Ammonium Sulfate as a Nitrogen Source
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Ammonium sulfate (AS) is the oldest manufactured nitrogen (N) fertilizer. It is actually produced as a by-product in many industrial processes including the manufacturing of steel and some polyester compounds. With the decreasing availability of ammonium nitrate, many fertilizer retailers are advertising ammonium sulfate as a replacement. There are several factors you should consider before applying AS

Advantages of using ammonium sulfate
1. Unlike urea, AS is not subject to volatilization loss.
2. It is not subject to denitrification loss if soils become saturated right after application.

Disadvantages of using ammonium sulfate
1. It only has 21% nitrogen (420 lb N/ton).
2. It is much more acidic form of nitrogen and requires 5.35 lbs of pure limestone to neutralize the acidity resulting from 1 lb N as AS (compared to only 1.8 lbs of limestone per lb N as urea and other common N sources).
3. It is almost always more expensive per lb of N.
4. There has not been a documented case of S deficiency in any field crops growing in Kentucky, so S in AS is not needed.
5. High tissue S levels have been observed in KY forages causing copper and selenium deficiency in grazing cattle. Adding additional S as ammonium sulfate will further worsen this problem.

Economic Calculations
Ammonium Sulfate at $375 per ton = $375 /ton ÷ 420 lb N/ton = $0.89/lb N
Ammonium Nitrate at $500 per ton = $500/ton ÷ 680 lb N/ton = $0.74/lb N
Urea at $600 per ton = $600/ton ÷ 920 lb N/ton = $0.65/lb N
Ammonium Sulfate would have to cost $258/ton to be equal to $600/ton urea
Calculation: 0.65/lb N x 420 lb N/ton = $273/ton - $15 (approximate lime cost).

Conclusions
Because it is a by-product, it is sometimes possible to find AS at a bargain price. However make sure you are comparing it on a lb N basis and realize that 3.5 additional lbs of pure limestone will be needed to offset the increased acidity. The lime doesn’t need to be added each year, but the frequency of liming will be much higher. For additional information on choosing the right N source, contact your local county Extension agriculture agent.