## Biological Inputs on Conventional Corn

Our Nebraska trial demonstrated increased nitrogen uptake and better quality corn at 50% the conventional nitrogen rate.

> 20% increase in Nitrogen uptake, with 50% less synthetic N

> Nitrogen inputs: Control 240 lb and Treated 120 lb,

### Tip Fill with increased Calcium:

> Same amount of Boron was applied to both Treated and Control

> Treated corn has tip fill with an increase in available Ca coupled with increase in Boron and Silica

> Control corn showed signs of tip-back when using Grower Standard Ca and lower levels of Silica

### Sugars & Brix

> Both Sugars and Brix were measured in the leaf. Brix is total amount of dissolved solids, including sugar and dissolved nutrients

> High Brix indicates plant vigor, the ability to resist stress and repel insect and fungal pressure.

> Increased sugar shows increase in plant energy from photosynthesis

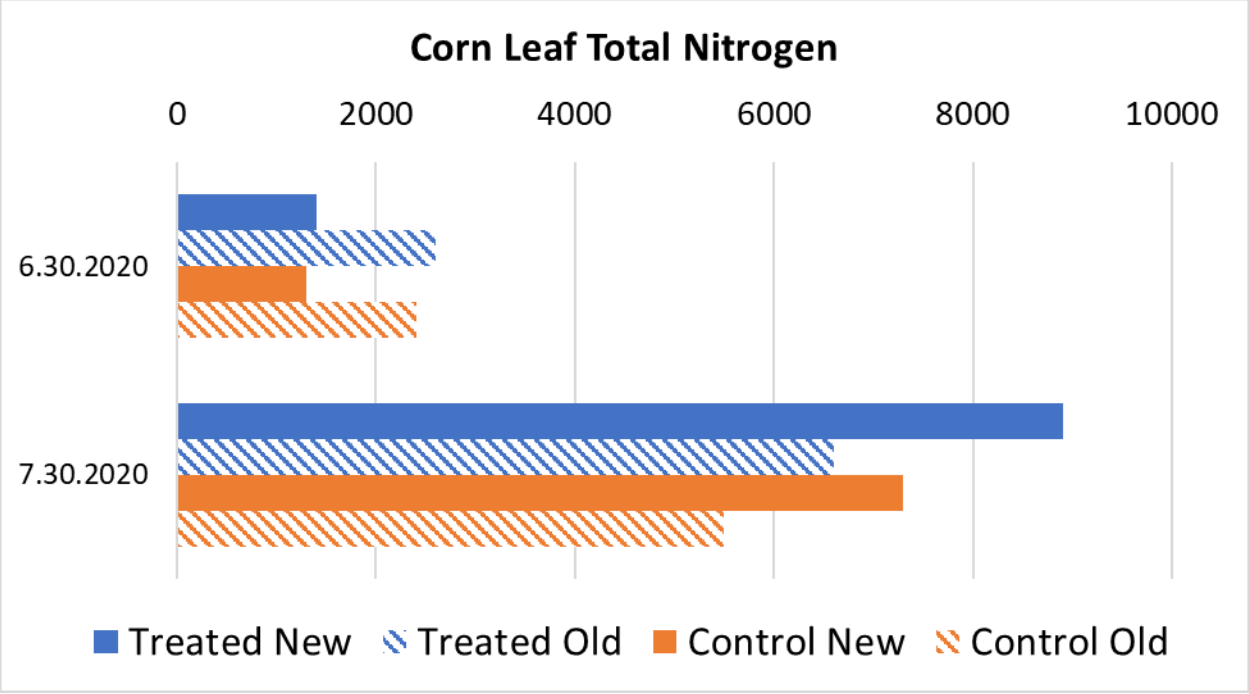
> Treated corn saw a significant increase in both sugar and brix, and less common leaf rust

> Control corn saw more common leaf rust, more tip-back.

### Irrigated Corn

| | |
|---|---|
| Location | Central/northern Nebraska<br>160 acre center pivot |
| Control | High soil test P and K<br>240# actual N, from UAN 32 |
| Treated | High soil test P and K<br>120# actual N, from UAN 32<br>2 applications: 1 gal Metagrow ST & 5 gal Pacific Gro Sea Phos |

Applied by irrigation the last week June, and first week August, 2020




Sap Analysis results of Nitrogen ppm in new leaves and old leaves, on June 30 (same in both blocks) and July 30, 2020—higher in the Treated block.

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### Next Steps

A base line has been determined. The corn overall looks good!

But sap analysis shows that even though there was an increase in both Mg and Phos on the treated side, the plants were still deficient. High soil phos and Mg is only plant available when there is high soil biology.

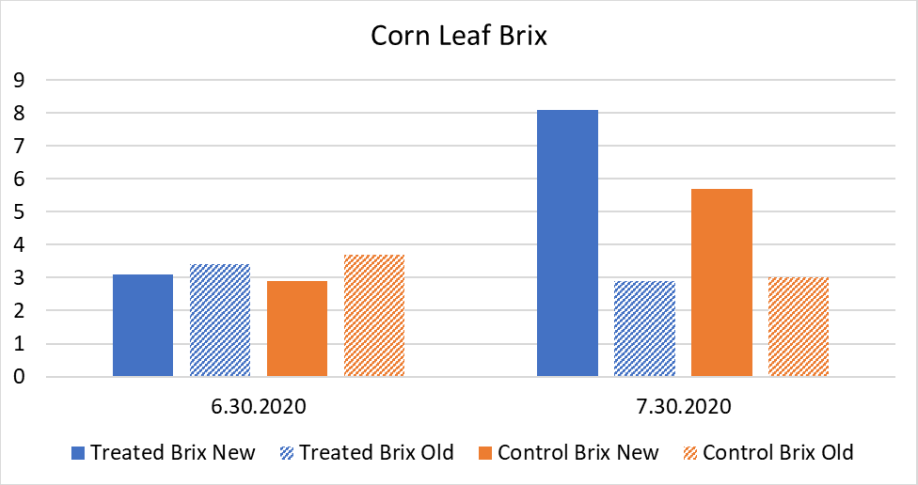
What If ..... we closed the gaps on Mg and Phos? The number in the new leaves for these nutrients are good. From sap analysis, which compares nutrient content in the young and old leaves, we see that the new leaves had to steal from the old to obtain the nutrients needed for new growth. That is the advantage of using sap analysis versus tissue.

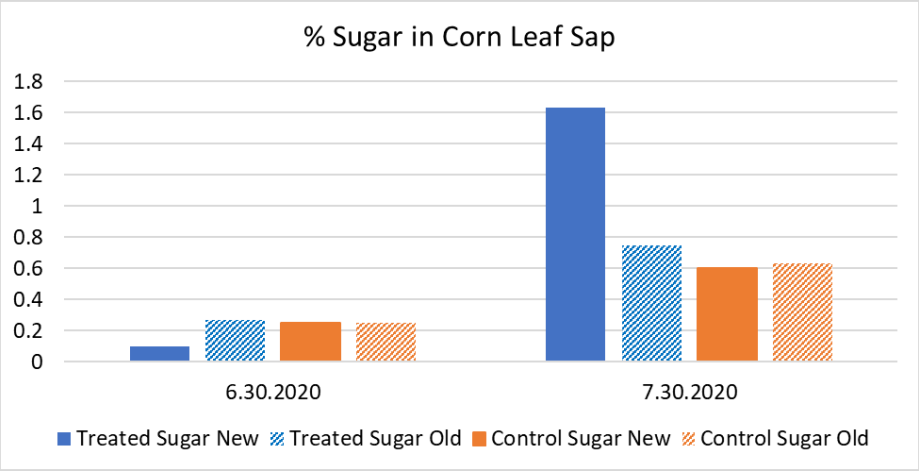
This grower will address this in his operation

What if ..... we continue to spoon feed the microbial food (Pacific Gro) and the diverse microbial inoculant, and continue to reduce our synthetic inputs (fertilizer and pesticides) to the same or lower cost per bushel produced?

What if ..... There comes a time when subsidies or a value added premium are available for growing a crop with less chemical inputs, while improving water holding capacity and water?

This year, the grower will apply a post-harvest application of Pacific Gro and Metagro ST, to help break down and digest the stalks into plant available nutrients, and improve the biological populations. This could also decrease the nematode pressure..




NOTES

Applications were late. We did not start this until first part of June.

Wind caused this corn to lodge pre - tassel. Most of the corn was at a 45 degree angle, and was not easy to walk through. It was hit by hail with significant damage. Stalks were crooked. But it pollinated very well.