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When soils are removed from the field and processed for laboratory studies, changes in chemical properties may occur. Field-moist soil (approximately 40 percent water on an air-dry basis) was collected and passed through a 2 mm screen. After thorough mixing, half the soil was air dried (approximately 3 percent moisture). Samples were further divided with half of the field-moist and air-dried soil stored at room temperature and the other half stored in a refrigerator at 5 °C. Quadruplicate samples of each soil were analyzed at one-week intervals by extracting the equivalent of 10 grams of oven-dry soil with 20 mL of 0.01 M CaCl<sub>2</sub> for 48 h followed by analysis using atomic absorption spectrophotometry. Preliminary results showed no significant difference between refrigerated and room-temperature soil manganese concentrations, but differences between air-dry and field-moist soil manganese concentrations were observed. Air-dried soil exhibited higher extractable manganese, even when accounting for the dilution effect of the soil moisture. This indicates the difference is due to changes in the soil solution thermodynamics rather than to dilution of a highly soluble manganese salt by the higher soil moisture. Soil analysis will continue for a period of twelve weeks to examine the changes in extractable manganese for both moisture contents.