



# Winter Cereals

*Sustainability in Action*



## NITROGEN FERTILITY

**Nitrogen (N) fertility** is an important consideration in winter wheat production. No product source, timing, placement, and rate combination is best for all farms and all circumstances. An on-farm assessment of time management, cost, risk of loss, and equipment available will assist producers in making the right N management decisions.

### Fall Applied N Options:

There are several advantages of applying N at planting time. Typically, the price of N is more cost-effective in the fall than in the spring of the following year. If the nitrogen requirements of the crop can be applied at the time of seeding, the additional time and expense of a second pass over the field can be eliminated. Also, it ensures that there are nutrients available to the crop early in the spring, a critical time in establishing yield potential. Spring applications can get delayed due to poor weather or adverse field conditions, thus limiting the roots' access to available N.

Possible disadvantages of N applications at seeding time are risk of seedling damage and risk of significant N losses. If placing N in the seedrow, safe rates of up to 30 lbs/ac can be applied, but may vary with moisture conditions, soil type, type of opener, and row width. Seedling damage can largely be overcome with openers, which place fertilizer away from the seedrow. If warm and moist soil conditions persist for a long period following seeding, risk of N losses due to denitrification or leaching can be substantial. Slow release N products such as ESN can create more options for producers wishing to place higher rates of N with the seed and can also decrease the risk of these N losses.

Topdressing in late fall has also attracted the attention of some growers. With the cooler temperatures that the Prairies typically experience in late fall, N losses are usually minimal. Applying urea to cold (temperatures below 10°C approximately), **but not frozen** soils is the primary way to minimize losses. Precipitation, either as rain or wet snow, is always needed to move surface-applied urea



into soil so it does not volatilize. On warm soils having temperatures above 15°C, it is essential that precipitation occur within a day or two of application to minimize losses. On cold soils, the critical window for rain or snow is a little wider at five to seven days after application. To minimize N losses, spread urea fertilizer when rain or snow is in the forecast or when the chances are good for substantial showers soon after application.

### Spring Applied N Options:

The key to a successful spring broadcast N application is to apply early when soil conditions are still cool. A healthy winter wheat crop will resume growth early in the spring. Cereal crops use 70 per cent of their N by late tillering and late applications of N will hinder the plant's ability to convert this into yield. As a rule of thumb, spring N applications should be made as soon as it is dry enough to operate equipment without making too many ruts. Some growers will even apply very early when they can still travel on the frost, however it is not a good idea to apply N on frozen soils.

SEE OVER FOR MORE





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Ducks Unlimited Canada and Bayer CropScience for the future of agriculture includes a stewardship model that recognizes the agricultural productivity of farmland while retaining and improving the habitat available to North America's waterfowl and other wildlife.

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