

APSA-80 - Soil Compaction Study

Corn

1997 - 2005

Irrigation Research Foundation

		Control	APSA-80 @ 15 oz/acre	APSA-80 @ 30 oz/acre
Year	Variety	Yield bu/acre	Yield bu/acre	Yield bu/acre
1997	Pioneer 3514	142.0	184.0	205.0
1998	Pioneer 33A14	194.7	200.8	196.4
1999	Novartis 4640	179.9	192.8	195.7
2000	Novartis 6423	160.3	194.0	161.8
2001	DeKalb 6019	153.2	166.6	173.0
2002	DeKalb 6019	199.8	212.0	208.4
2003	DeKalb 6019	203.4	211.3	216.3
2004	DeKalb 6019	134.3	143.7	139.3
2005	DeKalb 6018	214.0	234.9	237.6
Average		175.7	193.3	192.6
Yield Gain + APSA-80			+17.6 bu/acre	+16.9 bu/acre
Value @ \$3.00/bushel			\$52.80/acre	\$50.70/acre
APSA-80 Cost @ Sug Retail			\$4.92/acre	\$9.84/acre
Ave. Net Profit/Year			\$47.88/acre	\$40.86/acre

Yield Differences Significant at 95% Confidence Level
DMRT = 11.6 bu/acre

APSA-80 - Soil Compaction Study

Corn - Strip Tillage

2003 - 2015

Irrigation Research Foundation

Year	Control	APSA-80 @ 15 oz/Acre
	Yield bu/acre	Yield bu/acre
2003	209.1	220.0
2004	144.5	150.0
2005	231.4	246.0
2006	119.8	143.8
2007	90.2	113.8
2008	105.9	108.8
2009	Hailed Out	Hailed Out
2010	212.1	210.6
2011	178.9	187.5
2012	203.4	210.7
2013	189.3	198.9
2014	178.9	187.6
2015	207.1	221.1
Average	182.8	192.2
Yield Difference		+9.4 bu/acre
Value @ \$3.00/bu		\$28.20/acre
APSA-80 Cost @ Suggested Retail		\$4.92/acre
Net Profit/Year		\$23.28/acre

Results Statistically Significant @ 99.99% Confidence Level

APSA-80 - Soil Compaction Study

Dryland Corn

2007 - 2015

Irrigation Research Foundation

	Control	APSA-80 @ 15 oz/acre	APSA-80 @ 30 oz/acre
Year	Yield bu/acre	Yield bu/acre	Yield bu/acre
2007	78.4	92.8	108.5
2008	37.5	36.8	40.8
2009	70.9	76.7	78.1
2010	125.6	138.9	153.1
2011	19.8	40.7	83.8
2013	13.1	68.6	101.1
2013	12.7	15.5	19.5
2014	119.1	121.9	124.8
2015	41.2	58.1	63.6
Average	62.2	78.7	93.0
Yield Gain + APSA-80		+16.5 bu/acre	+30.8 bu/acre
Value @ \$3.00/bushel		\$49.50/acre	\$92.40/acre
APSA-80 Cost @ Sug Retail		\$4.92/acre	\$9.84/acre
Ave. Net Profit/Year		\$44.58/acre	\$82.56/acre

Crop experience severe hail damage in 2008 and 2009
DMRT 14.2 bu/acre

APSA-80 - Soil Compaction Study

Drip Irrigated Corn

2007 - 2015

Irrigation Research Foundation

	Control	APSA-80 @ 15 oz/acre	APSA-80 @ 30 oz/acre
Year	Yield bu/acre	Yield bu/acre	Yield bu/acre
2007	131.3	142.3	139.0
2009	89.8	91.3	87.6
2011	116.6	127.2	129.6
2013	128.4	143.2	131.6
2015	95.6	110.1	104.8
Average	112.4	122.8	118.5
Yield Gain + APSA-80		+10.4 bu/acre	+6.1 bu/acre
Value @ \$3.00/bushel		\$31.20/acre	\$18.30/acre
APSA-80 Cost @ Sug Retail		\$4.92/acre	\$9.84/acre
Ave. Net Profit/Year		\$26.28/acre	\$8.46/acre

Crop experience severe hail damage in 2008 and 2009
DMRT 5.6 bu/acre

APSA-80 for Soil Compaction

Silage Corn

2002-2008

Irrigation Research Foundation

Year/Variety	Control	APSA-80 @ 15 oz/Acre
	Yield - tons/acre	Yield - tons/acre
2002 Fontanelle 5591	25.2	29.2
2003 Pioneer 3260	31.1	37.3
2003 Pioneer 33B51	28.1	40.3
2004 GV SX1303YGCB	34.1	33.3
2005 Wilson 7806	39.3	40.8
2006 Triumph 1866 RR	28.9	36.4
2007	31.1	35.9
2008 Golden Harvest H-8665CBL	37.3	32.4
Average	32.2	35.3
Yield Gain with APSA-80		+3.1
Value @ \$36.00/ton		\$111.60/acre
APSA-80 Cost @ Sug Retail		\$4.92/acre
Average Net Profit/Year		\$106.68/acre

Results Significant @ 98.1% Confidence Level

APSA-80 - Soil Compaction Study

Sorghum

2008 - 2012

Irrigation Research Foundation

	Control	APSA-80 @ 15 oz/acre
Year	Yield bu/acre	Yield bu/acre
2008	81.3	84.9
2009	Hailed Out	Hailed Out
2010	151.4	155.2
2011	136.1	149.6
2012	124.7	136.1
Average	123.4	131.4
Yield Gain + APSA-80		+8.0 bu/acre
Value @ \$4.60/bushel		\$36.80/acre
APSA-80 Cost @ Sug Retail		\$4.92/acre
Ave. Net Profit/Year		\$31.88/acre

Results Significant @ 94.9% Confidence Level

APSA-80 for Soil Compaction

Soybean

2003 - 2015

Irrigation Research Foundation

Year	Control	APSA-80 @ 15 oz/Acre
	Yield bu/acre	Yield bu/acre
2003	63.0	71.7
2004	43.6	45.7
2005	62.7	72.0
2006	72.5	76.1
2007	71.7	73.9
2008	55.2	55.4
2010	39.6	53.4
2011	75.5	80.3
2011	71.0	72.6
2012	76.5	81.1
2013	70.9	82.2
2014	69.5	74.6
2015	40.0	42.1
Average	62.4	67.8
Yield Difference		+5.4
Value @ \$10.00/bushel		\$54.00 bu/acre
APSA-80 Cost @ Suggested Retail		\$4.92/acre
Ave. Net Profit/Year		\$49.08 bu/acre

Results Significance @ 99.9% Confidence Level
Crop suffered hail damage in 2015

APSA-80 - Soil Compaction Study

Dryland Soybeans

2008 - 2012

Irrigation Research Foundation

	Control	APSA-80 15 oz/Acre
Year	Yield bu/A	Yield bu/A
2008	11.1	26.3
2010	40.1	50.7
2011	22.9	35.9
2012	0.0	29.6
Average	18.5	37.7
Yield Gain + APSA-80		+19.2 bu/A
Value @ \$14.00/bu		\$268.80/A
APSA-80 Cost @ Sug Retail		\$4.92/A
Ave Net Profit/Year		\$263.88/A

Crop Experienced Hail Damage in 2008

Soil Crusted and Soybeans did not emergence in Control Plot in 2012

Results Statistically Significant @ 98.8% Confidence Level

APSA-80 - Soil Compaction Study

Dryland Soybeans

2008 - 2012

Irrigation Research Foundation

	Control	APSA-80 @ 15 oz/acre	APSA-80 @ 30 oz/acre
Year	Yield bu/acre	Yield bu/acre	Yield bu/acre
2008	11.1	26.3	39.3
2010	40.1	50.7	53.2
2012	0.0	29.6	41.6
Average	17.1	38.3	45.8
Yield Gain + APSA-80		+21.2 bu/acre	+28.7 bu/acre
Value @ \$14.00/bushel		\$296.80/acre	\$401.80/acre
APSA-80 Cost @ Sug Retail		\$4.92/acre	\$9.84/acre
Ave. Net Profit/Year		\$291.88/acre	\$396.88/acre

Crop Experienced Hail Damage in 2008

Soil Crusted in 2012 and Control Soybenas did not Emerge

APSA-80 treatments significantly different from the control at 95% confidence level, DMRT = 15.9 bu

APSA-80 - Soil Compaction Study

Drip Irrigated Soybeans

2008 - 2012

Irrigation Research Foundation

	Control	APSA-80 @ 15 oz/acre	APSA-80 @ 30 oz/acre
Year	Yield bu/acre	Yield bu/acre	Yield bu/acre
2008	49.2	50.7	52.9
2010	57.3	59.0	60.7
2012	61.4	66.4	64.6
Average	58.1	61.5	61.0
Yield Gain + APSA-80		+3.4 bu/acre	+3.0 bu/acre
Value @ \$14.00/bushel		\$47.60/acre	\$42.00/acre
APSA-80 Cost @ Sug Retail		\$4.92/acre	\$9.84/acre
Ave. Net Profit/Year		\$42.68/acre	\$42.16/acre

Crop Experienced Hail Damage in 2008

APSA-80 - Soil Compaction Study

Sugar Beet

2001 - 2015

Irrigation Research Foundation

Year	Control	APSA-80 @ 15 oz/acre	Increase in Percent Sugar	Increase in Sugar Production lbs/acre
	Yield tons/acre	Yield tons/acre		
2001	25.6	27.6	+ 0.58%	+ 793.6
2002	35.5	40.2	+ 0.28%	+ 1716.0
2003	19.5	19.8	+ 1.32%	+ 537.0
2004	16.4	21.3	-2.27%	+782.0
2006	25.6	25.9	+1.65%	+923.0
2009	21.9	22.8	0.00%	+245.0
2010	27.8	27.9	+0.80%	+487.0
2011*	31.3	29.0	+1.32%	+19.0
2012	26.5	27.3	+0.50%	+410.5
2013	27.9	31.4	+0.18%	+1728.5
2014	27.3	30.6	-0.41%	+686.0
2015	23.8	26.3	+0.35%	+933
Average	25.7	27.5	+0.44%	+792
Yield Difference		+1.8		
Value @ \$35/ton		\$63.00/ac re		
Value @ \$0.245/lb				\$194.04
APSA-80 Cost @ Sug Retail		\$4.92		\$4.92
Ave. Net Profit/Year		\$58.08		\$189.12
Confidence Level		98.4%		99.9%

In 2011 Reclaim was used on the sugar beets and it is a silicone surfactant. Possibly incompatible. APSA-80 was tested in a 3 Year Study and Found to be Compatible with Reclaim

APSA-80 for Soil Compaction

Sugar Beets

2004 - 2014

Irrigation Research Foundation

Year	Control	APSA-80 @ 15 oz/Acre
	Emergence	Emergence
2004	68%	83%
2005	62%	70%
2006	53%	61%
2009	84%	80%
2010	82%	84%
2011	78%	82%
2012	64%	77%
2013	48%	50%
2014	72%	96%
Average	68%	76%
Difference		+12.2%

Emergence Differences Significant at 98.4% Confidence Level

APSA-80 for Soil Compaction + Nutriplant SD

Winter Wheat - Irrigated

2003 - 2006

Irrigation Research Foundation

Year	Control	APSA-80 @ 15 oz/acre + Nutriplant SD @ 4 oz/100 lb Seed
	Yield bu/acre	Yield bu/acre
2003	93.5	101.4
2004	69.4	80.7
2006	32.0	41.3
Average	65.0	74.5
Yield Difference		+9.5 bushels
Value @ \$8.00/bushel		\$76.00/acre
APSA-80 + Nutriplant SD Cost @ Sug Retail		\$7.38/acre
Average Net Profit/Year		\$68.62/acre

Results Significant @ 99% Confidence Level

APSA-80 for Soil Compaction

Winter Wheat - Irrigated

2006-2012

Irrigation Research Foundation

Year	Control	APSA-80 @ 15 oz/acre
	Yield bu/acre	Yield bu/acre
2006	32.0	45.4
2007	39.8	43.0
2008	Hailed Out	Hailed Out
2009	66.4	70.9
2010	93.6	95.3
2011	57.3	74.6
2012	55.2	57.2
Average	57.4	64.4
Yield Difference		+7.0 bushels
Value @ \$8.00/bushel		\$56.00/acre
APSA-80 Cost @ Sug Retail		\$4.92/acre
Average Net Profit/Year		\$5.08/acre

Results Significant @ 95.1% Confidence Level

APSA-80 for Soil Compaction

Winter Wheat - Dryland

2006-2011

Irrigation Research Foundation

Year	Control	APSA-80 @ 15 oz/acre
	Yield bu/acre	Yield bu/acre
2006	13.3	14.1
2007	33.7	36.3
2008	Hailed Out	Hailed Out
2009	44.0	47.4
2011	45.7	51.8
Average	34.2	37.4
Yield Difference		+3.2 bushels
Value @ \$8.00/bushel		\$25.60/acre
APSA-80 Cost @ Sug Retail		\$4.92/acre
Average Net Profit/Year		\$20.68/acre

Results Significant @ 90.1% Confidence Level

	Control	APSA-80	Difference
Lint Yield lb/Acre	1019.8	1138.3	118.5
Return @ \$0.58/lb	\$591.48	\$660.21	\$68.73
Seed Yield lb/Acre	1323.05	1438.75	115.7
Credit \$/lb	\$0.025	\$0.020	\$65.74
Net Return \$/Acre	\$616.83	\$682.57	\$65.74
APSA-80 Cost @ 15 oz/Acre			\$5.41
Net \$/Acre			\$60.33

Credit = Value of Seed/Acre less the Ginning and Classing Cost/Acre

APSA-80 – Soil Compaction Study

Pinto Beans

2004 – 2007

Irrigation Research Foundation

Year	Control	APSA-80 @ 15 oz/acre
	Yield cwt/acre	Yield cwt/acre
2004	23.5	25.3
2005	27.8	32.6
2006	27.7	39.6
2007*	5.4	10.0
Average	21.1	26.9
Yield Gain		+5.8 cwt/acre
Crop Value @ \$35/cwt		\$203.00
APSA-80 Cost @ Sug Retail		\$4.92
Average Net Profit/Year		\$198.08/acre

*In 2007 Beans Did Not Set Pods Well

APSA-80

Alfalfa

2005 - 2007

Garst 6420

Irrigation Research Foundation

Year	Control	APSA-80 @ 15 oz/Acre
Relative Feed Value	RFV	RFV
2005 1 st Cutting	185.4 -Supreme	170.5 - Premium
2005 2 nd Cutting	173.7 - Premium	206.9 - Supreme
2005 3 rd Cutting	184.4 -Supreme	206.5 - Supreme
2005 4 th Cutting	173.1 - Premium	167.0 - Premium
2006 1 st Cutting	177.2-Premium	166.8-Good
2006 2 nd Cutting	214.1-Supreme	204.1-Supreme
2006 3 rd Cutting	185.9 - Supreme	148.8 - Fair
2006 4 th Cutting	157.0 - Good	165.4 - Good
2007 1 st Cutting	145.7 - Fair	170.8 - Premium
2007 2 nd Cutting	200.5 - Supreme	208.3 - Supreme
2007 3 rd Cutting	196.5 - Supreme	189.1 - Supreme
2007 4 th Cutting	242.6 - Supreme	252.6 - Supreme
Average RFV	186.3 - Supreme	188.1 - Supreme
RFV Difference		+ 1.8
Total Yield	18.41 tons/acre	20.20 tons/acre
2008 Selling Price/Ton	\$140.00/ton	\$140.90/ton
Crop Value	\$2577.40	\$2846.18
APSA-80 Cost - 3x		\$14.76/acre
Net Profit - 3 Yr		\$237.45/acre

Alfalfa planted in Fall of 2001, APSA-80 applied in spring of 2005

APSA-80

Alfalfa -2007-2010 WL 355RR

Irrigation Research Foundation

Year	Control	APSA-80 @ 15 oz/Acre
Relative Feed Value	RFV	RFV
2007 1 st Cutting	162.1 - Good	172.8 - Premium
2007 2 nd Cutting	182.9 - Premium	185.6 - Supreme
2007 3 rd Cutting	158.9 - Good	176.1 - Premium
2007 4 th Cutting	206.8 - Premium	202.3 - Premium
2008 1 st Cutting	183.3 - Premium	177.7 - Premium
2008 2 nd Cutting	218.3 - Supreme	193.4 - Supreme
2008 3 rd Cutting	180.8 - Premium	203.2 - Supreme
2008 4 th Cutting	214.4 - Supreme	204.9 - Supreme
2009 1 st Cutting	139 - Fair	150 - Good
2009 2 nd Cutting	190 - Supreme	200.5 - Supreme
2009 4 th Cutting	265.4 - Supreme	331.4 - Supreme
2010 1 st Cutting	180.0 - Premium	180.0 - Premium
2010 2 nd Cutting	175.0 - Premium	145.0 - Good
2010 3 rd Cutting	158.0 - Good	173.0 - Premium
2010 4 th Cutting	204.0 - Supreme	234.0 - Supreme
Average RFV	187.9 - Supreme	195.3 - Supreme
RFV Difference		+7.4
Total Yield	20.76 tons/acre	21.69 tons/acre
Average Selling Price/Ton	\$113.96/ton	\$117.66/ton
Crop Value	\$2365.88/acre	\$2552.12/acre
APSA-80 Cost		\$19.68/acre
Net Profit - 4 Years		\$166.56/acre

Alfalfa planted in Fall of 2006, APSA-80 applied in spring of 2007
Yield from only one cutting was obtained in 2009 (Hail Damage)

APSA-80 for Soil Compaction

Potatoes

2004 - 2006

Colorado State University &
Irrigation Research Foundation

Size	Control	APSA-80 @ 15 oz/Acre
	Yield cwt/acre	Yield cwt/acre
2004	171.1	241.0*
2005	194.1	201.8
2006	326.0	356.4
Average	230.4	266.4
Yield Difference		+36.0
Value @ \$30.00/cwt		\$1080.00/acre
APSA-80 Cost @ Suggested Retail		\$4.92/acre
Net Profit/Year		\$1075.08/acre

*Replicated Studies - 2004 Results Significant at 95% Confidence Level
Average Data Significant @ 81.6% confidence Level

APSA-80 for Soil Compaction

Onions

2004 - 2008

Colorado State University &
Irrigation Research Foundation

Size	Control	APSA-80 @ 15 oz/Acre
	Yield cwt/acre	Yield cwt/acre
2004	110.3	116.1
2005	84.0	119.8
2006	226.5	245.9
2008	127.5	165.6
Average	137.1	161.9
Yield Difference		+24.8
Value @ \$11.00/cwt		\$272.25/acre
APSA-80 Cost @ Suggested Retail		\$4.92/acre
Net Profit/Year		\$267.33/acre

Data Significant @ 85.6% Confidence Level

APSA-80 – Soil Compaction

Sunflowers

2003-2012

Irrigation Research Foundation

Year	Control	APSA-80 @ 15 oz/Acre
	Yield cwt/acre	Yield cwt/acre
2003	22.9	23.1
2011	18.8	20.1
2012	18.7	23.2
Average	20.1	22.1
Yield Difference		+2.0
Value @ \$33.00/cwt		\$66.00/acre
APSA-80 Cost @ sug retail		\$4.92/acre
Average Net Profit/year		\$61.8/acre

APSA-80 – Soil Compaction

Sunflowers

2003-2012

Irrigation Research Foundation

Year	Control	APSA-80 @ 15 oz/Acre
	% Oil	% Oil
2003	41.37	42.27
2011	42.00	42.80
2012	37.91	40.09
Average	40.43	41.72
Difference		+1.29%

Results Significant @ 90% Confidence Level

NUTRIPLANT SD

Corn

1998 - 2004

Irrigation Research Foundation

Year	Control	Nutriplant SD @ 8 oz/100 lb Seed
	Yield bu/acre	Yield bu/acre
1998	119.9	129.7
1999	198.1	205.0
2001	191.1	193.5
2002	216.2	221.4
2003	224.4	226.5
2004	152.4	159.8
Average	183.7	189.3
Yield Difference		+5.6
Value @ \$5.00/bushel		\$28.00/acre
Nutriplant SD Cost @ Sug Retail		\$1.08/acre
Average Net Profit/year		\$26.92/acre

Results Statistically Significant at the 99% Confidence Level

NUTRIPLANT SL – In Furrow

Corn

2008-2012

Irrigation Research Foundation

Year	Control	Nutriplant SL @ 8 oz/Acre
	Yield bu/acre	Yield bu/acre
2008	185.2	202.2
2010	203.6	203.7
2011	191.0	203.6
2012	194.7	214.7
Average	194.6	206.7
Yield Difference		+12.1
Value @ \$5.00/bushel		\$60.50/acre
Nutriplant SL Cost @ Sug Retail		\$9.570/acre
Average Net Profit/year		\$52.93/acre

Results Significant @ 93.3% Confidence Level

NUTRIPLANT SD

Soybean

1999 - 2004

Irrigation Research Foundation

Year	Control	Nutriplant SD @ 4 oz/100 lb Seed
	Yield bu/acre	Yield bu/acre
1999	52.1	54.7
2002	66.6	67.7
2003	63.0	66.9
2004	43.6	46.7
Average	56.3	59.0
Yield Difference		+2.7
Value @ \$14.00/bushel		\$37.80/acre
Nutriplant SD Cost @ Sug Retail		\$1.91/acre
Average Net Profit/Year		\$35.89/acre

Results Statistically Significant at 98% Confidence Level

NUTRIPLANT SL

Soybean

2005 - 2008

Irrigation Research Foundation

Year	Control	Nutriplant SI @ 2 oz/100 lb Seed
	Yield bu/acre	Yield bu/acre
2005	62.7	65.8
2006	72.5	73.0
2008	57.4	61.8
Average	64.2	66.9
Yield Difference		+2.7
Value @ \$14.00/bushel		\$37.80/acre
Nutriplant SD Cost @ Sug Retail		\$1.91/acre
Average Net Profit/Year		\$35.89/acre

Results Statistically Significant at 85% Confidence Level

NUTRIPLANT SL - In Furrow

Soybeans

2008-2012

Irrigation Research Foundation

Year	Control	Nutriplant SL @ 8 oz/Acre
	Yield bu/acre	Yield bu/acre
2008	57.4	61.8
2010	39.6	49.5
2011	71.0	77.7
2012	76.8	78.3
Average	61.2	66.8
Yield Difference		+7.2
Value @ \$14.00/bushel		\$100.80/acre
Nutriplant SL Cost @ Sug Retail		\$9.20/acre
Average Net Profit/year		\$91.60/acre

Results Significant @ 94.9% Confidence Level

NUTRIPLANT SD

Sugar Beet

1999 - 2004

Irrigation Research Foundation

Year	Control	Nutriplant SD @ 8 oz/100 lbs Seed	Increase in Percent Sugar	Increase in Sugar Production lbs/acre
	Yield tons/acre	Yield tons/acre		
1999	24.9	26.8	+ 0.50%	+ 701.2
2001	25.6	26.2	+ 1.12%	+ 731.4
2002	35.5	35.3	- 0.25%	- 236.0
2003	19.5	22.7	+ 0.96%	+1488.0
2004	16.4	22.8	-1.46%	+1643.0
Average	24.4	26.8	+0.17%	+865.5
Yield Difference		+ 2.4 tons/acre		
Value @ \$35/ton		\$84.00/acre		
Value @ \$0.245/lb				\$212.05
Nutriplant SD Cost @ Sug Retail		\$0.24/acre		\$0.24/acre
Ave. Net Profit/Year		\$83.76/acre		\$211.81/acre
Confidence Level		89%		94%

NUTRIPLANT SL

Sugar Beet

2005-2006

Irrigation Research Foundation

Year	Control	Nutriplant SL @ 4 oz/100 lbs Seed	Increase in Percent Sugar	Increase in Sugar Production lbs/acre
	Yield tons/acre	Yield tons/acre		
2005	18.8	23.2	+ 0.30%	+ 1461
2006	25.6	32.1	+ 2.09%	+ 3028
Average	22.2	27.6	+1.20%	+2244
Yield Difference		+5.4 tons/acre		
Value @ \$35/ton		\$189.00/acre		
Value @ \$0.245/lb				\$549.78
Nutriplant SL Cost @ Sug Retail		\$0.24/acre		\$0.24/acre
Ave. Net Profit/Year		\$188.76/acre		\$549.54/acre

NUTRIPLANT SL - In Furrow

Sugar Beet

2010-2012

Irrigation Research Foundation

Year	Control	Nutriplant SL @ 8oz/Acre	Increase in Percent Sugar	Increase in Sugar Production lbs/acre
	Yield tons/acre	Yield tons/acre		
2010	29.6	33.8	-0.31%	+ 1240
2011	32.4	35.1	-0.80%	+371
2012	26.7	27.8	+0.60%	+663
Average	29.6	32.2	-0.17	758
Yield Difference		+ 2.6 tons/acre		
Value @ \$35/ton		\$91.00/acre		
Value @ \$0.245/lb				\$185.71
Nutriplant SL Cost @ Sug Retail		\$9.20/acre		\$9.20/acre
Ave. Net Profit/Year		\$81.80/acre		\$176.51/acre

NUTRIPLANT SD

Alfalfa - 2002 – 2005

Dairyland DS9705
Irrigation Research Foundation

Year	Control	Nutriplant SD @ 8 oz/100 lb Seed
Relative Feed Value	RFV	RFV
2002 1 st Cutting	119.2 - Fair	144.0 - Good
2002 2 nd Cutting	125.7 - Good	146.3 - Good
2002 3 rd Cutting	118.2 - Fair	140.9 - Good
2002 4 th Cutting	129.2 - Good	128.4 - Good
2003 1 st Cutting	133.3 - Good	138.7 - Good
2003 2 nd Cutting	152.7 - Prem	160.7 - Prem
2003 3 rd Cutting	144.7 - Good	151.5 - Prem
2003 4 th Cutting	145.6 - Good	141.1 - Good
2004 1 st Cutting	Hailed Out	Hailed Out
2004 2 nd Cutting	139.3 - Good	161.1 - Prem
2004 3 rd Cutting	142.2 - Good	134.2 - Good
2004 4 th Cutting	200.7 -Supreme	208.6 - Supreme
2005 1 st Cutting	169.2 - Premium	177.6 - Supreme
2005 2 nd Cutting	167.0 - Premium	161.1 - Premium
2005 3 rd Cutting	153.0-Premium	157.0 - Premium
2005 4 th Cutting	196.0-Supreme	176.9 - Supreme
Average RFV	149.1 - Good	155.2 - Premium
RFV Difference		+ 6.1
Total Yield	25.48 tons/acre	27.85 tons/acre
2008 Selling Price/Ton	\$140/ton	\$143.50/ton
Crop Value	\$3567.20	\$3996.48
Nutriplant SD Cost		\$0.13/acre
Net Profit - 4 Yrs		\$428.81/acre

RFV Results Significant at the 91.6% Confidence Level,

Nutriplant SD

Winter Wheat - Irrigated

2002 - 2006

Irrigation Research Foundation

Year	Control	Nutriplant SD @ 4 oz/100 lb Seed
	Yield bu/acre	Yield bu/acre
2002	69.5	73.5
2003	93.5	100.4
2004	69.4	73.4
2006	32.0	37.2
Average	66.1	71.2
Yield Difference		+5.1 bushels
Value @ \$8.00/bushel		\$40.80/acre
Nutriplant SD Cost @ Sug Retail		\$0.27/acre
Average Net Profit/Year		\$40.53/acre

Results Significant @ 99.5% Confidence Level

NUTRIPLANT SD + APSA-80

Winter Wheat - Dryland

2004 - 2006

Irrigation Research Foundation

Year	Control	Nutriplant SD @ 3.5 oz/100# seed	APSA-80 @ 15 oz/acre + Nutriplant SD @ 4 oz/100# seed
	Yield bu/acre	Yield bu/acre	Yield bu/acre
2004	25.0	28.4	30.6
2005	15.7	26.0	25.5
2006	10.6	17.2	14.8
Average	17.1	23.9	23.6
Yield Gain		+6.8 bu/acre	+6.5 bu/acre
Value @ \$8.00/bu		\$54.40	\$52.00
Nutriplant SD Cost @ Sug Retail		\$0.14	\$5.06
Average Net Profit/Year		\$54.26/acre	\$46.94/acre
Confidence Level		92.3%	94%

Nutriplant SD

Sunflowers

2002-2003

Irrigation Research Foundation

Year	Control	Nutriplant SD @ 4 oz/100 lb
	Yield cwt/acre	Yield cwt/acre
2002	15.4	18.2
2003	24.8	25.0
Average	20.1	21.6
Yield Difference		+1.5
Value @ \$33.00/cwt		\$49.50/acre
Nutriplant SD Cost @ Sug Retail		\$0.09acre
Average Net Profit/year		\$49.41/acre

NUTRIPLANT AG

Corn

1999 - 2008

Irrigation Research Foundation

Year	Control	Nutriplant AG @ 16 oz/Acre
	Yield bu/acre	Yield bu/acre
1999	198.1	211.4
2006	189.2	206.5
2008	175.1	184.0
Average	187.5	200.6
Yield Difference		+13.1
Value @ \$5.00/bushel		\$65.50/acre
Nutriplant AG Cost @ Sug Retail		\$8.88/acre
Average Net Profit/year		\$56.62/acre

Results Statistically Significant at the 96.8% Confidence Level

NUTRIPLANT AG

Soybeans

1999 - 2014

Irrigation Research Foundation

Year	Control	Nutriplant AG @ 16 oz/A @ Pre-Bloom	Nutriplant AG @ 16 oz/A @ Pod Set
	Yield bu/acre	Yield bu/acre	Yield bu/acre
1999	52.1	53.1	
2005	62.7	67.2	
2008	54.0	58.8	
2010	39.6		53.8
2011	71		74.4
2014	69.5	72.2	
Yield Gain		+3.2 bu/acre	+8.8 bu/acre
Value @ \$10.00/bu		\$32.00	\$88.80
Nutriplant AG Cost @ Sug Retail		\$8.88	\$8.88
Average Net Profit/Year		\$23.12/acre	\$79.92/acre

NUTRIPLANT AG

Sugar Beet

1998 - 2004

Irrigation Research Farm

Year	Control	Nutriplant AG @ 16 oz/acre	Increase in Percent Sugar	Increase in Sugar Production lbs/acre
	Yield tons/acre	Yield tons/acre		
1998	20.7	21.1	+ 0.43%	+ 249.9
1999	24.9	28.2	+ 0.63%	+ 1142.9
2003	19.5	22.0	+ 0.95%	+ 1220.0
2004	16.4	22.9	-1.00%	+1884.0
Average	20.4	23.6	+0.25%	+1135.4
Yield Difference		+ 3.2 tons/acre		
Value @ \$35/ton		\$112/acre		
Value @ \$0.245/lb				\$278.17/acre
Nutriplant AG Cost @ Sug Retail		\$8.88/acre		\$8.88/acre
Ave. Net Profit/Year		\$103.12/acre		\$269.29/acre
Confidence Level		86.1%		96%

NUTRIPLANT AG

Winter Wheat – Dryland

2009 - 2011

Irrigation Research Foundation

Year	Control	Nutriplant AG @ 16 oz/A in Spring @ Green-Up	Nutriplant AG @ 16 oz/A in Spring @ Green-Up & @ Boot Stage
	Yield bu/acre	Yield bu/acre	Yield bu/acre
2009	30.8	36.6	37.6
2011	33.3		40.8
Average	32.0		39.2
Yield Gain		+5.8 bu/acre	+7.2 bu/acre
Value @ \$8.00/bu		\$46.40	\$57.60
Nutriplant AG Cost @ Sug Retail		\$8.88	\$17.76
Average Net Profit/Year		\$37.52/acre	\$39.84/acre

NUTRIPLANT AG

Pinto Beans

1998 - 2005

Irrigation Research Foundation

Year	Control	Nutriplant AG @ 16 oz/acre
	Yield cwt/acre	Yield cwt/acre
1998	21.2	33.3
1999	18.9	22.2
2004	23.5	21.8
2005	27.8	31.1
Average	22.9	27.1
Yield Gain		+4.2 cwt/acre
Crop Value @ \$35/cwt		\$147.00
Nutriplant AG Cost @ Sug Retail		\$8.88
Average Net Profit/Year		\$138.12/acre

Nutriplant AG on

Potatoes

2004 - 2006

Colorado State University &
Irrigation Research Foundation

Size	Control	Nutriplant AG @ 2 x 14 oz/Acre
	Yield cwt/acre	Yield cwt/acre
2004	171.1	232.5*
2005	194.1	183.2
2006	326.0	377.0
Average	230.4	264.2
Yield Difference		+33.8
Value @ \$30.00		\$1014.00/acre
Nutriplant AG Cost @ Sug Retail	2 Applications @ 14 oz/acre	\$15.54/acre
Net Profit/Year		\$998.46/acre

*Replicated Studies - 2004 Results Significant at 95% Confidence Level

Nutriplant AG on

Onions

2004 - 2005

Colorado State University &
Irrigation Research Foundation

Size	Control	Nutriplant AG @ 3 x 14 oz/Acre
	Yield cwt/acre	Yield cwt/acre
2004	110.3	110.4
2005	84	90
Average	97.2	100.2
Yield Difference		+3.0
Value @ \$11.00/cwt		\$33.00/acre
Nutriplant AG Cost @ Sug Retail	3 Applications @ 12 oz/acre	\$23.31/acre
Net Profit/Year		\$9.69/acre

NUTRIPLANT SD + AG

Winter Wheat – Irrigated

2010

Irrigation Research Foundation

Year	Control	Nutriplant SD @ 4 oz/100# Seed + AG @ 16 oz/A in Fall	Nutriplant SD @ 4 oz/100# Seed + AG @ 16 oz/A in Spring
	Yield bu/acre	Yield bu/acre	Yield bu/acre
2010	90.3	94.2	100.8
Yield Gain		+3.9 bu/acre	+10.5 bu/acre
Value @ \$8.00/bu		\$31.20	\$84.00
Nutriplant SD + AG Cost @ Sug Retail		\$11.34	\$11.34
Average Net Profit/Year		\$19.86/acre	\$72.66/acre

NUTRIPLANT SD + AG

Soybeans

2010-2011

Irrigation Research Foundation

Year	Control	Nutriplant SD @ 4 oz/Acre + AG @ 16 oz/A @ Pod Set
	Yield bu/acre	Yield bu/acre
2010	39.6	52.2
2011	71.0	77.0
Average	55.3	64.6
Yield Difference		+9.3
Value @ \$14.00/bushel		\$130.20/acre
Nutriplant SL & AG Cost @ Sug Retail		\$10.71/acre
Average Net Profit/year		\$119.69/acre

APSA-80 & Reclaim
Sugar Beets
2011-2013
Irrigation Research Foundation

Year	Control + Reclaim	APSA-80 + Reclaim	Control	APSA-80
Yield t/A				
2011	31.3	29.0		
2012	26.2	27.4	26.7	27.1
2013	31.7	33.3	24.2	29.4
Average	29.7	29.9	25.5	28.3
% Sugar				
2011	15.94	17.26		
2012	17.28	18.14	16.60	16.73
2013	14.56	15.82	14.52	15.61
Average	15.93	17.07	15.56	16.17
Sugar - lbs				
2011	9975	9994		
2012	9184	9804	8755	8956
2013	8912	10383	6889	9037
Average	9357	10060	7822	8996
Difference		+703		+1174

Reclaim is a Soil Detoxifier made by AgPro Systems that contains 27.25% Silicone & nonionic surfactants. APSA-80 is compatible with Reclaim.

APSA-80 & Nutriplant SD

Corn – Soybean Rotation

2010-2014

Irrigation Research Foundation

Year	Control	APSA-80	APSA-80 + Nutriplant SD
Yield bu/acre			
2010 – Corn	212.1	210.6	217.8
2011 – Soybeans	75.5	80.3	78.3
2012 – Corn	196.1	202.3	201.7
2013 – Soybeans	70.9	82.2	80.5
2014 – Corn	185.0	202.3	218.9
Yield Difference			
2010 – Corn		-1.5	5.7
2011 – Soybeans		4.8	2.8
2012 – Corn		6.2	5.6
2013 – Soybeans		11.3	9.6
2014 – Corn		17.3	33.9
Yield Value \$/Acre			
2010 – Corn \$3/bu		-\$4.50	\$18.50
2011 – Soy \$10/bu		\$48.00	\$28.00
2012 – Corn \$3/bu		\$18.60	\$15.80
2013 – Soy \$10/bu		\$113.00	\$96.00
2014 – Corn \$3/bu		\$51.90	\$101.70
Market Value Inc		\$227.00	\$260.00
Product Cost		-\$24.60	-\$32.70
Return on Investment		\$202.40	\$227.30

APSA-80 & APSA-80+Nutriplant SD are Significantly Different from the Control @ 95% Confidence Level

**APSA-80 – agriMeasures
Water Management**

Corn

2010-2015

Irrigation Research Foundation

Year Average	Control	APSA-80 15 oz/ Acre
	Yield bu/acre	Yield bu/acre
2010	194.6	197.0
2011	193.4	212.4
2012	204.6	212.2
2013	189.3	198.9
2014	196.2	205.7
2015	195.6	201.2
Average	193.5	201.8
Yield Difference		+8.3
Value @ \$3.00/bushel		\$24.90/bu
APSA-80 Cost @ Sug Retail		\$4.92/acre
Average Net Profit/year		\$19.98/acre

Results Significant @ 99.0% Confidence Level