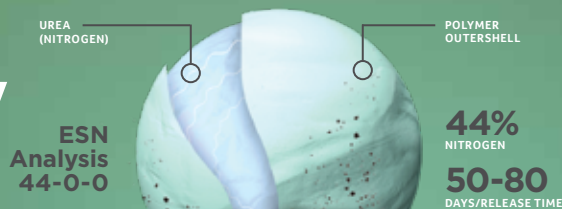




## How ESN Technology Works



### Coated Nitrogen Granules

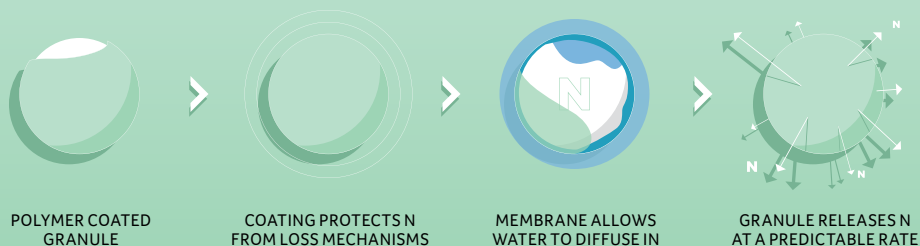
ESN technology uses a flexible, polymer coating to encapsulate an N granule. The coating protects the N from loss mechanisms, releasing it when the crop needs it most.

### Temperature Controlled-Release

The unique polymer coating releases N based on the two requirements for crop growth: moisture and temperature. Moisture creates an N solution inside the coating, and the solution moves through the coating at a rate based on soil temperature. The movement and rate match the N demand of the growing crop.

### Backed by Independent Research

ESN is backed by over 800 crop years of testing by independent, third-party researchers. The data is proof of performance for a unique product.



# Wheat



**ESN**  
SmartNitrogen



- Enhances nitrogen use efficiency
- Improves crop yield and quality
- Provides convenience through ease of use
- Environmentally responsible



Learn more about the industry's leading environmentally smart nitrogen at [smartnitrogen.com](http://smartnitrogen.com)

**Nutrien**



## ESN Technology for Wheat

Wheat needs 30 to 40% of its nitrogen (N) by the five to six leaf stage and 60 to 70% from the start of stem elongation to maturity. ESN technology controls the N supply until the growing plants need it most, which has been shown to increase both yield and grain protein. Additionally, ESN technology significantly reduces N loss to the environment. Using ESN technology is a smarter way to grow.

### ESN Technology is Shown to Improve Grain Protein and Increase Yield

Research has shown that increased yield is a result of ESN technology protecting N from loss to the environment. ESN maximizes N use efficiency, compared with traditional N treatments. From increased yield to reduced N applications, research has shown that ESN makes wheat better.

|                            | Hard Red Winter        | Soft Red Winter        | Soft White Winter         | Hard Red Spring        |
|----------------------------|------------------------|------------------------|---------------------------|------------------------|
| Yield increase/acre        | 3-6 bu. (up to 15 bu.) | 3-6 bu. (up to 30 bu.) | Av. 10 bu. (up to 20 bu.) | 3-6 bu. (up to 15 bu.) |
| Protein increase           | Potentially            | Potentially            | Potentially               | 0.5-1% (up to 1.5%)    |
| Seed placement application | Yes                    | Potentially            | Potentially               | Yes                    |
| Reduced N applications     | Yes                    | Yes                    | Yes                       | Potentially            |

Historical results based on existing data.

### Unmatched seed safety

Applied at rates up to three times higher than conventional N fertilizers, ESN won't harm growing seedlings.



### Other Benefits of ESN Technology

#### WIDER APPLICATION WINDOW

ESN provides a wider application window in both the spring and the fall, allowing you to apply fertilizer on your schedule.

#### CONVENIENT TO USE AND APPLY

ESN is compatible with no-till operations and is easy to blend. It will not set up in storage and therefore has a longer shelf life.

#### REDUCED LODGING

ESN's controlled nitrogen feeding may reduce lodging by preventing excessive early vegetative growth.

#### ENVIRONMENTALLY RESPONSIBLE

ESN significantly reduces N loss, providing substantial benefits to the environment. In the U.S., the national NRCS and local EQIP programs offer grower incentives for the use of ESN.



ESN is the only controlled-release nitrogen designed for agriculture that delivers a significant return on investment through increased nitrogen efficiency.

### Application Timing and Handling

ESN is generally applied at rates similar to conventional N fertilizers. Field location, weather conditions, timing of N demand and potential for N loss are all factors to consider in determining application timing.

ESN was developed and extensively tested to resist the effects of normal handling. Excessive handling can affect the coating and N release.

For more application timing and handling recommendations, talk to your local retailer, ESN representative or visit [smartnitrogen.com](http://smartnitrogen.com).