PrairieFood

ROI Scenario

Irrigated Corn

Value proposition: Reduce reliance on synthetic fertilizers while building soil health, improving crop quality, and increasing water storage capacity.

PrairieFood improves SOM and soil aggregation:
- Reduces soil compaction and water runoff
- Improves water holding capacity
- Mitigates high salinity

PrairieFood improves soil function:
- Enhances and improves nutrient cycling
- Grows nitrogen fixing bacteria
- Unlocks phosphorous by growing fungi

PrairieFood improves crop quality:
- Higher above and below-ground biomass
- Higher nutrient density in tissue; better feed quality

Scenario Nutrient (rates) and reductions[1]:

	Yr1/Yr2/Yr3
• Nitrogen (220 lb)	20%/35%/50%
• Phosphate (66 lb)	40%/55%/70%
• Potash (40 lb)	25%/35%/50%
• Sulfur (15 lb)	20%/35%/50%
• Zinc (3 lb)	25%/50%/50%

Scenario – KS/NE Corn after corn (200-bushel yield goal) on sandy loam to silt loam soils. Grower adopts soil health practices (reducing tillage, adding cover crop) after year 1. ***Nutrient reductions and results may vary from field to field depending on weather, soil nutrients, and management practices.***

PrairieFood has increased yields as much as 42 bushels/acre, but you don't need to count on that to see a good return. Higher premiums from better quality grain are also on the horizon with better soils.

PrairieFood use in conjunction with implementing some or all five soil health principles will ensure success towards reducing your reliance on synthetic inputs such as fertilizer and pesticides. Soil function improves each season so you can reduce inputs even more.

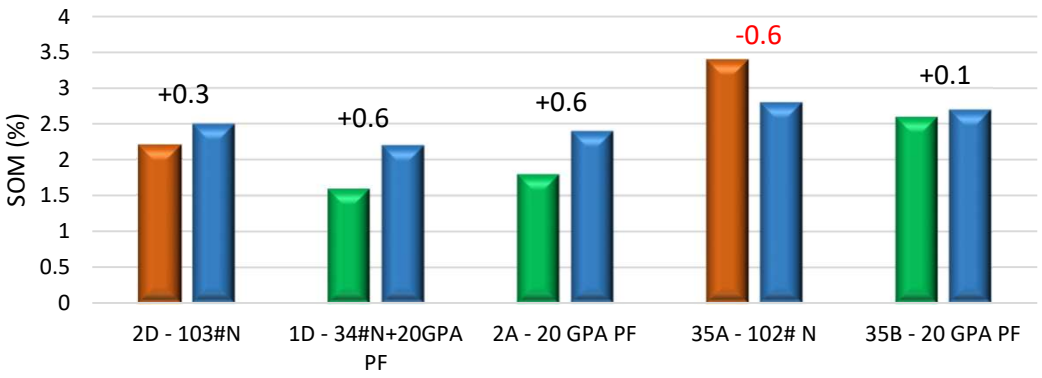
The cost of PrairieFood is stable so you don't have to worry about volatile fossil fuel prices impacting input costs. We recommend a 40 GPA application rate for irrigated corn.

Increases to Income (per acre)	**Year 1**	**Year 2**	**Year 3**
Increases in Yield (bu/ac)	5.00	5.00	5.00
Net Sale Price[2] ($/bu)	6.77	6.77	6.77
Additional quality premium			
Increases to Income Subtotal	**33.85**	**33.85**	**33.85**
Reduced Costs[3] (per acre)			
Nitrogen fertilizer savings	41.23	72.15	103.08
Phosphate savings	25.92	35.64	45.37
Potash savings	6.58	9.22	13.17
Sulfur savings	1.86	3.26	4.65
Zinc savings	1.31	2.63	2.63
Water benefits[4]	10.00	15.00	25.00
Reduced Costs Subtotal	**86.91**	**137.90**	**193.89**
Added Costs			
40 GPA PrairieFood	94.00	94.00	94.00
Application[5]	8.00	8.00	8.00
Added Costs Subtotal	**102.00**	**102.00**	**102.00**
Net Increase to Income ($/ac)	**$ 18.76**	**$ 69.75**	**$ 125.74**

Notes:
(1) Fertility needs for 200-bushel corn based on UNL Corn nutrient management suggestions (EC117, Apr 2019). Reductions based on prior year (yr0).
(2) Average price of corn (2022) from the USDA NASS.
(3) NPK costs from DTN (12/28/22); per lb prices: UAN32: $1.064/lb; P: $0.0982; K: $0.658. S ($0.62) and Zn ($1.75) from Two Rivers Coop (1/12/23).
(4) Building soil organic matter increases water holding capacity. A 0.25-point annual increase in SOM equates to 6,000-8,000 gal/ac annual increase in water holding capacity, so ¼" more of rain is captured during every rain event, reducing irrigation levels or increasing yields on dryland crops. With a cost of $150/ac for 15" and estimated savings of 10-25% on improved water holding capacity in three years, you save $15 - $38/ac.
(5) Application cost estimated $8/ac, grower-applied. Custom application cost: ~$12/ac. Shipping cost currently ~$6 per loaded mile.

Updated on Apr 14, 2023 by Trish Jackson, PhD tjackson@prairiefood.com

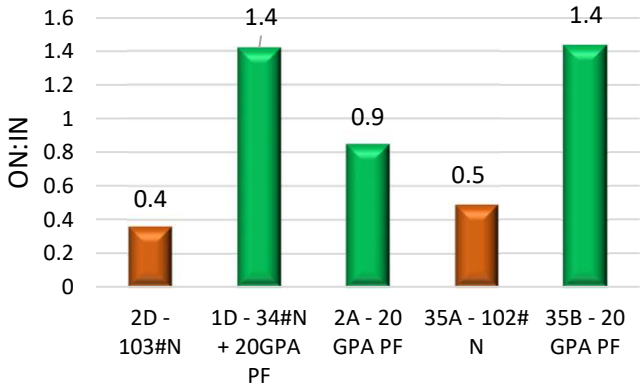
Change in Soil Organic Matter



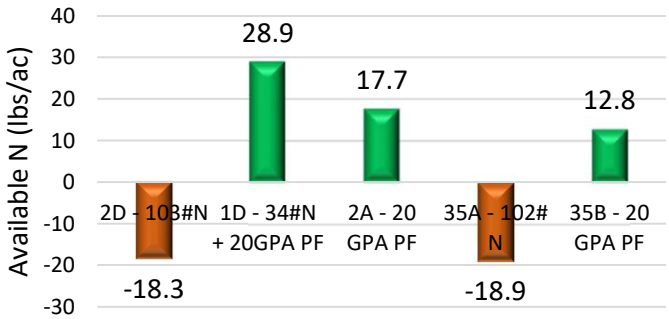
This chart shows the difference in SOM between September (left bar) and October (right bar), before and after harvest. PrairieFood shows an average increase of 0.4% across three pivots. During this time of year, the soil is warm enough for microbial activity to continue, helping to break down residues to form new SOM.

Source: Regen Ag Lab

Peak Season Nitrogen Conversion



Season Change in N Availability



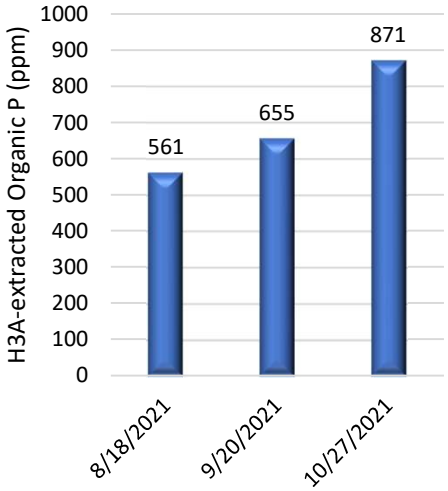
Above, left: Higher ratios of organic to inorganic nitrogen (ON:IN) are desirable because lower ratios indicate soils are reliant on fertilizer inputs. A higher ratio, as in the PrairieFood treated fields, shows that microbes are actively transforming organic nitrogen into inorganic nitrogen, a form more available for plant uptake. Above, right: Nitrogen availability includes the inorganic N (as nitrate and ammonium) and the amount of N expected to be released from the organic N pool through biological processes. This chart compares the change in N availability between mid-August and late October, pre- and post-harvest. PrairieFood-treated plots consistently show an increase in N availability while plots with no PrairieFood showed a decrease in available N.

Source: Regen Ag Lab

PrairieFood Phosphorous

- Pre-season Concern: High phosphorous in 35B, but tied up
- Solution: PrairieFood increases microbial activity
  - Microbes convert organic phosphorous to inorganic phosphorous for plant uptake
- 35B data shows SIGNIFICANTLY higher P availability
  - 55% more available P

Plant Available Phosphorous - 35B



After PrairieFood was applied in late July to early August, microbial activity increased, which promoted processes that convert nutrients to plant-available forms. Previously locked-up phosphorous is now being released to plants thanks to PrairieFood.

Source: Regen Ag Lab