

PLANT NUTRIENTS

AdvanSix Sulf-N® Ammonium Sulfate

Boost Potato Yields With Better Nitrogen Management

The loss of nitrogen fertilizer through leaching can take a big bite out of potato yields. Leaching can occur in many different soil types, but it's a particular threat where soils are sandy. That's because sandy soils have rapid water infiltration rates and low water holding capacities. In these soil types, potato roots tend to concentrate in the upper 24 inches of soil. Nitrogen (N) that leaches below this depth is not likely to be recovered.

In a potato study conducted by the University of Wisconsin at the Hancock Experiment Station, significant leaching occurred in four out of six years (1992, 1993, 1994 and 1996). The good news is that potato growers can minimize leaching and maximize yields through careful nitrogen source selection and application timing.

Effect of Nitrogen Source on Potato Yields

Source*	Avg. Yield cwt/acre
Ammonium Sulfate	528
Ammonium Nitrate	504
Urea	502
Calcium Nitrate	490
Check	346

*200 lbs N/acre. 50 % banded at emergence. 50% banded just prior to hilling. Data presented in L.G. Bundy, R.P. Wolkowski, and G.G. Weis. 1986. Nitrogen Source Evaluation For Potato Production On Irrigated Sandy Soils. American Potato Journal. 63:385 - 397.

Split nitrogen applications. Other research indicates that a 30/70 split is better than a 50/50 split of nitrogen applications. Based on results gathered from 1991 through 1996, University of Wisconsin researchers suggest applying no more than one-third of the total nitrogen fertilizer at emergence. The remaining nitrogen should go on at early to mid-tuberization. To keep tabs on late-season leaching, the researchers also advise monitoring petiole nitrate levels. If petiole nitrate levels drop below the optimum range prior to 65 days after emergence, they recommend applying an additional 30 to 50 pounds per acre of nitrogen.

Use ammonium sulfate. In four out of five years, ammonium sulfate (21-0-0-24S) produced the highest yield of potatoes grown in an earlier University of Wisconsin study -- higher than ammonium nitrate, urea and calcium nitrate. In a University of Minnesota study, ammonium sulfate produced the highest potato yields in five out of five years.

The ammonium advantage. Sulf-N® ammonium sulfate supplies 21 units of nitrogen in the ammonium form, plus a sulfur bonus — 24 units of sulfur in the readily available sulfate form. Ammonium nitrogen resists loss from leaching, denitrification and volatilization, while sulfate sulfur is the only form that is readily available for crop uptake.

Pencil out the profits. Based on a per-pound nitrogen cost of \$0.65/lb and a per-pound sulfur cost of \$0.55/lb, the extra yields generated by ammonium sulfate in the Wisconsin and Minnesota studies increased net returns on fertilizer investment by as much as \$204 per acre over ammonium nitrate and \$168 per acre over urea (based on potatoes selling at \$6/cwt.).

Contact AdvanSix

To learn more about the benefits of Sulf-N® Ammonium Sulfate, visit AdvanSix.com or SulfN.com or call: **1-844-890-8949** (toll free, U.S./Can.) **+1-973-526-1800** (international)

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