



Illinois Soil Nitrogen Test (ISNT) – 2007

Planted: May 18, 2007
Harvested: October 20, 2007
Soil Type: Ipava Silt Loam
Population: 34,000 seeds/A.
Rows: Twelve 30" rows

Previous Crop: Soybeans
Tillage: Field Cultivator
Herbicide: Sure Start / Roundup
Insecticide: 1 pt. Lorsban
Product Tested: BECK 5616CBWRR

RAINFALL	
April	5.54 in.
May	2.29 in.
June	2.83 in.
July	3.48 in.
August	<u>2.09 in.</u>
Total	16.23 in.

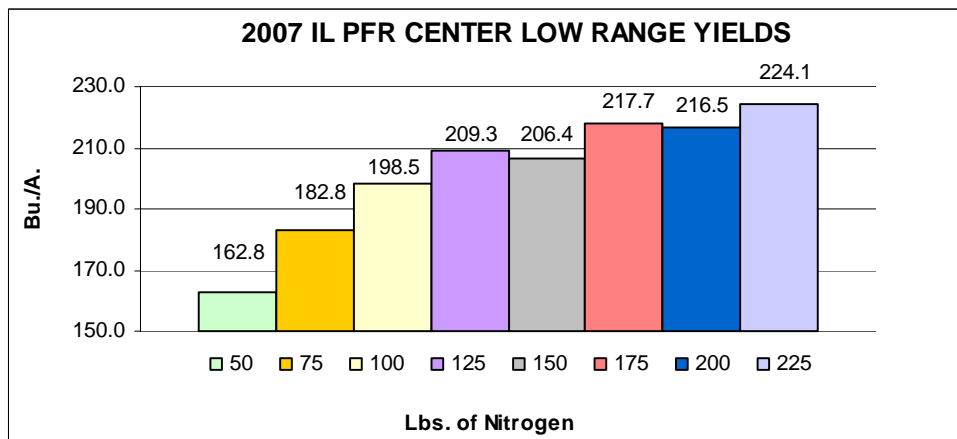
Purpose: The Illinois Soil Nitrogen Test (ISNT) is a new nitrogen test developed at the University of Illinois. The analysis looks at the organic portion of the soil, particularly at compounds called amino sugars, so the test has also been called the "Amino Sugar N Test", or the "Organic N Test." This test measures a soils ability to slowly provide nitrogen to the crop during the growing season. A corn crop typically obtains the majority of the nitrogen that it receives from the soil. The nitrogen that we apply only supplements what the soil provides. Soils that have low ISNT values tend to have a greater response to applied nitrogen, whereas soils with high ISNT values will not respond to high amounts of applied nitrogen. Nitrogen recommendations are based on ISNT to predict the most economical N rates. While there are many factors that influence the crops response to N, integrating the soil supplying power into our nitrogen recommendations is a great improvement in ensuring the best yields at the lowest costs.

This study evaluates both low and high ISNT areas with nitrogen rates ranging from 50# to 225# per acre. The goal is to evaluate the optimum economic nitrogen rate/acre in each of the high and low ISNT areas and equate that rate back to the original ISNT test value. This will prove if ISNT test values can predict optimum nitrogen rates/acre.

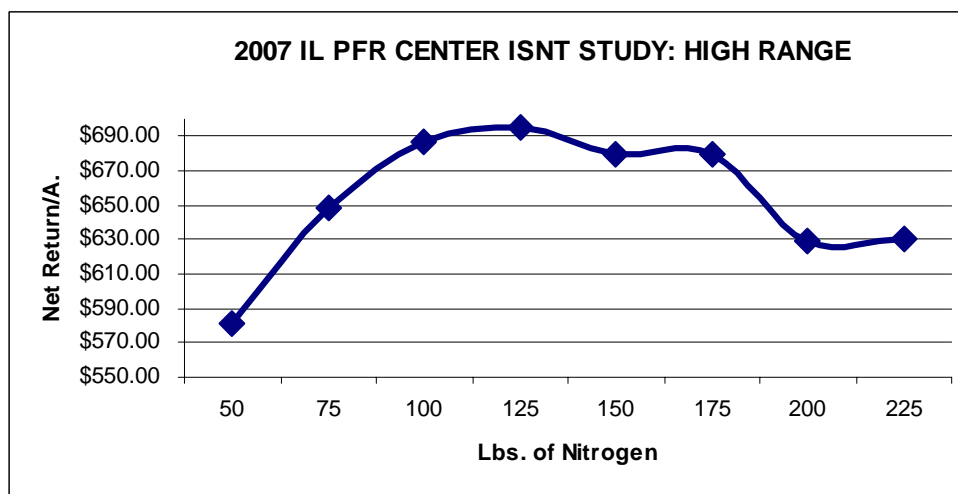
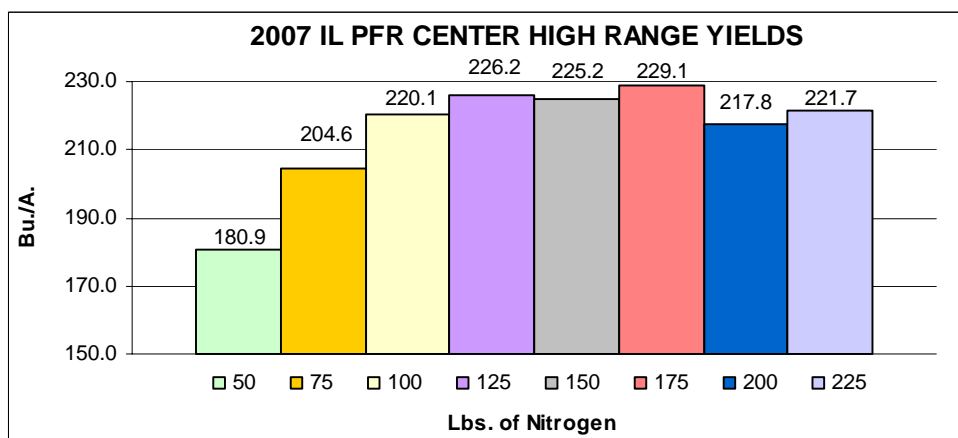
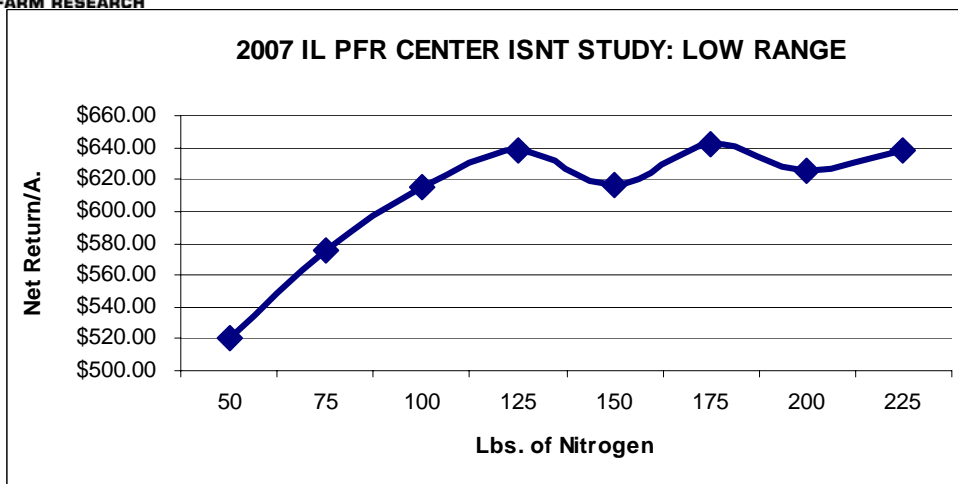
LOW ISNT RANGE				
Rate N	Percent Moisture	Bushels* Per Acre	Cost of N	\$ Net Return
50	14.1	162.8	\$25.00	\$520.41
75	14.0	182.8	\$37.50	\$575.04
100	14.3	198.5	\$50.00	\$614.99
125	14.4	209.3	\$62.50	\$638.75
150	14.5	206.4	\$75.00	\$616.40
175	14.4	217.7	\$87.50	\$641.74
200	14.7	216.5	\$100.00	\$625.23
225	14.7	224.1	\$112.50	\$638.30

HIGH ISNT RANGE				
Rate N	Percent Moisture	Bushels* Per Acre	Cost of N	\$ Net Return
50	14.1	180.9	\$25.00	\$580.98
75	14.0	204.6	\$37.50	\$647.98
100	14.3	220.1	\$50.00	\$687.39
125	14.4	226.2	\$62.50	\$695.31
150	14.5	225.2	\$75.00	\$679.31
175	14.4	229.1	\$87.50	\$679.94
200	14.7	217.8	\$100.00	\$629.59
225	14.7	221.7	\$112.50	\$630.16

*Bushels per acre corrected to 15% moisture. Plot weighed by BECK'S Hybrids – Jason Webster.



Illinois Soil Nitrogen Test (ISNT) – Cont.



Summary: The high ISNT plot yielded an average of 215.7 Bu./A. and the optimum economic nitrogen rate occurred at 125# per acre. The low ISNT areas yielded an average of 202.3 Bu./A. and the optimum economic nitrogen rate occurred at the 175# per acre rate. In the low ISNT areas, yields increased at each nitrogen increment (except 200#). By applying a variable rate nitrogen program based on these values, a producer could have realistically saved 50# per acre of nitrogen on the high ISNT areas, at \$280/ton 28%, could have netted a savings of \$25 per acre or a total nitrogen cost savings of 28.6%.

These trials were all planted at 34,000 plant populations. In future studies, we need to evaluate variable rate planting populations in the high and low ISNT areas. Our goal is to see if higher yields could occur in the high ISNT areas with higher plant populations and lower nitrogen rates. In the above study, we only used one plant population in each ISNT area.