

Corn Concerns and Curiosities in 2018

Last week we displayed a photo gallery of phosphorus, nitrogen, sulphur and zinc deficient corn. In the meantime, we have come across a number of concerns and curiosities in the Manitoba corn patch.

CONCERNS:

1) Uneven Emergence:

The most common reason for uneven emergence is dry soil. Dry soil conditions seen throughout Manitoba this spring and continue in some areas. Dry soil during or shortly after planting can result in seedlings emerging at different times depending on the moisture conditions where the seed placed



Figure 1. Uneven emergence in dry soil.

2) Herbicide Injury:

The persistence of soil applied herbicides is influenced by soil moisture. Dry conditions in 2017 and the spring of 2018 may have resulted in soil applied herbicides being carried over into the 2018 crop. The below picture shows ethalfluralin injury symptoms in corn. In this case, ethalfluralin was applied in the spring of 2017 prior to seeding dry beans.

Symptoms of ethalfluralin injury include stunting, purple discolouration, and stubby roots. With good growing conditions, residues will decline and new, normal roots will develop but it is unlikely corn will catch up.



Figures 2-3. Ethalfluralin (Edge) injury in corn. Photo credit: Amber Knaggs, Munro Farm Supplies

3) Scorched corn leaves

We may see some of these scorched leaf symptoms in corn since a several farmers intend to dribble UAN solution nitrogen onto the corn (Figure 4-5). Ideally, the UAN would be injected into the soil or directed below the canopy.



Figure 4 and 5. Dribble applied UAN solution into corn ranging from mild leaf burn (on left) to severe burn (on right) under high temperatures and higher nitrogen rates.

4) Ammonia scorched leaves

If anhydrous ammonia slots are not adequately closed during side dressing, leaf scorch may occur (Figures 6-8). Ammonia may need deeper placement or closing disks for adequate sealing in compacted soil. Plants are not killed, but burned leaf tissue cannot contribute to photosynthesis and growth.



Figures 6-8. Side dressed anhydrous ammonia burn in side dressed corn.

5) Wilted and discoloured corn

If corn is stunted and wilting even when there appears to be adequate soil moisture, soils may be too salty (Figure 9-10).



Figure 9-10. Salinity symptoms in corn and a typical field patterns

This may be occurring next to low lying areas of the field or just off the headlands next to standing water in ditches. In such instances, the soil test needs to accompany any tissue test for proper diagnosis. The soil test would verify the presence of salts – and often a surplus of nutrients which the plant cannot access (and has probably accumulated in the soil in past crop years).

Corn and soybeans are particularly susceptible to salinity (watch for iron deficiency chlorosis in soybeans in the next couple of weeks). Consider planting saline headlands to forages or less susceptible crops in the future.

6) Sand blasted corn leaves

The high winds have caused sand blasting injury on some corn on sandy textured soils (Figure 11). Such injury could be minimized by using reduced tillage. Many farmers seeding onto high-risk soil now seed a cereal cover crop prior to corn planting to provide early season shelter.



Figure 11. Physical injury to corn leaves due to sand blasting and wind.

CURIOSITIES:

1) Gray corn leaves

Sunscald shows up as gray or discolorations of the leaf. These are usually irregular light gray or silvery blotches on the underside of leaves, more often on the east side of plants (Figure 12). It usually occurs when chilly, dewy nights are followed by sunny, hot mornings.



Figure 12. Sunscald of corn leaves.

2) Yellow and twisted corn leaves

This is called the “rapid growth syndrome” (Figure 13-14) and occurs with a sharp transition from cool temperatures to warm conditions and an acceleration of growth rate. Some corn leaves fail to unfurl properly and the whorl becomes tightly wrapped and twisted. When these entrapped leaves do emerge they are often bright yellow. These leaves will quickly green up once exposed to sunlight.



Figure 13-14. Rapid corn growth resulting in twisted leaves in the whorl and yellow leaves.

3) Pipeline curiosity

We’re noticing more advanced corn growing over top of the pipelines this spring (Figures 15-16). The probable cause is warmer soil temperatures. Local farmers observe that snowfalls melt quicker over the pipelines. Usually pipeline right-of-way rehabilitation includes applying lots of fertilizer in these strips. But in this case I think we are just seeing the contrast of soil temperatures in a spring where soils have been slow to warm up, and a crop like corn that desires warm soil (>10C) for root growth.



Figures 15 and 16. Advanced corn growth over pipeline right-of-ways.