

# MEASURE AND MANAGE

## GOT NITROGEN?

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### Pre-sidedress Nitrate Soil Test (PSNT) using the Agtest Delta System from Agri-Food Laboratories

The follow table highlights the PSNT value, expected yield response, recommended N rate and economic return at each selected soil test level

PSNT ppm	Nitrogen Recommendation Lbs Actual N/ acre	Delta Yield Bushels/ acre	Fixed Application PSNT cost \$ / acre	Total N cost \$ / acre	% Return on Nitrogen
20	29	9	13.50	28.00	(16)
15	78	26	13.50	52.50	29
10	127	48	13.50	77.00	62
5	176	76	13.50	101.5	94*

\* for every dollar spent on N and application you get that back plus \$0.94.

#### PSNT Pre-Sidedress Nitrate Soil Test

**Delta Yield** is the expected yield gain over using no nitrogen

**Fixed Applicator Cost** includes an estimated \$9.00 per acre application cost plus cost of zone mapping, PSNT sampling and lab analysis.

**Total N Cost** is the cost of recommended N @\$0.50 per pound actual plus fixed applicator cost.

**% Return On Nitrogen** is calculated at \$2.60 per bushel of corn x delta yield –Total cost of Nitrogen divided by the Total cost of Nitrogen x 100

We have 14 years experience in Nitrogen Management. Agri-Food Laboratories has pioneered the Delta Yield Concept. Delta Yield explains the correct rate of Nitrogen better than Yield Goals. One simple reason explains it all, "you don't know how big the crop will be in the fall when you have to pick a yield goal in the spring to determine the rate of N by current methods".

A proper Zone Management approach and selective sampling to characterize the nitrogen supply of those zones by using the PSNT is the starting point. This provides a more definitive way to predict the correct rate of Nitrogen without knowing the size of the crop but rather the size of the response hence the "Delta Yield"

Delta Yield is the yield gain you get for using the correct rate of N based on the PSNT compared to using no Nitrogen. With a high PSNT test the expected response to N is small as illustrated in the above table, when the PSNT is low the expected yield gain is high. The Research conducted by the Partners In Nitrogen Study provides the data to back up the concept.

We realize that the potential reduction in N rates is uncomfortable for most growers. We recommend sampling according to our protocol. Then the decisions on N rates can be tested in strips the first year in order to gain your confidence in the predictability of the AgTest Delta System.

### Sampling Protocol / Getting started

You can contact us directly or work through your Professional Ag Supplier. We work with most of the major Crop Input Suppliers in Ontario. We can support your effort to be a more efficient Nitrogen user.

The tools involved are either multiple years of yield maps, or satellite imagery from our "on line service", or EMI followed with map analysis and creation of management zones with farmer input. Once the zones are set our experienced Field Technicians using GPS/GIS Technology will do PSNT test within the zones. Samples will go to Agri-Food Laboratories then results are transferred back to The Agri-Food GIS Mapping Center to be merged into map form showing the application rate of Nitrogen. At this point the economic analysis can be done to determine the best single rate or Variable Rate applications.

The average return to N can be calculated giving you a comfort level of knowing you made the right investment.

### Contact Information

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### Agri-Food Laboratories GIS Mapping Center and Agtech GIS

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