

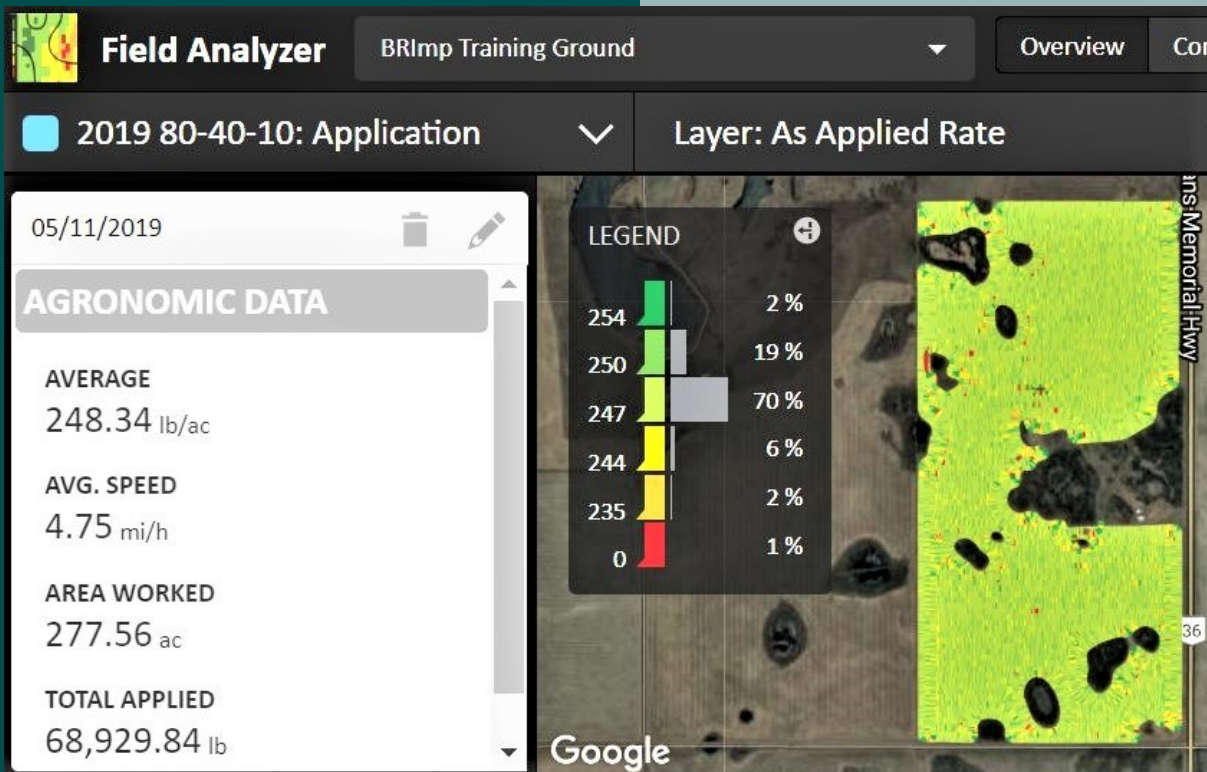
November 2019

## Nitrogen Top Dressing Trial Results

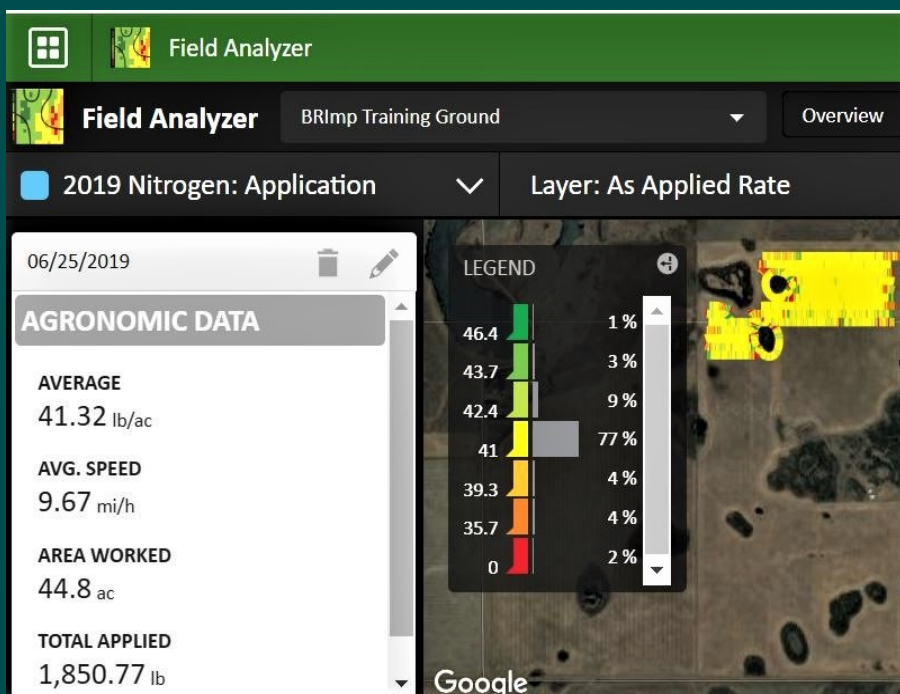
In the October newsletter, I discussed the reasons that top dressing N in wheat has seen renewed interest in recent years and laid out the top dressing trials that we did on the Training Field this last summer. If you would like a refresher on what was discussed, you can check it out here. <https://www.briltd.com/fckimages/integrated-solutions/agronomy-update/2019/Agronomy%20Newsletter%20October.pdf>

Brandon Wheat was seeded on May 11<sup>th</sup> with a fertilizer blend of 80-40-10. The idea was that we would put down enough P & K to support a crop of up to 80 bushels, but we would only add enough N to grow 60 bushels of high protein wheat. This blend can certainly grow more bushels than that, but protein levels would suffer.

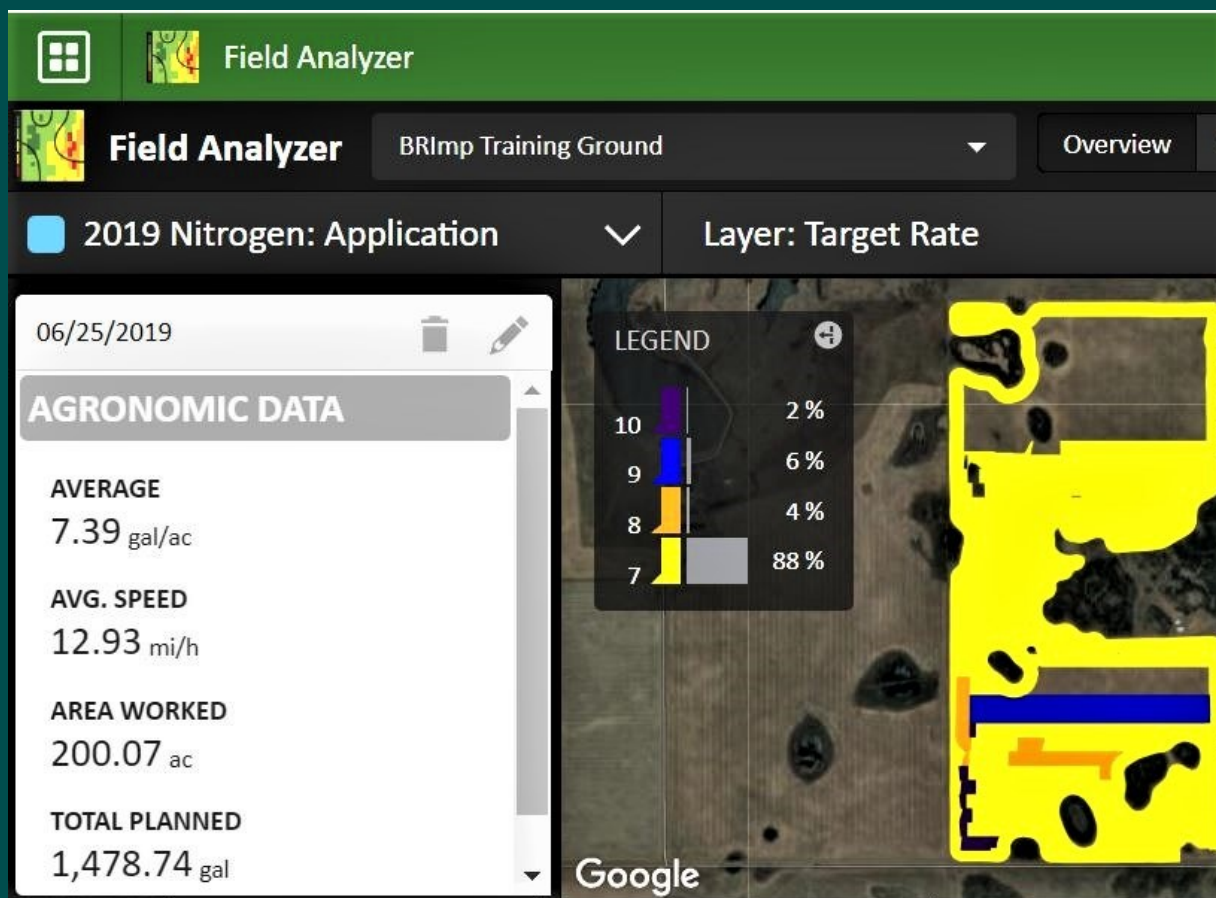
Here is what that application looks like on the MyJohnDeere.com Ops Center.



On June 25th, the field was top dressed with an additional 20 lb of N in TWO forms.

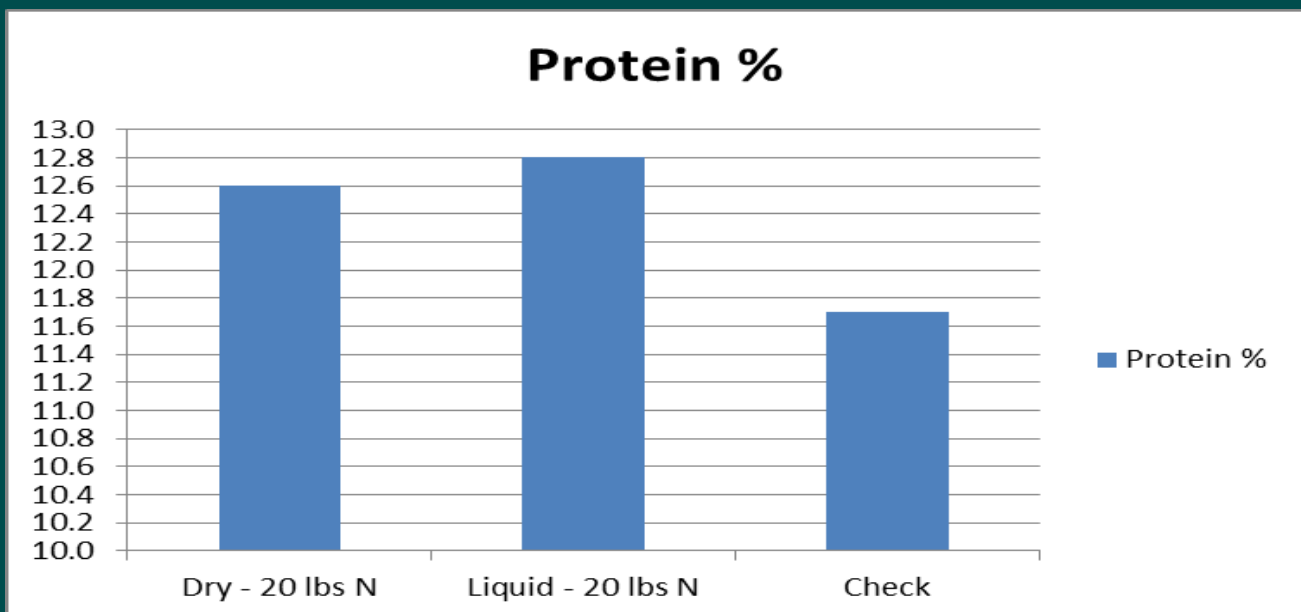
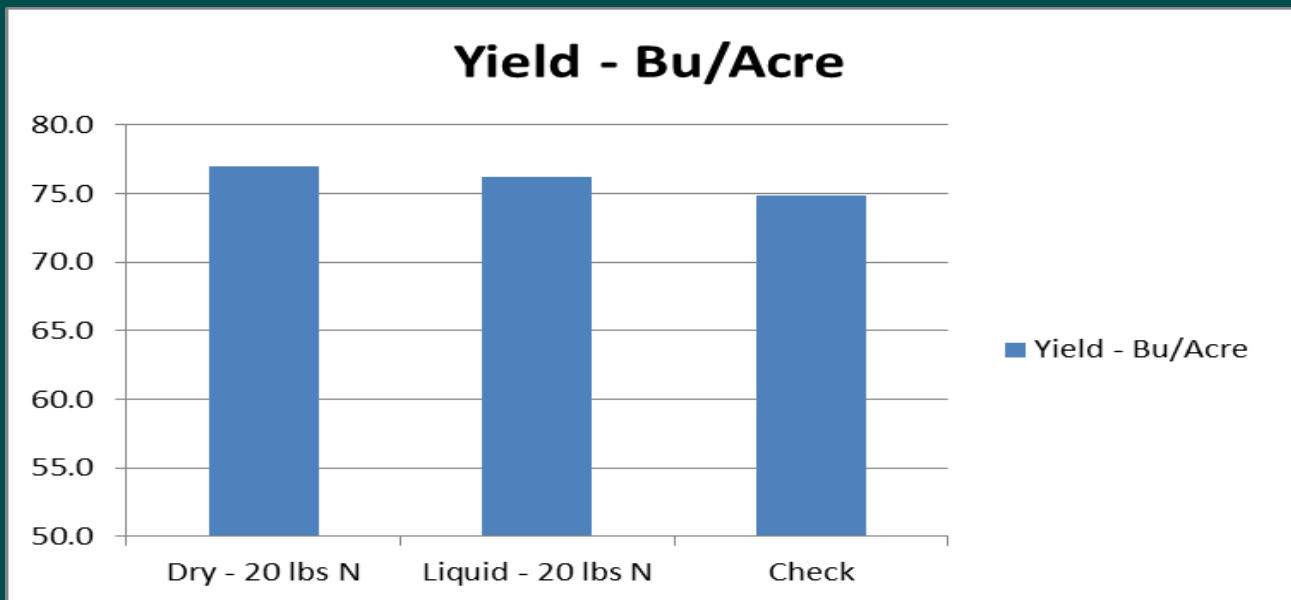


Most of the field was treated with a liquid blend of 25-0-0-3 with a target rate of 7.2 USG/acre applied with a John Deere R4044 sprayer and an additional 45 acres was treated with 46-0-0 with a target rate of 43.5 lbs/acre applied with a Salford BBI spin spreader. The dry application ended up being a little below target rate, so we actually only applied an additional 19 lbs/acre of actual N on that treatment.



We received 7.5 mm of rain in the 2 days following application, which was enough to move the N into the soil and stabilize it. In the 2 weeks following application the field received over 40 mm of rain. However this was not enough to keep up with crop demands and by July 13<sup>th</sup>, the topsoil had dried out to the point that we possibly saw some stranding of the N in the top 10 cm where there was no root activity. In addition, the field missed a couple of critical rains in July, so despite being 16% above 30 year average rainfall on June 19<sup>th</sup>, by early August when heads were trying to fill, we had slipped back below average rainfall for the year and we were projecting a final yield of about 72 bushels/acre.

The field was harvested between Sept 22<sup>nd</sup> and Oct 7<sup>th</sup> and averaged 74.81 bushels/acre. Breakdown on the treatments were as follows.



## *Yield Differences between the treatments were minimal...*

with the liquid N application gaining 1.9% over check and the dry N application coming in at 2.9% above the check. The dry application out yielded the liquid by 1%. None of these differences would be considered statistically significant. My conclusion from this is that despite our encouraging start to the season, moisture in the end was still the limiting production factor and additional N didn't significantly increase yield.

**Protein showed some very interesting results though.** Both treatments showed a good response to the addition of more N. The dry N application produced a 7.7% protein increase and the liquid N increased protein by 9.4%. So while we were not able to move the needle on yield in 2019, we certainly moved it on protein and in fact we were not aggressive enough with our application to capture all the potential. A rule of thumb I was taught many years ago was that if wheat protein is below 13.5%, the crop would have benefited from additional N. Anything above 13.5% means that the crop had access to more N than it needed to maximize yield and quality. Future trials should include more treatment rates to try to get a better handle on what top dressing rate is appropriate.

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