

Corn of Many Colours

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As growers continue their weed spraying and nitrogen applications in corn, they may be seeing interesting colours. Here is what some of these corn colours may indicate and may prompt further sleuthing by the crop scout.

PURPLE CORN

Stunted, purple corn now on can be seen in last years canola stubble. Manitoba growers should know the reason why, and the band-aid to pre-apply to reduce the ailment. Figure 1 and 2 show corn at our Crop Diagnostic School growing on canola stubble, where 2 of the rows received starter fertilizer in a 2"x2" band providing nitrogen (N), phosphorus (P), potassium (K), sulphur (S) and zinc (Zn). The corn rows with starter fertilizer is on the right. A closer look at plants is in Figure 2.



Figures 1 and 2. The “corn after canola syndrome” at the Crop Diagnostic School.

The cause of course is the lack of functional mycorrhizae hyphae in the soil following canola. It may take up to 50 days for mycorrhizae to recolonize corn roots and start aiding with phosphorus and zinc uptake.

And the band-aid is starter fertilizer with P and Zn. University of Manitoba research (Rogalsky and Flaten) showed sidebanded P increased early season biomass, advanced maturity 2/3 times, reduced harvest grain moisture by 2-3% and increased grain yield by 10%.

Further details on other purple corn causes were discussed in last year’s article <http://cropchatter.com/why-is-my-corn-purple-2/>.

YELLOWISH CORN

The following corn is from a field known to be low in zinc (Figure 3). The symptoms – whitening, striping of emerged leaves close to the whorl are characteristic. The soil characteristics are typical of zinc deficiency: coarse texture (sandy), low organic matter, high pH, and a soil test indicating zinc is below 1 ppm (DTPA extractable).



Figure 3. Yellow corn

Without knowing the above details one would still wish to verify with a soil test and tissue test. The recommendation at this stage would be for a foliar application of zinc, and a plan for soil applied zinc for future corn crops.

Other lacking nutrients may cause corn yellowing. Sulphur deficiency is common as yellow striping in new and old growth (Figure 4), but is most common in wet springs when sulphate-S has been leached out of the seedling root zone. We are not expecting to see much of this in 2018.



Figure 4. Sulphur deficiency of plant on right (normal on left).

Nitrogen deficiency causes yellowing of bottom leaves, with yellowing or firing located in the centre of the leaf (Figure 5). Again, there has not been sufficient rain this spring to cause nitrogen losses typically associated with such symptoms.



Figure 5. Typical nitrogen deficiency in lower leaves.

Visual symptoms are useful to narrow your range of possible causes. However, confirmation depends on tissue and soil sampling. Use the tissue to indicate what nutrient quantities the plant has taken up, and the soil sample to indicate what the soil contains. Occasionally rooting problems (like compaction, rots, insects, herbicide residues) can trigger deficiencies in the plant leaves even when ample soil supplies are present.