

Forage Management

PD-2022-05-02

Spring 2022 fertility considerations

Kirsten Workman and Joe Lawrence

Fertilizer prices continue to rise with no relief in immediate site. With a slowly warming spring that has seen snow and wet weather, manure applications in many locations have been delayed. As manure trucks and pumps start moving to relieve pressure on storages, and corn planting starts, keep a few of these resources and strategies in mind to maximize manure nutrients and minimize fertility costs in a challenging economic year.

Some general strategies to remember as you get started with fertility applications this spring:

- Account for the factors that go into determining nitrogen applications for corn.
- Review soil, manure tests, field histories, and fertility plans, and make applications based on your field's needs.
- Calibrate equipment.
- Don't forget pH is the first "nutrient" to consider.

Nitrogen credits: Give credit where credit is due

Credit nitrogen from all sources on the farm before determining nitrogen application rates:

- Crop rotation (sod, soybeans, cover crop)
- Soil nitrogen (N) supply
- Manure (past and present applications)

Starter and sidedress

Split up nitrogen fertilizer applications for corn. Keep starter nitrogen rates low (20 to 30 lbs/acre banded through the planter) and save the balance for sidedress applications. Similarly, phosphorous (P) can be kept as a starter application of 20 to 30 lbs/ac for fields receiving manure and utilize soil test to determine potassium (K) needs.

First year corn shouldn't need additional nitrogen beyond a 20 to 30 pound starter N application if following a perennial crop. With careful consideration for field conditions (spring manure, warm soils), manure can replace starter N.

Use the pre-sidedress nitrate test (PSNT) to identify fields where sidedress N is unlikely to result in a crop response. If you have broadcast fertilizer N, however, this isn't an effective strategy.

We cannot fertilize ourselves out of weather extremes

We do not know what the 2022 season will bring but we do know the last several years have been defined by more extreme weather patterns. Follow your N plan and do not be tempted to throw extra N at a weather-induced challenge.

Utilize manure wisely

[Manure is a valuable nutrient resource](#) in any year, but this year that is especially true. Timing and application method are going to play the biggest role in conserving nitrogen. Apply manure as close to planting as possible and get it incorporated as fast as possible. [Injecting](#) is the surest way to maximize nutrients and reduce losses, but any type of timely incorporation will save you significant amount of nitrogen. Waiting even a day can cost you significantly in the [plant available nitrogen of that manure](#).

Did it work?

This would be a great year to test these strategies with [nitrogen rich strips](#) in representative fields. These higher fertility strips in fields can be used as a comparison to help identify if any yield loss was experienced due to lack of nitrogen.

Review these recent articles for some good reminders of managing fertilizer and manure efficiently and effectively:

[Maximize fertilizer use efficiency for peak fertilizer prices of 2022](#)

[Manure - A valuable nutrient asset](#)

Perennial hay crops

The nutrient demands of corn make it the focus of many nutrient conversations, but it is also good to remember some key strategies to managing our hay crops. As with corn, there are many fixed costs in the maintenance and harvest of hay fields that can be effectively spread across greater tonnage when yields are optimized. In the majority of cases, it is far more efficient and economical to optimize homegrown forages versus purchasing silage or hay.

Nitrogen on grass

The value of intensive grass management is well documented and [guidelines exist for effective management](#). Even at high N prices, this continues (at a minimum) to be a break-even proposition and may still offer a return on investment depending on the cost of purchased feeds to replace the hay crop.

In this scenario it is important to consider current inventories and the quantity needed to cover herd needs in the coming year. If inventories are robust, consider continued intensive management of your best acres to optimize trips over the field and idling or selling extra. This can be more effective than continuing to cover all acres for lower yields.

A strong manure history can partially offset N needs. Completely replacing fertilizer N with manure is more difficult and is likely to result in over application of P and K but can be an option. [Calculate manure N credits](#) to reduce fertilizer N rates and consider leaving test strips in fields with strong manure history to understand field-specific circumstances.

Potassium on alfalfa

Potassium is important to alfalfa and has long been associated with winter hardiness. [Recent research](#) in New York showed that alfalfa growing on silt loam soils with regular manure application during corn years prior to alfalfa seeding did not respond to topdress K.

Evaluate soil test and manure history to determine the likelihood of a K response, and when it is determined that K is actually needed, applications should be made in late summer to avoid luxury consumption during the growing season.