

# Interpreting Soil Tests – Micronutrient Levels

UNH Cooperative Extension soil tests give recommendations for plant macronutrients (N, P, K, Mg and Ca), the elements needed by plants in the largest amounts. For these elements, scientists have looked at the level of nutrients in the soil, analyzed crop growth, and determined how much more of each nutrient is needed each year for specific crops.

Micronutrients (copper-Cu, iron-Fe, manganese-Mn, zinc-Zn, and others) play essential roles in plant growth, but they are needed in very small quantities. Micronutrient levels are usually present in the soil in sufficient quantity to allow for good plant growth without adding them to the soil in the form of fertilizers. Because soil amendments derived from organic sources contain micronutrients, growers that use organic fertilizers rarely experience micronutrient deficiencies. There can also be too much of a good thing - very high levels of micronutrients can be toxic to plant growth. Testing plant leaves reveals whether plant nutrient needs are being met, but scientists' ability to predict this based on soil tests is limited.

For those interested in monitoring micronutrient levels in soils, we can test Cu, Fe, Mn and Zn and provide the results in parts per million (ppm). While soil levels of these minor elements can be tested, the research to interpret these results is limited. Research is not available to tell us, for each micronutrient, the minimum amount required for good growth. However, we have compiled the available data from the many field soil tests that have been submitted for soil testing over several years. Using the chart below, you can determine whether levels are low, similar to, or high, compared to other samples from New Hampshire.

**What do I do with this information?** If levels fall outside the normal range (either high or low), it may be worthwhile to test leaf samples of plants growing in these soils to determine whether they are getting sufficient or excessive amounts of micronutrients.

Micronutrient ranges in parts per million (ppm) from New Hampshire soil					
	Bottom Bottom 0.5% 10%		Middle 10-90%	Top 10%	Top 0.5%
Copper (Cu)	<0.4	0.4-1	1-11	11-23	>23
Iron (Fe)	< 50	50-86	86-242	242-419	>419
Manganese	< 4	4-12	12-29	29-114	>114
Zinc (Zn)	<0.7	0.7-2	2-24	24-71	>71

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