

Topdressing wheat with nitrogen: Timing, application methods, source, and rates

Cody Miller
Phillips-Rooks District Extension Agent
Agriculture and Natural Resources

Many wheat producers have already applied most if not all of the nitrogen to their winter wheat crop. If you have not, now is a good time to start planning for topdressing nitrogen (N) to the winter wheat crop. With adequate soil moisture in most areas of the state, and some fairly small wheat in many fields due to late planting and dry weather in early fall and winter, there are some key elements that need to be considered when deciding on the exact program you plan to use. These include: timing, N source, application method and N rate.

Ideally, the N in topdress applications will be moved into the root zone with precipitation well before jointing begins in order to be most efficiently utilized by wheat. With some of the small wheat out there, having adequate N available to support spring tillering when it breaks dormancy will be important. Some combination of fall preplant or at-seeding N, and/or early topdressed N, is also normally needed to supply adequate N to support head differentiation. This is the stage when head size is being determined, and can begin about two weeks before jointing. Let's discuss some of the issues to consider when making topdressing decisions.

*Timing - The most important factor in getting a good return on topdress N is usually timing. It is critical to get the N on early enough to have the maximum potential impact on yield. While some producers often wait until spring just prior to jointing, this can be too late in some years, especially when little or no N was applied in the fall. For the well-drained medium- to fine-textured soils that dominate our wheat acres, the odds of losing much of the N that is topdress applied in the winter is low since we typically don't get enough precipitation over the winter to cause significant denitrification or leaching. For these soils, topdressing can begin anytime now, and usually the earlier the better.

For wheat grown on sandier soils, earlier is not necessarily better for N applications. On these soils, there is a greater chance that N applied in the fall or early winter could leach completely out of the root zone if precipitation is unusually heavy during the winter. Waiting until closer to spring green-up to make topdress N applications on sandier soils will help manage this risk.

* Application method - Most topdressing is broadcast applied. In high-residue situations, this can result in some immobilization or tie up of N, especially where liquid UAN is used. If no herbicides are applied with the N, producers can get some benefit from applying the N in a dribble band on 15- to 18-inch centers. This can help avoid immobilization and may provide for a little more consistent crop response.

* Source - The typical sources of N used for topdressing wheat are UAN solution and dry urea. Numerous trials by K-State over the years have shown that both are equally effective. In no-till situations, there may be some slight

advantage to applying dry urea since it falls to the soil surface and may be less affected by immobilization than broadcast liquid UAN, which tends to get hung up on surface residues. Dribble (surface band) UAN applications would avoid much of this tie-up on surface crop residues as well.

* Rate - Producers should have started the season with a certain N recommendation in hand, ideally based on a profile N soil test done before the crop is planted and before any N has been applied. If some N has already been applied to the wheat crop, it is too late to use the profile N soil test since it is not reliable in measuring recently applied N. Topdressing should complement or supplement the N applied in the fall, with the total application amount equaling that targeted rate.

If the wheat was grazed this fall and winter, producers should add an additional 30-40 lbs N/acre for every 100 lbs of beef weight gain removed from the field. For more information on this and other topics, please contact the local K-State Research and Extension Office.

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