Analysis of Fertilizer Products Sold in Connecticut During 2025

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INTRODUCTION

Fertilizers support plant growth and productivity, thereby improving farmer livelihood and regional and national food security. In the State of Connecticut, the Agricultural Commodities Division of the Department of Agriculture is responsible for the regulation and inspection of commercial fertilizer products. A sampling of these products is delivered to The Connecticut Agricultural Experiment Station (CAES) for analysis to ensure label compliance. From January 1, 2025, to December 31, 2025, the Department of Analytical Chemistry at The Connecticut Agricultural Experiment Station analyzed 41 fertilizer products or bulk ingredients that were for sale in Connecticut. The products were collected at manufacturing facilities and wholesale dealers as well as from retail stores.

METHODS

After delivery to CAES these products were sub-sampled and prepared for analysis. Some of the samples, namely, Fert25-007 to Fert25-036 were collected in small packages, while others, namely, Fert25-001, Fert25-002, Fert25-004, Fert25-005, Fert25-006, and Fert25-037 to Fert25-042 were collected with a trier from bulk packaging. The samples were analyzed for nitrogen (N), phosphorus (P; as P_2O_5) and potassium (K; as K_2O) using standard analytical methods. In some cases, secondary and micronutrient [calcium (Ca), sulfur (S), magnesium (Mg), iron (Fe), boron (B), copper (Cu), manganese (Mn), molybdenum (Mo), and zinc (Zn)]) analysis was requested. The N content is determined using a Leco FP-828 combustion analyzer. Nutrients, such as P, K, secondary and micronutrients are readied for analysis by hot nitric acid digestion using a SCP Sciences Hot Block then determined using a Thermo Scientific iCAP PRO Inductively Coupled Plasma-Optical Emission Spectroscopy (ICP-OES).

RESULTS AND DISCUSSION

The fertilizer products tested, the sample analysis results for N, P, and K and the guarantees for January 1, 2025, through December 31, 2025, can be found in Table 1.

Fertilizer products are reported to be unsatisfactory (failed) for N if the upper end of the method uncertainty result range is less than the percent analytical variation guidelines as established by the Association of American Plant Food Control Officials (AAPFCO). If a

N result is below the guarantee but passes this is because the upper end of the method uncertainty result range was greater than or equal to the AAPFCO minimum analytical variation. If a sample failed, it is indicated in red in Table 1. If a sample guarantee was not requested or stated as 0%, it is indicated by NR (Not Requested) in Table 1. Fertilizer products are reported to be unsatisfactory (failed) for P, K, secondary, and micronutrients if the results fall outside of the percent analytical variation guidelines as established by the Association of American Plant Food Control Officials (AAPFCO).

Twenty samples were analyzed for secondary and micronutrients (see Table 2). Specifically, one sample was deficient in Mg, and 2 samples were deficient in Ca. Deficient samples are indicated in red.

CONCLUSION

The number of samples analyzed for NPK deemed unsatisfactory in 2025 was 4 of 40 (10 %). Specifically, 2 samples were deficient in P_2O_5, 3 samples were deficient in K_2O, and no samples were deficient in N. The number of samples analyzed for secondary and micronutrients deemed unsatisfactory was 3 of 20 (15%).

Table 1. Fertilizer Products Analyzed in 2025. Note: NR=Not Requested G=Guarantee and Adj G=Adjusted Guarantee according to AAPFCO analytical variation guidelines.

Sample Number	Description	Nitrogen			P2O5			K2O		
		Amount (%)	Pass/Fail	G/Adj G	Amount (%)	Pass/Fail	G/Adj G	Amount (%)	Pass/Fail	G/Adj G
Fert25-001	Intrepid Potash KMAG Trio	NR	NR	NR	NR	NR	NR	20.6	pass	21.0
Fert25-002	Advansix Ammonium Sulfate	21.2	pass	21.0 / 20.3	NR	NR	NR	NR	NR	NR
Fert25-004	PCS Sales Monoammonium Phosphate	12	pass	11.0 / 10.4	50.77	**fail**	52.0 / 50.9	NR	NR	NR
Fert25-005	Nutrien ESN Coated Urea	45	pass	44.0 / 43.1	NR	NR	NR	NR	NR	NR
Fert25-006	Nutrien Ag Supply Custom Blend	25.8	pass	24.0 / 23.2	12.16	pass	11.0	14.84	**fail**	18.0 / 16.99
Fert25-007	Miracle Gro Indoor Plant Food Spikes	5.4	pass	6.0 / 5.5	13.64	pass	12.0	7.93	pass	6.0
Fert25-008	Schultz Plant Food	10.2	pass	10.0 / 9.4	16.25	pass	15.0	10.25	pass	10.0
Fert25-009	Coop Poop Organic Plant Food Shaker	3.5	pass	2.0 / 1.5	5.13	pass	3.0	3.48	pass	3.0
Fert25-010	Jobe's Fertilizer Spikes Fruit Tree Spikes	14.6	pass	8.0 / 7.5	15.18	pass	11.0	13.43	pass	11.0
Fert25-011	Espoma Organic Bone Meal All Natural Plant Food	4.8	pass	4.0 / 3.5	23	pass	12.0	NR	NR	NR
Fert25-012	Jobe's Fertilizer Spikes Tree and Shrub Fertilizer Spikes	17.2	pass	15.0 / 14.4	5.02	pass	3.0	3.9	pass	3.0
Fert25-013	Down to Earth All Natural Rock Phosphate	NR	NR	NR	17.1	pass	3.0	NR	NR	NR
Fert25-014	Ferti Lome Blooming and Rooting Soluble Plant Food	9.5	pass	9.0 / 8.4	57.31	pass	58.0	7.6	pass	8.0
Fert25-015	Arber Plant Food	2.9	pass	3.0 / 2.5	2.33	pass	2.0	1.45	pass	1.0
Fert25-016	Miracle Gro Succulent Plant Food	0.5	pass	0.5 / 0.01	1.13	pass	1.0	1.05	pass	1.0
Fert25-017	Fox Farm Bushdoctor Cal-Mag Macro-nutrient	1.2	pass	1.0 / 0.5	NR	NR	NR	NR	NR	NR

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Sample Number	Description	Nitrogen			P2O5			K2O		
		Amount (%)	Pass/Fail	G/Adj G	Amount (%)	Pass/Fail	G/Adj G	Amount (%)	Pass/Fail	G/Adj G
Fert25-018	Fox Farm Happy Frog All Purpose	6.2	pass	6.0 / 5.5	4.38	pass	4.0	5.31	pass	5.0
Fert25-019	Espoma Urea	46.2	pass	45 / 44.1	NR	NR	NR	NR	NR	NR
Fert25-020	True Organic Tomato and Vegetable Food	4.3	pass	4.0 / 3.5	4.8	pass	5.0	7.08	pass	6.0
Fert25-021	Green Gro Biologicals Tomato, Veggie & Herb Fertilizer	5.5	pass	5.0 / 4.5	5.55	pass	4.0	4.5	pass	3.0
Fert25-022	Coast of Maine Fish Bone Meal Organic Plant Food for Buds and Blooms	6.7	pass	5.0 / 4.5	19.81	pass	13.0	NR	NR	NR
Fert25-023	Scotts All Purpose Flower and Vegetable	11.5	pass	10.0 / 9.4	15.07	pass	10.0	11.03	pass	10.0
Fert25-024	General Hydroponics MaxiBloom	6.4	pass	5.0 / 4.5	15.31	pass	15.0	14.37	pass	14.0
Fert25-025	Milorganite All Purpose Non-Burning	6.3	pass	6.0 / 5.5	5.41	pass	4.0	NR	NR	NR
Fert25-026	Gaia Green Organics Glacial Rock Dust	NR	NR	NR	NR	NR	NR	NR	NR	NR
Fert25-027	Gaia Green Organics Glacial Rock Dust	2.9	pass	1.0 / 0.5	NR	NR	NR	NR	NR	NR
Fert25-028	General Hydroponics CALiMAGic	3.7	pass	4.0 / 3.5	9.68	pass	10.0	2.93	pass	3.0
Fert25-029	Garden Rich Root and Grow Root Stimulator and Plant Starter	9.2	pass	10.0 / 9.4	9.82	pass	10.0	9.79	pass	10.0
Fert25-030	Bonide Liquid Plant Food	1.4	pass	1.0 / 0.5	1.58	pass	1.0	1.03	**fail**	4.0 / 3.59
Fert25-031	Hurricane Hydroponics Tropical Storm	NR	NR	NR	1.09	pass	1.0	1.18	pass	1.0
Fert25-032	Mother Earth Subterra Root Booster	2.2	pass	2.0 / 1.5	2.53	pass	2.0	5.24	pass	2.0
Fert25-033	Espoma Organic Grow! All Purpose Plant Food	14.4	pass	14.0 / 13.4	12.81	**fail**	14.0 / 13.3	11.95	**fail**	14.0 / 13.13

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Sample Number	Description	Nitrogen			P2O5			K2O		
		Amount (%)	Pass/Fail	G/Adj G	Amount (%)	Pass/Fail	G/Adj G	Amount (%)	Pass/Fail	G/Adj G
Fert25-034	Osmocote Flower and Vegetable	4.1	pass	4.0 / 3.5	4.12	pass	3.0	3.27	pass	3.0
Fert25-035	Espoma Organic Bio-tone Starter Plus	31.2	pass	30.0 / 29.1	11.96	pass	10.0	11.13	pass	10.0
Fert25-036	Jack's Classic Orchid Special	9.4	pass	9.0 / 8.4	5.76	pass	4.0	12.2	pass	12.0
Fert25-037	Miracle Gro Performance Organics Edibles Plant Nutrition	45.8	pass	46.0 / 45.1	NR	NR	NR	NR	NR	NR
Fert25-038	Bulk-CF Industries Urea	NR	NR	NR	NR	NR	NR	60.86	pass	62.0
Fert25-039	Bulk-McCain Fertilizers Potash Potassium	43.1	pass	43.0 / 42.1	NR	NR	NR	NR	NR	NR
Fert25-040	Bulk-Allied Nutrients XCU	21	pass	21.0 / 20.3	NR	NR	NR	NR	NR	NR
Fert25-041	Bulk-Meherrin Fertilizer Inc. Ammonium Sulfate	27.8	pass	28.0 / 27.2	8.05	pass	7.0	14	pass	14.0
Fert25-042	Bulk-V-Town Ag Supply Custom Blend	11	pass	10.0 / 9.4	12.74	pass	10.0	13	pass	10.0

Table 2. Fertilizer Products Analyzed in 2025: Secondary and Micronutrients. Amounts in % content.

Sample Number	Description	Ca	S	Fe	B	Cu	Mg	Mn	Mo	Zn
Fert25-002	Ammonium Sulfate 21-0-0-24.		23.5							
Fert25-007	Miracle Gro Indoor Plant Food Spikes.		4.22	0.33	0.026	0.05	1.14	0.084		0.057
Fert25-008	Schultz 10-15-10 Plant Food.			0.115				0.056		0.056
Fert25-009	Coop Poop Organic Plant Food Shaker.	13.77					**0.80 fail[1]**			
Fert25-011	Espoma Organic Bone Meal All Natural Plant Food.	20.72								
Fert25-013	Down to Earth All Natural Rock Phosphate 0-3-0.	**16.77 fail[2]**								
Fert25-017	Fox Farm Bushdoctor Cal-Mag Macro-nutrient 1-0-0.	2.92					1.11			
Fert25-018	Fox Farm Happy Frog All Purpose 6-4-5.	4.4					0.88			
Fert25-020	True Organic Tomato and Vegetable Food.	**4.26 fail[3]**	2.30							
Fert25-021	Green Gro Biologicals Tomato, Veggie & Herb Fertilizer.	11.58	5.00							
Fert25-022	Coast of Maine Fish Bone Meal Organic Plant Food for Buds and Blooms.	18.44								
Fert25-023	Scotts All Purpose Flower and Vegetable.		2.17							
Fert25-024	General Hydroponics MaxiBloom 5-15-14.	5.905	6.754	0.12			5.61		No Result Available	
Fert25-025	Milorganite All Purpose Non-Burning.	2.5		3.8						
Fert25-026	Gaia Green Organics Glacial Rock Dust.			3.5			1.26	0.07		
Fert25-027	General Hydroponics CALiMAGic 1-0-0.	5.11		0.11			1.83			
Fert25-030	Hurricane Hydroponics Tropical Storm.									0.049
Fert25-034	Espoma Organic Bio-tone Starter Plus.	9.33	2.08				1.39			

Table 2. Fertilizer Products Analyzed in 2025: Secondary and Micronutrients. Amounts in % content.

Sample Number	Description	Ca	S	Fe	B	Cu	Mg	Mn	Mo	Zn
Fert25-035	Jack's Classic Orchid Special.			0.11	0.022	0.05		0.06	No Result Available	0.06
Fert25-036	Miracle Gro Performance Organics Edibles Plant Nutrition.	5.50		0.16		0.08		0.05		0.06

[1]Magnesium label claim 8.0%; [2]Calcium label claim 18%, [3]Calcium label claim 6.0%