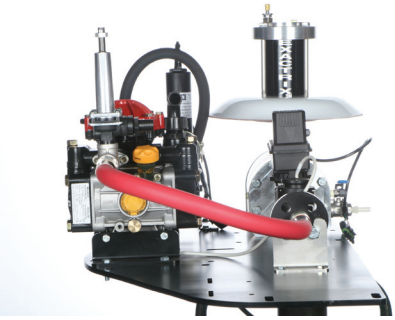
Exactrix Test Plot Data Confirms Nutrient Efficiency

2006



Exactrix test plots, randomized and replicated 3 times, measured with a scale, using an independent agronomist, produces a new understanding of nutrient efficiency.

Exactrix owners receive $1000 for valuable nutrient management data. Results of test plots indicate nutrients are over applied.... Why? Non uniform application of the “old fashioned” metering systems and poor timing.

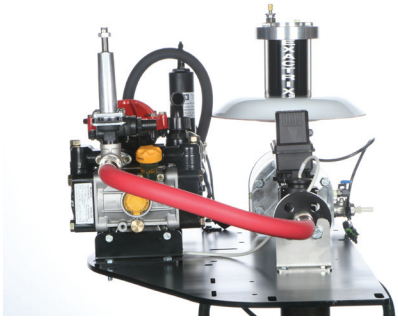
No-till winter wheat.
Exactrix dual product TAPPS

Contrasting Systems

Side by side
Economics visually explained.

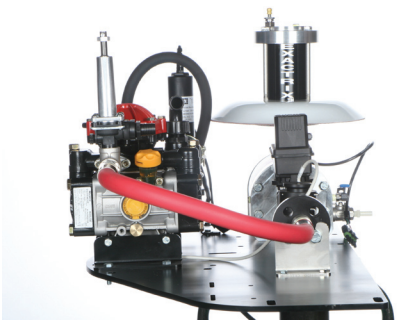
Summer fallow winter wheat-tillage.
Sold to crop insurance for 6 bushel yield.

2006



NO-TILL, PRE-PLANT CORN PRODUCTION

2006



There are 10 total plots over 3 years. Large plots randomized and replicated at least 3 times. ....Of 10 total plots 8 plots are soybean corn.

There is 1 plot corn on corn in a tillage system from Wheatfield, IN....1 plot is no-till corn on corn.

Not surprising....8 plots peak and then loose yield on the yield curve when approaching standard rates.

Higher pH soils of 7.5 pH take less N and produce higher yields in general. Ray Bange, Irrigated plots.

No plots use the side dressing technique. However, planter applied, Ryan Hammes is an early indexed form of side dress.

All plots are applied 30 to 60 days ahead of planting. One plot is planter applied, Ryan Hammes of Seneca, KS.

The tillage plots have the appearance of Corn Yield curves generated at Iowa State.

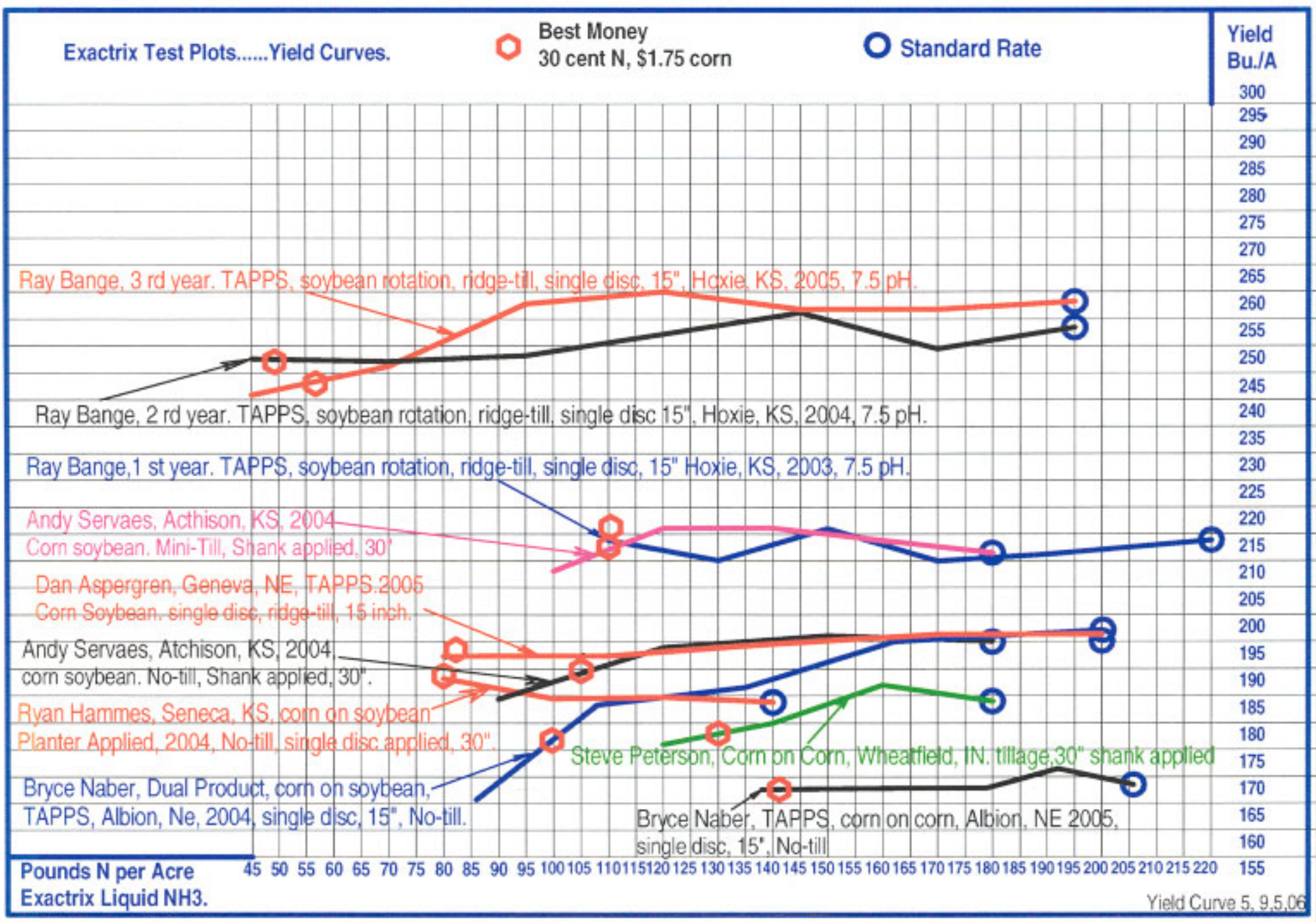
The dual placement TAPPS, No-till plots do not have the appearance of Corn Yield curves generated by Iowa State.

Based on the Exactrix plot work...all producers have reduced applied N about 40% from the standard rate.

The most outstanding results are in dual placement, TAPPS at Hoxie, Kansas, Ray Bange on 7.5 pH soil.

Irrigated plots total six. Dryland plots are high rainfall east of the 100th Meridian....Nebraska, Kansas, Indiana represented.

A total of 8 plots are No-till or Ridge-till except for Steve Peterson, Wheatfield, IN with a tillage system on 30 inch centers and Andy Servaes, Atchison, KS, on 30 inch band centers. The yield curves in tillage as single product Exactrix NH3 look similar to Iowa State curves.



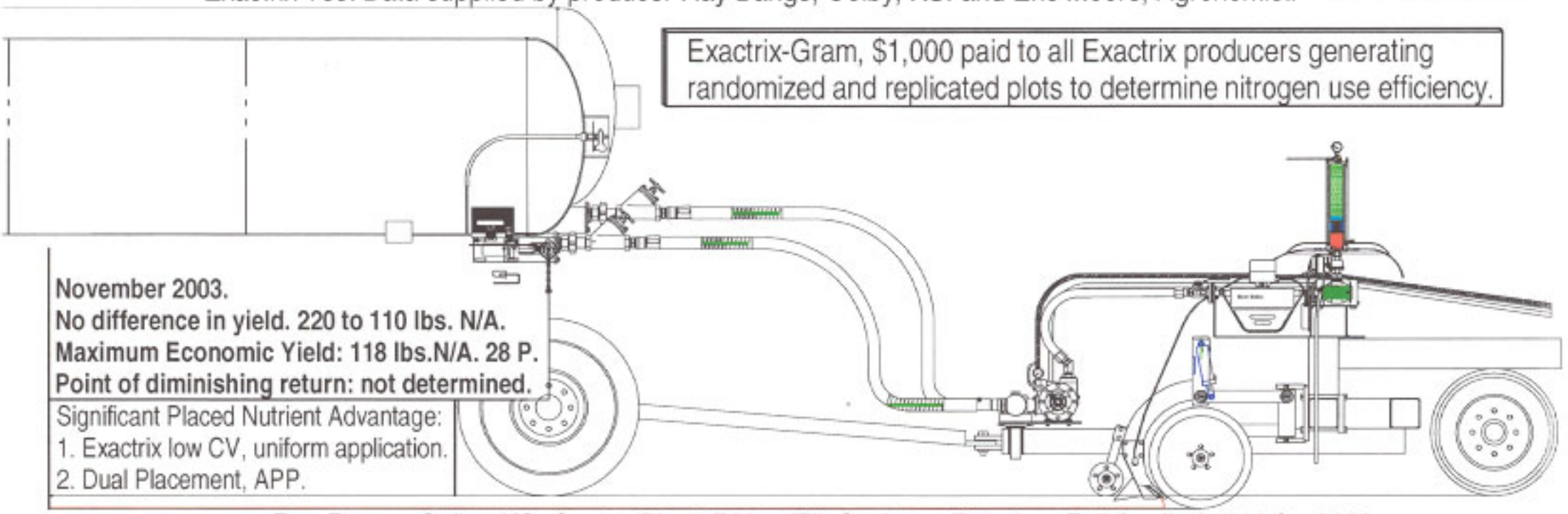
TAPPS: Tri-Ammonium Poly Phosphate Sulfate is super, triple ammoniated, poly phosphate sulfate. Exactrix NH3 is injected into a stream flow of 10-34-0 and 12-0-0-26S. A crystal nutrient material is formed in the soil. The three reacted nutrients form a uniform stream column of the most available form of placed N, P, and S. The extended result is nitrogen stabilization of about 6 to 8 weeks at temperatures above freezing. The Exactrix liquid NH3 reacts immediately forming a soil stable crystal of highly available nutrients in variable pH and variable OM soil types. TAPPS can only be formulated in the soil....never purchased...TAPPS is on site formulated with Exactrix Direct Injection Technology.

2003

CORN

Exactrix Test Data supplied by producer Ray Bange, Colby, KS. and Eric Moore, Agronomist.

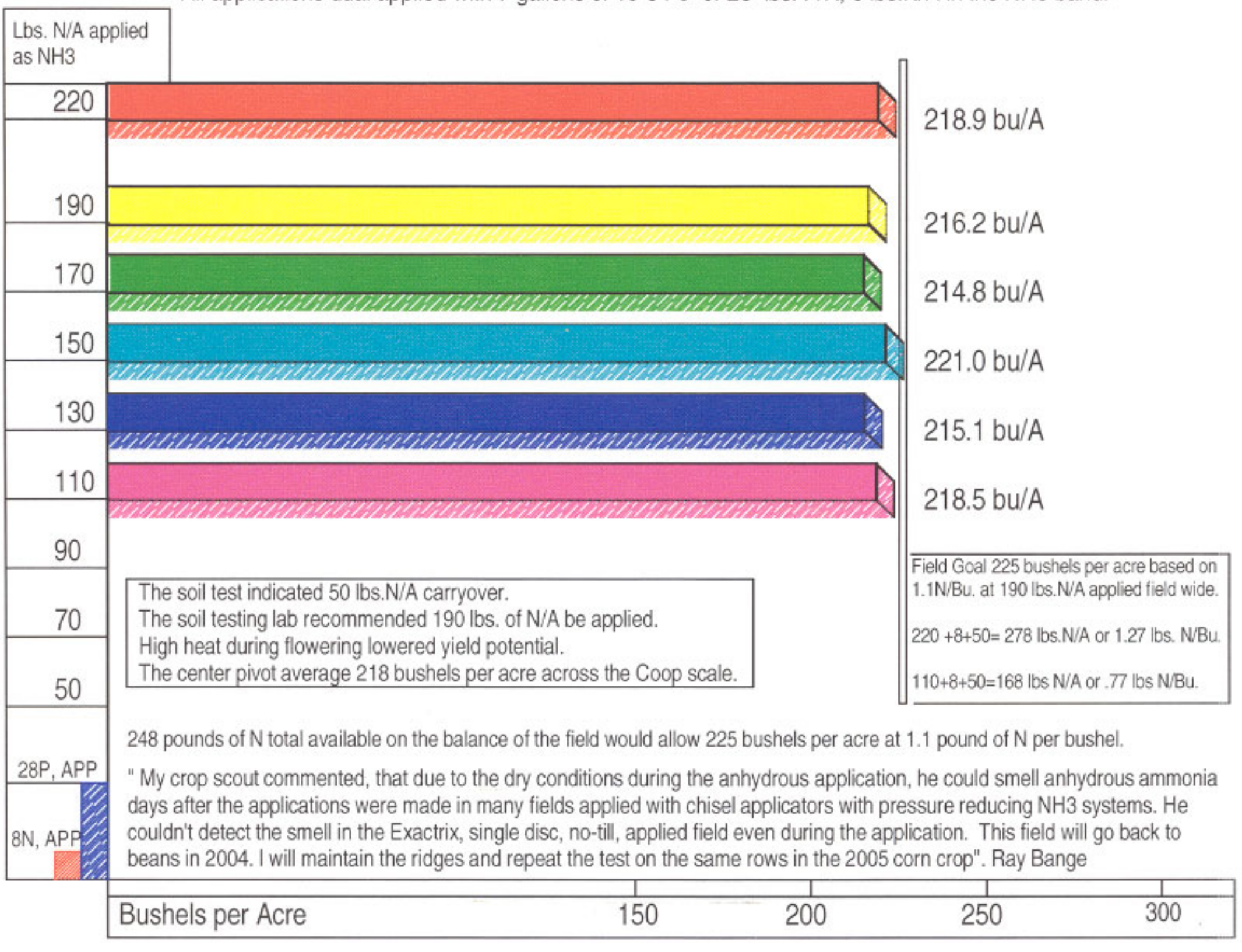
Exactrix-Gram, $1,000 paid to all Exactrix producers generating randomized and replicated plots to determine nitrogen use efficiency.



November 2003.
No difference in yield. 220 to 110 lbs. N/A.
Maximum Economic Yield: 118 lbs.N/A. 28 P.
Point of diminishing return: not determined.

Significant Placed Nutrient Advantage:
1. Exactrix low CV, uniform application.
2. Dual Placement, APP.

Ray Bange, Colby, KS, Center Pivot, Ridge Till, Soybean Rotation, Fall Applied 2002 for 2003.
Exactrix 2KFT, Single Disc Bourgault, 30" centers applied 6" from side of Ridge.
All applications dual applied with 7 gallons of 10-34-0 or 28 lbs. P/A, 8 lbs.N/A in the NH3 band.



The soil test indicated 50 lbs.N/A carryover.
The soil testing lab recommended 190 lbs. of N/A be applied.
High heat during flowering lowered yield potential.
The center pivot average 218 bushels per acre across the Coop scale.

Field Goal 225 bushels per acre based on 1.1N/Bu. at 190 lbs.N/A applied field wide.

220 +8+50= 278 lbs.N/A or 1.27 lbs. N/Bu.

110+8+50=168 lbs N/A or .77 lbs N/Bu.

248 pounds of N total available on the balance of the field would allow 225 bushels per acre at 1.1 pound of N per bushel.

" My crop scout commented, that due to the dry conditions during the anhydrous application, he could smell anhydrous ammonia days after the applications were made in many fields applied with chisel applicators with pressure reducing NH3 systems. He couldn't detect the smell in the Exactrix, single disc, no-till, applied field even during the application. This field will go back to beans in 2004. I will maintain the ridges and repeat the test on the same rows in the 2005 corn crop". Ray Bange

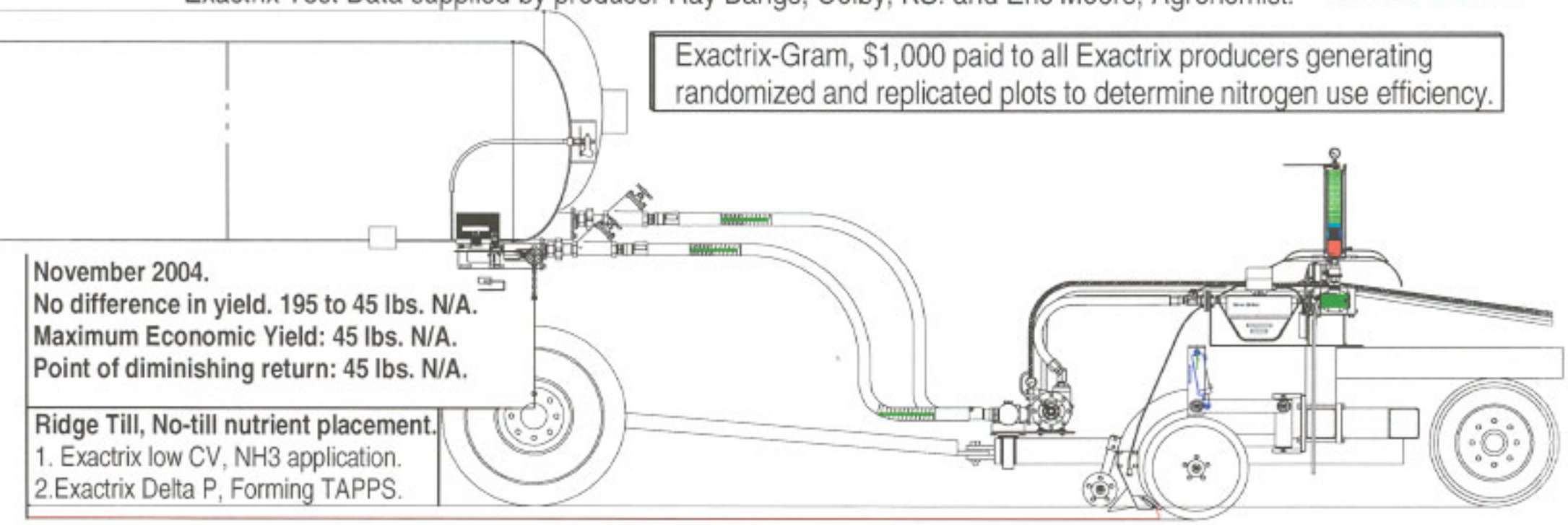
2004, 2nd year.

No-Tillers, Red Alert.

CORN

Exactrix Test Data supplied by producer Ray Bange, Colby, KS. and Eric Moore, Agronomist.

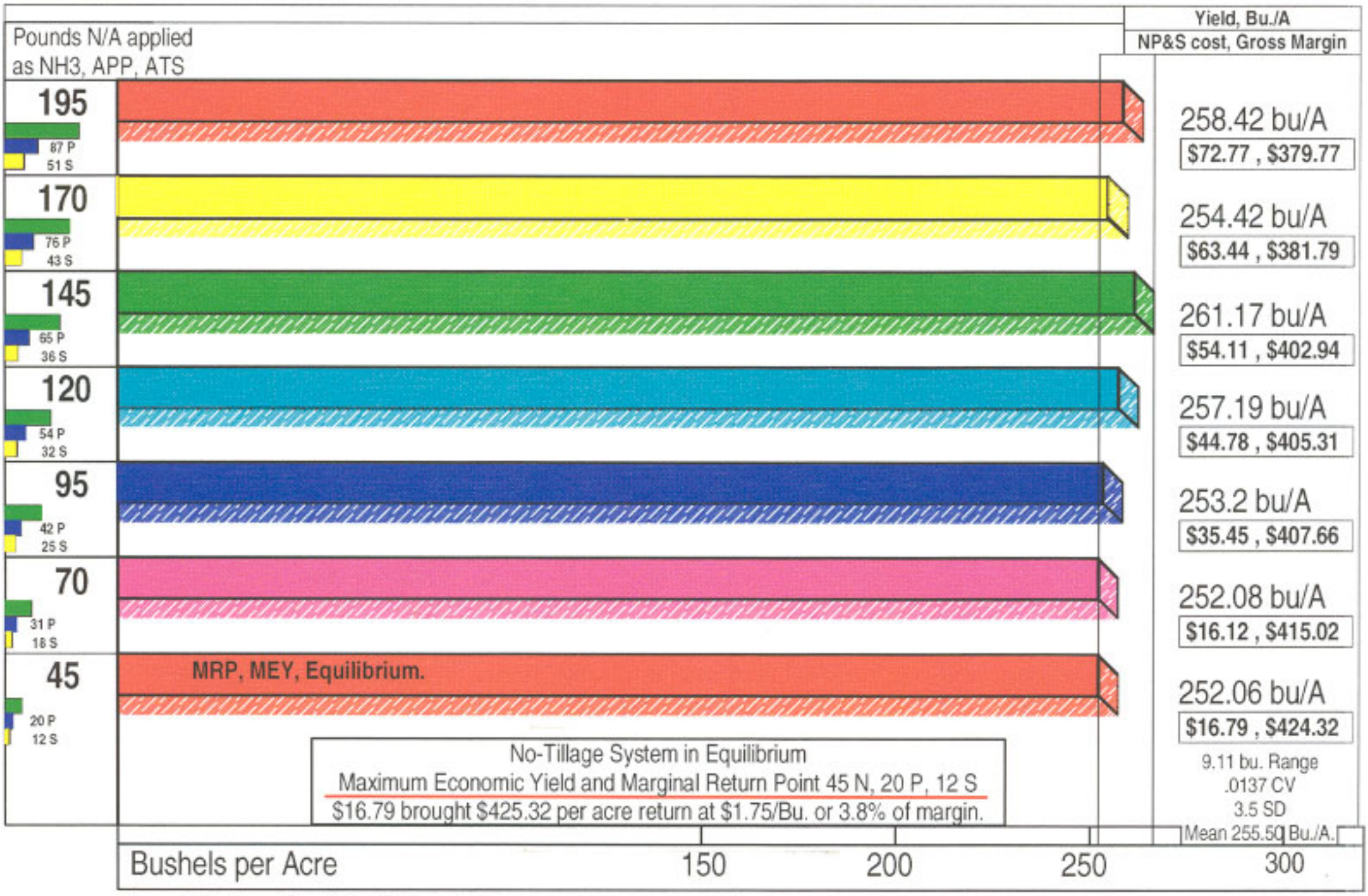
Exactrix-Gram, $1,000 paid to all Exactrix producers generating randomized and replicated plots to determine nitrogen use efficiency.



November 2004.
No difference in yield. 195 to 45 lbs. N/A.
Maximum Economic Yield: 45 lbs. N/A.
Point of diminishing return: 45 lbs. N/A.

Ridge Till, No-till nutrient placement.
1. Exactrix low CV, NH3 application.
2.Exactrix Delta P, Forming TAPPS.

Ray Bange, Colby, KS, Center Pivot, Ridge Till, Soybean Rotation, Spring Applied 30 days ahead of planting. Exactrix 2KFT, Single Disc Bourgault, 15" centers. Dual application of 10-34-0, APP and 12-0-0-26S, ATS was made with an Exactrix Delta P manifold forming TAPPS crystals in the no-till placed nutrient band.
All applications were TAPPS dual applied maintaining an Ortho Ratio of 27-12-0-7S. Corn Soybean rotation on 30" centers.
Soil lab recommendation for 200 bushel corn, 200 pounds N/A, 80 pounds P/A. 80 pounds of N expected from soybean credit and growing season mineralizations of N. S applied to stabilize the band and provide S for N and P efficiency. APP/ATS raised in Ortho Ratio to assure N performance.
Seven years of continuos No-till/Ridge till in a 7.5 to 7.8 pH at a 1.9% to 2.5% OM in the top 8 inches. The Fall soil test shows increasing OM.
Irrigated corn, Golden Harvest 9250, BT and Round-up Ready, 32,000 population, Growing season cool and wet with a warm September
Pounds N/Bu. at MEY, MRP .179 lbs. N/Bu. Pounds N/Bu. supplied by OM .621 lbs.N/Bu.
A total of 156 pounds of N/A. supplied by soybean legume and the Organic Matter soil life. Soil solution P also supplied by the soil life and OM at unexpected rates.



Notes: Fall soil sampling: Typical OM top 4 inches 2.8%, 4-8 inches, 2.3%. The fall soil sampling showed OM up at least .8% from spring samples of 1.9%.
Field wide average across the Coop Scale was 255.45 bushels per acre. Third year testing will include tissue test and stalk nitrate test.
Plots were randomized and replicated 3 times using a weigh wagon. Each plot at .51388 acres. Corn Moisture adjusted to 15.5%.

Test, Ray Bange,Nov. 2004

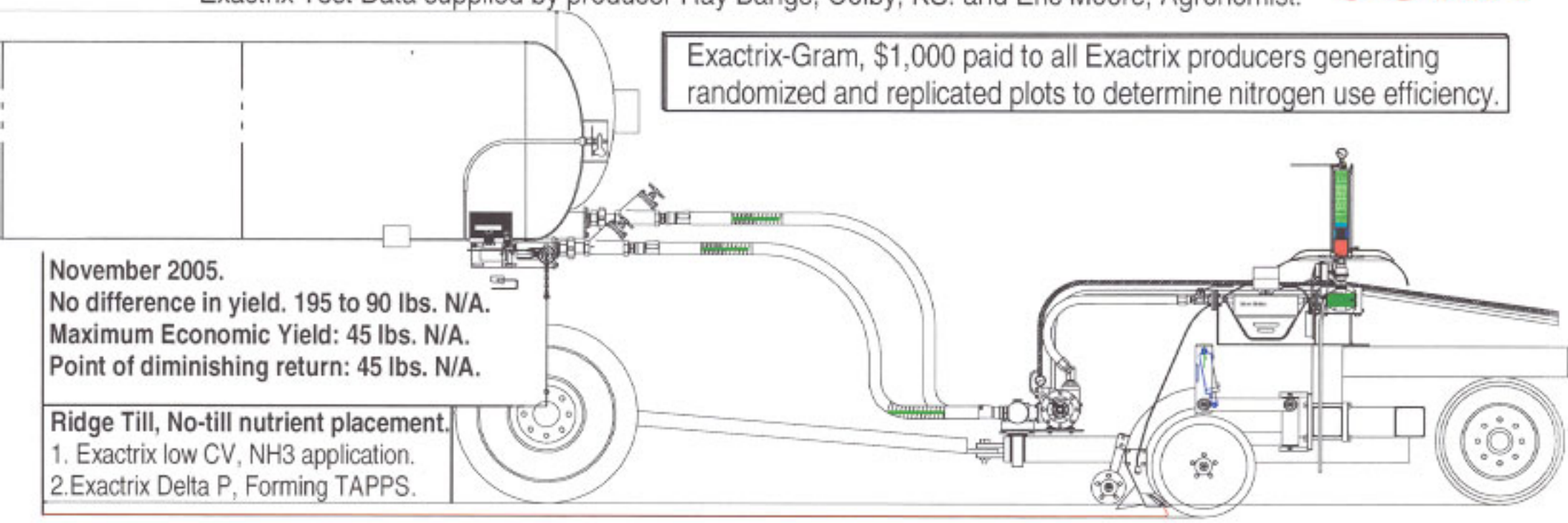
2005, 3rd year.

No-Tillers, Red Alert.

CORN

Exactrix Test Data supplied by producer Ray Bange, Colby, KS. and Eric Moore, Agronomist.

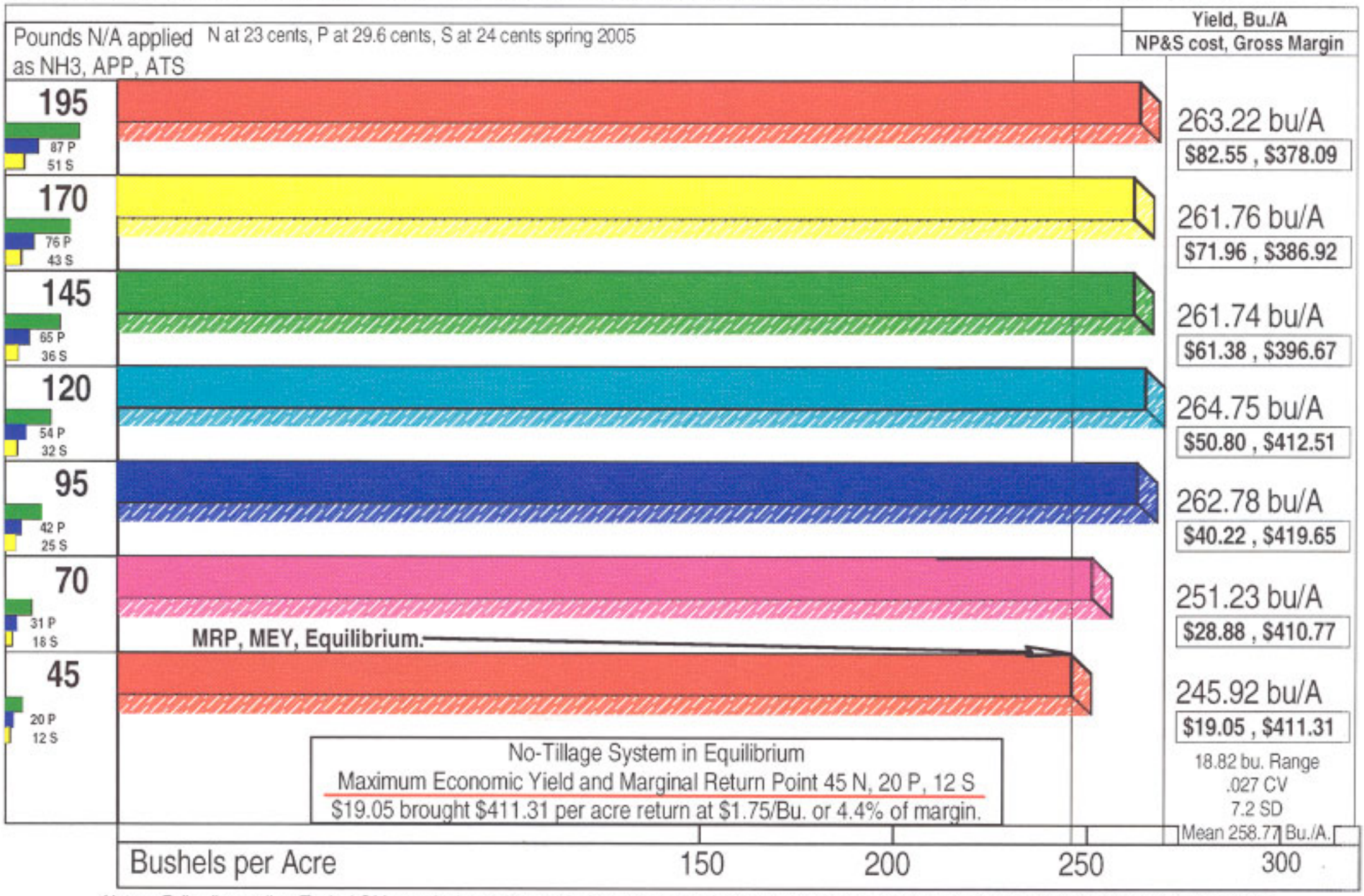
Exactrix-Gram, $1,000 paid to all Exactrix producers generating randomized and replicated plots to determine nitrogen use efficiency.



November 2005.
No difference in yield. 195 to 90 lbs. N/A.
Maximum Economic Yield: 45 lbs. N/A.
Point of diminishing return: 45 lbs. N/A.

Ridge Till, No-till nutrient placement.
1. Exactrix low CV, NH3 application.
2.Exactrix Delta P, Forming TAPPS.

Ray Bange, Colby, KS, Center Pivot, Ridge Till, Soybean Rotation, Spring Applied 30 days ahead of planting. Exactrix 2KFT, Single Disc Bourgault, 15" centers. Dual application of 10-34-0, APP and 12-0-0-26S, ATS was made with an Exactrix Delta P manifold forming TAPPS crystals in the no-till placed nutrient band.
All applications were TAPPS dual applied maintaining an Ortho Ratio of 27-12-0-7S. Corn Soybean rotation on 30" centers.
Soil lab recommendation for 200 bushel corn, 200 pounds N/A, 80 pounds P/A. 80 pounds of N expected from soybean credit and growing season mineralizations of N. S applied to stabilize the band and provide S for N and P efficiency. APP/ATS raised in Ortho Ratio to assure N performance.
Nine years of continuos No-till/Ridge till in a 7.5 to 7.8 pH at a 1.9%OM at planting to 2.5% OM fall test in the top 8 inches. The Fall soil test shows increasing OM.
Irrigated corn, Golden Harvest 9250, BT and Round-up Ready, 32,000 population, Weather considered abnormal with hot dry August winds.
Pounds N/Bu. at MEY, MRP .183 lbs. N/Bu. Pounds N/Bu. supplied by OM .617 lbs.N/Bu.
A total of 152 pounds of N/A. supplied by soybean legume and the Organic Matter soil life. Soil solution P also supplied by the soil life and OM at unexpected rates.



Notes: Fall soil sampling: Typical OM top 4 inches 2.8%, 4-8 inches, 2.3%. The fall soil sampling showed OM up at least .8% from spring samples of 1.9%.
Third year testing will include tissue test and stalk nitrate test.
Plots were randomized and replicated 3 times using a weigh wagon. Each plot at .51388 acres. Corn Moisture adjusted to 15.5%.

Test, Ray Bange,Nov. 2005

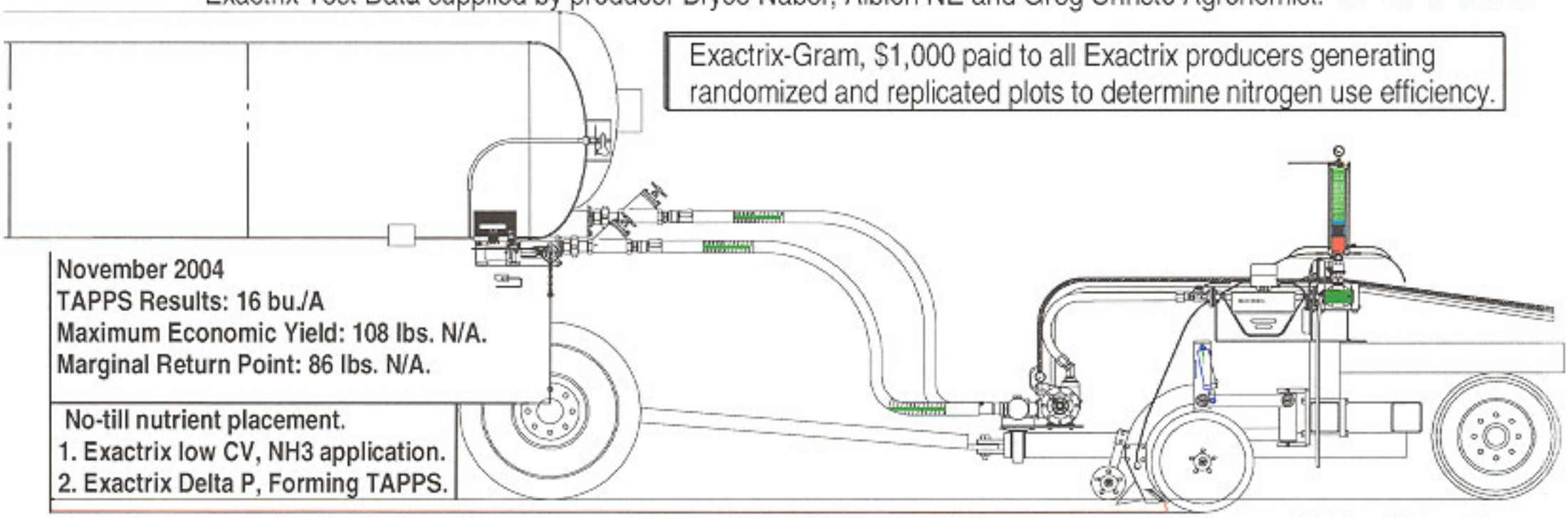
2004 Exactrix nitrogen and phosphate study.

Deere 1690, Dual Product.

CORN

Exactrix Test Data supplied by producer Bryce Naber, Albion NE and Greg Christo Agronomist.

Exactrix-Gram, $1,000 paid to all Exactrix producers generating randomized and replicated plots to determine nitrogen use efficiency.



November 2004
TAPPS Results: 16 bu./A
Maximum Economic Yield: 108 lbs. N/A.
Marginal Return Point: 86 lbs. N/A.

No-till nutrient placement.
1. Exactrix low CV, NH3 application.
2. Exactrix Delta P, Forming TAPPS.

Each plot was randomized and replicated three times and averaged with 6 different application rates. Bryce used his Deere 1690 on 15" band centers using Exactrix Wing Injection. The machine is set up with a 2KD Weigh Master applying at less than 1% CV, injecting liquid NH3 and the Exactrix 2KM applying APP and ATS with less than a 1% CV. Dual placement in a tight band formulating the highest available form of placed P. The rainfall pattern was 1 in 50 years. Bryce's farm received 3 rainstorms of 3" to 5" during the early growing season. The center pivots did not run in July since growing season conditions were cool and wet. Some dryland pivot corners produced as much corn as the pivots. The nutrients were applied spring pre-plant. Corn was planted timely on soybean ground. The Ortho Ratio was employed to feed the crop according to it's needs in all application ranges. ATS or THIO-SUL® was formulated with the NH3 and APP to stabilize the band and provide ammonic state nitrogen for early season uptake. Cost per pound of Nutrient. N at 25 cents, P at 30 cents, S at 25 cents. Corn at $1.75/bu.

Pounds N/A applied as NH3, APP, ATS	Yield Bu.A	Cost N $/A	Gross M $1.75/Bu	Gross% $N/$Gr.
200 (72 P, 42 S)	202.2	80.00	274.35	22.57
162 (72 P, 42 S)	200	70.50	279.50	20.14
Nitrogen Only	184	40.50	282.00	12.5
135 (60 P, 30 S)	191.5	57.75	277.38	17.27
MEY				
108 (48 P, 28 S)	188.3	47.00	282.52	14.26
MRP				
86 (36 P, 21 S)	170.7	36.50	262.22	12.21

31.5 bu./A, Total Range

Seed Row Starter
5N, 20 P, 2Zn

Bushels per Acre: 150, 200, 250, 300

A 50 pound N/A legume N soybean credit was established.
With timing and uniformity of application .7 to .8 pounds of N is required to produce 1 bu. of corn.
Additional N as NH3 required to produce 1 bu. of corn at .8 pounds N per bushel. Seed row N included.
At the Exactrix Marginal Return Point .533 pounds of N produced 1 bu. of corn.
At the Exactrix Marginal Return Point the OM and legume N added .267 pounds of N for each bu. of corn.
At the Exactrix Maximum Economic Yield .600 pounds of N produced 1 bu. of corn.
At the Exactrix Maximum Economic Yield the OM and legume N added .200pounds of N for each bu. of corn.
Dual Placement TAPPS indicated 16 more bushels of corn.
Soil lab recommendation was 175 pounds of N for 200 bushel/A. irrigated corn
The pivot corners and dryland fields at low application rates yielded about the same as the pivot due to extra moisture and cool growing season. Bryce VR applied his grid sampled fields with Legacy 6000 control and mapping.

Exactrix System Performance.
Range 31.5 bushels.
Mean 190.54 bushels.
Coef. of Variation .065604
Standard Deviation 12.500

Caution: Applying too much nitrogen can be detrimental to the corn crop. Always keep in mind that yield reductions can occur if the producer oversupplies nitrogen. Exactrix nitrogen is 40% more crop available.

The enclosed plots were randomized and replicated three times. Weigh wagons were used. Test weight ranged from 57 to 58 pounds. Moisture was adjusted to 15.5% Pioneer Hybrid Corn 34N42 at 28,000 population.

Test, Naber Christo,Nov. 2004

2005 Exactrix nitrogen study on 2004 plots.

Deere 1690, Dual Product.

CORN

Exactrix Test Data supplied by producer Bryce Naber, Albion NE and Greg Christo Agronomist.

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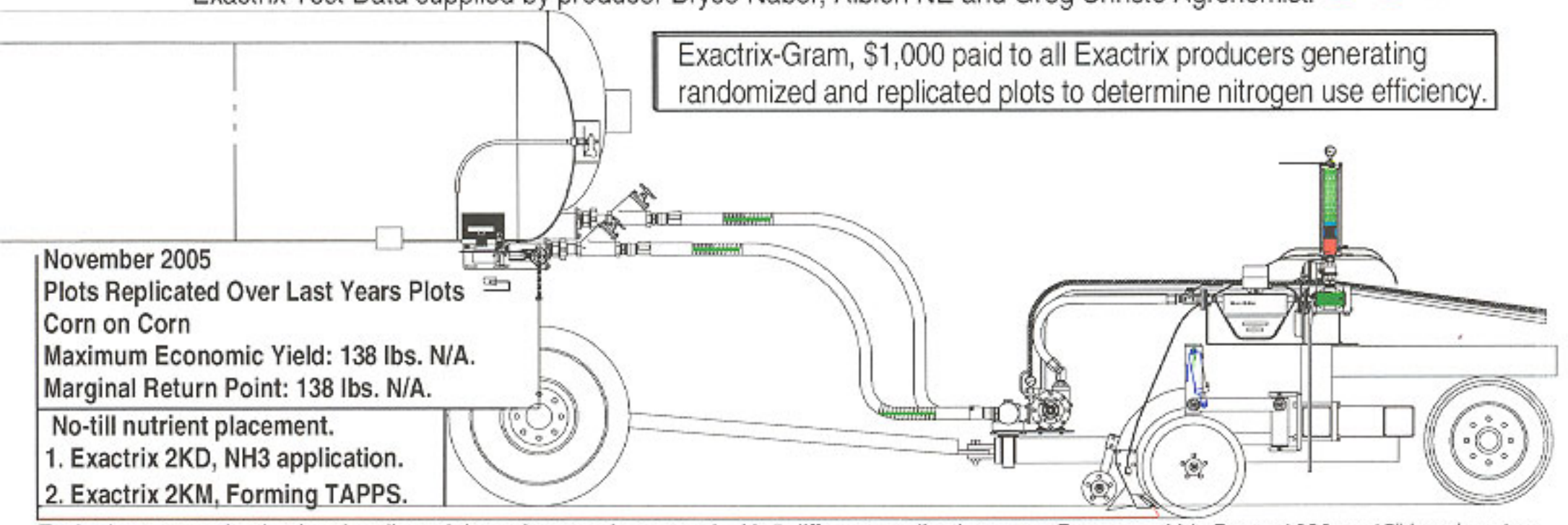


November 2005
Plots Replicated Over Last Years Plots
Corn on Corn
Maximum Economic Yield: 138 lbs. N/A.
Marginal Return Point: 138 lbs. N/A.

No-till nutrient placement.
1. Exactrix 2KD, NH3 application.
2. Exactrix 2KM, Forming TAPPS.

Each plot was randomized and replicated three times and averaged with 5 different application rates. Bryce used his Deere 1690 on 15" band centers using Exactrix Wing Injection. The machine is set up with a 2KD Weigh Master applying at less than 1% CV, injecting liquid NH3 and the Exactrix 2KM applying APP and ATS with less than a 1% CV. Dual placement in a tight band formulating the highest available form of placed P. The rainfall pattern produced very wet conditions at planting. The severe side wall compaction and air pockets reduced stand from 31,000 to 21,000. The plots were planted too wet but yet timely 5/17/05. Weed control, Basis pre-plant, Liberty and 1 lb. Atrazine post plant.

N was raised 30 pounds to allow for the lack of the soybean N credit. The plots were placed exactly over last years plots using GPS. The nutrients were applied spring pre-plant. Corn was planted 30" on the Exactrix corn on soybean plots from the previous year. Cost per pound of Nutrient. N at 27 cents, P at 32 cents, S at 27 cents. Corn at $1.75/bu. Harvest date 10/31/05. Full irrigation at 800 to 1000 gpm well, No-till production for 4 years.

Pounds N/A applied as NH3, APP, ATS	Yield Bu.A	Cost N $/A	Gross M $1.75/Bu	Gross% $N/$Gr.
230 + 40 P + 20 S	173.5	80.30	223.33	26.4%
192 + 40 P + 20 S	176.5	70.40	238.48	22.8%
179 + 40 P + 20 S	172.9	66.53	236.05	22.0%
165 + 40 P + 20 S	172.9	62.75	239.83	20.7%
138 + 40 P + 20 S	172.6	55.46	246.59	18.4%

MEY MRP

3.84 bu./A, Total Range

With timing and uniformity of application .7 to .8 pounds of N is required to produce 1 bu. of corn.
Additional N as NH3 required to produce 1 bu. of corn at .8 pounds N per bushel. Seed row N included.
At the Exactrix Marginal Return Point .862 pounds of N produced 1 bu. of corn.
At the Exactrix Maximum Economic Yield .862 pounds of N produced 1 bu. of corn.

Exactrix System Performance.
Range 3.84 bushels.
Mean 193.66 bushels.
Coef. of Variation .009
Standard Deviation 1.59

Marginal Return Point Not Achieved. Nitrogen plots must go lower in 2006.

Soil lab recommendation was 230 pounds of N for 200 bushel/A. irrigated corn on corn
Bryce VR applied his grid sampled fields with Legacy 6000 control and mapping.

Seed Row Starter
5N, 20 P, 2Zn

Bushels per Acre 150 200 250 300

Caution: Applying too much nitrogen can be detrimental to the corn crop. Always keep in mind that yield reductions can occur if the producer oversupplies nitrogen. Exactrix nitrogen is 40% more crop available.

The enclosed plots were randomized and replicated three times. Weigh wagons were used. Test weight ranged from 57 to 58 pounds. Moisture was adjusted to 15.5% Pioneer Hybrid Corn 35Y62 at 31,000 population, 21,000 stand count.

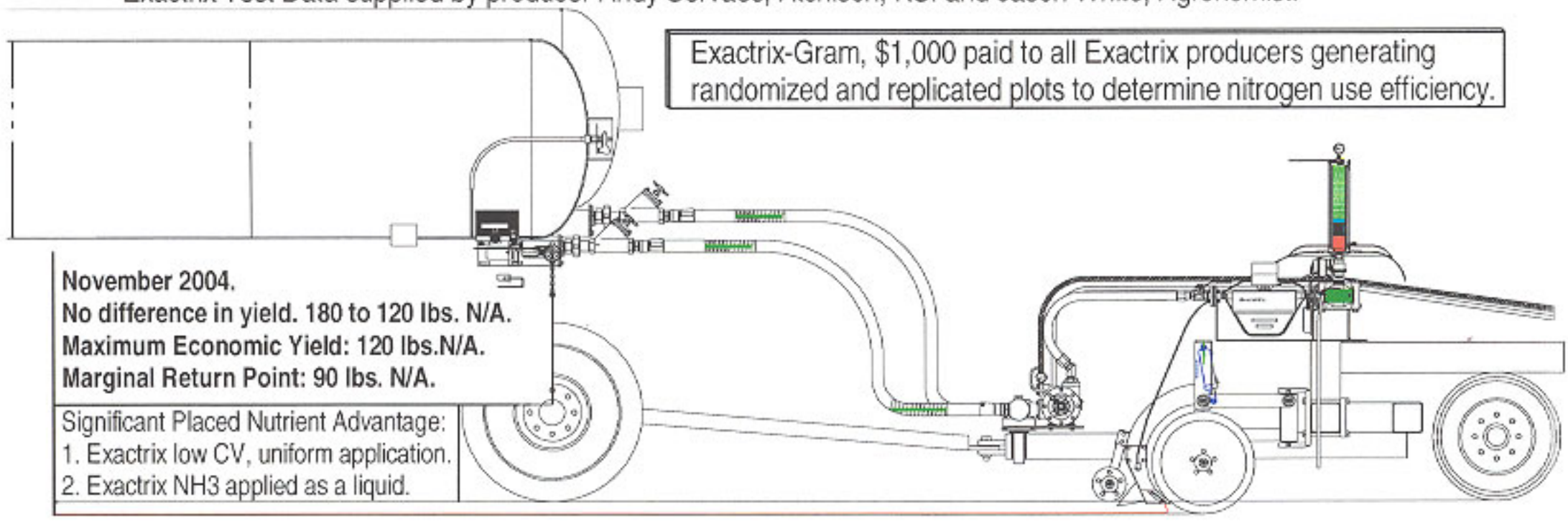
Test, Naber Christo,Nov. 2005

2004, Exactrix Nitrogen Study 2KF

CORN

Exactrix Test Data supplied by producer Andy Servaes, Atchison, KS. and Jason White, Agronomist.

Exactrix-Gram, $1,000 paid to all Exactrix producers generating randomized and replicated plots to determine nitrogen use efficiency.

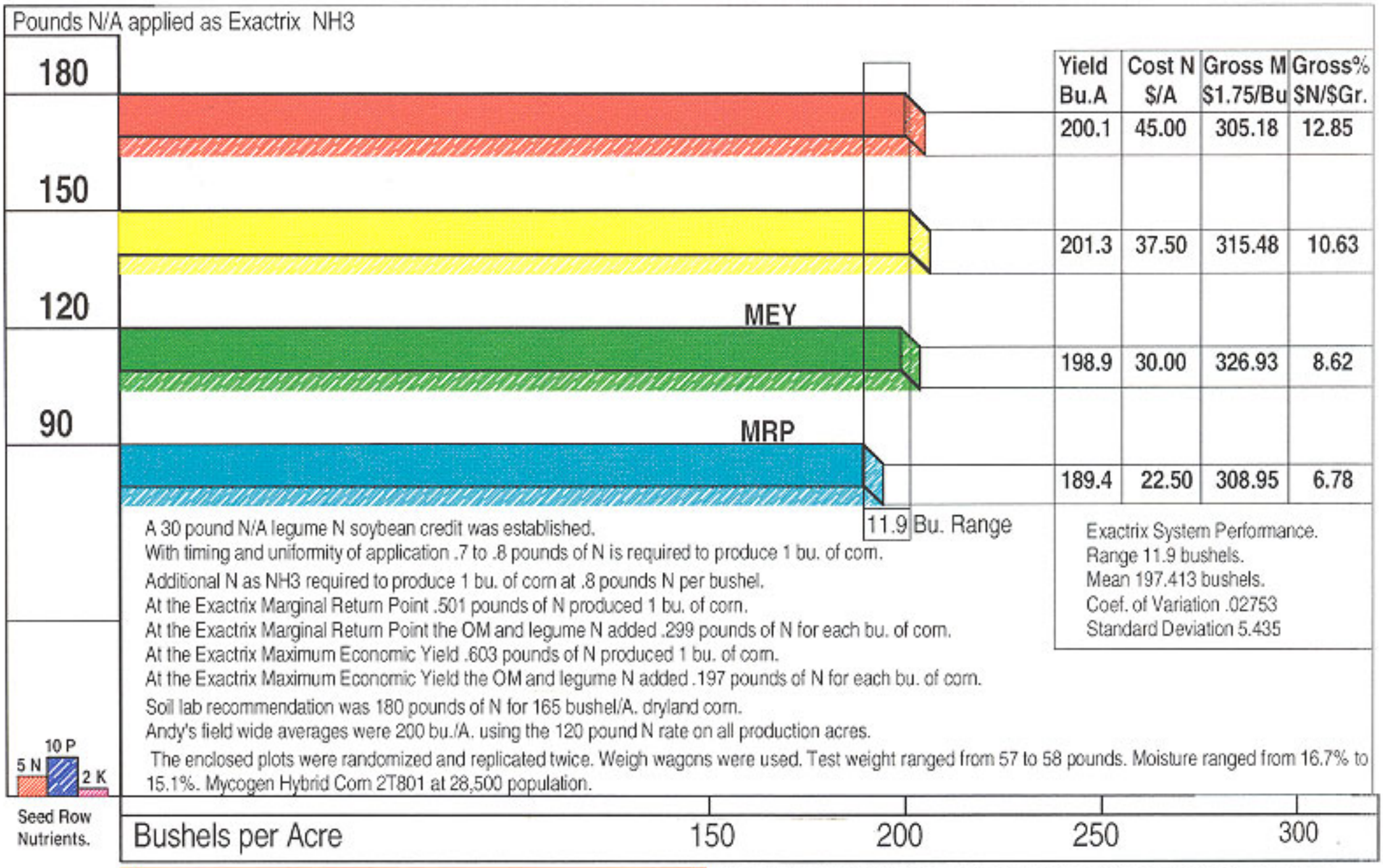


November 2004.
No difference in yield. 180 to 120 lbs. N/A.
Maximum Economic Yield: 120 lbs.N/A.
Marginal Return Point: 90 lbs. N/A.

Significant Placed Nutrient Advantage:
1. Exactrix low CV, uniform application.
2. Exactrix NH3 applied as a liquid.

No-till producer Andy Servaes, raising dryland corn and soybean is from Atchison, KS, He raises 1,000 acres of corn and soybeans and custom applies a 3,000 acres per year. In the Spring of 2003 he used shank openers on 30" centers. In the Fall of 2004 Andy converted his tool bar to 20" centers using Bourgault single disc openers.

Andy primarily applies in the Spring. Moving the band centers to 20" allows Andy to apply at lower rates in Spring without burning corn. Andy converted to Exactrix to stop line freezing and to apply 40% more crop useable N for his customers. Some of his customers still do not believe that Exactrix does apply more crop useable N. So more tests are planned. Andy's goal is to eventually convert to dual placement and 15" band centers. Indexing and RTK guidance may allow Andy to simulate nutrient efficiency results that Ridge Tillers benefit from.



Yield Bu.A	Cost N $/A	Gross M $1.75/Bu	Gross% $N/$Gr.
200.1	45.00	305.18	12.85
201.3	37.50	315.48	10.63
198.9	30.00	326.93	8.62
189.4	22.50	308.95	6.78

Exactrix System Performance.
Range 11.9 bushels.
Mean 197.413 bushels.
Coef. of Variation .02753
Standard Deviation 5.435

A 30 pound N/A legume N soybean credit was established.
With timing and uniformity of application .7 to .8 pounds of N is required to produce 1 bu. of corn.
Additional N as NH3 required to produce 1 bu. of corn at .8 pounds N per bushel.
At the Exactrix Marginal Return Point .501 pounds of N produced 1 bu. of corn.
At the Exactrix Marginal Return Point the OM and legume N added .299 pounds of N for each bu. of corn.
At the Exactrix Maximum Economic Yield .603 pounds of N produced 1 bu. of corn.
At the Exactrix Maximum Economic Yield the OM and legume N added .197 pounds of N for each bu. of corn.
Soil lab recommendation was 180 pounds of N for 165 bushel/A. dryland corn.
Andy's field wide averages were 200 bu./A. using the 120 pound N rate on all production acres.
The enclosed plots were randomized and replicated twice. Weigh wagons were used. Test weight ranged from 57 to 58 pounds. Moisture ranged from 16.7% to 15.1%. Mycogen Hybrid Corn 2T801 at 28,500 population.

Caution: Applying too much nitrogen can be detrimental to the corn crop. Always keep in mind that yield reductions can occur if the producer oversupplies nitrogen. Exactrix nitrogen is 40% more crop available.

Soil pH 7.5, OM 2.5%, Sandy soils in the Missouri Valley River bottom land and rolling loess soils at breaks of the Missouri River. Wheat is produced about every 4 to 5 years. Phosphate is broadcast for wheat production. Corn, Soybeans, Corn Soybeans, Wheat rotation.

Test, Servaes, N rate, 11, 28,04

2004, Dj, Continental Vertical Dam compared to Exactrix 2KFT

Exactrix Test Data supplied by producer Andy Servaes, Atchison, KS, Jason White of Golden Harvest assisted with the weigh wagons and plot data.

CORN

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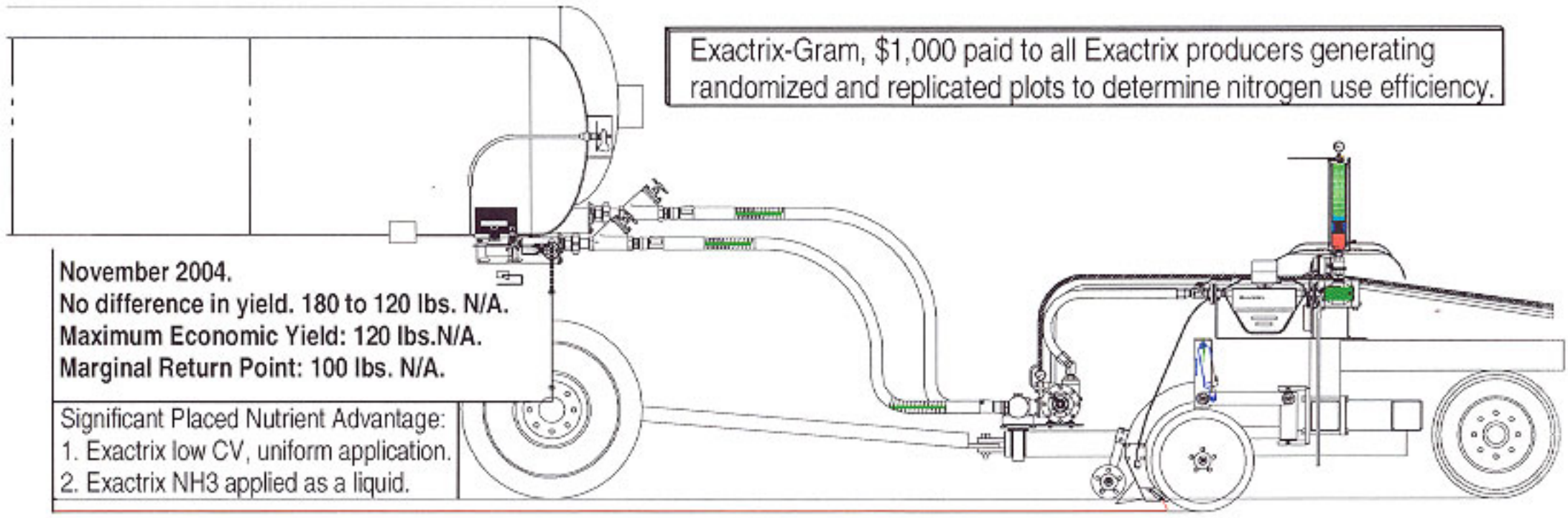
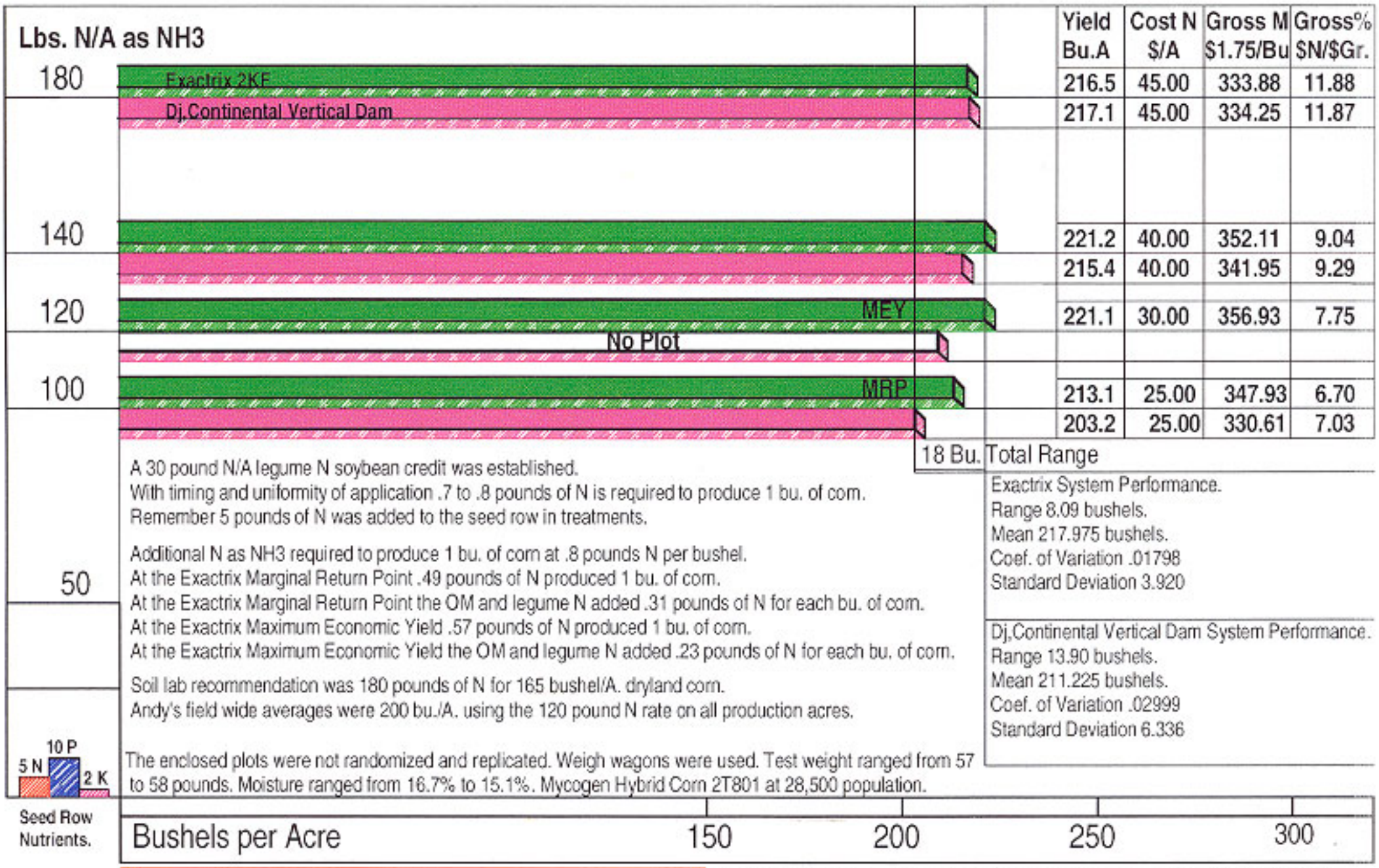


November 2004.
No difference in yield. 180 to 120 lbs. N/A.
Maximum Economic Yield: 120 lbs.N/A.
Marginal Return Point: 100 lbs. N/A.

Significant Placed Nutrient Advantage:
1. Exactrix low CV, uniform application.
2. Exactrix NH3 applied as a liquid.

No-till producer Andy Servaes, raising dryland corn and soybean is from Atchison, KS, He raises 1,000 acres of corn and soybeans and custom applies a 3,000 acres per year. In the Spring of 2003 he used shank openers on 30" centers. In the Fall of 2004 Andy converted his tool bar to 20" centers using Bourgault single disc openers.

Andy primarily applies in the Spring. Moving the band centers to 20" allows Andy to apply at lower rates in Spring without burning corn. Andy converted to Exactrix to stop line freezing and to apply 40% more crop useable N for his customers. Some of his customers still do not believe that Exactrix does apply more crop useable N. So more tests are planned. Andy's goal is to eventually convert to dual placement and 15" band centers. Indexing and RTK guidance may allow Andy to simulate nutrient efficiency results that Ridge Tillers benefit from.



Yield Bu.A	Cost N $/A	Gross M $1.75/Bu	Gross% $N/$Gr.
216.5	45.00	333.88	11.88
217.1	45.00	334.25	11.87
221.2	40.00	352.11	9.04
215.4	40.00	341.95	9.29
221.1	30.00	356.93	7.75
213.1	25.00	347.93	6.70
203.2	25.00	330.61	7.03

18 Bu. Total Range

A 30 pound N/A legume N soybean credit was established.
With timing and uniformity of application .7 to .8 pounds of N is required to produce 1 bu. of corn.
Remember 5 pounds of N was added to the seed row in treatments.

Additional N as NH3 required to produce 1 bu. of corn at .8 pounds N per bushel.
At the Exactrix Marginal Return Point .49 pounds of N produced 1 bu. of corn.
At the Exactrix Marginal Return Point the OM and legume N added .31 pounds of N for each bu. of corn.
At the Exactrix Maximum Economic Yield .57 pounds of N produced 1 bu. of corn.
At the Exactrix Maximum Economic Yield the OM and legume N added .23 pounds of N for each bu. of corn.

Soil lab recommendation was 180 pounds of N for 165 bushel/A. dryland corn.
Andy's field wide averages were 200 bu./A. using the 120 pound N rate on all production acres.

The enclosed plots were not randomized and replicated. Weigh wagons were used. Test weight ranged from 57 to 58 pounds. Moisture ranged from 16.7% to 15.1%. Mycogen Hybrid Corn 2T801 at 28,500 population.

Exactrix System Performance.
Range 8.09 bushels.
Mean 217.975 bushels.
Coef. of Variation .01798
Standard Deviation 3.920

Dj,Continental Vertical Dam System Performance.
Range 13.90 bushels.
Mean 211.225 bushels.
Coef. of Variation .02999
Standard Deviation 6.336

Caution: Applying too much nitrogen can be detrimental to the corn crop. Always keep in mind that yield reductions can occur if the producer oversupplies nitrogen. Exactrix nitrogen is 40% more crop available.

Soil pH 7.5, OM 2.5%, Sandy soils in the Missouri Valley River bottom land and rolling loess soils at breaks of the Missouri River. Wheat is produced about every 4 to 5 years. Phosphate is broadcast for wheat production. Corn, Soybeans, Corn Soybeans, Wheat rotation.

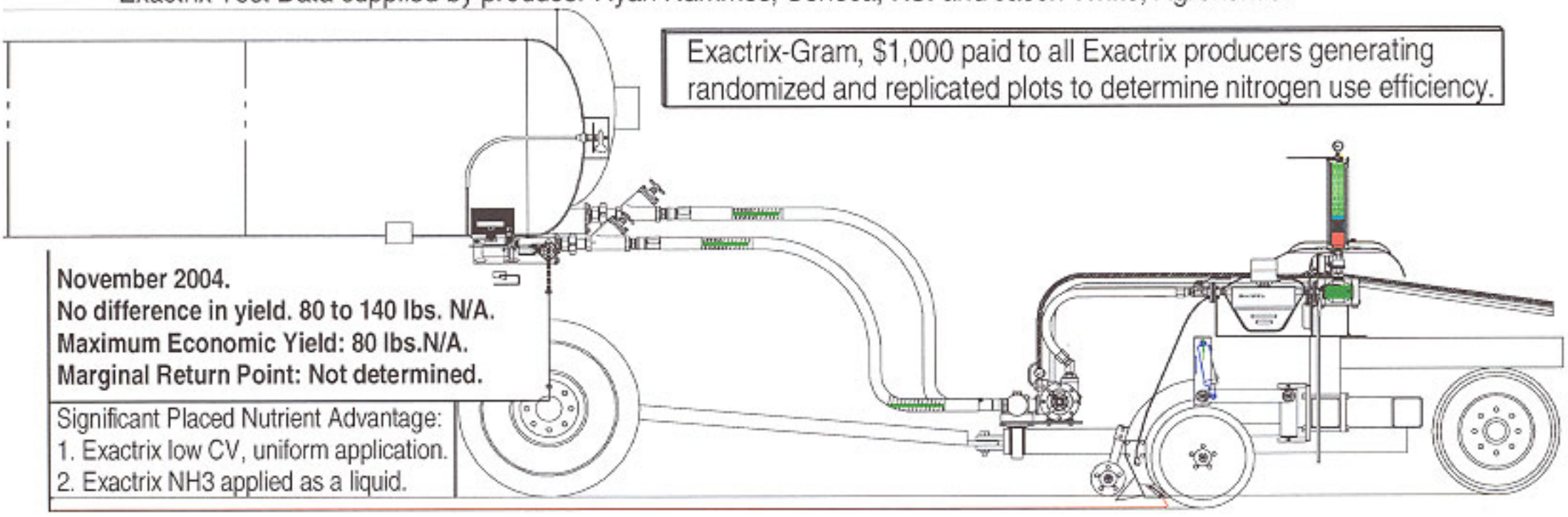
Test, Servaes sys. comp. 11,28,04

2004, Exactrix Nitrogen Study 2KF

CORN

Exactrix Test Data supplied by producer Ryan Hammes, Seneca, KS. and Jason White, Agronomist.

Exactrix-Gram, $1,000 paid to all Exactrix producers generating randomized and replicated plots to determine nitrogen use efficiency.

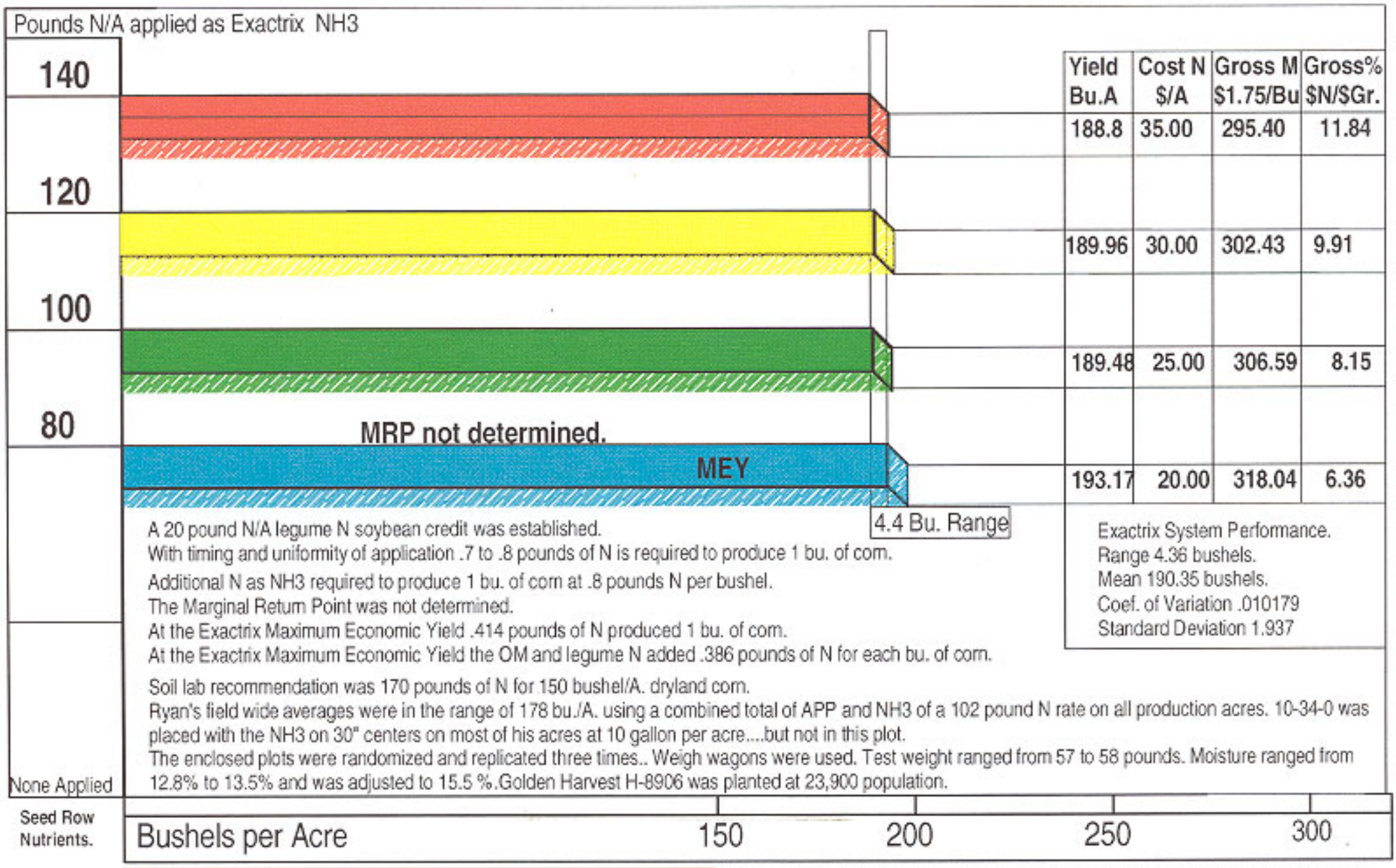


November 2004.
No difference in yield. 80 to 140 lbs. N/A.
Maximum Economic Yield: 80 lbs.N/A.
Marginal Return Point: Not determined.

Significant Placed Nutrient Advantage:
1. Exactrix low CV, uniform application.
2. Exactrix NH3 applied as a liquid.

No-till producer Ryan Hammes, raising dryland corn and soybean is from Atchison, KS, He raises 2,200 acres of corn, soybeans and wheat. In the Spring of 2004 he used his Kinze Split Row Planter and banded Exactrix NH3 with double disc pusher units and Bourgault guess row return openers.

Ryan also cropped no-till corn back on harvested winter wheat resulting in a double crop. Ryan carries his ammonia trailer on a track trailer that allows the NH3 tank to be rolled up on the track group.



Yield Bu.A	Cost N $/A	Gross M $1.75/Bu	Gross% $N/$Gr.
188.8	35.00	295.40	11.84
189.96	30.00	302.43	9.91
189.48	25.00	306.59	8.15
193.17	20.00	318.04	6.36

Exactrix System Performance.
Range 4.36 bushels.
Mean 190.35 bushels.
Coef. of Variation .010179
Standard Deviation 1.937

A 20 pound N/A legume N soybean credit was established.
With timing and uniformity of application .7 to .8 pounds of N is required to produce 1 bu. of corn.
Additional N as NH3 required to produce 1 bu. of corn at .8 pounds N per bushel.
The Marginal Return Point was not determined.
At the Exactrix Maximum Economic Yield .414 pounds of N produced 1 bu. of corn.
At the Exactrix Maximum Economic Yield the OM and legume N added .386 pounds of N for each bu. of corn.

Soil lab recommendation was 170 pounds of N for 150 bushel/A. dryland corn.
Ryan's field wide averages were in the range of 178 bu./A. using a combined total of APP and NH3 of a 102 pound N rate on all production acres. 10-34-0 was placed with the NH3 on 30" centers on most of his acres at 10 gallon per acre....but not in this plot.
The enclosed plots were randomized and replicated three times.. Weigh wagons were used. Test weight ranged from 57 to 58 pounds. Moisture ranged from 12.8% to 13.5% and was adjusted to 15.5 %.Golden Harvest H-8906 was planted at 23,900 population.

Caution: Applying too much nitrogen can be detrimental to the corn crop. Always keep in mind that yield reductions can occur if the producer oversupplies nitrogen. Exactrix nitrogen is 40% more crop available.

Soil pH 5.6 to 5.8, OM 3.8%, Medium texture soils and rolling loess soils at breaks of the Missouri River. Wheat is produced about every 10 years. Corn, Soybeans, Corn Soybeans, Wheat rotation on 200 acres with 2,200 acres total.

Test, Hammes, N rate,1, 29,05

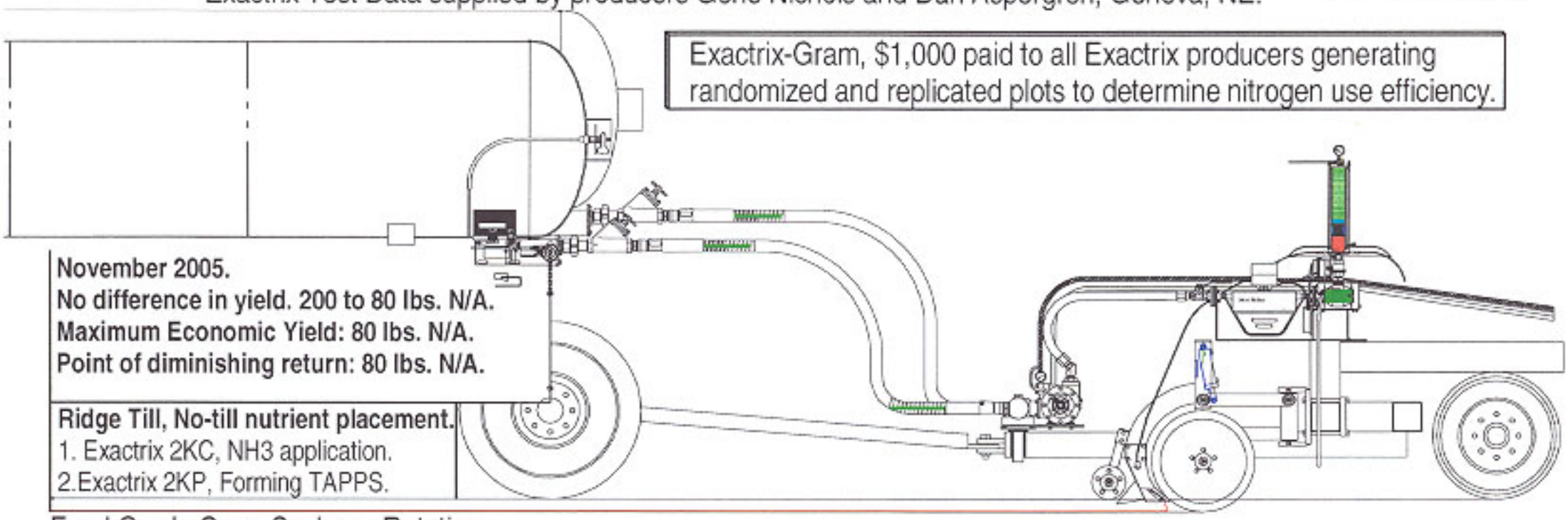
2005

No-Till/Ridge-Till

CORN

Exactrix Test Data supplied by producers Gene Nichols and Dan Aspergren, Geneva, NE.

Exactrix-Gram, $1,000 paid to all Exactrix producers generating randomized and replicated plots to determine nitrogen use efficiency.

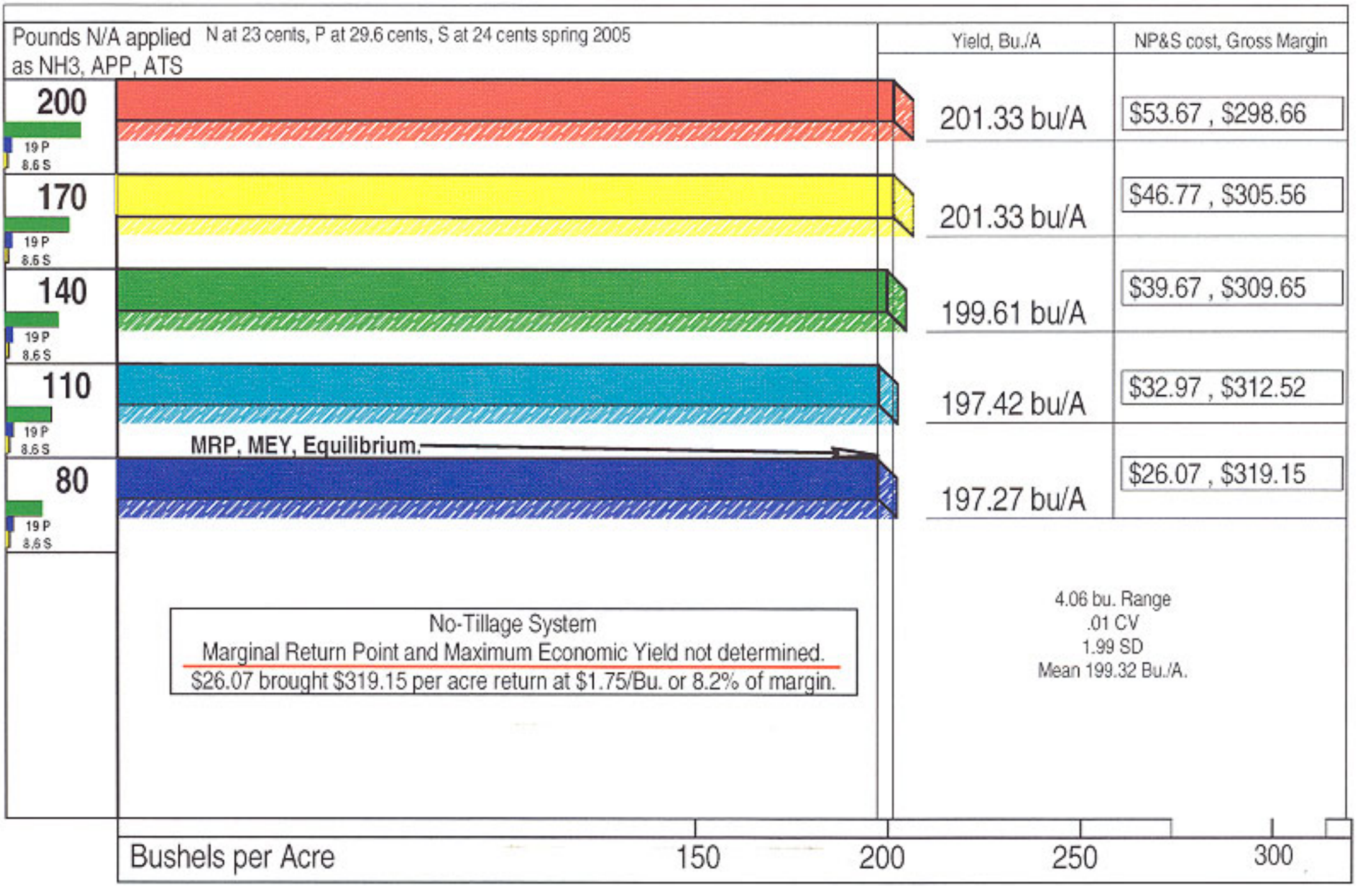


November 2005.
No difference in yield. 200 to 80 lbs. N/A.
Maximum Economic Yield: 80 lbs. N/A.
Point of diminishing return: 80 lbs. N/A.

Ridge Till, No-till nutrient placement.
1. Exactrix 2KC, NH3 application.
2.Exactrix 2KP, Forming TAPPS.

Food Grade Corn, Soybean Rotation.

Gene Nichols, Center Pivot, Ridge Till, Soybean Rotation, Spring Applied 30 days ahead of planting.
Exactrix 2KC Single Disc Yetter with Yockey type closing wheels on 15" band centers. Dual application of 10-34-0, APP and 12-0-0-26S, ATS was made with an Exactrix Mini Man 2KP open forming TAPPS crystals in the no-till placed nutrient band.
All applications were TAPPS dual applied maintaining P and S constant and N as NH3 varied between 80 to 200 pounds N per acre.
S applied to stabilize the band and provide S for N and P efficiency. APP/ATS applied to assure N performance.
Several years of continuos No-till/Ridge till.
Pounds N/Bu. at MEY, MRP .4 lbs. N/Bu. Pounds N/Bu. supplied by OM .4 lbs.N/Bu.
A total of 140 pounds of N/A. supplied by soybean legume and the Organic Matter soil life. Soil solution P also supplied by the soil life and OM at unexpected rates.

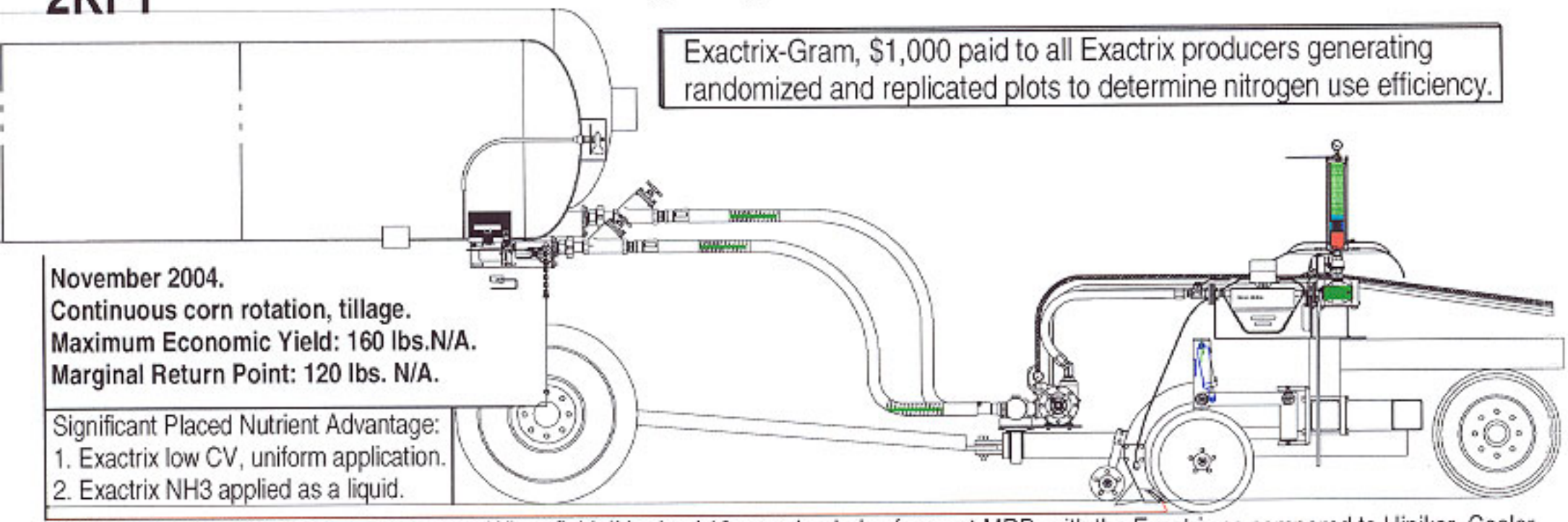


2004, Hiniker,Cooler, Impellicone compared to Exactrix 2KFT

Exactrix Test Data supplied by producer Steve Peterson, Wheatfield IN.

CORN

Exactrix-Gram, $1,000 paid to all Exactrix producers generating randomized and replicated plots to determine nitrogen use efficiency.



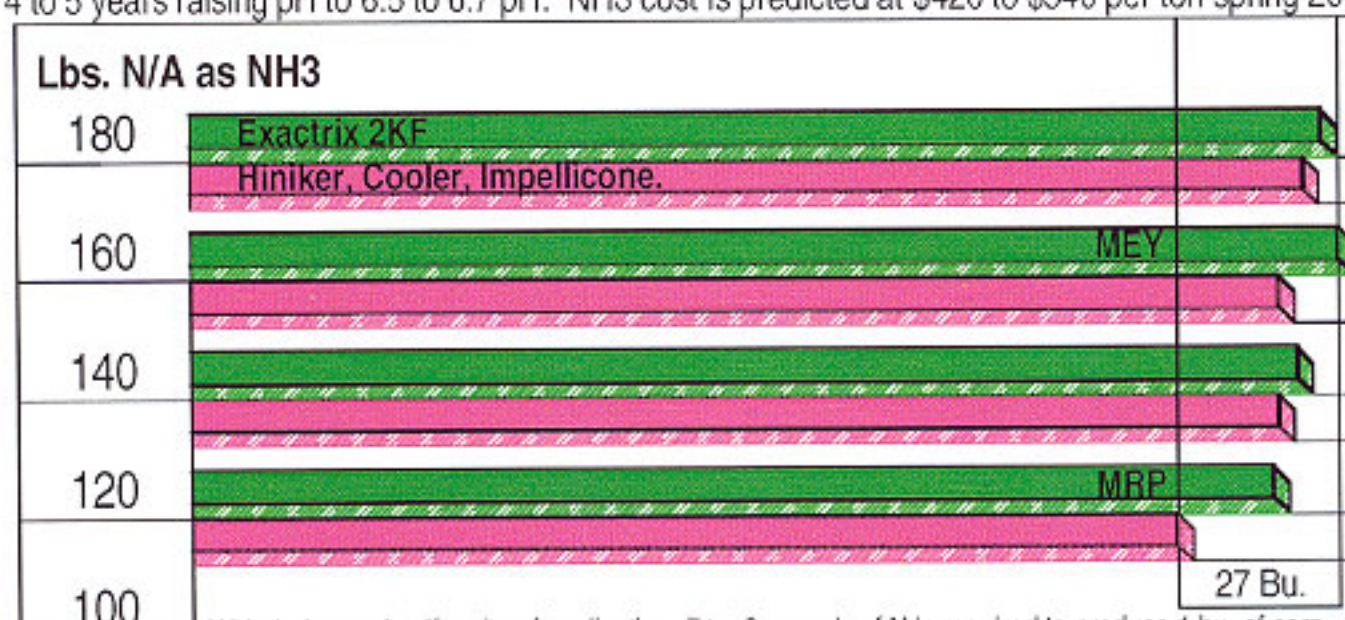
November 2004.
Continuous corn rotation, tillage.
Maximum Economic Yield: 160 lbs.N/A.
Marginal Return Point: 120 lbs. N/A.

Significant Placed Nutrient Advantage:
1. Exactrix low CV, uniform application.
2. Exactrix NH3 applied as a liquid.

Continuos corn producer Steve Peterson at Wheatfield, IN raised 16 more bushels of corn at MRP with the Exactrix as compared to Hiniker, Cooler Impellicone system.

At Maximum Economic Yield Steve raised 10 more bushels of corn with Exactrix as compared to Hiniker, Cooler, Impellicone. Steve's field wide averages were 205 bushels per acre.

Steve raises 750 acres of continuous corn and also custom applies nutrients. In 2005 Steve plans to convert from the 2KF volumetric system to the 2KC Weigh Master using Coriolis Mass Flow. He will also test dual placement with the a 15" shank type tool bar using Exactrix Delta P system. Steve has sandy soils to heavy much clay soils with pH in 6.2 range. Sulfur appears to be deficient on based on tissue samples. Steve limes every 4 to 5 years raising pH to 6.5 to 6.7 pH. NH3 cost is predicted at $420 to $540 per ton spring 2005 at Shelbyville, IN.



Yield Bu.A	Cost N $/A	Gross M $1.75/Bu	Gross% $N/$Gr.
189	45.00	288.88	13.61
186	45.00	280.51	13.82
192	40.00	296.01	11.9
182	40.00	278.51	12.56
185	35.00	288.75	10.81
182	35.00	283.51	10.99
181	30.00	286.75	9.47
165	30.00	258.75	10.39

With timing and uniformity of application .7 to .8 pounds of N is required to produce 1 bu. of corn.

Additional N as NH3 required to produce 1 bu. of corn at .8 pounds N per bushel.
At the Exactrix Marginal Return Point .66 pounds of N produced 1 bu. of corn.
At the Exactrix Marginal Return Point the OM and legume N added .14 pounds of N for each bu. of corn.
At the Exactrix Maximum Economic Yield .83 pounds of N produced 1 bu. of corn.
At the Exactrix Maximum Economic Yield the OM added .-03 pounds of N for each bu. of corn.

Soil lab recommendation made no N recommendation. Shank tillage system, One set of plots was plowed.

The enclosed plots were randomized and replicated twice. Yield monitors were used. Pioneer Hybrid Corn 34B24 at 28,500 population.

Exactrix System Performance.
Range 11 bushels.
Mean 186.75 bushels.
Coef. of Variation .0256
Standard Deviation 4.787

Hiniker, Cooler, Impellicone System Performance.
Range 21 bushels.
Mean 178.75 bushels.
Coef. of Variation .0523
Standard Deviation 9.358

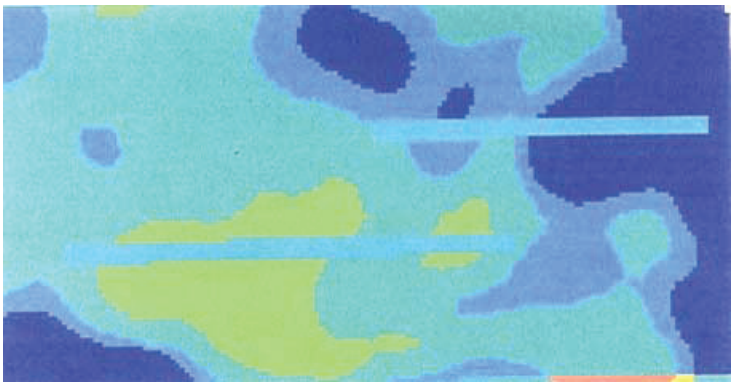
No seed row nutrients.

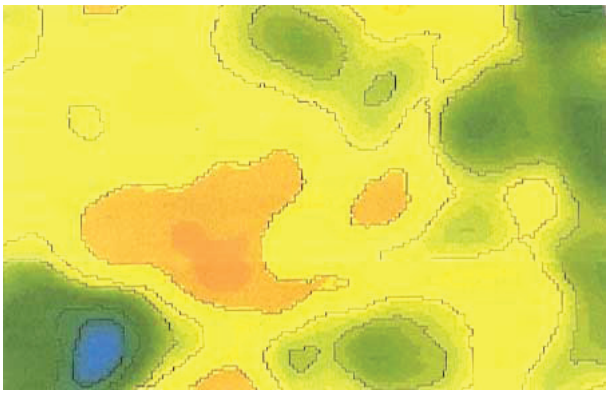
Bushels per Acre 150 200 250 300

Caution: Applying too much nitrogen can be detrimental to the corn crop. Always keep in mind that yield reductions can occur if the producer oversupplies nitrogen. Exactrix nitrogen is 40% more crop available.

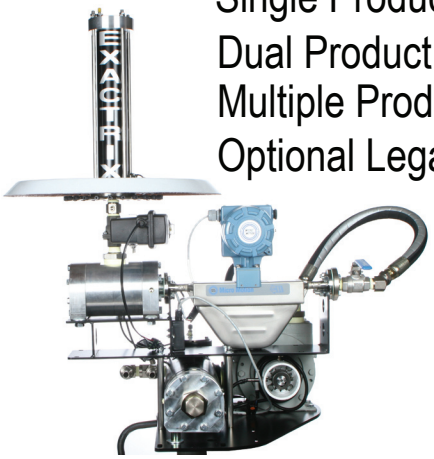
Test,Peterson sys. comp. 11,28,04

ADVANCED CONTROL & MAPPING

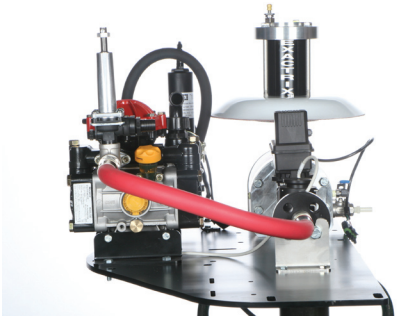


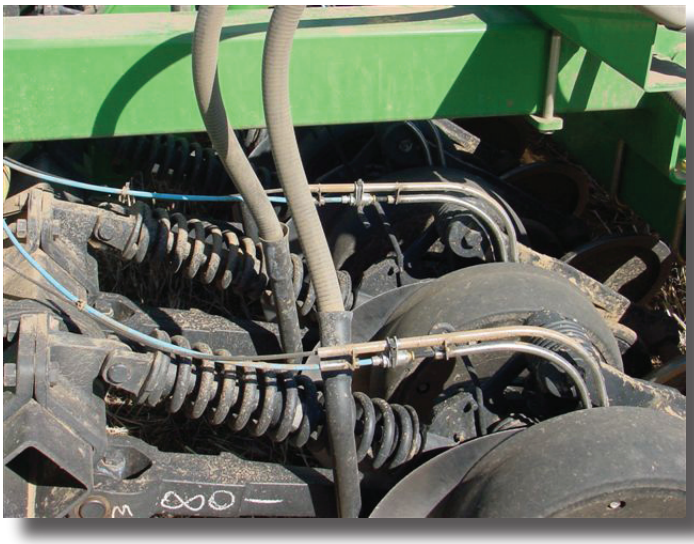


Single Product Systems, Standard Mid-Tech 6100 TASC Controller
Dual Product Systems, Standard Mid-Tech 6200 TASC Controller
Multiple Product Systems, Variable Rate Technology, Map Making Technology,
Optional Legacy 6000 Controller (As Shown)



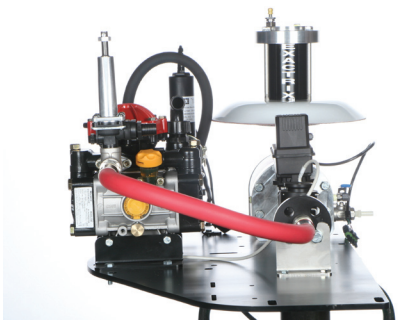
2006





HIGH SPEED SINGLE DISC OPENERS PLACE NUTRIENTS WITHOUT TILLAGE

2006





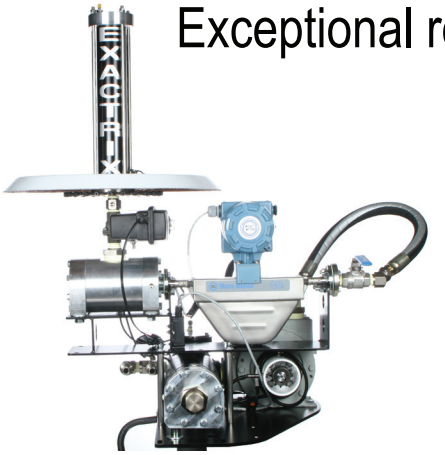






SIDE DRESSING

No-till single disc application
Maximum nutrient efficiency
Record yields with timing
Exceptional returns on investment



2006