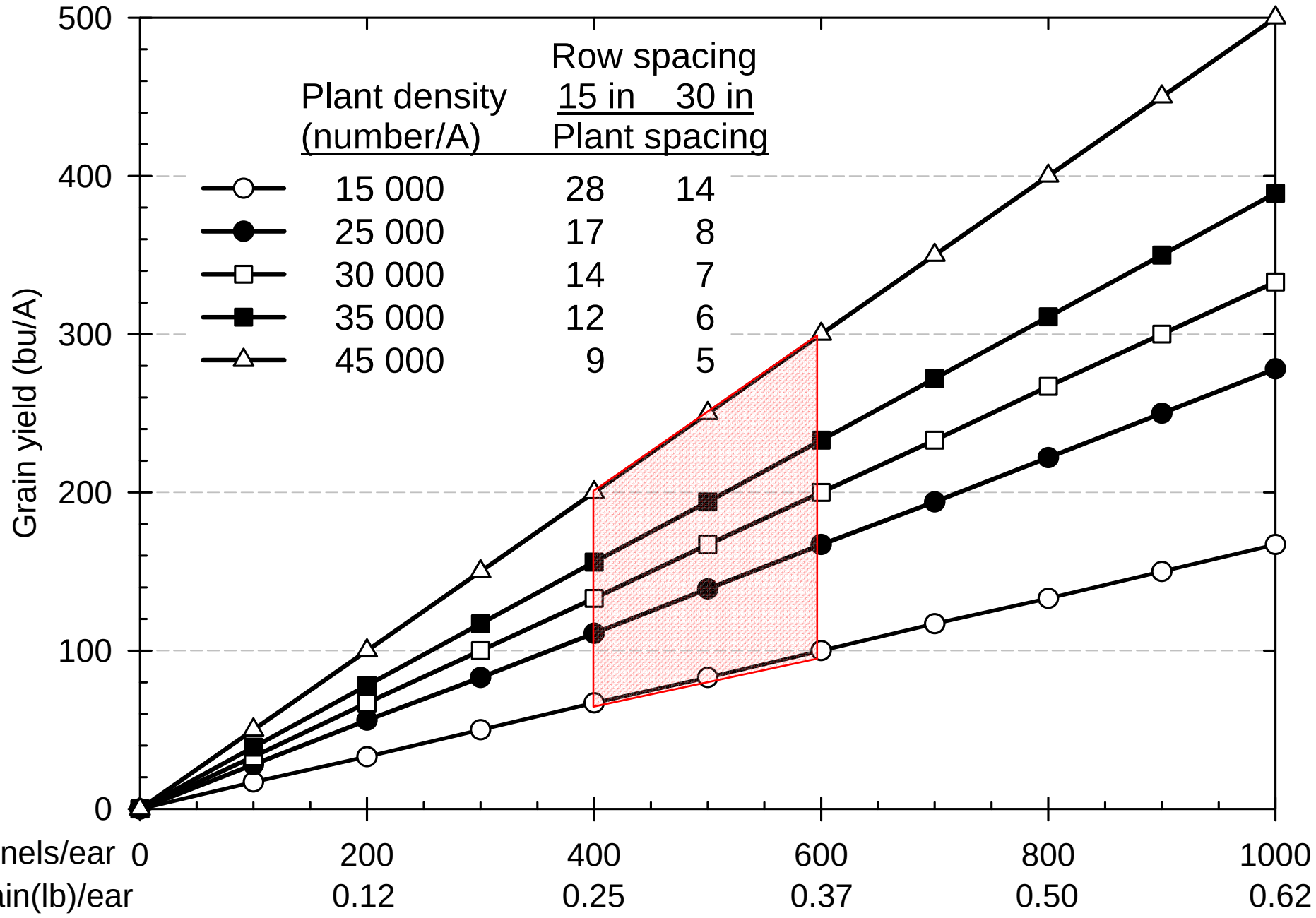
Potential Grain Yield Using Calculated Components

Assume 90,000 kernels/bu and 56 lb/bu; kernel mass = 282 mg

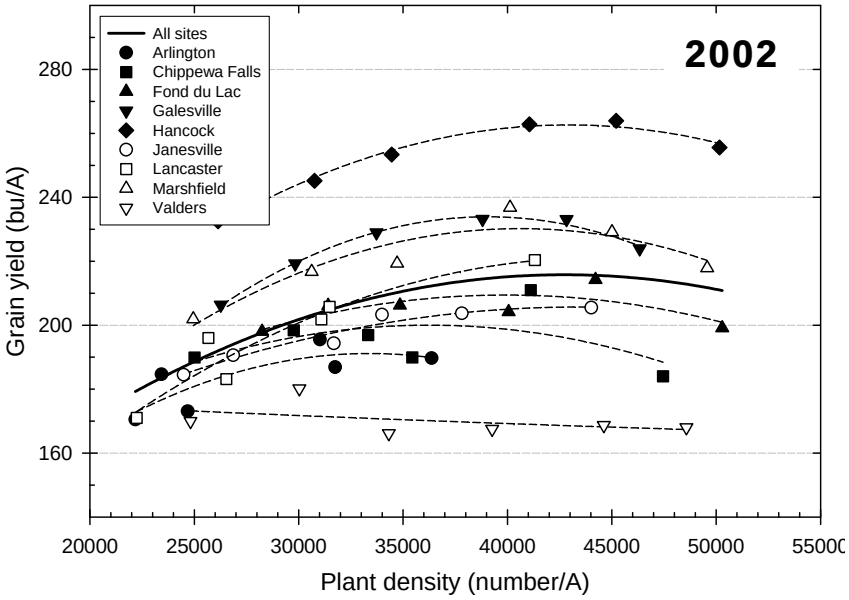


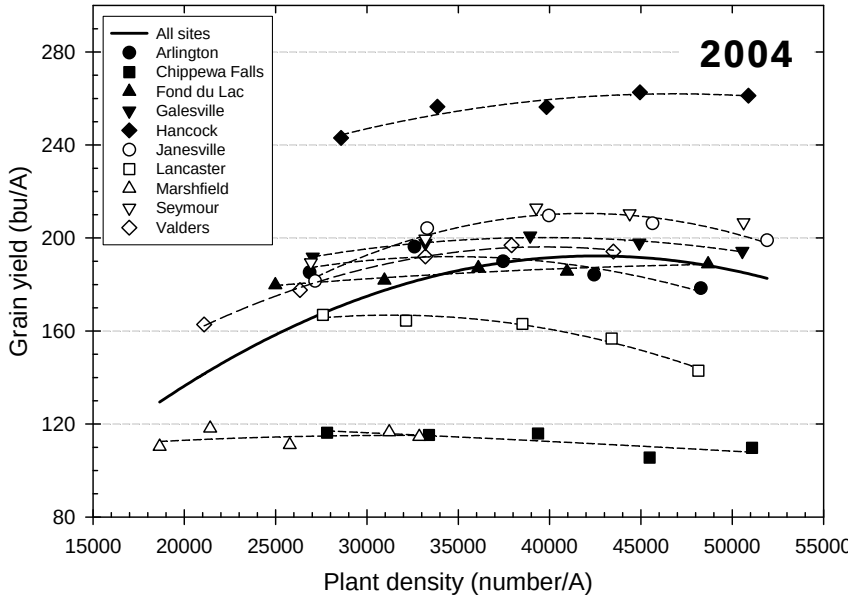
- **In the 1990s, we usually recommended buying more expensive seed, if hybrid was better performing.**
- **Today, not true due to high seed cost.**
- **"It's no secret that the price of seed corn has been on the rise. Better genetics and improved traits have increased that seed's performance — at a cost. With the retail price of the elite corn hybrids now well over $200 per unit, producers can expect another significant price rise. And $300, even $500 seed corn is on the horizon …"**

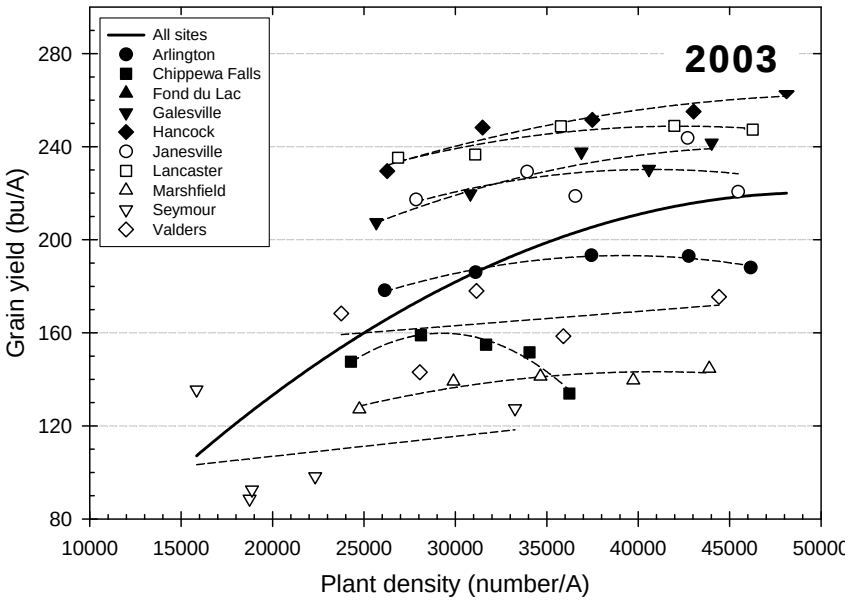
Mark Moore "$500 Seed?" In Farm and Industry News, September 1, 2008

Roundup Ready CORN
Agrisure™
YieldGard Rootworm™ Rootworm Protection
ExSeed Enhanced™ NutriDense™
YieldGard Corn Borer™ Corn Borer Protection
HERCULEX™ I Insect Protection HX
Liberty Link® Herbicide Resistance
Roundup Ready CORN 2
YieldGard Plus® Corn Borer | Rootworm

Corn response to plant density in Wisconsin

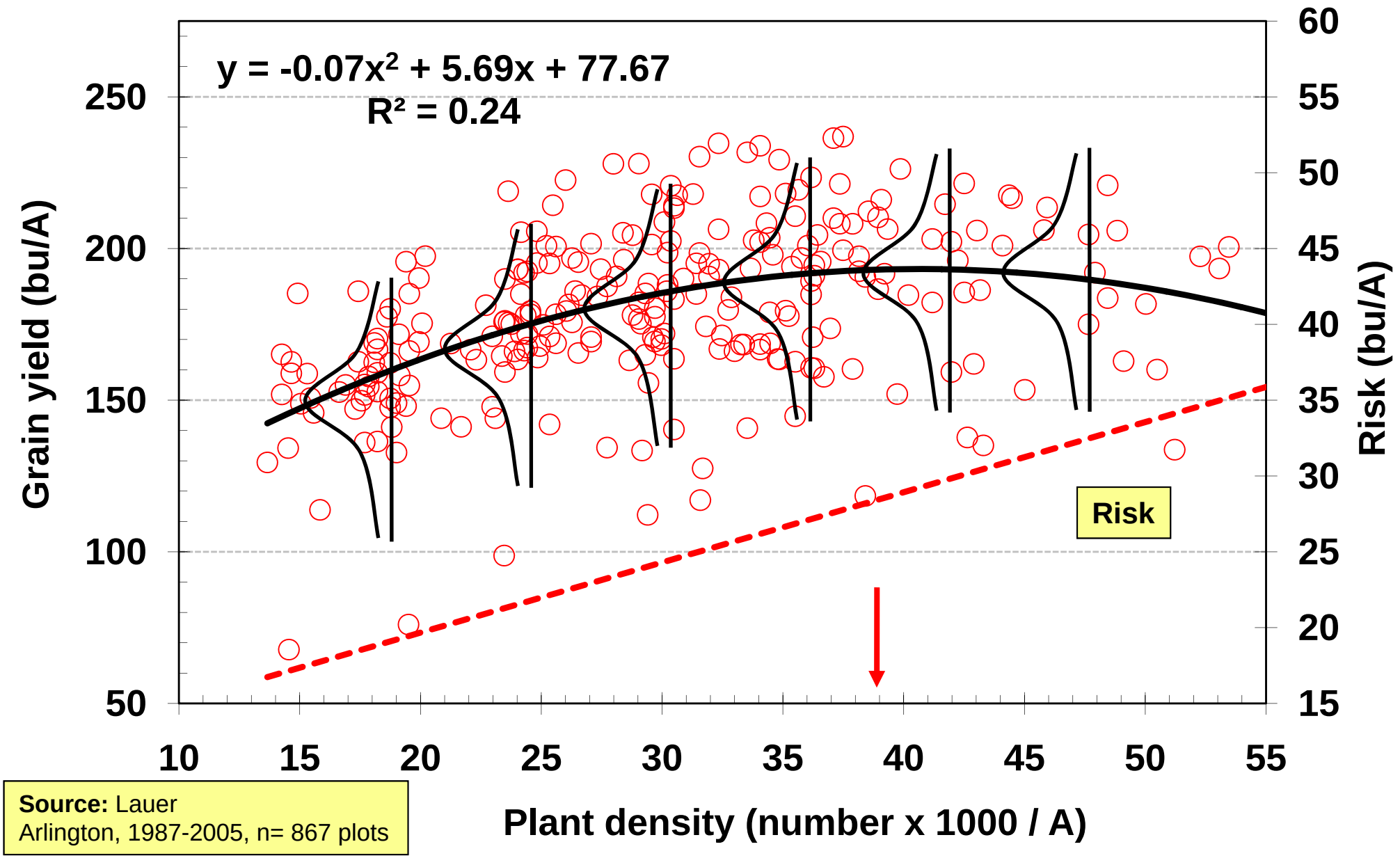






- **Varies by location and hybrid (GxE)**
  - ✓ Usually grain yield increases with higher plant density to an optimum
- **Concerns**
  - ✓ Lodging
  - ✓ Drought
  - ✓ Higher plant density rarely lowers yield

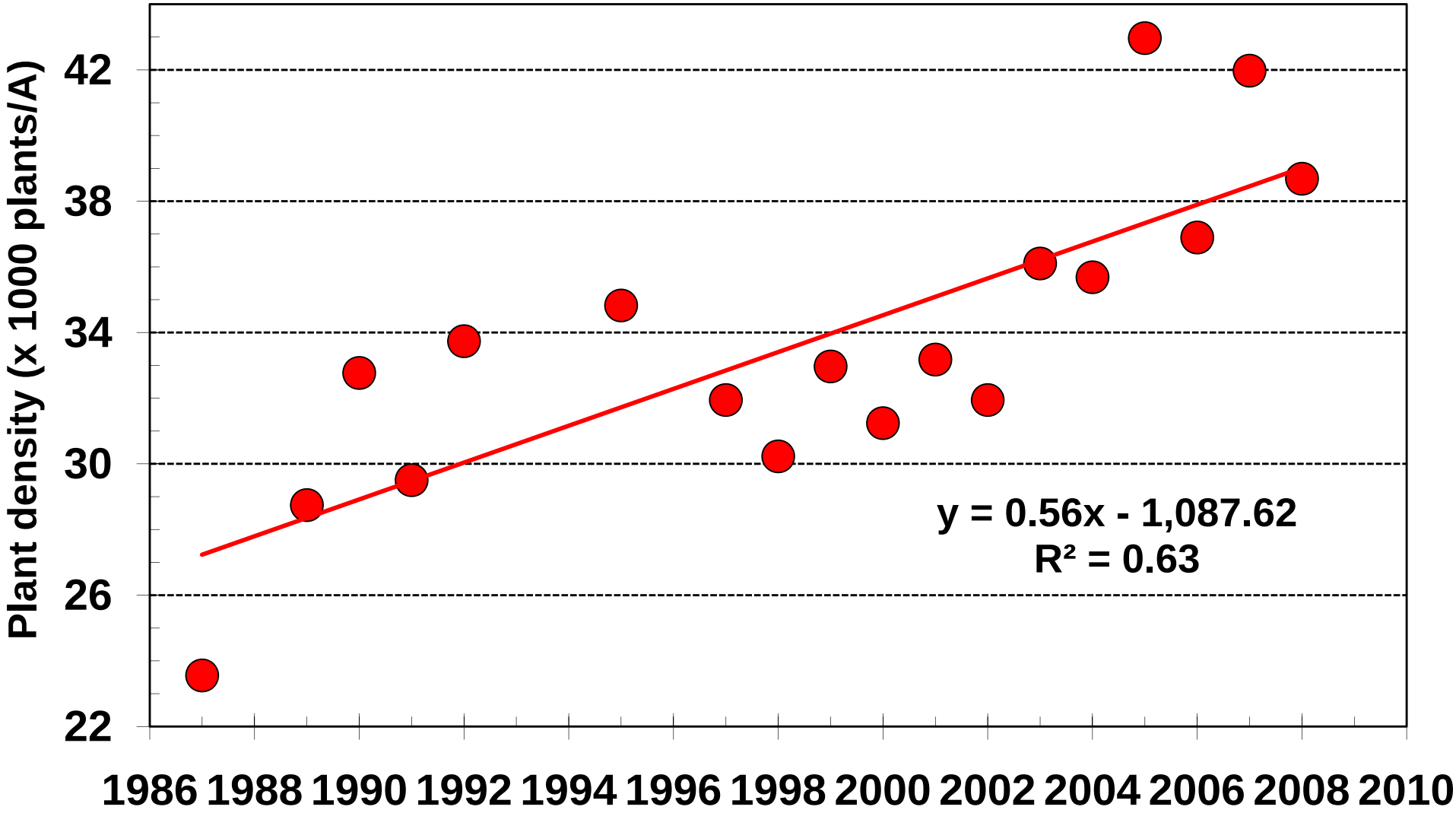
Increasing plant density increases grain yield ... but there is a risk



Source: Lauer
Arlington, 1987-2005, n= 867 plots

Is Plant Density at Maximum Yield Changing?

Annual grain yield increase at optimum plant density = 2.8 bu/A

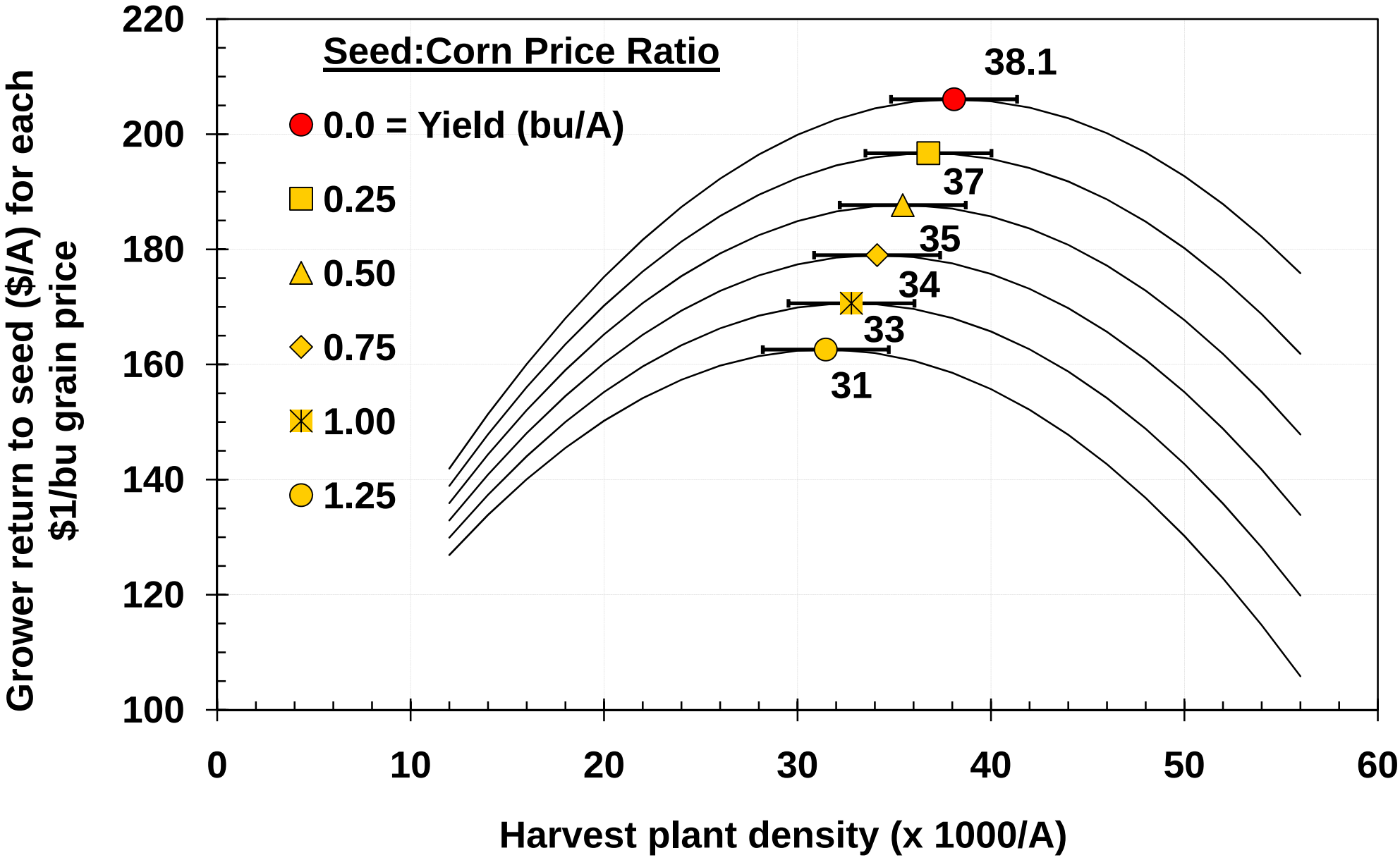


Source: Lauer
Arlington, 1987-2008 02PD

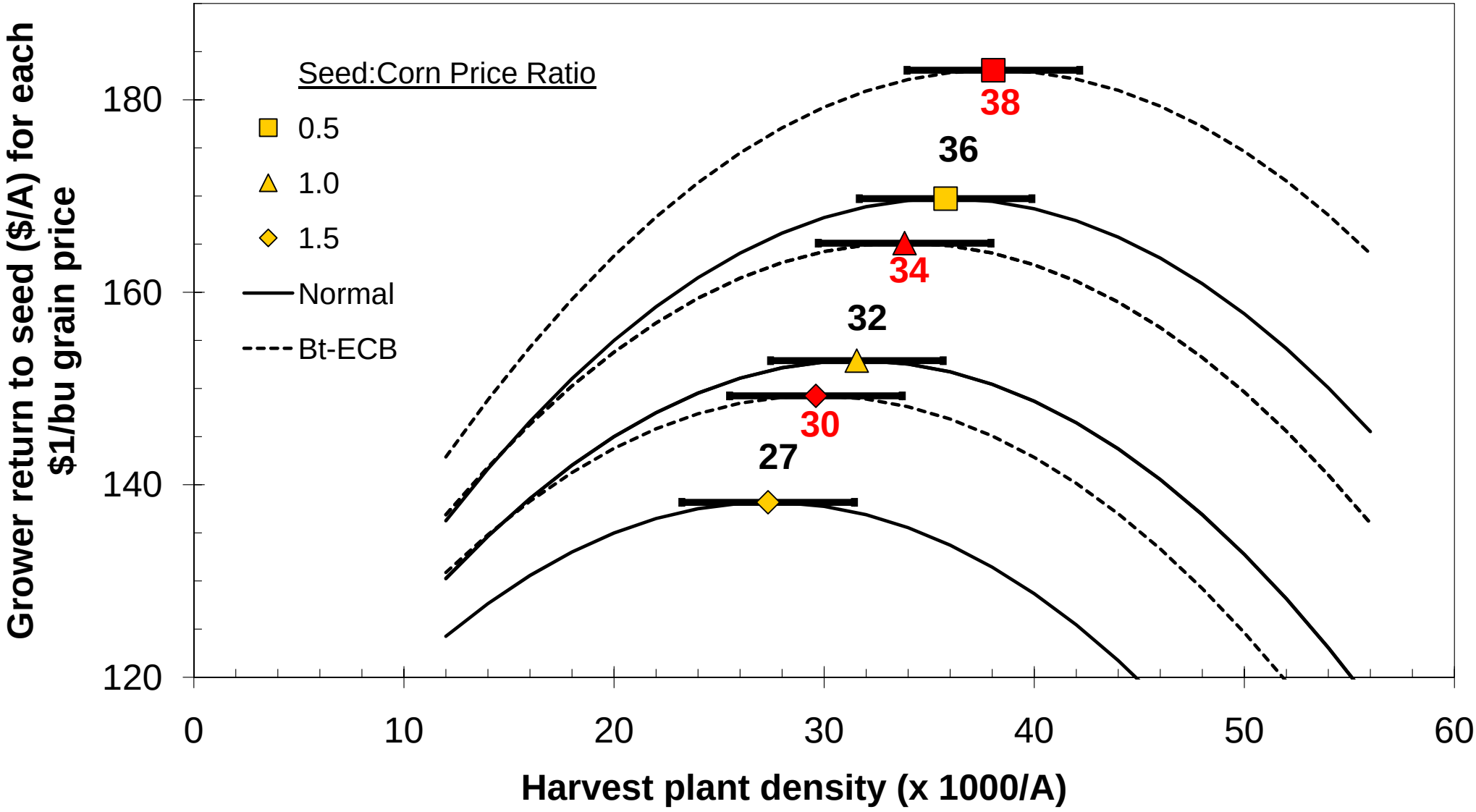
The Maximum Return to Seed (MRTS) Strategy
Price ratio of seed:corn (i.e. $/1000 seeds ÷ $/bu corn).

Price of seed		Price of corn ($/bu)								
$/80 K bag	$/1000 seeds	$1.00	$1.75	$2.50	$3.25	$4.00	$4.75	$5.50	$6.25	$7.00
$0	$0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
$40	$0.50	0.50	0.29	0.20	0.15	0.13	0.11	0.09	0.08	0.07
$80	$1.00	1.00	0.57	0.40	0.31	0.25	0.21	0.18	0.16	0.14
$120	$1.50	1.50	0.86	0.60	0.46	0.38	0.32	0.27	0.24	0.21
$160	$2.00	2.00	1.14	0.80	0.62	0.50	0.42	0.36	0.32	0.29
$200	$2.50	2.50	1.43	1.00	0.77	0.63	0.53	0.45	0.40	0.36
$240	$3.00	3.00	1.71	1.20	0.92	0.75	0.63	0.55	0.48	0.43
$280	$3.50	3.50	2.00	1.40	1.08	0.88	0.74	0.64	0.56	0.50
$320	$4.00	4.00	2.29	1.60	1.23	1.00	0.84	0.73	0.64	0.57
$360	$4.50	4.50	2.57	1.80	1.38	1.13	0.95	0.82	0.72	0.64
$400	$5.00	5.00	2.86	2.00	1.54	1.25	1.05	0.91	0.80	0.71

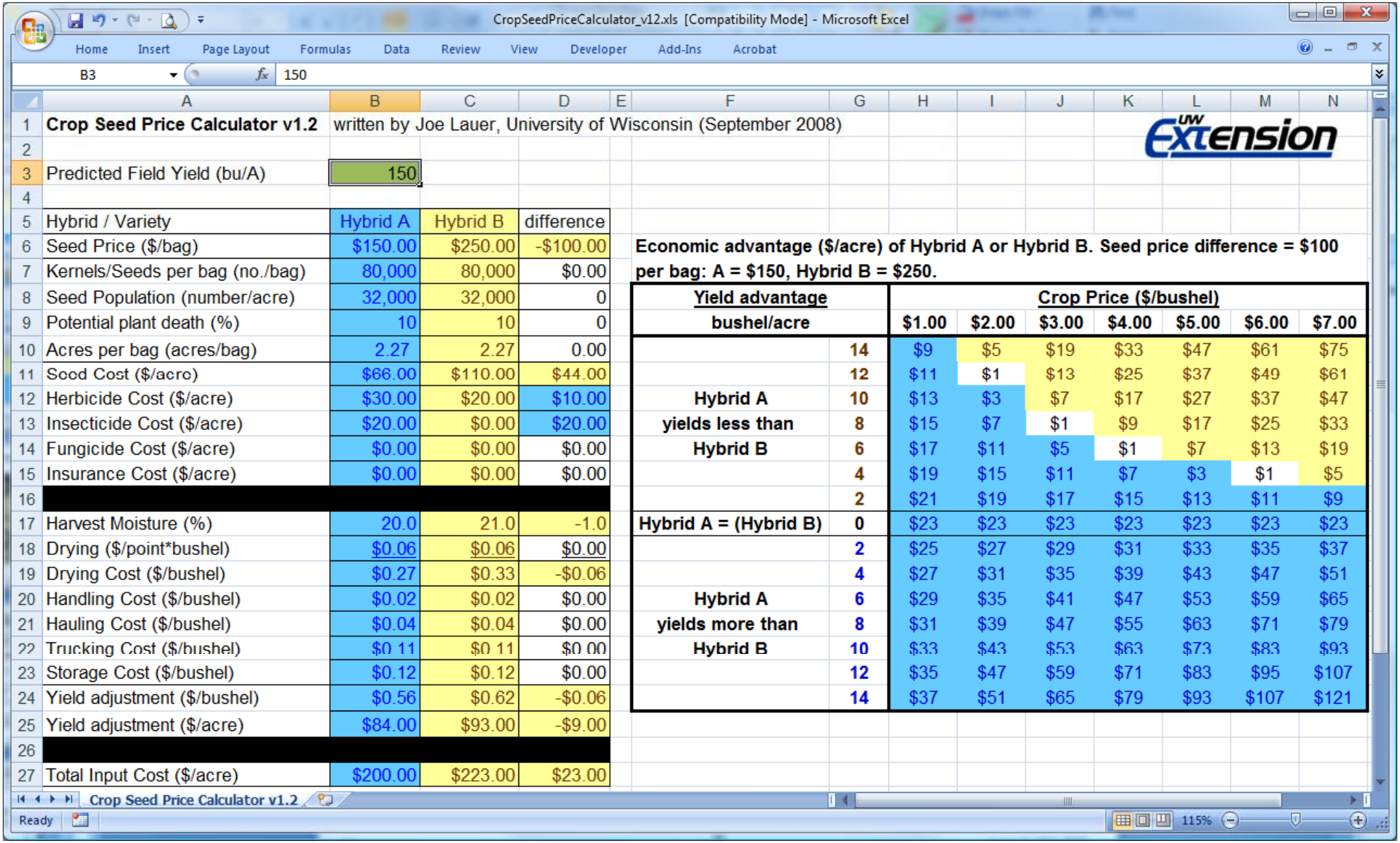
Maximum return to seed at Arlington, WI



Bt-CB corn should be grown at higher plant density than conventional corn ...



UWEX: trade-off between hybrid yield gain and seed cost Spreadsheet for Calculating Seed Costs



CropSeedPriceCalculator_v12.xls [Compatibility Mode] - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Developer Add-Ins Acrobat

B3 150

Crop Seed Price Calculator v1.2 written by Joe Lauer, University of Wisconsin (September 2008)

UW Extension

Predicted Field Yield (bu/A) 150

Hybrid / Variety	Hybrid A	Hybrid B	difference
Seed Price ($/bag)	$150.00	$250.00	-$100.00
Kernels/Seeds per bag (no./bag)	80,000	80,000	$0.00
Seed Population (number/acre)	32,000	32,000	0
Potential plant death (%)	10	10	0
Acres per bag (acres/bag)	2.27	2.27	0.00
Seed Cost ($/acre)	$66.00	$110.00	$44.00
Herbicide Cost ($/acre)	$30.00	$20.00	$10.00
Insecticide Cost ($/acre)	$20.00	$0.00	$20.00
Fungicide Cost ($/acre)	$0.00	$0.00	$0.00
Insurance Cost ($/acre)	$0.00	$0.00	$0.00
Harvest Moisture (%)	20.0	21.0	-1.0
Drying ($/point*bushel)	$0.06	$0.06	$0.00
Drying Cost ($/bushel)	$0.27	$0.33	-$0.06
Handling Cost ($/bushel)	$0.02	$0.02	$0.00
Hauling Cost ($/bushel)	$0.04	$0.04	$0.00
Trucking Cost ($/bushel)	$0.11	$0.11	$0.00
Storage Cost ($/bushel)	$0.12	$0.12	$0.00
Yield adjustment ($/bushel)	$0.56	$0.62	-$0.06
Yield adjustment ($/acre)	$84.00	$93.00	-$9.00
Total Input Cost ($/acre)	$200.00	$223.00	$23.00

Economic advantage ($/acre) of Hybrid A or Hybrid B. Seed price difference = $100 per bag: A = $150, Hybrid B = $250.

Yield advantage bushel/acre		Crop Price ($/bushel) $1.00	$2.00	$3.00	$4.00	$5.00	$6.00	$7.00
	14	$9	$5	$19	$33	$47	$61	$75
	12	$11	$1	$13	$25	$37	$49	$61
Hybrid A	10	$13	$3	$7	$17	$27	$37	$47
yields less than	8	$15	$7	$1	$9	$17	$25	$33
Hybrid B	6	$17	$11	$5	$1	$7	$13	$19
	4	$19	$15	$11	$7	$3	$1	$5
	2	$21	$19	$17	$15	$13	$11	$9
Hybrid A = (Hybrid B)	0	$23	$23	$23	$23	$23	$23	$23
	2	$25	$27	$29	$31	$33	$35	$37
	4	$27	$31	$35	$39	$43	$47	$51
Hybrid A	6	$29	$35	$41	$47	$53	$59	$65
yields more than	8	$31	$39	$47	$55	$63	$71	$79
Hybrid B	10	$33	$43	$53	$63	$73	$83	$93
	12	$35	$47	$59	$71	$83	$95	$107
	14	$37	$51	$65	$79	$93	$107	$121

Crop Seed Price Calculator v1.2

Ready 115%

Guidelines for Choosing an Appropriate Plant Density for Corn

- **May have the most potential to move a farmer from current yield levels.**
  - ✓ Might be the place to start for moving off the “yield plateau.”
  - ✓ Optimum plant densities seem to be increasing as newer hybrids are commercialized.
    - ❑ Grain yield increases to plant densities of 39,400 plants/A.
- **The EOPD for seed:corn price ratios between 0.5 and 1.5 is 29,800 to 36,200 plants/A.**
  - ✓ The plant density of 32,700 plants/A is within $1.00 of the EOPD for ratios between 0.5 and 1.5.
- **In general, silage yield increases as plant density increases.**
  - ✓ A trade-off exists where quality decreases with increasing population.
  - ✓ Thus, the EOPD is the same for corn grown for silage or grain.
  - ✓ Corn silage is often more valuable than grain, thus the EOPD follows more closely seed:corn price ratios less than 1.0.

Let the plants tell you how your field is doing …

- Tillered v. Runt plants
- Prolific v. Barren shoots
- Big v. Small ears
- Full ear tips v. Nose-back
- Lodging