Evaluating the Economic Benefits of Corn Hybrid Traits

Ontario Soil and Crop Improvement Association Annual Meeting

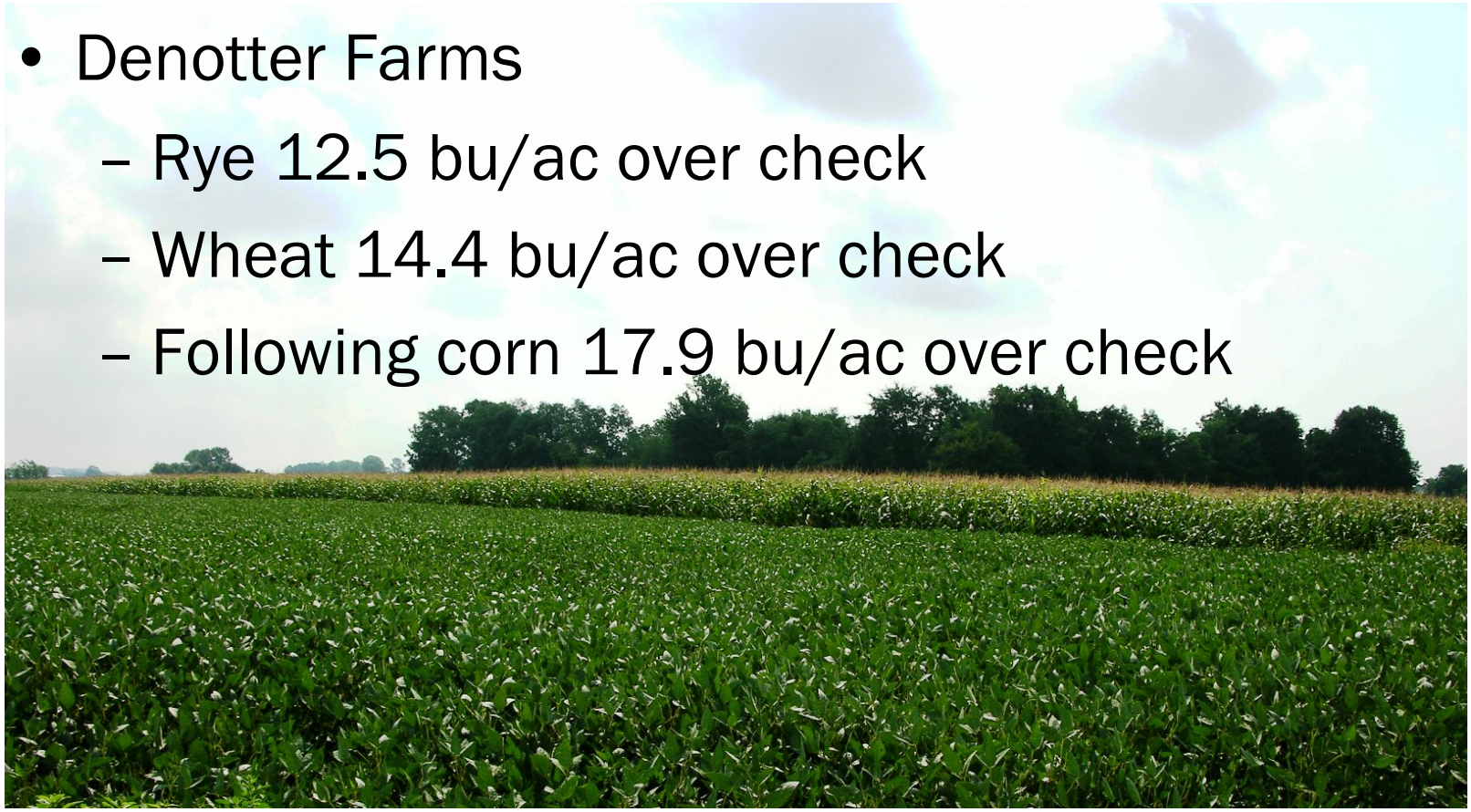
February 2, 2010

Improving Yield of Second Year Soybeans

- St Clair District Soil and Crop Improvement Association Project
- Regional Partner Grant (2005 – 2008), SW Ag Conference Grant, OMAFRA Great Lakes Grant
- Objective is to determine the value of a rye or winter wheat cover crop in multiple years of soybeans
- Plant rye and/or winter wheat immediately following soybean harvest as a cover crop
- Not a substitute for a good crop rotation but hoping to improve the yield of soybeans after soybeans

Year One – 2006/2007 Yield Results

- Essex Demo Farm no difference in soybean yield between rye and check
- Denotter Farms
  - Rye 12.5 bu/ac over check
  - Wheat 14.4 bu/ac over check
  - Following corn 17.9 bu/ac over check



2007/2008 Year 2 Results

- Good cover crop growth this spring
- Denotter Farms - no yield difference
- Essex Demo Farm – no yield difference
- Marc Rivest – no yield difference
- Other three were not useable

2008/2009 Year 3 Results

	Kingsville		Amherstburg		Comber		Florence		Chatham		Ave. Yield
Treatment	Yield	% M	Yield	% M	Yield	% M	Yield	% M	Yield	%M	bu/ac
Check	54	13	46.1	13.3	61.9	13.6	38.6	12.9	55.7	13	51.3/46.2
Rye	57	13	46	13.3	63.4	13.6	37.6	12.8	55.9	13	52.0
Wheat	48	13	41.3	13.3	NA	NA	39.6	12.8	NA	13	43.0

Summary

- Challenges with establishment
- Rye was easy to manage
- Average of sites over 3 year = 2 bu/ac yield advantage to rye and no yield advantage to winter wheat cover crop
- Soybeans following corn 25 to 50 % yield increase
- Yield advantage on sandy loam soils?
- U of G research one year 5 bu/ac increase

Summary

- SCN Benchmarks 2009 – Cyst counts
  - SCN levels following corn were one third of soys on soys
  - 30% reduction SCN variety on after corn
  - 65% reduction rye and SCN variety after soys
  - 50% reduction SCN variety after soys
- Cover crop cost = $21 to no-till plant, $3 for rye and $4-5 for wheat
- Soil benefits

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- To evaluate a corn hybrid and the same hybrid with one or more traits for yield, economic return and other agronomic characteristics.
- Population counts were taken, soil samples for fertility and soil texture
- European Corn Borer damage was assessed
- Three year St Clair Region SCIA project
- Received regional grant from OSCIA $5,000 per year
- Co-operators from all three counties

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Country Farm	CF 870	None	3300
Country Farm	CF 870 YGCB	ECB	3350
Country Farm	CF 870VT3	RR, ECB, CRW	3350
Dekalb	DKC 52-62	RR	3100
Dekalb	DKC 52-63	RR, ECB	3100
Dekalb	DKC 52-59	RR, ECB, CRW	3100
Country Farm	CF 771	None	3100
Country Farm	CF 772 YGCB	ECB	3175
Country Farm	CF 772 RBt	RR, ECB	3175

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Hybrid	Traits	HU	Denotter Farms		Jerome Deslippe	
			Kingsville		Amherstburg	
CF 870	None	3300	23.5	165.6	24.0	197.0
CF 870 YGCB	ECB	3350	24.0	155.5	23.6	178.2
CF 870VT3	RR, ECB, CRW	3350	24.7	156.0	23.7	191.1
DKC 52-62	RR	3100	19.3	189.5	22.0	176.2
DKC 52-63	RR, ECB	3100	19.9	174.9	21.7	172.4
DKC 52-59	RR, ECB, CRW	3100	20.4	177.5	21.8	173.9

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Hybrid	Traits	HU	% M	Yield bu/ac	Seed Cost/bag	Yield Gain/ac	Net $/ac
CF 870	None	3300	24.9	180.4	$130	NA	NA
CF 870YGCB	ECB	3350	25.1	168.2	$170	0	$ (16.00)
CF 870VT3	RR, ECB, CRW	3350	25.1	174.8	$230	0	$ (40.00)
DKC 52-62	RR	3100	22.5	179.3	$240	NA	NA
DKC 52-63	RR, ECB	3100	23.1	175.7	$275	0	$ (14.00)
DKC 52-59	RR, ECB, CRW	3100	23.1	178.1	$285	0	$ (18.00)
CF 771	None	3100		145.4	$130	NA	NA
CF 772YGCB	ECB	3175		139.7	$170	0	$ (16.00)
CF 772 RBt	RR, ECB	3175		136.2	$200	0	$ (28.00)

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- Glyphosate was not applied to RR hybrids
- Only one side with corn following corn
- ECB pressure low to moderate
- Thamesville site only one that would have paid for the triats but was no comparison to a hybrid with no traits
- May be other reasons for the use of hybrids with traits
- Thanks to Country Farm Seeds and Dekalb/ Monsanto for seed donations