



Soybean Planting Dates

James Herbek
Extension Grain Crops Specialist
University of Kentucky

- **What are Optimum Planting Dates?**
 - Current = Early May to early June (May 10-June 7).
- **How Early Can We Plant?**
 - Is April – early May feasible?
 - Are yields (+, =, or -)?
 - Trend for soybeans being planted earlier.
 - Research (Midwest) advocate early planting.
 - Management concerns.
- **What is Last Optimum Planting Date?**
 - Is June 7 still valid?

- **Weather Influence.**

- Great influence on planting date results.
- When you can plant (soil conditions).
- Growth (reproductive stages).
 - a) Pod set and seed fill critical.
 - b) Rainfall (how much and when).

- **Kentucky Planting Date Research.**

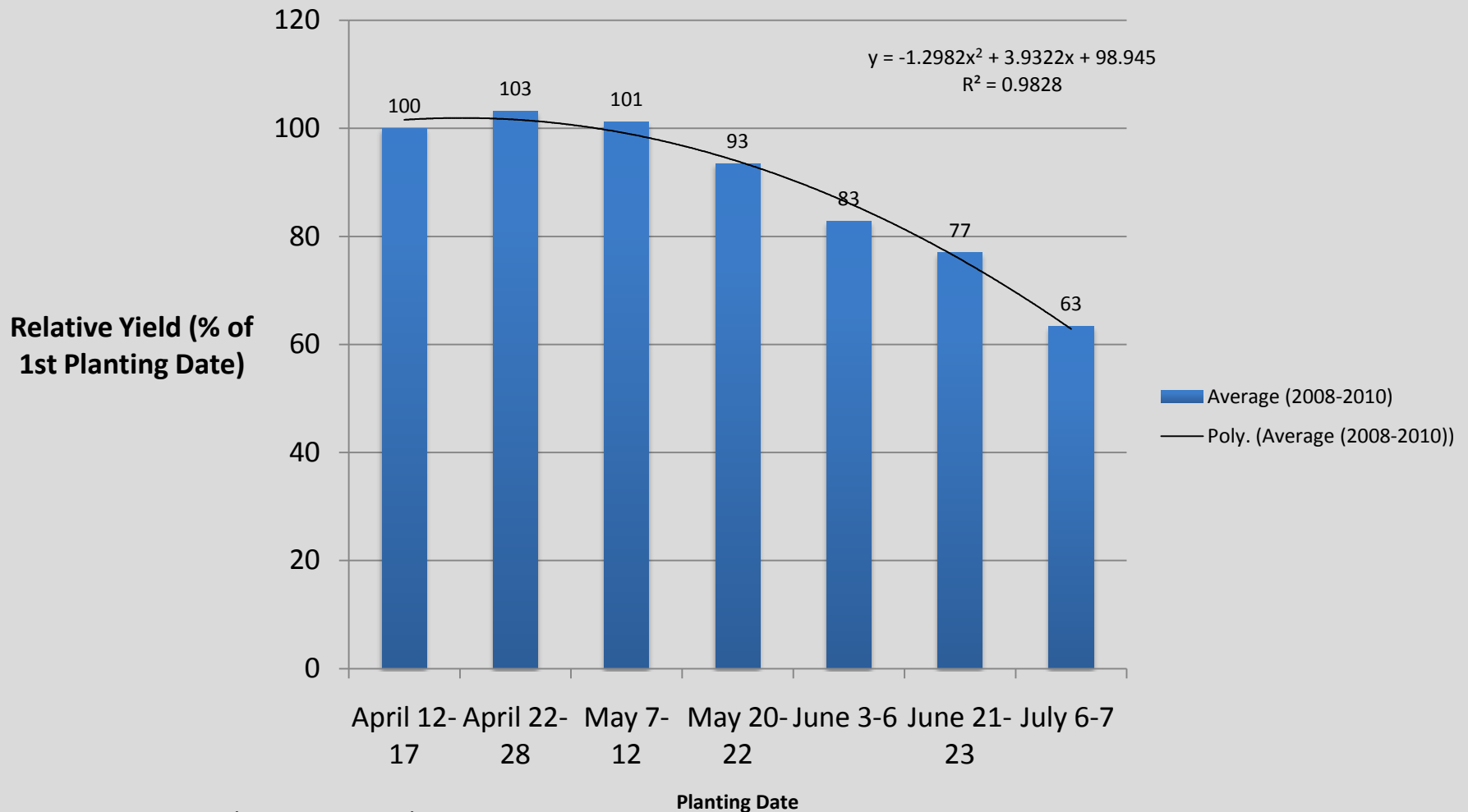
- Seven planting dates (10-15 days apart).
- Early, mid-April to early July.
- Funded by **Kentucky Soybean Promotion Board.**

Soybean Planting Date Study (2008-2010) (3 Years)

Planting Date	Soybean Yield (Bu/A) (Mid-Group IV)		
	2008 (dry, hot)	2009 (wet, cool)	2010 (dry, hot)
April 12-17	50 a	80 b	41 a
April 22-28	51 a	84 a	42 a
May 7-12	50 a	81 b	42 a
May 20-22	47 b	75 c	38 b
June 3-6	42 c	69 d	32 cd
June 21-23	34 d	64 e	34 c
July 6-7	26 e	50 f	31 d

- Location: UKREC (Princeton, Ky.)
- Varieties: Pioneer 94M50 (2008, 2009). Pioneer 94Y60 (2010).
- Rainfall (June-Sept.): (2008 = -7.5") (2009 = +7.0") (2010 = -4.5").
- Seeding rate = ~200,000 seeds per acre.

Average Yield Response to Planting Date (2008-2010)



- Location: UKREC (Princeton, Ky.)
- Varieties: Pioneer 94M50 (2008, 2009). Pioneer 94Y60 (2010).
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- Seeding rate = ~200,000 seeds per acre.

Soybean Planting Date Study (2008-2010) (3 Years)

Planting Date	Soybean Yield (Bu/A) (Group II)		
	2008 (dry, hot)	2009 (wet, cool)	2010 (dry, hot)
April 12-17			
April 22-28	50 a	82 a	46 a
May 7-12			
May 20-22	48 a	73 b	34 b
June 3-6			
June 21-23	44 b	56 c	35 b
July 6-7			

- Location: UKREC (Princeton, Ky.)
- Varieties: Pioneer 92M61 (2008). Pioneer 92Y80 (2009, 2010).
- Rainfall (June-Sept.): (2008 = -7.5") (2009 = +7.0") (2010 = -4.5").
- Seeding rate = ~200,000 seeds per acre.

Soybean Planting Date Study (2008-2010) (3 Years)

Planting Date	Soybean Emergence					
	2008		2009		2010	
	Days	%	Days	%	Days	%
April 12-17	14	71	18	55	10	83
April 22-28	15	72	9	85	11	88
May 7-12	10	71	10	73	8	87
May 20-22	6	86	6	80	5	90
June 3-6	4	85	6	69	4	94
June 21-23	4	80	5	76	4	94
July 6-7	4	90	4	81	4	83

- Location: UKREC (Princeton, Ky.)
- Seeding rate = ~200,000 seeds per acre.
- April: normally cool, wet; except (2010) was warm, dry.
- Early May: normally cool, wet.

Early Planting Concerns

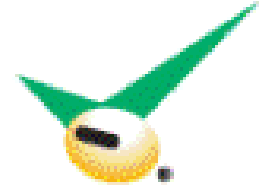
- **Delayed Emergence.**
 - Cooler soil temperatures.
 - 10-15 days (or more to emerge).
- **Reduced Stands.**
 - 50-70% emergence.
- **Increased risk of Sudden Death Syndrome (SDS) and Bean Leaf Beetle?**
- **Risk of Late Spring Freeze.**

Early Planting Management

- Use **High Quality Seed**.
 - High germination and high vigor.
- Recommend **Fungicide Seed Treatment**.
- **Seeding Rates**.
 - Adequate; don't reduce.
- Shallow **Planting Depth**.
 - Prefer one inch; avoid 1½ - 2 inches.

- Prepare for **Bean Leaf Beetle**.
 - Foliar spray or seed treatment.
- **Earlier Harvest** (Harvest conflict).
 - Corn harvest vs. early soybeans.
- **Varieties**.
 - Maturity groups??
 - SDS tolerance (avoid fields with SDS history).
- Plant at **Proper Soil Conditions**.
 - Soil temperature (50°F or above); not wet.

UKAg



Kitchen Sink Soybean

Kitchen Sink Soybeans

- Funded by United Soybean Board
- 6 states
 - Michigan State
 - Minnesota
 - Iowa State
 - Kentucky
 - Arkansas
 - Louisiana State
- Part of a larger set of studies

Kitchen Sink Soybean

- Narrow Rows
- Seed treatment
- Inoculant
- Additional soil-applied fertilizer
- Foliar Fertilizer
- Foliar Fungicide
- Ultra-high seeding rate

Kitchen Sink Soybean

- **Narrow Rows:**
 - 15-inches vs. 30-inches
- **Seed treatment: Trilex 6000**
 - fungicides trifloxystrobin (2.27 g a.i. per 50 kg seed) and metalaxyl (1.81 g a.i. per 50 kg seed), the insecticide imidacloprid (31.23 g a.i. per 50 kg seed), and a biological fungicide *Bacillus pumilus* (3.12×10^{10} CFU per 50 kg seed)
- **Inoculant: Vault LV**
 - 5.1×10^{11} viable cells of *Bradyrhizobium japonicum* per 50 kg of seed
- **Additional soil-applied fertilizer:**
 - 84 lbs P_2O_5 / acre
 - 56 lb K_2O /acre
 - 22 lb S/acre
 - 0.5 lb B/acre
 - 2 lb Mn/acre
 - 0.5 lb Zn/acre
- **Foliar Fertilizer: Task Force 2**
 - (Loveland Chemical)
 - 0.86 lbs N /acre
 - 0.63 lbs P_2O_5 /acre
 - 0.39 lbs K_2O /acre
 - 0.001 lbs B /acre
 - 3.9×10^{-5} lbs Co /acre
 - 0.0045 lbs Cu /acre
 - 0.008 lb Fe /acre
 - 0.0045 lb/acre Mn /acre
 - 3.9×10^{-5} lb Mo /acre
 - 0.0045 lb Zn /acre
- **Foliar Fungicide: Headline**
 - (pyraclostrobin) at R3
- **Ultra-high seeding rate:**
 - 200,000 seeds/acre

Treatment	Description
1 Standard input–wide row	University guidelines, 30-inch rows
2 High input–narrow row	Add'l soil fertility, inoculant, seed treatment, foliar fertilizer, foliar fungicide, 15-inch rows
3 High input–wide row	Add'l soil fertility, inoculant, seed treatment, foliar fertilizer, foliar fungicide, 30-inch rows
4 High input–narrow row w/o foliar fertility	All, except foliar fertilizer, 120,000 seeds/acre
5 High input–narrow row w/o soil fertility	All, except soil fertility, 15-inch rows
6 High input–narrow row w/o inoculant	All, except inoculant, 15-inch rows
7 High input–narrow row w/o foliar fungicide	All, except foliar fungicide, 15-inch rows
8 High input–narrow row w/o seed treatment	All, except seed treatment, 15-inch rows
9 Late season management–narrow row	Foliar fertilizer, foliar fungicide, 15-inch rows
10 Early season management–narrow row	Add'l soil fertility, seed treatment, inoculant
11 High input–wide row w/o foliar fungicide	All, except fungicide, 30-inch rows
12 Standard input–narrow row	University guidelines, 15-inch rows
13 Ultra high input–narrow row	Add'l soil fertility, inoculant, seed treatment, foliar fertilizer, foliar fungicide, 220,00 seeds/a
14 Ultra high input–narrow row + add'l fungicide	Add'l soil fertility, inoculant, seed treatment, foliar fertilizer, foliar fungicide (twice), 220,000 seeds/a , 15-inch rows

Treatment	LA	LA	LA	AR	AR	AR	KY	KY	KY	IA	IA	IA	MI	MI	MI	MN	MN	MN	
2009 Kitchen Sink Soybean	Baton Rouge	Crowley	St. Joseph	Colt	Kasier	Weiner	Hopkinsville	New Haven	Lexington	Corning	Stor y City	Hudson	East Lansing	Bran ch	Tuscola	Was eca	St. Paul	Beck er	
	30°27'2" N, 91°9'16" W	30°12'50" N, 92°22'28" W	31°56'25" N, 91°17'8" W	35°7'5" N, 90°48'40" W	35°40'28" N, 90°5'5" W	35°37'13" N, 90°53'9" W	36°39'54" N, 87°26'34" W	37°39'28" N, 85°35'27" W	37°59'19" N, 84°28'39" W	40°59'28" N, 94°44'13" W	42°11'10" N, 93°35'30" W	42°24'23" N, 92°27'19" W	42°44'13" N, 84°29'1" W	43°56'5" N, 86°6'5" W	43°19'35" N, 83°39'25" W	44°4'3" N, 93°30'26" W	44°56'9" N, 93°5'9" W	45°22'16" N, 93°52'24" W	
	bu/a cre	bu/ac re	bu/a cre	bu/acr e	bu/ac re	bu/ac re	bu/ac re	bu/ac re	bu/ac re	bu/ac re	bu/ac re	bu/ac re	bu/ac re	bu/a cre	bu/ac re	bu/ac re	bu/ac re	bu/ac re	bu/ac re
	1 Standard input-wide row	67.3	9.1	73.8	62.4 e abc	55.7 b	66.7 c a	69.5	30.3 e	72.7 e cd	72.4	54.4 f	64.1	42.3	36.8	45.1 cde abc	66.7 def	67.1	76.9 de
2 High input-narrow row	.	13.4	75.3	74.8 d	53.7 b	74.8 bc a	68.1	42.4 bcd	82.0 bc bc	74.0	73.8 a ab	69.1	45.9	39.1	46.3 de bcd	73.8 ab cde	67.5	92.5 a bc	
3 High input-wide row	73.7	13.1	70.5	64.6 de	53.9 b	75.8 b a	67.1	32.1 e	76.2 de bc	76.4	67.3 cd	63.0	39.7	36.7	45.5 e abc	67.9 f cde	66.0	82.9 d bc	
4 w/o foliar fertility	67.9	13.1	75.1	80.2 ab abc	57.6 b	74.8 bc a	71.3	45.3 abc	76.2 de cd	77.7	71.8 ab	66.2	45.1	40.8	48.5 ab abc	73.5 ab	71.8	84.1 d ab	
5 w/o soil fertility	72.4	12.3	73.7	73.8 d	50.7 b	72.4 bc	74.5	50.1 ab	70.3 e bc	72.7	62.8 de	65.6	41.5	32.5	46.4 d abc	73.8 ab	69.4	87.2 c ab	
6 w/o inoculant	75.6	12.3	74.3	80.4 a	57.4 b	72.2 bc	68.3	45.8 abc	78.9 d	74.5	73.0 a bc	70.5	43.7	40.5	49.1 a bcd	70.5 def abc	68.9	85.8 c ab	
7 w/o foliar fungicide	69.5	11.3	70.5	75.6 abc abc	59.6 b	71.6 bc	64.9	44.0 abc	66.0 de	75.1	65.2 de	64.0	45.1	36.7	45.9 e bcd	69.9 def abc	65.4	86.6 c	
8 w/o seed treatment	80.7	15.8	73.4	74.2 d	53.9 b	71.9 bc	67.6	42.6 bcd	66.0 de	70.3	72.6 ab	69.7	45.9	39.7	46.1 e bcd	72.1 d abc	66.7	89.6 ab	
Late season management-narrow row	82.0	9.9	77.7	70.7 e bcd	56.1 b	71.6 bc	74.6	44.2 abc	63.5 e	78.1	70.7 c ab	66.8	40.8	36.2	43.2 e	72.7 abc	70.8	89.5 ab	
Early season management-narrow row	77.7	14.8	72.7	73.0 de abc	53.9 b	69.5 bc	69.5	44.8 abc	67.6 de cd	71.6	68.3 cd ab	64.1	45.3	40.0	46.1 e bcd	69.4 ef bcd	67.8	87.7 abc	
1 High input-wide row w/o foliar fungicide	.	8.9	72.9	69.2 cde	55.0 b	71.1 bc	65.9	34.0 de	70.8 e bc	75.8	63.6 e cd	65.9	45.8	39.2	44.3 de	65.2 f	65.9	72.1 e bc	
1 Standard input-narrow row	.	6.7	72.9	76.6 abc	57.9 b	68.1 bc a	66.3	37.2 cde	73.5 de	74.2	58.7 ef	66.8	43.7	31.1	45.3 cde	65.7 ef	68.7	83.3 d cd	
1 Ultra high input-narrow row	82.5	15.3	74.5	83.4 a	68.6 a	81.2 b	71.0	51.0 a	96.5 a	75.9	71.8 ab	65.2	45.5	38.8	47.5 abc abc	75.1 a	65.4	79.9 e bc	
1 Ultra high input-narrow row + add'l fungicide	82.3	21.2	74.6	82.6 a	75.0 a	83.3 a	71.5	49.8 ab	86.9 ab	72.1	72.1 ab	68.9	47.2	41.1	47.8 abc	71.1 de	66.0	82.5 d	
Mean	75.6	12.7	73.7	74.4	57.8	73.2	69.3	42.4	74.8	74.3	67.6	66.4	44.1	37.8	46.2	70.5	67.7	84.3	
ANOVA Treatment p value	0.2591	<0.001	0.1263	0.0043	0.003	0.0231	0.4491	<0.001	0.0008	0.6843	<0.001	0.1843	0.3706	0.0247	0.0273	0.0046	0.6696	0.0003	

2009 Kitchen Sink Soybean	Hopkins-ville	New Haven	Lexington
Treatment	36°39'54" N, 87°26'34" W	37°39'28" N, 85°35'27" W	37°59'19" N, 84°28'39" W
	bu/acre	bu/acre	bu/acre
1 Standard input–wide row	69.5	30.3 e	72.7 cde
2 High input–narrow row	68.1	42.4 bcd	82.0 bc
3 High input–wide row	67.1	32.1 e	76.2 bcde
4 High input–narrow row w/o foliar fertility	71.3	45.3 abc	76.2 bcde
5 High input–narrow row w/o soil fertility	74.5	50.1 ab	70.3 cde
6 High input–narrow row w/o inoculant	68.3	45.8 abc	78.9 bcd
7 High input–narrow row w/o foliar fungicide	64.9	44.0 abc	66.0 de
8 High input–narrow row w/o seed treatment	67.6	42.6 bcd	66.0 de
9 Late season management–narrow row	74.6	44.2 abc	63.5 e
10 Early season management–narrow row	69.5	44.8 abc	67.6 de
11 High input–wide row w/o foliar fungicide	65.9	34.0 de	70.8 cde
12 Standard input–narrow row	66.3	37.2 cde	73.5 bcde
13 Ultra high input–narrow row	71.0	51.0 a	96.5 a
14 Ultra high input–narrow row + add'l fungicide	71.5	49.8 ab	86.9 ab
Mean	69.3	42.4	74.8
ANOVA (Treatment p value)	0.4491	<0.0001	0.0008

Kitchen Sink Soybeans, 2010		Hopkins- ville	New Haven	Lexington	
Treatment		37°59'19" N, 84°28'39" W	36°39'54" N, 87°26'34" W	37°39'28" N, 85°35'27" W	
		bu/acre	bu/acre	bu/acre	
1	Standard input–wide row	17.6	47.7	f	52.2
2	High input–narrow row	24.3	70.6	a	55.3
3	High input–wide row	16.4	60.7	bcd	57.3
4	High input–narrow row w/o foliar fertility	22.9	65.0	abc	49.7
5	High input–narrow row w/o soil fertility	18.7	59.1	cd	59.8
6	High input–narrow row w/o inoculant	21.7	67.9	ab	47.2
7	High input–narrow row w/o foliar fungicide	22.0	55.5	f	51.8
8	High input–narrow row w/o seed treatment	20.6	68.5	ab	61.6
9	Late season management–narrow row	22.2	64.3	abcd	53.1
10	Early season management–narrow row	19.8	60.7	bcd	54.4
11	High input–wide row w/o foliar fungicide	21.9	48.9	f	58.0
12	Standard input–narrow row	20.6	55.9	df	51.3
13	Ultra high input–narrow row	22.2	70.9	a	69.8
14	Ultra high input–narrow row + add'l fungicide	19.6	64.0	abcd	58.6
Mean		20.7	61.4		55.7
ANOVA (Treatment p value)		0.8102	<0.0001		0.5587

Kitchen Sink Soybean

- In Kentucky, 6 site-years
 - 2009, 2010
 - 3 locations each year
- Significant differences in 3 out of 6 site-years
- In those 3 site-years:
 - Ultra-high inputs treatment was among the highest yields, about 17 bu/acre higher than standard input in narrow rows (an average of 8.7 bu/acre more for all six site-years)

Kitchen Sink Soybean

- Ultra-high treatments resulted in significantly higher yields half of the time.
- Is a 50% chance of getting 17 bu/acre more worth the cost?

Soy MVP



- Compares University of Kentucky guidelines to producer practices.
- 2009 and 2010: a slight economic advantage to U.K.

Soy MVP, 2009

Location	U.K. Guidelines	Producer Practice	U.K. Guidelines	Producer Practice
	Yield, bu/acre		Partial Net Return, \$/acre	
Graves County A	72.1	76.6	641.11	660.42
Graves County B	59.2	50.1	511.55	418.49
Hickman County A	51.0	50.8	427.17	425.25
Hickman County B	50.6	50.8	423.33	425.25
Lyon County	42.8	42.5	339.78	333.64
Muhlenberg County A	47.0	45.1	389.46	360.42
Muhlenberg County B	38.9	39.3	311.70	304.74
Trigg County	54.8	57.1	438.34	454.35
Average	52.1	51.6	435.31	422.82
Advantage	+0.5		+12.49	

Soy MVP, 2010

Location	U.K. Guidelines	Farmer Practice	U.K. Guidelines	Farmer Practice
	Yield, bu/acre		Partial Net Return, \$/acre	
Muhlenberg ¹	48.1	49.8	404.69	414.97
Trigg ²	23.9	28.0	169.24	177.58
Marshall ³	19.7	19.0	133.86	97.44
Calloway ⁴	26.7	24.3	203.86	150.44
Butler ⁵	44.7	46.6	365.33	371.73
Henderson 1 ⁶	71.5	70.9	629.72	593.15
Henderson 2 ⁷	75.2	80.4	681.72	688.15
Average	44.3	45.6	369.77	356.21
Advantage	-1.3		+13.56	

¹Seeding rate 135K (FP) vs. 120K (UK)

²Seeding rate 150K (FP) vs. 120K (UK),fungicide, insecticide on FP

³Fungicide seed treatment for FP, 160K (FP) vs. 120K (UK)

⁴Fungicide seed treatment for FP, 160K (FP) vs. 120K (UK)

⁵Seeding rate 150K (FP) vs. 120K (UK), fungicide used on both sides

⁶Insecticide used for FP, 165K (FP) vs. 120K (UK), fungicide and foliar P, K on both sides

⁷FP used fungicide, insecticide, foliar fertilizer, 165K (FP) vs. 120K (UK)

UK Ag



Narrow Row Corn

Twin Row Planter



Twin Row Corn,

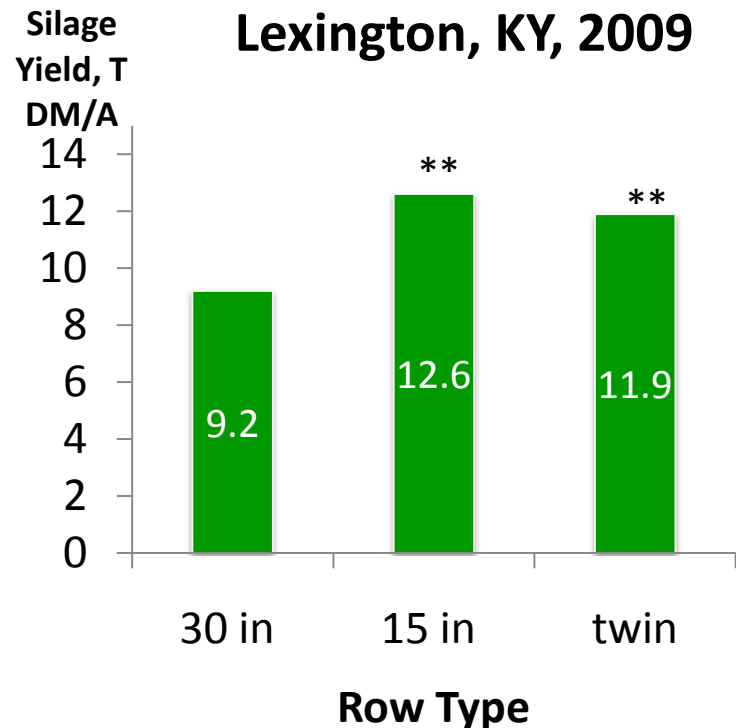
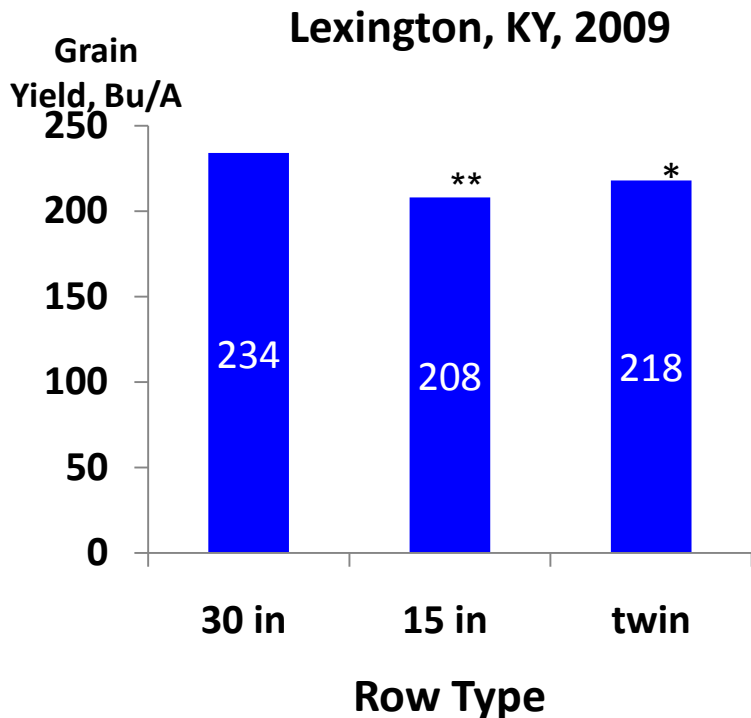
Spindletop Farm, KY, 2009



- Three hybrids:
 - DeKalb, 1 hybrid
 - Developed in 30-inch rows
 - Nidera, 2 hybrids
 - Developed in 20-inch rows

Twin Rows, Narrow Rows

Lexington, KY, 2009



*, **Significantly different from 30-inch rows at 0.10 and 0.05, respectively.

Spindletop Farm, Lexington, KY
 No-Till Following Soybean
 Loradale silt loam
 Seeded: 27 Apr 2009
 35,000 seeds/A
 Lexar+Glyphosate PRE, no POST

AX820CL and XA1143MG are from Nidera in Argentina (developed in 20-inch rows).
 DKC62-54 is from Monsanto DeKalb

Narrow Row Corn, 2010

- Hybrids
 - DeKalb, 1 hybrid
 - Nidera, 2 hybrids
 - Pioneer, 3 hybrids
- Location
 - Lexington, KY
 - Loradale silt loam
 - No-till
 - Following soybeans
- Rows
 - 30-inch
 - 15-inch
 - Twins

Narrow Row Corn, 2010

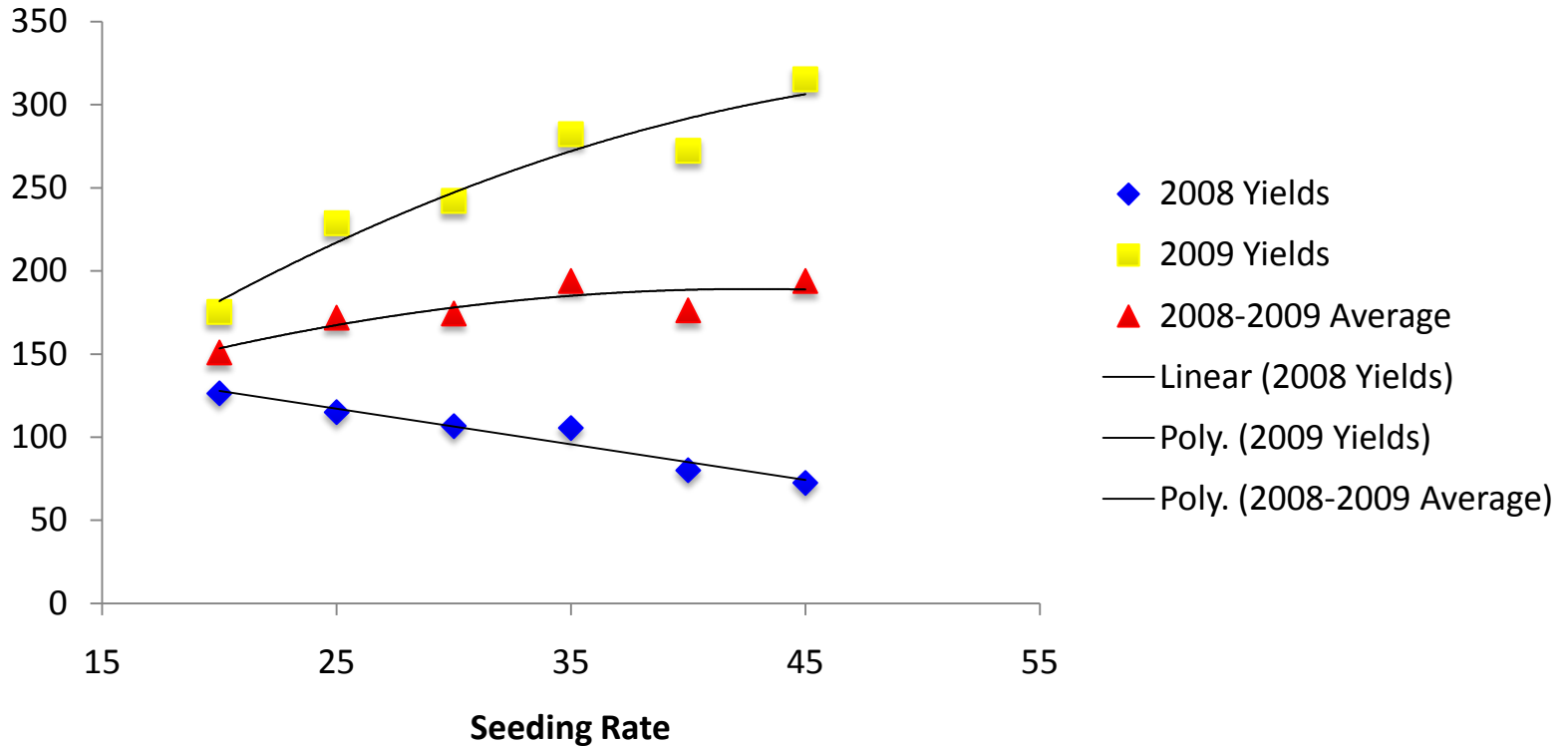
- Yields
- 90 to 110 bu/acre
- No difference between row widths.
- Water was the limiting factor for yield.

Population Effect, Corn

Lexington, 2008-2009, 4 Hybrids, VT3 Hybrids and RRCB Hybrids

Corn Seeding Rates, 2008-2009

Yield, bu/acre



Narrow Row Corn

- More research next year.
- Hybrids
- Plant Population
- Weed Control

Thank you.

