SARE Project LNC94-64

INNOVATIVE FARMERS

of Michigan

1996 INNOVATIVE FARMERS' PLOT INFORMATION

Innovative Farmers'
c/o MSU Extension - Project Office
1460 South Van Dyke
Bad Axe, MI 48413

1996 DEMONSTRATION SITES

A) Innovative Farmer Sites

(S) Shaw Farm, Wadsworth Road, Section 5, Sheridan Township
(V) Voelker Farm, Caseville Road, Section 14, Winsor Township

B) Dry Bean Weed Control (S-9)

Shaw Farm, IF Site, Wadsworth Road, Section 5, Sheridan Township

C) White Mold Study (S-1)

Shaw Farm, IF Site, Wadsworth Road, Section 5, Sheridan Township

D) Soil Nitrate - N/Soil Doctor

SD-1 Krohn Brothers
SD-2 Krohn Brothers
SD-3 Ross Voelker
SD-4 Herford Farms
SD-5 Krohn Brothers
SD-6 Wil-le Farms

E) Fertilizer Comparison (S-4)

Shaw Farm, IF Site, Wadsworth Road, Section 5, Sheridan Township

F) Cross/Slot Planter Demonstration (S-6 & S-8)

G) Narrow Row Zone-Till

NR-1 Voelker Farm, Notter & Geiger Roads, Section 14, Winsor Township
NR-2 Wil-le Farms, Filion & Crockard Roads, Section 18, Lincoln Township
NR-3 Shaw Farms, Wadsworth Road, Section 5, Sheridan Township

H) Bt Corn (V-3)

Voelker Farm, IF Site, Caseville Road, Section 14, Winsor Township

The Innovative Farmers (IF) Project is now into its third year. Innovative Farmer membership in Huron, Tuscola and Sanilac Counties now totals 81. An additional 14 members have formed their own group in the Calhoun County area.

The purpose of the Innovative Farmers Project is to develop alternative tillage production systems that reduce erosion, reduce total investment, reduce compaction and improve soil health while maintaining or improving the family farm income.

The IF membership has been divided into eight working groups to study, plan and evaluate the four tillage production systems that are being developed or altered to produce corn, sugar beets, soybeans and dry beans. The four systems are fall plow, fall chisel, trans-till and zone-till.

The Thumb Innovative Farmers Group is supported by grants from a variety of sources, direct funding, equipment, seed, fertilizer and herbicide donations from over 52 lending institutions, agriculture manufacturers, suppliers, dealers, commodity groups, private groups and governmental agencies.

A complete list of the sponsoring partners is provided on page 2. Without their support and assistance this program would not be possible.

The two Innovative Farmer Applied Research Sites are located in Huron County. Site 1 is located on Wadsworth Road, one-half mile east of M-53, eight miles southwest of Bad Axe. Site 2 is located on the corner of Caseville and Geiger Roads, two miles south of Pigeon.

Both sites are identified on the map. The production plot locations of each site are identified on the map.

A number of additional plots have been developed in 1996 to address questions arising from the production plot results. Each of the extra plots are described on one of the following pages along with a map showing the exact location of that plot. Some of the plots are located at the two IF sites while others are located on members' farms.

Feel free to visit any of the project sites at your leisure.

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In addition, the Innovative Farmers Project is partially supported by the USDA Saginaw Bay Water Quality Demonstration Project, farmer memberships and partner sponsorships.

Publication of the 1996 Project Results were made possible through a grant from the Corn Marketing Program of Michigan.

1996 Sponsoring Partners List

Ag Spectrum
Agro-Culture Liquid Fertilizer
American Crystal Beet Seed
Bay Port State Bank
Berger & Company
Beta Seed
Chemical Bank
CIBA Seeds
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Great Lakes Sugar Beet Growers
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Thumb National Bank
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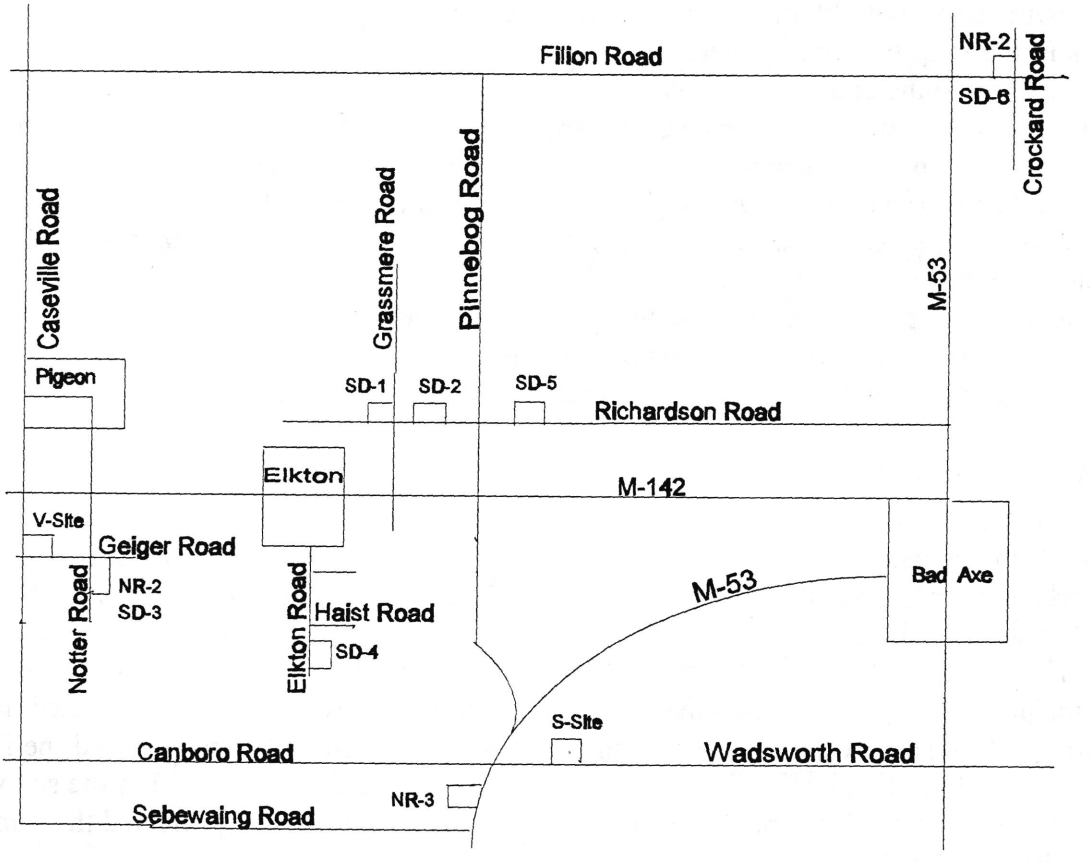
GENERAL MAP OF HURON COUNTY



1996 FIELD OBSERVATIONS

VOELKER SITE:

General Comments - This site has an organic matter content of 2.8 - 3.6%. Carbon/Nitrogen measurements were taken in the plowed and zone-tilled strips and the ratios were very good in the 9- to 10-1 range. Bulk density measurements indicated that the density of the soils were in the 1.27 to 1.39 g/cm, which is very good for this soil. In addition, water infiltration rates were better in the plowed strips than in the zone-tilled strips. These measurements will be continued for the next two years. More information is provided in the Soil Health section of this report.

Sugar Beets - The zone-till and trans-till strips were ready to plant earlier due to cover crop taking up moisture and over-tilth of the soil. After digging in the strips, it was clear that the top 3 to 4 inches in the strip-till systems were dryer and ready to plant. This resulted in better stands as reflected in the stand counts.

Corn - The north eight rows in each corn strip was planted with an 8-19-3 liquid fertilizer applied above the seed. The remaining portions of each plot had no nitrogen applied at planting. All of the strips received 160 lbs of 28% nitrogen pre-emerge. Six strips were split at harvest to determine the effectiveness of the extra fertilizer. Based on the results, there was no advantage in yield, but there was an extra cost of $9.73 per acre.

Dry Beans - The plot was planted to Newports, a new variety. A heavy, three-inch rain occurred and the ponded water covered a large portion of the chisel, trans-till and zone-till first set of plots. This delayed their maturity resulting in low yields, high pick and high F.M.

SHAW SITE:

General Comments - The soils at this site have organic matter contents of 1.6 to 2.2%. Carbon/Nitrogen ratios should be the 10/1 range. At this site, they are in the 12/1 to 18/1 range. For the Shebeon/Kilmanagh soils, bulk densities should be below 1.5 g/cm. The measurements taken at this site indicated bulk densities in the 1.42 to 1.52 g/cm range with the zone-till systems showing the best ratios. The water infiltration study also indicated that the zone-till strips took water in better than the plowed strips. It appears that the zone-till strips are responding to the reduced tillage.

Sugar Beets - The beets were planted on a Friday night and heavy rains occurred the following Sunday and Monday nights. The trans-till strips were tilled Friday morning, but the soil was wet. The trans-till strips flooded during the rains and the ponded water adversely affected the stands. The other tillage systems were not affected as much.

Corn - Some areas were affected by the heavy rains affecting stands and ultimately the yields.

Dry Beans - The first two replications of the "plow" system were very poor with yields of 13.4 and 11.2 cwt./acre. The third replication was very good with a yield of 18.2 cwt./acre. The stands in this plot were especially helped by the use of the Martin Closing Spoke wheels. The members noted during the twilight tour at this site that sidewall compaction did occur, but the spoke wheels shattered the soil and seed-soil contact was enhanced. As a result, even with the sidewall compaction and open seed slot, the dry bean stands were excellent.

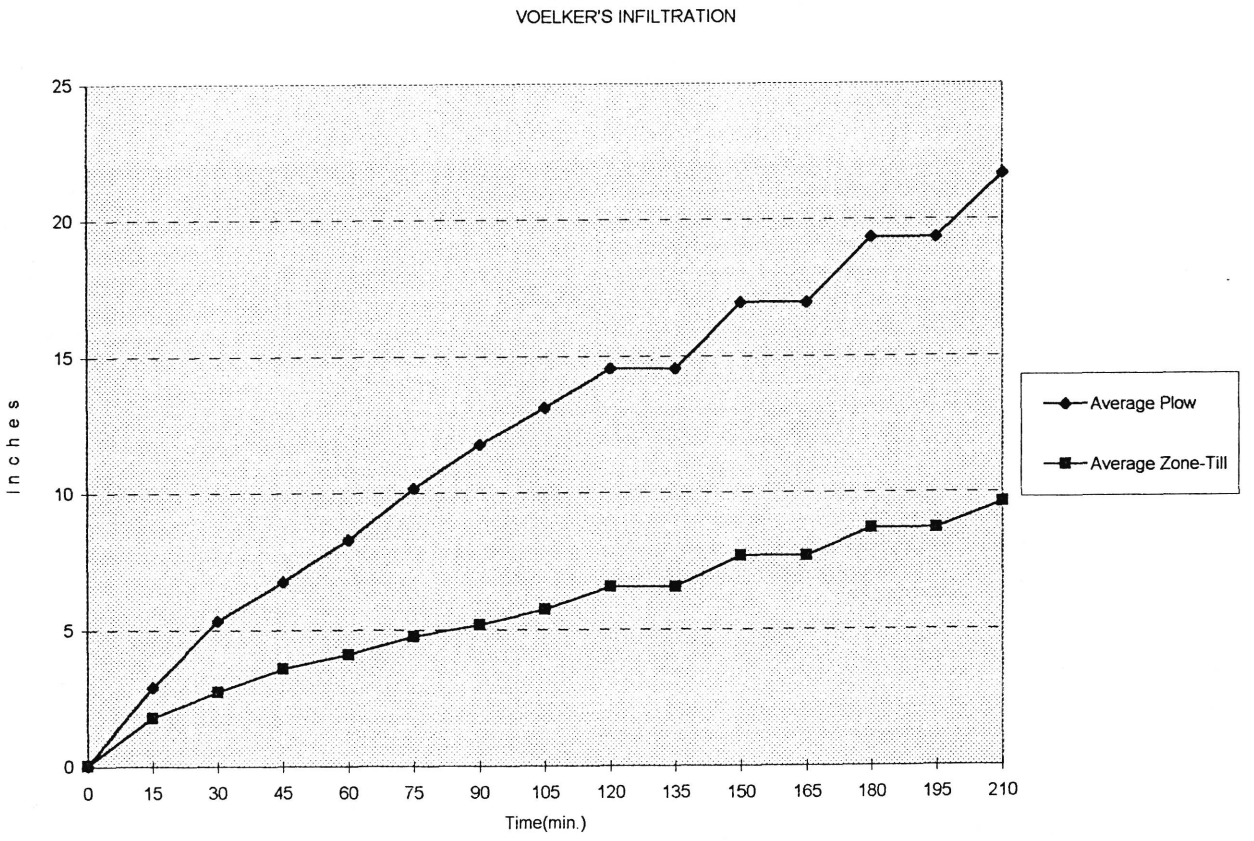
INTEGRATED CROPPING SYSTEM
DEMONSTRATION PLOTS

Voelker Site

INNOVATIVE FARMERS
of
HURON COUNTY

SOIL HEALTH STUDY
Voelker Site

VOELKER INFILTRATION DATA:



Bulk Densities:

	Plow	Zone-Till
1	1.22	1.37
2	1.25	1.39
3	1.35	1.42
Average	**1.27**	**1.39**

C/N DATA

Depth Soils	Voelker's	101	104	204	201	304	301	MEANS	
0-4"								1	4
	% N	0.130	1.130	0.165	0.180	0.167	0.170	0.16	0.154
	% C	1.281	1.280	1.558	1.667	1.598	1.651	1.533	1.479
	C/N Ratio	9.580	9.850	9.440	9.260	9.570	9.710	9.61	9.69
4-12"									
	% N	0.106	0.092	0.162	0.133	0.137	0.147	0.129	0.13
	% C	1.127	0.007	1.470	1.237	1.394	1.404	1.256	1.29
	C/N Ratio	10.630	10.950	9.070	9.300	10.180	9.550	9.83	10.06

POTENTIAL SOIL LOSS (Tons/Acre)
Dry Beans (Residue-Corn Stalks)

Tillage	% Residue	Water Erosion	Wind Erosion	Combined Erosion
Plow	10	1.9	3	4.9
Chisel	19	0.8	0.9	1.7
Trans-Till	24	0.5	0.4	0.9
Zone-Till	48	0.3	0.2	0.5

In cooperation with Dr. Richard Harwood, Sustainable Agriculture Chair, Michigan State University Crop & Soil Sciences Department, the Innovative Farmers are evaluating the change in soil health over time in the IF plots.

Since the project started, soil samples have been pulled from the plow and zone-till corn strips to measure any change in soil fertility. Samples are pulled from the 0-4" and 4-12" layers. The 1996 Voelker data is shown on page 8. We are seeing slightly higher phosphorus and potash levels in the 0-4" layer. This will be continued to see if the nutrients are stratified due to tillage. At this point, there is no real difference between tillage systems.

The potential soil loss is measured by determining the percent soil residue left on the surface after planting. In the dry bean field, the percent residue varied from 10% coverage after plowing to 48% coverage with zone-till. Jerry Fischer, Natural Resources Conservation Service District Conservationist, determines the potential soil loss. Those figures are shown in the chart above. One ton of soil is equivalent to 1/128 inch of soil (assuming there are 2,000,000 lbs. in an acre furrow slice). The goal is to have the total soil loss below 4 tons/acre per year, which is considered acceptable levels. The MAX Economic Analysis Program is used to compare system charges $5/ton for soil loss above "T" or acceptable levels.

This year, additional soil measurements were made. Carbon/Nitrogen (C/N) ratios were determined based on the soil samples taken from the plots. At this site, the 0-4" layer shows a slightly lower and better C/N ratio. This site has an organic matter of about 3% and the C/N ratio reflects the fairly positive soil organic matter content.

Bulk density measurements were taken and show that the plowed strips were a little "less dense", but both tillage systems were well with within acceptable limits. The initial goal for bulk densities is to be between 1.4 to 1.5 for Kilmanagh/Shebeon soils.

The last measurement taken this year was water infiltration. Again, the plowed system had better water infiltration over time. Water was gently poured into a set of rings (24" outer ring and 18" inner ring) and filled to six-inches in depth. Measurements were made very 15 minutes to determine the infiltration rate. The chart on the previous page shows the total water absorption over time.

SOIL HEALTH STUDY

In cooperation with Richard Harwood, MSU Crop and Soil Sciences Department, a long-term study is being conducted to determine the effect of tillage systems on soil fertility, carbon-nitrogen ratio, water infiltration, bulk density and mineralization. Soil samples are being pulled from the plow and zone-till strips in each year's corn plot. As the corn plot is rotated, we hope to determine if major changes are taking place in the soil. Soil fertility samples were pulled from the 0-4" layer, as well as from the 4-12" layer. The results on this page summarize the findings for this year.

Voelker's Corn Plot

Previous Crop: Sugar Beets **1995 Yields:** *Plow - 20.1 T. Zone Till - 19.2 T.*

PLOT ID 0" - 4"	101A	104A	204A	201A	304A	301A
TILLAGE	PLOW	ZONE-TILL	ZONE-TILL	PLOW	ZONE-TILL	PLOW
pH	7.3	7.4	6.8	6.6	7.1	6.7
PHOS	289	247	339	383	320	371
POTASH	460	629	724	686	762	657
CAL	3053	3474	3579	4000	3789	3684
MAG	527	591	564	620	573	564

PLOT ID 4" - 12"	101B	104B	204B	201B	304B	301B
TILLAGE	PLOW	ZONE-TILL	ZONE-TILL	PLOW	ZONE-TILL	PLOW
pH	7.3	7.6	6.6	6.8	7.1	6.8
PHOS	271	185	330	263	280	330
POTASH	530	389	520	400	440	510
CAL	3579	4381	4095	3895	4190	3789
MAG	591	610	591	582	582	536

CROP: CORN **SITE: Voelker's -- ID# V-4** **YEAR: 1996**

Previous Crop: Sugar Beets

Soil Test (11/14/95): pH - 6.9 O.M. - 3.1% P - 310 K - 552 Ca - 3822 Mg - 606 Zn - 13 ppm Mn - 55 CEC - 12.8 me

Soil Test Recommendations: N - 180 P - 0 K - 0 Yield Goal - 150 bu.

Activity	Plow	Chisel	Trans-Till	Zone-Till
Plot ID	1401	1402	1403	1404
Tillage Trips	Plow Field Cultivated 1x	Chisel Field Cultivated 1x	Trans-Till 1x	N/A
Planting Date	5/31/96			
Variety	Pioneer 3752 @ 31,000/acre			
Fertilizers Plant	3.4 gals. 8-19-3 (half of each plot)			50 lbs. N (28%) Band
Pre-Emerge	150 lbs. N (28%) Broadcast			
Herbicides Pre	1 qt. Bladex & 1 qt. Dual broadcast pre-emerge			
Plant Population 7/9/96	33,717	33,310	34,531	33,834
Cultivations	7/2/96			
Harvest Date	11/11/96			
Moisture	26.1	25.4	25.0	25.3
Yield (bu/a)	156.0	148.2	153.9	153.2
Profit/Acre	$101.18	$86.43	$107.97	$98.26

Comments: 1) Problems with fertilizer pump resulted in nitrogen being applied pre-broadcast to all plots.
2) North 8 rows of each treatment received 3.4 gals of 8-19-3 on seed.

Plow		Zone-Till	
8-19-3	without	8-19-3	without

CROP: SUGAR BEETS **SITE: Voelker's -- ID# V-1** **YEAR: 1996**

Previous Crop: Dry Beans

Soil Test (11/14/95): pH - 6.9 O.M. - 3.0% P - 370 K-576 Ca - 3556 Mg - 573 Zn - 13 ppm Mn - 15 ppm CEC - 12 e

Soil Nitrate-N: Plow - 12 Chisel - 15 Trans-Till - 20 Zone-Till - 17

Soil Test Recommendation: N- 80 P - 0 K - 0 Yield Goal - 21 T

Activity	Plow	Chisel	Trans-Till	Zone-Till
Plot ID	1409	1410	1411	1412
Cover Crops Species	N/A		Rye	
Burndown Rate	N/A		Prism @ 17 oz. # C.O.C.	
Tillage Trips	Plow Field Cultivated 2x	Chisel Field Cultivated 2x	Trans-Till 1x	N/A
Planting Date	5/17/96		5/8/96	
Seed Spacing	3 3/4" 55,000/acre			
Variety	Mono-Hy E-17			
Fertilizers Plant	50 lbs. N (28%) 3.4 gals. 8-19-3 (3 lbs. N, 7 lbs. P, 1.1 lbs. K)		40 lbs. N (28%) 2.9 gals. 8-19-3 (2.5 lbs. N, 6 lbs. P, 1 lb. K)	
Post	45 lbs. N on 7/2/96			
Herbicides Plant	Pyramin @ 2.8 pt. (band-pre)		Ro-Neet @ 1.7 pt. PPI	
Post	1 pt. Betamix & .3 pt. H-273 (6/4/96) 10" band			
Hoeing Trips	1x - 7/11/96 and 1x - 8/15/96			
Stand Counts 5/31/96 (plants/100')	93	121	153	207
6/13/96	111	139	168	211
Cultivations	1x - 6/6/96 and 1x - 7/3/96 and 1x - 7/22/96			
Harvest Date	11/4/96			
Percent Sugar	18.15	18.12	17.31	17.80
Yield (tons/a)	19.1	21.6	21.8	21.4
Profit/Acre	$362.54	$447.36	$422.50	$446.41

Comments: Trans-till and zone-till strips drier and ready to plant earlier due to past tillage and cover crops.

CROP: DRY BEANS **SITE: Voelker's -- ID# V-2** **YEAR: 1996**

Previous Crop: Corn

Soil Test (11/14/95): pH - 6.5 O.M. - 3.6% P - 451 K - 656 Ca - 4267 Mg - 581 Zn - 21 ppm Mn - 24.8 ppm CEC - 13.9

Soil Test Recommendation: N - 40 P - 0 K - 0 Yield Goal - 18 cwt.

Activity	Plow	Chisel	Trans-Till	Zone-Till
Plot ID	1405	1406	1407	1408
Cover Crops Species	N/A		Corn Stalks	
Burndown Rate	N/A		Roundup 1 qt.	
% Residue	10	19	24	48
Tillage Trips	2x		1x	N/A
Planting Date	6/29/96		6/28/96	
Variety	Newport 90,000/acre			
Fertilizers Plant	40 lbs. N band			
Herbicides Pre	1¼ qt. Eptam/1pt. Treflan PPI		N/A	
Plant	N/A		1¼ qt. Eptam/1 pt. Treflan PPI 10" band	
Post	Basagran 10" band @ 1 pt. rate			
Hoeing Trips	1x - 8/15/96			
Cultivations	1x - 7/20/96		1x - 7/20/96 and 1x - 7/22/96	
Harvest Date	10/5/96			
Yield (cwt/a)	19.3	16.4	17.0	14.2
Moisture	19.4	21.2	19.8	19.8
Pick	2.7	3.3	3.4	3.3
Profit/Acre	$225.62	$161.50	$173.80	$116.67

Comments: 1) The first replication of chisel, trans-till and zone-till were immature and damaged because of excessive ponding after 3" rain.

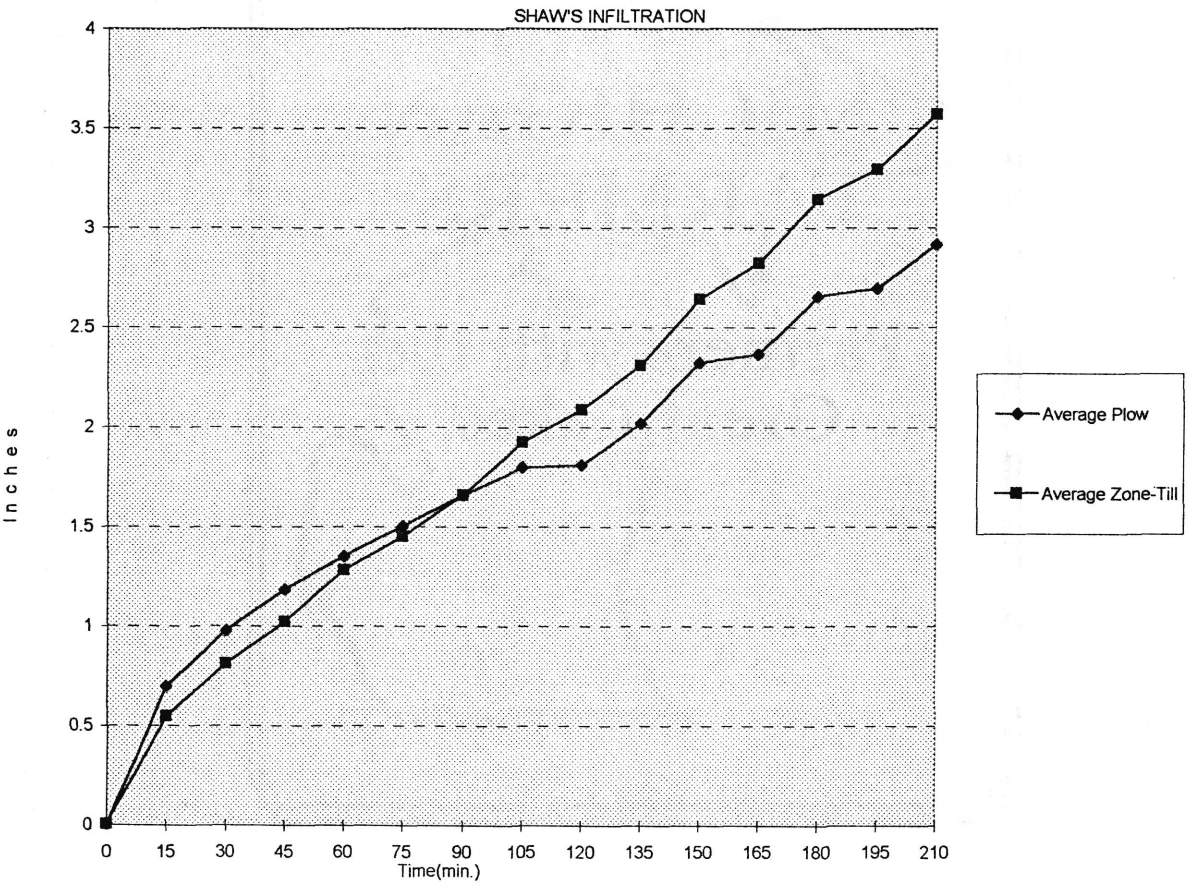
INTEGRATED CROPPING SYSTEM DEMONSTRATION PLOTS

Shaw Site

INNOVATIVE FARMERS
of
HURON COUNTY

SOIL HEALTH STUDY
Shaw Site

SHAW'S INFILTRATION DATA:



Bulk Densities:

	Plow	Zone-Till
1	1.56	1.27
2	1.43	1.37
3	1.56	1.63
Average	**1.52**	**1.42**

C/N DATA

Depth Soils	Shaw's	101	103	201	203	303	301	MEANS	
0-4"								1	3
	% N	0.074	0.090	0.082	0.090	0.082	0.101	0.086	0.087
	% C	1.393	1.670	1.117	1.206	1.170	1.257	1.256	1.184
	C/N Ratio	18.820	12.970	13.620	13.400	14.380	12.450	14.96	13.58
4-12"									
	% N	0.087	0.075	0.077	0.079	0.059	0.088	0.084	0.071
	% C	1.412	1.235	1.341	1.045	1.260	1.028	1.26	1.18
	C/N Ratio	16.230	16.470	17.420	13.230	21.360	11.680	15.36	17.00

POTENTIAL SOIL LOSS (Tons/Acre)
Dry Beans (Residue-Corn Stalks)

Tillage	% Residue	Water Erosion	Wind Erosion	Combined Erosion
Plow	6	1.9	2.7	4.6
Chisel	28	0.8	0.6	1.4
Trans-Till	38	0.6	0.4	1.0
Zone-Till	46	0.3	0.1	0.4

Among the soil health studies this year, in cooperation with Dr. Richard Harwood, Sustainable Agriculture Chair, Michigan State University Crop & Soil Sciences Department, were water infiltration, bulk density and carbon/nitrogen ratios. The Kilmanagh/Shebeon soils at the Shaw Site ranges from 1.9 to 2.2%.

Water infiltration measurements were made by setting three sets of rings (24" outer ring and 18" inner ring) in a tillage strip and gently filling the rings with water to a six-inch depth. Measurements were made every 15 minutes to determine the infiltration rates. The chart on the previous page illustrates the results of that study. At this site, the zone-till strips had a higher water infiltration rate over time.

In addition, bulk density was measured in a number of locations in each strip. Again, the zone-till appears to be showing less compaction and are responding to the reduced tillage. Ideally, one would like to see the bulk density between 1.4 and 1.5 for these soils.

The third measurements was taken for a Carbon/Nitrogen (C/N) ratio. There appears to be a greater change in the C/N ratios in the surface layer of the zone-till strips. Ideally, one would like to the C/N ratio closer to 10 and there seems to be greater change in the zone-till, as the organic matter starts to accumulate in the surface layer.

Since the project started, Potential Soil Loss has been measured by determining the amount of residue left on the soil surface following planting. These figures are then used to determine potential soil loss. This year in the dry bean plot, the percent residue ranged from 6% to 46%, which shows a maximum soil loss potential for the plow system at 4.6 tons/acre. A ton of soil is equivalent to 1/128 inch of soil (assuming there are 2,000,000 lbs. in an acre furrow slice, 7-inch layer). The acceptable "T" level for these soils in 4 tons/acre per year. The MAX Economic Analysis Program used for the economic comparisons charges a system $5/ton over "T". One ton of soil is worth $3 to $6/ton for soil, nutrient and organic matter. Huron County spends about $1.5 million per year in ditch clean outs.

SOIL HEALTH STUDY

In cooperation with Richard Harwood, MSU Crop and Soil Sciences Department, a long-term study is being conducted to determine the effect of tillage systems on soil fertility, carbon-nitrogen ratio, water infiltration, bulk density and mineralization. Soil samples are being pulled from the plow and zone-till strips in each year's corn plot. As the corn plot is rotated, we hope to determine if major changes are taking place in the soil. Soil fertility samples were pulled from the 0-4" layer, as well as from the 4-12" layer. The results on this page summarize the findings for this year.

Shaw's Corn Plot

Previous Crop: Sugar Beets **1995 Yields:** *Plow - 18.4 T. Zone-Till - 17.9 T.*

PLOT ID 0" - 4"	101A	103A	201A	203A	303A	301A
TILLAGE	PLOW	ZONE-TILL	PLOW	ZONE-TILL	ZONE-TILL	PLOW
pH	8.0	7.6	8.0	7.8	8.0	7.7
PHOS	67	140	98	104	107	116
POTASH	326	510	440	540	420	305
CAL	4762	3263	3684	3158	3474	2947
MAG	362	473	445	418	371	409

PLOT ID 4" - 12"	101B	103B	201B	203B	303B	301B
TILLAGE	PLOW	ZONE-TILL	PLOW	ZONE-TILL	ZONE-TILL	PLOW
pH	8.0	7.8	8.0	7.9	8.0	7.7
PHOS	78	76	78	95	82	107
POTASH	316	284	347	295	211	221
CAL	4000	4857	3579	4190	4095	2947
MAG	381	464	409	445	343	390

CROP: CORN **SITE: Shaw's -- ID# S-2** **YEAR: 1996**

Previous Crop: Sugar Beets

Soil Test (11/14/95): pH - 7.7 O.M. - 1.6% P - 97 K - 256 Ca - 3120 Mg - 431 Zn - 7.0 ppm Mn - 19 ppm CEC - 9.9

Soil Nitrate-N: Plow - 32 Mulch - 37 Trans-Till - 40 Zone-Till - 42

Soil Test Recommendation: N - 180 P - 0 K - 20 Yield Goal - 150 bu.

Activity	Plow	Mulch	Trans-Till	Zone-Till
Plot ID	1501	1502	1503	1504
Tillage Trips	Plow Field Cultivated	Mulched 2x	Trans-Till	N/A
Planting Date	5/18/96			
Variety	DeKalb 471 31,000 plants/acre			
Plant Population 6/14/96	28,980	27,811	30,752	29,590
Fertilizers Pre	Broadcast 100 lbs. 0-0-60			
Plant	50 lbs. N (28%)		100 lbs. N split row	46 lbs. N (28%)
	3.2 gals. 8-19-3 (2.8 lbs. N, 6.7 lbs. P, 1 lb. K) on seed			
7/3/96 Sidedress	98		38	98
Herbicides Pre	Bladex @ 1.9 lbs./acre			
Post	N/A		½ pt. 2,4-D Broadcast 6/1/96	
Stand Counts 6/25/96	28,980	27,811	30,752	29,590
Cultivations	7/3/96			
Harvest Date	11/11/96			
Moisture	26.1	25.4	25.0	25.3
Yield (bu/a)	124.7	132.2	121.1	137.0
Profit/Acre	$37.76	$61.50	$29.30	$66.15

CROP: SUGAR BEETS **SITE: Shaw's – ID# S-3** **YEAR: 1996**

Previous Crop: Wheat

Soil Test (11/14/95): pH - 7.6% O.M. - 2.2% P - 155 K - 256 Ca - 3040 Mg - 438 Zn - 24 ppm Mn - 17 ppm CEC - 9.8 me

Soil Nitrate-N: Plow - 13 Mulch - 17 Trans-Till - 12 Zone-Till - 13

Soil Test Recommendation: N - 80 P - 0 K - 20 Yield Goal - 21 T

Activity	Plow	Mulch	Trans-Till	Zone-Till
Plot ID	1505	1506	1507	1508
Cover Crops Species	N/A		Rye	
Burndown	N/A		Prism @ 13 oz./a & C.O.C. @ 1 pt. on 5/27/96	
Tillage Trips	Plow Field Cultivated 2x	Chisel Field Cultivated 2x	Trans-Till	N/A
Planting Date	5/17/96			
Variety	BETA 5931 (3 3/4" spacing) 55,000 seeds/acre			
Fertilizers Pre	60 lbs. K_2O Broadcast			
Plant	50 lbs. N - band 3.4 gals. - 8-19-3 (on seed) (3 lbs. N, 7 lbs. P, 1.1 lbs. K)			
Post	44 lbs.			
Herbicides Plant	2.8 pts. Pyramin band 10"			
Post	1 pt. Betamix & .3 pt. H-273 (6/4/96) 10" band			
Hoeing Trips	1x - 8/10/96			
Stand Counts 7/8/96 (plants/100')	125	99	57	78
Cultivations	1x - 6/5/96 and 1x - 7/2/96 and 1x - 7/23/96			
Harvest Date	10/17/96			
Percent Sugar	17.32	17.32	17.08	17.44
Yield (tons/a)	16.1	16.0	13.2	15.6
Profit/Acre	$166.75	$169.64	$61.91	$161.09

Comments: Trans-till beets had reduced stands because of wet soils when trans-tilled and heavy rains shortly after planting (ponded water in strips).

CROP: DRY BEANS **SITE: Shaw's – ID# S-5** **YEAR: 1996**

Previous Crop: Corn

Soil Test (11/14/95): pH - 7.9 O.M. - 1.9% P - 113 K - 312 Ca - 3733 Mn - 26.7 ppm Zn - 8 ppm Mg - 417 CEC - 11.5

Soil Test Recommendation: N - 40 P - 0 K - 0 Yield Goal - 18 cwt.

Activity	Plow	Mulch	Trans-Till	Zone-Till
Plot ID	1509	1510	1511	1512
Cover Crops Species	Corn Stalks			
Burndown	Roundup 1 qt.			
% Residue 7/8/96	6	28	38	46
Tillage Trips	Plow, Field Cultivated 2x	Mulched 2x	Trans-Tilled 1x	N/A
Planting Date	6/28/96			
Variety	Newport 90,000/acre			
Fertilizers Plant	40 lbs. N			
Herbicides Pre	1¼ qt. Eptam/1pt. Treflan PPI		N/A	
Plant	N/A		Eptam/Treflan PPI 10" band	
Insecticides Post	1x - Dimetholate 1pt./a 10" band			
Cultivations	1x - 7/18/96		1x - 7/18/96 and 1x - 7/22/96	
Harvest Date	10/12/96			
Moisture	20.8	20.7	21.0	
Pick	4.1	2.8	2.1	1.9
Yield (cwt/a)	14.3	19.5	17.2	18.9
Profit/Acre	$133.14	$263.07	$200.65	$246.84

Comments:

1) Replications 1 and 2 of plow were very poor compared to third replication. Plow strips were spring plowed.

   101 - 13.4 cwt.
   102 - 11.2 cwt.
   103 - 18.2 cwt.

2) Combine operator noted that the strip plots (trans-till and zone-till) were cleaner at harvest.
3) Spoke closing-wheels aided in slightly wetter soils ensuring seed/soil contact even though side-wall compaction occurred.

INTRODUCTION TO EXTRA PLOT STUDIES

As the committees carried out their assignment, questions arose which required additional study. Additional study plots were designed to address those new questions. MSU Extension specialists were invited to participate in this phase of the project. These additional projects are described and reviewed below. Each new plot was developed as a result of questions arising from of the Innovative Farmers plots. If the Innovative Farmers Project is to be a success, we must strive to find the answers to questions that limit or build barriers to the adoption of alternative tillage production systems.

QUESTION: Does increased surface crop residue result in more or less white mold in soybeans?

Site: S-1

This plot was developed as a result of several growers stating that they didn't think they were seeing as much white mold in no-tilled fields. Others were concerned that the extra residue would leave the soil surface wetter resulting in additional white mold. Therefore, there was a need to see which theory is factually correct.

Plot Procedure: Three soybean varieties were planted in row widths of 7.5", 22" and 30". Two of the varieties, Elgin 87 and Conrad, were susceptible to white mold while the third variety, Northrup King 19-90, was tolerant.

The planting dates for the row width plots were as follows:

22" - May 30, 1996
30" - June 1, 1996
7.5" - June 3, 1996

No fertilizer was applied to any of these plots, but the seed was inoculated. Cobra and Pinnacle were applied post-emergence for weed control.

Pat Hart, Plant Pathologist, Michigan State University, will be taking white mold infection counts in each of the strips to evaluate the effect of row width on white mold during the 1996 growing season.

During the 1997 and 1998 growing seasons, this plot will be duplicated with white mold ratings being made in plowed, chisel and no-till systems. The no-till soybeans will be planted into corn and soybean residue.

White mold ratings and yields will be used to evaluate the plots. This plot is partially funded by the Soybean Production Research Board. (Plot map on the following page.)

CO	NR	AD	NK	19-	90	EL	GIN	87
22"	30"	7½"	7½"	22"	30"	22"	30"	7½"
<-45'->	<-30'->	<-45'->						

QUESTION: If I switch to a high residue system, what are my options for weed control in dry beans?

Site: S-9

Because Eptam and Treflan are the herbicides of choice by a majority of dry bean growers, and they need to be pre-plant incorporated, options are needed if you cannot incorporate in a normal fashion.

PLOT PROCEDURE: Karen Renner, Herbicide Specialist, Michigan State University, is conducting a research plot for the second year at the Innovative Farmers site on Wadsworth Road. This plot is partially funded by the Michigan Dry Bean Advisory Board.

Five tillage systems - plow, chisel, zone-till without residue managers, zone-till with residue managers, and no-till are being used to evaluate ten different herbicide combinations.

The combinations are as follows:

1) Cultivation (2x)
2) Cultivation (2x) & hoe
3) Pursuit Plus
4) Dual (pre), Pursuit & Basagran (post)
5) Dual (pre), Basagran & Reflex (post)
6) Dual (pre), Galaxy (post)
7) Frontier (pre), Basagran & Reflex (post)
8) Frontier (pre), Pursuit & Basagran (post)
9) Frontier (pre), Galaxy (post)
10) Pursuit & Basagran
11) Poast, Reflex & Basagran
12) Poast & Galaxy

Weed control ratings and yields will be used to evaluate the systems. The plot was planted on June 27, 1996.

QUESTION: When I use less than the optimum nitrogen rate, based on soil nitrate-N test, my corn doesn't look as green as the corn with the traditional rate. Am I losing yield?

Sites: SD-1, SD-2, SD-3, SD-4, SD-5 and SD-6

For the past six years, 32 side-by-side demonstration plots have been conducted in Huron and Tuscola Counties to verify the soil nitrate-N test. In only two of the plots did the soil nitrate-N test not pay. Yet, growers are reluctant to use the test because of perceived color differences that might result in less yield. Therefore, there is a need to determine if the plant color is truly reflective of yield potential.

PLOT PROCEDURE: Maury Vitosh, Fertilizer Specialist, Michigan State University, will be working with the Innovative Farmers to validate the use of the "chlorophyll meter". The chlorophyll meter has been used in Nebraska for the past few years to show that while there is a slight color difference when nitrogen rates are reduced BASED ON A SOIL NITRATE-N test, the chlorophyll levels will be equal to the levels in corn with the traditional nitrogen rates. Chlorophyll is a better prediction of yield potential than plant color.

A number of comparison plots will be established with 50 chlorophyll readings taken in each strip and averaged. Yields will be taken from the strips in the fall and compared.

QUESTION: What happens to the soil nitrate-N over time and when is the best time to pull a soil nitrate-N soil test?

Site: V-3

This question has been asked many times over the years and is most important in 1996 with the heavy rainfall.

To start looking at this question in greater detail, a study has been initiated with Maury Vitosh, Fertilizer Specialist, Michigan State University. Six soil thermometers, that take 100 readings over 4 hours and 48 minutes, averages the readings and stores them to memory, were buried four-inches deep in six locations.

One area had 160 lbs. of N applied at planting and a corresponding site had 50 lbs. applied. These two thermometers are buried in the corn.

Two additional thermometers were buried in the beets at the Shaw site. One was buried in a zone-till strip that had high residue and the other in a fall plow strip. A third set of thermometers were buried in plow and zone-till beet strips at the Voelker site.

In all three situations, soil nitrate-N samples will be collected and analyzed over time. At the end of the year, the accumulated soil temperature degree days and mineralization curve will be compared.

Two questions that should be addressed are:

1. If I apply high nitrogen rates in a band at planting, does the nitrogen move laterally or vertically and what effect will it have on the sidedress test?
2. Can we monitor the accumulative soil temperature and better predict the best time to pull soil nitrate-N samples?

QUESTION: Does a liquid fertilizer applied at low rates on the seed enhance plant growth and result in increased yields?

Site: S-4

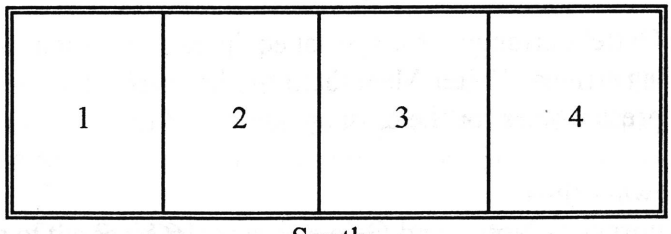
A number of IF members are using a 8-19-3 liquid fertilizer, applied just above the seed, to obtain early growth and improved emergence. This practice has been noted at a number of meetings as generating yield response, even on high testing (over 80 lbs. P_2O_5). Therefore, this fertilizer and another similar product are being evaluated in the IF plots.

Site 1: Behind the Popple Trail Blazers Clubhouse, four plots, each 32 rows wide and 460 feet long, have been established to compare the following fertilizer programs:

plot 1 - 50 lbs. of 28% (17 gals.) banded 2 x 2 with 3.4 gals. of Ag Spectrum (8-19-3) applied over seed -- population 29,881
plot 2 - 50 lbs. of 28% banded 2 x 2 with 3.4 gals. of Agro-Culture Liquid Fertilizer (8-20-2) applied over seed -- population 30,287
plot 3 - 50 lbs. of 28% banded 2 x 2 no additional fertilizer -- population 28,834
plot 4 - A.C.L.F. Hi-N 27% at 11 gals. per acre -- population 28,950

Each plot will sidedress nitrate-N soil sampled and additional 28% or 27% nitrogen will be applied at cultivation.

Planting date: June 1, 1996 - 93 day
Variety: Pioneer 3876 at 31,000 plants per acre
Potash: 100 lbs. 0-0-60 applied prior to planting
Herbicides: 1.9 lbs. Bladex and 1 qt. Dual on 6/4/96
Sidedressed: July 12, 1996 @ 68 lbs./acre (plot 4 = 15 gals./45 lbs./acre)



QUESTION: Can the Cross-Slot Planter Unit, developed in New Zealand, be used in the Thumb to produce corn and beets?

Site: S-6 & S-8

The cross planter was developed in New Zealand by a Dr. Baker at the University of Guelph. In New Zealand and Australia, the cross-slot units are used on grain drills for no-tilling a variety of crops. The row crop planter used at the IF site is the only one in the world equipped with the cross-slot units.

The cross-slot unit was designed to place seed and fertilizer in slightly wetter soils. Since the seed is placed to the side of the slot, under a flap of soil, seed/soil contact is better and the seedling emerges through the slot.

Richard Sidey, New Zealand; and Greg Lake, Soil and Water Conservation District, Fort Wayne, Indiana; operated and set up the equipment at the IF site.

Planting Date:	May 18, 1996
Variety:	DeKalb 412
Fertilizer:	150 lbs. of 24-6-12 banded at planting
Herbicide:	1.9 lbs. Bladex broadcast
Residue:	wheat

Plant population was taken on May 13, 1996 - Conventional was 25,578 and Cross-Slot was 20,288.

QUESTION: Can zone-till be adopted to narrow row (22-inch) production?

Sites: NR-1, NR-2 & NR-3

Several IF members have converted to 22-inch row crop production over the past several years. As the Integrated Cropping System Project has developed, several members expressed interest in seeing if the 22-inch system could be incorporated with zone-till. After several discussions, a proposal was submitted to the Corn Marketing Program Board for possible funding.

The effort was successful and during the spring of 1996, a complete system was put together. Gettel Implement was the primary contact and additional support was provided from Unverferth Manufacturing and Alloway. A planter was cut down to eight 22-inch rows. The planter was then connected to the back of a Rawson-Unverferth Cart with a three-point hitch system. In addition, an Alloway high residue cultivator was secured for these plots.

Ray Rawson worked closely with Gettel's arranging for special equipment adoptions and providing technical advice. Since the unit has arrived, Yetter Manufacturing has provided two single wheel residue managers and four spoke press wheels for the closing assembly.

The unit has been used at the following sites:

Site 1: Ross Voelker; SE corner of Notter and Geiger Roads, 16 acres
- corn was planted on May 28 into alfalfa which was burned down with 2,4-D and Round-Up prior to planting.
- Variety: Pioneer 3752

Site 2: Wil-le Farms; NW corner of Filion and Crockard Roads, middle of field
- planting date: May 31, 1996
- variety: Pioneer 3573

Site 3: Shaw Farms; M-53 between Sebewaing & Wadsworth Roads
- planting date: June 30, 1996
- variety: Black Jack

QUESTION: Is corn, developed with the Bt gene for corn borer resistance, competitive to non-Bt corn?

Site: V-3

Mike Braun, CIBA Seeds, District Manager, provided two corn borer resistant varieties and one susceptible variety for the IF sites. The varieties were planted at the Voelker Site, south of Pigeon.

Planting date: May 31, 1996
Plot 1: CIBA 1401 E (95 day) Bt variety
fertilizer - 24 rows w/161 lbs. of 28% banded
- 24 rows w/50 lbs. of 28% banded
Plot 2: CIBA 4214 (96 day) non-Bt variety
fertilizer - 50 lbs. of 28% banded
Plot 3: CIBA 747 (95 day) Bt variety
fertilizer - 50 lbs. 28% banded
sidedressed N @ 45 lbs./acre on July 2, 1996
N credit 55 lbs.
herbicide - Accent & Buctril
previous crop - sugar beets
tillage - field cultivate

QUESTION: Is the "Soil Doctor" a viable alternative to hand soil nitrate-N testing?

Sites:

For the past few years, IF members have been reading and hearing about the success of the Soil Doctor. One IF member contacted the manufacturers of the Soil Doctor while at the Louisville Machinery Show. After meeting with the manufacturer's representative, two meetings were held with the IF and Huron County Corn Grower members to determine if there was interest in trying the Soil Doctor.

Funding was received from the Huron County Corn Growers, Michigan Sugar Company, Great Lakes Beet Growers and Corn Marketing Program of Michigan to partially fund this project. It was also decided that a fee be assessed to those trying the Soil Doctor to cover additional expenses.

The principle of the Soil Doctor is that using two sets of coulter/sensors soil nitrate-N is detected in the soil on-the-go. The sensors are connected to a "brain" that adjusts the valves on each injector knife five times per second. The Soil Doctor adjusts the nitrogen from a pre-set goal.

Plots were established in early July at sidedress time to evaluate the performance of the Soil Doctor.

Sites: SD-1 Krohn Brothers
Section 1, Oliver Township
Richardson Road, west of Grassmere Road
SD-2 Krohn Brothers
Section 6, Colfax Township, Richardson Road, east of Grassmere Road

SD-3 Ross Voelker
Section 13, Winsor Township
SE corner of Notter & Geiger Roads

SD-4 Herford Farms
Section 27, Oliver Township
Elkton Road, south of Haist Road

SD-5 Krohn Brothers
Section 5, Colfax Township
Richardson Road between Pinnebog & Ivanhoe Roads

SD-6 Wil-le Farms
Section 18, Lincoln Township
Filion Road between M-53 & Crockard Road

SOIL DOCTOR DEMONSTRATIONS

SITE: KROHN BROTHERS - HOME FARM (SD-1)

YIELD GOAL: 150 bu.
PREVIOUS CROP: Soybeans
VARIETY: Pioneer 3861
PLANTING DATE: June 1, 1996

PLOT WIDTH: 8 rows
DATE: July 3, 1996
N @ PLANTING: 64

Treatment	Nitrate-N Credit	Nitrate-N Soil Test Recommendations	Variable or Fixed	Amount Actually Applied	Chlorophyll Reading 7/24					Leaf Analysis
H-1	110	65	V	119 lbs.	45.6					
H-2	110	65	F	66 lbs.	40.5					
H-3	110	65	V	126 lbs.	46.2					
H-4	140	35	F	24 lbs.	41.0					
H-5	120	55	V	129 lbs.	51.0					
H-6	120	55	F	62 lbs.	39.9					
H-7	100	75	V	127 lbs.	49.3					
H-8	135	45	F	57 lbs.	41.2					

SITE: STEVE'S PLOT (SD-2)

YIELD GOAL: 150 bu.
PREVIOUS CROP: Soybeans
VARIETY: Pioneer 3861
PLANTING DATE: May 31, 1996

PLOT WIDTH: 8 rows
DATE: July 3, 1996
N @ PLANTING 110 lbs.

Treatment	Nitrate-N Credit	Nitrate-N Soil Test Recommendations	Variable or Fixed	Amount Actually Applied	Chlorophyll Readings 7/24					Leaf Analysis
P-1	145	30	V	106 lbs.	49.8					
P-2	100	75	F	82 lbs.	49.0					
P-3	95	80	V	117 lbs.	48.6					
P-4	85	90	F	77 lbs.	47.7					
P-5	80	95	V	100 lbs.	49.6					
P-6	60	115	F	95 lbs.	47.2					
P-7	115	60	V	111 lbs.	49.2					
P-8	75	100	F	85 lbs.	45.7					

SITE: VOELKER'S 22" CORN (SD-3)

YIELD GOAL:	150 bu.	APPLICATION DATE:	July 5, 1996
PREVIOUS CROP:	Alfalfa	VARIETY:	Pioneer 3752
N @ PLANTING:	120 lbs.	PLANTING DATE:	May 28, 1996
PLOT WIDTH:	8 rows	PLOT LOCATION:	Row #63 from south side

	Treatment	Application Rate	Chlorophyll Readings					Leaf Analysis
1	Ripped Only	0						
2	Variable	81.3						
3	Variable	78.4						
4	Ripped Only	0						

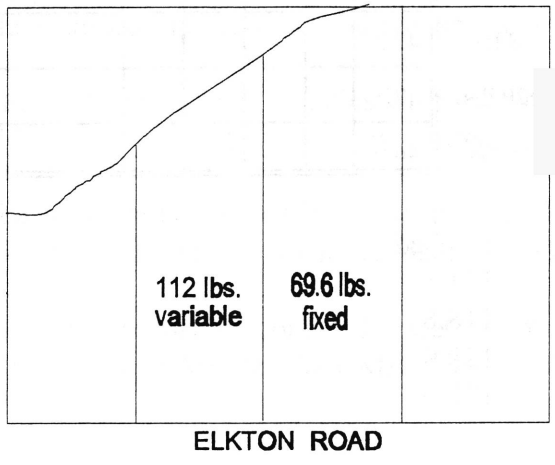
	Ripped	78.4	81.3	Ripped	63 rows

NOTTER ROAD

SITE: HERFORD FARMS (SD-4)

YIELD GOAL:	150 bu.	APPLICATION DATE:	July 5, 1996
PREVIOUS CROP:	Dry Beans	VARIETY:	Pioneer 3752
MANURE APPLIED:	8 tons	PLANTING DATE:	June 4, 1996
N @ PLANTING:	75 lbs. broadcast	PLOT LOCATION:	Row #110 from north side

	Treatment	Application Rate	Chlorophyll Readings					Leaf Analysis
1	Variable Rate	112 lbs. ave.						
2	Fixed Rate	69.6 lbs.						



SITE: MANURE PLOT - KROHN BROTHERS (SD-5)

YIELD GOAL:	150 bu.	PREVIOUS CROP:	Wheat
N @ PLANTING	65 bu.	VARIETY:	Pioneer 3861
SIDEDRESS:	100 lbs. N	DATE:	July 3, 1996
PLANTING DATE:	May 27, 1996		

Treatment	Nitrate-N Credit	Nitrate-N Soil Test Recommendations	Variable or Fixed	Amount Actually Applied	Chlorophyll Readings					Leaf Analysis
					7/24					
TKE-1	50	125	V	127 lbs.	49.7					
TKE-2	50	125	F		48.1					

SITE: WIL-LE FARMS (SD-6)

YIELD GOAL: 150 bu.
PREVIOUS CROP: Soybeans
N @ PLANTING: 45 lbs.
PLOT WIDTH: 32 rows

APPLICATION DATE: July 5, 1996
VARIETY:
PLANTING DATE: May 31, 1996
PLOT LOCATION: Starting on west side

Treatment	Nitrate-N Credit	Nitrate-N Soil Test Recommendations	Variable or Fixed	Amount Actually Applied	Chlorophyll Readings					Leaf Analysis
					7/24					
W-1	50	80	V	120 lbs.	44.4					
W-2	50	80	F	79 lbs.	46.4					
W-3	50	80	V	120 lbs.	45.9					
W-4	50	80	F	78 lbs.	45.5					
W-5	50	80	V	120 lbs.	45.6					
W-6	50	80	F	78 lbs.	47.3					
W-7	50	80	V	120 lbs.	47.5					
W-8	50	80	F	78 lbs.	46.9					

Treatment W-7	Applied
1st pass	121.8
2nd pass	118.8
3rd pass	120.0
4th pass	120.0

Treatment W-8	
1st pass	78.4
2nd pass	77.6
3rd pass	77.4
4th pass	77.8

RELATED INNOVATIVE FARMER ACTIVITIES

Secondary Fertilizer Containment/Herbicide Injectors:

The Innovative Farmers submitted a proposal to the Michigan Department of Agriculture's Groundwater Protection Program for the purpose of providing cost-share assistance for constructing secondary containment structures for on-farm fertilizer storage and installation of herbicide injectors.

The officers identified these two practices during the spring of 1995 and a survey of the membership indicated that there was interest. The proposal was funded in the amount of $46,184.26 for 1996.

Ten farmers were cost-shared at a 50% rate up to a maximum of $1,000 to install herbicide injectors on their equipment. All ten systems have been installed and are in operation. The Innovative Farmers worked with Bob Wilkinson, MSU Ag Engineering Department, to evaluate the injectors. A comparison was made between the injector system and the normal sprayer system. Comparisons were completed on mixing, loading and cleaning times along with the amount of rinsate left after spraying. The results of the study will be available at a later date.

Nine fertilizer storage facilities have been built and range in cost from less than $5,000 to nearly $12,000. The facilities were cost-shared at a rate of 75% up to a maximum of $4,000.

The program is planned in cooperation with the Groundwater Stewardship Committee which is comprised of Innovative Farmer members, NRCS and Extension staff, and CFSA staff.

For more information, contact Jim LeCureux or Sally Comer at the MSU Extension-Project Office, 1460 S. Van Dyke, Bad Axe, MI 48413, 517/269-6099.

Sustainable Agriculture/Economic Development Project:

The Innovative Farmers, MSU Extension and the Huron County Economic Development Corporation have received funding from the W.K. Kellogg Foundation for a four-year economic development project based on enhancing the economic viability of the county's agriculture economy.

The Huron County project is part of a three state (Missouri, Nebraska and Michigan) program being conducted in three communities in each state.

Each community can develop the program to best serve its interest. The only guidelines are that the final activity or project be economically feasible, environmentally friendly and socially acceptable.

The Huron County Steering Committee, consisting of 28 members, has developed a mission and vision statement. Several meetings have been held to organize and formulate a plan of action.

An activity meeting was held on Thursday, August 1, at Cousins Restaurant in Bad Axe where John Gardner, North Dakota State University Extension, Carrington, North Dakota, was the guest speaker.

John has been very involved in the development of several farmer-owned corporations designed to add value to their products. He shared his insights with the group.

The Steering Committee has prepared and formed three study groups: livestock, crops and specialty/niche markets. Participants of the August 1 meeting were asked to join one of the three working groups to explore, study and evaluate added value opportunities in each of the three areas.

Periodically, the entire group will assemble to share information and try to identify one to three opportunities that are feasible.

If you would like to join in this effort, contact the MSU Extension-Project Office, 1460 South Van Dyke, Bad Axe, MI 48413, 517/269-6099.

DRY BEAN THREE-YEAR SUMMARY								
Voelker Site:	**Yields (cwt/acre)**				**Profit/Acre**			
	Plow	Chisel	Trans-Till	Zone-Till	Plow	Chisel	Trans-Till	Zone-Till
1994	20.5	20.0	18.5	19.3	$377.04	$368.39	$317.65	$336.82
1995	23.0	23.7	21.7	23.1	$162.42	$182.31	$102.09	$134.01
1996	19.3	16.4	17.0	14.2	$225.62	$161.50	$173.80	$116.67
Average	20.9	20.0	19.1	18.9	$255.03	$237.40	$197.85	$195.83
Shaw Site:	**Yields (cwt/acre)**				**Profit/Acre**			
	Plow	Chisel	Trans-Till	Zone-Till	Plow	Chisel	Trans-Till	Zone-Till
1994		11.8	10.7	9.3		$152.00	$118.41	$84.96
1995	22.7	24.6	23.4	21.6	$187.61	$229.92	$210.59	$182.57
1996	14.3	19.5	17.2	18.9	$133.14	$263.07	$200.65	$246.84
Average	18.5	18.6	17.1	16.6	$160.38	$215.00	$176.55	$171.46
3-Year Project Average:	**19.7**	**19.3**	**18.1**	**17.7**	**$207.70**	**$226.20**	**$187.20**	**$183.65**

SUGAR BEET THREE-YEAR SUMMARY								
Voelker Site:	**Yields (tons/acre)**				**Profit/Acre**			
	Plow	Chisel	Trans-Till	Zone-Till	Plow	Chisel	Trans-Till	Zone-Till
1994	20.0	19.1	15.3	14.2	$435.71	$416.82	$229.15	$166.99
1995	20.1	20.5	20.4	19.2	$371.85	$360.30	$446.75	$390.63
1996	19.1	21.6	21.8	21.4	$362.54	$447.36	$422.50	$446.41
Average	19.7	20.4	19.2	18.3	$390.03	$408.16	$366.13	$334.68
Shaw Site:	**Yields (tons/acre)**				**Profit/Acre**			
	Plow	Chisel	Trans-Till	Zone-Till	Plow	Chisel	Trans-Till	Zone-Till
1994		20.0	18.9	19.5		$460.03	$376.79	$421.56
1995	18.4	17.0	18.1	17.9	$346.43	$322.39	$391.60	$386.13
1996	16.1	16.0	13.2	15.6	$166.75	$169.64	$61.91	$161.09
Average	17.3	17.7	16.7	17.7	$256.59	$317.35	$276.77	$322.93
3-Year Project Average:	**18.5**	**19.0**	**18.0**	**18.0**	**$323.31**	**$362.76**	**$321.45**	**$328.80**

CORN THREE-YEAR SUMMARY								
Voelker Site:	**Yields (bu/acre)**				**Profit/Acre**			
	Plow	Chisel	Trans-Till	Zone-Till	Plow	Chisel	Trans-Till	Zone-Till
1994	166.2	169.9	152.9	135.0	$322.46	$324.71	$276.97	$231.38
1995	152.0	151.8	155.1	152.9	$137.99	$151.46	$158.29	$128.55
1996	156.0	148.2	153.9	153.2	$101.18	$86.43	$107.97	$98.26
Average	158.1	156.6	154.0	147.0	$187.21	$187.53	$181.08	$152.73
Shaw Site:	**Yields (bu/acre)**				**Profit/Acre**			
	Plow	Chisel	Trans-Till	Zone-Till	Plow	Chisel	Trans-Till	Zone-Till
1994		81.1	81.5	83.0		$170.25	$171.18	$174.30
1995	149.6	153.5	151.9	154.3	$150.18	$146.80	$142.58	$157.85
1996	124.7	132.2	121.1	137.0	$37.76	$61.50	$29.30	$66.15
Average	137.2	122.3	118.2	124.8	$93.97	$126.18	$114.35	$132.77
3-Year Project Average:	**147.6**	**139.4**	**136.1**	**135.9**	**$140.59**	**$156.86**	**$147.72**	**$142.75**
THREE YEAR ROTATION AVERAGE:					**$671.60**	**$745.81**	**$656.36**	**$655.20**

1996 TILLAGE SYSTEM RANKINGS
(based on profit/acre)

This chart summarizes and ranks each crop by profit per acre.

CROP	Corn							
ID	Tillage	Total Cost	Bu/A	Rank	Cost/Bu	Rank	Profit/A	Rank
1403	Trans-Till	$276.78	153.9	2	$1.80	1	$107.97	1
1401	Plow	$288.82	156.0	1	$1.85	2	$101.18	2
1404	Zone-Till	$284.74	153.2	3	$1.86	3	$98.26	3
1402	Chisel	$284.07	148.2	4	$1.92	4	$86.43	4
1504	Zone-Till	$276.35	137.0	5	$2.02	5	$66.15	5
1502	Mulch	$269.00	132.2	6	$2.03	6	$61.50	6
1501	Plow	$273.99	124.7	7	$2.20	7	$37.76	7
1503	Trans-Till	$273.45	121.1	8	$2.26	8	$29.30	8
CROP	Dry Beans							
ID	Tillage	Total Cost	Cwt/A	Rank	Cost/Cwt	Rank	Profit/A	Rank
1510	Mulch	$195.18	19.5	1	$10.01	1	$263.07	1
1512	Zone-Till	$197.31	18.9	3	$10.44	2	$246.84	2
1405	Plow	$227.93	19.3	2	$11.81	3	$225.62	3
1511	Trans-Till	$203.55	17.2	4	$11.83	4	$200.65	4
1407	Trans-Till	$225.70	17.0	5	$13.28	5	$173.80	5
1406	Chisel	$223.90	16.4	6	$13.65	6	$161.50	6
1509	Plow	$202.91	14.3	7	$14.19	7	$133.14	7
1408	Zone-Till	$217.03	14.2	8	$15.28	8	$116.67	8
CROP	Sugar Beets							
ID	Tillage	Total Cost	Tons/A	Rank	Cost/Ton	Rank	Profit/A	Rank
1410	Chisel	$440.84	21.6	2	$20.41	3	$447.36	1
1412	Zone-Till	$415.58	21.4	3	$19.42	1	$446.41	2
1411	Trans-Till	$425.09	21.8	1	$19.50	2	$422.50	3
1409	Plow	$428.20	19.1	4	$22.42	4	$362.54	4
1506	Mulch	$447.96	16.0	6	$28.00	5	$169.64	5
1505	Plow	$459.22	16.1	5	$28.52	6	$166.75	6
1508	Zone-Till	$449.81	15.6	7	$28.83	7	$161.09	7
1507	Trans-Till	$443.92	13.2	8	$33.63	8	$61.91	8

This worksheet prepared by Max v0.33 at 8:44:27 am on Thu 21-Nov-96

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631401	County:	Huron

FIELD INFORMATION

Prv crop: Sugar beets	Planted: 5/31/96	Harvest:	11/11/96
Prv till: Plow	Planter: JD 7000	Fld size:	8 acres
Cur crop: Corn	Rows: 30 inches	Yield:	156 Bu/A
Cur till: Plow	Residue:	Moisture:	26.1%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Kilmanagh	A	50	4.00	100.0
Shebeon	A	50	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Pioneer 3752	31000 Seeds	88.00/80K Bag	34.10 +
Fertilizer			
28-0-0	535 Pound	160.72/Ton	42.99
Total applied N-P-K costs			42.99 +
N applied + P and K removal costs			62.82
Pesticides			
Bladex 4L	1 Quart	26.75/Gallon	6.69
Dual 8E	1 Quart	65.76/Gallon	16.44
Total pesticide costs			23.13 +
Field operations			
Plow	1 Trip	10.26/Trip	10.26
Cultivate (field)	1 Trip	5.04/Trip	5.04
Plant corn (conventional)	1 Trip	9.95/Trip	9.95
Spray (spray coupe)	1 Trip	4.47/Trip	4.47
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Harvest corn	1 Trip	21.60/Trip	21.60
Apply fert while planting	1 Trip	1.20/Trip	1.20
Total field operation costs			57.74 +
Other inputs			
Other fertilizer			9.73 +

INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			73.13 +
Soil loss charge	4.00 Ton < T	No charge	0.00
Harvest hauling charge		0.06/Bushel	9.36 +
Drying from 26.1% to 15.5%	10.6 %	0.017/%/Bushel	28.11 +
Interest on $240.82 for 6 months		8.75%	10.54 +
TOTAL COSTS		1.85/Bushel	288.82 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	156.0 Bushel	2.50/Bushel	390.00 +
Using 5-year selling price	156.0 Bushel	2.27/Bushel	354.12
PROFIT (OR LOSS)			101.18

This worksheet prepared by Max v0.33 at 8:44:39 am on Thu 21-Nov-96

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631402	County:	Huron

FIELD INFORMATION

Prv crop:	Sugar beets	Planted:	5/31/96	Harvest:	11/11/96
Prv till:	Reduced till	Planter:	JD 7000	Fld size:	8 acres
Cur crop:	Corn	Rows:	30 inches	Yield:	148.2 Bu/A
Cur till:	Reduced till	Residue:		Moisture:	25.4%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Kilmanagh	A	50	4.00	100.0
Shebeon	A	50	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre	
Seed				
Pioneer 3752	31000 Seeds	88.00/80K Bag	34.10	+
Fertilizer				
28-0-0	535 Pound	160.72/Ton	42.99	
Total applied N-P-K costs			42.99	+
N applied + P and K removal costs			61.82	
Pesticides				
Bladex 4L	1 Quart	26.75/Gallon	6.69	
Dual 8E	1 Quart	65.76/Gallon	16.44	
Total pesticide costs			23.13	+
Field operations				
Chisel	1 Trip	9.19/Trip	9.19	
Cultivate (field)	1 Trip	5.04/Trip	5.04	
Plant corn (conventional)	1 Trip	9.95/Trip	9.95	
Spray (spray coupe)	1 Trip	4.47/Trip	4.47	
Cultivate (rows)	1 Trip	5.22/Trip	5.22	
Harvest corn	1 Trip	21.60/Trip	21.60	
Apply fert while planting	1 Trip	1.20/Trip	1.20	
Total field operation costs			56.67	+
Other inputs				
Other fertilizer			9.73	+

INDIRECT COSTS				
Actual land cash rent value			100.00	
Calculated land cash rent value			73.13	+
Soil loss charge	4.00 Ton < T	No charge	0.00	
Harvest hauling charge		0.06/Bushel	8.89	+
Drying from 25.4% to 15.5%	9.9 %	0.017/%/Bushel	24.94	+
Interest on $239.75 for 6 months		8.75%	10.49	+
TOTAL COSTS		1.92/Bushel	,284.07	=

INCOME	Yield/Acre	Unit price	Income/Acre	
Using current selling price	148.2 Bushel	2.50/Bushel	370.50	+
Using 5-year selling price	148.2 Bushel	2.27/Bushel	336.41	

PROFIT (OR LOSS) 86.43

This worksheet prepared by Max v0.33 at 8:46:12 am on Thu 21-Nov-96

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631403	County:	Huron

FIELD INFORMATION

Prv crop:	Sugar beets	Planted:	5/31/96	Harvest:	11/11/96
Prv till:	Strip till	Planter:	JD 7000	Fld size:	8 acres
Cur crop:	Corn	Rows:	30 inches	Yield:	153.9 Bu/A
Cur till:	Strip till	Residue:		Moisture:	25%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Kilmanagh	A	50	4.00	100.0
Shebeon	A	50	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Pioneer 3752	31000 Seeds	88.00/80K Bag	34.10 +
Fertilizer			
28-0-0	535 Pound	160.72/Ton	42.99
Total applied N-P-K costs			42.99 +
N applied + P and K removal costs			62.55
Pesticides			
Bladex 4L	1 Quart	26.75/Gallon	6.69
Dual 8E	1 Quart	65.76/Gallon	16.44
Total pesticide costs			23.13 +
Field operations			
Plant corn (conventional)	1 Trip	9.95/Trip	9.95
Spray (spray coupe)	1 Trip	4.47/Trip	4.47
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Harvest corn	1 Trip	21.60/Trip	21.60
Apply fert while planting	1 Trip	1.20/Trip	1.20
Total field operation costs			42.44 +
Other inputs			
Other operation			7.00 +
Other fertilizer			9.73 +

INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			73.13 +
Soil loss charge	4.00 Ton < T	No charge	0.00
Harvest hauling charge		0.06/Bushel	9.23 +
Drying from 25.0% to 15.5%	9.5 %	0.017/%/Bushel	24.85 +
Interest on $232.52 for 6 months		8.75%	10.17 +
TOTAL COSTS		1.80/Bushel	276.78 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	153.9 Bushel	2.50/Bushel	384.75 +
Using 5-year selling price	153.9 Bushel	2.27/Bushel	349.35
PROFIT (OR LOSS)			107.97

This worksheet prepared by Max v0.33 at 8:48:25 am on Thu 21-Nov-96

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631404	County:	Huron

FIELD INFORMATION

Prv crop:	Sugar beets	Planted:	5/31/96	Harvest:	11/11/96
Prv till:	No till	Planter:	JD 7000	Fld size:	8 acres
Cur crop:	Corn	Rows:	30 inches	Yield:	153.2 Bu/A
Cur till:	No till	Residue:		Moisture:	25.3%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Kilmanagh	A	50	4.00	100.0
Shebeon	A	50	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Pioneer 3752	31000 Seeds	88.00/80K Bag	34.10 +
Fertilizer			
28-0-0	535 Pound	160.72/Ton	42.99
28-0-0	143 Pound	160.72/Ton	11.49
Total applied N-P-K costs			54.48 +
N applied + P and K removal costs			73.95
Pesticides			
Bladex 4L	1 Quart	26.75/Gallon	6.69
Dual 8E	1 Quart	65.76/Gallon	16.44
Total pesticide costs			23.13 +
Field operations			
Plant corn (no-till)	1 Trip	12.49/Trip	12.49
Spray (spray coupe)	1 Trip	4.47/Trip	4.47
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Harvest corn	1 Trip	21.60/Trip	21.60
Apply fert while planting	1 Trip	1.20/Trip	1.20
Total field operation costs			44.98 +
Other inputs			
Other fertilizer			9.73 +
INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			73.13 +
Soil loss charge	4.00 Ton < T	No charge	0.00
Harvest hauling charge		0.06/Bushel	9.19 +
Drying from 25.3% to 15.5%	9.8 %	0.017/%/Bushel	25.52 +
Interest on $239.55 for 6 months		8.75%	10.48 +
TOTAL COSTS		1.86/Bushel	284.74 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	153.2 Bushel	2.50/Bushel	383.00 +
Using 5-year selling price	153.2 Bushel	2.27/Bushel	347.76
PROFIT (OR LOSS)			98.26

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631405	County:	Huron

FIELD INFORMATION

Prv crop: Corn	Planted: 6/29/96	Harvest:	10/5/96
Prv till: Plow	Planter: JD 7000	Fld size:	8 acres
Cur crop: Navy beans	Rows: 30 inches	Yield:	19.3 Cwt/A
Cur till: Plow	Residue: 10%	Moisture:	19.4%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Kilmanagh	A	80	4.00	100.0
Shebeon	A	20	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Newport	41 Pound	53.00/Cwt	21.73 +
Fertilizer			
28-0-0	143 Pound	160.72/Ton	11.49
Total applied N-P-K costs			11.49 +
N applied + P and K removal costs			19.98
Pesticides			
Treflan 4E	1 Pint	28.70/Gallon	3.59
Eptam	1.25 Quart	28.54/Gallon	8.92
Basagran	0.5 Pint	70.20/Gallon	4.39
Total pesticide costs			16.89 +
Field operations			
Plow	1 Trip	10.26/Trip	10.26
Cultivate (field)	2 Trip	5.04/Trip	10.08
Apply chem w/pre-plant tillage	1 Trip	1.20/Trip	1.20
Plant navy beans	1 Trip	9.75/Trip	9.75
Apply fert while planting	1 Trip	1.20/Trip	1.20
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Winrowing	1 Trip	5.87/Trip	5.87
Harvest navy beans	1 Trip	22.43/Trip	22.43
Total field operation costs			66.01 +
Other inputs			
Other operation			15.00 +

INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			74.25 +
Soil loss charge	0.90 Ton > T	5.00/Ton	4.50 +
Harvest hauling charge		0.33/Cwt	6.37 +
Drying from 19.4% to 18.0%	1.4 %	0.100/%/Cwt	2.70 +
Interest on $205.38 for 6 months		8.75%	8.99 +
TOTAL COSTS		11.81/Cwt	227.93 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	19.3 Cwt	23.50/Cwt	453.55 +
Using 5-year selling price	19.3 Cwt	19.50/Cwt	376.35
PROFIT (OR LOSS)			225.62

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631406	County:	Huron

FIELD INFORMATION

Prv crop:	Corn	Planted:	6/29/96	Harvest:	10/5/96
Prv till:	Reduced till	Planter:	JD 7000	Fld size:	8 acres
Cur crop:	Navy beans	Rows:	30 inches	Yield:	16.4 Cwt/A
Cur till:	Reduced till	Residue:	19%	Moisture:	21.2%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Kilmanagh	A	80	4.00	100.0
Shebeon	A	20	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Newport	41 Pound	53.00/Cwt	21.73 +
Fertilizer			
28-0-0	143 Pound	160.72/Ton	11.49
Total applied N-P-K costs			11.49 +
N applied + P and K removal costs			18.70
Pesticides			
Treflan 4E	1 Pint	28.70/Gallon	3.59
Eptam	1.25 Quart	28.54/Gallon	8.92
Basagran	0.5 Pint	70.20/Gallon	4.39
Total pesticide costs			16.89 +
Field operations			
Chisel	1 Trip	9.19/Trip	9.19
Cultivate (field)	2 Trip	5.04/Trip	10.08
Apply chem w/pre-plant tillage	1 Trip	1.20/Trip	1.20
Plant navy beans	1 Trip	9.75/Trip	9.75
Apply fert while planting	1 Trip	1.20/Trip	1.20
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Winrowing	1 Trip	5.87/Trip	5.87
Harvest navy beans	1 Trip	22.43/Trip	22.43
Total field operation costs			64.94 +
Other inputs			
Other operation			15.00 +
INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			74.25 +
Soil loss charge	2.30 Ton < T	No charge	0.00
Harvest hauling charge		0.33/Cwt	5.41 +
Drying from 21.2% to 18.0%	3.2 %	0.100/%/Cwt	5.25 +
Interest on $204.31 for 6 months		8.75%	8.94 +
TOTAL COSTS		13.65/Cwt	223.90 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	16.4 Cwt	23.50/Cwt	385.40 +
Using 5-year selling price	16.4 Cwt	19.50/Cwt	319.80
PROFIT (OR LOSS)			161.50

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631407	County:	Huron

FIELD INFORMATION

Prv crop: Corn	Planted: 6/28/96	Harvest:	10/5/96
Prv till: Strip till	Planter: JD 7000	Fld size:	8 acres
Cur crop: Navy beans	Rows: 30 inches	Yield:	17 Cwt/A
Cur till: Strip till	Residue: 24%	Moisture:	19.8%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Kilmanagh	A	80	4.00	100.0
Shebeon	A	20	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Newport	41 Pound	53.00/Cwt	21.73 +
Fertilizer			
28-0-0	143 Pound	160.72/Ton	11.49
Total applied N-P-K costs			11.49 +
N applied + P and K removal costs			18.96
Pesticides			
Treflan 4E	1 Pint	28.70/Gallon	3.59
Eptam	1.25 Quart	28.54/Gallon	8.92
Roundup	1 Quart	47.70/Gallon	11.93
Basagran	0.5 Pint	70.20/Gallon	4.39
Total pesticide costs			28.82 +
Field operations			
Spot spray (tractor)	1 Trip	3.97/Trip	3.97
Trans-till	1 Trip	7.00/Trip	7.00
Apply chemicals while planting	1 Trip	1.20/Trip	1.20
Plant navy beans	1 Trip	9.75/Trip	9.75
Apply fert while planting	1 Trip	1.20/Trip	1.20
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Winrowing	1 Trip	5.87/Trip	5.87
Harvest navy beans	1 Trip	22.43/Trip	22.43
Total field operation costs			56.64 +
Other inputs			
Other operation			15.00 +

INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			74.25 +
Soil loss charge	3.10 Ton < T	No charge	0.00
Harvest hauling charge		0.33/Cwt	5.61 +
Drying from 19.8% to 18.0%	1.8 %	0.100/%/Cwt	3.06 +
Interest on $207.93 for 6 months		8.75%	9.10 +
TOTAL COSTS		13.28/Cwt	225.70 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	17.0 Cwt	23.50/Cwt	399.50 +
Using 5-year selling price	17.0 Cwt	19.50/Cwt	331.50

PROFIT (OR LOSS) 173.80

This worksheet prepared by Max v0.33 at 9:19:13 am on Mon 25-Nov-96

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631408	County:	Huron

FIELD INFORMATION

Prv crop: Corn	Planted: 6/28/96	Harvest:	10/5/96
Prv till: No till	Planter: JD 7000	Fld size:	8 acres
Cur crop: Navy beans	Rows: 30 inches	Yield:	14.2 Cwt/A
Cur till: No till	Residue: 48%	Moisture:	19.8%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Kilmanagh	A	80	4.00	100.0
Shebeon	A	20	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Newport	41 Pound	53.00/Cwt	21.73 +
Fertilizer			
28-0-0	143 Pound	160.72/Ton	11.49
Total applied N-P-K costs			11.49 +
N applied + P and K removal costs			17.73
Pesticides			
Treflan 4E	1 Pint	28.70/Gallon	3.59
Eptam	1.25 Quart	28.54/Gallon	8.92
Roundup	1 Quart	47.70/Gallon	11.93
Basagran	0.5 Pint	70.20/Gallon	4.39
Total pesticide costs			28.82 +
Field operations			
Spray (tractor)	1 Trip	4.03/Trip	4.03
Apply chemicals while planting	1 Trip	1.20/Trip	1.20
Plant navy beans	1 Trip	9.75/Trip	9.75
Apply fert while planting	1 Trip	1.20/Trip	1.20
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Winrowing	1 Trip	5.87/Trip	5.87
Harvest navy beans	1 Trip	22.43/Trip	22.43
Total field operation costs			49.70 +
Other inputs			
Other operation			15.00 +

INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			74.25 +
Soil loss charge	3.50 Ton < T	No charge	0.00
Harvest hauling charge		0.33/Cwt	4.69 +
Drying from 19.8% to 18.0%	1.8 %	0.100/%/Cwt	2.56 +
Interest on $200.99 for 6 months		8.75%	8.79 +
TOTAL COSTS		15.28/Cwt	217.03 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	14.2 Cwt	23.50/Cwt	333.70 +
Using 5-year selling price	14.2 Cwt	19.50/Cwt	276.90
PROFIT (OR LOSS)			116.67

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631409	County:	Huron

FIELD INFORMATION

Prv crop: Navy beans	Planted: 5/17/96	Harvest:	11/4/96
Prv till: Plow	Planter: JD 7000	Fld size:	8 acres
Cur crop: Sugar beets	Rows: 30 inches	Yield:	19.1 Ton/A
Cur till: Plow	Residue:	Sugar:	18.2%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Kilmanagh	A	50	4.00	100.0
Shebeon	A	50	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Mono-Hy E-17	1.25 Pound	22.91/Pound	28.64 +
Fertilizer			
28-0-0	179 Pound	160.72/Ton	14.38
28-0-0	161 Pound	160.72/Ton	12.94
Total applied N-P-K costs			27.32 +
N applied + P and K removal costs			39.86
Pesticides			
Pyramin	2.8 Pint	87.30/Gallon	30.55
Betamix	1 Pint	93.24/Gallon	11.65
H-273	0.3 Pint	36.60/Gallon	1.37
Total pesticide costs			43.58 +
Field operations			
Plow	1 Trip	10.26/Trip	10.26
Cultivate (field)	2 Trip	5.04/Trip	10.08
Plant sugar beets	1 Trip	12.42/Trip	12.42
Apply chemicals while planting	1 Trip	1.20/Trip	1.20
Apply fert while planting	1 Trip	1.20/Trip	1.20
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Apply fert while cultivating	1 Trip	1.20/Trip	1.20
Harvest sugar beets	1 Trip	59.80/Trip	59.80
Total field operation costs			106.60 +
Other inputs			
Other pest control			20.00 +
Other fertilizer			10.34 +
INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			73.13 +
Soil loss charge	4.00 Ton < T	No charge	0.00
Harvest hauling charge		5.50/Ton	105.05 +
Interest on $309.61 for 6 months		8.75%	13.55 +
TOTAL COSTS		22.42/Ton	428.20 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	19.1 Ton	40.00/Ton	764.00 +
Sugar premium @ current price		1.40/Ton	26.74 +
Using 5-year selling price	19.1 Ton	39.23/Ton	749.29
Sugar premium @ 5-year price		1.37/Ton	26.17
PROFIT (OR LOSS)			362.54

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631410	County:	Huron

FIELD INFORMATION

Prv crop:	Navy beans	Planted:	5/17/96	Harvest:	11/4/96
Prv till:	Reduced till	Planter:	JD 7000	Fld size:	8 acres
Cur crop:	Sugar beets	Rows:	30 inches	Yield:	21.6 Ton/A
Cur till:	Reduced till	Residue:		Sugar:	18.1%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Kilmanagh	A	50	4.00	100.0
Shebeon	A	50	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Mono-Hy E-17	1.25 Pound	22.91/Pound	28.64 +
Fertilizer			
28-0-0	179 Pound	160.72/Ton	14.38
28-0-0	161 Pound	160.72/Ton	12.94
Total applied N-P-K costs			27.32 +
N applied + P and K removal costs			41.50
Pesticides			
Pyramin	2.8 Pint	87.30/Gallon	30.55
Betamix	1 Pint	93.24/Gallon	11.65
H-273	0.3 Pint	36.60/Gallon	1.37
Total pesticide costs			43.58 +
Field operations			
Chisel	1 Trip	9.19/Trip	9.19
Cultivate (field)	2 Trip	5.04/Trip	10.08
Plant sugar beets	1 Trip	12.42/Trip	12.42
Apply chemicals while planting	1 Trip	1.20/Trip	1.20
Apply fert while planting	1 Trip	1.20/Trip	1.20
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Apply fert while cultivating	1 Trip	1.20/Trip	1.20
Harvest sugar beets	1 Trip	59.80/Trip	59.80
Total field operation costs			105.53 +
Other inputs			
Other pest control			20.00 +
Other fertilizer			10.34 +

INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			73.13 +
Soil loss charge	4.00 Ton < T	No charge	0.00
Harvest hauling charge		5.50/Ton	118.80 +
Interest on $308.54 for 6 months		8.75%	13.50 +
TOTAL COSTS		20.41/Ton	440.84 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	21.6 Ton	40.00/Ton	864.00 +
Sugar premium @ current price		1.12/Ton	24.19 +
Using 5-year selling price	21.6 Ton	39.23/Ton	847.37
Sugar premium @ 5-year price		1.10/Ton	23.76
PROFIT (OR LOSS)			447.36

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631411	County:	Huron

FIELD INFORMATION

Prv crop: Navy beans	Planted: 5/8/96	Harvest:	11/4/96
Prv till: Strip till	Planter: JD 7000	Fld size:	8 acres
Cur crop: Sugar beets	Rows: 30 inches	Yield:	21.8 Ton/A
Cur till: Strip till	Residue:	Sugar:	17.3%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Kilmanagh	A	50	4.00	100.0
Shebeon	A	50	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Mono-Hy E-17	1.25 Pound	22.91/Pound	28.64 +
Fertilizer			
28-0-0	143 Pound	160.72/Ton	11.49
28-0-0	161 Pound	160.72/Ton	12.94
Total applied N-P-K costs			24.43 +
N applied + P and K removal costs			38.74
Pesticides			
Ro-Neet	1.7 Pint	54.50/Gallon	11.58
Betamix	1 Pint	93.24/Gallon	11.65
H-273	0.3 Pint	36.60/Gallon	1.37
Roundup	1 Pint	47.70/Gallon	5.96
Total pesticide costs			30.57 +
Field operations			
Spray (tractor)	1 Trip	4.03/Trip	4.03
Trans-till	1 Trip	7.00/Trip	7.00
Plant sugar beets	1 Trip	12.42/Trip	12.42
Apply chemicals while planting	1 Trip	1.20/Trip	1.20
Apply fert while planting	1 Trip	1.20/Trip	1.20
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Apply fert while cultivating	1 Trip	1.20/Trip	1.20
Harvest sugar beets	1 Trip	59.80/Trip	59.80
Total field operation costs			97.29 +
Other inputs			
Other pest control			20.00 +
Cover crop			8.00 +
Other fertilizer			10.34 +
INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			73.13 +
Soil loss charge	4.00 Ton < T	No charge	0.00
Harvest hauling charge		5.50/Ton	119.90 +
Interest on $292.39 for 6 months		8.75%	12.79 +
TOTAL COSTS		19.50/Ton	425.09 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	21.8 Ton	40.00/Ton	872.00 +
Sugar deduction @ current price		-1.12/Ton	-24.42 +
Using 5-year selling price	21.8 Ton	39.23/Ton	855.21
Sugar deduction @ 5-year price		-1.10/Ton	-23.98
PROFIT (OR LOSS)			422.50

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631412	County:	Huron

FIELD INFORMATION

Prv crop:	Navy beans	Planted:	5/8/96	Harvest:	11/4/96
Prv till:	No till	Planter:	JD 7000	Fld size:	8 acres
Cur crop:	Sugar beets	Rows:	30 inches	Yield:	21.4 Ton/A
Cur till:	No till	Residue:		Sugar:	17.8%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Kilmanagh	A	50	4.00	100.0
Shebeon	A	50	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre	
Seed				
Mono-Hy E-17	1.25 Pound	22.91/Pound	28.64	+
Fertilizer				
28-0-0	143 Pound	160.72/Ton	11.49	
28-0-0	161 Pound	160.72/Ton	12.94	
Total applied N-P-K costs			24.43	+
N applied + P and K removal costs			38.48	
Pesticides				
Ro-Neet	1.7 Pint	54.50/Gallon	11.58	
Betamix	1 Pint	93.24/Gallon	11.65	
H-273	0.3 Pint	36.60/Gallon	1.37	
Roundup	1 Pint	47.70/Gallon	5.96	
Total pesticide costs			30.57	+
Field operations				
Spray (tractor)	1 Trip	4.03/Trip	4.03	
Plant sugar beets	1 Trip	12.42/Trip	12.42	
Apply chemicals while planting	1 Trip	1.20/Trip	1.20	
Apply fert while planting	1 Trip	1.20/Trip	1.20	
Cultivate (rows)	1 Trip	5.22/Trip	5.22	
Cultivate (rows)	1 Trip	5.22/Trip	5.22	
Apply fert while cultivating	1 Trip	1.20/Trip	1.20	
Harvest sugar beets	1 Trip	59.80/Trip	59.80	
Total field operation costs			90.29	+
Other inputs				
Other pest control			20.00	+
Other fertilizer			10.34	+
Cover crop			8.00	+
INDIRECT COSTS				
Actual land cash rent value			100.00	
Calculated land cash rent value			73.13	+
Soil loss charge	4.00 Ton < T	No charge	0.00	
Harvest hauling charge		5.50/Ton	117.70	+
Interest on $285.39 for 6 months		8.75%	12.49	+
TOTAL COSTS		19.42/Ton	415.58	=

INCOME	Yield/Acre	Unit price	Income/Acre	
Using current selling price	21.4 Ton	40.00/Ton	856.00	+
Sugar premium @ current price		0.28/Ton	5.99	+
Using 5-year selling price	21.4 Ton	39.23/Ton	839.52	
Sugar premium @ 5-year price		0.27/Ton	5.78	
PROFIT (OR LOSS)			446.41	

This worksheet prepared by Max v0.33 at 9:54:09 am on Thu 21-Nov-96

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631501	County:	Huron

FIELD INFORMATION

Prv crop: Sugar beets	Planted: 5/18/96	Harvest:	11/19/96
Prv till: Plow	Planter: JD 7000	Fld size:	6 acres
Cur crop: Corn	Rows: 30 inches	Yield:	124.7 Bu/A
Cur till: Plow	Residue:	Moisture:	24.4%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Shebeon	A	100	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
DeKalb 471	31000 Seeds	88.00/80K Bag	34.10 +
Fertilizer			
0-0-60	100 Pound	138.00/Ton	6.90
28-0-0	179 Pound	160.72/Ton	14.38
28-0-0	350 Pound	160.72/Ton	28.13
Total applied N-P-K costs			49.41 +
N applied + P and K removal costs			58.36
Pesticides			
Bladex 90DF	1.9 Pound	5.69/Pound	10.81
Total pesticide costs			10.81 +
Field operations			
Plow	1 Trip	10.26/Trip	10.26
Spread fertilizer (tractor)	1 Trip	3.46/Trip	3.46
Cultivate (field)	1 Trip	5.04/Trip	5.04
Plant corn (conventional)	1 Trip	9.95/Trip	9.95
Apply fert while planting	1 Trip	1.20/Trip	1.20
Spray (tractor)	1 Trip	4.03/Trip	4.03
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Apply fert while cultivating	1 Trip	1.20/Trip	1.20
Harvest corn	1 Trip	21.60/Trip	21.60
Total field operation costs			61.96 +
Other inputs			
Other fertilizer			9.73 +

INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			71.25 +
Soil loss charge	4.00 Ton < T	No charge	0.00
Harvest hauling charge		0.06/Bushel	7.48 +
Drying from 24.4% to 15.5%	8.9 %	0.017/%/Bushel	18.87 +
Interest on $237.26 for 6 months		8.75%	10.38 +
TOTAL COSTS		2.20/Bushel	273.99 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	124.7 Bushel	2.50/Bushel	311.75 +
Using 5-year selling price	124.7 Bushel	2.27/Bushel	283.07
PROFIT (OR LOSS)			37.76

This worksheet prepared by Max v0.33 at 9:54:21 am on Thu 21-Nov-96

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631502	County:	Huron

FIELD INFORMATION

Prv crop: Sugar beets	Planted: 5/18/96	Harvest:	11/19/96
Prv till: Mulch till	Planter: JD 7000	Fld size:	6 acres
Cur crop: Corn	Rows: 30 inches	Yield:	132.2 Bu/A
Cur till: Mulch till	Residue:	Moisture:	23.9%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Shebeon	A	100	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
DeKalb 471	31000 Seeds	88.00/80K Bag	34.10 +
Fertilizer			
0-0-60	100 Pound	138.00/Ton	6.90
28-0-0	179 Pound	160.72/Ton	14.38
28-0-0	350 Pound	160.72/Ton	28.13
Total applied N-P-K costs			49.41 +
N applied + P and K removal costs			59.31
Pesticides			
Bladex 90DF	1.9 Pound	5.69/Pound	10.81
Total pesticide costs			10.81 +
Field operations			
Spread fertilizer (tractor)	1 Trip	3.46/Trip	3.46
Cultivate (field)	2 Trip	5.04/Trip	10.08
Plant corn (conventional)	1 Trip	9.95/Trip	9.95
Apply fert while planting	1 Trip	1.20/Trip	1.20
Spray (tractor)	1 Trip	4.03/Trip	4.03
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Apply fert while cultivating	1 Trip	1.20/Trip	1.20
Harvest corn	1 Trip	21.60/Trip	21.60
Total field operation costs			56.74 +
Other inputs			
Other fertilizer			9.73 +
INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			71.25 +
Soil loss charge	4.00 Ton < T	No charge	0.00
Harvest hauling charge		0.06/Bushel	7.93 +
Drying from 23.9% to 15.5%	8.4 %	0.017/%/Bushel	18.88 +
Interest on $232.04 for 6 months		8.75%	10.15 +
TOTAL COSTS		2.03/Bushel	269.00 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	132.2 Bushel	2.50/Bushel	330.50 +
Using 5-year selling price	132.2 Bushel	2.27/Bushel	300.09
PROFIT (OR LOSS)			61.50

This worksheet prepared by Max v0.33 at 9:56:01 am on Thu 21-Nov-96

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631503	County:	Huron

FIELD INFORMATION

Prv crop: Sugar beets	Planted: 5/18/96	Harvest:	11/19/96
Prv till: Strip till	Planter: JD 7000	Fld size:	6 acres
Cur crop: Corn	Rows: 30 inches	Yield:	121.1 Bu/A
Cur till: Strip till	Residue:	Moisture:	24.8%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Shebeon	A	100	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
DeKalb 471	31000 Seeds	88.00/80K Bag	34.10 +
Fertilizer			
0-0-60	100 Pound	138.00/Ton	6.90
28-0-0	357 Pound	160.72/Ton	28.69
28-0-0	136 Pound	160.72/Ton	10.93
Total applied N-P-K costs			46.52 +
N applied + P and K removal costs			55.01
Pesticides			
Bladex 90DF	1.9 Pound	5.69/Pound	10.81
2,4-D amine	0.5 Pint	64.70/Gallon	4.04
Total pesticide costs			14.85 +
Field operations			
Spray (tractor)	1 Trip	4.03/Trip	4.03
Spread fertilizer (tractor)	1 Trip	3.46/Trip	3.46
Plant corn (no-till)	1 Trip	12.49/Trip	12.49
Apply fert while planting	1 Trip	1.20/Trip	1.20
Spray (tractor)	1 Trip	4.03/Trip	4.03
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Apply fert while cultivating	1 Trip	1.20/Trip	1.20
Harvest corn	1 Trip	21.60/Trip	21.60
Total field operation costs			53.23 +
Other inputs			
Other operation			7.00 +
Other fertilizer			9.73 +

INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			71.25 +
Soil loss charge	4.00 Ton < T	No charge	0.00
Harvest hauling charge		0.06/Bushel	7.27 +
Drying from 24.8% to 15.5%	9.3 %	0.017/%/Bushel	19.15 +
Interest on $236.68 for 6 months		8.75%	10.35 +
TOTAL COSTS		2.26/Bushel	273.45 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	121.1 Bushel	2.50/Bushel	302.75 +
Using 5-year selling price	121.1 Bushel	2.27/Bushel	274.90
PROFIT (OR LOSS)			29.30

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631504	County:	Huron

FIELD INFORMATION

Prv crop: Sugar beets	Planted: 5/18/96	Harvest:	11/19/96
Prv till: No till	Planter: JD 7000	Fld size:	6 acres
Cur crop: Corn	Rows: 30 inches	Yield:	137 Bu/A
Cur till: No till	Residue:	Moisture:	23.8%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Shebeon	A	100	4.00	95.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
DeKalb 471	31000 Seeds	88.00/80K Bag	34.10 +
Fertilizer			
0-0-60	100 Pound	138.00/Ton	6.90
28-0-0	164 Pound	160.72/Ton	13.18
28-0-0	350 Pound	160.72/Ton	28.13
Total applied N-P-K costs			48.21 +
N applied + P and K removal costs			58.71
Pesticides			
Bladex 90DF	1.9 Pound	5.69/Pound	10.81
2,4-D amine	0.5 Pint	64.70/Gallon	4.04
Total pesticide costs			14.85 +
Field operations			
Spray (tractor)	1 Trip	4.03/Trip	4.03
Spread fertilizer (tractor)	1 Trip	3.46/Trip	3.46
Plant corn (no-till)	1 Trip	12.49/Trip	12.49
Apply fert while planting	1 Trip	1.20/Trip	1.20
Spray (tractor)	1 Trip	4.03/Trip	4.03
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Apply fert while cultivating	1 Trip	1.20/Trip	1.20
Harvest corn	1 Trip	21.60/Trip	21.60
Total field operation costs			53.23 +
Other inputs			
Other operation			7.00 +
Other fertilizer			9.73 +

INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			71.25 +
Soil loss charge	4.00 Ton < T	No charge	0.00
Harvest hauling charge		0.06/Bushel	8.22 +
Drying from 23.8% to 15.5%	8.3 %	0.017/%/Bushel	19.33 +
Interest on $238.37 for 6 months		8.75%	10.43 +
TOTAL COSTS		2.02/Bushel	276.35 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	137.0 Bushel	2.50/Bushel	342.50 +
Using 5-year selling price	137.0 Bushel	2.27/Bushel	310.99
PROFIT (OR LOSS)			66.15

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631505	County:	Huron

FIELD INFORMATION

Prv crop: Wheat	Planted: 5/17/96	Harvest:	10/17/96
Prv till: Plow	Planter: JD 7000	Fld size:	6 acres
Cur crop: Sugar beets	Rows: 30 inches	Yield:	16.1 Ton/A
Cur till: Plow	Residue:	Sugar:	17.3%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Shebeon	A	75	4.00	95.0
Kilmanagh	A	25	4.00	100.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Beta 5931	1.25 Pound	22.91/Pound	28.64 +
Fertilizer			
0-0-60	100 Pound	138.00/Ton	6.90
28-0-0	179 Pound	160.72/Ton	14.38
28-0-0	157 Pound	160.72/Ton	12.62
Total applied N-P-K costs			33.90 +
N applied + P and K removal costs			37.57
Pesticides			
Pyramin	2.8 Pint	87.30/Gallon	30.55
Betamix	1 Pint	93.24/Gallon	11.65
H-273	0.3 Pint	36.60/Gallon	1.37
Total pesticide costs			43.58 +
Field operations			
Plow	1 Trip	10.26/Trip	10.26
Cultivate (field)	2 Trip	5.04/Trip	10.08
Spread fertilizer (tractor)	1 Trip	3.46/Trip	3.46
Plant sugar beets	1 Trip	12.42/Trip	12.42
Band apply chem while planting	1 Trip	1.20/Trip	1.20
Apply fert while planting	1 Trip	1.20/Trip	1.20
Apply chem while cultivating	1 Trip	1.20/Trip	1.20
Cultivate (rows)	3 Trip	5.22/Trip	15.66
Apply fert while cultivating	1 Trip	1.20/Trip	1.20
Harvest sugar beets	1 Trip	59.80/Trip	59.80
Total field operation costs			116.48 +
Other inputs			
Other fertilizer			10.34 +
Other herbicide			50.00 +

INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			72.19 +
Soil loss charge	4.00 Ton < T	No charge	0.00
Harvest hauling charge		5.50/Ton	88.55 +
Interest on $355.13 for 6 months		8.75%	15.54 +
TOTAL COSTS		28.52/Ton	459.22 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	16.1 Ton	40.00/Ton	644.00 +
Sugar deduction @ current price		-1.12/Ton	-18.03 +
Using 5-year selling price	16.1 Ton	39.23/Ton	631.60
Sugar deduction @ 5-year price		-1.10/Ton	-17.71
PROFIT (OR LOSS)			166.75

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631506	County:	Huron

FIELD INFORMATION

Prv crop: Wheat	Planted: 5/17/96	Harvest:	10/17/96
Prv till: Mulch till	Planter: JD 7000	Fld size:	6 acres
Cur crop: Sugar beets	Rows: 30 inches	Yield:	16 Ton/A
Cur till: Mulch till	Residue:	Sugar:	17.2%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Shebeon	A	75	4.00	95.0
Kilmanagh	A	25	4.00	100.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Beta 5931	1.25 Pound	22.91/Pound	28.64 +
Fertilizer			
0-0-60	100 Pound	138.00/Ton	6.90
28-0-0	179 Pound	160.72/Ton	14.38
28-0-0	157 Pound	160.72/Ton	12.62
Total applied N-P-K costs			33.90 +
N applied + P and K removal costs			37.50
Pesticides			
Pyramin	2.8 Pint	87.30/Gallon	30.55
Betamix	1 Pint	93.24/Gallon	11.65
H-273	0.3 Pint	36.60/Gallon	1.37
Total pesticide costs			43.58 +
Field operations			
Cultivate (field)	2 Trip	5.04/Trip	10.08
Spread fertilizer (tractor)	1 Trip	3.46/Trip	3.46
Plant sugar beets	1 Trip	12.42/Trip	12.42
Band apply chem while planting	1 Trip	1.20/Trip	1.20
Apply fert while planting	1 Trip	1.20/Trip	1.20
Apply chem while cultivating	1 Trip	1.20/Trip	1.20
Cultivate (rows)	3 Trip	5.22/Trip	15.66
Apply fert while cultivating	1 Trip	1.20/Trip	1.20
Harvest sugar beets	1 Trip	59.80/Trip	59.80
Total field operation costs			106.22 +
Other inputs			
Other fertilizer			10.34 +
Other herbicide			50.00 +

INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			72.19 +
Soil loss charge	4.00 Ton < T	No charge	0.00
Harvest hauling charge		5.50/Ton	88.00 +
Interest on $344.87 for 6 months		8.75%	15.09 +
TOTAL COSTS		28.00/Ton	447.96 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	16.0 Ton	40.00/Ton	640.00 +
Sugar deduction @ current price		-1.40/Ton	-22.40 +
Using 5-year selling price	16.0 Ton	39.23/Ton	627.68
Sugar deduction @ 5-year price		-1.37/Ton	-21.92
PROFIT (OR LOSS)			169.64

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631507	County:	Huron

FIELD INFORMATION

Prv crop: Wheat	Planted: 5/17/96	Harvest:	10/17/96
Prv till: Strip till	Planter: JD 7000	Fld size:	6 acres
Cur crop: Sugar beets	Rows: 30 inches	Yield:	13.2 Ton/A
Cur till: Strip till	Residue:	Sugar:	17.1%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Shebeon	A	75	4.00	95.0
Kilmanagh	A	25	4.00	100.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Beta 5931	1.25 Pound	22.91/Pound	28.64 +
Fertilizer			
0-0-60	100 Pound	138.00/Ton	6.90
28-0-0	179 Pound	160.72/Ton	14.38
28-0-0	157 Pound	160.72/Ton	12.62
Total applied N-P-K costs			33.90 +
N applied + P and K removal costs			35.67
Pesticides			
Pyramin	2.8 Pint	87.30/Gallon	30.55
Betamix	1 Pint	93.24/Gallon	11.65
H-273	0.3 Pint	36.60/Gallon	1.37
Roundup	1 Pint	47.70/Gallon	5.96
Total pesticide costs			49.55 +
Field operations			
Trans-till	1 Trip	7.00/Trip	7.00
Spread fertilizer (tractor)	1 Trip	3.46/Trip	3.46
Plant sugar beets	1 Trip	12.42/Trip	12.42
Band apply chem while planting	1 Trip	1.20/Trip	1.20
Apply fert while planting	1 Trip	1.20/Trip	1.20
Apply chem while cultivating	1 Trip	1.20/Trip	1.20
Cultivate (rows)	3 Trip	5.22/Trip	15.66
Apply fert while cultivating	1 Trip	1.20/Trip	1.20
Harvest sugar beets	1 Trip	59.80/Trip	59.80
Total field operation costs			103.14 +
Other inputs			
Other fertilizer			10.34 +
Cover crop			8.00 +
Other herbicide			50.00 +
INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			72.19 +
Soil loss charge	4.00 Ton < T	No charge	0.00
Harvest hauling charge		5.50/Ton	72.60 +
Interest on $355.75 for 6 months		8.75%	15.56 +
TOTAL COSTS		33.63/Ton	443.92 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	13.2 Ton	40.00/Ton	528.00 +
Sugar deduction @ current price		-1.68/Ton	-22.18 +
Using 5-year selling price	13.2 Ton	39.23/Ton	517.84
Sugar deduction @ 5-year price		-1.65/Ton	-21.78

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631508	County:	Huron

FIELD INFORMATION

Prv crop: Wheat	Planted: 5/17/96	Harvest:	10/17/96
Prv till: No till	Planter: JD 7000	Fld size:	6 acres
Cur crop: Sugar beets	Rows: 30 inches	Yield:	15.6 Ton/A
Cur till: No till	Residue:	Sugar:	17.4%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Shebeon	A	75	4.00	95.0
Kilmanagh	A	25	4.00	100.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Beta 5931	1.25 Pound	22.91/Pound	28.64 +
Fertilizer			
0-0-60	100 Pound	138.00/Ton	6.90
28-0-0	179 Pound	160.72/Ton	14.38
28-0-0	157 Pound	160.72/Ton	12.62
Total applied N-P-K costs			33.90 +
N applied + P and K removal costs			37.24
Pesticides			
Pyramin	2.8 Pint	87.30/Gallon	30.55
Betamix	1 Pint	93.24/Gallon	11.65
H-273	0.3 Pint	36.60/Gallon	1.37
Roundup	1 Pint	47.70/Gallon	5.96
Total pesticide costs			49.55 +
Field operations			
Spread fertilizer (tractor)	1 Trip	3.46/Trip	3.46
Plant sugar beets	1 Trip	12.42/Trip	12.42
Band apply chem while planting	1 Trip	1.20/Trip	1.20
Apply fert while planting	1 Trip	1.20/Trip	1.20
Apply chem while cultivating	1 Trip	1.20/Trip	1.20
Cultivate (rows)	3 Trip	5.22/Trip	15.66
Apply fert while cultivating	1 Trip	1.20/Trip	1.20
Harvest sugar beets	1 Trip	59.80/Trip	59.80
Total field operation costs			96.14 +
Other inputs			
Other fertilizer			10.34 +
Cover crop			8.00 +
Other herbicide			50.00 +
INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			72.19 +
Soil loss charge	4.00 Ton < T	No charge	0.00
Harvest hauling charge		5.50/Ton	85.80 +
Interest on $348.75 for 6 months		8.75%	15.26 +
TOTAL COSTS		28.83/Ton	449.81 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	15.6 Ton	40.00/Ton	624.00 +
Sugar deduction @ current price		-0.84/Ton	-13.10 +
Using 5-year selling price	15.6 Ton	39.23/Ton	611.99
Sugar deduction @ 5-year price		-0.82/Ton	-12.79
PROFIT (OR LOSS)			161.09

This worksheet prepared by Max v0.33 at 10:10:48 am on Thu 21-Nov-96

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631509	County:	Huron

FIELD INFORMATION

Prv crop: Corn	Planted: 6/28/96	Harvest:	10/12/96
Prv till: Plow	Planter: JD 7000	Fld size:	6 acres
Cur crop: Navy beans	Rows: 30 inches	Yield:	14.3 Cwt/A
Cur till: Plow	Residue: 6%	Moisture:	20.8%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Shebeon	A	95	4.00	95.0
Kilmanagh	A	5	4.00	100.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Newport	41 Pound	53.00/Cwt	21.73 +
Fertilizer			
28-0-0	143 Pound	160.72/Ton	11.49
Total applied N-P-K costs			11.49 +
N applied + P and K removal costs			17.78
Pesticides			
Eptam	1.25 Quart	28.54/Gallon	8.92
Treflan 4E	1 Pint	28.70/Gallon	3.59
Total pesticide costs			12.51 +
Field operations			
Plow	1 Trip	10.26/Trip	10.26
Cultivate (field)	2 Trip	5.04/Trip	10.08
Plant navy beans	1 Trip	9.75/Trip	9.75
Apply fert while planting	1 Trip	1.20/Trip	1.20
Apply chem w/pre-plant tillage	1 Trip	1.20/Trip	1.20
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Winrowing	1 Trip	5.87/Trip	5.87
Harvest navy beans	1 Trip	22.43/Trip	22.43
Total field operation costs			66.01 +

INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			71.44 +
Soil loss charge	0.60 Ton > T	5.00/Ton	3.00 +
Harvest hauling charge		0.33/Cwt	4.72 +
Drying from 20.8% to 18.0%	2.8 %	0.100/%/Cwt	4.00 +
Interest on $183.18 for 6 months		8.75%	8.01 +
TOTAL COSTS		14.19/Cwt	202.91 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	14.3 Cwt	23.50/Cwt	336.05 +
Using 5-year selling price	14.3 Cwt	19.50/Cwt	278.85
PROFIT (OR LOSS)			133.14

This worksheet prepared by Max v0.33 at 10:12:55 am on Thu 21-Nov-96

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631510	County:	Huron

FIELD INFORMATION

Prv crop:	Corn	Planted:	6/28/96	Harvest:	10/12/96
Prv till:	Mulch till	Planter:	JD 7000	Fld size:	6 acres
Cur crop:	Navy beans	Rows:	30 inches	Yield:	19.5 Cwt/A
Cur till:	Mulch till	Residue:	28%	Moisture:	20.7%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Shebeon	A	95	4.00	95.0
Kilmanagh	A	5	4.00	100.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Newport	41 Pound	53.00/Cwt	21.73 +
Fertilizer			
28-0-0	143 Pound	160.72/Ton	11.49
Total applied N-P-K costs			11.49 +
N applied + P and K removal costs			20.06
Pesticides			
Eptam	1.25 Quart	28.54/Gallon	8.92
Treflan 4E	1 Pint	28.70/Gallon	3.59
Total pesticide costs			12.51 +
Field operations			
Cultivate (field)	2 Trip	5.04/Trip	10.08
Plant navy beans	1 Trip	9.75/Trip	9.75
Apply fert while planting	1 Trip	1.20/Trip	1.20
Apply chem w/pre-plant tillage	1 Trip	1.20/Trip	1.20
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Winrowing	1 Trip	5.87/Trip	5.87
Harvest navy beans	1 Trip	22.43/Trip	22.43
Total field operation costs			55.75 +

INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			71.44 +
Soil loss charge	0.60 Ton > T	5.00/Ton	3.00 +
Harvest hauling charge		0.33/Cwt	6.43 +
Drying from 20.7% to 18.0%	2.7 %	0.100/%/Cwt	5.27 +
Interest on $172.92 for 6 months		8.75%	7.57 +
TOTAL COSTS		10.01/Cwt	195.18 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	19.5 Cwt	23.50/Cwt	458.25 +
Using 5-year selling price	19.5 Cwt	19.50/Cwt	380.25
PROFIT (OR LOSS)			263.07

This worksheet prepared by Max v0.33 at 10:15:00 am on Thu 21-Nov-96

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631511	County:	Huron

FIELD INFORMATION

Prv crop: Corn	Planted: 6/28/96	Harvest:	10/12/96
Prv till: Strip till	Planter: JD 7000	Fld size:	6 acres
Cur crop: Navy beans	Rows: 30 inches	Yield:	17.2 Cwt/A
Cur till: Strip till	Residue: 38%	Moisture:	21%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Shebeon	A	95	4.00	95.0
Kilmanagh	A	5	4.00	100.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Newport	41 Pound	53.00/Cwt	21.73 +
Fertilizer			
28-0-0	143 Pound	160.72/Ton	11.49
Total applied N-P-K costs			11.49 +
N applied + P and K removal costs			19.05
Pesticides			
Eptam	1.25 Quart	28.54/Gallon	8.92
Treflan 4E	1 Pint	28.70/Gallon	3.59
Roundup	1 Quart	47.70/Gallon	11.93
Total pesticide costs			24.43 +
Field operations			
Trans-till	1 Trip	7.00/Trip	7.00
Plant navy beans	1 Trip	9.75/Trip	9.75
Apply fert while planting	1 Trip	1.20/Trip	1.20
Apply chem w/pre-plant tillage	1 Trip	1.20/Trip	1.20
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Winrowing	1 Trip	5.87/Trip	5.87
Harvest navy beans	1 Trip	22.43/Trip	22.43
Total field operation costs			52.67 +

INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			71.44 +
Soil loss charge	0.60 Ton > T	5.00/Ton	3.00 +
Harvest hauling charge		0.33/Cwt	5.68 +
Drying from 21.0% to 18.0%	3.0 %	0.100/%/Cwt	5.16 +
Interest on $181.76 for 6 months		8.75%	7.95 +
TOTAL COSTS		11.83/Cwt	203.55 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	17.2 Cwt	23.50/Cwt	404.20 +
Using 5-year selling price	17.2 Cwt	19.50/Cwt	335.40
PROFIT (OR LOSS)			200.65

This worksheet prepared by Max v0.33 at 10:17:05 am on Thu 21-Nov-96

PARTICIPANT INFORMATION

Project title:	Innovative Farmer Plots		
Project file:	IF96.MDA	Year:	1996
Cost file:	HURON CO.MCC	State:	Michigan
Participant ID:	260631512	County:	Huron

FIELD INFORMATION

Prv crop: Corn	Planted: 6/28/96	Harvest:	10/12/96
Prv till: No till	Planter: JD 7000	Fld size:	6 acres
Cur crop: Navy beans	Rows: 30 inches	Yield:	18.9 Cwt/A
Cur till: No till	Residue: 46%	Moisture:	21%

SOILS INFORMATION

Soil name	Slope	Field %	T loss (T/A/Yr)	Productivity rating
Shebeon	A	95	4.00	95.0
Kilmanagh	A	5	4.00	100.0

DIRECT CROP INPUTS	Rate/Acre	Unit cost	Cost/Acre
Seed			
Newport	41 Pound	53.00/Cwt	21.73 +
Fertilizer			
28-0-0	143 Pound	160.72/Ton	11.49
Total applied N-P-K costs			11.49 +
N applied + P and K removal costs			19.80
Pesticides			
Eptam	1.25 Quart	28.54/Gallon	8.92
Treflan 4E	1 Pint	28.70/Gallon	3.59
Roundup	1 Quart	47.70/Gallon	11.93
Total pesticide costs			24.43 +
Field operations			
Plant navy beans	1 Trip	9.75/Trip	9.75
Apply fert while planting	1 Trip	1.20/Trip	1.20
Apply chem w/pre-plant tillage	1 Trip	1.20/Trip	1.20
Cultivate (rows)	1 Trip	5.22/Trip	5.22
Winrowing	1 Trip	5.87/Trip	5.87
Harvest navy beans	1 Trip	22.43/Trip	22.43
Total field operation costs			45.67 +

INDIRECT COSTS			
Actual land cash rent value			100.00
Calculated land cash rent value			71.44 +
Soil loss charge	0.60 Ton > T	5.00/Ton	3.00 +
Harvest hauling charge		0.33/Cwt	6.24 +
Drying from 21.0% to 18.0%	3.0 %	0.100/%/Cwt	5.67 +
Interest on $174.76 for 6 months		8.75%	7.65 +
TOTAL COSTS		10.44/Cwt	197.31 =

INCOME	Yield/Acre	Unit price	Income/Acre
Using current selling price	18.9 Cwt	23.50/Cwt	444.15 +
Using 5-year selling price	18.9 Cwt	19.50/Cwt	368.55
PROFIT (OR LOSS)			246.84

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