



January 2007

On-Farm

Research and Demonstration

MICHIGAN STATE
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2006 On-Farm Research and Demonstration

Area of Expertise – Field Crops Team

The MSU Field Crops Team is pleased to provide you with the results of year 2006 on-farm field trials conducted across Michigan.

These projects were made possible thanks to the hard work of many people. First and foremost, the farmers, educators and specialists whose names are listed with the results. Also, thanks to MSU graphic designer Steve Deming and the KBS Land and Water Program staff who edited this report. Other contributors include the Corn Marketing Program of Michigan and the Michigan Soybean Promotion Committee.

Whenever possible, data were analyzed using statistics. Means within columns followed by the same letter are not significantly different at the 0.05 level by the Least Significant Difference (LSD) test.

The Field Crops Team strives to assist those involved in Michigan crop production with current, research-based information that is agronomically sound, profitable and environmentally responsible. For more information about any of the projects included in this report, please contact the educator or specialist listed.

We invite your input on priorities you believe are important for Michigan crop producers. Our current priority areas are nutrient/manure management, site-specific crop management, forage management and marketing, specialty and value-added crops, northern Michigan field crops and soil quality.

Sincerely,



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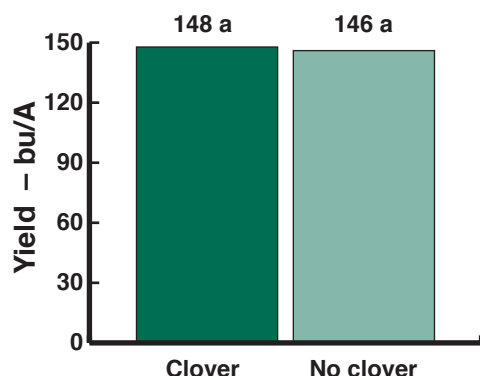


Effect of clover on following corn yield

County:	Saginaw
Cooperator:	Dan Sahr
Nearest town:	Reese
Soil type:	Tappan loam
Tillage:	Conventional
Previous crop:	Wheat
Planting date:	04/10/06
Row width:	22-inch
Hybrid:	DeKalb 5145
Harvest date:	10/27/06
Exp. design:	RCB

Purpose

Evaluate the effect of clover on the following corn yield and some soil quality indicators.



Treatment	Moisture	Dry yield	Stalk nitrate (ppm)
Clover	16.8	148 a	3,133 b
No clover	16.7	146 a	2,180 a
LSD (0.05)		(11.7) n.s.	928

Treatment	Beneficial organisms				Parasites
	Fungal feeders	Bacterial feeders	Mycorrhizal feeders	Tiny earthworms	Plant feeders
Clover	8	81	45	1	16
No clover	6	43	33	3	7
Dairy farm	23	93	63	10	145
Organic farm	14	125	40	10	101

Results

Clover was drilled into wheat in 2005 with good growth and moldboard plowed in the late fall. There was no significant yield difference in this trial caused by clover which was grown last year. Stalk nitrate samples showed an excessive level of N in the plant where clover was grown. An opportunity to reduce N application rates following clover could reduce costs. The clover treatment increased all beneficial organisms except earthworms as compared to no clover.

Trial supported by Project GREEN and MSUE.

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Comparing slow release N (ESN) with traditional N sources on corn

Purpose

Compare an environmentally friendly nitrogen source with traditional nitrogen fertilizer sources.

Cooperators: Gary Parr (farmer cooperator), John Kaufman (Agrium, Inc.), Kim Walton (Barry/Eaton Groundwater Stewardship Program), Trevor Gruesbeck (Crop Production Services, Woodbury).

County:	Eaton
Cooperator:	Gary Parr
Nearest town:	Charlotte
Soil type:	Sandy loam
Tillage:	Conservation
Previous crop:	Soybeans
Planting date:	04/28/06
Row width:	30-inch
Hybrid:	DeKalb 5307
Harvest pop.:	33,000
Harvest date:	11/26/06
Exp. design:	RCB, 3 replications

Trt. #	N fertilizer source	App. date	Moisture	bu/A
1	Anhydrous – N 120 lb. side-dress after planting	06/15/06	18.6	185
2	Urea – 120 lb. N preplant and tilled on 04/27/06	04/26/06	18.5	181
3	ESN – 120 lb. N preplant and tilled on 04/27/06	04/26/06	18.6	182
4	ESN – 100 lb. N preplant and tilled on 04/27/06	04/26/06	18.6	182
5	UAN – 120 lb. N after planting, surface sprayed	05/06/06	18.4	179
6	ESN – 100 lb. N after planting, drilled	05/05/06	18.8	178
	LSD (0.05)		0.3	9.9

Results

All N treatments except treatment #1 received N fertilizer before the 2006 spring heavy rains. Anhydrous was injected on 06/15/06 under ideal conditions. Plot encountered a major dry spell from mid-June to mid-July.

ESN is a 44 percent controlled release nitrogen. It is designed to reduce loss of N to the environment, and increase the overall efficiency of applied nitrogen in production of field crops. The value of ESN is higher on the soils and climates where nitrogen loss is predictable. Under conditions where there is no N loss, ESN value is limited to flexibility in application timing and reduced application costs. Therefore, part of the value of ESN would be as insurance against a N loss during the season and part on its ability to eliminate a side-dress application.

As the yield differences were not statistically significant, the trial showed that ESN, particularly the preplant incorporated treatments, were effective at replacing a side-dress anhydrous N application. The ease of application and timing flexibility demonstrate the value ESN. The treatments 4 and 6 were included as a reduced N rate comparison to offset the higher price of ESN.

Trial supported by the Barry/Eaton Groundwater Stewardship Program, Agrium, Inc., Crop Production Services, Woodbury and the participation of Capital Area Innovative Farmers Organization.



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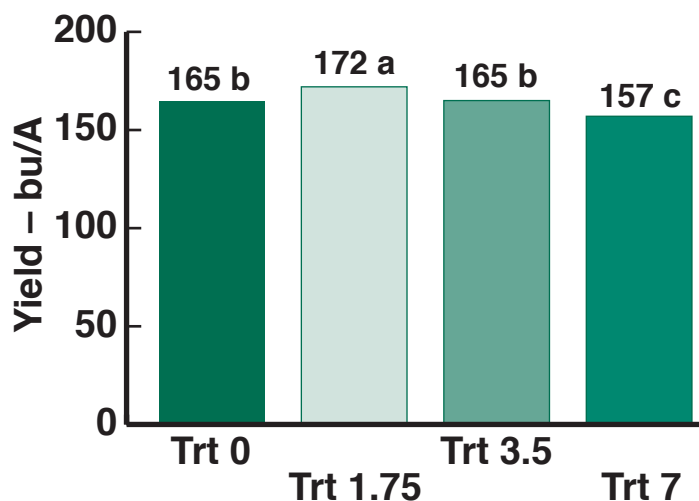


Ammonium thiosulfate on corn yields

County:	Berrien
Cooperator:	Larry and Sharon Camp
Nearest town:	Buchanan
Soil type:	Oshtemo sandy loam
Tillage:	In-row vertical tillage (6-inch deep) in the spring, followed by planter mounted coulters tillage in the row (3 coulters per row)
Previous crop:	Soybeans
Fertilizer:	40 gal. of 28-0-0 applied 4 inches beside and 4 inches below the seed on both sides of the row and 12 gal. of 10-34-0 applied 2 inches directly below the seed at planting
Herbicide:	1 qt. Cornerstone Plus and 17 lbs. ammonium sulfate applied on 04/27/06. 2.1 qts. Bicep II Magnum and 1 qt. Pendimax on 05/24/06
Insecticide:	8.75 lbs. Lorban 15G applied at planting.
Corn hybrid:	Pioneer 34D68
Planting date:	05/22/06
Plant pop.:	27,000
Harvest date:	11/22/06
Exp. design:	RCB, 4 replications

Purpose

Determine the effect of three rates of ammonium thiosulfate on corn yields when applied in the starter fertilizer.



Ammonium thiosulfate gal/A	Moisture %	Yield bu/A
0	21.6	165 b
1.75	21.4	172 a
3.5	21.6	165 b
7	21.7	157 c
LSD (0.05)		5.9

Results

The addition of ammonium thiosulfate in the starter fertilizer showed a significant increase in corn yields at the 1.75 gal/A rate. The highest application rate (7 gal/A) applied two inches directly below the seed reduced plant stand and yield in the sandiest areas of the plot. This was probably due to the higher rates of free ammonia and not due to the sulfur.

Sponsored by the Corn Marketing Program of Michigan, and Michigan Corn Growers Association.

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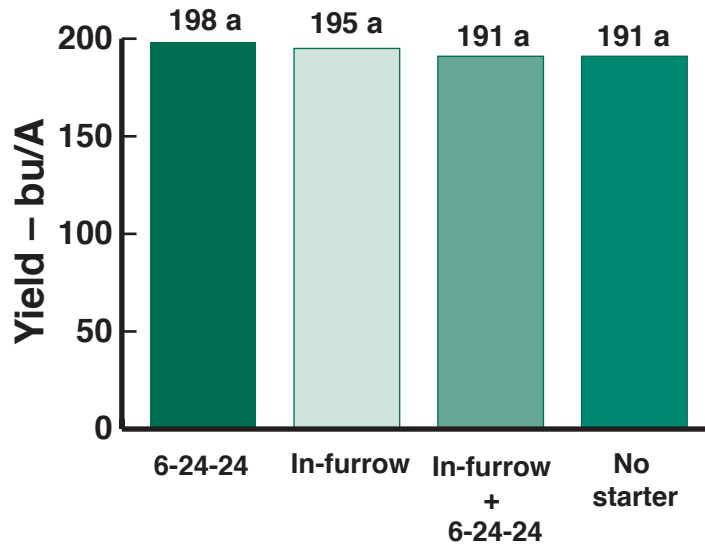
In-furrow liquid fertilizer

Purpose

Evaluate the impact on yield using starter fertilizer applied as in-furrow liquid or dry 6-24-24 or a combination of both versus no starter on soils that do not require a starter fertilizer based on MSU recommendations.

County: Tuscola
Cooperator: Greg Ackerman
Nearest town: Vassar
Soil type: Londo loam complex
Tillage: Moldboard, field cultivator
Previous crop: Wheat with clover cover crop
Planting date: 04/26/06
Hybrid: GL5518
Row width: 30-inch
Herbicide: 32 oz. Weathermax 2 apps.
Harvest date: 10/24/06
Harvest pop.: 33,000
Exp. design: RCB

Treatment	Average yield bu/A
6-24-24	198 a
In-furrow liquid	195 a
In-furrow liquid + 6-24-24	191 a
No starter	191 a
LSD (0.05) C.V. = 4.4 percent	17.2



Results

Data indicates that the application of a starter fertilizer in either form, in-furrow or dry, did not result in a significant increase in yield. This supports results reported in 2005 from two studies conducted in Tuscola County where no yield increase occurred by applying starter fertilizer.

Sponsored by Michigan Corn Growers Association, Project GREEN, MSUE, MAES, Great Lakes Seed, UAP and Star of West.

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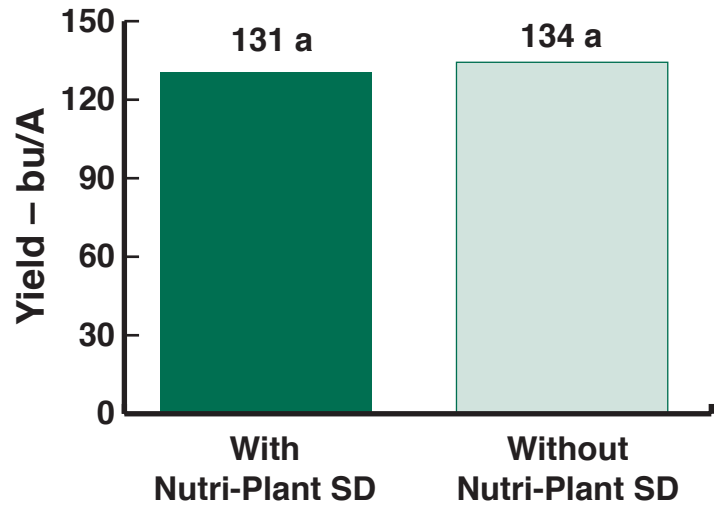


Seed additive comparison

County: Macomb
Cooperator: Ingleside Farms
Nearest town: Romeo
Soil type: Clay loam
Tillage: Conventional
Planting date: 04/29/06
Hybrid: Great Lakes 5377
Row width: 30-inch
Harvest date: 10/09/06
Harvest pop. 34,000
Exp. design: RCB 3 replications

Purpose

Compare corn planted with the seed additive Nutri-Plant SD in a side-by-side situation in different growing conditions.



Treatment	Moisture	Adj. yield	Standard deviation
Without Nutri-Plant SD	22.0	134 a	11.4
With Nutri-Plant SD	21.9	131 a	10.6

Results

There was no significant difference in corn yields with or without the seed additive.

Sponsored by Michigan State University Extension.

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Huron, Sanilac and
Tuscola counties

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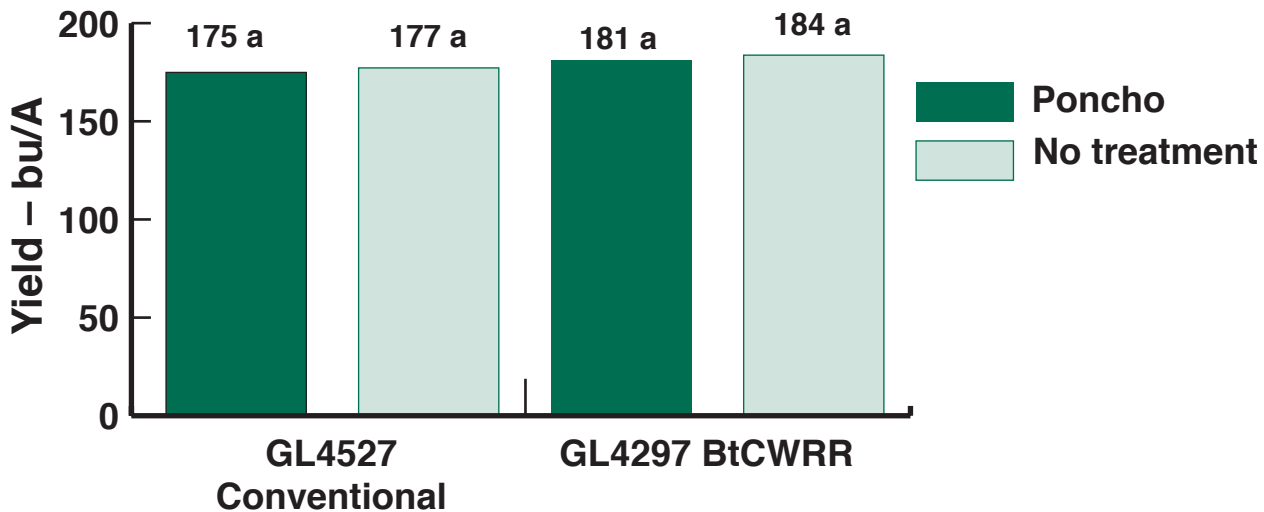
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Effects of Poncho 250 seed treatment on corn yield

Purpose

Evaluate the yield response to Poncho 250 seed treatment on two different corn hybrids.

County:	Huron, Sanilac, Tuscola
Nearest town:	Five locations in the thumb area
Soil type:	Londo loam complex
Previous crop:	Wheat, soybeans
Planting date:	04/24/06 – 05/02/06
Hybrid:	GL4527 and GL4297BtCWRR
Row width:	30-inch
Harvest pop.	33,000
Fertilizer:	180 lb. nitrogen preplant, 100 lb. 6-24-24 at planting
Herbicide:	2.5 qt. Lumax pre.
Harvest date:	10/18/06 – 11/02/06
Exp. design:	RCB



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Results

Two hybrid varieties at five locations were evaluated throughout the Thumb area. Each variety had Poncho and non-Poncho seed that were compared using a completely randomized block design with three reps. at each location. The data indicates that the Poncho 250 seed treatment did not have a significant impact on yield at any single location or when combined from each.

Sponsored by Michigan Corn Growers Association, Project GREEN, MSUE, MAES, participating seed companies, UAP and Star of West.

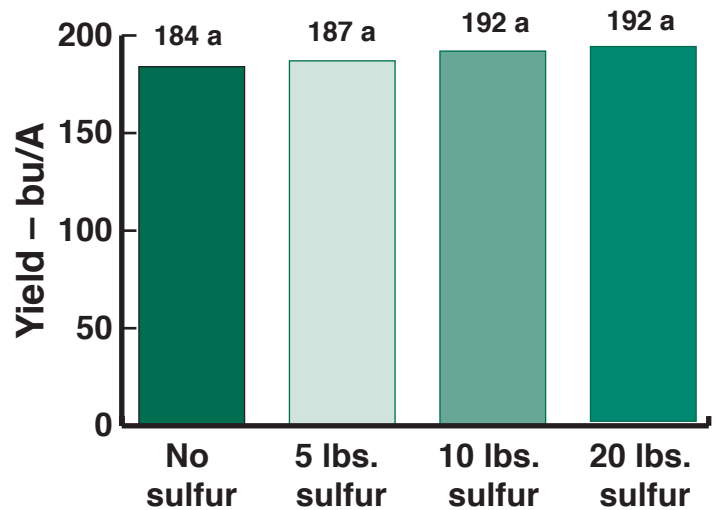


Corn sulfur study

County: Tuscola
Cooperator: Greg Ackerman
Nearest town: Vassar
Soil type: Londo loam complex
Tillage: Moldboard, field cultivator
Previous crop: Wheat with clover cover crop
Planting date: 04/27/06
Hybrid: GL5518
Harvest pop.: 33,000
Fertilizer: 180 lbs. nitrogen preplant
Herbicide: Roundup Weathermax 32 oz.
Row width: 30-inch
Harvest date: 10/24/06
Exp. design: RCB

Purpose

Evaluate corn yield response from sulfur applied as a starter fertilizer at planting.



Treatment	Sulfur lb/A	Average yield
1	0 lb. sulfur	184 a
2	5 lb. added sulfur	187 a
3	10 lb. added sulfur	192 a
4	20 lb. added sulfur	192 a
LSD (0.05)		29.4

Results

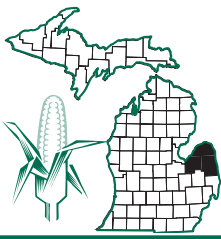
There was no significant difference when sulfur was applied at three different rates at planting in the starter fertilizer.

Sponsored by Michigan Corn Growers Association, Project GREEN, MSUE and MAES.

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Huron, Sanilac and
Tuscola counties

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Nitrogen rate trial

Purpose

Evaluate the lowest nitrogen rate that returns consistent acceptable yields.

Results

These data represent three locations which indicates that the nitrogen rate between 80 to 200 lbs/A is not significantly different. Even though 0 nitrogen was applied, there was residual nitrogen available at each of the three locations due to previous crop or prior manure applications. This data is part of a much larger study being conducted by Dr. Ron Gehl at Michigan State University.

Sponsored by Michigan Corn Growers Association, Project GREEN, MSUE and MAES.

County:	Huron, Sanilac, Tuscola
Cooperator:	Greg Ackerman, Vassar; Don Koth, Kinde; Brian Stamp, Marlette
Soil type:	Londo loam complex
Tillage:	Chisel, moldboard, field cultivator
Previous crop:	Soybean, wheat, wheat w/red clover cover crop
Fertilizer:	Sidedressed N
Corn hybrid:	GL5518
Planting date:	04/24/06 – 05/02/06
Harvest pop.:	33,000
Harvest date:	10/18/06 – 11/02/06
Exp. design:	RCB

Treatment lbs. N	Three location average			Yield at each location			Total N available		
	Harvest moisture	Test weight	Yield bu/A	Marlette	Kinde	Vassar	Marlette	Kinde	Vassar
200	17.7	57.8	197 a	194	206	190	244	254	320
160	16.8	55.9	190 a	193	199	177	204	214	280
120	17.2	56.0	194 a	187	206	188	164	174	240
80	17.2	57.7	188 a	183	195	185	124	134	200
40	17.0	57.1	169 b	174	158	175	84	94	160
0	17.9	57.4	110 c	102	74	156	44	54	120
Average			175	172	173	178			
LSD (0.05)			12.9	24.1	20.7	27.8			
C.V.			7.6	7.6	6.5	8.5			
Previous crop				Soybean	Wheat	Wheat + clover			
N test results				7.2 ppm	9 ppm	20 ppm			
Potential N credit				44 lbs.	54 lbs.	120 lbs.			



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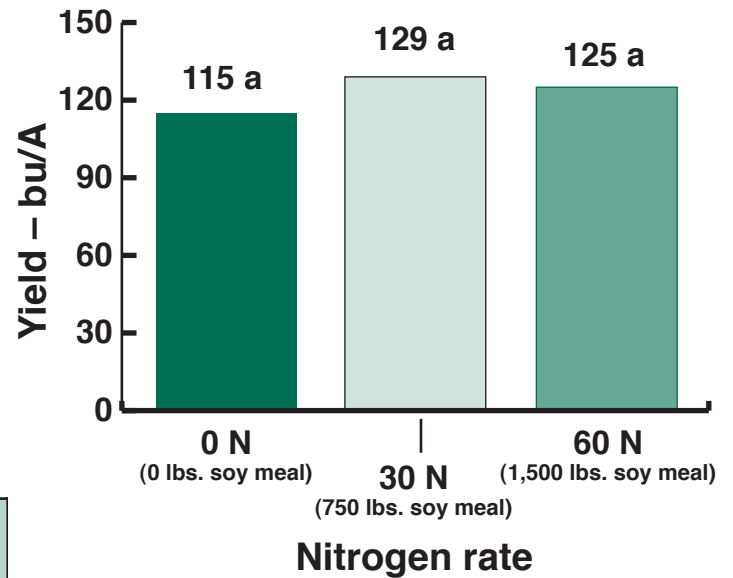


Non-GMO soybean meal as a source of N for organic corn

County:	Kalamazoo
Cooperator:	KBS
Nearest town:	Hickory Corners
Soil type:	Kalamazoo sandy loam
Tillage:	Conventional
Previous crop:	Wheat w/red clover cover crop
Fertilizer:	None
Corn hybrid:	Blue River Organics 26K21
Planting date:	05/26/06
Planting pop.:	28,000
Weed control:	Flamer and cultivator
Harvest date:	10/13/06
Exp. design:	RCB, 4 replications

Purpose

Evaluate organic corn response to non-GMO soybean meal on corn yield.



Treatment	N rate lbs/A	lbs/A soybean meal
1	0	0
2	30	750
3	60	1,500

Treatment	Yield - bu/A
1	115 a
2	129 a
3	125 a

LSD (0.05) = 19.96

Results

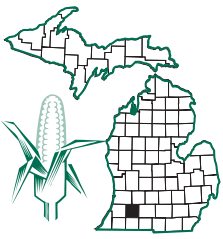
There was no significant difference in corn yields from the non-GMO soybean meal.

Sponsored by USDA/MSU Sustainable Agriculture.

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Organic corn weed control study

Purpose

Compare rotary hoeing to flaming as a method of weed control in organic corn planted early and late.

Results

The early planting date resulted in poor germination and reduced stand. The early planting also had poorer weed control than the late planted corn. The early rescue treatment where weeds were allowed to grow and flaming and cultivation were done to save the corn resulted in the lowest yield. There was no significant difference between the early planted (Trt. 1) and all the late planted corn treatments. In 2006 there was an advantage to planting corn late under organic weed control systems.

Sponsored by MSUE Land & Water Program.

County:	Kalamazoo
Cooperator:	KBS
Nearest town:	Hickory Corners
Soil type:	Kalamazoo sandy loam
Tillage:	Conventional
Previous crop:	Wheat w/red clover cover crop
Fertilizer:	None
Corn hybrid:	Blue River Organics 26K21
Planting date:	05/08/06 and 05/23/06
Plant pop.:	25,000
CC plant date:	07/06/05
Weed control:	Rotary hoe, flamer, cultivator
Harvest date:	10/16/06
Exp. design:	RCB, 4 replications

Treatments at each planting date					
Trt	Weed control	Planting date	bu/A	Weed rating	Plant pop/A
1	Rotary hoe as needed, cultivate	early	81 abc	6.8	15,500
2	Flame as needed, cultivate	early	60 d	4.2	14,000
3	Rotary hoe (early), flame as needed, and cultivate	early	69 bcd	6.5	14,500
4	Rescue, late flaming and cultivating	early	42 e	0.0	15,000
1	Rotary hoe as needed, cultivate	late	84 ab	8.1	23,600
2	Flame as needed, cultivate	late	88 a	8.6	24,900
3	Rotary hoe (early), flame as needed and cultivate	late	83 abc	8.5	22,500
4	Rescue, late flaming and cultivating	late	67 cd	6.5	23,800

LSD (0.05)
No weed control = 0
100 percent weed control = 10

Weed rating scale: Early planted trt. 4 used as worst weed control = 0; no weeds = 10.

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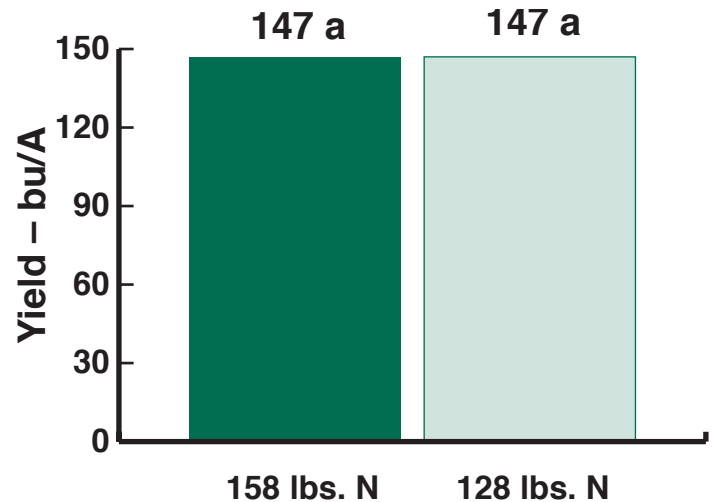


Nitrogen rate study

County:	Saginaw
Cooperator:	Dan Sahr
Nearest town:	Reese
Soil type:	Tappan loam
Tillage:	Chisel, moldboard, field cultivator
Previous crop:	Wheat w/red clover cover crop
Fertilizer:	Sidedressed N 50 lbs/A at planting
Corn hybrid:	GL5518
Planting date:	04/24/06 – 05/02/06
Planting pop.:	33,000
Harvest date:	10/18/06 – 11/02/06
Exp. design:	RCB

Purpose

Evaluate the lowest nitrogen rate that returns consistent acceptable yields.



Treatment – lbs. N	Harvest moisture	Test weight	Yield bu/A	Gross income minus N cost/A
158	16.5	56.2	147 a	\$386.00
128	16.8	56.3	147 a	\$396.20
Average			147	
LSD (0.05)			3.8	
C.V.			1.2	

Gross income minus N cost assumes \$3/bu for corn and \$0.35/lb for N.

Results

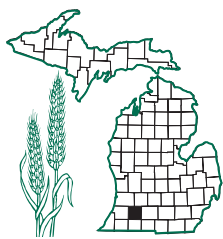
There was no significant difference between applied N rates. These trials (see Huron, Sanilac, Tuscola counties study, p 10) indicate an opportunity to reduce N rates for corn production from current use.

Sponsored by Michigan Corn Growers Association, Project GREEN, MSUE and MAES.

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Manure/cover crop after winter
wheat

Purpose

Compare four cover crops no-till drilled following winter wheat to four cover crops seeded with manure slurry following winter wheat.

County:	Kalamazoo
Cooperator:	KBS
Nearest town:	Hickory Corners
Soil:	Kalamazoo sandy loam
Tillage:	No-till, slurry aerway seeder
Previous crop:	Winter wheat
Planting date:	08/02/05
Herbicide:	43 oz. RoundUp Max prior to seeding
Biomass sampling date:	10/25/05, (mustard, 10/03/05)
Exp. design:	RCB, 4 replications

Trt	Manure	Seeding	Cover crop	Rate	Plants/ft ²	Cover	Roots		Weeds
						lb/A	lb/A	std err	lb/A
6	yes	none	—	—	—	—	—		1256 a
7	no	none	—	—	—	—	—		53 b
2	yes	manure	Annual ryegrass	35 lb.	—	1941 c	—		28 b
9	no	no-till drill	Annual ryegrass	35 lb.	—	1332 de	—		26 b
5	yes	manure	Cereal rye	112 lb.	—	834 e	—		95 b
12	no	no-till drill	Cereal rye	112 lb.	—	1321 de	—		0 b
1	yes	manure	Crimson clover	15 lb.	1.0	222 f	—		293 b
8	no	no-till drill	Crimson clover	15 lb.	10.9	1679 cd			15 b
3	yes	manure	Oilseed radish	15 lb.	2.4	4607 a	1711	218	10 b
10	no	no-till drill	Oilseed radish	15 lb.	6.1	2801 b	1078	77	2 b
4	yes	manure	Oriental mustard	10 lb.	4.4	2624 b	335	17	13 b
11	no	no-till drill	Oriental mustard	10 lb.	13.5	1833 cd	206	18	0 b
					LSD (0.05)	607			542

Notes

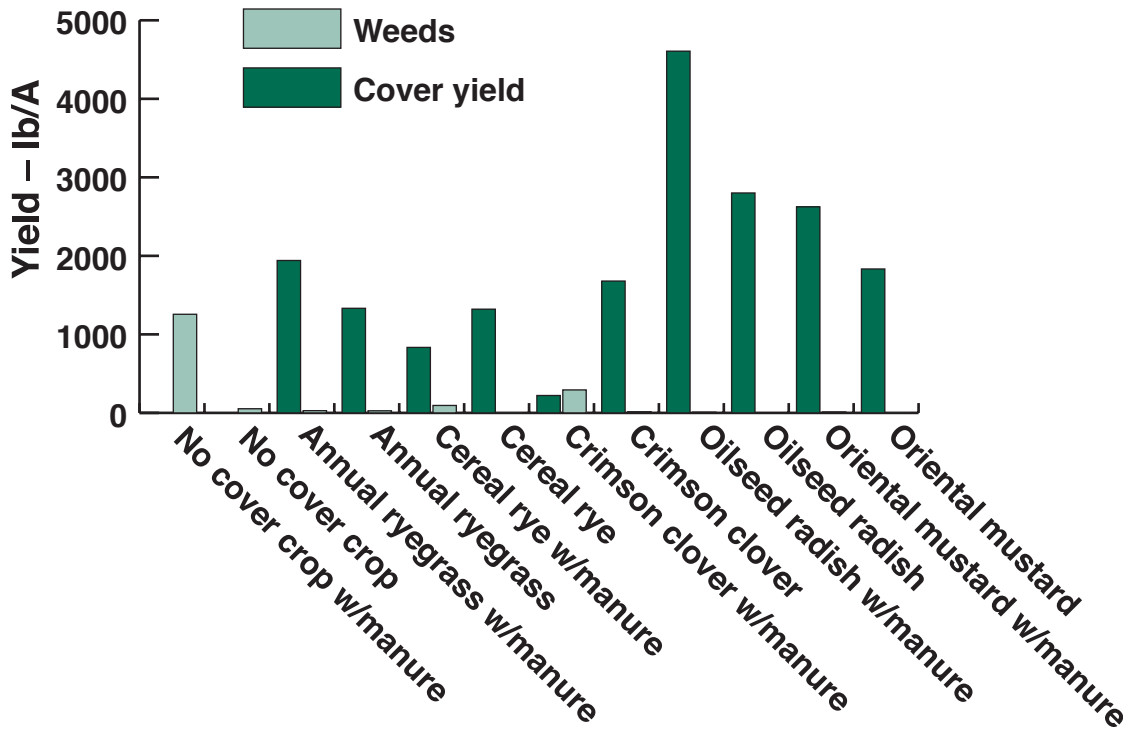
Manure was applied @ 4,500 gpa. A sample was taken from the pit in early April and it shows total N @ 34.1 lb/1000 gal., NH₄-N @ 19.2 lb., P @ 12.3 lb. as P₂O₅, and K as 21.8 lb. as K₂O, with 18.7 percent solids.



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Manure/cover crop after winter wheat (cont.)



Results

Manure significantly enhanced biomass production for annual ryegrass, oilseed radish and oriental mustard when comparing these same covers seeded without manure. Even though they had fewer plants/ft² as compared to the no manure treatments. Crimson clover biomass was significantly reduced when seeded with manure and there was no difference for cereal rye. The only significant weed biomass was with manure and no cover crop, all other treatments remained very low.

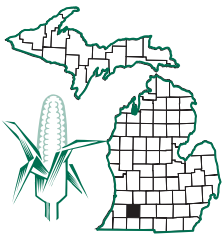
These data suggest that manure seeded cover crop can produce very high levels of biomass, especially in dry years. The manured cover crop plants were fewer in number, but much larger.

Sponsored by Project GREEN and Michigan Sugar Beet Advancement Committee.

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Corn following manure/cover
crops after winter wheat

County:	Kalamazoo	Herbicide:	Burndown – 32 oz.
Cooperator:	KBS		Roundup Max + AMS
Nearest town:	Hickory Corners		1 qt. 2,4D ester,
Soil type:	Kalamazoo sandy loam		Pre-emergence: 2.5 qt.
Tillage:	No-till		Lumax
Previous crop:	Winter wheat with or without cover crop or manure no-tilled	Planting date:	04/28/06
		PSNT:	June 12
Hybrid:	Pioneer 36W66	Plant pop.:	28,000
Fertilizer:	Variable by treatment	Harvest date:	10/16/06
		Exp. design:	RCB, 4 replications

Purpose

Compare corn yields following five cover crops no-till drilled to five cover crops seeded with manure slurry following winter wheat harvested in 2005. The cover crop results are reported on pages 14 and 15 and in the 2005 AoE Field Crops On-Farm report.

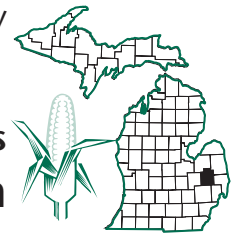
Trt.	Manure/cover crop	PSNT credit (lb/A)	Yield – bu/A
1	Manure/crimson clover	50	159 ab
2	Manure/annual ryegrass	55	157 ab
3	Manure/oilseed radish	70	167 a
4	Manure/oriental mustard/cereal rye	55	155 abc
5	Manure/cereal rye	40	162 ab
6	Manure	55	155 abc
7	No manure	40	157 ab
8	No manure/crimson clover	105	137 d
9	No manure/annual ryegrass	40	149 bcd
10	No manure/oilseed radish	60	147 bcd
11	No manure/oriental mustard/cereal rye	60	139 cd
12	No manure/cereal rye	55	147 bcd
	LSD (0.05)		17.3

Results

The highest corn yield resulted when the manure slurry seeding of oilseed radish (Trt. 3) was used. In general, manure enhanced corn yields as compared to no manure. Crimson clover, drilled, provided the highest PSNT credit (105 lbs/A) yet resulted in the lowest yield. It is believed the N may have been tied up and unavailable. Another possibility is that there was an excellent growing season and the liquid N applied was readily available to the corn, which stimulated yield. We are currently testing stalk nitrate content to help answer this question. The manure slurry cover crop system resulted in excellent yield in 2006.

Sponsored by Project GREEN.

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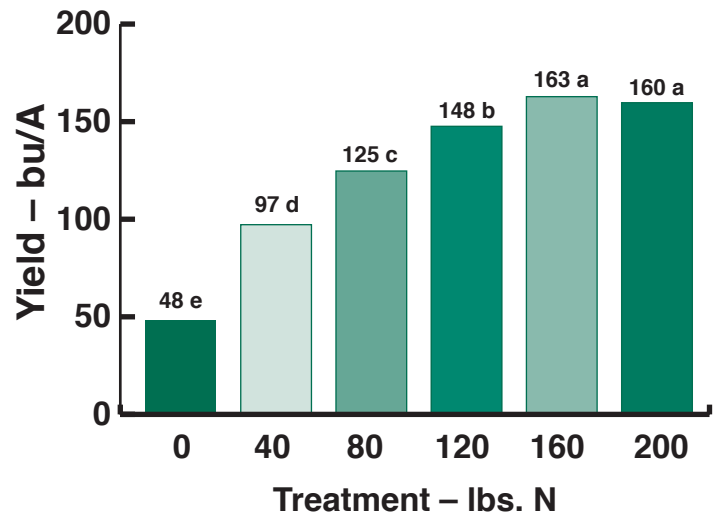


Nitrogen rate study

County:	St. Clair
Cooperator:	Dave Wronski
Nearest town:	Smiths Creek
Soil type:	Parkhill loam
Tillage:	No-till
Previous crop:	Soybeans
Planting date:	05/31/06
Hybrid:	Pioneer 39F27
Row width:	30-inch
Date planted:	05/31/06
Plant pop.:	32,000
Fertilizer:	200 lbs. Potash, 28% side dress, 06/25/06
Herbicide:	3 qt. Lexar (05/25/06), 2 qt. Choice/100 gal.
Harvest date:	11/25/06
Harvest pop.	29,000
Exp. design:	RCB 3 replications

Purpose

Evaluate corn response to several nitrogen rates.



N treatment	Moisture	Adj. yield
0	21.8	48 e
40	22.0	97 d
80	22.1	125 c
120	22.6	148 b
160	22.5	163 a
200	21.7	160 a
LSD (0.05)		8.0

Results

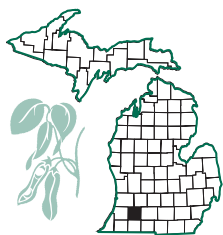
Treatments of 160 to 200 lbs. N/A significantly increased corn yield as compared to lower rates. In 2006, corn yields responded to N rate increases up to 160 lbs/A.

Sponsored by Michigan State University Extension.

For more information

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Organic no-till soybeans in
rolled/crimped cover crops

County: Kalamazoo
Cooperator: KBS
Nearest town: Hickory Corners
Soil type: Kalamazoo sandy loam
Tillage: No-till
Previous crop: Buckwheat
Cover crop planting date: 08/24/05 and 09/15/05
Fertilizer: None
Variety: S2020
Row width: 7.5-inch
Plant pop.: 180,000
Planting date: See table
Harvest date: 10/15/06

Purpose

Develop a no-till organic system for soybeans using the roller/crimper system.

Trt	Soybean harvest pop.	Fall weed biomass (lb/A)	Soybean yield bu/A
1	147,015	180 b	35 ab
2	227,783	11 b	38 a
3	250,470	21 b	36 ab
4	117,068	2,661 a	21 f
5	245,025	1,841 a	27 de
6	196,928	2,471 a	22 ef
7	127,958	354 b	28 cd
8	210,540	123 b	34 ab
9	201,465	158 b	32 bc
LSD (0.05)		1,414	5.2

Trt	Cover crop planting date	Rye (bu/A)	Vetch (lbs/A)	Crimping/planting 25 – May	June 2	June 5	June 15
1	Sep 15	2.5	0	–	–	crimped/planted	–
2	Sep 15	2.5	0	–	crimped	crimped/planted	replanted
3	Sep 15	2.5	0	–	–	planted/crimped	replanted
4	Aug 24	0	30	crimped	crimped	crimped/planted	–
5	Aug 24	0	30	–	crimped	crimped/planted	replanted
6	Aug 24	0	30	–	–	crimped/planted	replanted
7	Aug 24	2	25	–	–	crimped/planted	–
8	Aug 24	2	25	–	crimped	crimped/planted	replanted
9	Aug 24	2	25	–	crimped	crimped/planted	replanted

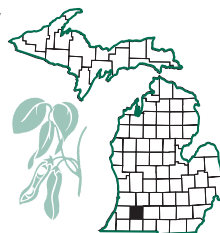
Results

Initial stand counts after planting indicated poor germination, so a second planting was made on June 15 for two-thirds of the treatments. Replanting treatments 2 and 3 did not significantly increase soybean yield as compared to treatment 1. Replanting treatment 5 significantly increased soybean yield over treatment 4 not related. Treatment 8 replant yielded significantly higher than the treatment 7 not replanted. Fall weed bio-

mass directly correlated with soybean yields. As weed biomass increased, soybean yield decreased. All three hairy vetch cover crop treatments were significantly higher for weed biomass and significantly lower for soybean yield. Cereal rye alone resulted in consistent high soybean yields as compared to the other treatments.

Sponsored by Project GREEN.

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Cropping Systems
Soybeans

Organic soybean rust study

Purpose

Evaluate planting date and organic fungicides on soybean yield.

County:	Kalamazoo
Cooperator:	KBS
Nearest town:	Hickory Corners
Soil type:	Kalamazoo sandy loam
Tillage:	Disk, field cultivator
Previous crop:	Corn
Planting date:	05/22/06, 06/16/06
Variety:	S2020
Plant pop.:	180,000
Row spacing:	30-inch
Weed control:	Rotary hoe, cultivator, hand weeding
Harvest date:	09/25/06 and 10/06/06
Exp. design:	RCB, split block

Trt	Planting date	Fungicide	Rate	Spray dates	Soybean yield bu/A
1	May 22	Ballad	2 qt/A	July 26 and Aug. 7	38 a
2	May 22	Peroxide	75 gal/A 1:100 solution	July 26 and Aug. 7	39 a
3	May 22	Control	None	None	41 a
4	June 16	Ballad	2 qt/A	July 26 and Aug. 7	42 a
5	June 16	Peroxide	75 gal/A 1:100 solution	July 26 and Aug. 7	43 a
6	June 16	Control	None	None	41 a
				LSD (0.05) = 7.2	

Results

There were no significant differences in yield between treatments or planting dates in 2006. No soybean rust was found.

Sponsored by USDA Organic.

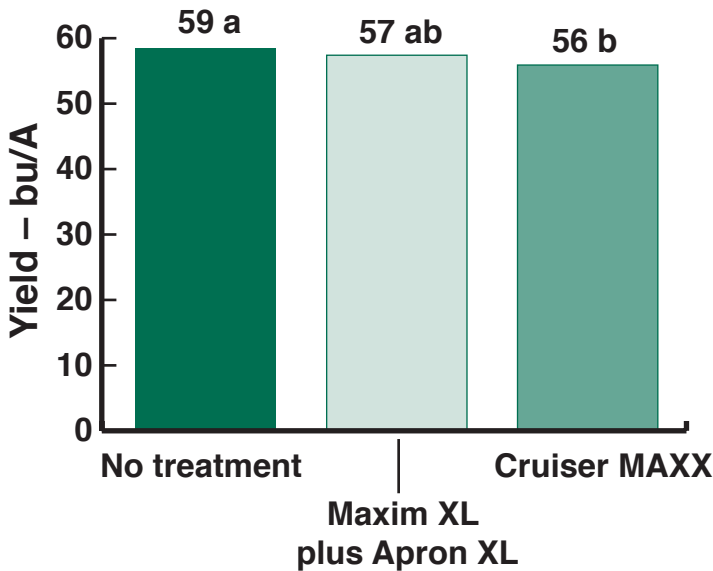
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Impact of seed treatment on soybean yield

Purpose

Compare soybean yield for DF 222 soybeans when treated with Maxim XL plus Apron XL LS seed treatment, Cruiser Max Pak seed treatment or an untreated control.



County:	Clinton
Cooperator:	Don Stump
Nearest town:	Pewamo
Soil type:	Pewamo loam
Tillage:	No-till
Previous crop:	Corn
Planting date:	05/30/06
Variety:	DF 222
Row width:	7-inch drilled
Fertilizer:	None
Herbicide:	Roundup 1 pt/A, Ammonium sulfate, Pursuit Plus 2.5 pt/A, Scepter 1.4 oz/A, LV4 1 pt/A
Harvest pop.:	132,000
Harvest date:	10/16/06
Exp. design:	RCB, 3 replications

Variety	Seed trt	Population	Moisture	Yield	Yield range	Value*
DF 222	No treatment	137,000	13.3	59 a	57 – 60	\$365
DF 222	Maxim XL plus Apron XL LS	136,000	13.2	57 ab	57 – 58	\$358
DF 222	Cruiser MAX	123,000	13.3	56 b	55 – 57	\$349
LSD (0.05) = 2.3						
*Value is based on \$6.25/bu with discounts of \$0.04 per point for moisture over 13 percent.						

Results

The untreated control yielded significantly higher than Cruiser MAX seed treatment while providing the best value.

Sponsored by Mid-Michigan Variety Trials and D.F. Seeds Inc.

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Comparing fall chisel plow and no-till on soybean yield

County:	Eaton
Cooperator:	Gary Parr
Nearest town:	Charlotte
Soil type:	Sandy loam
Previous crop:	Corn
Tillage:	Fall chisel (11/01/05) and no-till
Variety:	Pioneer 92B38 RR
Herbicide:	Roundup
Planting date:	06/01/06
Plant pop.:	180,000 – 200,000
Harvest date:	10/30/06
Exp. design:	Strip rows, 4 replications

Purpose

Determine if fall chisel plowing of corn residue will benefit soybean yield. Previous research at Purdue University and Lenawee Co., Mich. have shown that fall chisel plowing increased soybean yield in a majority of years over no-till. The cost incurred by chisel plow operation meant that a consistent yield increase of about 4 to 5 bu/A was necessary to justify this practice.

Parr Farm		
Tillage treatment	Moisture	bu/A*
Fall chisel plow	13.3	55
No-till	12.9	53
*Yield differences were not statistically different.		

Results

Yield differences were not statistically different. The fall chisel plow had a twisted point. This unit worked in tandem with five rows of harrow-like teeth that produced a fairly leveled seedbed in one operation. We noticed a faster rate of early growth and canopy closure in the chisel plow treatment, but this did not translate to statistically significant higher yields. For 2006, the yield differences were not large enough to justify fall chisel plowing as practice to increase soybean yield over traditional no-till.

Sponsored by Michigan Soybean Checkoff, Capital Area Innovative Farmers, Williams Farm Machinery, Michigan Groundwater Stewardship Program and Natural Resources Conservation Service.

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Effect of fall disking and no-till on soybean yield

Purpose

Determine if fall disking of corn residue will benefit soybean yield.

County:	Eaton
Cooperator:	Gary Parr
Nearest town:	Charlotte
Soil type:	Sandy loam
Tillage:	Conservation
Previous crop:	Corn
Variety:	Roundup Ready varieties
Herbicide:	Roundup
Planting date:	06/02/06
Plant pop.:	180,000 – 200,000
Harvest date:	11/01/06

Tillage treatment	Moisture	bu/A*
Fall disking	12.9	61
No-till	12.7	57
*Yield differences were not statistically different.		

Results

A faster rate of early growth and canopy closure in the fall disk treatment was noted, but this initial growth rate did not translate to significantly higher yields compared to no-till treatment.

On this farm, the yield differences were not statistically large enough to justify fall disking as a practice to increase soybean yield over traditional no-till.

Sponsored by Michigan Soybean Checkoff, Capital Area Innovative Farmers, Williams Farm Machinery, Michigan Groundwater Stewardship Team and the Natural Resources Conservation Service.



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Comparing fall chisel plow and no-till on soybean yield

County:	Eaton
Cooperator:	Charlie Harag
Nearest town:	Charlotte
Soil type:	Sandy loam
Tillage:	Conservation
Previous crop:	Corn
Planting date:	05/06/06
Variety:	Pioneer 92B38 RR
Harvest date:	10/10/06
Harvest pop.:	160,000
Exp. design:	Strip rows, 3 replications

Purpose

Determine if fall chisel plowing of corn residue will benefit soybean yield. Previous research at Purdue University and Lenawee Co., Mich. have shown that fall chisel plowing increased soybean yield in a majority of years over no-till. The cost incurred by chisel plow operation meant that a consistent yield increase of about 4 to 5 bu/A was necessary to justify this practice.

Tillage treatment	Moisture	bu/A*
Fall chisel plow	13.0	61
No-till	13.1	64
*Yield differences were not statistically different.		

Results

This chisel plow operation was performed on October 20. The plow had a twisted chisel point. This implement removed about 40 to 60 percent of surface residue and the resulting surface was uneven. No additional tillage was performed before planting. The uneven soil surface was evident even when the combine was passing through the plot at harvest.

The yield differences between fall chisel and no-till treatments were not statistically significant. The early growth rate and canopy closure in the chisel plow treatment was slightly ahead in the chisel plow, but this did not translate to higher yield over no-till. On this farm, there was no evidence to support fall chisel plowing as a practice to increase soybean yield over traditional no-till.

Sponsored by Michigan Soybean Checkoff, Capital Area Innovative Farmers, Michigan Groundwater Stewardship Team, Natural Resources Conservation Service and Williams Farm Machinery.

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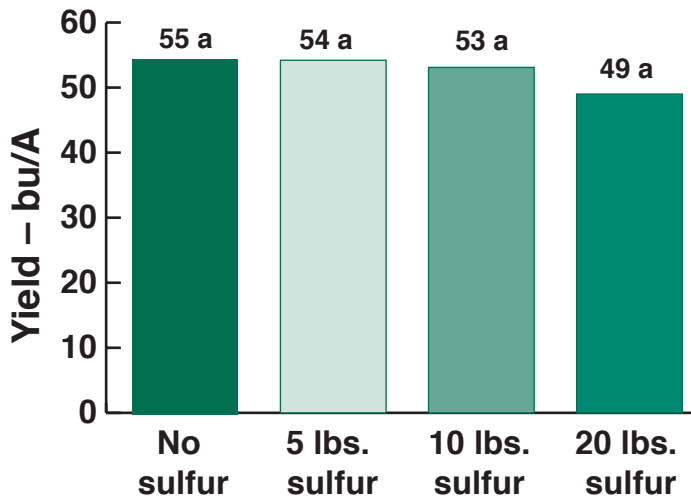




Soybean yield response from sulfur applied at planting

Purpose

Evaluate the soybean yield response from sulfur applied as a starter fertilizer at planting.



County:	Tuscola
Cooperator:	Zwerk & Son Farms
Nearest town:	Vassar
Soil type:	Londo loam complex
Tillage:	Chisel, field cultivator
Previous crop:	Sugar beets
Planting date:	05/08/06
Variety:	S19R5
Row width:	30-inch
Harvest pop.:	180,000
Fertilizer:	95 lb. 0-0-60/A
Herbicide:	Roundup Weathermax 32 oz.
Harvest date:	10/07/06
Exp. design:	RCB

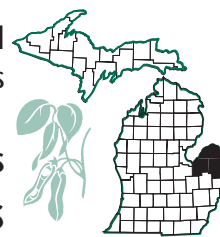
Treatment	Test wt.	Moisture	Yield bu/A
No sulfur	61.0	14.0	55 a
5 lbs. sulfur	60.0	14.0	54 a
10 lbs. sulfur	61.0	14.0	53 a
20 lbs. sulfur	60.0	14.0	49 a
Average			53
LSD (0.05)			9.6
C.V.			9.1

Results

This data indicates that in 2006 there were no significant differences in yield when sulfur was applied at three different rates at planting in the starter fertilizer.

Sponsored by Michigan Soybean Promotion Committee, Project GREEN, MSUE and MAES.

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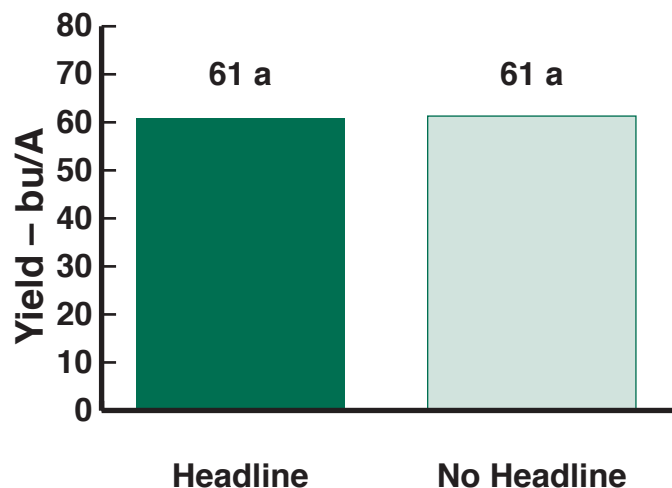


Headline treatment study

County:	Huron, Sanilac, Tuscola
Cooperator:	Zwerk & Son Farms, Andy Gerstenburger, Randy Sturm
Nearest town:	Vassar, Sandusky, Pigeon
Soil type:	Londo loam complex
Tillage:	Chisel, moldboard, field cultivator
Previous crop:	Sugar beets, corn
Planting date:	05/05/06 – 05/08/06
Variety:	NK S19R5
Row width:	30-inch
Harvest pop.:	180,000
Fertilizer:	None
Herbicide:	Roundup Weathermax 32 oz., 2 applications
Harvest date:	09/30/06 – 10/09/06
Exp. design:	RCB

Purpose

Evaluate the foliar application of Headline fungicide at soybean growth stage R3 on soybean yield.



Treatment	Three location average			Yield at each location (bu/A)		
	Harvest moisture	Test weight	Yield – bu/A	Sanilac	Pigeon	Vassar
Headline	14	60	61 a	72	54	57
No Headline	14	60	61 a	73	54	57
LSD (0.05)			2.2	4.0	2.5	10.6
C.V.			3.1	1.5	1.3	5.2

Results

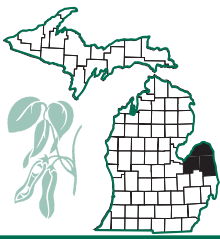
These data indicate that an application of Headline fungicide at R3 growth stage in soybeans did not have any significant impact on soybean yield at three locations throughout the Thumb region in 2006.

Sponsored by the Michigan Soybean Promotion Committee, Project GREEN, MSUE, MAES and participating seed companies.

For more information

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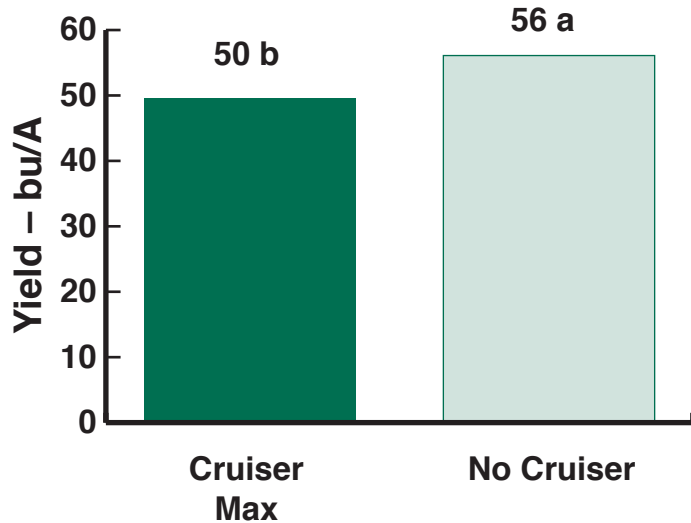




Cruiser seed treatment study

Purpose

Evaluate Cruiser Max seed treatment on soybean yield at three locations.



County:	Huron, Sanilac, Tuscola
Cooperator:	Zwerk & Son Farms, Andy Gerstenburger, Randy Sturm
Nearest town:	Vassar, Sandusky, Pigeon
Soil type:	Londo loam complex
Tillage:	Chisel, moldboard, field cultivator
Previous crop:	Corn, sugar beets
Planting date:	05/05/06 – 05/08/06
Variety:	NK S19R5
Row width:	30-inch
Harvest pop.:	180,000/A
Fertilizer:	none
Herbicide:	Roundup Weathermax 32 oz., 2 applications
Harvest date:	09/30/06 – 10/09/06
Exp. design:	RCB

Treatment	Three location average			Yield at each location (bu/A)		
	Harvest moisture	Test weight	Yield - bu/A	Sanilac	Pigeon	Vassar
Cruiser Max	14	60	50 b	54	54	40
No Cruiser	14	60	56 a	53	60	56
LSD (0.05)			5.7	7.0	22.6	19.0
C.V.			9.4	3.7	11.3	11.3

Results

These data suggest that seed treated with Cruiser Max had no positive impact on soybean yield. All three locations showed no yield impact, while combining data from the three locations resulted in a significant decrease in yield. It is not known why the decrease was experienced. A duplicate study using a different variety at the same locations showed no yield difference. More research needs to be done before strong conclusions can be drawn.

Sponsored by the Michigan Soybean Promotion committee, Project GREEN, MSUE, MAES and participating seed companies.



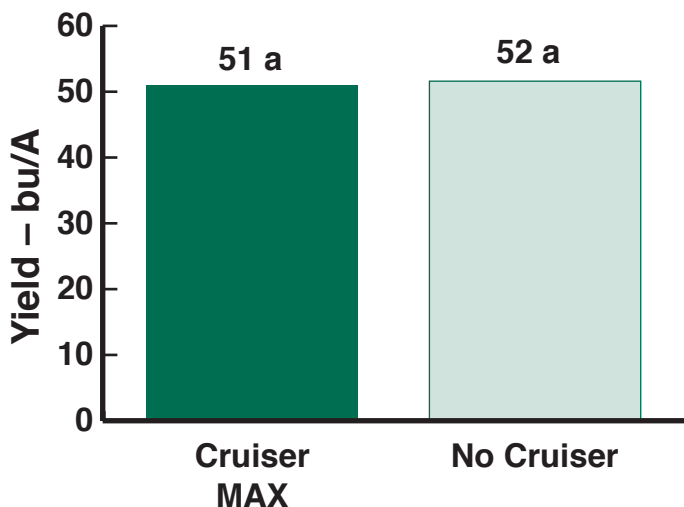
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Soybean seed treatment study

County:	Huron, Sanilac, Tuscola
Cooperator:	Zwerk & Son Farms, Andy Gerstenburger, Randy Sturm
Nearest town:	Vassar, Sandusky, Pigeon
Soil type:	Londo loam complex
Tillage:	Chisel, moldboard, field cultivator
Previous crop:	Corn, sugar beets
Planting date:	05/05/06 – 05/08/06
Variety:	NK S19L7
Row width:	30-inch
Harvest pop.:	180,000/A
Fertilizer:	None
Herbicide:	Roundup Weathermax 32 oz., 2 applications
Harvest date:	09/30/06 – 10/09/06
Exp. design:	RCB

Purpose

Evaluate Cruiser Max seed treatment on soybean yield at three locations.



Treatment	Three location average			Yield at each location (bu/A)		
	Harvest moisture	Test weight	Yield – bu/A	Sandusky	Pigeon	Vassar
Cruiser Max	14	60	51 a	53	53	48
No Cruiser	14	60	52 a	51	56	49
LSD (0.05)			2.7	0.8	6.6	13.0
C.V.			4.7	0.4	3.5	7.6

Results

These data indicate that seed treated with Cruiser Max had no significant impact on yield, though the Sandusky location actually showed a significant positive increase. The other two locations showed no yield difference. More research needs to be done before strong conclusions can be drawn.

Sponsored by the Michigan Soybean Promotion Committee, Project GREEN, MSUE, MAES and participating seed companies.

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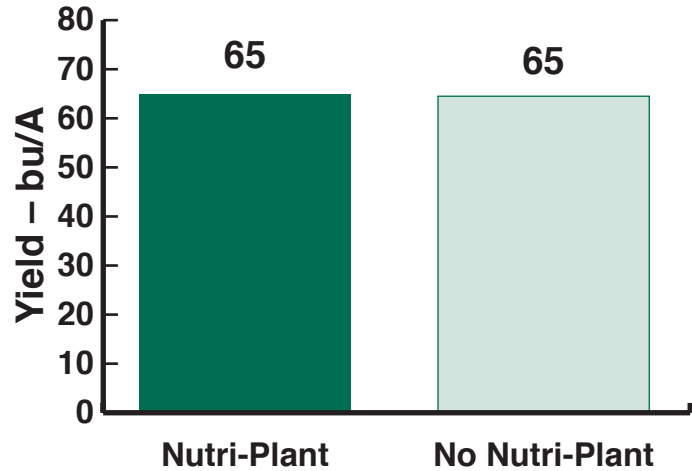


Nutri-Plant SD seed additive

County:	Lapeer
Cooperator:	Norm Walton & Sons
Nearest town:	Imlay City
Soil type:	Sandy loam
Tillage:	No-till
Previous crop:	Soybeans
Variety:	Pioneer 92M80
Row width:	30-inch
Plant pop.:	155,000
Fertilizer:	None
Harvest date:	10/27/06
Exp. design:	Side by side comparison, 4 replications

Purpose

Determine the effect on soybean yield associated with the seed additive Nutri-Plant SD in side by side comparisons.



Treatment	Percent moisture	Adjusted yield	Standard deviation
With Nutri-Plant	16.2	65	0.5
Without Nutri-Plant	16.2	65	0.8

Results

Data indicates that there were no differences between treatments.

Sponsored by MSUE.

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2006 corn hybrid silage summary

Purpose

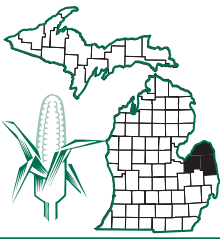
Evaluate corn silage hybrids using the University of Wisconsin Corn Silage Evaluation System.

Company	Hybrid	% Dry matter DM basis	% Crude protein DM basis	% NDF DM basis	% NDFD DM basis	% Starch DM basis	Yield tons/A	Milk/ton lb/ton DM	Milk/A lb/A	Milk/A rank
NK	N91-J1	26.8	9.2	49.2	37.0	21.6	8.3	3,069	25,335	13
NK	N78-D6	33.7	8.8	39.8	37.2	31.4	8.3	3,385	27,955	5
GH	H-9657	33.6	8.1	42.6	39.0	28.5	8.4	3,361	28,305	2
Pioneer	33A87	30.1	7.7	39.9	37.3	28.5	8.8	3,177	27,999	4
NK	N82-J6	29.3	7.9	41.8	30.6	28.8	8.2	3,061	25,071	15
Laser	L-9H93Bt	31.5	7.9	40.1	40.2	28.1	8.1	3,267	26,456	10
Pioneer	32B81	33.3	8.1	38.2	24.1	33.9	8.5	2,986	25,527	12
Pioneer	33T56	36.0	8.0	37.2	30.1	33.0	8.4	3,170	26,708	9
Laser	L-8H26Bt/RR	33.6	7.4	43.7	38.2	29.3	8.5	3,302	28,134	3
Pioneer	33D13	36.4	8.0	38.2	39.8	34.3	8.6	3,497	30,214	1
NK	N71-L7	35.4	8.3	40.6	40.9	30.4	7.8	3,487	27,073	8
Laser	L-8H68Bt/RR	33.6	9.0	36.7	23.7	33.3	8.2	3,031	25,001	17
GH	H-8952CB	32.6	8.2	40.8	33.8	31.1	7.8	3,235	25,229	14
GH	H-8713CB	35.9	8.3	36.7	40.1	36.9	7.3	3,563	25,892	11
GH	H-8445CB	35.2	8.1	37.3	41.0	32.3	7.7	3,507	27,079	7
GH	H-8254GT	36.2	7.9	37.4	35.8	31.7	7.7	3,256	25,061	16
GH	EX68425CB	37.8	7.7	41.1	41.6	31.0	8.0	3,442	27,540	6
GH	EX68203GT	34.0	8.0	36.5	31.5	34.2	7.4	3,301	24,592	18
DeKalb	DKC58-73	39.6	8.9	32.4	44.4	42.4	7.5	3,697	27,857	10
NK	N91-J1	31.9	8.2	38.6	37.8	27.8	9.5	3,114	29,622	5
NK	N78-D6	32.6	8.8	37.1	40.7	36.0	6.7	3,588	24,175	15
GH	H-9657	34.5	7.8	36.7	45.5	33.1	8.3	3,661	30,388	4
Pioneer	33A87	35.6	8.8	33.6	34.5	33.8	8.5	3,290	27,887	9
NK	N82-J6	36.3	8.4	34.8	48.3	36.7	8.4	3,738	31,385	2
Laser	L-9H93Bt	36.6	8.0	33.3	49.0	39.9	8.5	3,739	31,939	1
Pioneer	32B81	39.2	8.6	33.9	49.9	38.5	8.3	3,726	31,010	3
DeKalb	DKC58-73	39.9	9.3	33.7	49.6	39.5	7.4	3,730	27,526	11
Pioneer	33T56	39.4	8.0	37.2	46.2	33.9	8.0	3,658	29,259	6
Laser	L-8H26Bt/RR	35.4	8.4	35.6	32.6	35.5	7.5	3,371	25,314	12
Pioneer	33D13	36.8	8.2	36.3	44.9	35.1	7.9	3,705	29,148	7
Cropland	631TS	38.9	8.1	32.5	29.2	37.5	7.8	3,223	25,289	13
NK	N71-L7	37.7	7.9	38.7	38.0	32.8	7.2	3,390	24,443	14
Laser	L-8H68Bt/RR	35.0	8.4	34.6	39.3	35.8	7.7	3,622	27,931	8
Cropland	501	46.8	7.6	33.0	36.4	43.4	6.5	3,203	20,778	16
DeKalb	DKC58-73	52.4	8.9	33.6	46.4	40.9			Sample error discard	

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Huron, Sanilac and
Tuscola counties

Hybrid trials
Corn

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Corn hybrid trial – glyphosate resistant
85 – 92 day relative maturity

County:	Huron, Sanilac, Tuscola	Previous crop:	Winter wheat, soybean
Cooperators:	Greg Ackerman, Vassar; Louis Wehrman, Gilford; Dale Ellenbaum, Owendale; Don Koth, Kinde; Stone Brothers, Sandusky; Brian Stamp, Marlette	Fertilizer:	180 lb. N preplant, 100 lb. 6-24-24 at planting
Soil type:	Londo loam complex	Row width:	30-inch
Tillage:	Chisel, moldboard, field cultivator	Herbicide:	Preemergence: 2.5 qt. Lumax
		Planting date:	04/24/06 – 05/02/06
		Harvest pop.:	33,000
		Harvest date:	10/18/06 – 11/02/06
		Exp. design:	RCB

Variety	Maturity (days)	Traits	Six location average		
			Moisture	Test weight	Yield – bu/A
Partner 410	90	YG Bt CRW	17.7	59.6	186.7
Great Lakes 4297G3	92	CB CRW	17.9	58.9	182.3
HLR234	90		17.9	59.1	179.8
Rupp XR8772	92	YG CB	17.5	61.1	176.0
DeKalb DKC42-88	92	CB CRW	17.7	59.7	175.2
Garst 8921YG1	92	YG Bt	17.9	59.5	174.2
L-6H76Bt/RR	90	Bt	17.4	60.0	173.9
H-6466CB/GT	88	GT CB	17.0	59.4	173.1
DeKalb DKC40-07	90		16.4	58.8	172.1
Dyna-Gro DG53P30	92	YG CB	17.7	60.7	171.9
Renk RK438	92	YG CB	17.3	59.2	171.2
Rupp XR8765	89	YG CB	17.8	60.5	167.6
Dahlco 3930	92		17.9	60.4	165.4
Stealth 6189	89		17.2	60.4	161.7
Dahlco 4005 RR	87		16.7	59.8	160.4
Average			17.5	59.8	172.8
LSD (0.05)					6.7
C.V.					5.9

Bolded numbers are not significantly different from the highest yielding variety.



YG = Yield Guard® corn borer gene
 Bt = Bacillus thuringus
 CRW = Corn root worm resistant
 CB = Corn borer resistant
 LL = Liberty Link® gene—resistance to Liberty herbicides.
 HX1 = Herculax insect protection trait
 GT = Agrisure trait tolerance to glyphosate-based herbicides



Corn hybrid trial – glyphosate resistant 93 – 99 day relative maturity

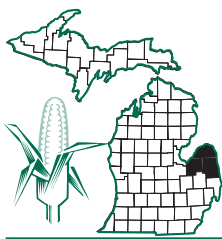
Hybrid trials
Corn

Variety	Maturity (Days)	Traits	Six location average		
			Moisture	Test weight	Yield– bu/A
Trelay 4N627	98	YG CB	19.6	58.1	194.3
Pioneer 37D26	98	HX1 LL	19.3	57.6	189.9
Great Lakes 4689BTRR	96	Bt	20.0	59.0	189.6
Pioneer 38B86	98	HX1 LL	19.7	57.9	186.9
Pioneer 38H65	99	HX1 LL	20.4	58.0	186.2
DeKalb DKC48-53	98	CB	18.1	57.2	186.1
L-7H99Bt/RR	99	Bt	19.7	58.1	185.9
Great Lakes 4415BTRR	94	Bt	18.7	58.2	182.8
DeKalb DKC4582	95		18.3	58.5	182.7
DeKalb DKC44-92	94		18.6	58.0	181.8
CPS 4972	97	CB CRW	18.8	58.1	180.7
Bayside NG5518RR RR2	95		18.6	59.3	179.1
Bayside NG5072RR RR2	93		18.5	58.4	178.4
Dairyland 7196	96	YG CB	19.2	57.8	177.4
HLB43R	97	YG Bt	19.2	58.2	177.2
Dyna-Gro DG53K98	99		18.4	58.7	176.0
NK Brand N41-P1	99	GT CB LL	20.4	56.2	174.7
Legacy 36M95 99	99		18.4	58.8	173.7
NK Brand N39-K7	98	GT	19.4	57.3	173.5
Rupp 8579	98	YG CB	18.2	58.5	173.1
CPS 4951	95		18.4	56.6	172.6
CPS 4933	93	CB CRW	18.9	58.5	171.8
DeKalb DKC46-22	96	CB CRW	18.4	58.3	170.5
L-6H07RR	95	Bt	18.3	57.4	170.3
Garst 8881RR	95		18.2	58.1	170.2
NK Brand N33-Z7	94	CB GT LL	18.5	58.0	168.9
NK Brand N38H9	98	GT	18.4	57.5	167.5
Average			18.9	58.0	178.4
LSD (0.05)			0.7	1.6	8.6
C.V.			6.0	4.2	7.3

G = Yield Guard® corn borer gene
 Bt = Bacillus thuringus
 CRW = Corn root worm resistant
 CB = Corn borer resistant
 LL = Liberty Link® gene—resistance to Liberty herbicides.
 HX1 = Hurculex insect protection trait
 GT = Agrisure trait tolerance to glyphosate-based herbicides

Bolded numbers are not significantly different from the highest yielding variety.





Huron, Sanilac and
Tuscola counties

Hybrid trials
Corn

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**Corn hybrid trial – glyphosate resistant
100 – 105 day relative maturity**

Variety	Maturity (Days)	Traits	Three location average		
			Moisture	Test weight	Yield – bu/A
Garst 8688GT	104	GT	21.3	59.5	205.8
Pioneer 36W68	103	HX1 LL	22.4	60.7	199.8
DeKalb DKC52-40	102	CB CRW	20.2	59.0	197.7
Pioneer 36K69	103	HX1 LL	22.0	59.2	195.3
Great Lakes 5377	103	CB CRW	21.2	58.9	194.9
Renk RK632	102	YG CB	20.7	59.3	190.7
CPS 4022	102	CB CRW	21.6	58.5	189.6
Great Lakes 5416RR	104		22.0	57.0	188.1
HLB 52R	101	YG Bt	22.7	58.9	186.6
Bayside 2103CBRR	104	CB YG RR2	21.4	57.0	186.3
Stealth 7201	101	YG CB	20.8	58.3	186.2
Partner 479	100	YG CB	22.2	58.0	183.9
CPS 4041	104	YG CB	21.1	58.8	180.0
DeKalb DKC51-39	101	CB CRW	19.5	57.6	172.7
CPS 4021	102	CB	21.1	56.5	170.9
L-7H67Bt/RR	101	Bt	20.9	57.4	168.7
DynaGro 55P41	101	YG CB	20.6	58.3	166.9
Average			21.3	58.4	186.1
LSD (0.05)					10.6
C.V.					6.1

Bolded numbers are not significantly different from the highest yielding variety.

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 Bt = Bacillus thuringus
 CRW = Corn root worm resistant
 CB = Corn borer resistant
 LL = Liberty Link® gene—resistance to Liberty herbicides.
 HX1 = Hurculex insect protection trait
 GT = Agrisure trait tolerance to glyphosate-based herbicides

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Corn hybrid trial – conventional 85-92 day maturity

Variety	Maturity (Days)	Traits	Five location average		
			Moisture	Test weight	Yield – bu/A
Great Lakes 4041	90		17.1	59.3	188.0
HLB282	92	YG Bt	17.7	58.8	181.4
Garst 8922YG1	90	YG Bt	17.4	58.7	181.3
Legacy EX-881	88		16.9	60.2	179.5
Dyna-Gro DG53F49	92	YG CB	17.2	54.7	174.6
Bayside 2090	90		16.9	57.4	171.8
Dahlco 4851	85		17.2	59.1	166.9
Mycogen 2K350	92	YG CB	17.1	59.9	161.7
Average			17.2	58.5	175.7
LSD (0.05)					7.1
C.V.					5.5

Bolded numbers are not significantly different from the highest yielding variety.

Corn hybrid trial – conventional 93-99 day maturity

Variety	Maturity	Traits	Six location average		
			Moisture	Test Weight	Yield – bu/A
NK Brand N34-F1	93	LL CB	20.1	57.8	193.3
Great Lakes 4689BT	96	Bt RR	19.3	57.5	192.7
H-7283HX/LL	99	HX1	19.1	57.0	188.6
NK Brand N34-Y9	95		19.5	57.1	185.3
Pioneer 38H64	99	HX1 LL	19.5	55.7	183.8
CPS 5951	95	CB	18.5	57.7	183.2
Garst 8815CB/LL	96	LL Bt CB	18.5	55.6	181.9
L-7H07Bt	96	Bt	18.3	57.6	181.5
Great Lakes 4623BT	96	Bt	18.6	57.1	181.2
Dahlco X5951	95	Bt	19.1	56.3	181.0
Bayside 4095	95	Bt	19.5	58.3	180.8
Garst 8880YG1	95	YG Bt	18.6	57.9	180.1
Mycogen 2R426	96	YG CB	18.7	57.4	179.6
Bayside Super 93	93		18.6	56.9	176.5
Dyno-Gro DG53F09	95	YG CB	18.4	56.7	176.0
NK Brand N39-Q1	98		19.2	56.9	173.1
CPS 9951	99		18.0	57.4	173.1
Rupp 8758	95	YG CB	19.2	58.1	172.2
Trelay YB268	96	YG CB	17.7	58.3	170.9
Dahlco 2482	96		18.8	58.0	165.6
Average			18.9	57.3	180.0
LSD (0.05)					7.6
C.V.					6.4



Huron, Sanilac and
Tuscola counties

Hybrid trials Corn

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Corn variety trials – conventional 100-105 day maturity

Variety	Maturity	Traits	Three location average		
			Moisture	Test weight	Yield – bu/A
Pioneer 36W67	103	HX1 LL	21.5	52.0	199.6
Garst 8689IT	104		21.8	57.2	196.6
HL B332	103	YG Bt	21.8	56.6	194.0
HL2677	101		21.8	56.7	187.9
Rupp XR1609	101		22.0	58.8	186.8
Rupp 8024	102		21.8	57.9	186.6
Legacy 35B75	103	CB Bt LL	21.6	57.7	186.3
Pioneer 37F74	100	HX1 LL	21.8	57.0	183.8
Bayside 2103	103		21.9	57.6	181.5
Rupp XR1612	102		21.0	57.3	178.7
Bayside 1700	100		21.8	57.8	178.6
HLB295	101	YG Bt	21.8	57.8	177.7
HL2515	100		21.5	58.0	177.6
Rupp XR8626	100	YG CB	21.4	57.6	173.2
Trelay 7560	100	YG CB	22.0	57.4	171.8
Dahlco4013	102	Bt	21.0	57.3	155.5
Average			21.6	57.2	181.0
LSD (0.05)					15.5
C.V.					9.1

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Bolded numbers are not significantly different from the highest yielding variety.

YG = Yield Guard® corn borer gene

Bt = Bacillus thuringus

CRW = Corn root worm resistant

CB = Corn borer resistant

LL = Liberty Link® gene—resistance to Liberty herbicides

HX1 = Hurculex insect protection trait

GT = Agrisure trait tolerance to glyphosate-based herbicides





Soybean cyst nematode variety comparison

Demonstration Soybeans

County:	Saginaw	Planting date:	05/10/06
Cooperator:	Ed and Jon Oakes	Herbicide:	Glyphosate
Nearest town:	St. Charles	Row width:	7-inch
Soil type:	Parkhill loam	Harvest date:	11/04/06
Tillage:	No-till	Exp. design:	RCB
Previous crop:	Corn		

Purpose

Evaluate the performance of commercial soybean varieties that have resistance to soybean cyst nematode (SCN). Evaluate the ability of SCN to reproduce on each variety.

Variety	Maturity	Saginaw		SCN population July 2006	Resistance source
		Yield – bu/A	Rank		
Asgrow AG2107	2.1	63.9	1	20	P188788
Syngenta S19L7	1.9	61.3	2	17	P188788
Syngenta S17A1	1.7	60.6	3	17	P188788
Golden Harvest 2752	2.7	59.7	4	28	P188788
Golden harvest 1852	1.8	58.5	5	49	P188788
Dyna-Gro 3223	2.3	58.5	6	96	none
Pioneer 9261	2.6	57.3	7	66	P188788
latham 2468	2.4	57.0	8	27	P188788
Bayside 202	2.0	57.0	9	10	P188788
Latham 2412	2.4	57.0	10	27	CystX Silver
Rupp 4232	2.3	55.9	11	85	P188788
Bayside 248	2.4	55.8	12	43	P188788
DF Seeds 8181	1.8	55.6	13	40	P188788
Dyna-Gro 36D24	2.4	55.5	14	16	P188788
Renk 204	2.0	55.1	15	11	P188788
Midwest 2633	2.6	54.8	16	53	P188788
Pioneer 91M91	1.9	54.3	17	17	Peking
Renk 246	2.4	54.3	18	23	P188788
Df Seeds 8213	2.1	52.3	19	56	P188788
Average		57.1		36.9	

Results

Limited yield performance data is available for SCN resistant commercial soybean varieties. Growers are now provided with another source of unbiased yield data to help maximize soybean production profit where SCN are found.

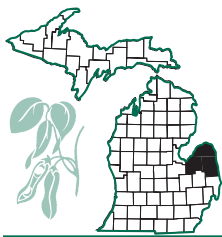
Sponsored by the Michigan Soybean Promotion Committee.

	Yield	SCN pop.
Resistant check	55.5	16
Susceptible check	58.5	96

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Huron, Sanilac and
Tuscola counties

**Variety Trial
Soybeans**

**MICHIGAN STATE
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EXPERIMENT STATION**

**Soybean variety trial –
conventional/food grade**

County:	Huron, Sanilac, Tuscola	Row width:	30-inch
Cooperator:	Zwerk & Son Farms, Vassar Andy Gerstenburgerr, Sandusky Randy Sturm, Pigeon	Harvest pop.:	180,000/A
Soil type:	Londo loam complex	Fertilizer:	None
Tillage:	Chisel, moldboard, field cultivator	Herbicide:	Roundup Weathermax 32 oz., 2 applications
Previous crop:	Sugar beets, corn	Harvest date:	09/30 – 10/09/06
Planting date:	05/05 – 05/08/06	Exp. design:	RCB

Purpose

Evaluate the performance of soybean varieties over three locations throughout the Thumb region.

Variety	Maturity group	Seed Trt	Three location average		
			Moisture	Test weight	Yield – bu/A
NK Brand S20-F8	2.0	CM	13.9	60	55.0
Pioneer 92M10 CH	2.1		13.7	61	54.9
Dahlco X5220	2.2		14.0	57	54.5
DF 230N	2.3		13.9	62	53.9
DF 222	2.2	CM	14.0	60	52.6
Great Lakes 2309	2.3		13.5	58	52.4
Dairyland 218	2.1		13.9	59	52.4
Secan OAC Kent CH			13.7	61	51.8
Bayside 222N	2.2		14.0	59	50.1
Schillinger 236 CH	2.3		13.6	62	49.7
DF Seeds IA 1019 CH	1.9		14.0	61	46.1
Average				59.6	46.2
LSD (0.05)					3.4

Bolded numbers are not significantly different from the highest yielding variety.

**CM = Cruiser Max
CH = Clear hilum**

Results

For more information see page 38.

Sponsored by the Michigan Soybean Promotion Board, Project GREEN, MSUE, MAES and participating seed companies.



Variety Trials
Soybeans

Soybean variety trial –
glyphosate resistant, 2.2 or less

Variety	Maturity group	Seed trt.	Three location average		
			Moisture	Test weight	Yield – bu/A
Bayside 215RR	2.1		13.4	61.7	62.6
CPS 6212	2.1	AM	13.4	61.5	61.8
CPS 620N	2.0	AM	13.5	61.0	61.3
Legacy 21A45	2.1	CM	13.6	61.0	60.3
DF 8213N	2.1		13.4	61.1	60.1
CPS 6222	2.2	AM	13.4	61.6	60.1
Atlas 5B220	2.2		13.6	61.0	59.9
Renk RS223RR	2.2		13.5	60.8	59.6
DeKalb DKB22-52	2.2		13.4	60.4	59.4
Dairyland 199RR	1.9	CM	13.6	61.2	58.9
Golden Harvest H-1961RR	1.9		13.5	60.9	58.9
Dahlco 9213RR	2.1		13.3	61.0	58.8
Hyland RR Rodney	2.2		13.4	61.9	58.5
Pioneer 92M02	2.0		13.5	61.2	58.1
Rupp RS4203	2.0	CM	13.6	61.7	58.1
Rupp RS4204	2.0	CM	13.4	61.0	58.0
Rupp 4170	1.7	CM	13.5	61.1	57.6
CPS 6194	1.9	AM	13.5	60.9	57.6
Hyland RR Rock	2.0		13.4	61.1	57.5
Golden Harvest H-2124RR	2.1		13.6	61.9	57.4
Asgrow AG2107	2.1		13.5	61.3	57.1
Renk 185RR	1.8		13.4	60.9	57.0
NK Brand S21-N6	2.1	CM	13.4	60.6	56.4
Bayside 202NRR SCN	2.0		13.5	61.4	56.3
Atlas 5B193	1.9		13.5	59.2	56.3
Bayside 192RR	1.9		13.5	61.1	55.2
Pioneer 91M91	1.9		13.4	61.4	54.5
DeKalb DKB18-51	1.8		13.4	60.0	54.3
NK Brand S17-P9	1.7	CM	13.4	60.7	53.7
Asgrow AG2106	2.1		13.6	60.5	53.0
Asgrow AG1702	1.7		13.6	61.3	53.0
NK Brand S19-L7 SCN	1.9	CM	13.4	60.8	52.7
NK Brand S19-R5	1.9	CM	13.5	60.9	51.4
Average				61.0	57.4
LSD (0.05)					3.7

SCN = Soybean cyst nematode resistance
CM = Cruiser Max seed treatment
AM = Apron Max seed treatment

Bolded numbers are not significantly different from the highest yielding variety.
For information see page 38.



Huron, Sanilac and
Tuscola counties

Variety Trials Soybeans

MICHIGAN STATE
UNIVERSITY
EXTENSION

MICHIGAN
AGRICULTURAL
EXPERIMENT STATION

Soybean variety trial – glyphosate resistant 2.3 – 2.6

Variety	Maturity group	Seed trt.	Three location average		
			Moisture	Test weight	Yield – bu/A
RS4263RRSTS	2.6	CM	13.0	60.3	65.8
Pioneer 92M61	2.6		13.2	59.4	64.6
CPS 6254	2.5	AM	13.5	59.3	64.2
Dairyland 123RR	2.3	CM	13.4	60.2	64.0
Legacy 26M81	2.6	CM	13.6	60.5	63.4
Bayside 250RR	2.5		13.5	59.2	63.3
Bayside 260RR	2.6		13.2	59.3	62.6
Atlas 5B261	2.6		13.5	60.4	62.5
Pioneer 92M33	2.3		13.6	60.5	61.4
Golden Harvest H-2448RR	2.4		13.2	60.4	61.3
Hyland RR Roll	2.4		13.3	59.2	61.1
Rupp RS4232	2.3	CM	13.5	60.1	61.0
DF 8243	2.4	CM	13.5	60.2	60.8
NK Brand S23-Z3	2.3	CM	13.5	60.1	60.7
Pioneer 92B38	2.3		13.4	60.5	60.4
Renwick	2.4		13.6	59.9	60.1
CPS 6243N	2.4	AM	13.4	59.8	57.2
NK Brand S24-K6	2.4	CM	13.5	60.4	56.7
Average			13.4	60.0	61.7
LSD (0.05)					4.9

Bolded numbers are not significantly different from the highest yielding variety.

AM = Apron Max
CM = Cruiser Max

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Soybean cyst nematode variety trial

County: St. Joseph
Cooperator: Phil Kuhlman
Nearest town: Mendon
Soil type: Spinks complex
Tillage: Chisel, field cultivator
Previous crop: Seed corn
Planting date: 06/01/06
Variety: See table
Row width: 7-inch
Fertilizer: Maintenance potash
Herbicide: Glyphosate
Harvest date: 11/04/06
Exp. design: RCB

Purpose

Evaluate the performance of commercial varieties that have resistance to soybean cyst nematode and evaluate the ability of SCN to multiply on each variety.

Variety	Maturity	2006		SCN population	
		Yield – bu/A	Rank	Roots (July)	Soil (November)
Pioneer 92M61	2.6	53.5	1	5.0	9,280
NK-S33-A8	3.3	49.9	2	2.5	6,515
NK-S26V6	2.6	49.8	3	3.0	3,660
Asgrow 3006	3.0	49.6	4	14.0	8,145
Rupp RS 4XP27	2.7	49.5	5	13.5	3,225
Asgrow 3101	3.1	46.1	6	4.0	2,860
NK H-2752	2.7	45.9	7	4.5	1,850
DynaGro 39V26	2.7	45.2	8	1.5	5,155
Pioneer 93M10	3.1	45.2	9	2.5	4,320
Latham – 2620 RX	2.6	44.4	10	6.0	4,570
DynaGro 35P26	2.6	44.3	11	3.5	3,870
Rupp RS 4232	2.3	41.9	12	75.5	6,010
Latham – E-2958	2.9	41.7	13	15.0	6,850
NK S30-J8	3.0	40.4	14	3.5	4,120
Asgrow AG 2703 Susceptible	2.7	36.9	15	48.0	15,785
Pioneer 92M74	2.7	36.2	16	53.5	2,705
DynaGro 31T31	3.1	34.4	17	55.0	4,260
Average		44.4		18.3	5,481.2
LSD (0.05)		8.3			

Results

SCN populations were highest on the susceptible Asgrow AG 2703 variety in the soil collected in November. Over half of the resistant varieties were not significantly different in yield.

Sponsored by the Michigan Soybean Promotion Committee.

Bolded numbers are not significantly different from the highest yielding variety.

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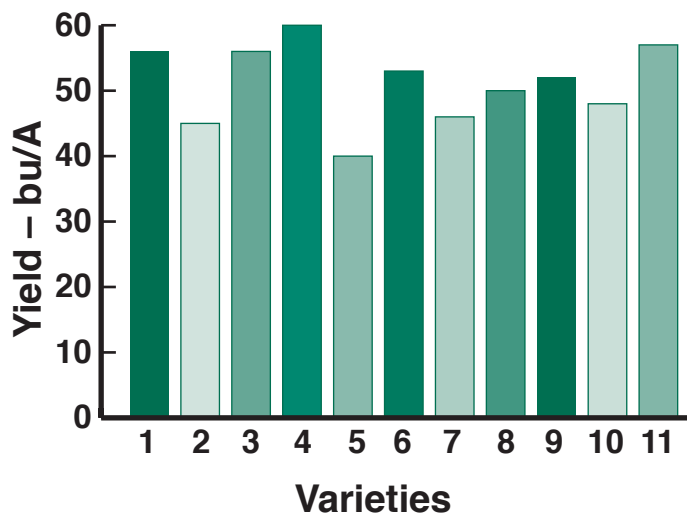
Spring barley variety trial

Purpose

Evaluate spring barley varieties for yield within the Upper Peninsula region.

No.	Variety	bu/A
1	Bowers	55.7
2	Excel	44.8
3	Hazen	56.4
4	Kewaunee	60.0
5	Lacey	40.3
6	Legacy	52.6
7	MN Brite	45.6
8	Robust	49.8
9	Royal	52.1
10	Stander	47.7
11	Tradition	57.4
	Mean	51.1
	LSD (0.05)	11.0

County:	Alger
Cooperator:	U.P. Experiment Station
Nearest town:	Chatham
Soil type:	Eben very cobbly sandy loam
Tillage:	Fall plowed,disked, field cultivated
Previous crop:	Canola
Planting date:	05/18/06
Fertilizer:	225 lb. 46-0-0
Herbicide:	1.5 pt. Buctril
Variety:	See table
Row width:	6-inch
Harvest date:	08/03/06
Exp. design:	RCB, 4 replications



Results

It was a hot and dry summer in the Upper Peninsula of Michigan in 2006. The average yield of barley in 2006 was 51.1 bu/A, which was lower than that of the last three-year average (57.2 bu/A). The highest and lowest yield varieties for feed purpose were Kewaunee and Excel, respectively, whereas for malting purpose Tradition and Lacey, respectively.

Sponsored by MAES and MSUE.

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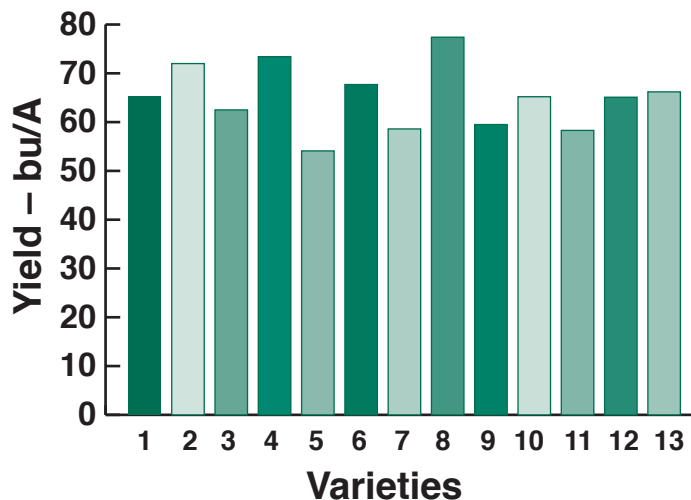


Oat variety trial

County: Alger
Cooperator: U.P. Experiment Station
Nearest town: Chatham
Soil type: Eben very cobbly sandy loam
Tillage: Fall plowed, disked, field cultivated
Previous crop: Canola
Planting date: 05/05/06
Fertilizer: 225 lbs. 46-0-0
Herbicide: 1.5 pt. Buctril
Row width: 6-inch
Harvest date: 08/07/06
Exp. design: RCB, 4 replications

Purpose

Evaluate oat varieties for yield within the Upper Peninsula region.



*Yield adjusted to 14 percent moisture.

No.	Variety	bu/A*
1	Drumlin	65.3
2	Esker	72.0
3	Gem	62.5
4	Ida	73.4
5	Kame	54.1
6	Leonard	67.7
7	Moraine	58.6
8	Ogle	77.4
9	Richard	59.5
10	Sesqui	65.2
11	Vista	58.3
12	Wabasha	65.1
13	Winona	66.2
	Mean	65.0
	LSD (0.05)	6.5

Results

It was a very hot and dry summer in Michigan's Upper Peninsula of Michigan in 2006. The average yield of oat varieties tested was 65 bu/A, which was lower than that of the last three year average (76.3 bu/A). The highest and lowest yield varieties were Ogle and Kame, respectively.

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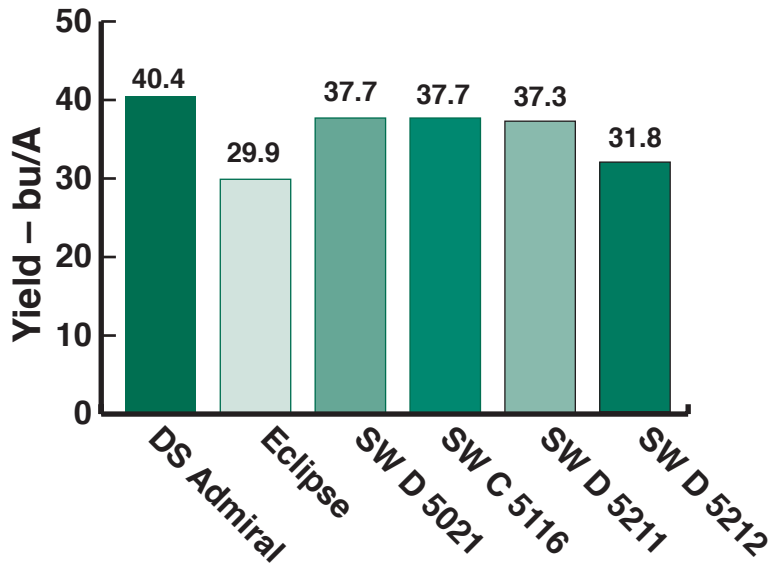
Dry field peas variety trial

Purpose

Evaluate the yield potential of dry field peas in the Upper Peninsula region.

County:	Alger
Cooperator:	U.P. Experiment Station
Nearest town:	Chatham
Soil type:	Eben very cobbly sandy loam
Tillage:	Fall plowed, disked, field cultivated
Previous crop:	Canola
Planting date:	04/28/06
Fertilizer:	100 lbs. 21-0-0
Herbicide:	3 oz. Pursuit
Row width:	6-inch
Harvest date:	07/31/06
Exp. design:	RCB, 4 replications

Variety	bu/A
DS Admiral	40.4
Eclipse	29.9
SW D 5021	37.7
SW C 5116	37.7
SW D 5211	37.3
SW D 5212	31.8
Mean	35.8
LSD (0.05)	3.5



Results

It was a hot and dry summer in the Upper Peninsula of Michigan in 2006. The average yield of dry field peas in 2006 was 35.8 bu/A. The highest and lowest yield varieties were DS Admiral and Eclipse, respectively.

Sponsored by MAES and MSUE.



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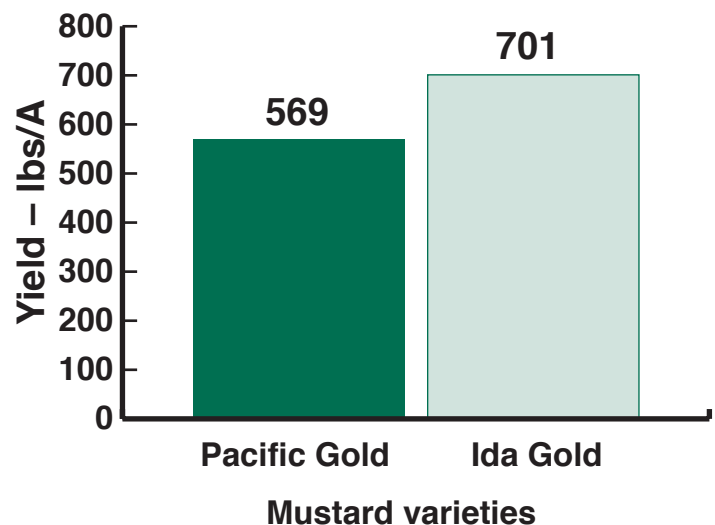


Mustard variety trial

County:	Eaton
Cooperator:	Erwin Felton, Gary Parr
Nearest town:	Lansing
Soil type:	Sandy loam
Tillage:	Conservation
Previous crop:	Corn
Planting date:	05/29/06
Variety:	Two mustard varieties from University of Idaho: Pacific Gold, the Oriental mustard (<i>Brassica juncea</i>) and Ida Gold, the Yellow mustard (<i>Sinapsis alba</i>)
Herbicide:	SELECT for grass control
Harvest date:	09/01/06
Exp. design:	Side by side strip rows, 3 replications

Purpose

Evaluate production and utilization potential of alternative field crops for Mid-Michigan: mustards.



Results

This was the researchers' first attempt to grow these mustards. Mustards grew very rapidly and were devoid of major insects or diseases. The yields were generally lower than expected owing to late planting and dry summer conditions. Ida Gold had a higher yield than Pacific Gold. It was observed that some pods of Pacific Gold shattered before harvest and there was some variability in maturity within the population.

The varieties were planted following wheat harvest as a second crop.

In the fall, a winter canola variety "Wichita" was established on the same farm. Testing will continue in 2007. Mustard seeds are being seriously considered as a source of biodiesel fuels.

Sponsored by University of Idaho, Project GREEN, Capital Area Innovative Farmers and Michigan Biodiesel LLC.

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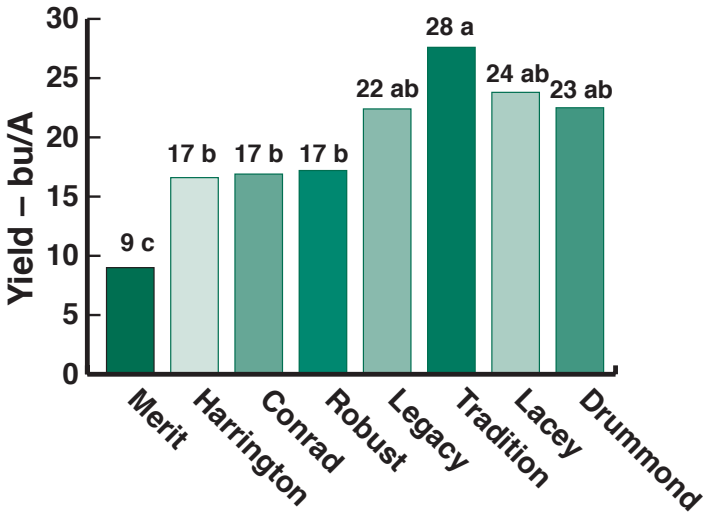




Malting barley variety study

Purpose

Evaluate production and utilization potential of alternative field crops for Mid-Michigan: malting barley.



County: Eaton
Cooperator: Robb Cook, Erwin Felton, Gary Parr, Lee Siler
Nearest town: Lansing
Soil type: Sandy loam
Tillage: Conservation
Previous crop: Corn
Planting date: 04/24/06
Variety: 8 malting barley varieties: 3 two-row and 5 six-row types, submitted by Anheuser-Busch
Harvest pop.: 1.5 million seeds/A
Herbicide: 1.5 pt. Buctril
Harvest date: 08/02/06

Variety		Yield - bu/A	Test wt.
Merit	2-row barley	9.0 c	36.8 d
Harrington	2-row barley	17 b	39.3 c
Conrad	2-row barley	17 b	41.5 ab
Robust	6-row barley	17 b	41.8 ab
Legacy	6-row barley	22 ab	41.5 ab
Tradition	6-row barley	28 a	41.8 ab
Lacey	6-row barley	24 ab	43.3 a
Drummond	6-row barley	23 ab	42.1 ab
LSD (0.05)		7.6	2.2

Results

In 2006 the yields of all barley varieties were lower than expected because of late planting and extremely dry conditions following planting. As expected the 6-row types produced a higher yield compared to the 2-row types. Currently all malting barley varieties are spring types. Emerging winter barley varieties that will better fit the regions crop rotation needs will be searched for and tested.

The main focus in 2006 was to evaluate barley for malting quality. The brewery industry has almost zero tolerance for vomitoxin. Seed samples were sent to Anheuser-Busch for quality evaluations.

Sponsored by Anheuser-Busch, Project GREEN and Capital Area Innovative Farmers.

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On-Farm Research and Demonstration Field Crops Team 2006



Corn Marketing Program of Michigan Michigan Corn Growers Association

