

THE LEADING EDGE

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A PUBLICATION DEDICATED TO MAXIMIZING YIELD POTENTIAL

Fashionably Late Nitrogen Applications Can Boost Yields



Apply nitrogen when the plant needs it most.

A late, wet spring has many producers taking another look at nitrogen availability to growing crops. Excessive amounts of rain may mean that a significant portion of pre-plant-applied nitrogen has leached away from the areas where growing plants need it most.

Research also shows that both fall-applied manure and pre-plant applied nutrients are susceptible to detrimental levels of loss in warm and average temperatures, respectively. Several factors should be taken into consideration to help determine if these nitrogen losses have reached a level of concern, whether due to excessive rain, warmer temperatures, or other factors:

1. The amount of nitrate present, which is affected by time of application, soil temperature, rate applied, and presence of a nitrogen inhibitor.
2. The time of year and the length of time soils remain saturated.
3. Subsoil leaching rate and drainage.
4. Loss of crop yield-potential from water damage.¹

Knowledge is power. Even if a late-spring soil test does not reveal a need for additional nitrogen, the information can be used to develop a better nitrogen management plan.

A late-spring soil test, something experts recommend no matter what the conditions each season, can also help determine nitrogen needs.



Utilize existing equipment to create inexpensive side dressing toolbars.

It can pinpoint areas of fields where crops may be in danger of encountering a nitrogen deficiency.

Once a producer is fairly certain that yields are in danger of being low due to nitrogen loss, it is an option to apply a supplemental amount of nitrogen using side dressing.

Applying nitrogen later in the growing season is a departure from long-held farming traditions that generally dictate that the nutrient be applied in the fall or before spring planting. However, it is now a viable option due to the availability of precision placement equipment that protects young plants and to high-clearance equipment designed to give later-growth-stage crops a boost.

When a late-season side dressing technique is properly executed, it encourages corn growth and increases the potential for better yields. An important factor in seeing results from a late-season application is rainfall. A rain activates the root systems, which helps work the nitrogen into the soil and results in a healthier corn plant.

Good side-dressing equipment will also help ensure that the maximum benefit is derived from a late-season nitrogen application. Precision equipment places fertilizer in the ground allowing nutrients to move with rainfall and be intercepted by emerging roots.



New equipment such as auto-guidance and all-wheel-steer carts make side dressing easier than ever before.

When roots hit that zone, there is a growth explosion. As more roots develop, they too encounter the fertilizer for an ongoing boost during critical growth stages—almost half of a corn plant's roots are within 12 inches of the soil surface during tasseling.

A profitable yield response—one that justifies the price of the fertilizer—has been seen in corn crops that received a late-season nitrogen boost up to shortly after silking. Side dressing also allows you to apply that essential fertilizer without causing damage or burning of the roots or leaves, which could come into contact with the fertilizer if it were applied nearer to the plant.

There are additional benefits to side dressing nitrogen. With a side-dress application, you can:



Self-propelled side dressing machines increase application windows with greater ground clearance and faster speeds.

- Use a lower rate of nitrogen because it is applied when growing plants need it most.
- Clear the way for more flexibility in the early spring by reducing or eliminating pre-plant nutrient applications.
- Meet the lower nitrogen recommendations from universities without sacrificing yields by utilizing targeted nitrogen application.

- Have time to evaluate the crop and adjust the nitrogen rate based on the crop's yield potential by utilizing late-season applications.
- Improve water quality by applying nitrogen when conditions are less likely to lead to leeching.
- Spoon-feed nitrogen closer to the crop for uptake.
- Experience fuel cost savings and save wear-and-tear on equipment because side-dressing equipment can be operated at a reduced power level.
- Increase the number of acres that can be treated per hour by operating equipment at higher speeds.
- Have more free time in the spring to plant earlier with the option of late-season application.
- Reduce soil compaction by using lighter side-dressing equipment,
- Take advantage of available labor by moving to a late-season application.
- Tank-mix other nutrients with liquid nitrogen.
- Gain the ability to change the crop being planted or reduce risk of being flooded out.

A late-season nitrogen application can benefit crops and boost yields if the conditions are right and the application is properly handled. Producers can take advantage of the increased acceptance of this practice to fine-tune nitrogen management strategy. Well-planned nitrogen placement can boost yields while reducing expenses associated with the fertilizer itself and its application.

¹ Nitrogen loss: How does it happen?" *Integrated Crop Management*, a publication of Iowa State University Extension,

<http://www.ipm.iastate.edu/ipm/icm/2007/5-14/nitrogenloss.html>.
(June 3, 2008).

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