

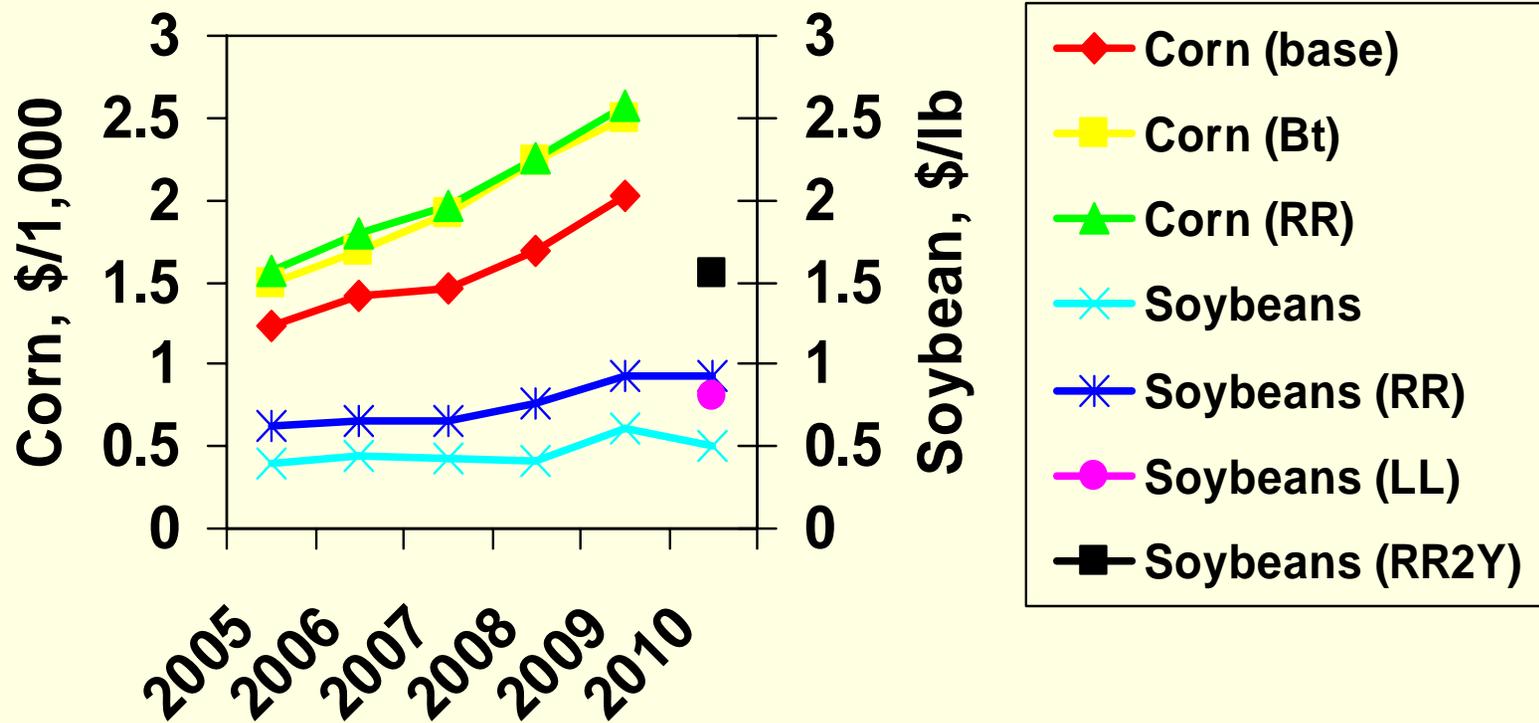
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# The Increasing Cost of Planting a Crop – Does It Pay?

Kraig Roozeboom  
Agronomy Extension Specialist  
Crop Production/Cropping Systems

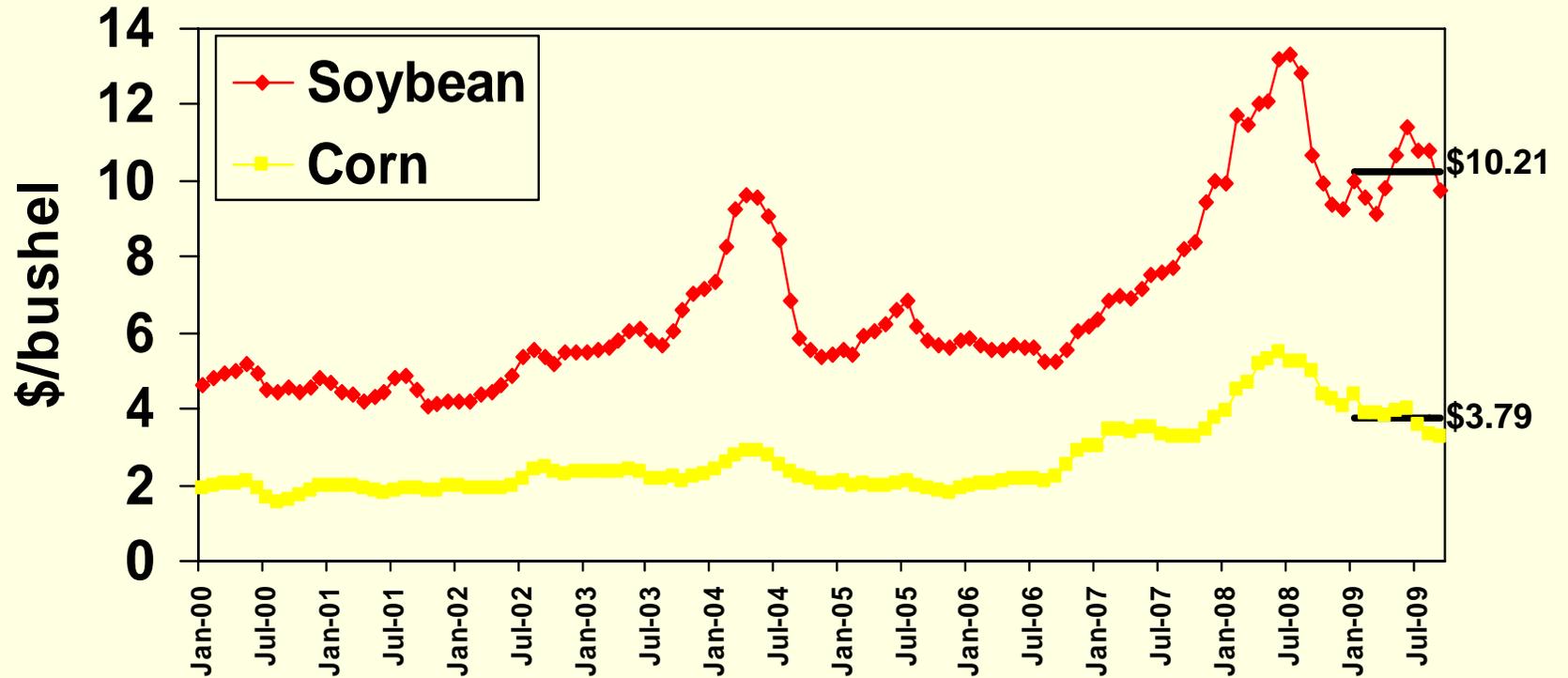
# Sticker Shock?

Troy Dumler, K-State SW Area Ag. Econ. Annual Survey



# Increasing Returns?

US Corn and Soybean Prices 2000-2009 (USDA)



# Increasing Costs

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- Seed 
- Seed Treatments 
- Foliar Fungicides 
- Herbicides
- Fertilizers

# Fungicide Seed Treatments

Active Ingredient (Products)	Crops	Pests Controlled/Suppressed
Mefanoxam (Apron XL)	Corn, soybean	Pythium, seedling phytophthora
Metalaxyl (Allegiance, Apron)	Corn, soybean	Pythium, seedling phytophthora
Captan (Captan® 400)	Extensive including corn, soybean, sorghum, wheat	Broad spectrum – seed decay, damping off
Carboxin (Vitavax and others)	Corn, wheat, cotton	Smut, rot, blight
Thiram (component of several combinations)	Corn, soybean, sorghum, wheat, cotton	Broad spectrum – seed decay, damping off, covered smut, sorghum ergot

# Soybean Fungicide Seed Treatments – Doug Jardine

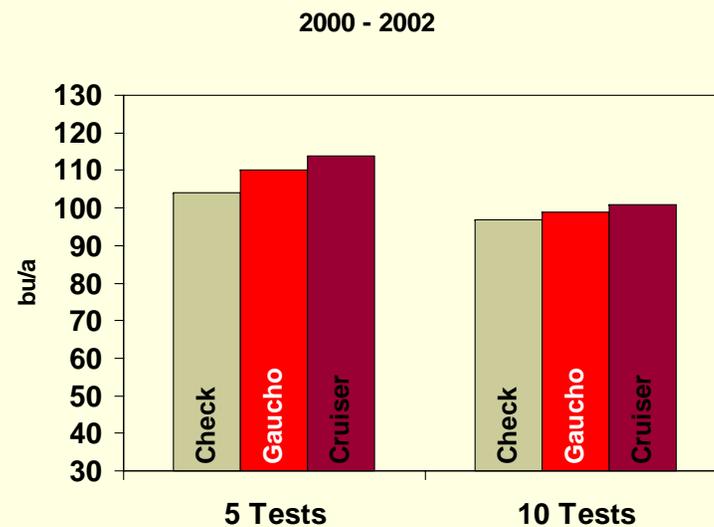
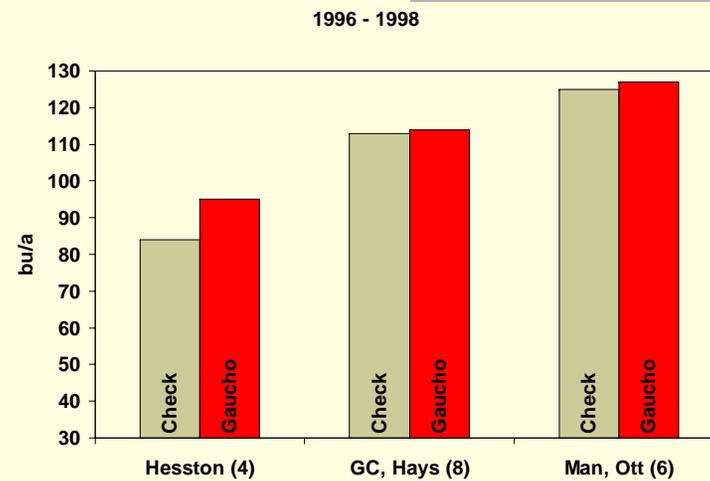
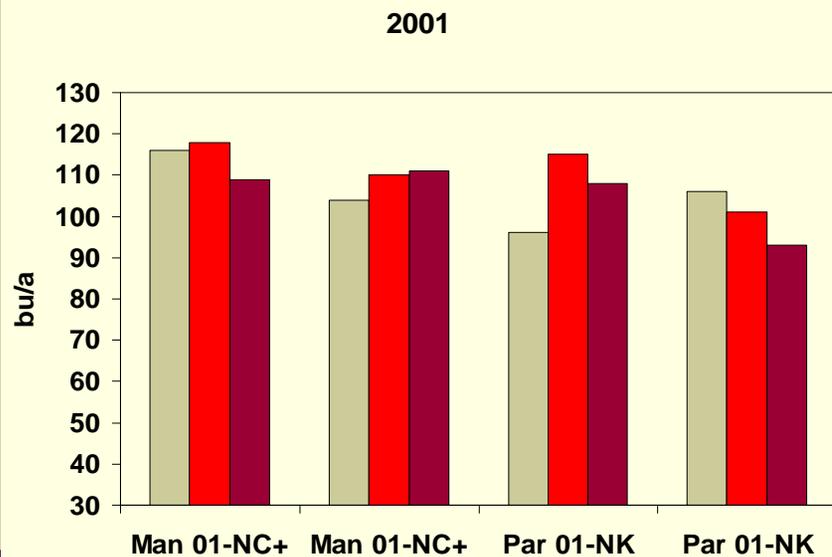
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- Use a product containing metalaxyl or mefanoxam (Allegiance or ApronXL) in combination with any of the broad-spectrum systemic fungicides (Maxim, Trilex, Charter, etc).
- Treat all soybean seed planted before May 15 and all no-till soybeans planted before June 1.
- Chances of getting an economic return in beans planted after June 1 become pretty spotty.
- In 2008, seedling blight was the number one soybean disease problem in the state with estimate losses of 5.4% - cool, wet spring in many areas.

# Insecticide Seed Treatments

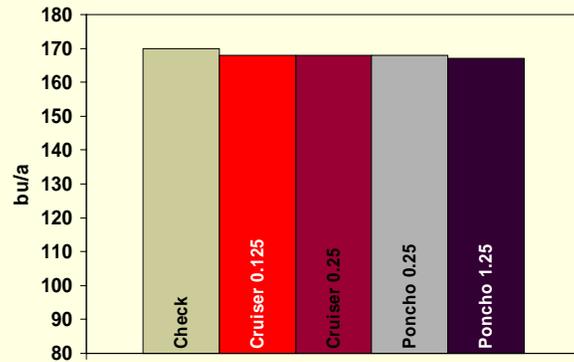
Active Ingredient (Products)	Crops	Pests Controlled/Suppressed
Clothianidin (Poncho® 250 and 1250)	Canola, cereals, corn, sunflowers and sugar beet	Early season pests, soil and leaf pests like aphids, beet leaf miners, black cutworms, corn rootworms, flea beetles, grubs, leafhoppers and wireworms
Fipronil (Regent® TS)	Corn	Control of wireworm, seed corn maggot, grape colaspis, suppression of white grub, flea beetle, thrips
Imidacloprid (Concur, Dyna-Shield, Imida, Latitude, Macho, Nuprid, Senator, Gaucho®, Raxil®)	Canola, cereals, corn, cotton, oil seed rape, pastures, potatoes, rice, sorghum, sugar beet and sunflowers	Aphids, fruit fly, leafhoppers, grubs, termites, thrips, white fly, wireworms, various beetles (including flea beetle and pygmy beetle), various weevils, nematodes and various fungal diseases
Thiamethoxam (Helix™, Apron® Star)	Corn, soybean, sorghum, wheat, canola, cotton	Early season sucking and chewing, leaf-feeding, and soil dwelling pests – aphids, wireworms, flea beetles, leafminers

# Insecticide seed treatments – Sorghum

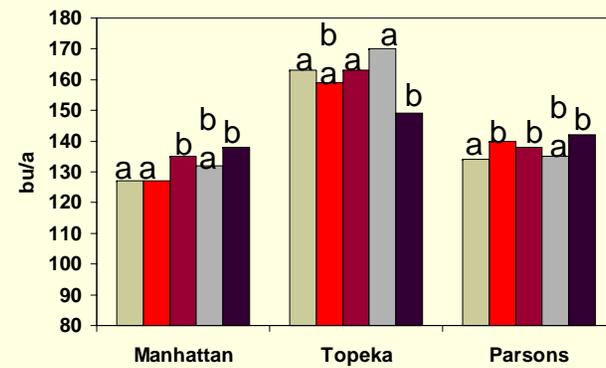


# Insecticide seed treatments – Corn

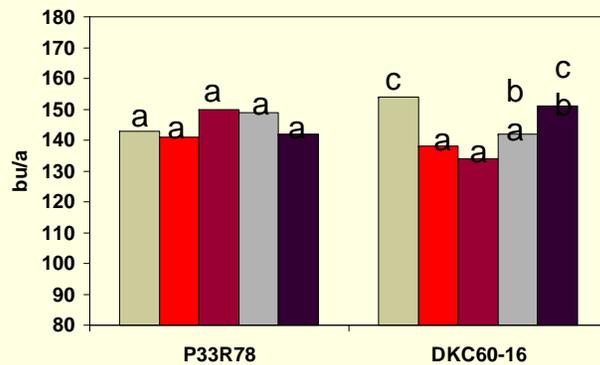
5 Locations 2005



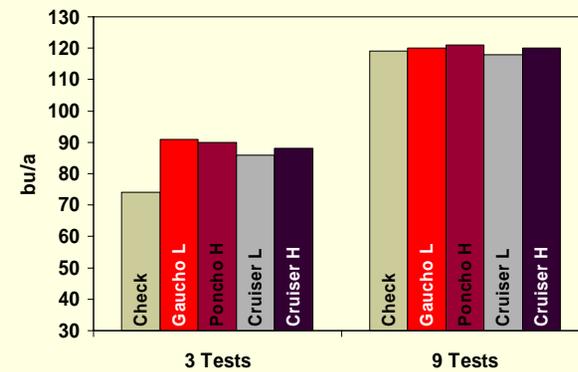
2005



Ottawa 2005

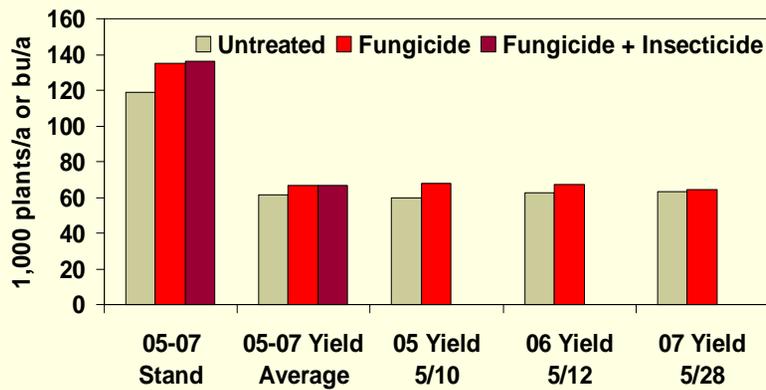


2000-2002

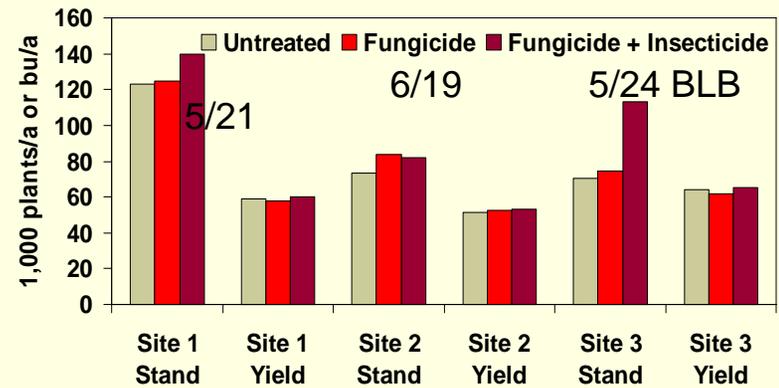


# Soybean Seed Treatments

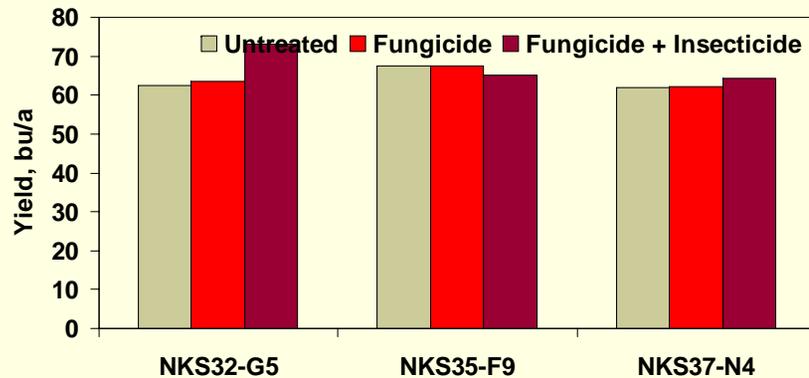
Belleville 2005-2007



Central KS District 2008

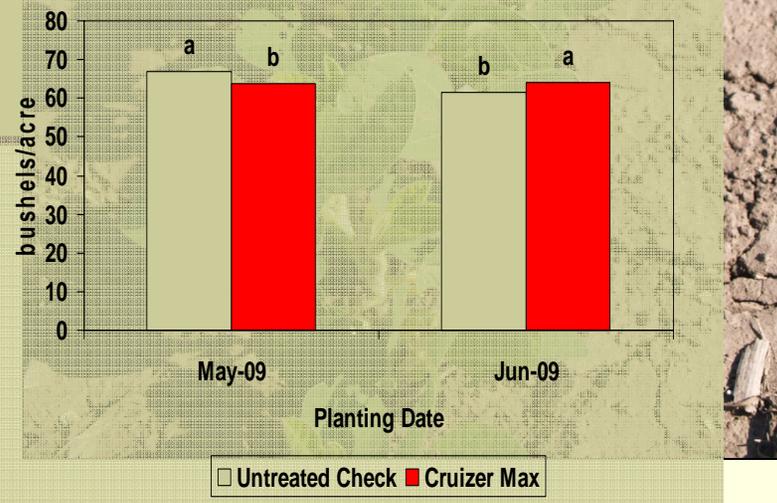
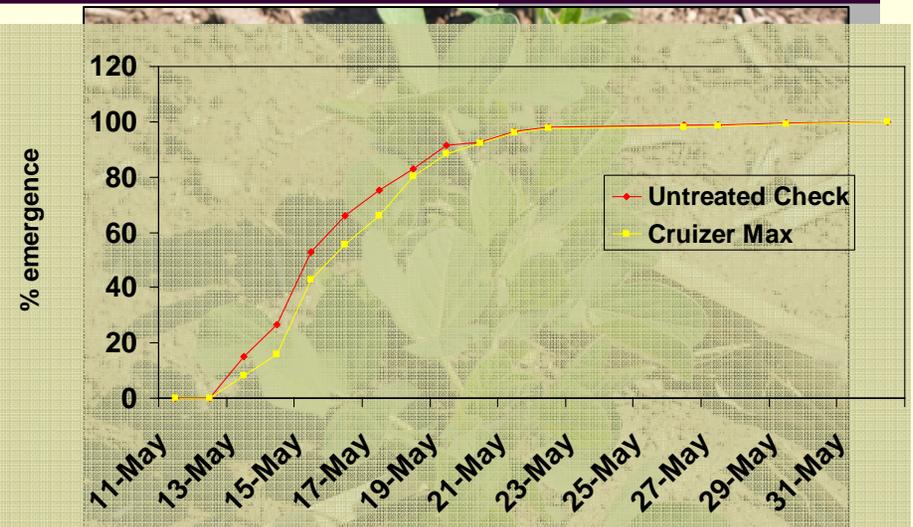
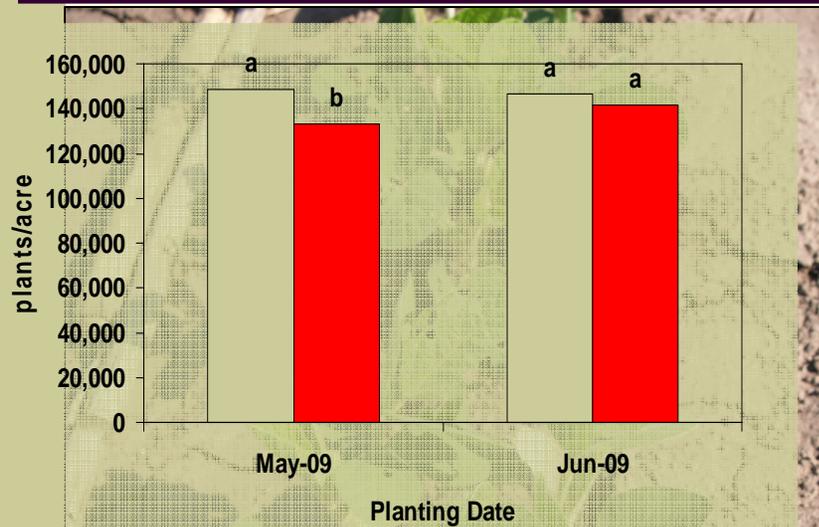


Belleville 2007



# Soybean Planting Date, Seed Treatments

## – Manhattan 2009



# Soybean Insecticide Seed Treatments – Jeff Whitworth

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- Seed treatments usually control the pests indicated on the label.
  - Bean Leaf Beetle (MF2824) – Seed treatments with thiamethoxam and imidacloprid are labeled for early season protection. However, unless bean leaf beetle populations are a recurring problem, some other controllable threat, i.e. wireworms or white grubs, would be needed to justify the use of a systemic seed treatment.
- Treatments do not provide season-long control
  - They give good protection for 21-28 days from **planting** – not from germination.
- Rates
  - The higher the rate, the longer and better the protection afforded by the treatment, up to a point.
  - I've not seen seed treatments last longer than 28 days at any rate, but I have seen some of the lower rates not last 21 days.
  - Higher rates will protect against greater pest densities, again up to a point.
    - Pests have to feed on the seedling to get the toxicant, so sometimes these pests are so dense the feeding will actually kill the plant as well as the pest.
    - Seed feeding insects just have to come into contact with the pesticide so it is usually more of an issue for seedlings.

Untreated

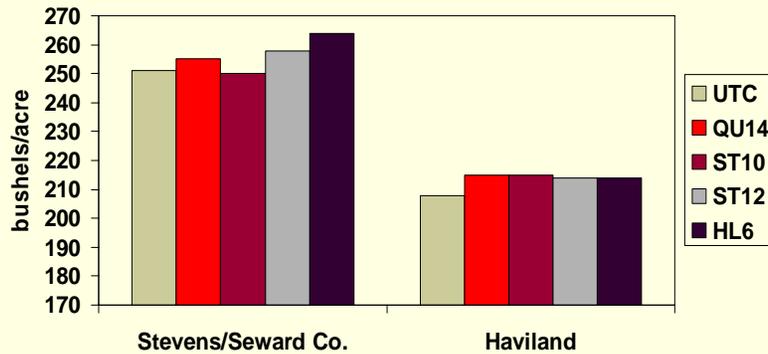
Treated



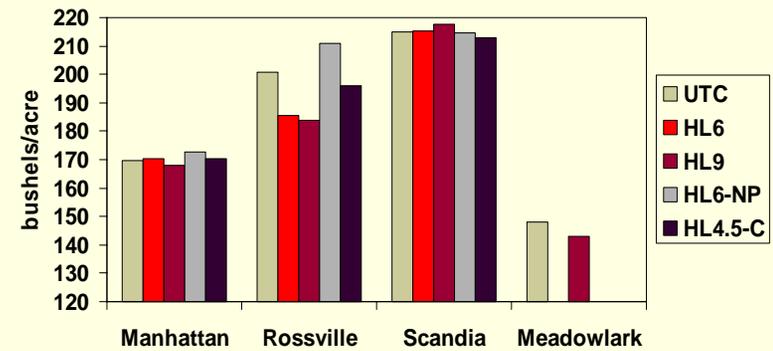
Insurance

# Foliar Fungicides – Corn

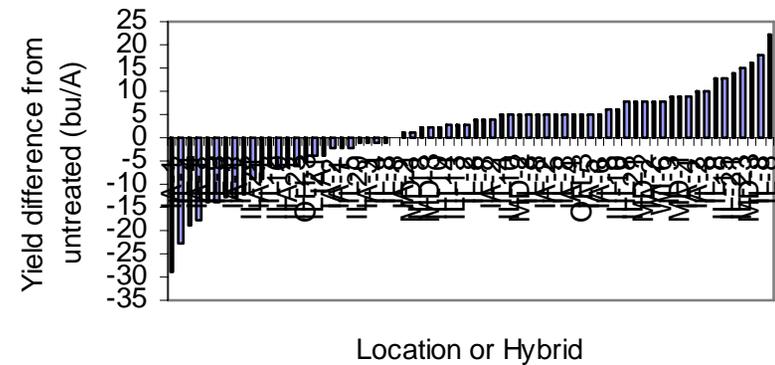
Southwest Cont. Irr. Corn



Northeast Rotated Corn



North Central States - Bradley 2007



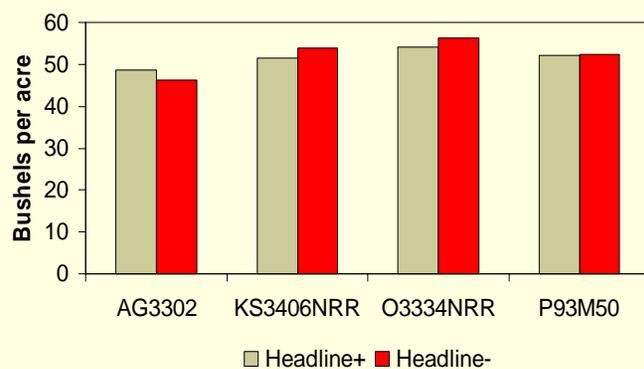
# Foliar Fungicides – Corn

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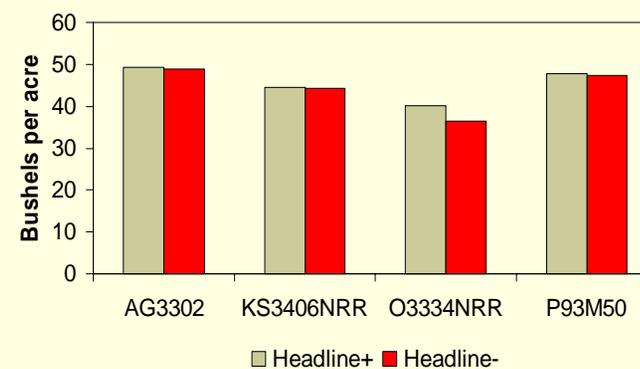
- Fungicide delays disease progression and leaf senescence
- Fungicide can delay dry-down
- Fungicide can reduce lodging (better stalk health)
- Fungicide affect on kernel mass, ear weight, and test weight has been inconsistent
- Fungicide can increase yield, but:
  - Can depend on geography (Jardine)
  - Can depend on rotation
  - Can depend on residue levels
  - Can depend on hybrid disease resistance
- Therefore
  - Scout for disease and apply fungicide when needed.

# Foliar Fungicides – Soybeans

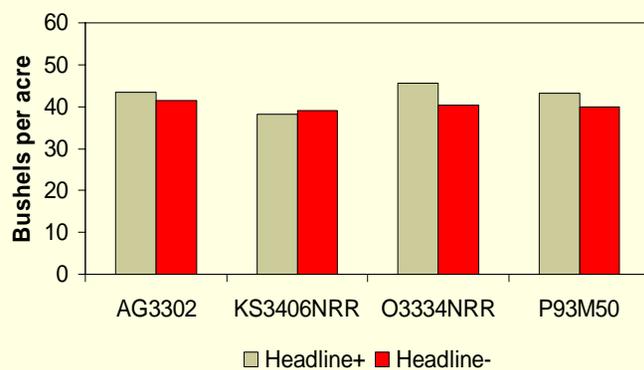
Manhattan 2006



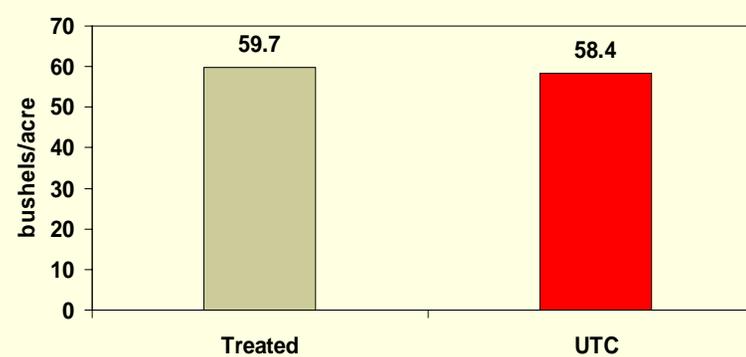
Hesston 2006



Manhattan 2007



Manhattan 2008



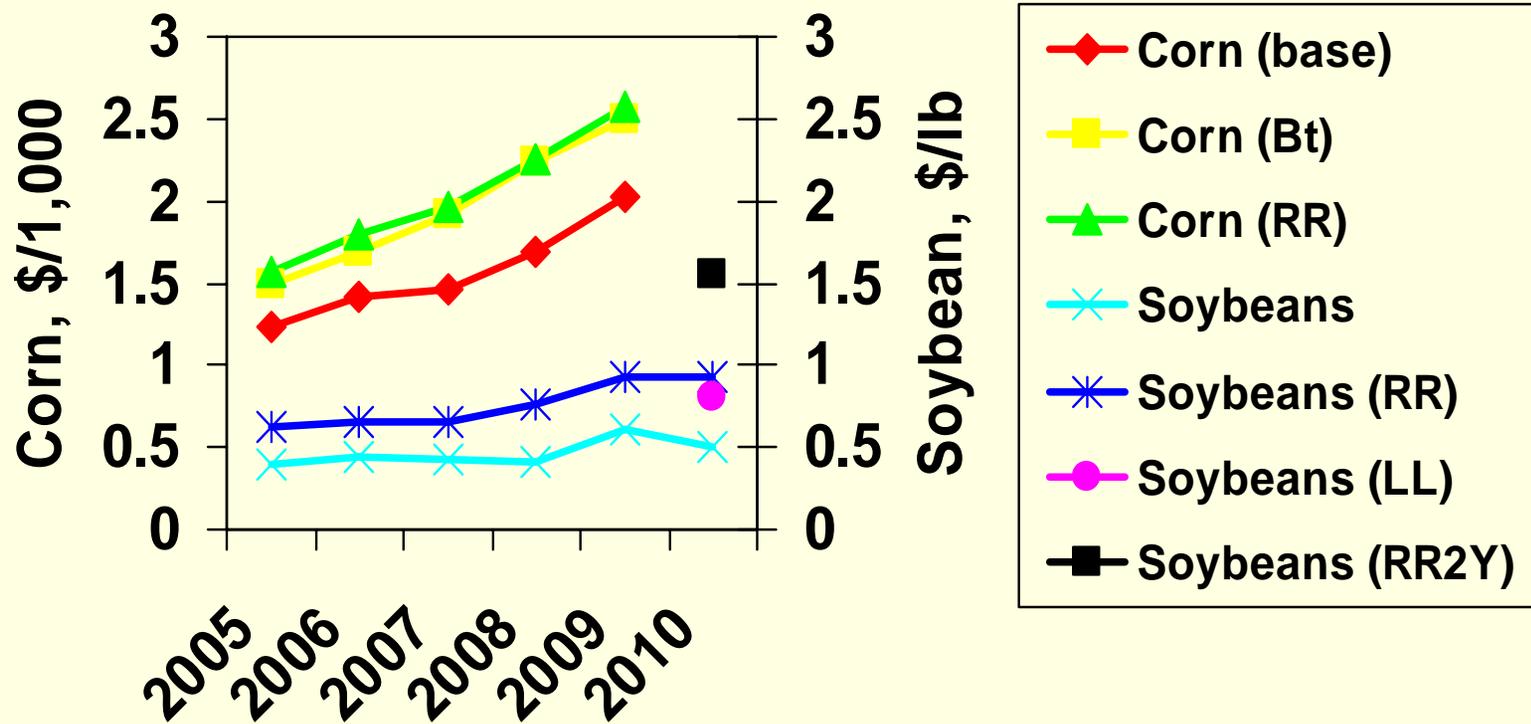
# Foliar Fungicides – Soybeans

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- With little or no fungal disease:
  - Fungicide consistently slowed leaf senescence and delayed date when varieties reach maturity
  - Fungicide consistently increased seed size
  - Fungicide did not influence test weight
  - Grain yield response to fungicide depended on variety and environment
- With moderate to severe fungal disease:
  - Yield response can be significant

# Seed Costs

Troy Dumler, K-State SW Area Ag. Econ. Annual Survey



# Why Pay More For RR2Y?

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- “In four years of Monsanto field trials in six states, comparing near-isogenic lines, Genuity™ Roundup Ready 2 Yield® Soybeans consistently delivered 7-11% higher yields\* than Roundup Ready® Soybeans.”

<http://www.genuity.com/Traits/Soybean/Genuity-Roundup-Ready-2-Yield.aspx>

# Why Pay More For:

## ■ RR2Y?

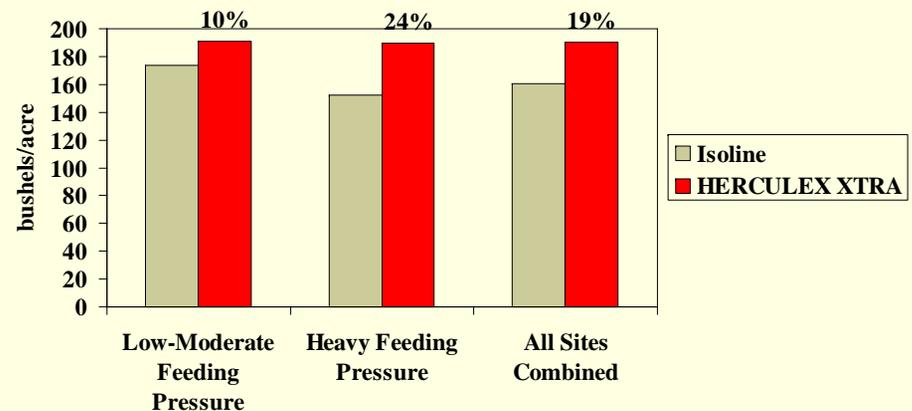
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## ■ GMO Traits in Corn?

- “On average, hybrids planted with HERCULEX XTRA had a yield advantage of 29.7 bushels per acre...HERCULEX EXTRA hybrids were compared to the same genetics containing HERCULEX I or the conventional version,”

Crop Management News, March 17, 2008

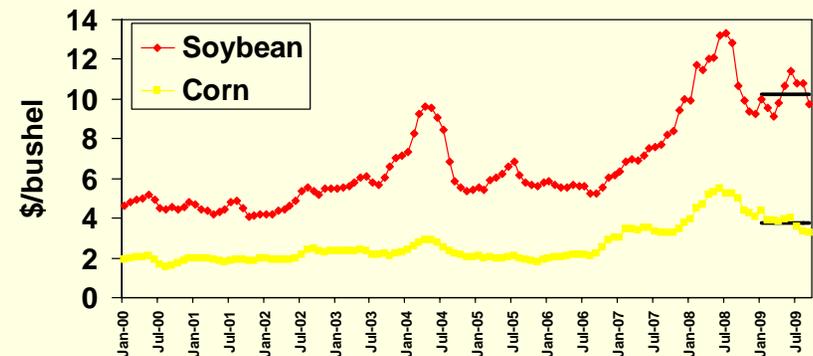


March 17, 2008 Crop Management News

# R.O.I. for RR2Yield Irrigated

- \$40/bag – RR
- \$70/bag – RR2Yield
- \$30/bag additional cost/bag
- 140,000 seeds/bag
- Seeding rate of 180,000 seeds per acre = 1.3 bags/acre = \$39/acre additional cost
- 75 bu/a irrigated soybean
- 10% increase = 7.5 bu/a
- 7.5 bu/a x \$10/bu = \$75
- \$75 - \$39 = \$36/acre net benefit

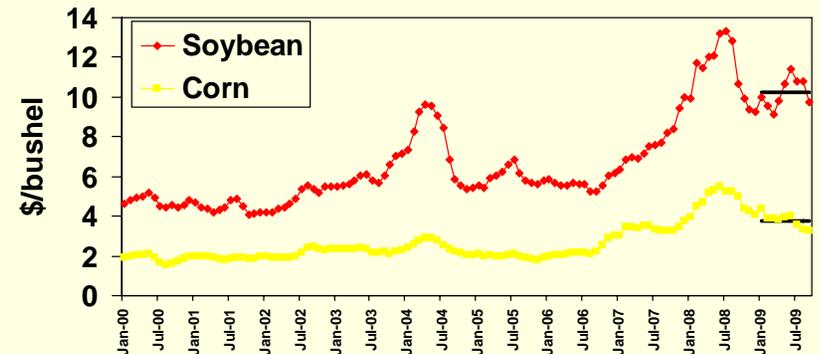
US Corn and Soybean Prices 2000-2009 (USDA)



# R.O.I. for Traited Corn Irrigated

- \$2.02/1,000 – Base Hybrid
- \$2.57/1,000 – Bt/RW/RR, VT3, etc.
- \$0.55/1,000 additional cost
- Seeding rate of 34,000 seeds per acre = \$18.70/acre additional cost
- 200 bu/a irrigated corn
- 10% increase = 20 bu/a
- 20 bu/a x \$3.79/bu = \$75.80
- \$75.80 - \$18.70 = \$57.10/acre net benefit

US Corn and Soybean Prices 2000-2009 (USDA)



# R.O.I. for RR2Yield Dryland

---

- \$40/bag – RR
- \$70/bag – RR2Yield
- \$30/bag additional cost/bag
- 140,000 seeds/bag
- Seeding rate of 140,000 seeds per acre = 1 bag/acre = \$30/acre additional cost
- 40 bu/a expected yield
- 10% increase = 4 bu/a
- 4 bu/a x \$10/bu = \$40
- \$40 - \$30 = \$10/acre net benefit

# R.O.I. for RR2Yield Double Crop

---

- \$40/bag – RR
- \$70/bag – RR2Yield
- \$30/bag additional cost/bag
- 120,000 seeds/bag
- Seeding rate of 140,000 seeds per acre = 0.86 bags/acre = \$25.80/acre additional cost
- 25 bu/a expected yield
- 10% increase = 2.5 bu/a
- 2.5 bu/a x \$10/bu = \$25
- \$25 - \$25.80 = - \$0.80/acre net loss

# Why Pay More For RR2Y?

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- “In four years of Monsanto field trials in six states, **comparing near-isogenic lines**, Genuity™ Roundup Ready 2 Yield® Soybeans consistently delivered 7-11% higher yields\* than Roundup Ready® Soybeans.”

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# Why Pay More For:

## ■ RR2Y?

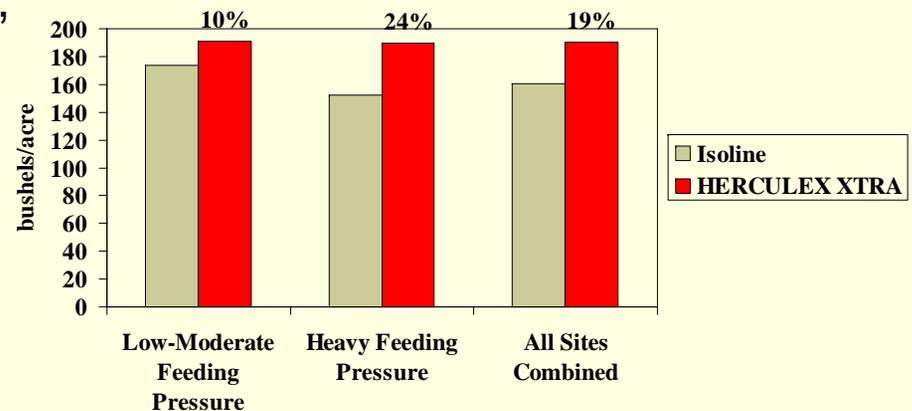
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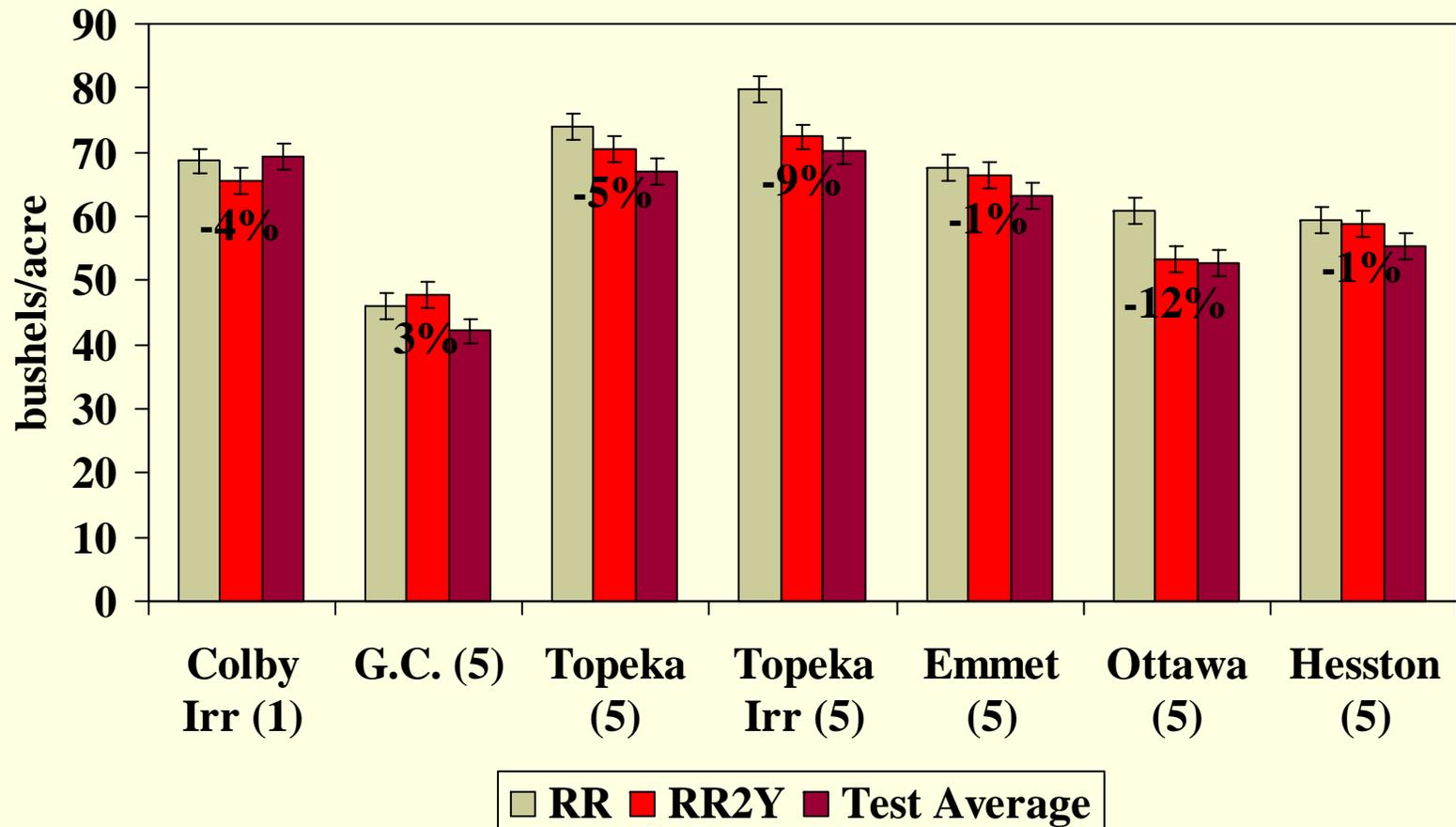
Crop Management News, March 17, 2008



March 17, 2008 Crop Management News

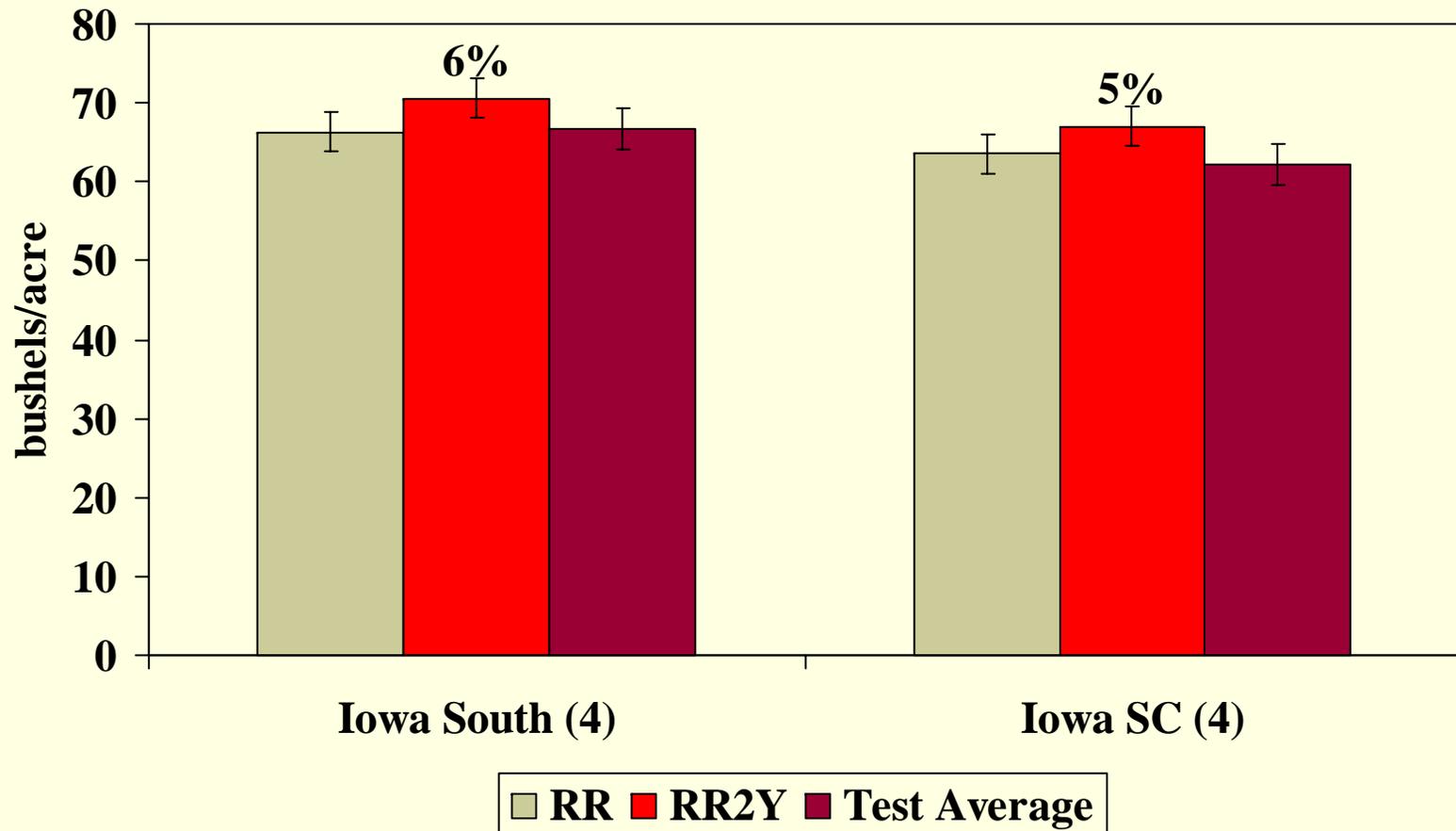
# 2009 Kansas Crop Performance Tests

(x) = number of varieties compared, mostly RR® varieties in tests



# 2009 F.I.R.S.T. Tests – 4 Locations

(x) = number of varieties compared, mostly RR2Yield® varieties in tests



Microsoft Excel - Economics of spraying soybeans

Version: 8.27.07

**Economics of spraying fungicide on soybeans**

**Print**

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**INPUTS**

Yield potential without pest problem, bu/ac	20.0
Estimated yield loss without spraying, %	15.0%
Estimated yield loss without spraying, bu/ac	3.0
Estimated yield without spraying, bu/ac	17.0
Price of soybeans, \$/bu	\$7.50
Chemical cost, \$/ac	\$14.00
Application cost, \$/ac	\$4.50
Hauling cost, \$/bu	\$0.138

---

**Partial Budget Analysis**

**Added Income, \$/ac**

Value of added bushels due to spraying	\$22.50
Other	\$0.00
<b>Total Added Income</b>	<b>\$22.50</b>

**Added Cost, \$/ac**

Chemical cost + application cost	\$18.50
Increased harvest and hauling cost	\$0.41
Other	\$0.00
<b>Total Added Costs</b>	<b>\$18.91</b>

---

**Net Benefit of Spraying, \$/ac**      \$3.59

**Yield Response to Breakeven, bu/ac**      2.5

**Yield Response to Breakeven, %**      12.6%

---

**Sensitivity Analysis -- Net Benefit of Spraying, \$/ac**

Soybean price, \$/bu	Yield potential without pest problem, bu/ac				
	10.0	15.0	20.0	25.0	30.0
\$7.00	-\$8.21	-\$3.06	\$2.09	\$7.23	\$12.38
\$7.25	-\$7.83	-\$2.50	\$2.84	\$8.17	\$13.50
\$7.50	-\$7.46	-\$1.94	\$3.59	\$9.11	\$14.63
\$7.75	-\$7.08	-\$1.37	\$4.34	\$10.05	\$15.75
\$8.00	-\$6.71	-\$0.81	\$5.09	\$10.98	\$16.88

---

**Sensitivity Analysis -- Net Benefit of Spraying, \$/ac**

Chemical cost\$/ac	Yield potential without pest problem, bu/ac					Breakeven yield, bu/ac
	10.0	15.0	20.0	25.0	30.0	
\$10.00	-\$3.46	\$2.06	\$7.59	\$13.11	\$18.63	1.97
\$12.00	-\$5.46	\$0.06	\$5.59	\$11.11	\$16.63	2.24
\$14.00	-\$7.46	-\$1.94	\$3.59	\$9.11	\$14.63	2.51
\$16.00	-\$9.46	-\$3.94	\$1.59	\$7.11	\$12.63	2.78
\$18.00	-\$11.46	-\$5.94	-\$0.41	\$5.11	\$10.63	3.06

---

Increment for soybean yield, bu/ac      5.0

Increment for soybean price, \$/bu      \$0.25

Increment for chemical cost, \$/ac      \$2.00

---

**Developed by:**

**Kevin C. Dhuyvetter**  
 Extension Agricultural Economist  
 Kansas State University  
 voice: (785) 532-3527  
 email: kcd@ksu.edu  
 website: www.agmanager.info

**Doug Jardine**  
 Extension Plant Pathologist  
 Kansas State University  
 voice: (785) 532-1386  
 email: jardine@ksu.edu





**AG MANAGER.INFO**  
 Kansas State University  
 Department of Agricultural Economics

Sheet1 / Sheet2 / Sheet3

Ready

# Net Returns at 9% Yield Increase and \$30/acre Additional Seed Cost

Price \$/bu.	Anticipated Yield (bushels/acre)														
	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
\$8.25	(\$15.40)	(\$11.75)	(\$8.10)	(\$4.45)	(\$0.80)	\$2.85	\$6.50	\$10.14	\$13.79	\$17.44	\$21.09	\$24.74	\$28.39	\$32.04	\$35.69
\$8.50	(\$14.95)	(\$11.19)	(\$7.43)	(\$3.67)	\$0.10	\$3.86	\$7.62	\$11.38	\$15.14	\$18.91	\$22.67	\$26.43	\$30.19	\$33.95	\$37.72
\$8.75	(\$14.50)	(\$10.63)	(\$6.75)	(\$2.88)	\$1.00	\$4.87	\$8.75	\$12.62	\$16.49	\$20.37	\$24.24	\$28.12	\$31.99	\$35.87	\$39.74
\$9.00	(\$14.05)	(\$10.07)	(\$6.08)	(\$2.09)	\$1.90	\$5.88	\$9.87	\$13.86	\$17.84	\$21.83	\$25.82	\$29.81	\$33.79	\$37.78	\$41.77
\$9.25	(\$13.60)	(\$9.50)	(\$5.40)	(\$1.30)	\$2.80	\$6.90	\$11.00	\$15.09	\$19.19	\$23.29	\$27.39	\$31.49	\$35.59	\$39.69	\$43.79
\$9.50	(\$13.15)	(\$8.94)	(\$4.73)	(\$0.52)	\$3.70	\$7.91	\$12.12	\$16.33	\$20.54	\$24.76	\$28.97	\$33.18	\$37.39	\$41.60	\$45.82
\$9.75	(\$12.70)	(\$8.38)	(\$4.05)	\$0.27	\$4.60	\$8.92	\$13.25	\$17.57	\$21.89	\$26.22	\$30.54	\$34.87	\$39.19	\$43.52	\$47.84
\$10.00	(\$12.25)	(\$7.82)	(\$3.38)	\$1.06	\$5.50	\$9.93	\$14.37	\$18.81	\$23.24	\$27.68	\$32.12	\$36.56	\$40.99	\$45.43	\$49.87
\$10.25	(\$11.80)	(\$7.25)	(\$2.70)	\$1.85	\$6.40	\$10.95	\$15.50	\$20.04	\$24.59	\$29.14	\$33.69	\$38.24	\$42.79	\$47.34	\$51.89
\$10.50	(\$11.35)	(\$6.69)	(\$2.03)	\$2.63	\$7.30	\$11.96	\$16.62	\$21.28	\$25.94	\$30.61	\$35.27	\$39.93	\$44.59	\$49.25	\$53.92
\$10.75	(\$10.90)	(\$6.13)	(\$1.35)	\$3.42	\$8.20	\$12.97	\$17.75	\$22.52	\$27.29	\$32.07	\$36.84	\$41.62	\$46.39	\$51.17	\$55.94
\$11.00	(\$10.45)	(\$5.57)	(\$0.68)	\$4.21	\$9.10	\$13.98	\$18.87	\$23.76	\$28.64	\$33.53	\$38.42	\$43.31	\$48.19	\$53.08	\$57.97
\$11.25	(\$10.00)	(\$5.00)	\$0.00	\$5.00	\$10.00	\$15.00	\$20.00	\$24.99	\$29.99	\$34.99	\$39.99	\$44.99	\$49.99	\$54.99	\$59.99
\$11.50	(\$9.55)	(\$4.44)	\$0.67	\$5.78	\$10.90	\$16.01	\$21.12	\$26.23	\$31.34	\$36.46	\$41.57	\$46.68	\$51.79	\$56.90	\$62.02
\$11.75	(\$9.10)	(\$3.88)	\$1.35	\$6.57	\$11.80	\$17.02	\$22.25	\$27.47	\$32.69	\$37.92	\$43.14	\$48.37	\$53.59	\$58.82	\$64.04

# Net Returns at 5% Yield Increase and \$30/acre Additional Seed Cost

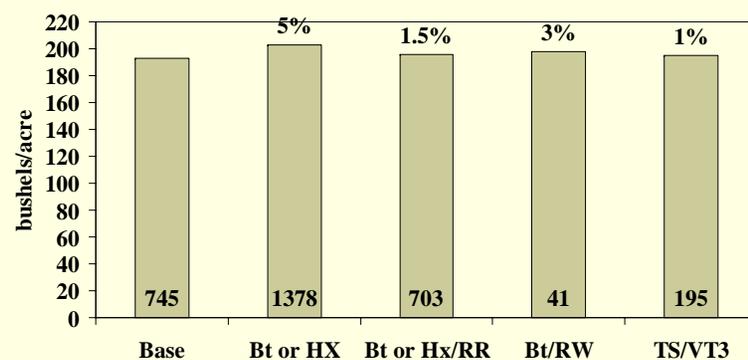
Price \$/bu.	Yield (bushels/acre)														
	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
\$8.25	(\$21.89)	(\$19.86)	(\$17.84)	(\$15.81)	(\$13.78)	(\$11.75)	(\$9.73)	(\$7.70)	(\$5.67)	(\$3.64)	(\$1.62)	\$0.41	\$2.44	\$4.47	\$6.50
\$8.50	(\$21.64)	(\$19.55)	(\$17.46)	(\$15.37)	(\$13.28)	(\$11.19)	(\$9.10)	(\$7.01)	(\$4.92)	(\$2.83)	(\$0.74)	\$1.35	\$3.44	\$5.53	\$7.62
\$8.75	(\$21.39)	(\$19.24)	(\$17.09)	(\$14.93)	(\$12.78)	(\$10.63)	(\$8.48)	(\$6.32)	(\$4.17)	(\$2.02)	\$0.13	\$2.29	\$4.44	\$6.59	\$8.75
\$9.00	(\$21.14)	(\$18.93)	(\$16.71)	(\$14.50)	(\$12.28)	(\$10.07)	(\$7.85)	(\$5.64)	(\$3.42)	(\$1.21)	\$1.01	\$3.22	\$5.44	\$7.66	\$9.87
\$9.25	(\$20.89)	(\$18.61)	(\$16.34)	(\$14.06)	(\$11.78)	(\$9.50)	(\$7.23)	(\$4.95)	(\$2.67)	(\$0.39)	\$1.89	\$4.16	\$6.44	\$8.72	\$11.00
\$9.50	(\$20.64)	(\$18.30)	(\$15.96)	(\$13.62)	(\$11.28)	(\$8.94)	(\$6.60)	(\$4.26)	(\$1.92)	\$0.42	\$2.76	\$5.10	\$7.44	\$9.78	\$12.12
\$9.75	(\$20.39)	(\$17.99)	(\$15.59)	(\$13.18)	(\$10.78)	(\$8.38)	(\$5.98)	(\$3.57)	(\$1.17)	\$1.23	\$3.64	\$6.04	\$8.44	\$10.84	\$13.25
\$10.00	(\$20.14)	(\$17.68)	(\$15.21)	(\$12.75)	(\$10.28)	(\$7.82)	(\$5.35)	(\$2.89)	(\$0.42)	\$2.05	\$4.51	\$6.97	\$9.44	\$11.91	\$14.37
\$10.25	(\$19.89)	(\$17.36)	(\$14.84)	(\$12.31)	(\$9.78)	(\$7.25)	(\$4.73)	(\$2.20)	\$0.33	\$2.86	\$5.39	\$7.91	\$10.44	\$12.97	\$15.50
\$10.50	(\$19.64)	(\$17.05)	(\$14.46)	(\$11.87)	(\$9.28)	(\$6.69)	(\$4.10)	(\$1.51)	\$1.08	\$3.67	\$6.26	\$8.85	\$11.44	\$14.03	\$16.62
\$10.75	(\$19.39)	(\$16.74)	(\$14.09)	(\$11.43)	(\$8.78)	(\$6.13)	(\$3.48)	(\$0.82)	\$1.83	\$4.48	\$7.14	\$9.79	\$12.44	\$15.09	\$17.75
\$11.00	(\$19.14)	(\$16.43)	(\$13.71)	(\$11.00)	(\$8.28)	(\$5.57)	(\$2.85)	(\$0.14)	\$2.58	\$5.30	\$8.01	\$10.73	\$13.44	\$16.16	\$18.87
\$11.25	(\$18.89)	(\$16.11)	(\$13.34)	(\$10.56)	(\$7.78)	(\$5.00)	(\$2.23)	\$0.55	\$3.33	\$6.11	\$8.89	\$11.66	\$14.44	\$17.22	\$20.00
\$11.50	(\$18.64)	(\$15.80)	(\$12.96)	(\$10.12)	(\$7.28)	(\$4.44)	(\$1.60)	\$1.24	\$4.08	\$6.92	\$9.76	\$12.60	\$15.44	\$18.28	\$21.12
\$11.75	(\$18.39)	(\$15.49)	(\$12.59)	(\$9.68)	(\$6.78)	(\$3.88)	(\$0.98)	\$1.93	\$4.83	\$7.73	\$10.64	\$13.54	\$16.44	\$19.34	\$22.25

# Net Returns at 2% Yield Increase and \$30/acre Additional Seed Cost

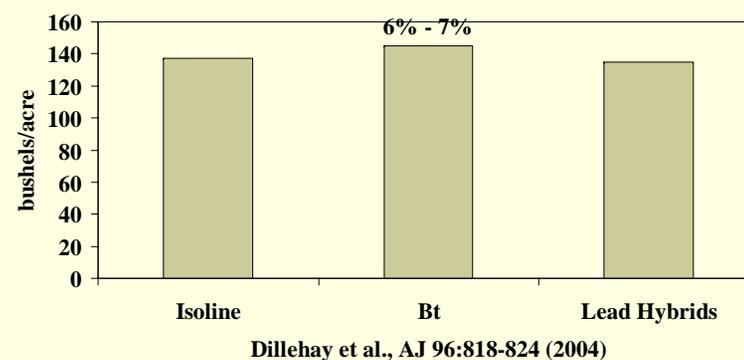
Price \$/bu.	Yield (bushels/acre)														
	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
\$8.00	(\$26.86)	(\$26.07)	(\$25.28)	(\$24.50)	(\$23.71)	(\$22.93)	(\$22.14)	(\$21.35)	(\$20.57)	(\$19.78)	(\$19.00)	(\$18.21)	(\$17.42)	(\$16.64)	(\$15.85)
\$9.00	(\$26.46)	(\$25.57)	(\$24.68)	(\$23.80)	(\$22.91)	(\$22.03)	(\$21.14)	(\$20.25)	(\$19.37)	(\$18.48)	(\$17.60)	(\$16.71)	(\$15.82)	(\$14.94)	(\$14.05)
\$10.00	(\$26.06)	(\$25.07)	(\$24.08)	(\$23.10)	(\$22.11)	(\$21.13)	(\$20.14)	(\$19.15)	(\$18.17)	(\$17.18)	(\$16.20)	(\$15.21)	(\$14.22)	(\$13.24)	(\$12.25)
\$11.00	(\$25.66)	(\$24.57)	(\$23.48)	(\$22.40)	(\$21.31)	(\$20.23)	(\$19.14)	(\$18.05)	(\$16.97)	(\$15.88)	(\$14.80)	(\$13.71)	(\$12.62)	(\$11.54)	(\$10.45)
\$12.00	(\$25.26)	(\$24.07)	(\$22.88)	(\$21.70)	(\$20.51)	(\$19.33)	(\$18.14)	(\$16.95)	(\$15.77)	(\$14.58)	(\$13.40)	(\$12.21)	(\$11.02)	(\$9.84)	(\$8.65)
\$13.00	(\$24.86)	(\$23.57)	(\$22.28)	(\$21.00)	(\$19.71)	(\$18.43)	(\$17.14)	(\$15.85)	(\$14.57)	(\$13.28)	(\$12.00)	(\$10.71)	(\$9.42)	(\$8.14)	(\$6.85)
\$14.00	(\$24.46)	(\$23.07)	(\$21.68)	(\$20.30)	(\$18.91)	(\$17.53)	(\$16.14)	(\$14.75)	(\$13.37)	(\$11.98)	(\$10.60)	(\$9.21)	(\$7.82)	(\$6.44)	(\$5.05)
\$15.00	(\$24.06)	(\$22.57)	(\$21.08)	(\$19.60)	(\$18.11)	(\$16.63)	(\$15.14)	(\$13.65)	(\$12.17)	(\$10.68)	(\$9.20)	(\$7.71)	(\$6.22)	(\$4.74)	(\$3.25)
\$16.00	(\$23.66)	(\$22.07)	(\$20.48)	(\$18.90)	(\$17.31)	(\$15.73)	(\$14.14)	(\$12.55)	(\$10.97)	(\$9.38)	(\$7.80)	(\$6.21)	(\$4.62)	(\$3.04)	(\$1.45)
\$17.00	(\$23.26)	(\$21.57)	(\$19.88)	(\$18.20)	(\$16.51)	(\$14.83)	(\$13.14)	(\$11.45)	(\$9.77)	(\$8.08)	(\$6.40)	(\$4.71)	(\$3.02)	(\$1.34)	\$0.35
\$18.00	(\$22.86)	(\$21.07)	(\$19.28)	(\$17.50)	(\$15.71)	(\$13.93)	(\$12.14)	(\$10.35)	(\$8.57)	(\$6.78)	(\$5.00)	(\$3.21)	(\$1.42)	\$0.36	\$2.15
\$19.00	(\$22.46)	(\$20.57)	(\$18.68)	(\$16.80)	(\$14.91)	(\$13.03)	(\$11.14)	(\$9.25)	(\$7.37)	(\$5.48)	(\$3.60)	(\$1.71)	\$0.18	\$2.06	\$3.95
\$20.00	(\$22.06)	(\$20.07)	(\$18.08)	(\$16.10)	(\$14.11)	(\$12.13)	(\$10.14)	(\$8.15)	(\$6.17)	(\$4.18)	(\$2.20)	(\$0.21)	\$1.78	\$3.76	\$5.75
\$21.00	(\$21.66)	(\$19.57)	(\$17.48)	(\$15.40)	(\$13.31)	(\$11.23)	(\$9.14)	(\$7.05)	(\$4.97)	(\$2.88)	(\$0.80)	\$1.29	\$3.38	\$5.46	\$7.55
\$22.00	(\$21.26)	(\$19.07)	(\$16.88)	(\$14.70)	(\$12.51)	(\$10.33)	(\$8.14)	(\$5.95)	(\$3.77)	(\$1.58)	\$0.60	\$2.79	\$4.98	\$7.16	\$9.35

# Corn Yield Response to Traits

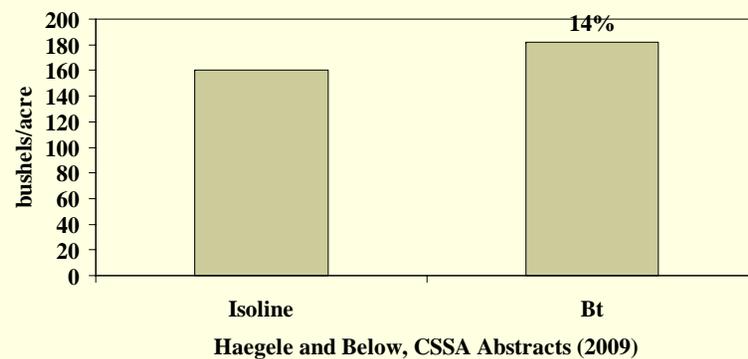
2001-2007 K-State Corn Tests



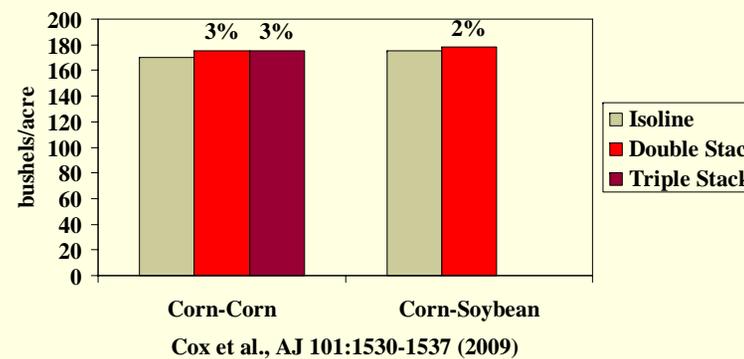
Pennsylvania and Maryland



Illinois



New York



Isoline  
 Double Stack  
 Triple Stack

# Net Returns at 10% Yield Increase and \$18.70/acre Additional Seed Cost

Price \$/bu.	Yield (bushels/acre)														
	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240
\$2.00	(\$0.10)	\$1.76	\$3.62	\$5.48	\$7.34	\$9.20	\$11.06	\$12.92	\$14.78	\$16.64	\$18.50	\$20.36	\$22.22	\$24.08	\$25.94
\$2.25	\$2.40	\$4.51	\$6.62	\$8.73	\$10.84	\$12.95	\$15.06	\$17.17	\$19.28	\$21.39	\$23.50	\$25.61	\$27.72	\$29.83	\$31.94
\$2.50	\$4.90	\$7.26	\$9.62	\$11.98	\$14.34	\$16.70	\$19.06	\$21.42	\$23.78	\$26.14	\$28.50	\$30.86	\$33.22	\$35.58	\$37.94
\$2.75	\$7.40	\$10.01	\$12.62	\$15.23	\$17.84	\$20.45	\$23.06	\$25.67	\$28.28	\$30.89	\$33.50	\$36.11	\$38.72	\$41.33	\$43.94
\$3.00	\$9.90	\$12.76	\$15.62	\$18.48	\$21.34	\$24.20	\$27.06	\$29.92	\$32.78	\$35.64	\$38.50	\$41.36	\$44.22	\$47.08	\$49.94
\$3.25	\$12.40	\$15.51	\$18.62	\$21.73	\$24.84	\$27.95	\$31.06	\$34.17	\$37.28	\$40.39	\$43.50	\$46.61	\$49.72	\$52.83	\$55.94
\$3.50	\$14.90	\$18.26	\$21.62	\$24.98	\$28.34	\$31.70	\$35.06	\$38.42	\$41.78	\$45.14	\$48.50	\$51.86	\$55.22	\$58.58	\$61.94
\$3.75	\$17.40	\$21.01	\$24.62	\$28.23	\$31.84	\$35.45	\$39.06	\$42.67	\$46.28	\$49.89	\$53.50	\$57.11	\$60.72	\$64.33	\$67.94
\$4.00	\$19.90	\$23.76	\$27.62	\$31.48	\$35.34	\$39.20	\$43.06	\$46.92	\$50.78	\$54.64	\$58.50	\$62.36	\$66.22	\$70.08	\$73.94
\$4.25	\$22.40	\$26.51	\$30.62	\$34.73	\$38.84	\$42.95	\$47.06	\$51.17	\$55.28	\$59.39	\$63.50	\$67.61	\$71.72	\$75.83	\$79.94
\$4.50	\$24.90	\$29.26	\$33.62	\$37.98	\$42.34	\$46.70	\$51.06	\$55.42	\$59.78	\$64.14	\$68.50	\$72.86	\$77.22	\$81.58	\$85.94
\$4.75	\$27.40	\$32.01	\$36.62	\$41.23	\$45.84	\$50.45	\$55.06	\$59.67	\$64.28	\$68.89	\$73.50	\$78.11	\$82.72	\$87.33	\$91.94
\$5.00	\$29.90	\$34.76	\$39.62	\$44.48	\$49.34	\$54.20	\$59.06	\$63.92	\$68.78	\$73.64	\$78.50	\$83.36	\$88.22	\$93.08	\$97.94
\$5.25	\$32.40	\$37.51	\$42.62	\$47.73	\$52.84	\$57.95	\$63.06	\$68.17	\$73.28	\$78.39	\$83.50	\$88.61	\$93.72	\$98.83	\$103.94
\$5.50	\$34.90	\$40.26	\$45.62	\$50.98	\$56.34	\$61.70	\$67.06	\$72.42	\$77.78	\$83.14	\$88.50	\$93.86	\$99.22	\$104.58	\$109.94

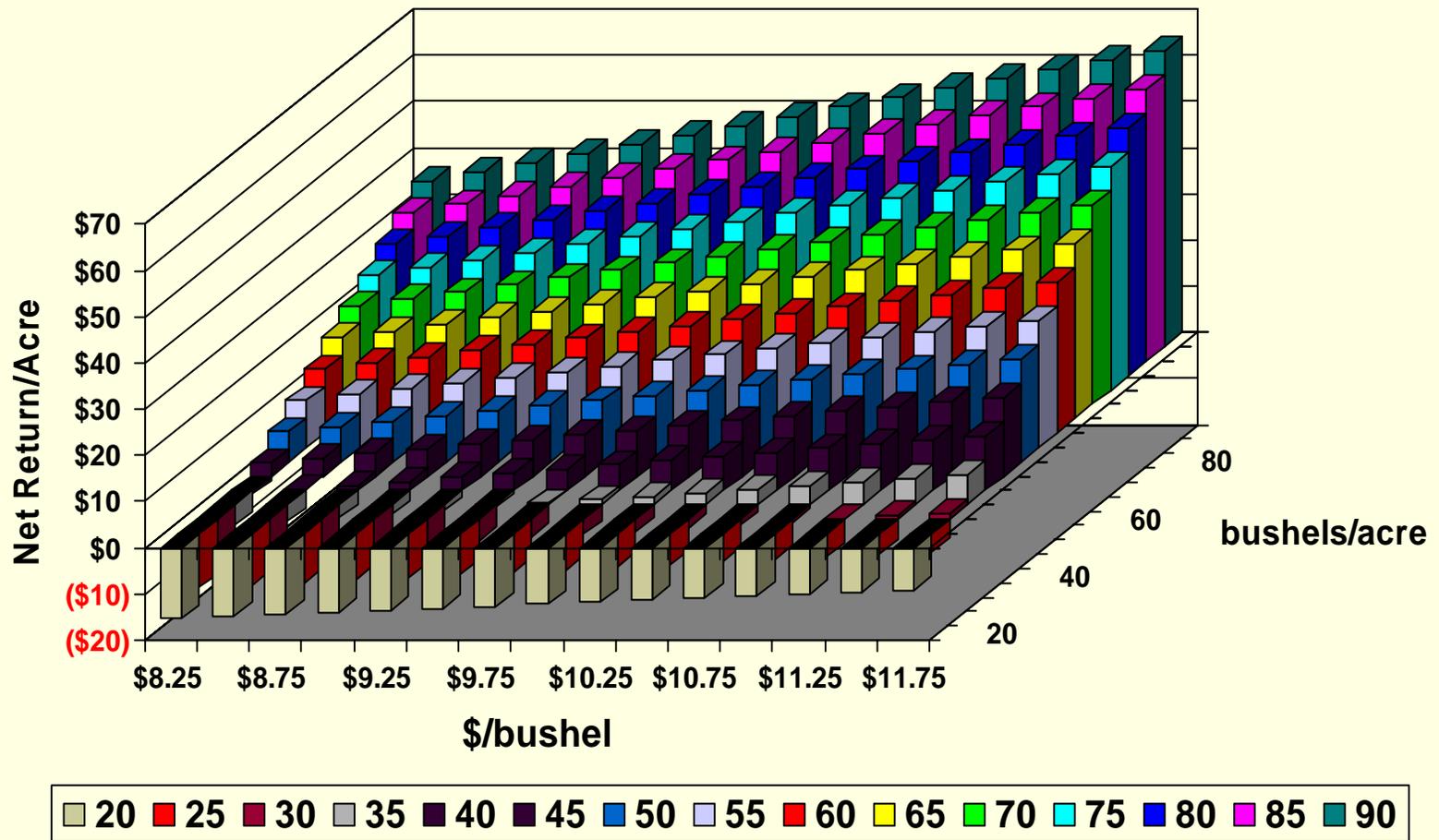
# Net Returns at 5% Yield Increase and \$18.70/acre Additional Seed Cost

Price \$/bu.	Yield (bushels/acre)														
	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240
\$2.00	(\$9.40)	(\$8.47)	(\$7.54)	(\$6.61)	(\$5.68)	(\$4.75)	(\$3.82)	(\$2.89)	(\$1.96)	(\$1.03)	(\$0.10)	\$0.83	\$1.76	\$2.69	\$3.62
\$2.25	(\$8.15)	(\$7.10)	(\$6.04)	(\$4.99)	(\$3.93)	(\$2.88)	(\$1.82)	(\$0.77)	\$0.29	\$1.35	\$2.40	\$3.46	\$4.51	\$5.57	\$6.62
\$2.50	(\$6.90)	(\$5.72)	(\$4.54)	(\$3.36)	(\$2.18)	(\$1.00)	\$0.18	\$1.36	\$2.54	\$3.72	\$4.90	\$6.08	\$7.26	\$8.44	\$9.62
\$2.75	(\$5.65)	(\$4.35)	(\$3.04)	(\$1.74)	(\$0.43)	\$0.88	\$2.18	\$3.49	\$4.79	\$6.10	\$7.40	\$8.71	\$10.01	\$11.32	\$12.62
\$3.00	(\$4.40)	(\$2.97)	(\$1.54)	(\$0.11)	\$1.32	\$2.75	\$4.18	\$5.61	\$7.04	\$8.47	\$9.90	\$11.33	\$12.76	\$14.19	\$15.62
\$3.25	(\$3.15)	(\$1.60)	(\$0.04)	\$1.52	\$3.07	\$4.63	\$6.18	\$7.74	\$9.29	\$10.85	\$12.40	\$13.96	\$15.51	\$17.07	\$18.62
\$3.50	(\$1.90)	(\$0.22)	\$1.46	\$3.14	\$4.82	\$6.50	\$8.18	\$9.86	\$11.54	\$13.22	\$14.90	\$16.58	\$18.26	\$19.94	\$21.62
\$3.75	(\$0.65)	\$1.16	\$2.96	\$4.77	\$6.57	\$8.38	\$10.18	\$11.99	\$13.79	\$15.60	\$17.40	\$19.21	\$21.01	\$22.82	\$24.62
\$4.00	\$0.60	\$2.53	\$4.46	\$6.39	\$8.32	\$10.25	\$12.18	\$14.11	\$16.04	\$17.97	\$19.90	\$21.83	\$23.76	\$25.69	\$27.62
\$4.25	\$1.85	\$3.91	\$5.96	\$8.02	\$10.07	\$12.13	\$14.18	\$16.24	\$18.29	\$20.35	\$22.40	\$24.46	\$26.51	\$28.57	\$30.62
\$4.50	\$3.10	\$5.28	\$7.46	\$9.64	\$11.82	\$14.00	\$16.18	\$18.36	\$20.54	\$22.72	\$24.90	\$27.08	\$29.26	\$31.44	\$33.62
\$4.75	\$4.35	\$6.66	\$8.96	\$11.27	\$13.57	\$15.88	\$18.18	\$20.49	\$22.79	\$25.10	\$27.40	\$29.71	\$32.01	\$34.32	\$36.62
\$5.00	\$5.60	\$8.03	\$10.46	\$12.89	\$15.32	\$17.75	\$20.18	\$22.61	\$25.04	\$27.47	\$29.90	\$32.33	\$34.76	\$37.19	\$39.62
\$5.25	\$6.85	\$9.41	\$11.96	\$14.52	\$17.07	\$19.63	\$22.18	\$24.74	\$27.29	\$29.85	\$32.40	\$34.96	\$37.51	\$40.07	\$42.62
\$5.50	\$8.10	\$10.78	\$13.46	\$16.14	\$18.82	\$21.50	\$24.18	\$26.86	\$29.54	\$32.22	\$34.90	\$37.58	\$40.26	\$42.94	\$45.62

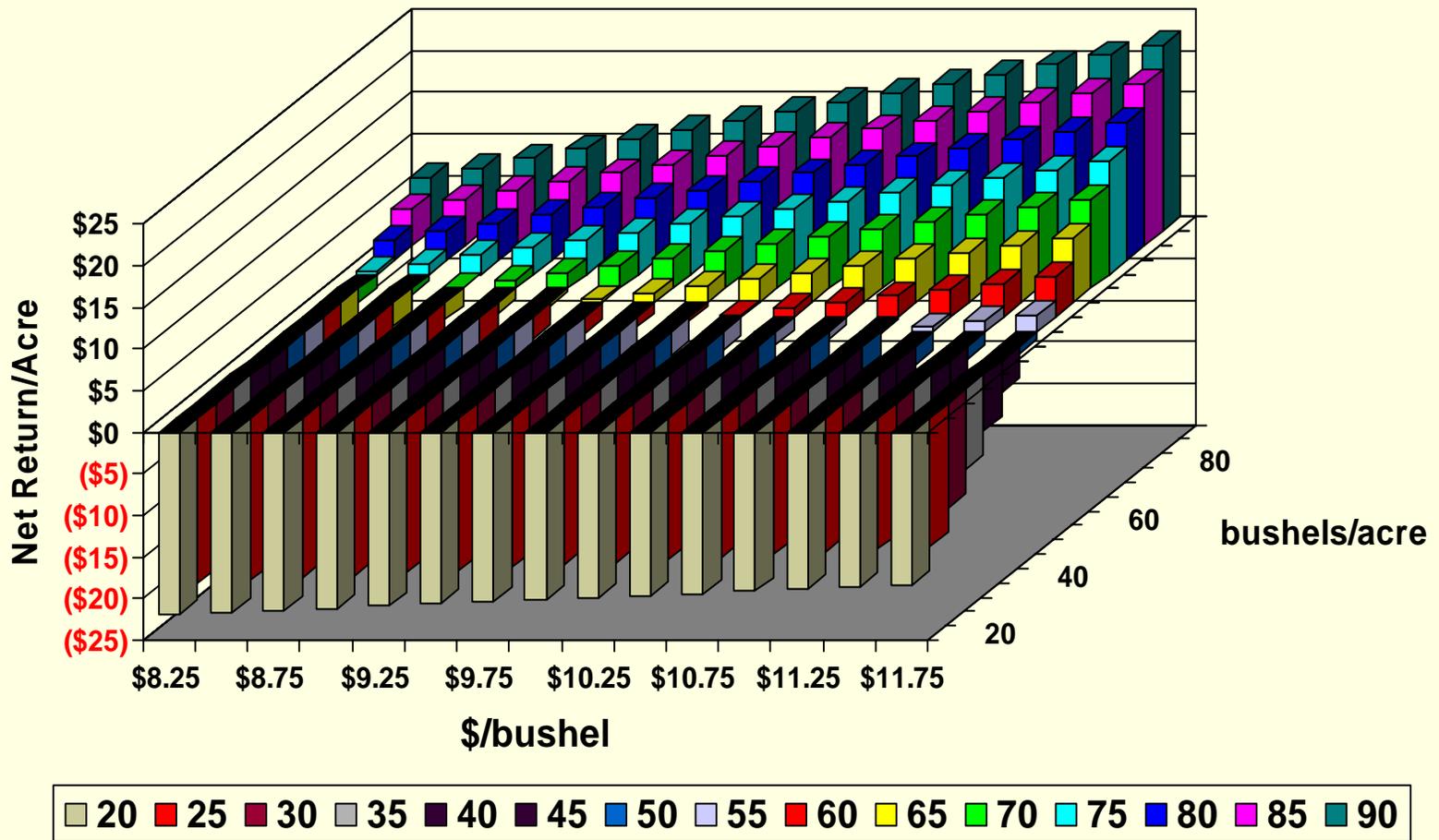
# Net Returns at 2% Yield Increase and \$18.70/acre Additional Seed Cost

Price \$/bu.	Yield (bushels/acre)														
	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240
\$2.00	(\$14.98)	(\$14.61)	(\$14.24)	(\$13.86)	(\$13.49)	(\$13.12)	(\$12.75)	(\$12.38)	(\$12.00)	(\$11.63)	(\$11.26)	(\$10.89)	(\$10.52)	(\$10.14)	(\$9.77)
\$2.25	(\$14.48)	(\$14.06)	(\$13.64)	(\$13.21)	(\$12.79)	(\$12.37)	(\$11.95)	(\$11.53)	(\$11.10)	(\$10.68)	(\$10.26)	(\$9.84)	(\$9.42)	(\$8.99)	(\$8.57)
\$2.50	(\$13.98)	(\$13.51)	(\$13.04)	(\$12.56)	(\$12.09)	(\$11.62)	(\$11.15)	(\$10.68)	(\$10.20)	(\$9.73)	(\$9.26)	(\$8.79)	(\$8.32)	(\$7.84)	(\$7.37)
\$2.75	(\$13.48)	(\$12.96)	(\$12.44)	(\$11.91)	(\$11.39)	(\$10.87)	(\$10.35)	(\$9.83)	(\$9.30)	(\$8.78)	(\$8.26)	(\$7.74)	(\$7.22)	(\$6.69)	(\$6.17)
\$3.00	(\$12.98)	(\$12.41)	(\$11.84)	(\$11.26)	(\$10.69)	(\$10.12)	(\$9.55)	(\$8.98)	(\$8.40)	(\$7.83)	(\$7.26)	(\$6.69)	(\$6.12)	(\$5.54)	(\$4.97)
\$3.25	(\$12.48)	(\$11.86)	(\$11.24)	(\$10.61)	(\$9.99)	(\$9.37)	(\$8.75)	(\$8.13)	(\$7.50)	(\$6.88)	(\$6.26)	(\$5.64)	(\$5.02)	(\$4.39)	(\$3.77)
\$3.50	(\$11.98)	(\$11.31)	(\$10.64)	(\$9.96)	(\$9.29)	(\$8.62)	(\$7.95)	(\$7.28)	(\$6.60)	(\$5.93)	(\$5.26)	(\$4.59)	(\$3.92)	(\$3.24)	(\$2.57)
\$3.75	(\$11.48)	(\$10.76)	(\$10.04)	(\$9.31)	(\$8.59)	(\$7.87)	(\$7.15)	(\$6.43)	(\$5.70)	(\$4.98)	(\$4.26)	(\$3.54)	(\$2.82)	(\$2.09)	(\$1.37)
\$4.00	(\$10.98)	(\$10.21)	(\$9.44)	(\$8.66)	(\$7.89)	(\$7.12)	(\$6.35)	(\$5.58)	(\$4.80)	(\$4.03)	(\$3.26)	(\$2.49)	(\$1.72)	(\$0.94)	(\$0.17)
\$4.25	(\$10.48)	(\$9.66)	(\$8.84)	(\$8.01)	(\$7.19)	(\$6.37)	(\$5.55)	(\$4.73)	(\$3.90)	(\$3.08)	(\$2.26)	(\$1.44)	(\$0.62)	\$0.21	\$1.03
\$4.50	(\$9.98)	(\$9.11)	(\$8.24)	(\$7.36)	(\$6.49)	(\$5.62)	(\$4.75)	(\$3.88)	(\$3.00)	(\$2.13)	(\$1.26)	(\$0.39)	\$0.48	\$1.36	\$2.23
\$4.75	(\$9.48)	(\$8.56)	(\$7.64)	(\$6.71)	(\$5.79)	(\$4.87)	(\$3.95)	(\$3.03)	(\$2.10)	(\$1.18)	(\$0.26)	\$0.66	\$1.58	\$2.51	\$3.43
\$5.00	(\$8.98)	(\$8.01)	(\$7.04)	(\$6.06)	(\$5.09)	(\$4.12)	(\$3.15)	(\$2.18)	(\$1.20)	(\$0.23)	\$0.74	\$1.71	\$2.68	\$3.66	\$4.63
\$5.25	(\$8.48)	(\$7.46)	(\$6.44)	(\$5.41)	(\$4.39)	(\$3.37)	(\$2.35)	(\$1.33)	(\$0.30)	\$0.72	\$1.74	\$2.76	\$3.78	\$4.81	\$5.83
\$5.50	(\$7.98)	(\$6.91)	(\$5.84)	(\$4.76)	(\$3.69)	(\$2.62)	(\$1.55)	(\$0.48)	\$0.60	\$1.67	\$2.74	\$3.81	\$4.88	\$5.96	\$7.03

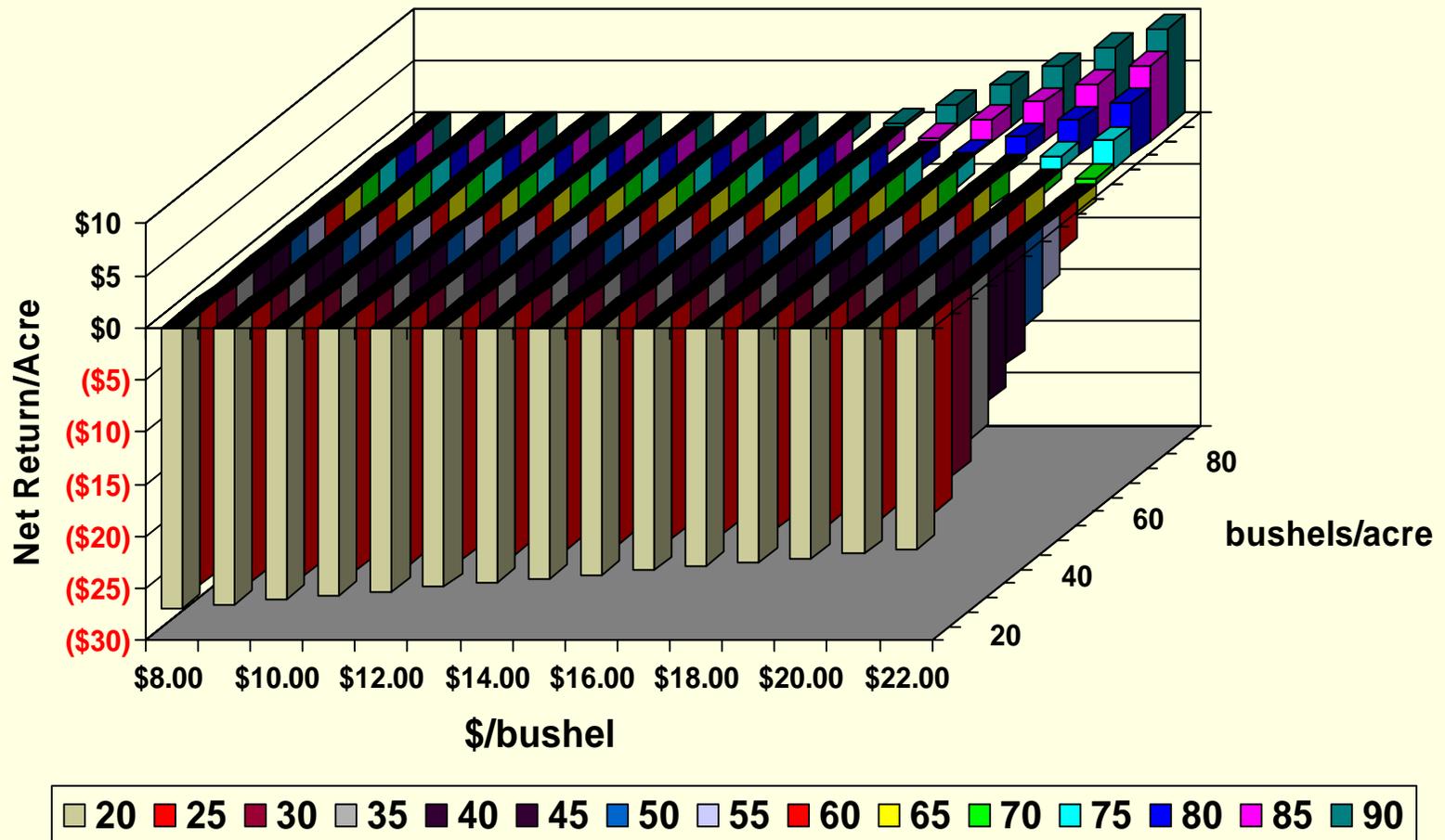
# Net Returns at 9% Yield Increase and \$30/acre Additional Seed Cost



# Net Returns at 5% Yield Increase and \$30/acre Additional Seed Cost



# Net Returns at 2% Yield Increase and \$30/acre Additional Seed Cost



# Qualifiers

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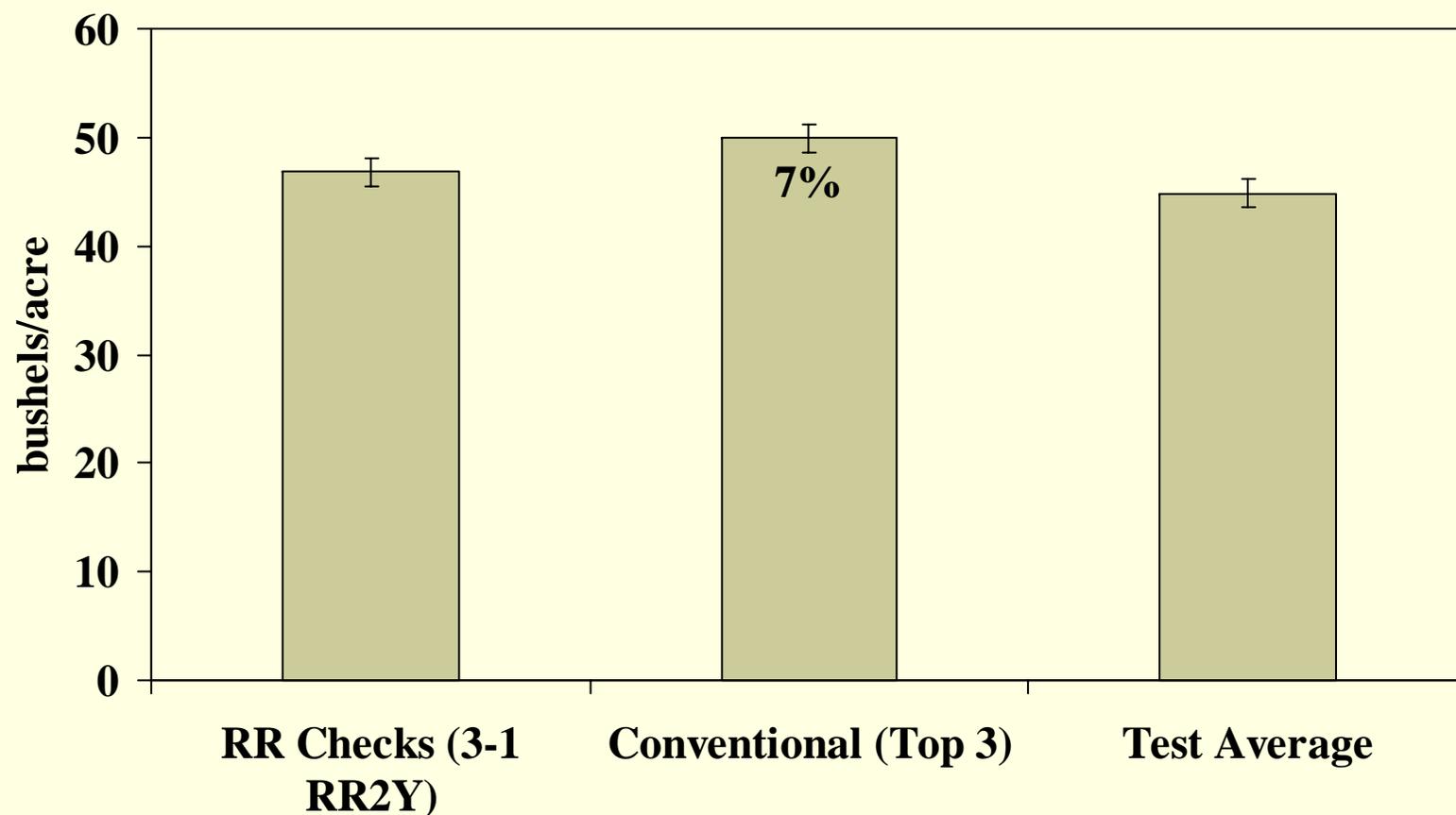
- May not be looking at best RR2Y genetics
- May have some RR2Y varieties in RR group just because they are not clearly identified
- RR license will not be available within 3 to 5 years most likely
- Weed management – ease, effectiveness

# Alternatives?

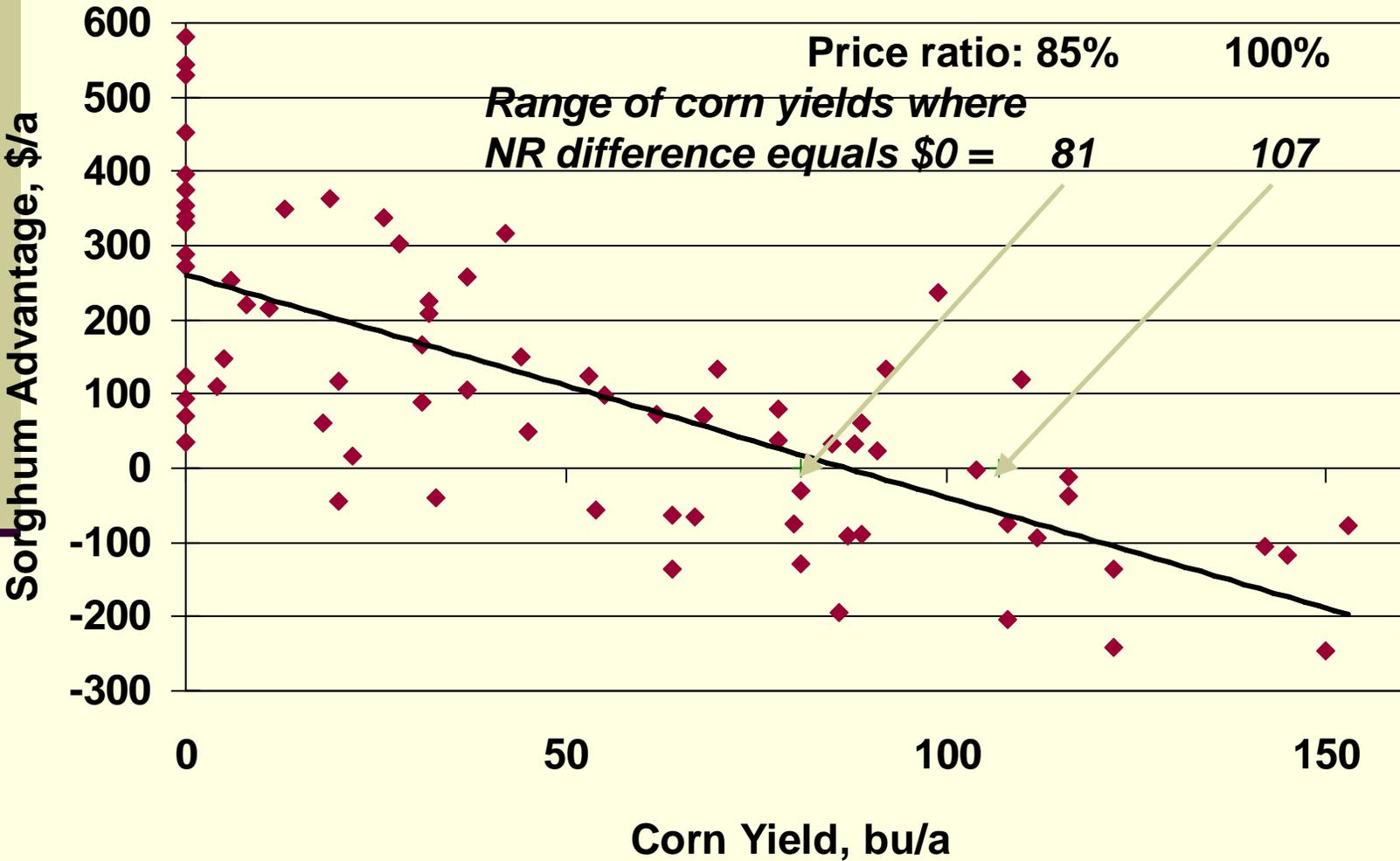
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- Conventional Soybean
  - Herbicide cost (\$10 - \$20/acre for glyphosate vs. \$30 - \$50/acre for alternatives)
  - Risk of herbicide failure
  - Glyphosate resistant weeds
- Sorghum vs. Corn
  - Seed cost
  - Weed control challenges
  - Marketing challenges

# 2009 Ottawa Conventional Soybean Performance Test

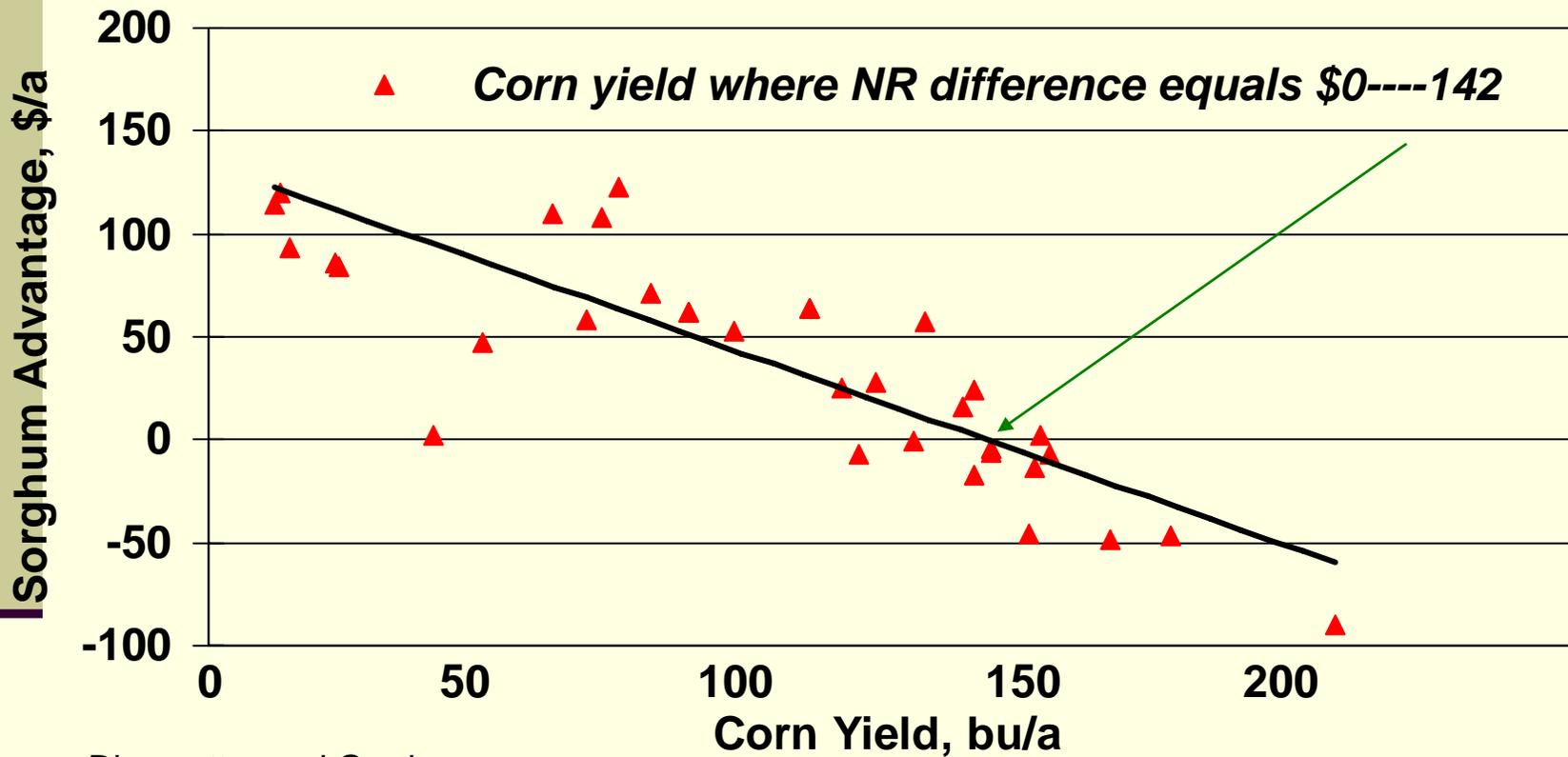


# Grain Sorghum-Corn Economic Comparison, Sorghum/Corn Price Ratio from 85% to 100% Western Kansas



# Grain Sorghum-Corn Economic Comparison, 2004

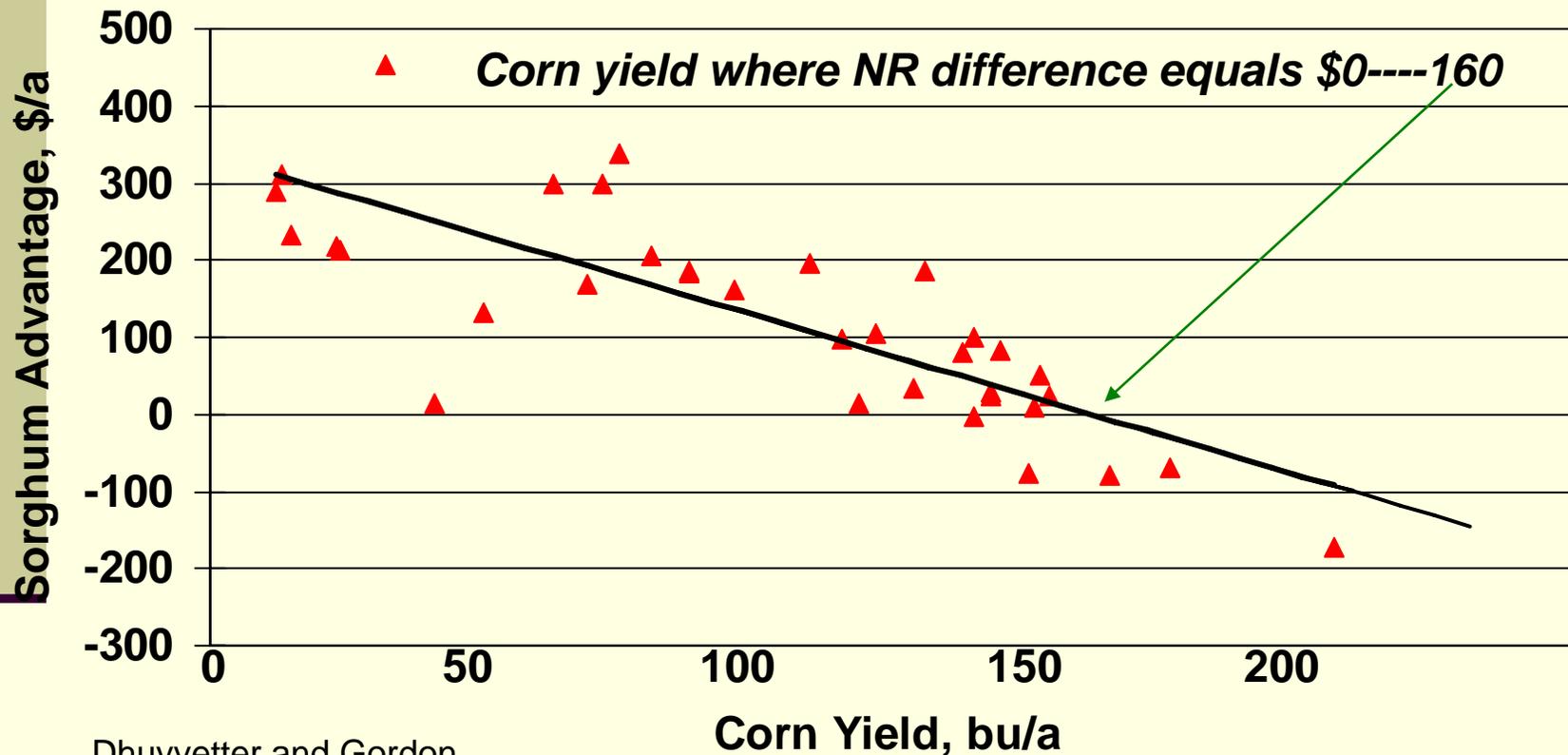
Price of sorghum/corn=93.6%



Dhuyvetter and Gordon

# Grain Sorghum-Corn Economic Comparison, 2008

Price of sorghum/corn=99.1%



Dhuyvetter and Gordon

# Summary

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- Look at independent yield data
  - Compare whole package, not just traits
- Make your own comparisons
  - Use your own costs and prices
- Take advantage of pricing and marketing opportunities
- Pay attention to fundamentals
  - Fertility
  - Rotations/cropping sequence
- Consider alternatives?

# Projected Soybean Seed Prices for 2010 (Informal Survey)

Seed Product	Price/Bag	Price/Pound <small>(3,000/lb)</small>
Conventional/STS	\$23 - \$24	\$0.49 - \$0.51
Liberty Link®	\$35 - \$39	\$0.75 - \$0.84
Roundup Ready®	\$40 - \$45	\$0.86 - \$0.97
Genuity™ Roundup Ready 2 Yield®	\$70 - \$75	\$1.50 - \$1.61