

Micronutrient Deficiencies in Wheat on Peat Soil

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Peat soils with organic matter levels greater than 30% have a large affinity to adsorb for micronutrients like manganese (Mn) and copper (Cu), binding these nutrients so they are unavailable to crop roots.

The following wheat field is in an area with soil organic matter levels of 36-42% and shows green and yellow areas being diagnostically sampled here by 2 agronomists (Figure 1.) Their resulting tissue tests are:

Other nutrients: N, P, K, Ca, Mg, S, Zn, Fe, B		Manganese	Copper
Area			
Greener	Sufficient or high	13 ppm Low	4 ppm Low
Yellow	Sufficient or high	5 ppm Deficient	4 ppm Low



Figure 1. Diagnostic tissue sampling of good versus poor areas.

Individual wheat leaves showed typical symptoms of both Mn and Cu deficiency:

Manganese deficiency = chlorotic streaks and spotting on leaves (Figure 2).

Copper deficiency = yellowing and twisting or “pig-tailing” of leaf tips (Figure 3).

Tissue sampling is still the best method to confirm such deficiencies.

At this stage foliar applications may still be effective to salvage yield. On peat soils with known deficiencies, soil applications are expensive but often necessary to optimize yield. Repeated copper treatments at tillering and flag leaf stage may be needed when using foliar applications.



Figure 2. Manganese deficient wheat leaves (top) versus fertilized (below)



Figure 3. Twisting and browning of leaf tips due to copper deficiency.

***Article submitted to MWBGA by John Heard, Crop Nutrition Specialist at
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