

Recommendations for Using ESN on Winter Wheat - Central and Southern Plains

ESN technology protects your nitrogen investment from loss mechanisms, ensuring your wheat crop gets N when it needs it most. ESN goes beyond traditional nitrogen by providing you:

Maximum Yield – ESN has proven to increase yields by providing a continuous N supply when it's needed most.

- Maximum Flexibility – ESN can be blended with other dry fertilizers and reduce the number of required applications.
- Maximum Safety – ESN won't burn your crop like urea or ammonium nitrate.
- Convenient Application Window – ESN can allow more flexibility in nitrogen application timing.
- Protection for the environment and qualification for US Government Incentive Payments.

Wheat Use Recommendations

ESN's controlled nitrogen release provides flexibility in nitrogen application timing. It can be used to enhance nitrogen-use efficiency and crop performance in a variety of cultural practices. The options in this document give general guidelines for preferred use in wheat under different nitrogen-management strategies for the Central and Southern Plains. The potential for winter N-loss is generally low to moderate in this environment, and rainfall increases

from west to east. Soils in the northern parts of the region generally freeze during winter; soil in the southern plains generally do not freeze over winter.

Fall Application (preferred):

Best results are achieved in this region when ESN is applied in the fall at time of seeding winter wheat. For fall applications, ESN is recommended as a single N source to provide controlled feeding during the fall establishment period and rapid growth the following spring. Fall ESN application eliminates the risk and cost of spring top-dressing. Spring top-dress applications on winter wheat or spring pre-plant applications on spring wheat usually perform best if blended with soluble N sources, such as ammonium sulfate or urea.

- ESN should comprise a high percentage of the total nitrogen, typically 80-100%.
- ESN may be applied pre-plant banded, pre-plant broadcast and incorporated, as a side band application, or in seed-row following suggested seed-safe N rates for placement.
- Seed-row placed ESN provides a physical barrier between the seed and the urea within the coating and greater seed-row safety than urea or ammonium sulfate.
- ESN can be used at up to 3X the indicated safe rates of urea when it is 100% of the N source, ESN can be used at 2X the safe rate of urea when it is 70-75% of the N source and at 1.5X the safe rate indicated, when it is 50% of the total N source. Tables for seed-safe rates of ESN for soil type and planter configurations can be found at www.smartnitrogen.com/
- Small amounts of other N sources may be blended to supply some immediately available nitrogen to stimulate tillering along with other elements such as sulfur or phosphate.

ESN Representative:



Nutrien



Spring Application(acceptable):

ESN as 100% of a spring N application is not recommended for top-dressing on winter wheat in this environment primarily because of early nitrogen demand of the crop and sometimes-limited rainfall to move nitrogen into the crop root zone. Early spring N demand that may not be fully met by using a controlled-release N source. Performance of spring ESN application often improves when blended with a conventional N source. Winter wheat breaks dormancy and takes up N at soil temperatures that may be too cool for adequate release from ESN.

ESN top-dressed in spring on winter wheat in this region should be blended with a soluble nitrogen source such as urea or ammonium sulfate. For best results, blends should be applied early in the spring before or at "green-up" to assure adequate soil moisture and meet early demand of the wheat. The later the N application occurs, the greater the demand for immediate N supply and the lower the percentage of ESN recommended in the blend.

- *For late winter to early spring applications (dormant wheat to green-up), ESN should comprise 50-75% of the total nitrogen to be applied in a blend with another soluble nitrogen source.*
- *From green-up to five-leaf growth stage, ESN percentage should be reduced to 30-50% of the total N as ESN.*
- *ESN is not recommended after the five-leaf stage.*

Every type of nitrogen fertilizer is applied and handled differently. These general use recommendations for ESN are based on optimal growing conditions. Your specific conditions and goals should be considered to achieve best results.