



APPLYING NITROGEN-RICH STRIPS WINTER WHEAT

INTRODUCTION

Depending upon last year's yield and concurrent environmental conditions, nitrogen application values can substantially vary. A soil test gives an accurate determination of the amount of nitrogen available at that exact moment. However, if fertilizer decisions are made from a pre-plant soil test, there is no accurate way to estimate the amount of nitrogen either mineralized or immobilized during the winter period. The only way to know how much nitrogen was made available between planting and time of top-dress would be use of a reference strip.

Reference strips offer an even greater benefit in the adoption of no-till and when rotating after a legume. Reference strips provide information on the amount of nitrogen the environment provides (mineralized from soil organic matter and/or deposited in the rainfall). Nitrogen reference strips say a lot about the environment. In years of high production, reference strips will likely indicate the need for more nitrogen and indicate the need for less in years where growing conditions are poor.

WHEN TO APPLY

When the strip is applied in winter wheat, timing is regionally dependent. For the central great plains, N-Rich Strips are put in place when pre-plant fertilizer is applied, during or soon after planting. In most cases, fertilizer should be down by the first of November.

This does not say an N-Rich Strip applied after this time doesn't work, but it does leave more room for error. There is a chance the crop could already be stressed, or the nitrogen has not released.

For winter wheat, the placement of the strips can be delayed for up to one month after sowing. Most N-rich strips, because of their larger size, can take a light tillage pass.

WHAT TO APPLY

It's recommended to use the source that is the easiest, cheapest and most convenient to apply. It can simply be made by a double or triple pass of the applicator when pre-plant nitrogen is being applied.

The amount of nitrogen used in the N-Rich Strip is related to the crop. The table below shows the minimum amount of nitrogen suggested both for the field and the N-Rich Strip. The minimum N-Rich Strip rate is the amount of nitrogen more than the rest of the field is receiving. For example, if the producer is applying 25 pounds of nitrogen per acre, the N-Rich Strip should receive at least 75 pounds of nitrogen per acre.

For the N-Rich Strip to be effective in a timely manner, the Farmers Practice (the rest of the field) rate should not exceed 50 percent of the yield goal recommended rate. The nitrogen source used is dependent upon the situation. One of the most efficient methods of applying N-Rich Strips is to make a double pass with the pre-plant nitrogen applicator.

If a grower is struggling with the concept of a reduced pre-plant rate, a zero-check reference strip can be incorporated by simply turning the sprayer off.

CROP	MINIMUM N/ACRE FARMER PRACTICE TOTAL *	MINIMUM N/ACRE N-RICH STRIP TOTAL
Grain Only Wheat	25 lbs.	46 lbs.
Dual Purpose Wheat	60 lbs.	46 lbs.
Graze Out Wheat	60 lbs.	100 lbs.

* Total nitrogen is sum of residual and pre-plant.

WHERE TO APPLY

At least one strip is recommended in every field, every year; and it is best to change the strip's location each year to avoid overloading the area with nitrogen.

The strip should be placed in an area that best represents the field. Many people question this since it doesn't account for full spatial variability in a field, and they are correct. While it is ideal to have multiple strips, a single strip provides enough information to address the temporal variability of nitrogen demand within a field. Often, even for variable rate management, getting the right average is most important.

The best-case scenario, on a field with significant variability, is to apply one or more field-length strip(s) that cross all potential zones or long enough to cross zones, or place strips in each precisely established management or yield zone. The field length strip will allow you to determine in-season response zones. With multiple strips or a long strip, site-specific VRT can be prescribed for each zone.



N-Rich strips used in research trials. For more information, find peer-reviewed articles on our website.



N-Rich Strip in a No-till wheat field.

HOW TO APPLY

N-Rich Strips should be at least 10 feet wide and 300 feet long. It's common for strips to be wider and go the length of the field. You have a few options when it comes to equipment but keep it simple. Do what works best for your operation and workflow. Make it easy!

Option 1

Use a pre-plant nitrogen applicator, regardless source, make an additional pass over the field. This is the most effective way to apply field length strips.

Option 2

Purchase or rent a pull-type spreader with urea for a day and apply an N-Rich Strip to each field.

Option 3 (First Image Below)

A popular option is custom-made or adapted applicators. Due to multi-purpose use, ATV sprayers are the most common. In most cases a 20-25-gallon tank with a 1 gallon per minute (gpm) pump and an 8-10-foot break over boom is placed on the ATV.

Option 4 (Second Image Below)

The fourth option is to make anything that works. The second image below is a homemade boom mounted into a receiver hitch with a chemical tote filled with UAN in the back.

Option 5

Take a 100 steps with a push spreader into the field.

