

## Pacific Northwest – Low N-loss environments

- ▶ Fall Application
  - 50-100% ESN blends may be applied pre-plant banded, pre-plant broadcast and incorporated, as a side band application, or in the seed-row following suggested seed-safe N rates
- ▶ Spring Application
  - ESN may be applied on dormant wheat as a blend with a soluble N source such as urea and/or ammonium sulfate
  - A blend of 60-70% ESN is suggested for late winter/early spring application
  - For later spring applications, a 40% ESN blend is suggested. ESN is not recommended after the 5-leaf stage
  - For dry areas with unreliable spring and early summer precipitation, ESN should not be left on the soil surface and is generally not recommended

Wheat Development and ESN Nitrogen Management		
Time of Application	Recommended Blend	
	ESN	Conventional N
Fall: at planting or after emergence	100%	Not needed
Winter/spring: on dormant weed	75-100%	0-25%
Spring: on actively growing wheat (2 to 5 leaves)	40-75%	25-60%
Spring: just before jointing (beginning of stem elongation, 5 to 6 leaf stage)	0-30%	70-100%



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For more information about ESN technology visit [SmartNitrogen.com](http://www.SmartNitrogen.com) or call **1-888-757-0072**. To contact the field representative in your area go to <http://www.SmartNitrogen.com/contact-us.aspx>



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 06/11-13800-08



# Application and Use Recommendations Winter Wheat



*These are general use recommendations based on optimal growing conditions. Knowledge of local conditions and grower production or yield goals should be considered to modify or blend to achieve best results.*

## Benefits of ESN

- Yield – average increases of 3-6 bu/acre and up to 30 bu/acre
- Seed row N application – apply up to 3 times the safe rate of urea
- Protein increase up to 0.5-1.0%
- Can increase application window by up to 6 weeks

## Application Recommendations

- Wheat needs 30-40% of N by five to six leaf stage and 60-70% from the start of stem elongation to maturity
- ESN may be applied either in the fall at seeding or in the early spring as a top-dress in blends with other N fertilizers depending on geography

## Geographic Recommendations

### Western Canada and Northern Plains

- ▶ Fall Applications (preferred)
  - 50-100% ESN blends are recommended and may be applied pre-plant banded, pre-plant broadcast and incorporated, as a side band application, or in seedrow following suggested seed-safe N rates
- ▶ Spring Applications
  - ESN should be applied prior to winter wheat breaking dormancy
  - ESN can be top-dressed on wheat as a blend with other soluble nitrogen sources such as urea or ammonium sulfate
  - A blend of 40-60% ESN is recommended for late winter/early spring application prior to green up and a 20-40% blend of ESN after wheat has broken dormancy
  - For dry areas with unreliable spring and early summer precipitation, ESN should not be left on the soil surface

### Central and Southern Plains

- ▶ Fall Applications (preferred)
  - 80-100% ESN blends are recommended and may be applied pre-plant banded, pre-plant broadcast and incorporated, as a side band application, or in seedrow following suggested seed-safe N rates
- ▶ Spring Applications
  - Spring top-dress ESN applications are generally not recommended in this region because of unreliable spring and early summer rainfall
  - If this application is to be used, ESN should be applied prior to wheat breaking dormancy in a blend with not more than 60% of the N from ESN
  - ESN should not be left on the soil surface in this region

### Northeastern US and Eastern Canada

- ▶ Fall Applications
  - Fall applications of ESN are not recommended in this area. If ESN is to be applied in the fall, ESN should constitute a high percentage of fall-applied N and should be applied only in late fall when soils are cool

- ▶ Spring Applications (preferred)
  - ESN can be top-dressed on winter wheat as a blend with a soluble nitrogen source such as urea or ammonium sulfate
  - A blend of 75-100% ESN is recommended for late winter/early spring application prior to green-up and a 50-75% blend of ESN is suitable for applications after green-up
  - ESN is not recommended after the 5-leaf stage

### Southeastern US

- ▶ Fall Application
  - Fall ESN applications are not recommended in this region
- ▶ Spring Application
  - ESN can be top-dressed on wheat as a blend with a soluble nitrogen source such as urea or ammonium sulfate
  - A blend of 75-100% ESN is recommended for mid-winter/early spring application
  - A 50-75% blend of ESN is recommended at green-up
  - A 30-50% blend of ESN is recommended for later spring applications up to the 5-leaf stage
  - ESN is not recommended after the 5-leaf stage

### Pacific Northwest – High N loss environments

- ▶ Fall Application
  - 100% ESN blends are acceptable if applied in late fall when soils are cool
- ▶ Spring Application
  - ESN can be top-dressed on winter wheat as a blend with a soluble nitrogen source such as urea or ammonium sulfate
  - A blend of 75-100% ESN is recommended for late winter/early spring application prior to green-up
  - A 50-75% blend of ESN is recommended at green-up
  - A 30-50% ESN is recommended for later spring applications up to the 5-leaf stage
  - ESN is not recommended after the 5-leaf stage



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

