

## FUSN™ Technical Bulletin—Potato Evaluation

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### Introduction:

Potatoes must have adequate nitrogen (N) and sulfur (S) to reach their growth and quality potential. Including sufficient sulfur in the field's nutrition plan is essential for the amino acid synthesis that builds protein in the plant.

### Challenge:

Traditional ammonium nitrate (AN) products detonate easily, which raises concerns for growers' safety along with national security. Delivering plant-available nitrogen and sulfur with low detonation risk is a paramount concern for potato growers.

### Research:

Previous scientific efforts have led to the development of FUSN™, a granular fertilizer that chemically fuses ammonium sulfate (AMS) and AN. The result is a source of plant-available N that is not highly explosive. The current study aimed to compare the efficacy of FUSN with ammonium sulfate fertilizers in a plant nutrition program.

Dr. Terry Tindall and Dr. Galen Mooso conducted field trials in southwestern Idaho with Ranger Russet potatoes in 2014 and Umatilla potatoes in 2015. Soils were pH 7.7 sandy loam with a coarse texture and fields were sprinkler irrigated. Potatoes had not been produced on the field for several years.

### Methodology:

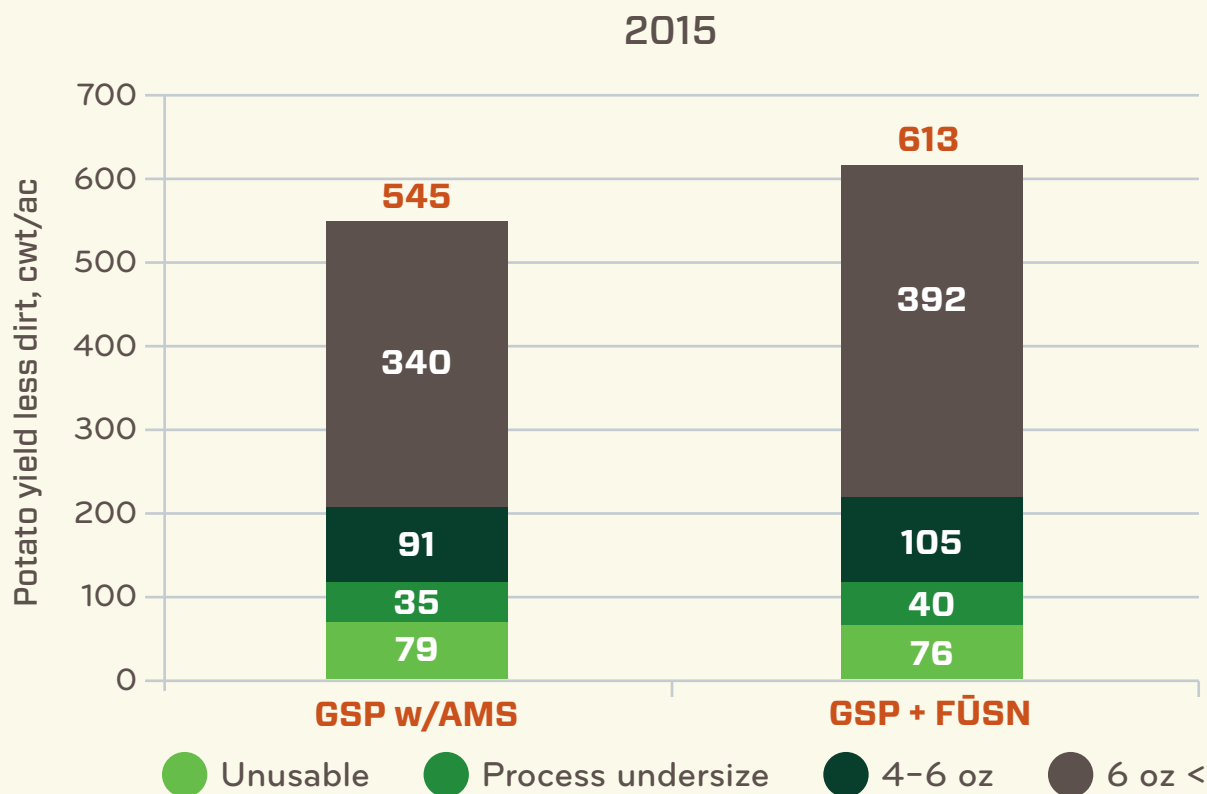
The field was divided into four equal sections. The first and third sections received a blend of AMS and urea. The second and fourth sections were treated with FUSN at a similar concentration. Nutrients to all four sections were delivered as 100 lbs N/acre topdressed between planting and emergence, then incorporated with the final tilling. Additional N was applied during the season as urea ammonium nitrate 32-0-0 (UAN) with irrigation as needed to maintain soil water content of 65–70%. Petiole samples were taken at 10-day intervals from mid-June through mid-August.

### Results:

Tubers were hand-dug for sampling and revealed visible differences in quality; the FUSN potatoes had fewer undersized and deformed potatoes. The field sectors treated with FUSN had a higher early concentration of N than the sectors that received only ammonium. Yield of tubers meeting the requirements to be graded U.S. #1 increased with FUSN.

### Practical Applications:

FŪSN improved early N uptake and bulking in young plants. Yields and tuber quality increased with FŪSN as well, leading to an increase in income from \$2,776/acre with grower's standard practice to \$3,860/acre with FŪSN.



Overall changes in yield and sizing characteristics comparing GSP w/AMS and GSP + FŪSN for 2015 Umatilla potatoes.