

Dry Nitrogen Fertilizer Sources Including FUSN™ for Corn Production under Furrow and Sprinkler Irrigation with and without Starter 6-24-6

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Introduction:

Improving management practices for crops can increase yield while lowering nutrient requirements. Agronomists seek to develop scientifically proven crop management routines that give growers reliable guidelines when they select the nitrogen (N) sources that will form the updated grower standard practice (GSP).

Challenge:

Nutrient losses, differing management practices, and uncertainty about best practices can keep growers from producing the highest yield possible. When researchers discover improved management strategies for a crop, they must ensure growers have access to the results of the latest research.

Research:

Dr. Terry Tindall and Dr. Galen Mooso, in cooperation with both Simplot Grower Solutions and Simplot Land and Livestock, ran field trials on corn fields in southwestern Idaho during 2015. This was the fourth year of testing different nutrient strategies on the two fields used for the study.

The first field was in the Arena Valley area, west of Wilder, Idaho. Corn seed was planted under heavy crop residue, then pivot irrigated. The second field was outside Nampa, Idaho. Researchers used traditional tillage and furrow irrigation.

Nitrogen (N) was not incorporated into either field, to study N losses due to differing field management practices.

Methodology:

Researchers applied six dry N sources to both fields: urea (GSP), urea + N-N (NutriSphere-N® (SSN)), Simplot's FUSN™ (26-0-0-14), urea sulfate blend (26-0-0-14), urea + Eclipse (volatilization inhibitor), and JRS (15-01). The Arena Valley field also tested BASF's LIMUS, a nitrification and volatilization inhibitor. Nutrients were applied with a GPS-enabled TerraGator on plots of 24 rows of corn. Treatments were applied twice to reduce chances of randomization error. A liquid starter of 6-24-6 with AVAIL® was applied to half of the rows in each plot.

Results:

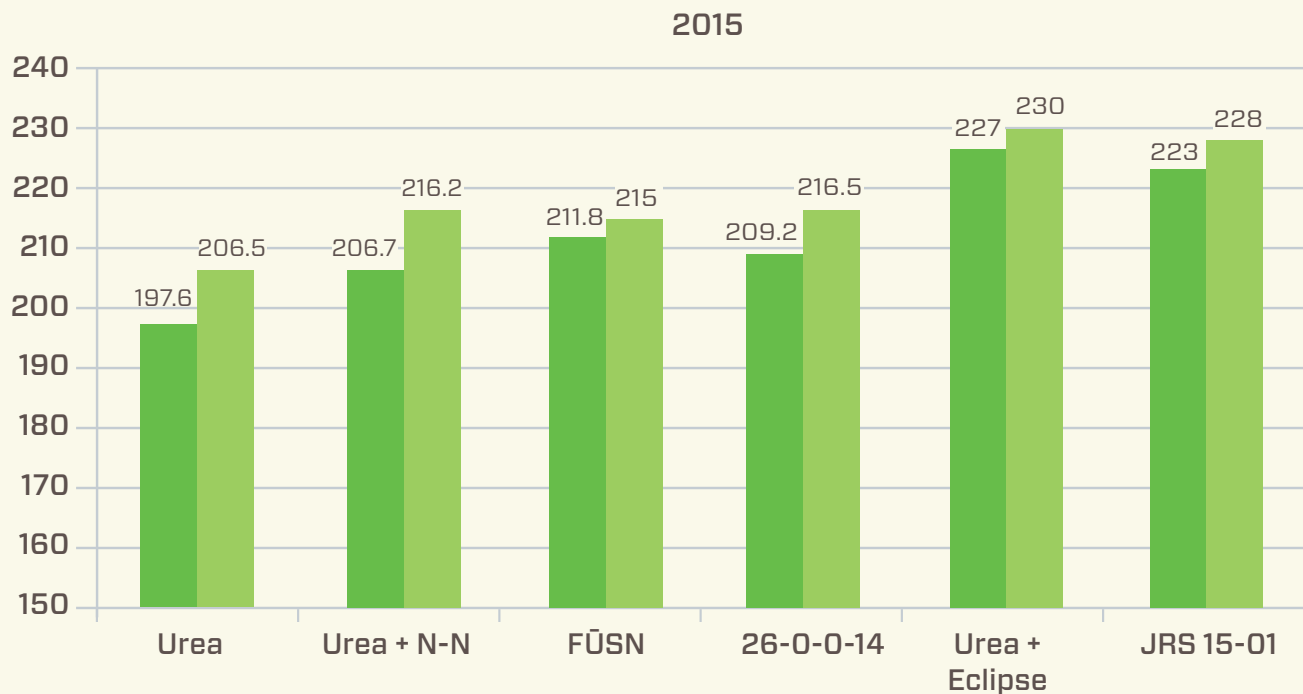
All N treatments improved yield over GSP. FUSN increased yield by 14 bu/ac for the pivot-irrigated field and 16 bu/ac for the furrow-irrigated field. N loss for the Arena Valley field was higher, likely due to the time required for N to work down through the crop residue and be incorporated into the soil. Eclipse, which inhibits volatilization, provided the highest yields for this field.

The researchers held six field-day events to inform growers and others in the agriculture industry of their methodology and findings.

Practical Applications:

Both NutriSphere-N and FUSN gave positive results over GSP for corn crops using both pivot and furrow irrigation. Liquid starter applications benefited yields across all treatments.

Effect of Nitrogen Source and Starter Fertilizer on Pivot-Irrigated Corn Yields Near Wilder, Idaho



Response of starter 6-24-6 with AVAIL to various dry N formulations—Arena Valley, 2015.