Cornell University
Cooperative Extension
Northwest New York Dairy, Livestock & Field Crops Team

CROP ALERT

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Nitrogen On Winter Small Grains

Table 1: Nitrogen Applications Using Tiller Count

Tillers/square yard	Nitrogen at green up
<300	60 lbs./A
450-600	45 lbs./A
>700	30 lbs./A

Temperatures will be in the 10s & 20s across most of the region tonight and into Saturday morning. If this latest round of snow melted there's a chance to get out and puts some early nitrogen on a few small grain fields. Wheat, rye, triticale, and malting barley fields are starting to green-up and they are hungry. With daytime highs in the 40-50's in the next couple of weeks these crops will start taking off. Watch your soil conditions closely as rain and snow are in the forecast. Better drained, sandy fields will be the lowest risk for rutting things ups. If your tiller counts are low, *Table 1,* be more aggressive with your nitrogen rates (50-60 lbs./acre). This first shot of nitrogen increases tillering and yield more than it increase protein. The next couple of weeks are the only time winter malting barley fields should get nitrogen, since later applications increase protein more than yield. Most of our winter small grains have survived the winter thanks to the thick snow cover we had. Be sure to put out nitrogen rich strips (100 to 150 lbs./acre) if you are planning on using GreenSeeker, OptRx, aerial imagery, etc. to vary your nitrogen at Feekes 6.0 (first node on the stem). Also be sure to put 15-25 lbs./acre of sulfur in with your nitrogen, ammonium thiosulfate and ammonium sulfate are two commonly used sources.

Nitrogen is more likely to be lost during these early applications in the following situations:

- Saturated & frozen soils
- Liquid urea fertilizers
- High pH/limestone, muck, & sandy soils
- Warmer temperatures

NH3 volatilization is the main way nitrogen is lost. A number of practices can help reduce these losses:

- Apply Agrotain-treated urea (a urease inhibitor– keeps urea in the soil for longer).
- Apply ammonium sulfate (AMS) (lower hygroscopicity-doesn't absorb water as quickly).
- Delay nitrogen applications until soil conditions improve (all snow melts, fields partially drain).

Terminating Cover Crops

With the use of cover crops becoming more popular, we are getting questions on what is the best method for terminating them in the spring. The easiest method of dealing with cover crops would be to select species that winterkill and die on their own. Some of these would be tillage radish, oats (spring and forage) or processing peas.

The majority of our commonly used cover crop species overwinter and will need to be controlled in the spring. These

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consist of winter grains (rye, wheat, triticale), annual rye grass, clovers, vetch, and winter Austrian peas. Contrary to its name, annual rye grass does not winterkill and will be very much alive in the spring. While all of these can be grown by themselves, soil health programs are promoting the advantages to planting multiple species in a mix.

The most common methods of terminating a growing cover crop in the spring are tillage and herbicides. While tillage can be an effective means of dealing with cover crops, it can be counter effective to your overall goal of growing cover crops in the first place. Herbicides alone also can be very effective in no-till operations but obviously not in an organic situation. A combination of reduced tillage and herbicides also can work well.

When choosing a burndown herbicide you need to consider the cover crop (grass or broadleaf or mix) and what crop will be planted into that field. Plant growth regulators like Dicamba (Banvel or Clarity) or 2,4-D work great on broadleaves (clover or peas) not on grasses (rye). Glyphosate, Gramoxone, or Liberty will work on most cover crop species and when combined with 2,4-D or Dicamba work well on cover crop mixes.

Table 2: Herbicide Effectiveness on Legume Cover Crops

Herbicide	Lbs./acre	Red Clover	White Clover	Hairy Vetch
Glyphosate[I]	0.37	6	6	6
	0.75	7	7	7
	1.5	8	8	8
Paraquat	0.5	7	7	7
	0.75	8	7	8
2,4-D LVE	0.25	7	N	8+
	0.5	8	6	9+
Atrazine	1.0	6	6	7
	2.0	7	7	8
Dicamba	0.25	8+	8	8+
	0.5	9	9	9+
Clopyralid	0.195	9	8+	9
2,4-D + dicamba	0.5+0.25	9+	9	10
	0.5+0.5	10	9+	10

This table compares the relative effectiveness of herbicides for control of some common legume cover crops. Ratings are based on labeled application rates. Results may differ with variations in cover crop size, temperature, and rainfall. [II]

I. Glyphosate rate in lbs. ae/acre; 0.5 lb paraquat = 2 pt Gramoxone Inteon; 0.195 lbs. clopyralid = 5 oz Hornet, 78.5 WDG, or 6.7 fl oz Stinger 3S.

II. Only glyphosate, paraquat, or 2,4-D may be applied prior to soybean planting. Follow label guidelines. Herbicides should be applied to cover crops with at least 6 inches of spring growth.

Source: Penn State University

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You also need to consider rotational restrictions, particularly soybeans, on the herbicide label. For example, you must wait 7 days to plant soybeans after a pint of 2,4-D ester or 14 days following the application of 8oz. of Dicamba. Purdue has a really nice chart for herbicide combinations and rotational restrictions for corn and soybeans, https://www.extension.purdue.edu/extmedia/ws/ws-50-w.pdf. It also lists the best herbicides for each cover crop species. Penn State also has a good resource for options for dealing with clover cover crops, http://extension.psu.edu/plants/crops/soil-management/cover-crops/management-of-red-clover-as-a-cover-crop.

Winter Manure Spreading Advisory

Spreading Alert from the DEC

Manure movement possible in thawing/wet conditions. Unless able to inject or incorporate, hold liquid manure until soils are drier and conditions have stabilized.

Figure 1: Winter Manure Spreading

Source: *Michigan State University*

With the break in weather over the last few weeks, some farms were able to get out onto fields to apply liquid manure. Spreading that occurred during the warm spell around March 16 or so may have contributed to recent suspected well contaminations. Over the weekend of March 20 to 22, at least two situations were investigated for possible manure contamination of wells. The situations are far apart, one in WNY the other in CNY. Some wells tested positive for E.coli and bacterial source tracking tests are being conducted to determine possible sources (human, ruminant). There are few other facts available at this time except that liquid manure was applied to nearby fields shortly before home owners noticed problems.

With the current cold conditions, off site movement has likely slowed or stopped. However, warmer and rainy conditions are predicted for the next few days. Farms that have not spread and do not have an emergency need to do so should continue to wait for conditions to stabilize. If manure must be applied, it should be incorporated if at all possible to minimize offsite movement.

Manure that has been surface applied the last few days to frozen soil may be prone to offsite movement and should be watched carefully. Farms should contact their planner to work out a site specific emergency action plan in case one is needed. If manure colored water is observed flowing from a land application area to a ponded area or ditch, especially if near a home, farms need to think about this in terms of a potential discharge situation and should consider forming a temporary berm to collect and redistribute the liquid until it runs clear or the ponded area is empty.

Many Soil and Water Conservation District staff know how to handle these situations and it is a good idea to call them if problems are spotted or suspected. All discharges to surface waters must be reported to the DEC immediately.

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