

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.


Accomplish® LM and Extract Powered by Accomplish® are fertilizer biocatalysts 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.

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

The following pages show several years of recent field trials that demonstrate the benefits of using biocatalyst technology with a sidedress N application.

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

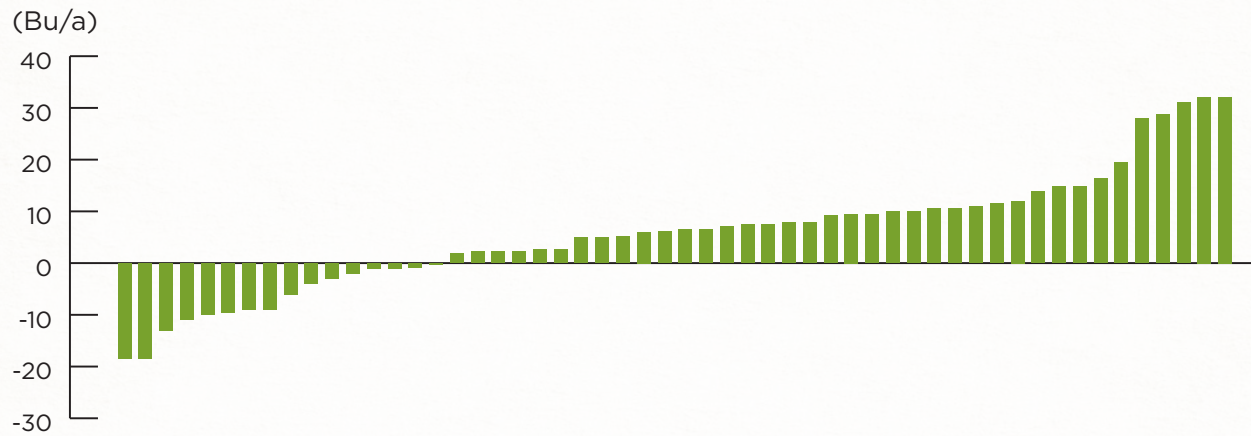


Biocatalyst technology helps to improve the efficiency of a sidedress N application, which can lead to improved yields.

Proven Results

Biocatalyst Technology: Sidedress Piano Graph (2011-2016)

*5.76 Bushel Average Increase**



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

Accomplish LM with Sidedress N

Corn - Onarga, IL

Accomplish LM applied at 2 qts per acre with 220 lbs of UAN 28% at pre-plant



Untreated
UAN

Treated with
Accomplish^{LM}



Untreated
UAN

Treated with
Accomplish^{LM}

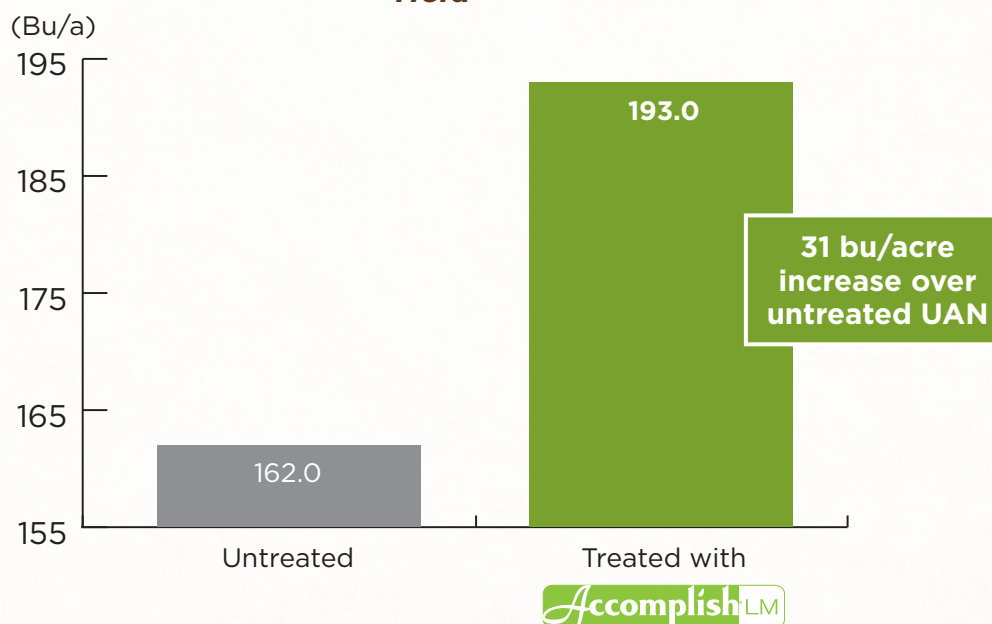


Untreated UAN



Treated with **Accomplish^{LM}**

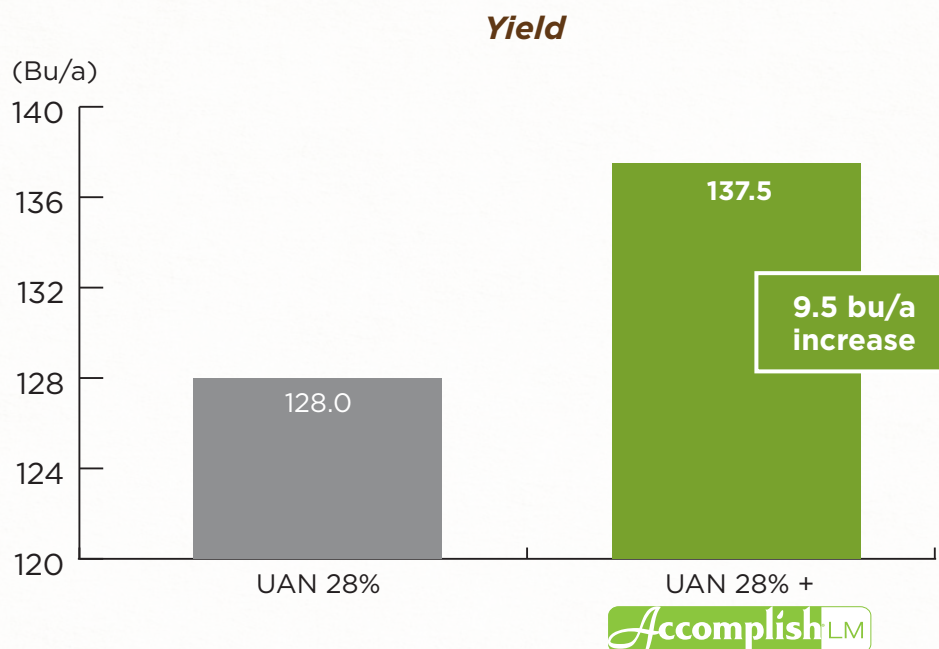
Yield



Accomplish LM with Sidedress N

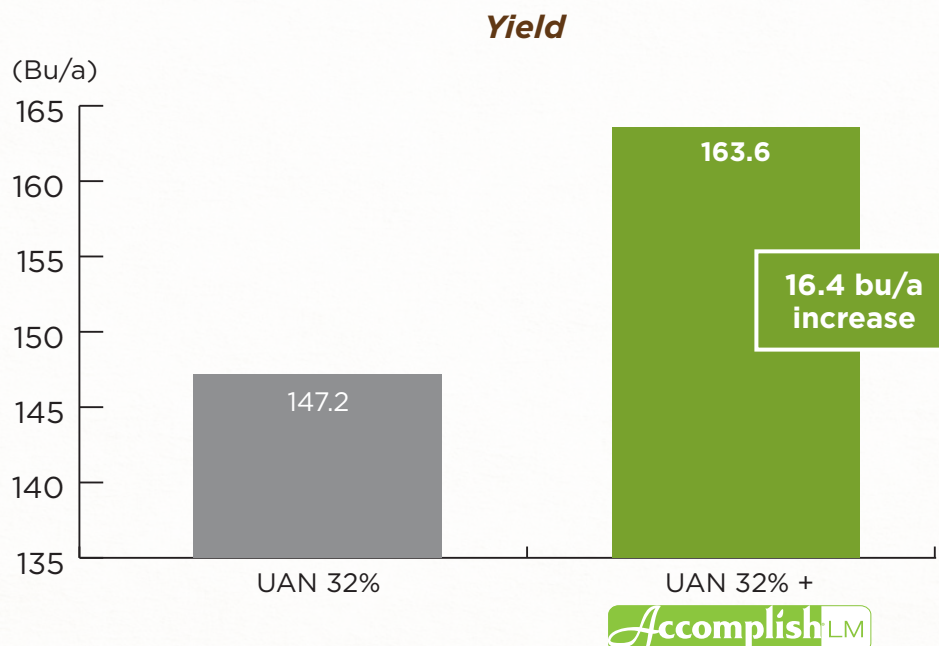
Corn - Liberty, IN

Accomplish LM applied at 2 quarts per acre with UAN 28% at sidedress



Corn - Worthington, IN

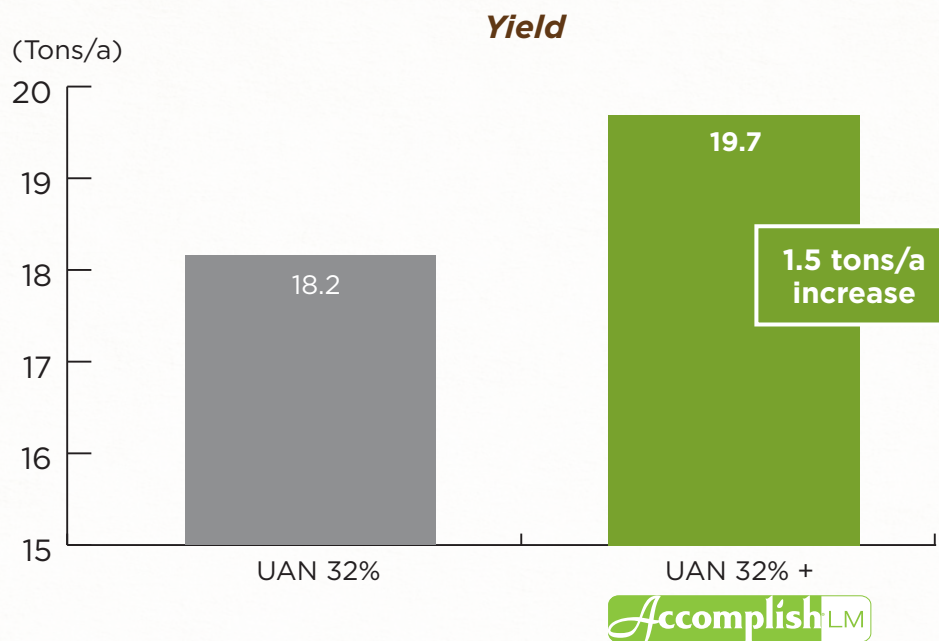
Accomplish LM applied at 2 quarts per acre with 43 gals UAN 32%



Notes: Corn soybean rotation, clay soil, sidedress applied in muddy conditions.

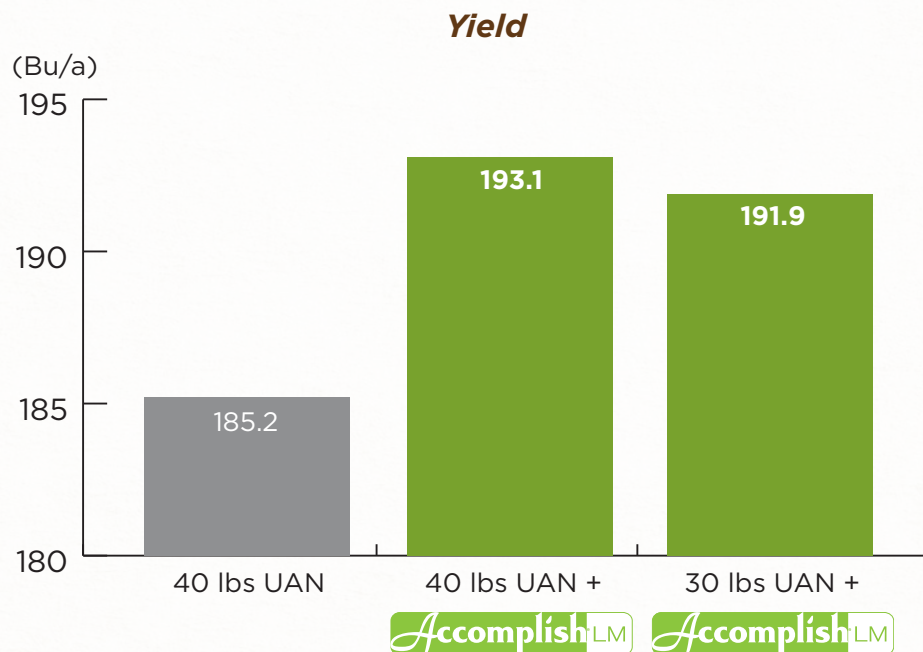
Corn Silage - Fertigation Trial, NE

Accomplish LM applied at 1.7 quarts per acre with UAN 32% injected through center pivot



Corn - Bowling Green, MO

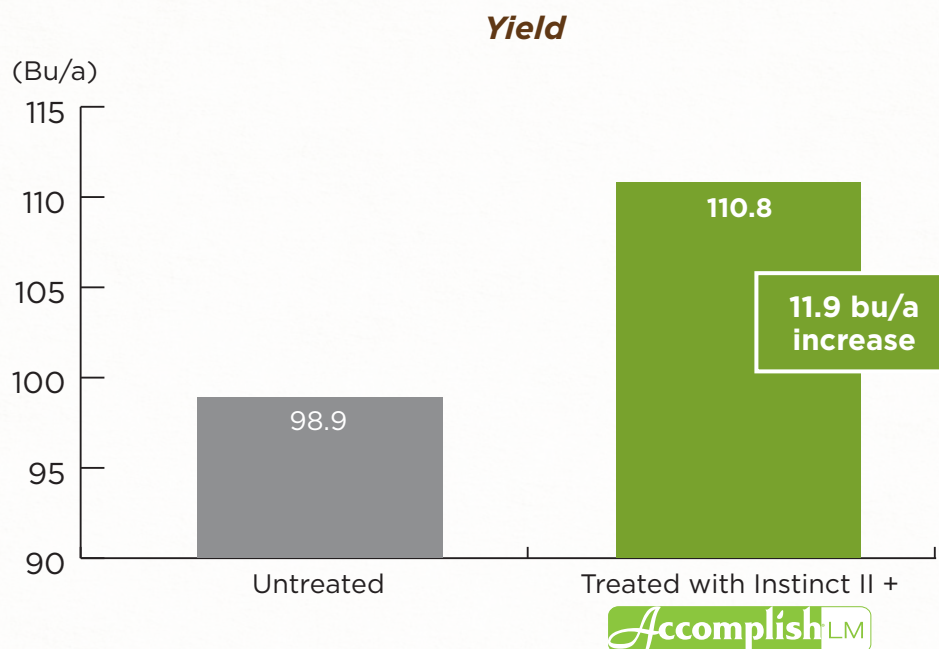
Accomplish LM applied at 1 quart per acre with UAN 32% sidedress SxS



Accomplish LM with a Nitrogen Stabilizer and Sidedress N

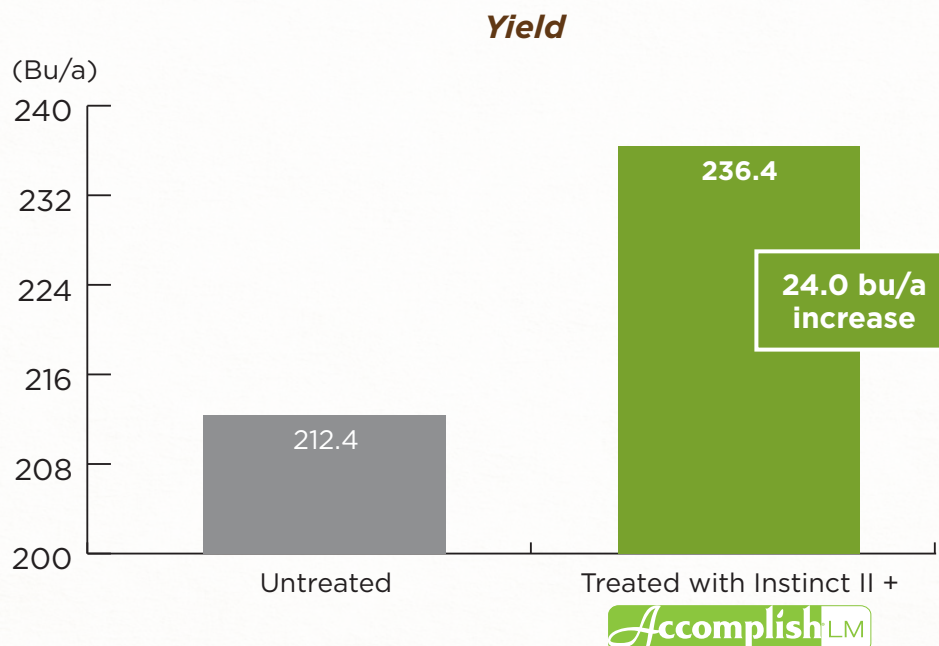
Corn - Fountain Creek, IL

Accomplish LM applied at 1 quart per acre + 37 oz Instinct® II with 50 gals UAN 28%



Corn - Northern IN

Accomplish LM applied at 1 quart per acre + 37 oz Instinct II with 3,000 gallons per acre manure



Instinct II is a trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow.

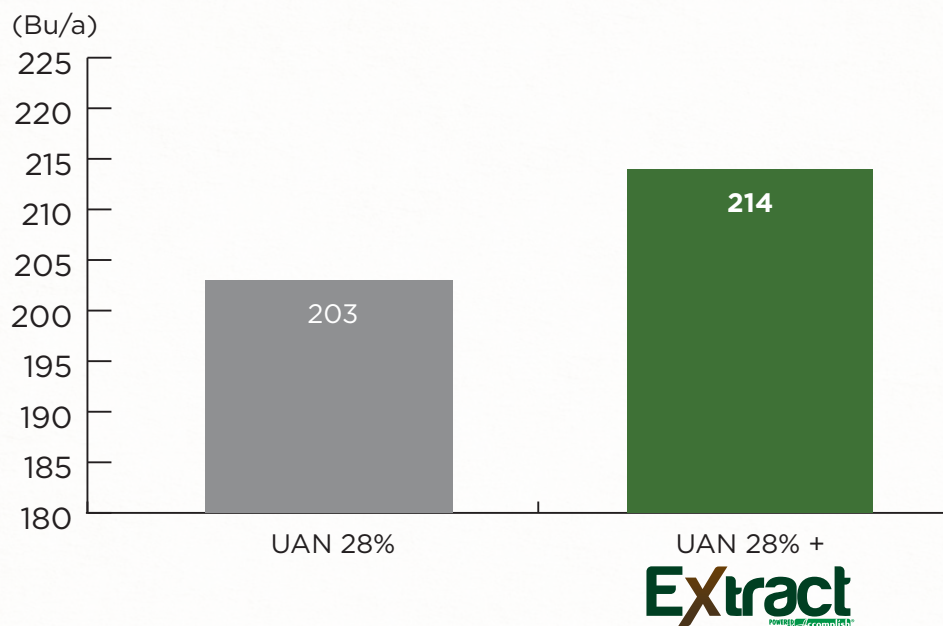
Extract PBA with Sidedress N

Corn – West Lebanon, IN

Extract PBA in a fertilizer blend applied at 1 gal/acre with UAN 28% sidedress

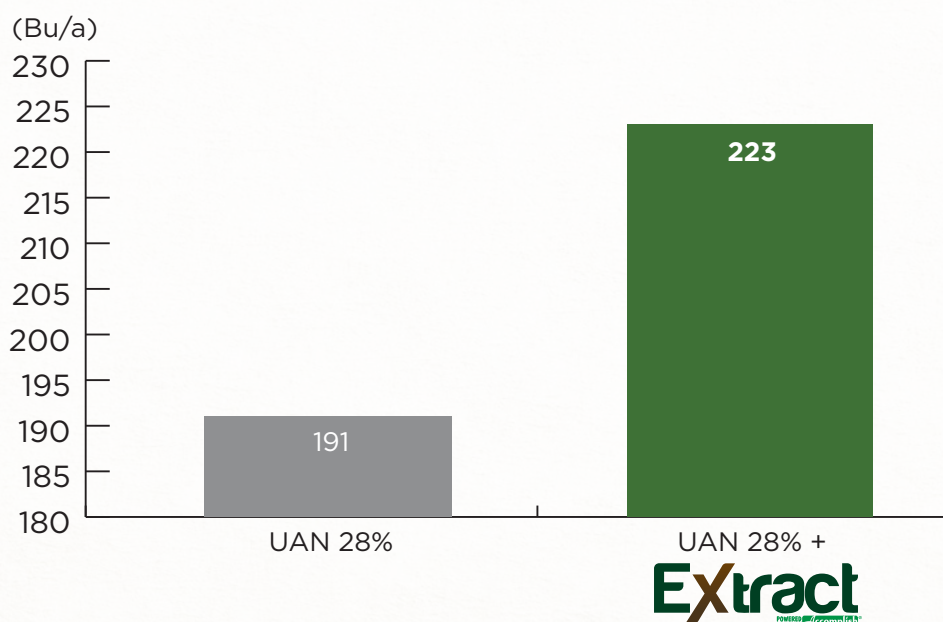
Moisture

- Treated – 16.2% at harvest
- UTC – 17% at harvest



Corn – New Brunswick, IN

Biocatalyst in a fertilizer blend 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 nitrate (NH_4)— NH_4 is a stable form of N (+ charge) and the preferred form for plants; Nitrate, the other form of N used by plants, is not stable (- charge) and plants must convert nitrate back to NH_4 inside the plant

Recommended Rates

In a standard sidedress program, 1 quart/acre of Accomplish LM 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 quarts/acre) of Accomplish LM may be needed to facilitate the additional nutrient load. Extract PBA can also be used in sidedress programs at a recommended rate of 1-2 gals/acre.

Recommended Sidedress Application Rates for:



- 1 quart/acre with N up to 30 gallons
- 2 quarts/acre with N over 30 gallons



- 1-2 gals/acre with N

Conclusions

When biocatalyst technology like Accomplish LM or 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.

Accomplish and Extract Powered by Accomplish are registered trademarks of Loveland Products, Inc. Always read and follow label directions. Check state registration to make sure product is registered in your state. Results may vary depending upon soil, climate and other conditions.



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