

WHAT IS THE RIGHT SULFUR SOURCE TO APPLY?



The answer depends on several factors.

When it comes to fertilizers, there are 2 sources of sulfur – elemental and sulfate. The source of sulfur you choose to apply varies depending on time of year, precipitation pattern and soil type.

As soil temperatures cool, the soil microbial activity slows down and the process of converting elemental sulfur to sulfate sulfur (oxidation) slows down as well, making elemental sulfur an option for fall application in many geographies. Elemental sulfur is in a form less likely to be lost to the environment (i.e. sulfate leaching) and will become available when soil temperatures warm up the next spring. Oxidation rates depend on several environmental and soil factors, as well as some fertilizer characteristics.

Environmental and Soil Factors	Fertilizer Factors
Microbial presence	Sulfur particle size
Soil temperature, moisture, aeration, and soil PH	Sulfur particle distribution, fertilizer particle dispersion

For oxidation of elemental sulfur, finer sulfur particles oxidize more rapidly. In the table below, published research from a laboratory – controlled environment – shows the impact of elemental sulfur particle size on oxidation rates. In general, fertilizers with smaller sulfur particle sizes should oxidize quicker than other fertilizers with bigger particle sizes, but this oxidation rate depends on the environmental factors above.

Particle size (microns)	2 weeks	4 weeks
	Oxidation (%)	
2000-841	2%	5%
841-400	5%	14%
177-125	36%	68%
<63	80%	82%

Source: <http://canola.okstate.edu/cropproduction/fertility/sulfuroxidation.pdf>

Either form of sulfur can be applied in the spring. Sulfate sulfur is in a form that is immediately available to the crop making it ideal for spring and in-season applications. However, sulfate can also be leached out of the soil profile during high rainfall and under certain soil conditions, similar to nitrate-nitrogen leaching. To reduce chances of loss, the best time to apply sulfate-sulfur is when the crop is actively taking up nutrients.

Smart Nutrition MAP+MST can be applied in the fall or spring.

The sulfur source in Smart Nutrition MAP+MST is elemental, but it's due to the particle size (<15 microns) of the elemental sulfur that allows Smart Nutrition MAP+MST to be applied in the spring as well as the fall. The small particle size allows for oxidation to happen quicker. The sulfur is distributed throughout every granule, releasing sulfur when the crop needs it most. **It is recommended to blend with AMS when applying in cooler environments to get immediate sulfur uptake from AMS while waiting for the sulfur from Smart Nutrition MAP+MST to oxidize and become available.**

Want to know more? Contact your local retailer or Nutrien representative.

www.smartnutritionmst.com

Smart Nutrition MAP+MST gives farmers the flexibility to apply sulfur when they want in one product.



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