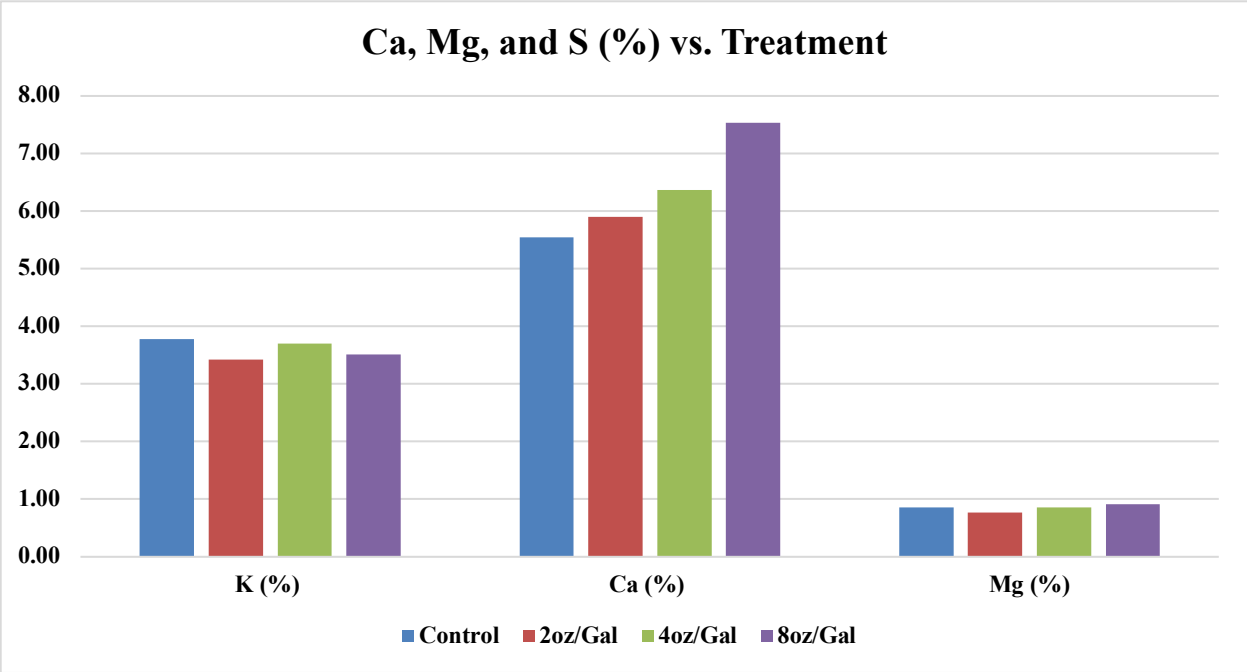


FIGURE 30. Ca, Mg, and S (%) vs. Treatment for Samples Collected on 6/14/22.

Arvum Plant Labs Project Report Form

Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

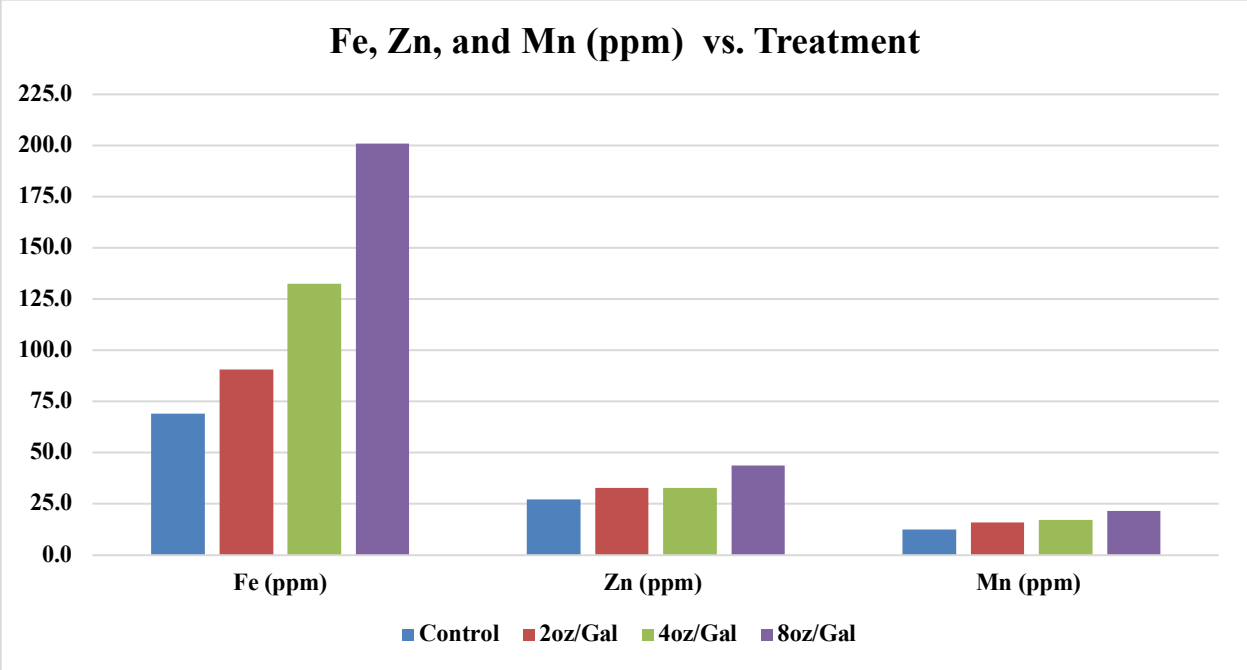
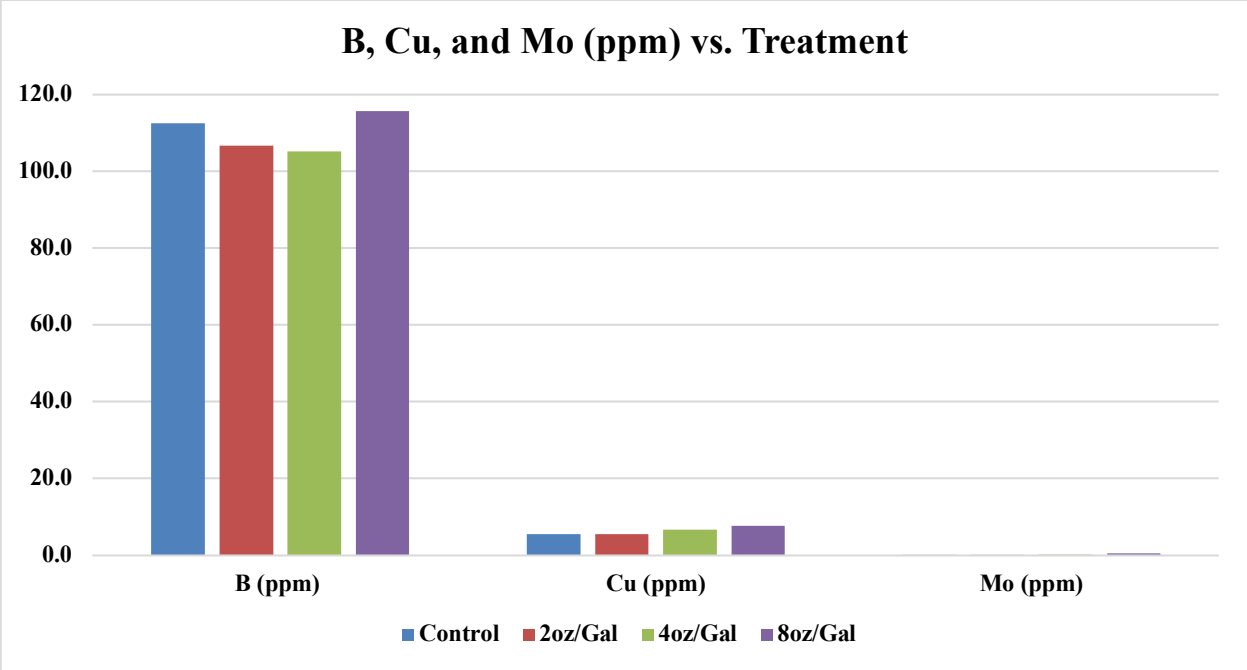


FIGURE 31. Fe, Zn, and Mn (ppm) vs. Treatment for Samples Collected on 6/14/22.



Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022
Project Title: EVE-pn Efficacy Cannabis Growth Trial

FIGURE 32. B, Cu, and Mo (ppm) vs. Treatment for Samples Collected on 6/14/22.

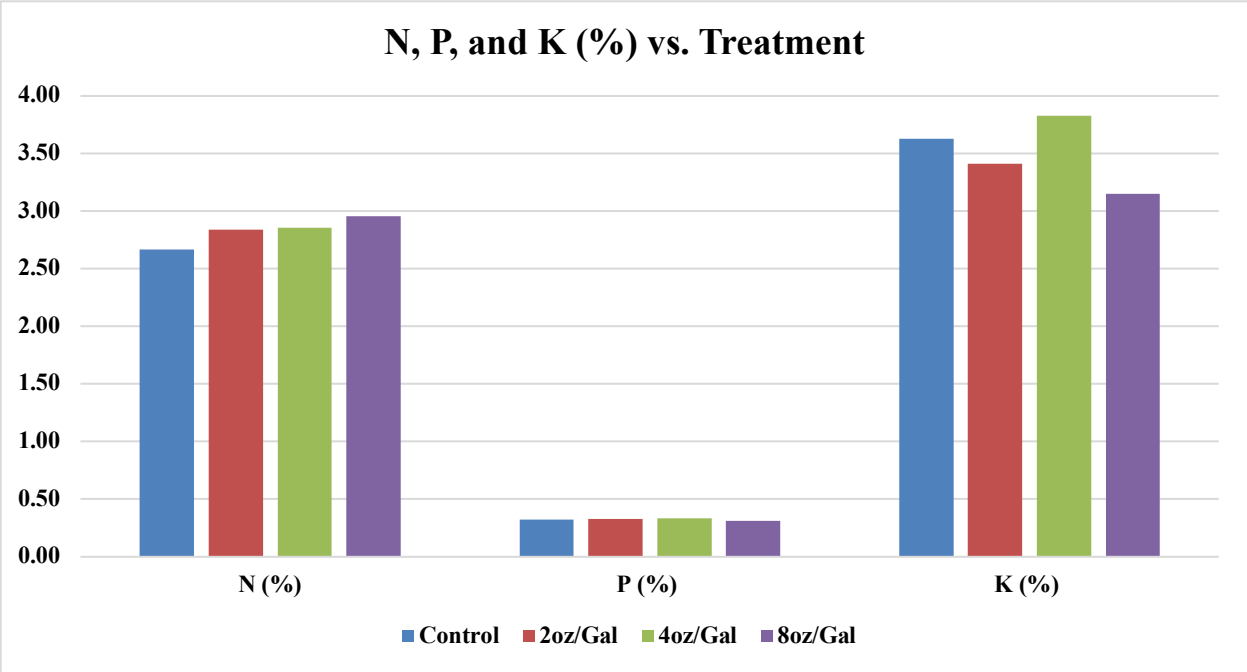


FIGURE 33. N, K, and P (%) vs. Treatment for Samples Collected on 6/22/22.

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Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

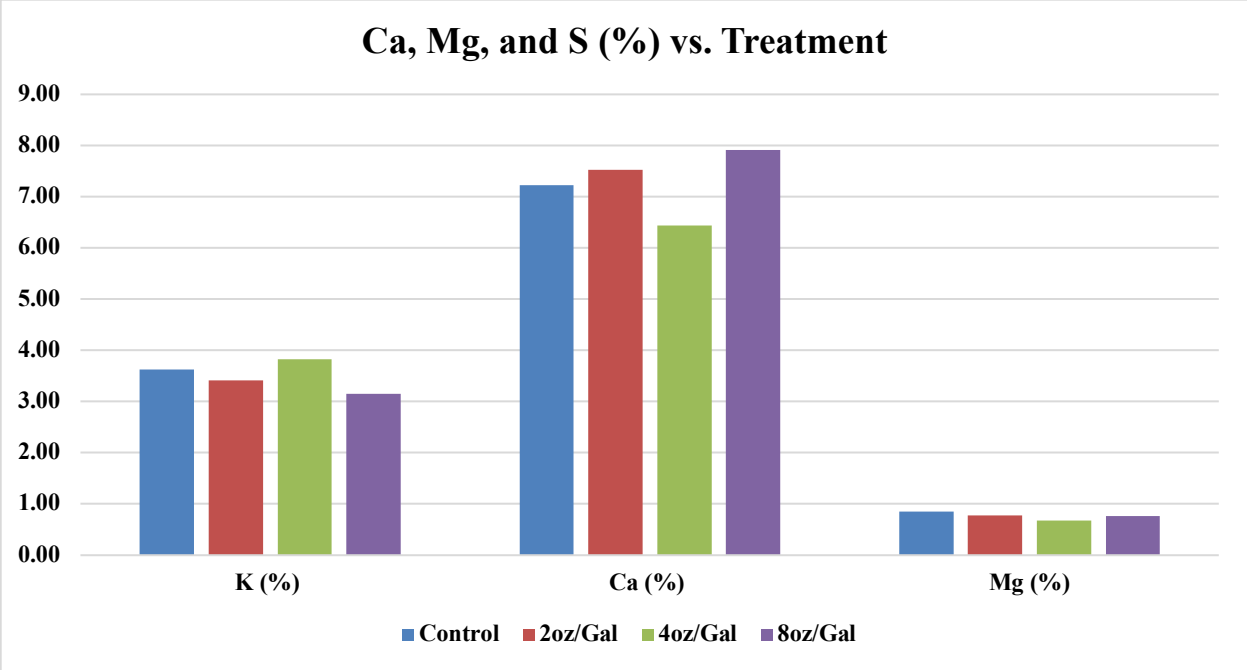
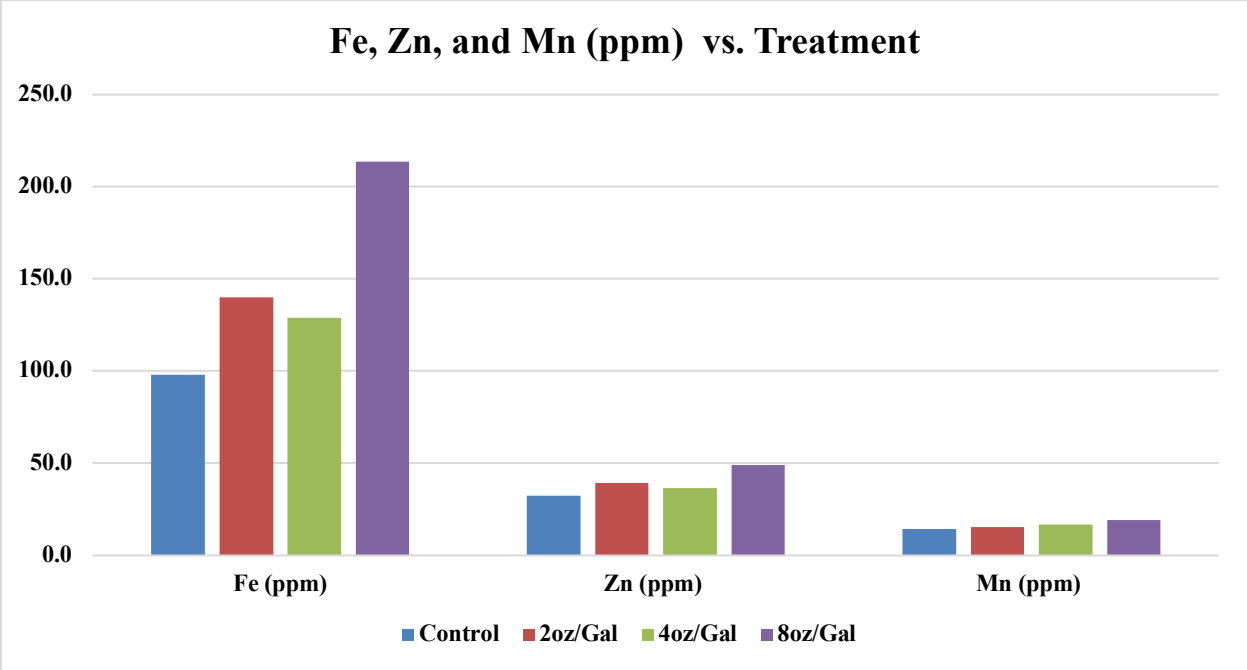


FIGURE 34. Ca, Mg, and S (%) vs. Treatment for Samples Collected on 6/22/22.



Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022
Project Title: EVE-pn Efficacy Cannabis Growth Trial

FIGURE 35. Fe, Zn, and Mn (ppm) vs. Treatment for Samples Collected on 6/22/22.

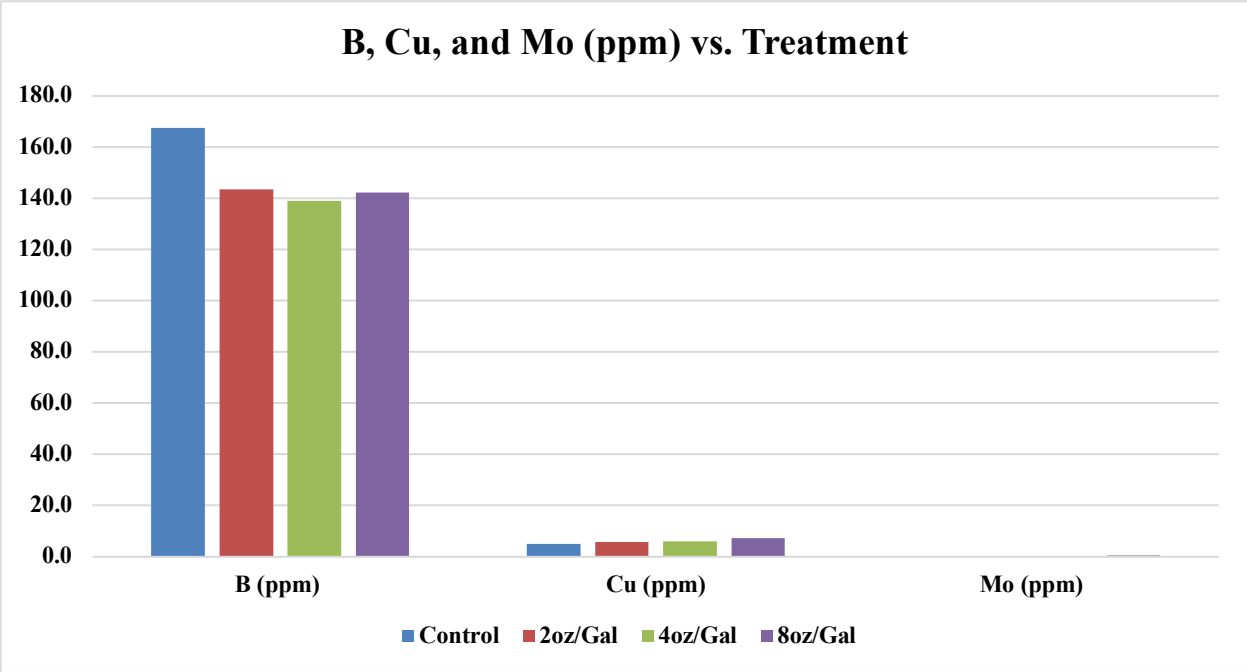


FIGURE 36. B, Cu, and Mo (ppm) vs. Treatment for Samples Collected on 6/22/22.

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Researcher(s): Adam Floyd and Josh Cosgrove **Date:** 8/19/2022

Project Title: EVE-pn Efficacy Cannabis Growth Trial

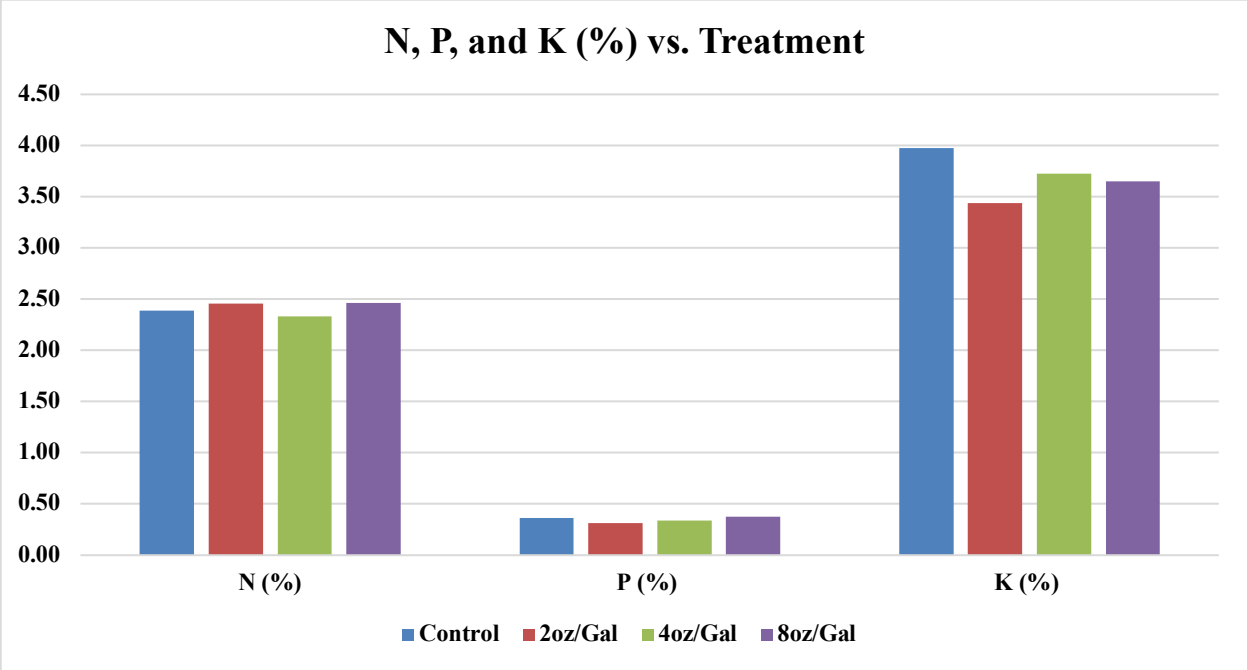

FIGURE 37. N, K, and P (%) vs. Treatment for Samples Collected on 7/1/22.

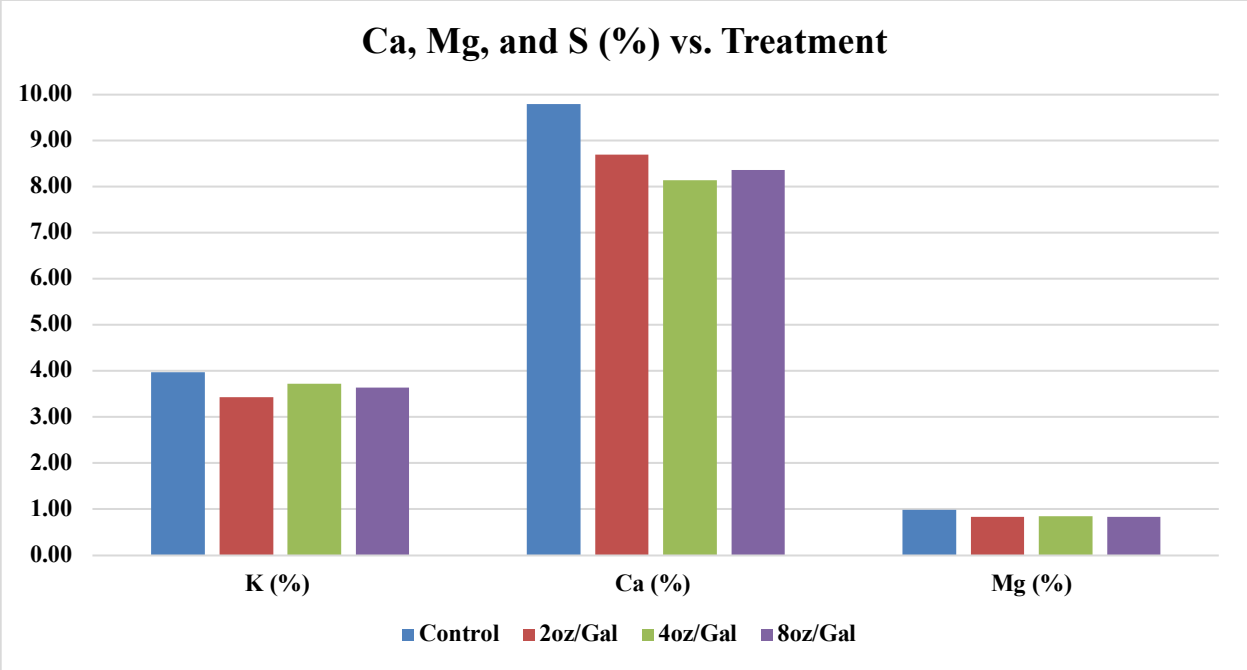

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FIGURE 38. Ca, Mg, and S (%) vs. Treatment for Samples Collected on 7/1/22.

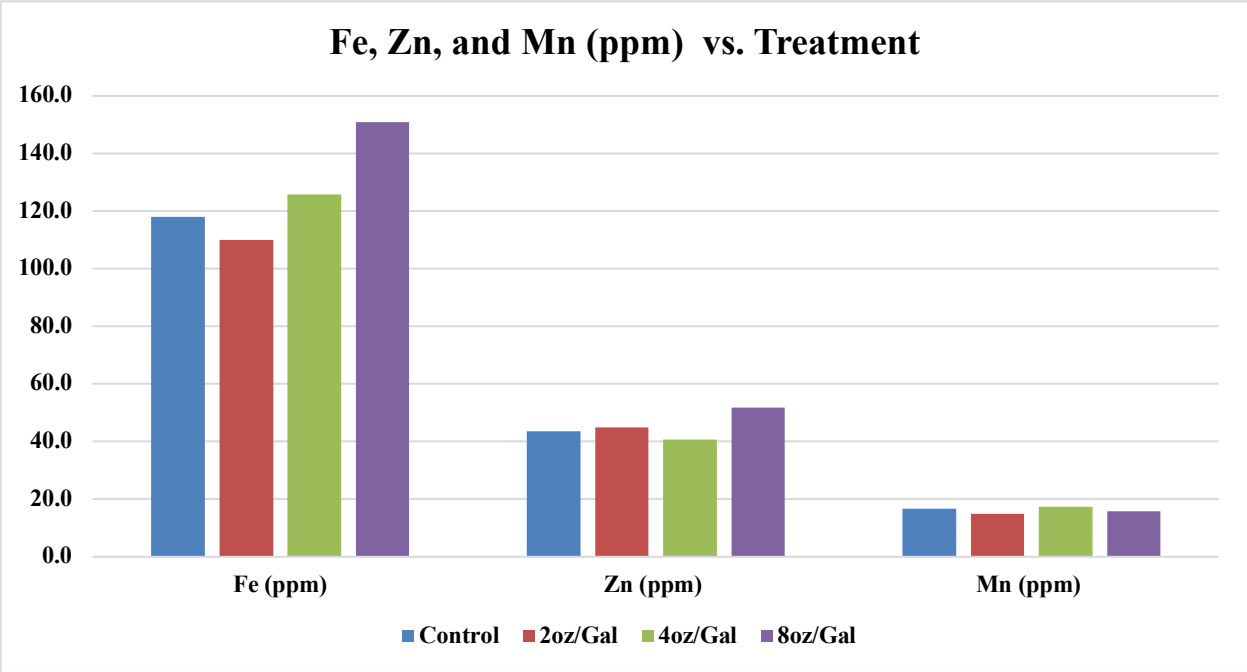

FIGURE 39. Fe, Zn, and Mn (ppm) vs. Treatment for Samples Collected on 7/1/22.

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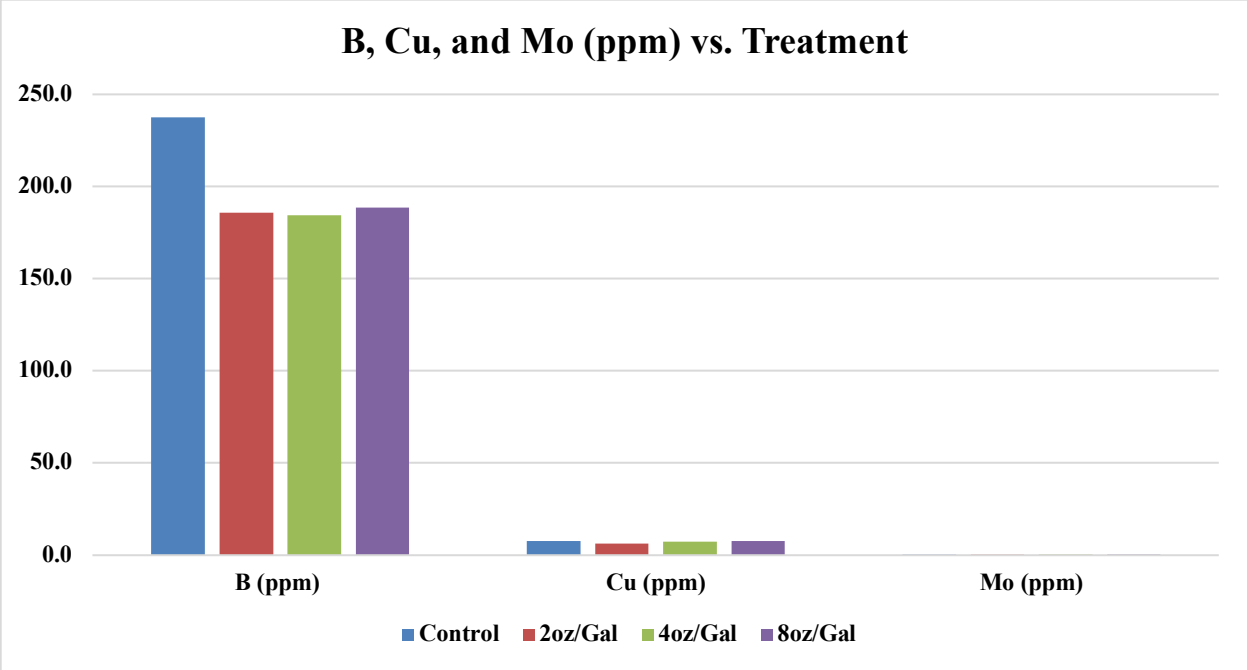

FIGURE 40. B, Cu, and Mo (ppm) vs. Treatment for Samples Collected on 7/1/22.

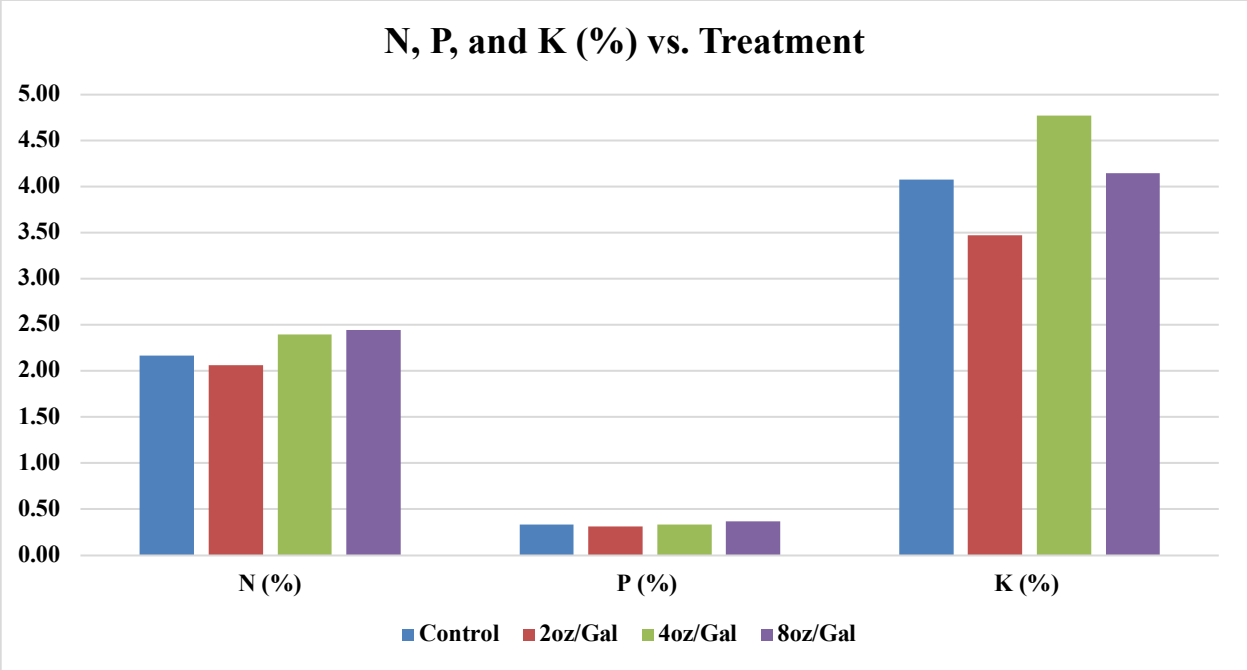

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FIGURE 41. N, K, and P (%) vs. Treatment for Samples Collected on 7/5/22.

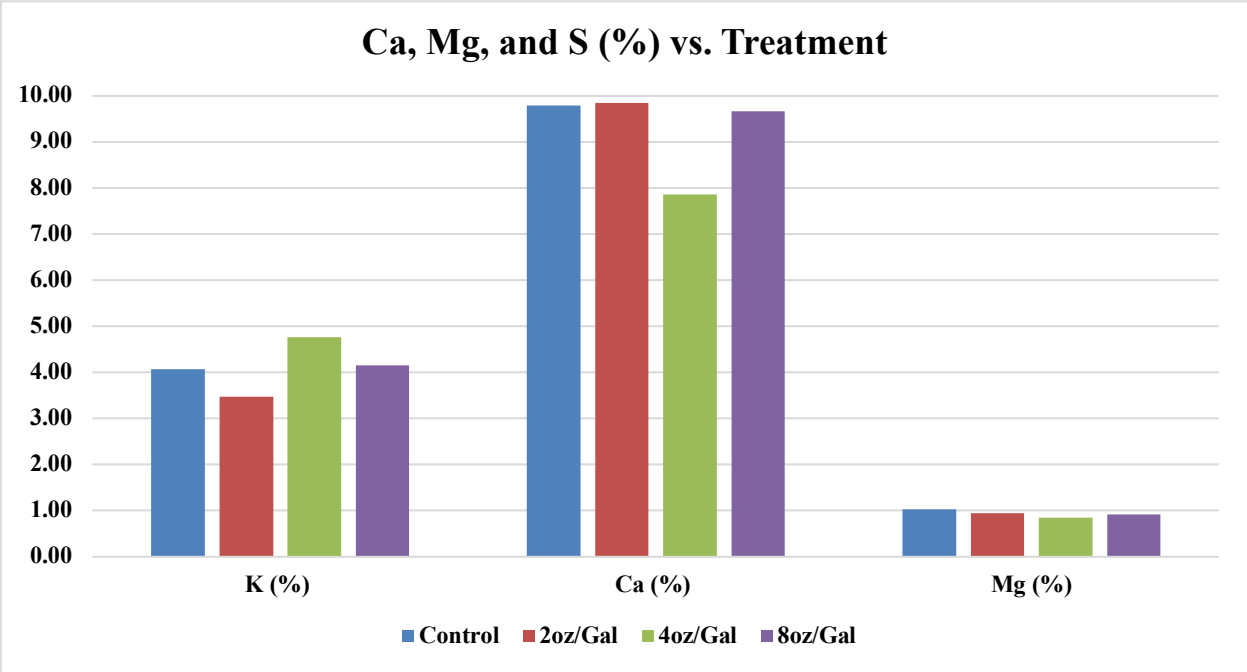

FIGURE 42. Ca, Mg, and S (%) vs. Treatment for Samples Collected on 7/5/22.

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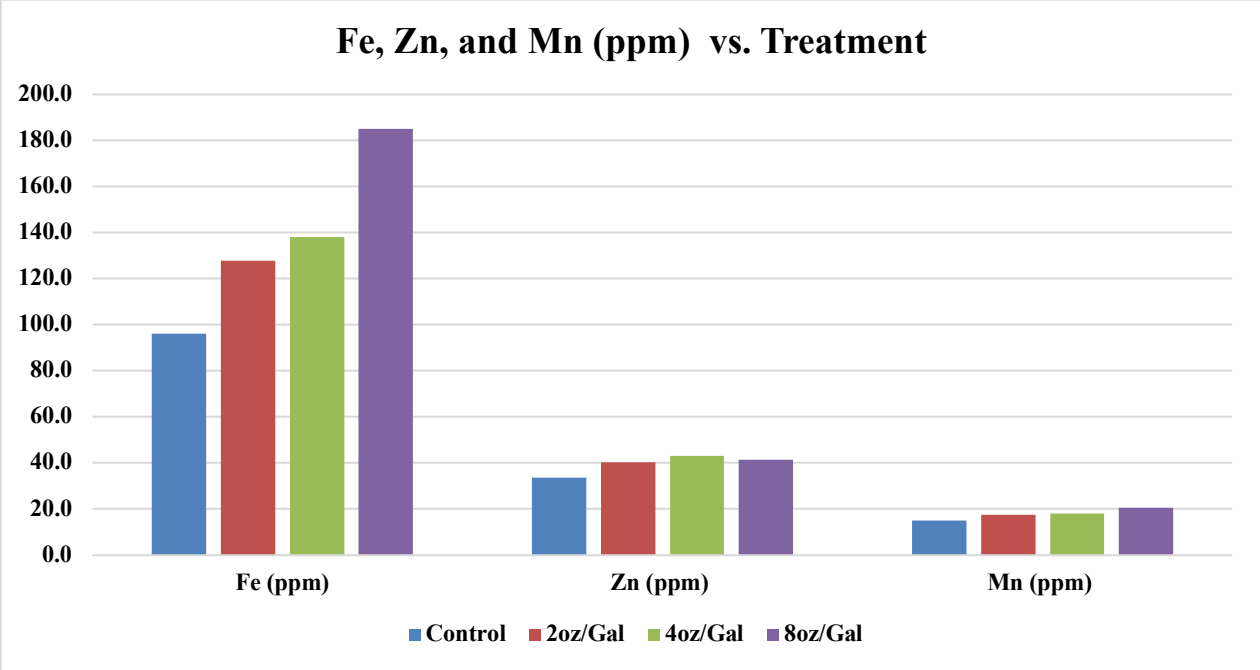

FIGURE 43. Fe, Zn, and Mn (ppm) vs. Treatment for Samples Collected on 7/5/22.

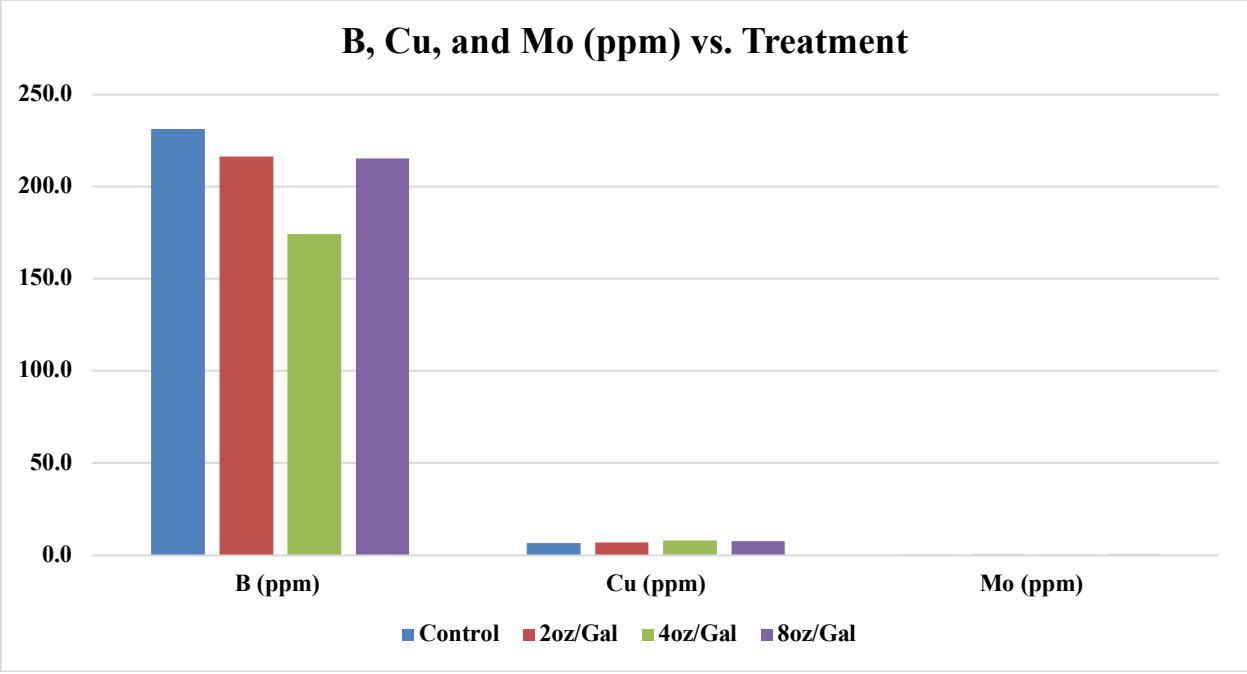

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FIGURE 44. B, Cu, and Mo (ppm) vs. Treatment for Samples Collected on 7/5/22.

TABLE 13. Nitrogen (%) Determined in Control and Treatments for all Samples Collected.

Collection Date	Nitrogen (%)			
	Control	2oz/Gal	4oz/Gal	8oz/Gal
4/26/22	5.56	5.22	5.22	5.68
5/3/22	5.14	5.15	5.39	5.41
5/10/22	5.43	5.99	5.43	5.58
5/17/22	5.09	5.13	5.08	5.14
5/23/22	3.80	3.83	4.22	3.94
6/2/22	4.29	4.10	4.01	4.02
6/8/22	3.62	3.59	3.67	3.54
6/14/22	2.96	3.06	3.02	3.19
6/22/22	2.67	2.84	2.86	2.96
7/1/22	2.39	2.46	2.33	2.46
7/5/22	2.17	2.07	2.39	2.44

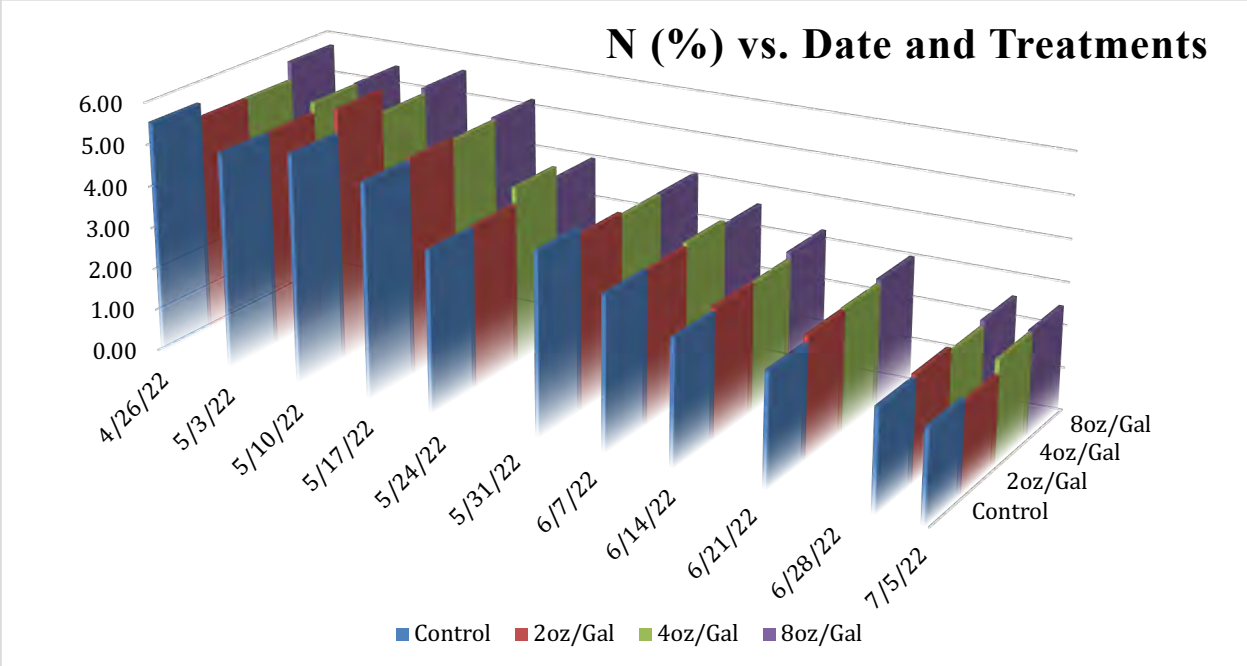

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FIGURE 45. Nitrogen (%) vs. Collection Date and Treatments for all Samples Collected.

TABLE 14. Potassium (%) Determined in Control and Treatments for all Samples Collected.

Collection Date	Potassium (%)			
	Control	2oz/Gal	4oz/Gal	8oz/Gal
4/26/22	2.81	2.98	2.86	3.01
5/3/22	2.70	2.51	3.00	2.85
5/10/22	2.76	2.56	2.84	2.76
5/17/22	2.68	2.88	2.74	3.00
5/23/22	2.57	2.74	2.83	2.92
6/2/22	3.31	2.78	2.92	3.33
6/8/22	2.82	2.81	2.61	2.88
6/14/22	3.78	3.42	3.70	3.51
6/22/22	3.63	3.41	3.83	3.15
7/1/22	3.97	3.44	3.73	3.65
7/5/22	4.08	3.47	4.77	4.15

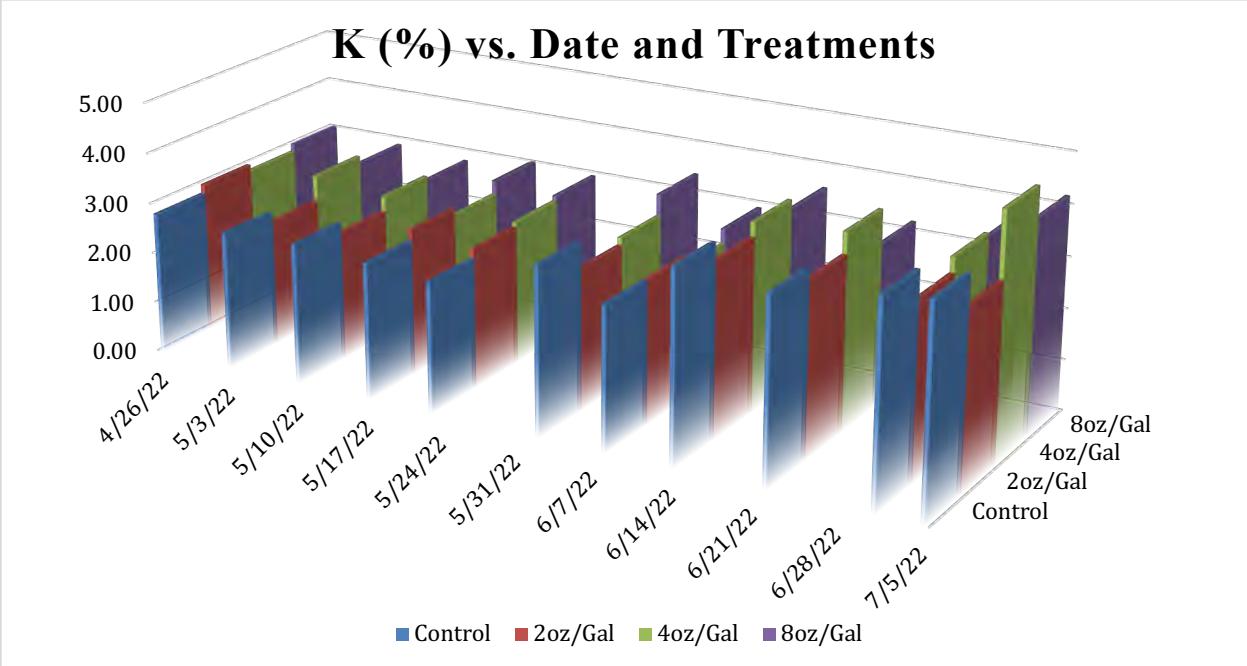

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FIGURE 45. Potassium (%) vs. Collection Date and Treatments for all Samples Collected.

TABLE 15. Phosphorus (%) Determined in Control and Treatments for all Samples Collected.

	Phosphorus (%)			
Collection Date	Control	2oz/Gal	4oz/Gal	8oz/Gal
4/26/22	0.714	0.681	0.657	0.725
5/3/22	0.568	0.542	0.558	0.567
5/10/22	0.654	0.609	0.611	0.621
5/17/22	0.593	0.571	0.592	0.579
5/23/22	0.525	0.474	0.539	0.504
6/2/22	0.531	0.485	0.492	0.512
6/8/22	0.510	0.449	0.485	0.479
6/14/22	0.322	0.336	0.320	0.370
6/22/22	0.322	0.329	0.336	0.314
7/1/22	0.361	0.316	0.340	0.377
7/5/22	0.333	0.314	0.332	0.371

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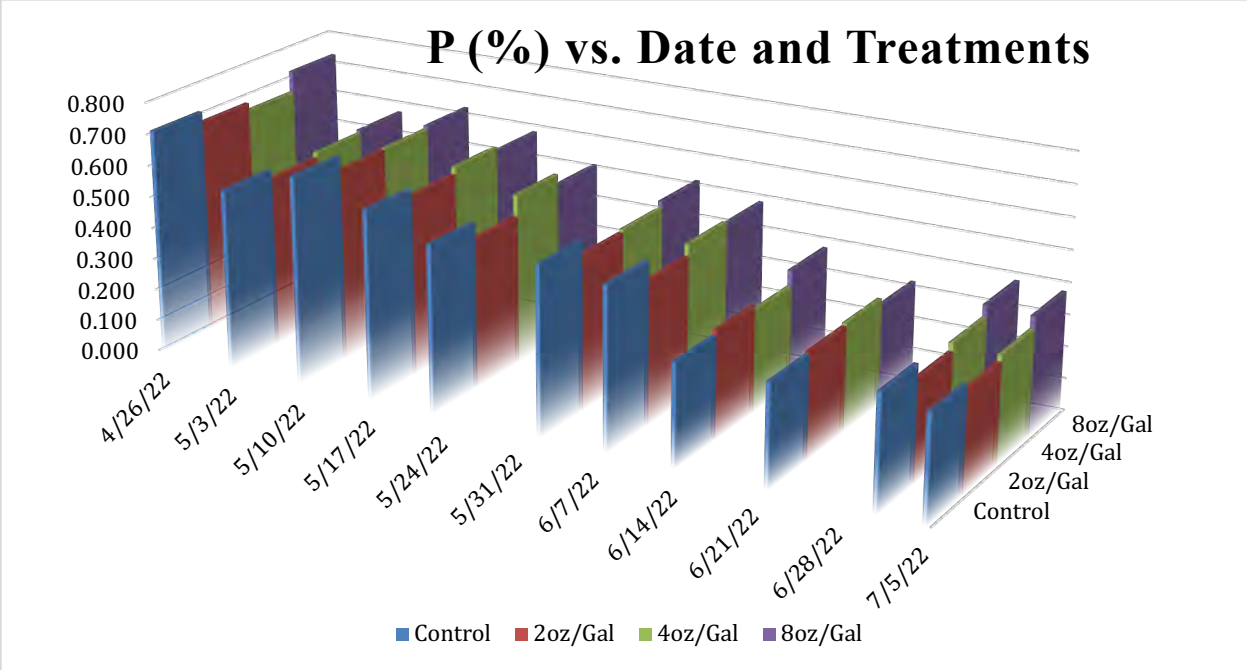

FIGURE 46. Phosphorus (%) vs. Collection Date and Treatments for all Samples Collected.

TABLE 16. Calcium (%) Determined in Control and Treatments for all Samples Collected.

	Calcium (%)			
Collection Date	**Control**	**2oz/Gal**	**4oz/Gal**	**8oz/Gal**
4/26/22	2.94	3.36	3.57	2.64
5/3/22	8.17	7.22	6.56	6.86
5/10/22	2.51	4.88	3.73	3.40
5/17/22	6.78	5.86	6.65	7.83
5/23/22	6.91	5.23	4.44	5.43
6/2/22	6.35	6.43	6.00	5.93
6/8/22	5.62	6.02	5.86	5.94
6/14/22	5.54	5.91	6.37	7.54
6/22/22	7.23	7.53	6.43	7.91
7/1/22	9.80	8.69	8.15	8.36
7/5/22	9.79	9.85	7.86	9.67

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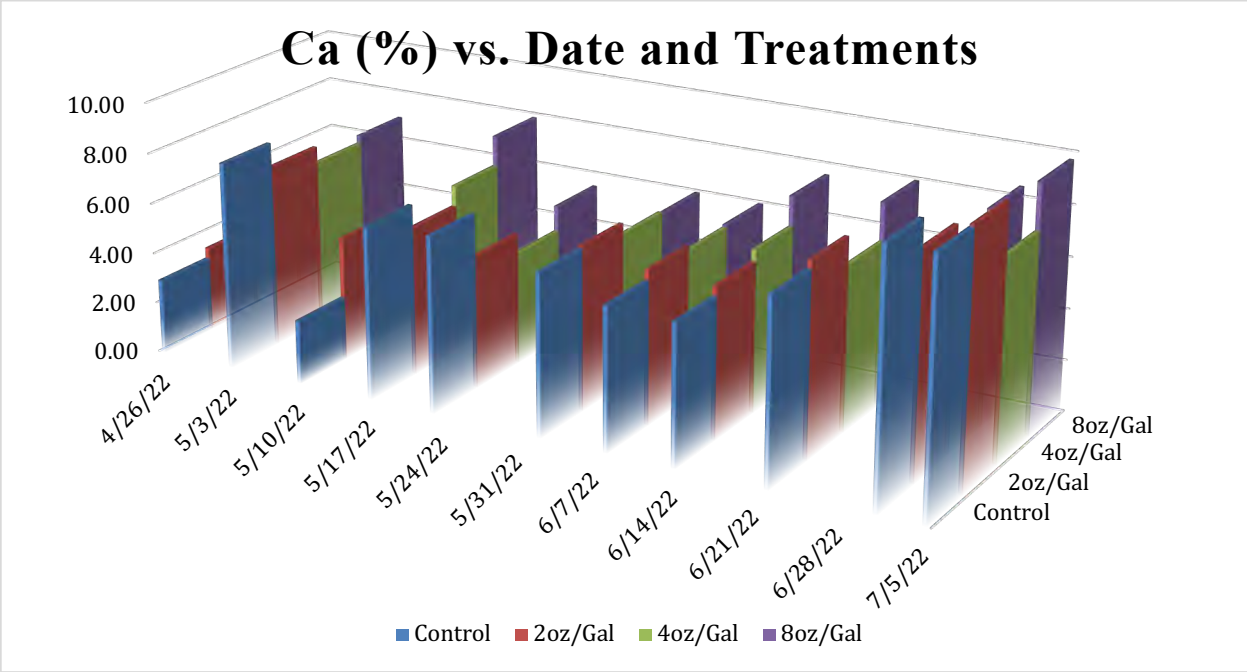

FIGURE 47. Calcium (%) vs. Collection Date and Treatments for all Samples Collected.

TABLE 17. Magnesium (%) Determined in Control and Treatments for all Samples Collected.

	Magnesium (%)			
Collection Date	Control	2oz/Gal	4oz/Gal	8oz/Gal
4/26/22	0.534	0.642	0.677	0.525
5/3/22	1.323	1.213	1.157	1.172
5/10/22	0.375	0.675	0.531	0.516
5/17/22	0.877	0.768	0.818	0.996
5/23/22	0.860	0.696	0.597	0.717
6/2/22	0.822	0.789	0.723	0.701
6/8/22	0.689	0.700	0.647	0.684
6/14/22	0.860	0.770	0.859	0.914
6/22/22	0.856	0.777	0.683	0.769
7/1/22	0.986	0.842	0.846	0.832

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7/5/22	1.027	0.952	0.849	0.914

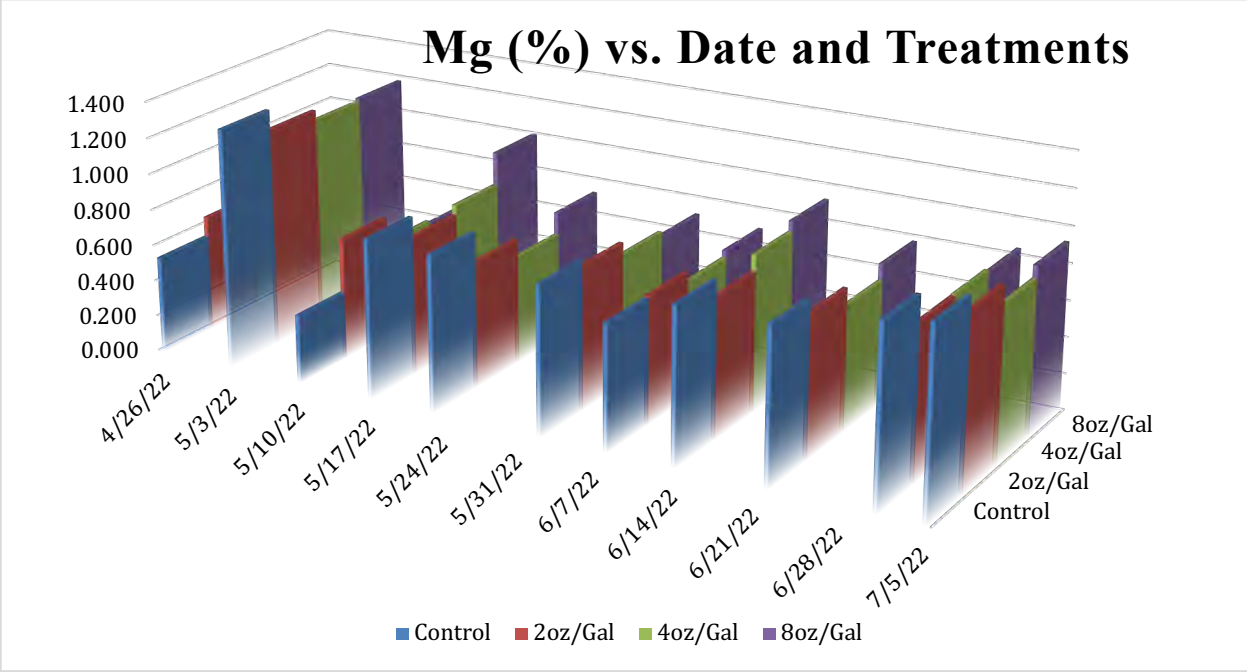

FIGURE 48. Magnesium (%) vs. Collection Date and Treatments for all Samples Collected.

TABLE 18. Sulfur (%) Determined in Control and Treatments for all Samples Collected.

	Sulfur (%)			
Collection Date	**Control**	**2oz/Gal**	**4oz/Gal**	**8oz/Gal**
4/26/22	0.572	0.513	0.515	0.570
5/3/22	0.557	0.545	0.583	0.562
5/10/22	0.409	0.464	0.424	0.443
5/17/22	0.419	0.385	0.414	0.431
5/23/22	0.351	0.312	0.345	0.349
6/2/22	0.316	0.309	0.287	0.315
6/8/22	0.303	0.293	0.290	0.297
6/14/22	0.244	0.238	0.260	0.289
6/22/22	0.261	0.250	0.261	0.275

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7/1/22	0.311	0.270	0.275	0.282
7/5/22	0.296	0.281	0.279	0.295

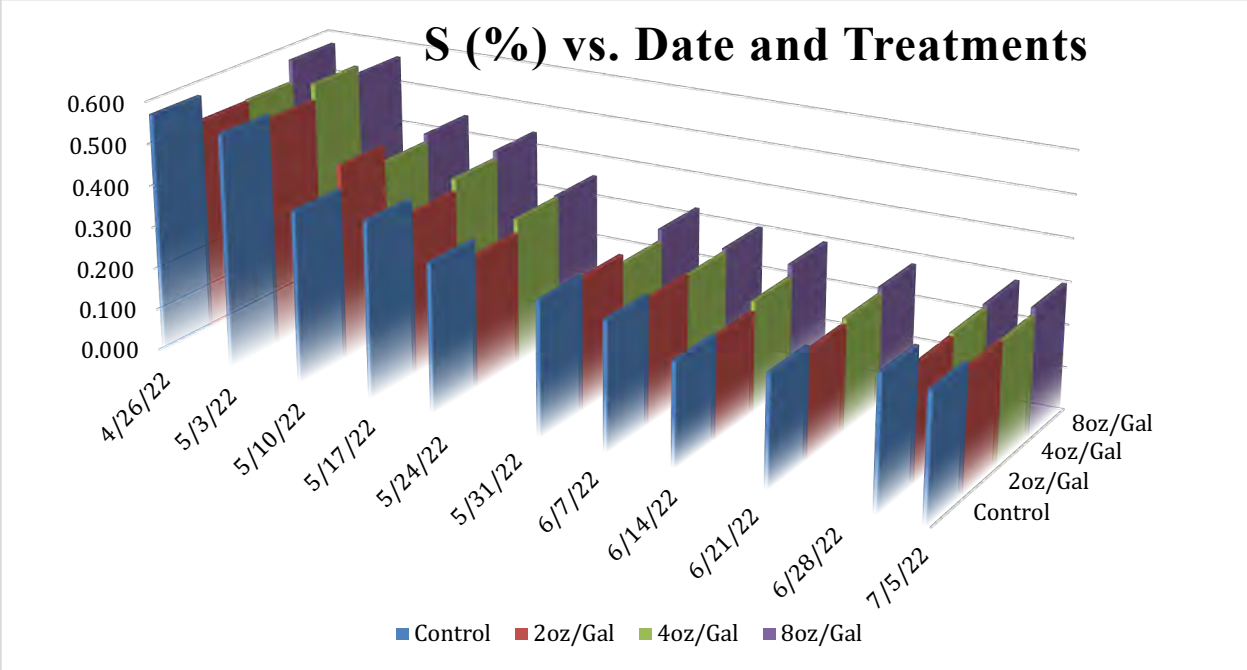

FIGURE 49. Sulfur (%) vs. Collection Date and Treatments for all Samples Collected.

TABLE 19. Manganese (ppm) Determined in Control and Treatments for all Samples Collected.

	Manganese (ppm)			
Collection Date	**Control**	**2oz/Gal**	**4oz/Gal**	**8oz/Gal**
4/26/22	59.8	38.3	40.1	39.0
5/3/22	87.9	61.8	47.1	45.6
5/10/22	23.2	33.3	30.1	26.9
5/17/22	32.8	30.0	33.1	34.8
5/23/22	29.2	26.0	23.0	26.5
6/2/22	19.9	24.9	20.1	24.2
6/8/22	18.6	21.2	18.5	20.7

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6/14/22	12.5	16.0	17.3	21.6
6/22/22	14.5	15.6	16.7	19.1
7/1/22	16.7	14.9	17.4	15.8
7/5/22	15.0	17.5	18.0	20.7

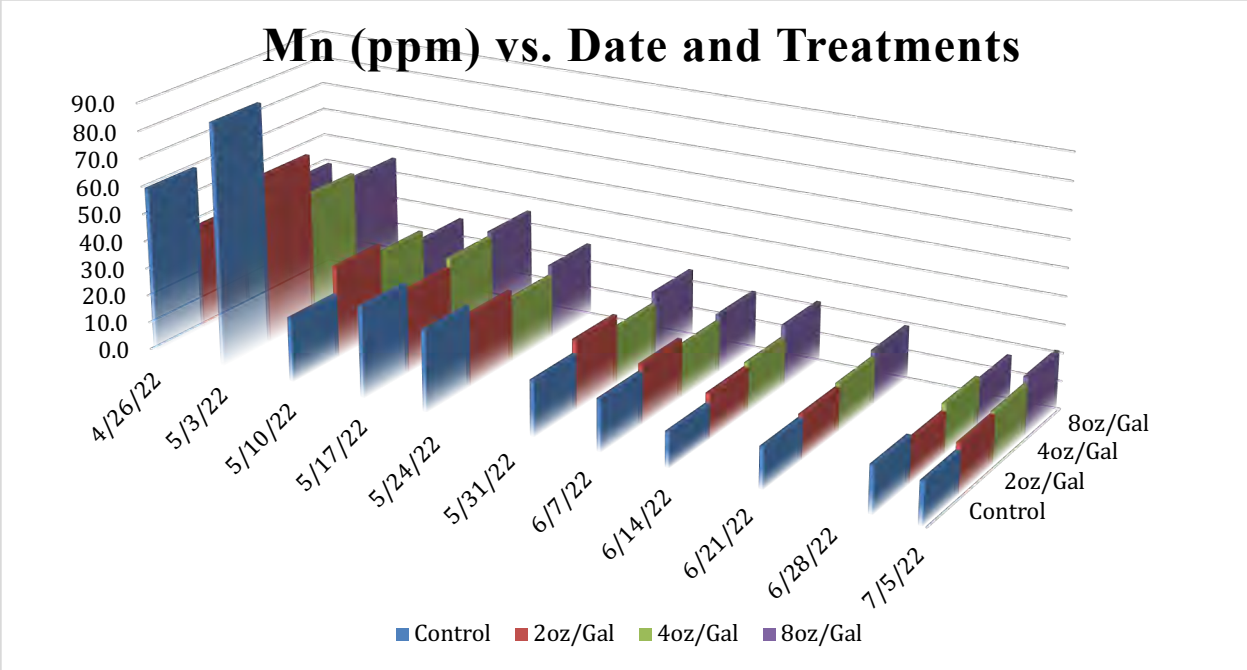

FIGURE 50. Manganese (ppm) vs. Collection Date and Treatments for all Samples Collected.

TABLE 20. Iron (ppm) Determined in Control and Treatments for all Samples Collected.

	Iron (ppm)			
Collection Date	**Control**	**2oz/Gal**	**4oz/Gal**	**8oz/Gal**
4/26/22	93.2	101.4	103.1	106.1
5/3/22	95.1	123.0	125.8	162.9
5/10/22	80.7	95.8	90.9	98.8
5/17/22	113.7	102.0	140.8	174.5
5/23/22	91.8	116.3	140.8	193.1
6/2/22	97.3	127.1	151.6	239.7

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6/8/22	89.6	117.0	120.0	168.5
6/14/22	69.2	90.6	132.5	201.1
6/22/22	98.1	140.0	128.8	213.5
7/1/22	117.9	109.9	125.8	150.9
7/5/22	96.0	127.9	138.0	184.9

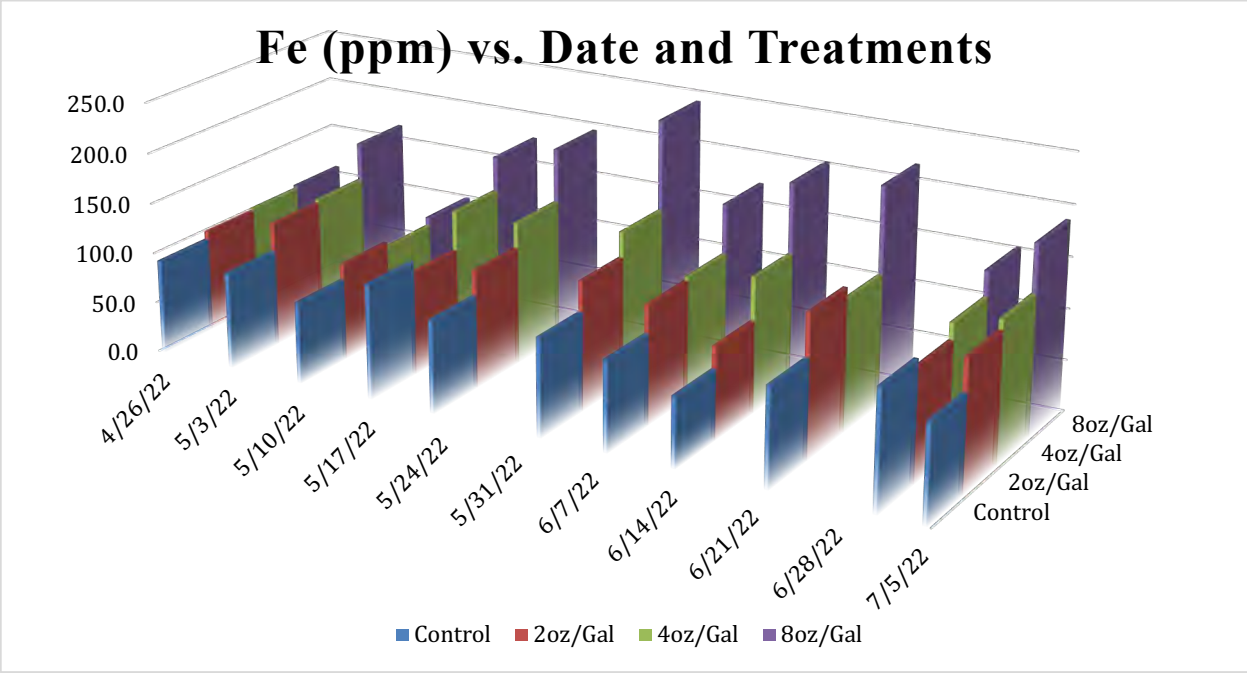

FIGURE 51. Iron (ppm) vs. Collection Date and Treatments for all Samples Collected.

TABLE 21. Molybdenum (ppm) Determined in Control and Treatments for all Samples Collected.

Collection Date	Molybdenum (ppm)			
	Control	2oz/Gal	4oz/Gal	8oz/Gal
4/26/22	0.447	0.524	0.465	0.276
5/3/22	0.553	0.379	0.622	0.518
5/10/22	0.469	0.298	0.661	0.410
5/17/22	0.384	0.359	0.459	0.717
5/23/22	0.332	0.474	0.820	0.824

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6/2/22	0.347	0.387	0.430	0.822
6/8/22	0.184	0.331	0.262	0.445
6/14/22	0.074	0.162	0.296	0.507
6/22/22	0.208	0.250	0.199	0.609
7/1/22	0.240	0.114	0.415	0.442
7/5/22	0.045	0.435	0.434	0.363

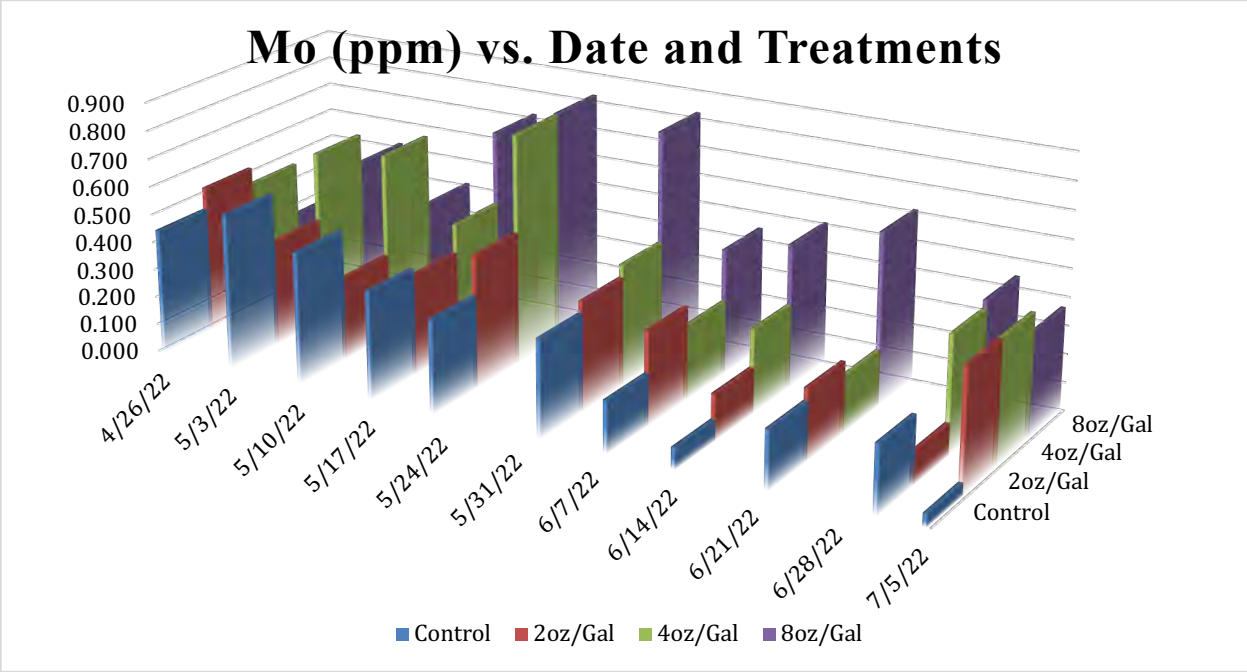

FIGURE 52. Molybdenum (ppm) vs. Collection Date and Treatments for all Samples Collected.

TABLE 22. Copper (ppm) Determined in Control and Treatments for all Samples Collected.

	Copper (ppm)			
Collection Date	**Control**	**2oz/Gal**	**4oz/Gal**	**8oz/Gal**
4/26/22	11.7	9.9	9.9	11.3
5/3/22	9.2	10.9	11.5	11.5
5/10/22	13.2	12.3	12.0	13.0
5/17/22	11.2	10.8	11.4	11.7

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5/23/22	9.3	8.9	10.2	10.8
6/2/22	7.2	7.5	7.5	9.9
6/8/22	6.4	6.9	6.0	7.9
6/14/22	5.5	5.5	6.8	7.7
6/22/22	5.1	5.7	6.1	7.3
7/1/22	7.8	6.5	7.4	7.8
7/5/22	6.8	6.9	8.2	7.9

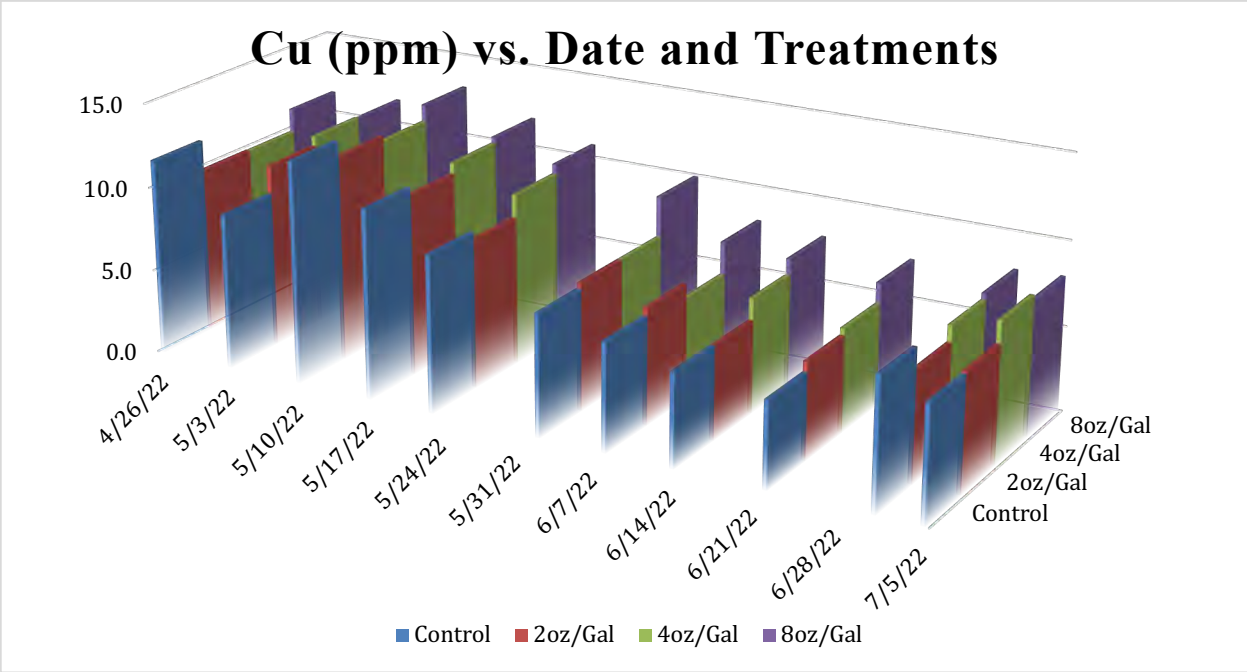

FIGURE 53. Copper (ppm) vs. Collection Date and Treatments for all Samples Collected.

TABLE 21. Boron (ppm) Determined in Control and Treatments for all Samples Collected.

	Boron (ppm)			
Collection Date	**Control**	**2oz/Gal**	**4oz/Gal**	**8oz/Gal**
4/26/22	26.0	26.4	32.2	23.8
5/3/22	53.2	53.5	54.2	49.7
5/10/22	23.3	35.5	29.4	27.3

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5/17/22	49.2	41.5	49.0	54.0
5/23/22	53.4	42.8	46.1	46.1
6/2/22	80.0	86.7	83.2	81.6
6/8/22	114.1	110.2	110.8	125.7
6/14/22	112.5	106.7	105.3	115.8
6/22/22	167.5	143.5	139.1	142.2
7/1/22	237.4	186.0	184.4	188.5
7/5/22	231.4	216.6	174.4	215.3

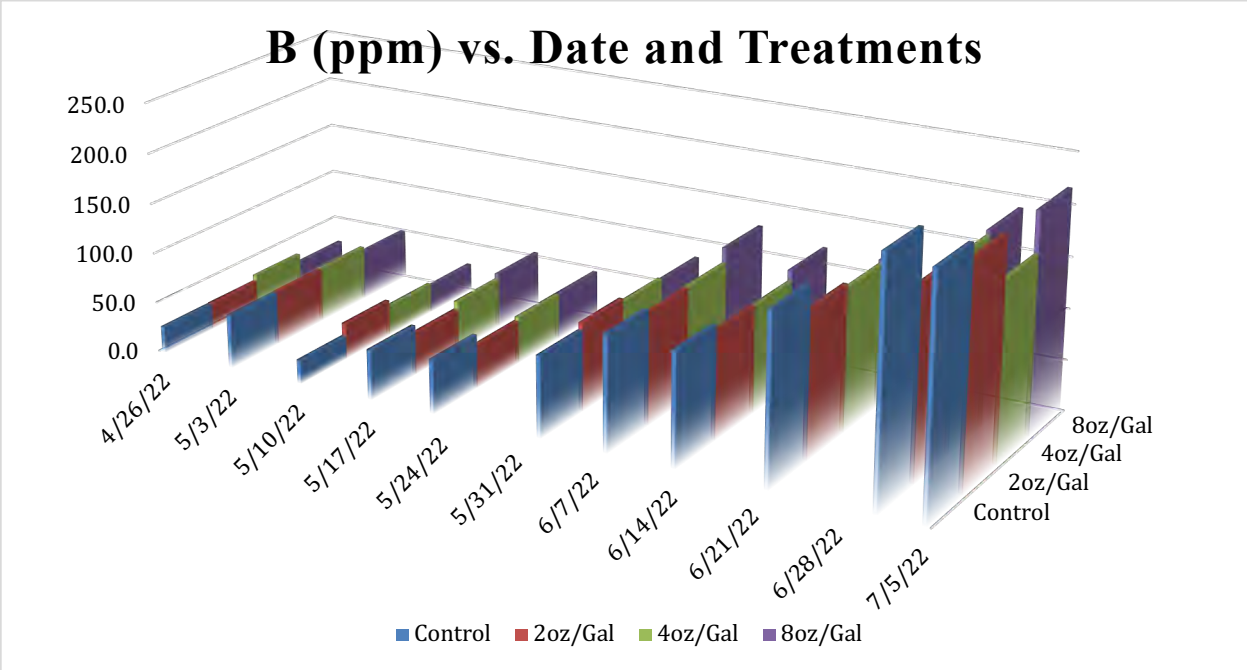

FIGURE 54. Boron (ppm) vs. Collection Date and Treatments for all Samples Collected.

TABLE 22. Zinc (ppm) Determined in Control and Treatments for all Samples Collected.

	Zinc (ppm)			
Collection Date	**Control**	**2oz/Gal**	**4oz/Gal**	**8oz/Gal**
4/26/22	73.0	60.6	56.3	63.5
5/3/22	76.2	64.5	68.1	71.0
5/10/22	49.2	58.3	56.5	57.7

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5/17/22	65.9	55.2	66.9	77.3
5/23/22	53.3	57.9	55.0	60.9
6/2/22	49.3	56.3	55.8	61.0
6/8/22	45.2	49.3	52.1	49.0
6/14/22	27.3	32.8	32.8	43.8
6/22/22	32.6	39.5	36.5	49.2
7/1/22	43.6	45.0	40.7	51.9
7/5/22	33.7	40.3	43.1	41.5

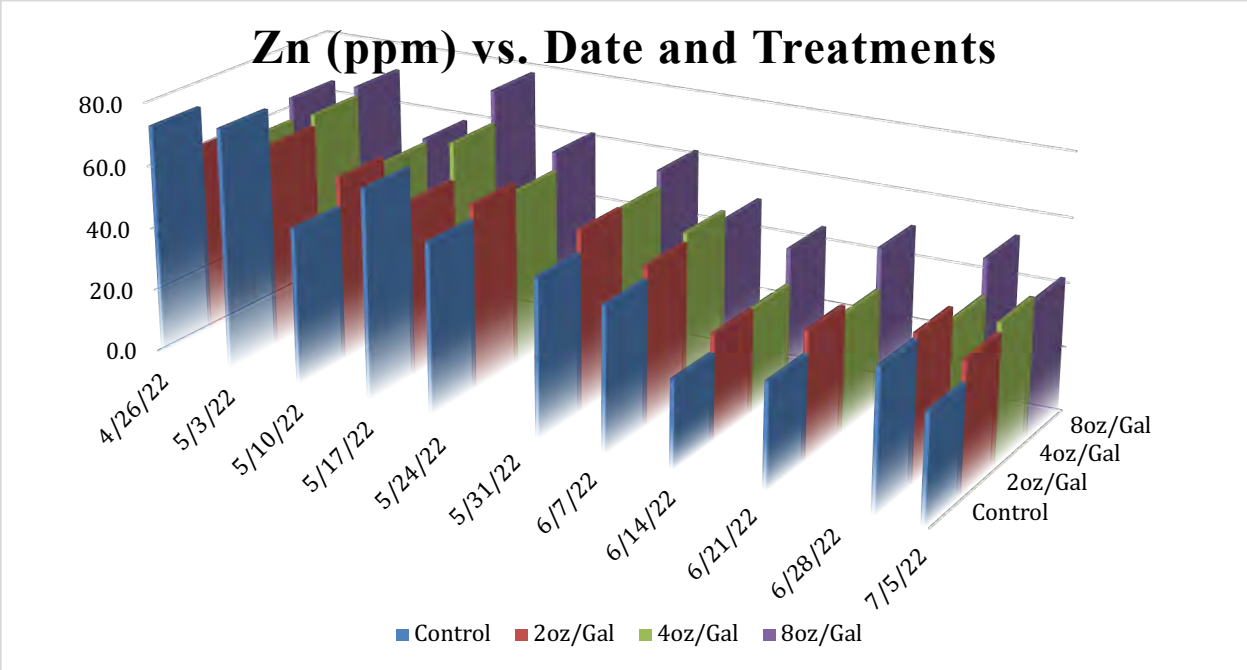

FIGURE 54. Zinc(ppm) vs. Collection Date and Treatments for all Samples Collected.