Table 3. Relative response range of soil elements analyzed by Mehlich-I extractant.

Analysis	Acceptable Ranges	Comments
Nitrogen/ Organic Matter	<3%	Because nitrogen readily changes in soils, nitrogen availability is difficult to predict. Often the percentage of organic matter serves as a reserve for many essential nutrients, especially nitrogen. Therefore, labs list an Estimated Nitrogen Release figure, based on the percentage of organic matter present, to estimate the pounds per acre of nitrogen that will be released over the season.
Phosphorus	0 - 30 ppm	Phosphorus absorption is greatest when soil pH is between 5.5 and 6.5.
Potassium	0 - 60 ppm	Generally, higher K levels are required in soils containing high levels of clay or organic matter. Soils with high levels of Mg may also require higher K applications. Sandy soils require lighter, more frequent K applications than heavier soils.
Calcium	0 - 50 ppm (see comment)	In most Florida soils, liming with dolomite to ensure an adequate soil pH for proper plant growth will provide more than adequate concentrations of Ca and Mg. Deficiencies of these elements are more common in soils that are sandy or acidic, and/or in soils containing low levels of organic matter.
Magnesium	0 - 20 ppm (see comment)	
Soil pH	5.5 - 6.5	Soil with a pH of less than 5.5 becomes highly acidic and can produce elements toxic to turf. Alkaline soil pH (>7.0) often limits availability of many minor elements.
Cation Exchange Capacity (CEC)	5 to 35 meq/100g	CEC measures a soil's ability to hold the cations Ca, Mg, K, H, and Na. CEC generally increases in proportion to a soil's organic matter or clay content. Generally, the higher the CEC value, the more productive the soil.
Percent Base Saturation	(See comment)	Percent base saturation refers to the proportion of CEC occupied by the cations Ca, Mg, K, H, and Na. Base saturation percentages have little value when determining nutrient levels in Florida's sandy soils.
Iron	12 - 25 ppm	Soil pH and relative levels of such other elements as P are important when interpreting Fe soil tests. Generally, Fe becomes less available in alkaline or extremely acidic soils, and in soils with excessively high levels of P or moisture.
Manganese	0 - 10 ppm	Plant response to applied Mn may occur within the following ranges: 3-5, 5-7, and 7-9 ppm for mineral or organic soils with pH of 5.5-6.0, 6.0-6.5, and 6.5-7.0, respectively. Deficiencies are more likely to occur on coarse, sandy, acidic soils that receive excessive water.
Zinc	0 - 3 ppm	Plant response to applied Zn may occur within the following ranges: 0.5, 0.5-1.0, and 1-3 ppm for soils with pH of 5.5-6.0, 6.0-6.5, and 6.5-7.0, respectively. Zinc interactions with P and soil pH can alter needed application rates.
Copper	0 - 0.5 ppm	Plant response to applied Cu may occur within the following ranges: 0.1-0.3, 0.3-0.5, and 0.5 ppm for *mineral soils only* with pH of 5.5-6.0, 6.0-6.5, and 6.5-7.0, respectively. Copper deficiencies can occur on alkaline soils; soils containing high levels of organic matter (peat and muck); soils heavily fertilized with N, P, and Zn; and, in Florida, on flatwood soils following first cultivation. Toxic conditions may exist when Cu levels exceed the ranges of 2-3, 3-5, and 5 ppm in mineral soils with pH of 5.5-6.0, 6.0-6.5, and 6.5-7.0, respectively.
Boron	1 - 1.5 ppm	Boron deficiencies occur more commonly on soils that are sandy or alkaline, or those containing low levels of organic matter. Boron is most soluble (available) under acidic soil conditions.
Sulfur	See comment	Soil S levels, like N levels, are dependent on soil organic matter levels; S levels are erratic and measurements often yield meaningless results. Soils that are low in organic matter content, are well drained, have low CEC values, and are fertilized with excessive nitrogen can develop low S levels. Magnesium sulfate (Epsom salt) applied to leaves will indicate the presence of S deficiencies by greening up within 48 hours after application.