



Welcome to Ground Work

A House Made of Brix

4/20/12

A recent event has caused us to re-evaluate how we use the information a refractometer provides. The event was a foliar application of **SP-1™**, fish, and micronutrients on annual ryegrass that yielded only a one point rise in brix after four days. And this was on a field where soil levels of fertilizer were high, and the grass had been planted following a row crop.

This inexplicable and disappointing scenario impelled us to collect samples of both the untreated and treated grass and send them to Analab in Fulton, IL, for testing. When the test results came back they showed that we **had actually made a very big improvement in forage quality.**

- Protein came down from 29% to 23%.
- More importantly the percent soluble protein dropped from 65 to 43.
- Nitrate nitrogen came down from 1267ppm to 317ppm.
- Also, keeping in line with the 100% rule in forages, the NFC, or sugars, went from 24% to 29%.

We had in fact made a VERY big improvement in forage quality. The University of Wisconsin calculator indicated that one foliar application was likely to gross

the grower an extra \$80 per acre at an applied cost of about \$25 per acre. Not to mention the long-term benefits.

So why didn't the brix show the improvement?

After much discussion, and recollection of similar cases, we concluded that the moisture content of the grass was a big factor. For instance, when you take a brix reading on a sunny day, but a day which followed rain and the soil is wet, brix readings are lower. Wait a few days for that ground to dry out and brix readings go up.

No mystery there. After all, wine grape growers often cut off the irrigation water to low-brix grapes for the express purpose of increasing fruit brix. Since brix is a measure of dissolved nutrients, removing water from the nutrient solution (plant sap) will increase the nutrient concentration, hence increase brix.

The recent case of improved forage but low brix was on ryegrass that had a lot of moisture in it. Moisture in excess of 80%. So even though we induced the plant to put significantly more nutrients into solution, it was still a very dilute solution with a low brix reading.

Brix testing remains very useful as a quick indicator of status. But keep in mind a few things:

- Brix readings have limitations and do not always tell good from bad, especially when there is a lot of moisture in the plant.
- You can have poor forages that are high brix, and good forages that are low brix.
- Thus brix does not replace testing by a lab or by a cow as an indicator of quality.