



CROP ALERT

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Reducing Small Grain Nitrogen Losses

Snow continues to fall across northwestern NY, but spring may finally decide to show up in the next couple of weeks. With daytime highs predicted to be between 40-50 °F and nighttime lows in the 20-30 °F range the next couple of weeks many farmers will be starting their first nitrogen applications on small grain fields. However remember that the risk of losing nitrogen is higher with these early applications under saturated and frozen field conditions. [Farmers in Kentucky have already had high nitrogen losses](#) this season due to applying nitrogen too soon on their small grains. A number of practices can reduce the chances of losing early season nitrogen. NH_3 volatilization is much higher in liquid urea fertilizers than dry urea fertilizers. Adding a urease inhibitor will also reduced NH_3 volatilization. Agrotain-treated urea has performed well in recent years in our region. NH_3 volatilization will also be worse on the limestone soils of our region (i.e. the Niagara Escarpment) due to the higher pH of the soil solution. NH_3 losses will also be higher on muck and sand soils. Ammonium sulfate (AMS) has lower hygroscopicity (does not absorb water as quickly) as other dry fertilizers and has also been used successfully for earlier nitrogen applications on small grains. There is also a high chance that the small grains will respond to the sulfur since our fields no longer get sulfur for free as a result of pollution from coal fired power plants. Many farmers will throw a handful of Agrotain-treated urea or AMS out on their lawns or a nearby small grain field and wait until that area greens up before getting into their fields. Using a combination of these two dry fertilizers is also common. Small grain fields throughout the region are looking a pretty rough right now, *Figure 1*. Limit any early nitrogen applications to 25-50 lb./acre of nitrogen as there has not been widespread evaluations of most small grain fields for [tiller counts](#) or for [winter injury](#) in 2014. Once green-up occurs in small grain fields, applications of liquid nitrogen through stream bars will likely give better results than dry fertilizers. At minimum hold off until the snow melts from these latest storms (more coming Saturday for most folks) before getting nitrogen on small grain fields. Be mindful not to rut up these fields—try to apply nitrogen early in the morning or later in the day when the ground will better support traffic.

Figure 1: Small grain with some winter damage



Source: Bill Verbeten

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Frost Seeding Forages

Farmers will also begin to frost seed forages soon in our region. The temperatures in the forecast for the next couple of weeks will create freeze-thaw cycles that will help establish some crops. This will not occur on sandy soils, since the clay particles in clay and loamy soils are responsible for this action. Red clover is the most common forage frost seeded and it is often very successful even when broadcasting into small grain fields, pastures, or hay fields. When frost seeding other legumes (Ladino & Alsike clover, birdsfoot trefoil, and alfalfa) establishment is more variable when broadcasted and is generally better with a no-till drill. Rolling the soil may also improve seed to soil contact. All grasses should be frost seeded with a no-till drill. If they are not drilled, establishment of grasses will be in small patches instead of uniform rows. Generally orchardgrass and perennial ryegrass will establish better than other grasses when frost seeded. Seeding rates for frost seeding are listed in Table 1.

Replanting/Planting Questions

Many questions are coming in about preparing for possible replant situations if winter small grains or haylage fields have severe winter damage. Be sure to actually evaluate small grain fields and alfalfa stands in the coming weeks prior to purchasing more seed. See the [small grain](#) and [alfalfa](#) articles on this topic.

Do not plant winter small grains in the spring: Almost all winter small grains (some spelt varieties are the exception) will produce no grain if planted in the spring. They require vernalization (exposure to cold after germination) over the winter in order to produce grain. When planted in the spring, winter small grains will [only have vegetative growth and will die within a few months](#). Planting corn, soybeans, or a spring small grain will be a better option, but be sure to kill the remaining winter small grain plants prior to planting.

Damaged haylage fields: If haylage fields are severely damaged plant oats or another spring small grain as early as possible. Harvesting these silages in late-May to mid-June will have at least 2 ton DM/acre of silage. Forage oats will yield about 25% more silage DM and mature later than grain oat varieties. For more information on spring small grain silage management see this [University of Wisconsin factsheet](#). Once the soil gets to 70 °F BMR sorghums and BMR sorghum-sudangrasses can be planted for one or two harvests after the spring small grain silage harvest. For less damaged haylage stands planting a forage grass prior to May can also make up some of the potential yield losses.

Spring small grain planting delays: Previous work in NY has shown between 1/2 to 1 bu loss in yield for every day spring small grain planting is delayed after April 15th. Long term yields of spring barley and wheat generally are 50-60 bu/acre while oats approach 80 bu/acre in the Cornell variety trials. Be sure to know how many bushels of these spring small grains are needed to cover the costs of putting them in the ground prior to attempting a late planting.

Long season vs. shorter season corn and soybeans: While many farmers are already locked into their corn relative maturities and soybean maturity groups for 2014, it may be worth switching to shorter season varieties if possible on some acres. We will likely have a colder than normal spring due to [the Great Lakes having record levels of ice coverage this year](#). This may cut our growing season short on the front end by delaying most planting operations and reducing temperatures. Early maturity corn grain, corn silage, and soybean varieties will also have a better chance of drying down sooner than later maturity varieties. Many factors influence crop yield potential and while some general trends exist, growing a shorter season corn or soybean variety does not necessarily mean that there is lower yield potential.

Table 1: Frost Seeding Rates

Crop	Frost Seeding Rate (lb/acre)
Red Clover	8-10
Ladino or Alsike Clover	2-4
Birdsfoot Trefoil	5-8
Alfalfa	6-10
Orchardgrass	2-5
Perennial Ryegrass	3-8

Sources: [Ohio State](#), [Iowa State](#), [University of Minnesota](#)

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