

Blame it on the rain, as the saying goes. Last spring, heavy precipitation in Manitoba caused all sorts of problems for farmers. Doug, who farms 2,300 acres of wheat, oats, canola and soybeans south of Brunkild, was no exception. His wheat fields saw six inches of the wet stuff during the last two weeks of May and remained waterlogged for over three weeks!

Doug called me mid-June for some advice — the leaves of his wheat plants were yellowing. He was worried he'd caused the damage by putting too much stress on the plants by spraying the waterlogged field with herbicide. "I wanted to give the plants more opportunity to recover," he told me, "but the weeds were getting big." Like many producers that spring, Doug was caught between a rock and a hard place.

Doug's wheat plants were stressed and yellowing. The discolouration

was present throughout the field and slightly worse in the lower lying areas. But I noticed a few small patches located at a slightly higher elevation, which had not been saturated as long as the rest of the field, were beginning to green-up a bit. Although deep ruts still had water in them, the majority of the field had drained.

Upon closer examination of the unhealthy plants, we discovered the yellowing was more concentrated in the older leaves. To Doug, I suggested the possible causes for the yellowing could be stress from the heavy precipitation that spring, stress due to the application of herbicide or nutrient deficiency.

Doug applied 110 pounds of anhydrous ammonia the previous fall, followed up in the spring with 90 pounds of fertilizer granules (nitrogen, phosphorus, sulphur and zinc) at seeding for a total analysis of 122-30-0-13.5.

Up to the time of the heavy pre-

cipitation, growing conditions were optimal, so the rate of germination was great. The field remained saturated for over three weeks, and standing water was present in the field twice for three to four days.


Worried he'd come to the end of his safe window for applying herbicide, reluctantly Doug sprayed the crop at the beginning of June with a tank mix generally considered to be safe for wheat.

Doug and I monitored the field for the next five days, and the yellowing of the leaves continued to develop. This fact, as well as the greening up of the plants in the higher, less waterlogged areas of the field provided the clues I needed to help Doug find a solution.

I believed his plants were suffering from nitrogen deficiency due to denitrification. Denitrification can be a major problem in waterlogged soils. This process is the conversion of nitrate-nitrogen to gaseous nitro-

gen by bacteria in oxygen-depleted (waterlogged) soil. There may be no way to avoid heavy rainfall, but early intervention with nitrogen supplementation may save yield and quality in your field.

Immediately, we floated a solution of 40 pounds of urea ammonium nitrate on Doug's field. His crop responded within two to three days. Better yet, at harvest time Doug was pleased we'd salvaged the crop and managed 40 bushels per acre with 13.2 per cent protein to boot.

Practices to consider for improving the management of nitrogen on your farm are splitting the applications of fertilizer between fall and spring, adding more nitrogen to the spring fertilizer blend to limit nitrogen losses as well as investigating drainage options for fields prone to flooding. 

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