



Biology: The Impact on Nitrogen Efficiency

Josh Hiemstra, a leader in the no-till farming industry, shared his experience working with our liquid biological, BIOACTIVE LiquiLife® (formerly known as Purple Cow CX-1). The addition of a liquid biological to his fertility program increased yields, lowered fertility costs, and increased nutrient density. All of these factors contributed positively to his bottom line.



Fertility Efficiency

Josh Hiemstra – Rosendale, WI

- 2020 Local Lake Association Water Quality Award
- No-Till Farmer – Responsible Nutrient Management Award

Hiemstra's 700-acre farm went from 10k gallons UAN annually to 3,500 gallons.

“Adding biology from Purple Cow Organics was the missing link for both yield and profit.” – Josh Hiemstra



Hear Josh talk about his success in this video clip.

“I’m not spending a whole lot to get 200 [bushels per year]. While I want to have the highest yields, I’d rather have the highest profits.” - Josh Hiemstra

In Josh’s words, Biology:

- Helped him get the most out of his manure and rotations.
- Climate-proofed his farm – wet or dry.
- Helped him take his soil “off food stamps” (additional nutrient inputs).



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Hiemstra planted corn with 3 different protocols, all 3 protocols have the same starter, Josh refers to the starter as his “soil primer.”

The Trial

Starter, used on all protocols, is carbon, biology, and 103 units of N.

- 2 gallons of BIOACTIVE LiquiLife®
- 2 gallons boost with pre-herbicide
- 10 gal 32% (33# N)
- 70# N from spring-applied liquid manure

Three Protocols

Protocol A: In addition to the starter above, a foliar of 4 gallons of BIOACTIVE LiquiLife® (biology) with 5 gallons of Amino 15, (carbon, food source, and amino N) was applied with a post herbicide pass at V-8 just prior to canopy. This foliar mix brought an additional 10# N from the amino 15 for a **total of 113#N**.

Protocol B: In addition to the starter above, 12 gal 32% was y-dropped at V-8. With 40 units of N in this y-drop application, the **total nitrogen was 143#N**.

Protocol C: Is only the starter from above, no foliar, these acres had a **total N of only 103#N**.

Protocol	Yield Average	Applied N	N:Bu Ratio	Moisture	Test Weight
A (Biology and Amino)	250.1	113	0.45	32.9%	53
B (UAN)	251.8	143	0.57	33%	52.9
C (Starter Only)	244.2	103	0.42	32.9%	53.1

2023 Corn Yield and Nitrogen Efficiency

Precision placement and split applications of carbon, minerals, and biology can have an immediate positive impact on yield and nitrogen use efficiency (NUE). We typically see N:Bu ratios in the 0.6-0.7 range. N:Bu rates this impressive take a few years to build.