

Extension Notes

Personal Column for November 9, 2010

By Gary Hall, ISU Regional Extension Education Director

Cooler is Better for NH₃

“One less day of winter,” is how one person described his enjoyment of the great fall weather of 2010. I have a wealth of data that would indicate the high temperatures will soon cease. We but have to be patient when determining when to apply anhydrous ammonia (NH₃) this fall. Anhydrous ammonia applied before daily soil temperatures remain below 50° F and continues trending lower can result in your nitrogen being lost.

Cooler soil temperatures slow down the biological activity, which slows conversion of ammonium to nitrate, therefore allowing nitrogen to stay in the ammonium (NH₄) form longer. Soil temperatures change relatively quickly as the air temperature changes. You can watch the soil temperature by checking out

<http://extension.agron.iastate.edu/NPKnowledge/soiltemphistory.html> . The temperature fluctuates a lot so when it is warm outdoors it will be relatively warm in the soil too.

Heavy rains throughout 2010 caused a lot of yellow corn due to nitrogen loss. Applying anhydrous ammonia prior to soils dropping below 50 degrees could produce similar results. In light of the prices for anhydrous this fall you may want to consider a spring or split spring/sidedress application to make the best use of the nutrients.

Historically, soil temperatures at a four-inch depth cool below 50° F in our part of Iowa during the first week of November. This year it appears the temperature will remain around 50 degrees through the second week in November.

ISU Extension research indicates lower yields can result when anhydrous ammonia is applied in the fall versus spring. Crop residue cover can be reduced through the tillage action of NH₃ application, increasing your risk of soil erosion.

Have patience when considering anhydrous ammonia applications. I will guarantee you the soil temperatures will go down soon. You can take that guarantee to the bank. You can also take more money to the bank if you wait to apply that NH₃.

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Contact: Gary Hall, 2023 S Federal Ave, Mason City, IA 50401, 641-423-0844,
garyhall@iastate.edu