



Sidedressing Nitrogen for Maximum Yields

After planting, growers must make critical management decisions to ensure a good harvest. One important decision is how to manage the sidedress application of nitrogen (N) fertilizer. In this paper, we will discuss how the right timing and the right technologies can optimize sidedress N applications and maximize corn yield.

The Right Timing: When Should You Sidedress N?

When planning a sidedress N application, one key point growers need to consider is application timing. The “right” timing is critical for optimal N uptake.

A developing corn plant needs the majority of its N during growth stages V8 through VT/R1, when the rapid uptake and utilization of N is essential for maximum grain yield. Any limitations on plant available N at this point can significantly reduce the crop’s final yield. Therefore, applying sidedress N around the V6 growth stage – approximately 24–30 days after emergence – ensures that the crop will be supplied with N when demand is highest.

Source	Form	Method	Timing
NH ₃	Gas	Injected	By V6
UAN 28%	Liquid	Injected, Dribbled, Broadcast	By V6
UAN 32%	Liquid	Injected, Dribbled, Broadcast	By V6 and Pre VT
Urea	Dry	Broadcast	By V6

Note: Rates are based on yield goals and amount of N applied at or around planting. All fertilizer applications should be based on soil test recommendations and crop needs.

Applying sidedress N at V6 ensures that a corn crop will be supplied with N when demand is highest.

The Right Technologies: What Technologies Can You Use to Give Your Sidedress Application a Boost?

Growers can also consider using supplemental technologies, such as fertilizer biocatalysts and nitrogen stabilizers/inhibitors, as these technologies can enhance the sidedress application.

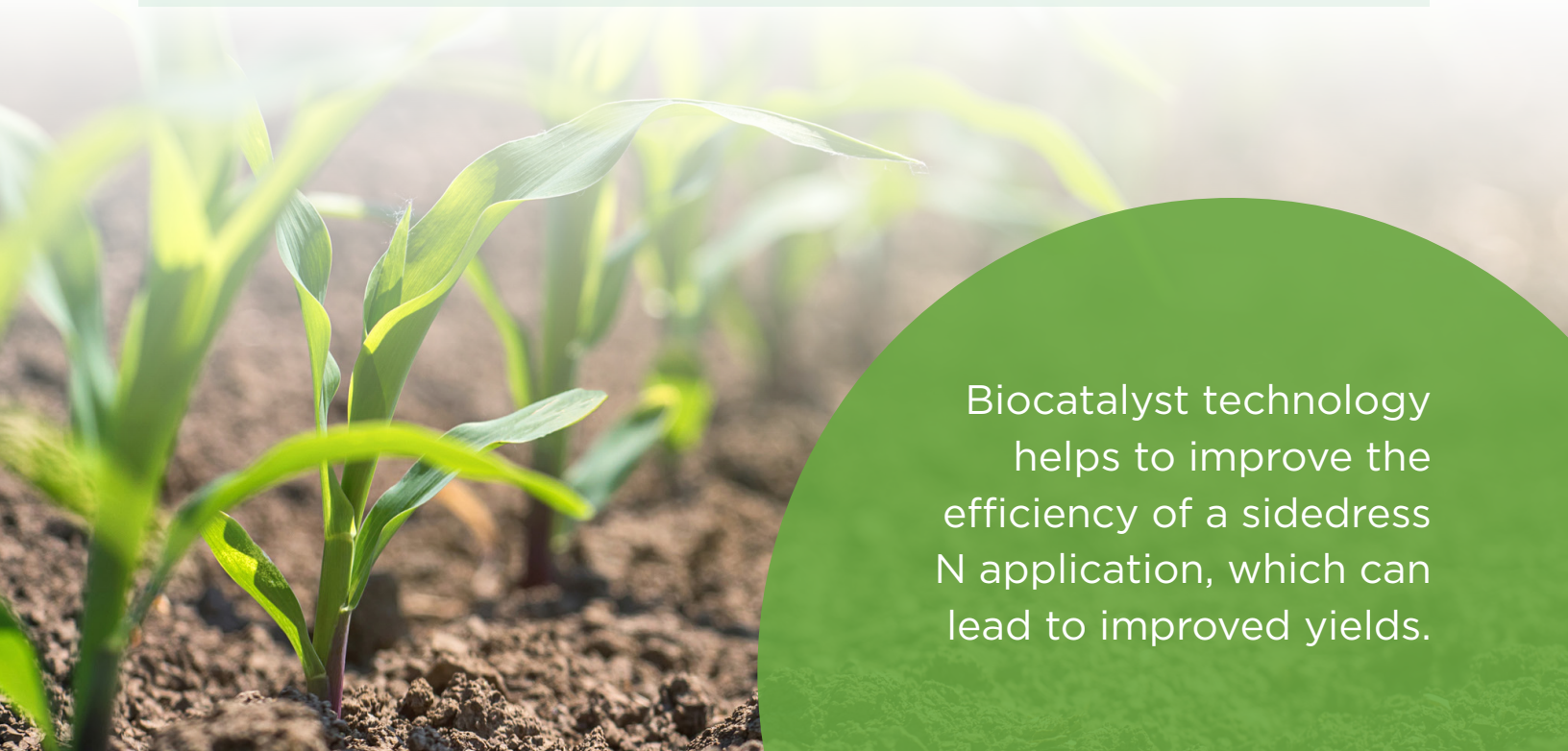
Fertilizer biocatalysts can be used to make sure that both applied N and soil nutrients are in the most efficient form for plant uptake, while nitrification inhibitors or stabilizers can ensure that N remains in the ammonium (NH_4) form and in the root zone for plants to access when they need it most.

Extract Powered by Accomplish® is a fertilizer biocatalyst available from Loveland Products that effectively convert nutrients into plant-available forms and facilitates plant uptake. This includes helping to convert applied and organic N into nitrate (NO_3) and ammonium (NH_4), the optimal plant-available form of N.

It can be applied directly with sidedress N alone or along with a nitrogen stabilizer technology. In both cases, it can help to improve the efficiency of a sidedress N application, which can lead to improved yields.

Biocatalyst Product Benefits:

- Improves nutrient availability and uptake
- Enhances nutrient use efficiency
- Promotes better root growth and development
- Improves plant performance
- Optimizes yield potential
- Used at low volumes and compatible with a variety of fertilizers



Biocatalyst technology helps to improve the efficiency of a sidedress N application, which can lead to improved yields.

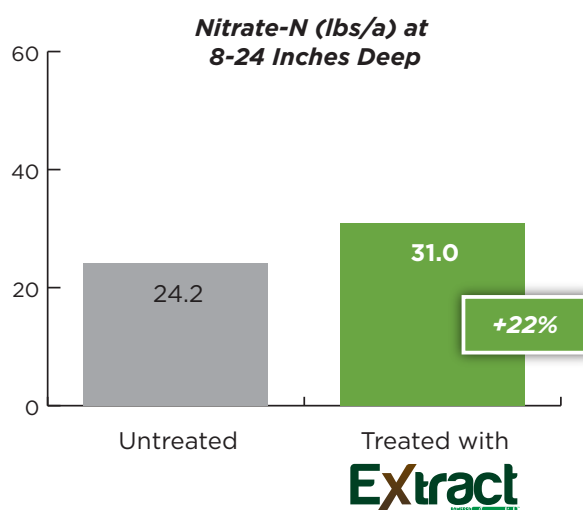
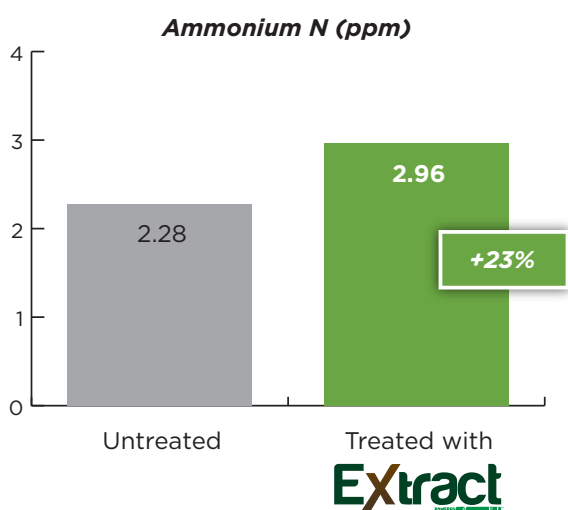
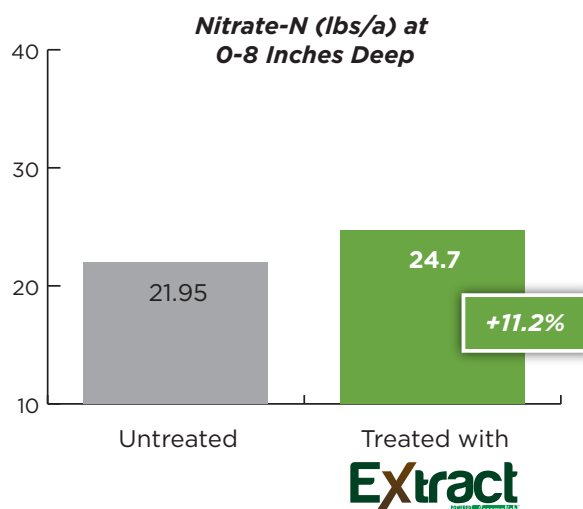
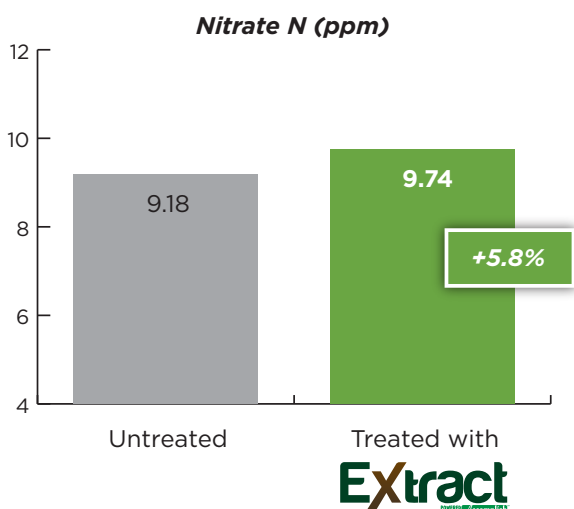
Proven Results

At the University of Nebraska's West Central Research and Extension Center, Extract PBA was applied at 1 gallon per acre onto fallow soil (absent of a growing crop) with a history of manure applications. Soil testing was then performed on the treated and untreated fallow soil every two weeks for four months to determine nutrient availability and assess soil health.

Extract PBA increased the availability of all pools of nitrogen, including inorganic and potentially mineralizable N pools, compared to the untreated soil.

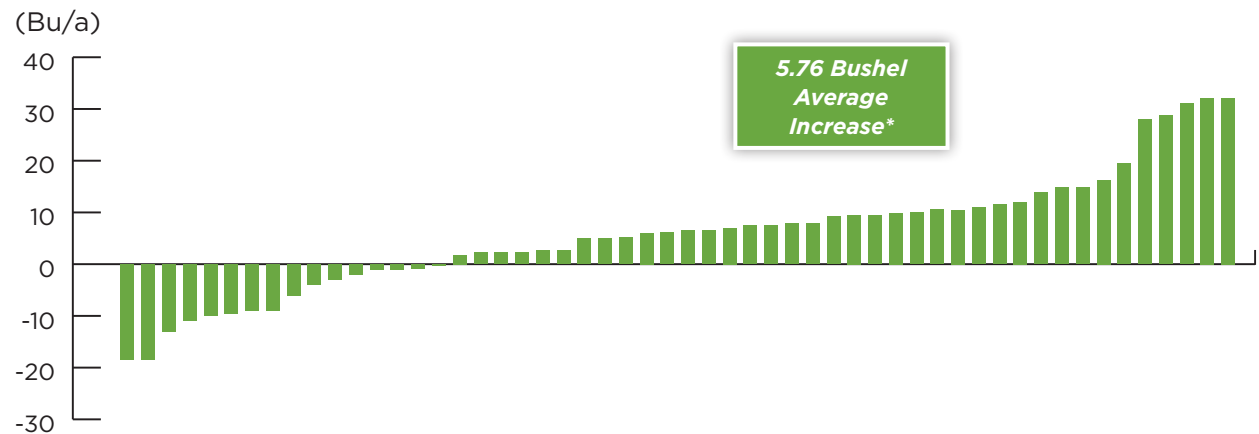
Better Nitrogen Availability with Extract PBA

Extract applied at 1 gal/acre



Proven Results (cont'd)

Biocatalyst Technology: Sidedress Results (6 Years of Data)



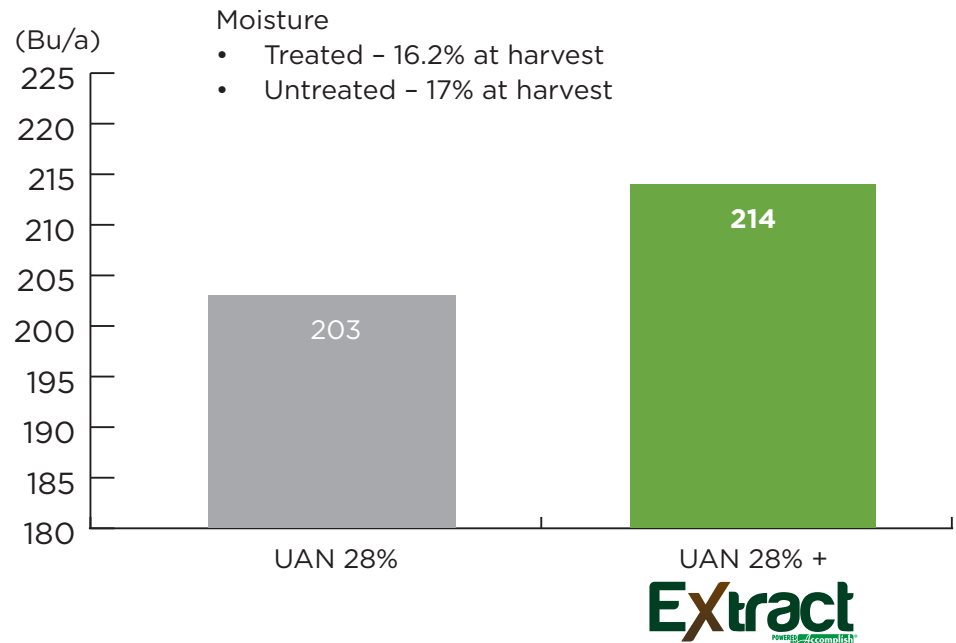
**54 observations; All negative observations were from the drought of 2012.*



Extract PBA with Sidedress N

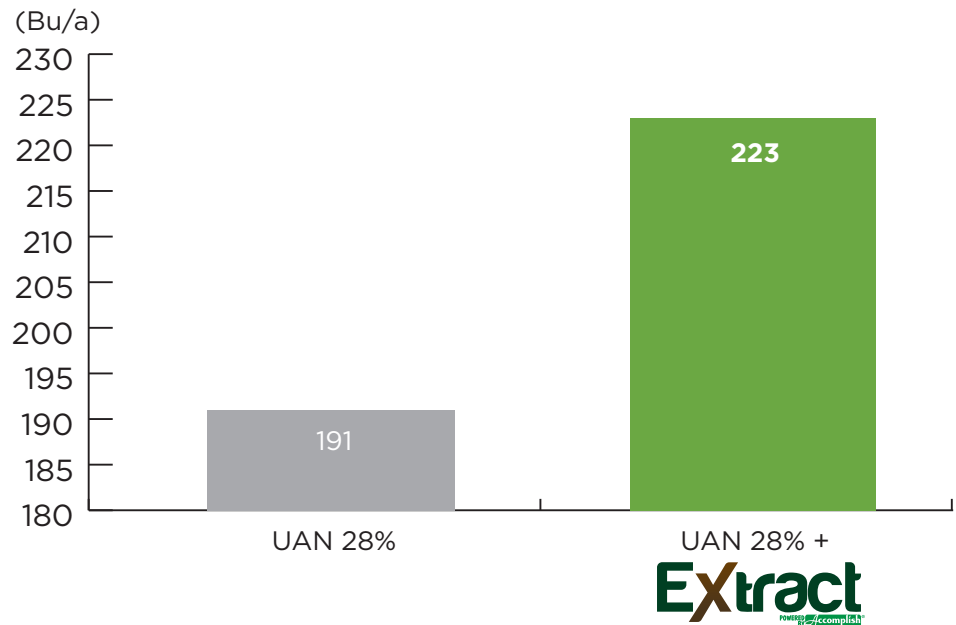
Corn - West Lebanon, IN

Extract PBA applied at 1 gal/acre with UAN 28% sidedress



Corn - New Brunswick, IN

Extract PBA applied at 1 gal/acre with UAN 28% sidedress



Why include biocatalyst technology as part of a sidedress program?

1. Biochemistry in this technology increases availability of N,P, K and full range of micronutrients
2. Biochemistry enhances nutrient uptake (more N taken up by plants)
3. Biochemistry mineralizes organic N, increasing the amount of ammonium (NH_4^+) which is a stable form of N (+ charge) and the preferred form for plants; Nitrate (NO_3^-), the other form of N used by plants, is not stable (- charge), requires more plant energy to utilize and is vulnerable to losses to the environment.

Recommended Rates

In a standard sidedress program, 1 gallon/acre of Extract PBA can be combined with various rates of liquid N fertilizer. When higher rates of fertilizer (30+ gallons/acre) are used in a sidedress program, an increased rate (2 gallons/acre) of Extract PBA may be needed to facilitate the additional nutrient load.

Recommended Sidedress Application Rate:



- 1-2 gallons/acre with N

Conclusions

When Extract PBA is combined with a sidedress N application, increased N availability and facilitation of nutrient uptake can result in increased corn yield.

Growers can optimize their sidedress programs and achieve the highest yields possible by combining this biocatalyst technology with their sidedress N applications.



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