



## Cor7-2011 - 5, 50 and Fungicide: SMART Corn in 2011

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## 5, 50 and Fungicide: SMART Corn in 2011

### Purpose:

This project was initiated to evaluate the yield and economic response to more intensive corn management practices through increasing plant populations and nitrogen rates and including a fungicide application.

### Methods:

Corn plots were established at eight sites in Middlesex County where yield response between standard grower practices and SMART managed plots were compared. The SMART managed plots were replicated within growers' fields and consisted of standard grower practices plus an additional 5,000 seed/acre, an additional 50 lbs/ac of nitrogen, and a fungicide application. One site included a more intensive "knock-out" study to investigate the yield contribution of each input.

### Results:

Corn yield response to SMART management practices was variable, with yield increases at five sites, no response at one site, and yield decreases at two sites (Table 1). The overall average response to SMART management practices across all sites was +6 bu/ac.

**Table 1. Corn yield response to SMART managements practices at eight sites in Ontario, 2011**

Location	Check	SMART	Response
	----- (bu/ac) -----		
Site 1	223	230	+7
Site 2	166	156	-10
Site 3	228	215	-13
Site 4	196	210	+14
Site 5	200	200	0
Site 6	164	170	+6
Site 7	239	251	+12
Site 8	236	263	+27
<b>Average</b>	<b>206</b>	<b>212</b>	<b>+ 6</b>

At site 1, a more intensive investigation was conducted in attempts to identify the yield response for each of the management practices (Table 2). At that location, SMART practices provided a yield response relative to standard practices, but when SMART components were analyzed individually only fungicide demonstrated a positive yield response.

**Table 2. Investigation into the yield response of SMART components at site 1 in 2011**

Practice	Adjustment	Yield (bu/ac)	Response (bu/ac)
Control	standard practice	223	-
Fungicide	fungicide application	234	+11
N and Pop	+50lb-N/ac, +5000seeds/ac	223	0
SMART	+50lb-N/ac, +5000seeds/ac, + fungicide	230	+7

The total cost for increasing all three management practices was approximately \$60/ac (Table 3), which assuming a corn price of \$6.00/bu would result in a breakeven yield requirement of 10 bu/ac. This was higher than the average yield response of 6bu/ac across all eight sites in 2011, although lower than the response at three of the sites (4, 7 and 8) which demonstrated an increase in net profit.

**Table 3. Cost estimates for SMART management practices in Ontario for the 2011 growing season**

Practice	Adjustment	Cost
Population	+ 5,000 seed/ac @ \$240/80,000	\$15/ac
Nitrogen	+ 50 lb/ac N @ \$550/tonne Urea	\$27/ac
Fungicide	1 Application @ \$18/ac (incl. app)	<u>\$18/ac</u>
	<b>Total cost:</b>	<b>\$60/ac</b>

### Summary:

Corn yield response to further intensifying nitrogen, population and fungicide management practices was variable across the eight field trials conducted in 2011. Positive yield responses were observed at five sites, of which three were economical. When investigating the contribution of SMART components at site 1, fungicide appeared to provide the greatest yield benefit. Across all sites, the average yield response of 6 bu/ac was less than the breakeven yield requirement of 10 bu/ac.

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