

UNL Corn and Soybean Planting Dates, Planting Rates, and Depths

UNL On-Farm Research Team



Corn Planting Dates

- Last year ISU recommendation was:
 - In most years we could plant by April 20 to maximize yield if soil temperature is above 50F.
- No UNL farm research corn planting date studies this year.
- Optimal Planting Period from May 1 – May 15
 - April 25 - May 10 in SE and SC Nebraska
 - May 5 - May 20 in Northern NE



2010 Corn Planting Depth Data

Producer	2.0" Depth	2.25" Depth	3.0" Depth	%Stalk Rot	Population Counts
Dodge Co. Rainfed (8 Reps)*		177.5	170.8		
Hamilton Co. Irrigated (3 Reps) ns	195.9		197.2		2"=30,222 3"=32,222
Seward Co. Irrigated (6 Reps) ns	198.6		195.9		
York Co. Irrigated (4 Reps) ns	213.1		204.9		
Average All Avg. Irrigated ns	202.1 202.1	177.5	189.4 199.0		
Fillmore Co. Irrigated (2 Reps)+	199.9		201.1	2"= 30% 3"= 28%	2"= 30,500 3"= 28,000

*Statistically significant at the 95% level.
 NS-Not statistically significant
 +Not included in combined statistics due to few replications.



Corn Planting Rates

- ISU Research suggested highest yields occurred between 34,500-37,000 seeds/acre with best net returns around 30,000-35,000 seeds/acre.
- ISU suggested raising populations 5% at most if no check strips or on-farm research trials were conducted.
- 2010 UNL On-farm Research Trials:
 - Irrigated: 28K vs. 32K vs. 36K vs. 40K
 - Dryland/Rainfed: 18K vs. 22K vs. 26K
 - 6 Trials in 5 Counties



2010 UNL Irr. Corn Planting Rates

Producer	28,000	32,000	36,000	40,000	Average
Seward Co. (4 Reps)*	208.7c	219.6b	223.8a	224.3a	219.1
% Pop Achieved	89%	90%	88%	86%	88%
% Stalk Rot	22%	58%	52%	78%	53%
Clay Co. (3 Reps)*	208.6c	214.1b	219.8a	223.5a	216.5
Average*	208.7c	217.2b	222.1a	224.0a	218.0
Fillmore Co. (2 Reps)+	181.2	184.9	185.2	184	183.8
% Pop Achieved	92%	92%	85%	89%	90%
% Stalk Rot	0%	0%	0%	0%	0%

*Significant difference at 95% level.

+No statistics & not included in average due to few reps.



2010 Dryland/Rainfed Corn Planting Rates

Producer	18,000	22,000	24,000	26,000	30,000	Rainfall (May 1- Oct 1 via NE Rain)
Seward Co. (5 Reps)*	165.9b	173.7ab		177.6a		18.4
SCAL-Clay Co. (4 Reps)*	128.8b	135.5a		134.2a		20.2
Cass Co. (8 Reps)*			151.8b		166.2a	22.4
% Pop Achieved			92%		94%	
Average*+	149.4b	156.7ab	151.8	158.3a	166.2	20.3

*Statistically significant at the the 95% level.

+Average stats only include Seward Co. and SCAL.



Caution!

- Don't push populations too hard too fast-particularly on variable ground!
- Work with your seed dealer to determine best hybrid and best population for your situation.
- Remember 5% suggestion.



Corn Summary

- Research is showing our hybrids can withstand earlier planting-even prior to April 20 except in cold (<50F soils) that are wet.
- Planting depths of 2" had higher yields than 3" in 3 of 5 on-farm studies but only 1 statistically significant. Most likely due to weather and wet soil conditions in spring.
- Research is showing we can increase corn populations about 5% safely and increased populations provided best yields in UNL on-farm irrigated and dryland fields in 2010. Between 30,000 to 35,000 plants per acre maximized net returns according to ISU. Be careful to not increase populations too much on variable ground!

Soybean Planting Dates

- Dr. Jim Specht-UNL: Nodes produced every 3.75 days once they reach V1. Lose $\frac{1}{4}$ to $\frac{5}{8}$ bu/day for every day planted after May 1.
- Tested by on-farm research producers 2008-2010. Research in 2008-2009 showed a 1-4 bu/acre yield increase with planting early.



Picture Date: 6/26/2003



Picture Date: 6/24/2004



2008 Soybean Planting Date Results

Producer	90 K	120K	150K	180K	Yield (bu/acre)
SCAL Early (April 29) 3 reps	66.3	65.3	69.5	67.6	67.2
SCAL Late (May 15) 3 reps	65.0	70.3	62.7	65	65.8
Seward Co. Early (April 30) 3 Reps	67.1	68.4	69.3	68.7	68.4
Seward Co. Late (May 19) 3 Reps	64.6	65.9	67.1	67.3	66.2
Avg. Early	66.7	66.9	69.4	68.2	67.8
Avg. Late	64.8	68.1	64.9	66.2	66.0
York Co. Early (April 23) 8 Reps			66.9		66.9
York Co. Late (May 14) 8 Reps			63.5		63.5
Fillmore Co. Early (April 30) 7 Reps			81.0		81.0
Fillmore Co. Late (May 19) 7 Reps			77.5		77.5

Producer & 2009 Planting Date	Rainfed or Irrigated	Variety	Row Spacing	Yield
SCAL Early (April 27)	Rainfed	Pioneer 93M11	30"	37.6
SCAL Late (May 18)	Rainfed	Pioneer 93M11	30"	37.2
Saunders Co. Early (May 3)	Rainfed	NC+2A63RR	15"	66.6
Saunders Co. Late (May 21)	Rainfed	NC+2A63RR	15"	65.1
SCAL Early (April 27)	Irrigated	Pioneer 93M11	30"	70.2
SCAL Late (May 18)	Irrigated	Pioneer 93M11	30"	68.1
Fillmore Co. Early (April 24)	Irrigated	Pioneer M43	30"	69.5
Fillmore Co. Late (May 15)	Irrigated	Pioneer M43	30"	68.4
Seward Co. Early (April 24)	Irrigated	NC+2A63	30"	73.2
Seward Co. Late (May 20)	Irrigated	NC+2A63	30"	71.3
York Co. Early	Irrigated		30"	59.1
York Co. Late	Irrigated		30"	58.6
Average Early	Irrigated			68.0
Average Late	Irrigated			66.6

2010 Soybean Planting Date Data

Producer/ Planting Date	Rainfed/ Irrigated	Variety	Row Spacing	Yield
Saunders Co. Early-April 18 (6 Reps)	Rainfed	Channel 2751	15"	75.7*
Saunders Co. Late-May 18 (6 Reps)	Rainfed	Channel 2751	15"	71.2
Seward Co. Early-April 19 (6 Reps)	Irrigated	Channel 3051R2	30"	72.0*
Seward Co. Late-May 24 (6 Reps)	Irrigated	Channel 3051R2	30"	62.3
Average Early				73.8*
Average Late				66.7

*Statistically significant at the 95% level.

Plant Population Study (2006-2010)

With rising input costs, producers are examining ways to reduce costs of production. The objectives of this on-farm research study were to evaluate the effects of various planting populations on soybean yield and economics.

Quick Summary

- 90K vs. 120K vs. 150K vs. 180K.
- Irrigated
- 30" Rows
- Ridge or No Till
- From 2006-2008, there were no statistical yield differences between planting 120K vs. 150 or 180K. The recommendation was to reduce planting populations to 120K.



2006 Soybean Population Yield Results

Producer	Population	Actual Pop.	Yield
Fillmore & Seward Co. Producer	90,000	89,000	65.5
	120,000	105,750	66.1
	150,000	140,167	66.9
	180,000	158,333	67.4

Statistically significant at 95% for:
90 vs. 150K, 90 vs. 180K, and 120 vs. 180K



2007 Soybean Population Yield Results

Producer	90K	120K	150K	180K	Average
Hamilton* (3 Reps)	52.8	51.8	51.4	52.9	52.2
Clay (4 Reps)	61.6	60.9	61.1	61.7	61.3
York ¹ (3 Reps)	61.4	61.9	62.2	62.5	62.0
Fillmore* ¹ (3 Reps)	56.5	57.5	58.0	58.9	57.7
Seward (4 Reps)	63.1	63.9	62.8	63.4	63.3
Average	59.4	59.6	59.4	60.2	59.7 NS

*Some Hail

¹Fungicide Seed Treatment applied.

No statistical significance at the 95% or 99% level for any population over 17 replications and 5 varieties.



2008 Pods/Plant

Producer	90K	120K	150K	180K
Hamilton Co. 2 Reps	71	64	48	40
York Co. 3 Reps	70	56	48	38
Fillmore Co. 3 Reps	63	58	51	45
Seward Co. 6 Reps	60	43	42	38
SCAL 6 Reps	66	56	39	32
Average	65	54	44	37

2008 Pods/Acre

Producer	90K	120K	150K	180K
Hamilton Co. 2 Reps	5.5 M	6.8 M	5.9 M	6.2 M
York Co. 3 Reps	6.1 M	6.2 M	6.7 M	6.1 M
Fillmore Co. 3 Reps	5.5 M	6.4 M	7.4 M	7.3 M
Seward Co. 6 Reps	4.8 M	4.6 M	5.3 M	5.7 M
SCAL 6 Reps	5.6 M	6.2 M	5.6 M	5.3 M
Average	5.5 M	5.9 M	6.0 M	5.9 M



120,000 plants/acre



150,000 plants/acre



2008 Soybean Population Yield Results

Producer	90K	120K	150K	180K	Average
Hamilton Co. (2 Reps)	69.2	69.5	71.1	70.9	70.2
York Co. ¹ (3 Reps)	67.7	69.7	71.0	71.8	70.1
Fillmore Co. ¹ (3 Reps)	76.7	77.3	78.1	78.2	77.6
Seward Co. ² (6 Reps)	65.9	67.2	68.2	68.2	67.4
SCAL ² (6 Reps)	65.6	67.8	66.1	66.3	66.5
Average	68.1*	69.5	69.8	69.9	69.3

*Significant for 90K at 95 and 99%

¹Fungicide Seed Treatment or ² Fungicide/Insecticide seed treatment applied for planting date vs. population combined study.



2010 Soybean Population Results

Treatment	60K	90K	120K	150K	Average
Untreated	69.74	72.43	73.77	74.57	72.63
Headline (3 oz)	67.49	68.23	73.20	78.61	71.88
Fertilizer (5 gal 32%)	67.95	74.26	70.52	70.49	70.81
Radiate	69.25	70.26	77.68	69.69	71.72
Sugar (1 lb)	73.11	73.62	72.95	69.98	72.42
Average	69.51	71.76	73.62	72.67	71.89

*There was no significant statistical difference between populations, between treatments, or between population X treatment.

*All Treatments were applied at R3 (beginning pod) stage of growth.

*Hamilton Co. Producer



Soybean Summary

- 3 years of on-farm research in addition to Jim Specht's research shows a 1-10 bu yield difference between early and late planted soybeans.
- Four years of on-farm research studies in South Central Nebraska have showed producers can plant 120,000 seeds/acre on 30" rows, reducing seeding rates by an average of 40,000 seeds/acre with no significant effect on soybean yields. Savings of \$10.66-18.57 (based on \$40-65/bag seed cost). This was observed regardless of whether or not a seed treatment fungicide was applied.



For More Information:

<http://cropwatch.unl.edu/web/farmresearch>

All UNL On-farm Research Educators/Specialists and studies listed on this site.

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