

## Prioritizing Potassium Fertilizer Applications in 2005

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International demand and logistical problems with transporting potash fertilizer from the Canadian source to U.S. fertilizer suppliers have resulted in significant potash price increases and potential supply shortages for the 2005 growing season. Potash fertilizer prices in recent years have ranged from \$0.11 to \$0.13 per pound of K<sub>2</sub>O but current prices are about \$0.19 per pound of K<sub>2</sub>O.

If potash supplies are limited, farmers may need to prioritize use of the available potash to those situations where responses and economic returns will be maximized. The following suggestions may be useful for using potentially limited potash supplies effectively.

- (1) Soil test to determine soil K status and the need for K additions — Soil test information is essential to making informed decisions about allocating limited potash supplies. Current soil tests are most useful but tests from 3 to 4 years ago together with crop yield and K application history can give useful information about soil K levels.
- (2) Fully credit K in manures—Fields receiving manure applications may not need additional K.
- (3) Apply K first to lowest testing fields — Fields with low or very low soil test K levels will show the largest yield increases and economic returns from added K.

Table 1. Corn grain yield response to soil test K at Arlington, WI (4-yr average).

Soil test K		
Category	ppm	% of maximum yield
Very low	< 70	69
Low	70 to 90	77
Optimum	90 to 110	93
High	110 to 150	98
Excessively high	>150	100

Table 1 shows that only about 70 to 75% of maximum corn yield was obtained when soil test K levels were in the very low or low categories, while 93 to 98% of maximum yield was achieved with optimum or high soil test K levels. Extension publication A2809 contains soil test K interpretations for other crops and soils. You can see this publication at <http://cecommerce.uwex.edu/pdfs/A2809.PDF>

- (4) Apply some potassium to all fields likely to respond to K — This would include soils testing very low, low, and optimum in K. The first increments of applied K will produce the largest yield response and benefits. The amounts applied may be less than the full amount recommended, depending on the amount of potash fertilizer available.
- (5) Apply banded K to increase K efficiency — Consider this option for crops such as corn where banded starter fertilizers are often used. For corn on soils with optimum or lower soil test levels, 30 to 40 lb K<sub>2</sub>O/acre applied in starter fertilizer will optimize yields in many situations. It should be noted that these K application rates will not keep up with crop removal. However, these lower K rates may provide a short-term method to deal with limited K supplies without substantial yield reductions.
- (6) Defer K applications on soils testing high or above — The probability of crop yield response to added K at these soil test levels is low. Future K additions may be needed to avoid soil test K depletion.
- (7) Consider overall nutrient needs and the budget available for fertilizer purchases — For example, it might be possible to avoid P additions on high P-testing soils and allocate the savings to purchase additional K.

In summary, potash fertilizer prices have increased and fertilizer supplies may be limited in 2005. Soil test K information is essential for prioritizing K applications to those fields most likely to respond to added K. Full crediting of K in manures and using banded K fertilizer applications where practical are important for making the most of available K supplies. For more soils information see our web site at <http://www.soils.wisc.edu/extension/>.