

# Got purple corn?

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Many Manitoba corn fields are showing some degree of leaf purpling this spring. Here's a quick look at why leaves turn purple and what possible causes may be.

Leaf purpling is a sign of stress. The leaves are actively producing photosynthates (sugars) but conditions are not allowing normal sugar metabolism or translocation in the plant. The purple anthocyanin pigment is associated with this sugar buildup in leaf tissue. The amount of purpling is genetically controlled, so hybrids with more of the purpling genes will appear worse than others, even though all suffer the same stress.

Common stress conditions triggering this purpling are:

- Warm sunny days but cool nights (4-10°C) – this allows sugar buildup but not metabolism
- Restricted root growth and development – soil compaction (Figure 1), herbicide injury (such as Edge carryover- Figure 2), standing water.



*Figure 1. Leaf purpling resulting from soil compaction and poor rooting.*



*Figure 2. Leaf purpling due to root stress from Edge residue.*

- Impaired phosphorus uptake due to insufficient soil phosphorus, lack of phosphorus starter fertilizer (Figure 3) or following non-mycorrhizal crops like canola.



*Figure 3. Slight leaf purpling from neglecting starter phosphorus fertilizer.*

- Physical injury – recently wind has crimped leaf tips (Figure 4) causing sugars to buildup without being translocated to other growing parts of the plant



*Figure 4. Purpling of mechanically damaged leaf tips.*

Purpling will often dissipate with warmer days and nights and yield loss is slight if any. But severe purpling is a symptom of crop stress, so the astute crop advisor or farmer will exploit it as a visual signal and will investigate the cause so to manage better next year.

***Article as posted on Manitoba Corn Growers Association website***