

ESN Controlled Release Fertilizer on Corn and Spring Wheat Ottawa Rideau SCIA Regional Partner Grant

Purpose:

To evaluate the economic benefits of ESN® Controlled Release Fertilizer, or Smart Nitrogen, use in corn and spring wheat production in eastern Ontario.

Methods:

Two strips, at each field location which had the equivalent nitrogen rates of ESN Controlled Release Fertilizer and urea were applied at planting. Grower standard nitrogen rates were applied and ½ grower standard rates were applied. At harvest, plots were weighed and measured for moisture and test weights. In addition, spring wheat samples were collected and the grain analyzed for protein and quality.

Results:

Used Gandy Fertilizer Applicator to get accurate product rates:

Figure 1: Use of Gandy Applicator for Placement of Fertilizer



Table 1: Antrim ESN on Spring Wheat

Trt	Actual Nitrogen Rate (lbs/ac)	Moisture (%)	Test Wt. (lbs/bu)	Yield @14.5% (mt/ac)	Yield @14.5% (bu/ac)	Protein %	Fusarium (%)	VOM (ppm)	Grade
Urea	37	15.9	62.3	2.0	74.1	13.3	0.9	1.28	TF 1 CERS
ESN	38	15.7	62.3	2.0	73.7	13.0	0.53	1.15	TF 1 CERS
Urea	81	15.6	62.7	2.1	78.9	13.8	1.93	1.48	TF CE FEED
Urea	81	16.0	62.3	2.1	76.8	13.8	0.45	1.18	TF 1 CERS
Urea	81	15.4	62.3	2.1	76.3	13.5	0.97	1.21	TF 2 CERS
ESN	155	15.5	62.3	2.2	80.1	14.4	0.55	1.13	TF 1 CERS

Variety Sable, Harvest Date: 27-Aug-09, Planting Date:26-Apr-09

Note: 155 pounds per acre (lbs./ac) was applied by mistake.

Crop Advances: Field Crop Reports 2009

Table 2: Arnprior ESN on Spring Wheat

Trt	Actual Nitrogen Rate (lbs/ac)	Moisture (%)	Test Wt. (lbs/bu)	Yield @14.5% (mt/ac)	Yield @14.5% (bu/ac)	Protein %	Fusarium (%)	VOM (ppm)	Grade
Urea	38	15.4	44.1	1.0	36.7	12.8	2.2	1.6	TF CE FEED
Urea	39	16.0	43.6	0.9	34.7	12.7	1.9	1.3	TF CE FEED
ESN	39	15.8	43.6	1.2	44.5	n/a	n/a	1.8	n/a
ESN	39	16.6	44.1	1.0	35.0	12.7	1.2	1.3	TF 3 CERS
ESN	75	16.2	42.6	1.2	45.4	13.9	3.2	1.3	TF CE FEED
ESN	75	15.8	43.2	1.1	38.7	13.7	2.4	1.8	TF CE FEED
Urea	76	16.0	43.7	1.2	42.7	13.2	1.0	1.6	TF 2 CERS
Urea	76	16.1	44.1	1.1	39.3	13.2	2.0	1.7	TF CE FEED

Variety:AC Brio, Harvest Date:28-Aug-09, Planting Date:05-May-09, Previous Crop:Soybeans

Table 3: Pakenham ESN on Corn

Trt	N Rate (lbs/ac)	Rep.	Moisture (%)	Test Wt. (lbs/bu)	Yield (mt/ac)	Yield (bu/ac)	Average
40-0--0-4	50	1	27.9	50.1	3.0	117.9	
40-0--0-4	50	2	28.4	50.1	3.7	145.2	131.6
ESN	55	2	28.7	50.3	3.4	132.4	
ESN	57	1	27.5	50.2	3.9	152.3	142.4
Urea	57	1	27.6	41.0	3.9	153.7	
Urea	57	2	27.8	51.5	3.8	147.9	150.8
40-0--0-4	100	1	27.6	50.6	3.4	135.4	
40-0--0-4	100	2	27.4	51.4	4.0	155.7	145.6
ESN	110	2	28.1	50.6	3.5	137.9	
ESN	114	1	27.6	51.1	4.0	159.2	148.6
Urea	115	1	27.5	50.9	3.7	143.7	
Urea	115	2	28.4	50.1	3.5	136.9	140.3
			27.9	Average	3.6	143.2	

Planting Date: 05-May-09, Harvest Date:11-Nov-09, Previous Crop:Spring Wheat
 Note: Field Variability due to poor drainage

Table 4: Edwards ESN on Corn

Trt	N%	N Rate (lbs/ac)	Rep.	Moisture (%)	Test Wt. (lbs/bu)	Yield (mt/ac)	Yield (bu/ac)	Average Yield (bu/ac)
ESN	44%	50.6	1	30.1	50.4	3.3	128.8	
ESN	44%	50.6	2	29.8	51.2	3.4	135.0	131.9
Urea	46%	50.6	1	30.4	51.1	3.4	132.2	
Urea	46%	50.6	2	30.5	50.3	3.5	137.6	134.9
ESN	44%	101.2	1	30.3	50.6	3.6	142.2	
ESN	44%	101.2	2	29.9	51.1	4.0	157.2	149.7
Urea	46%	101.2	1	29.9	51.8	3.7	146.1	
Urea	46%	101.2	2	30.5	50.8	3.9	155.1	150.6
Hybrid:NK Brand N25N-GT/CB/LL, Planting Date:06-May-09, Harvest Date: 13-Nov-09, Previous Crop:Soybean								

Summary:

There was no increase in yield in either the corn or spring wheat nor in protein in the spring wheat samples to show a benefit to using ESN in 2009.

Next Steps:

2009 was the first of a two year project that will be repeated again in 2010.

Acknowledgements:

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Project Contacts:

Scott Banks, Emerging Crop Specialist – Scott.Banks@ontario.ca

Location of Project Final Report:

This is an interim report.