



# NEBRASKA ON-FARM RESEARCH NETWORK

Summary of Soybean Planting Population Studies,  
2006 - 2013

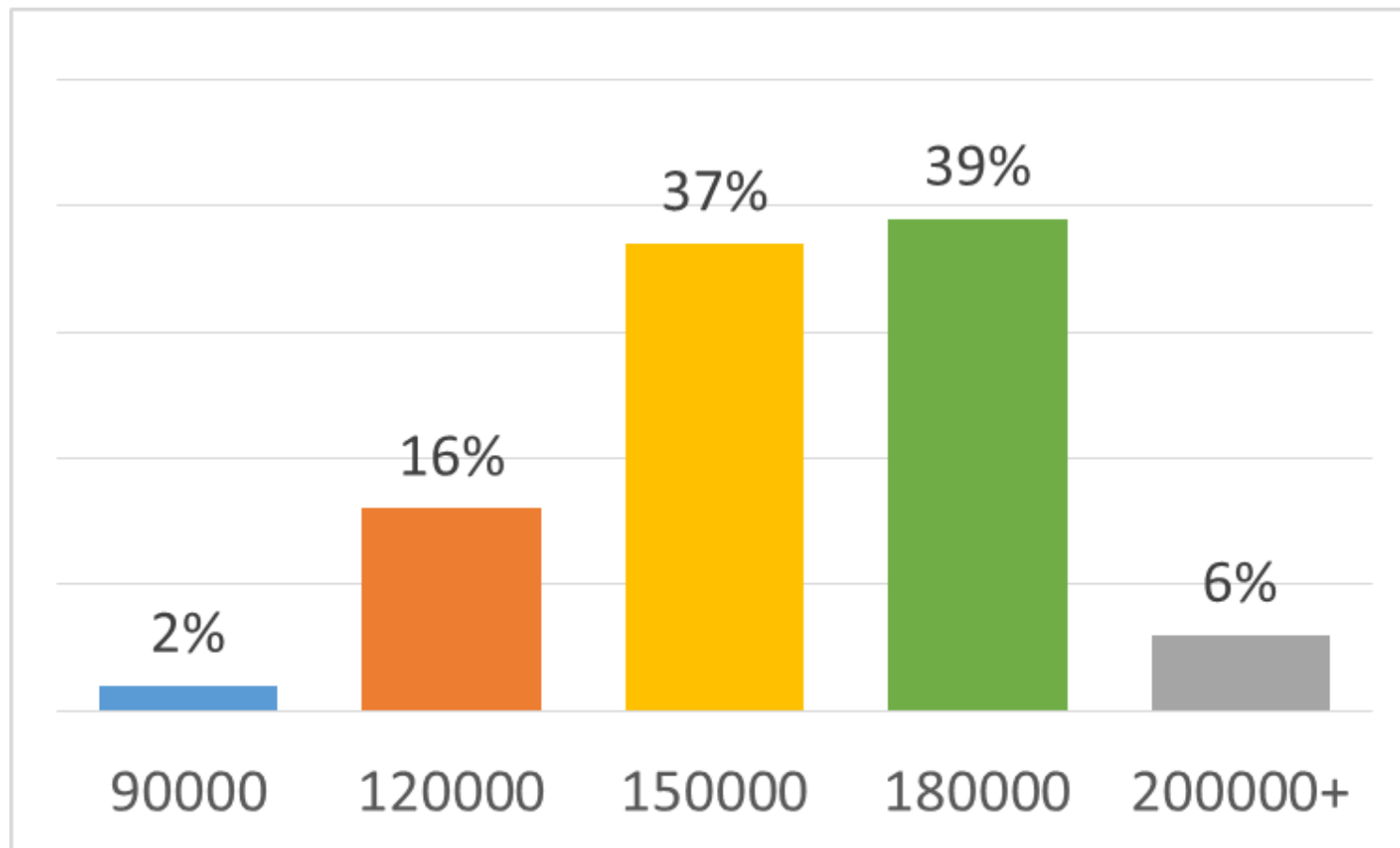


UNIVERSITY OF  
Nebraska  
Lincoln



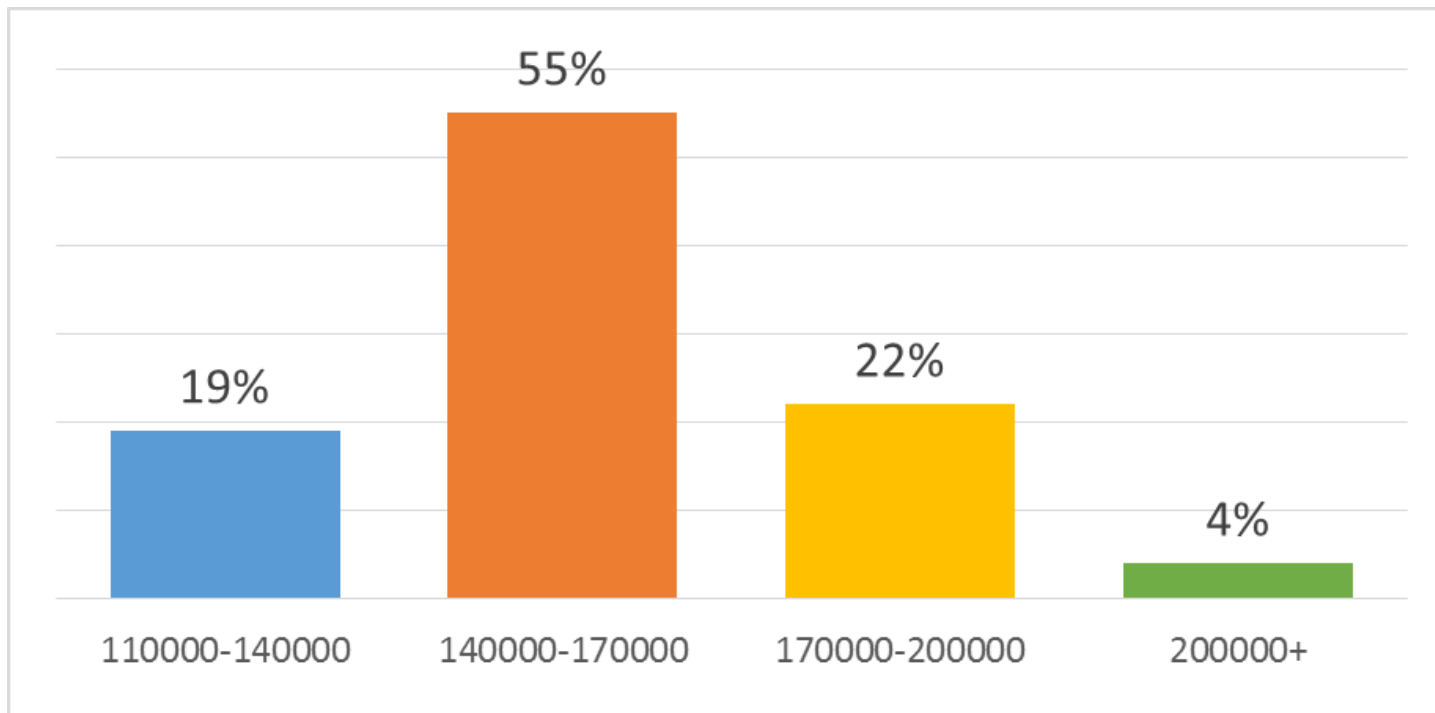
# WHAT POPULATION DO YOU PLANT YOUR SOYBEANS?

Responses from 613 producers attending Pesticide Certification Training in York, Seward, Polk and Buffalo Counties.



# WHAT POPULATION DO YOU PLANT YOUR SOYBEANS?

CropWatch Soybean Plant Populations Survey.  
181 participants



# Soybean Plant Populations - 2006 to 2013

With the rising input costs, producers were looking for ways to reduce production cost.

The objective of this on-farm research study was to evaluate the effect of various planting various planting populations on soybean yields and economics.

Most of the studies I'm going to share have been conducted on 30" rows in South Central Nebraska.



## Soybean Plant Populations - 2006 to 2013

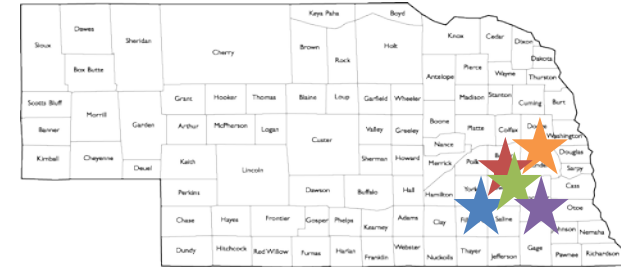


120,000 plants/acre

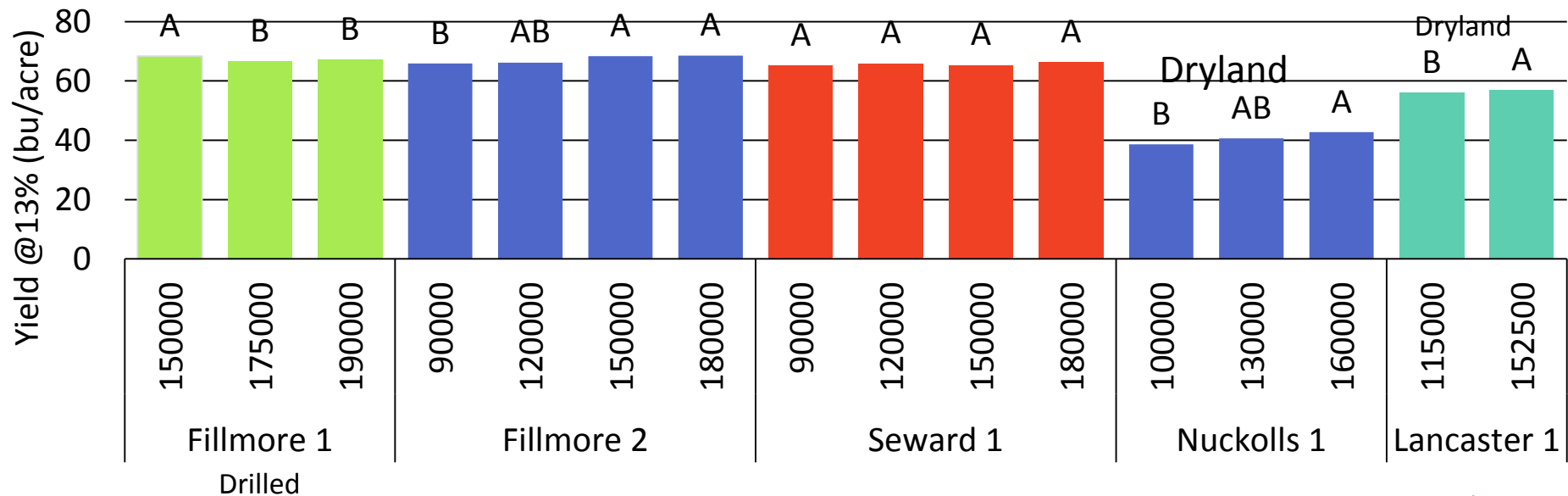


150,000 plants/acre

# 2006 SOYBEAN POPULATION YIELDS



## 2006 Soybean Population Study Yields



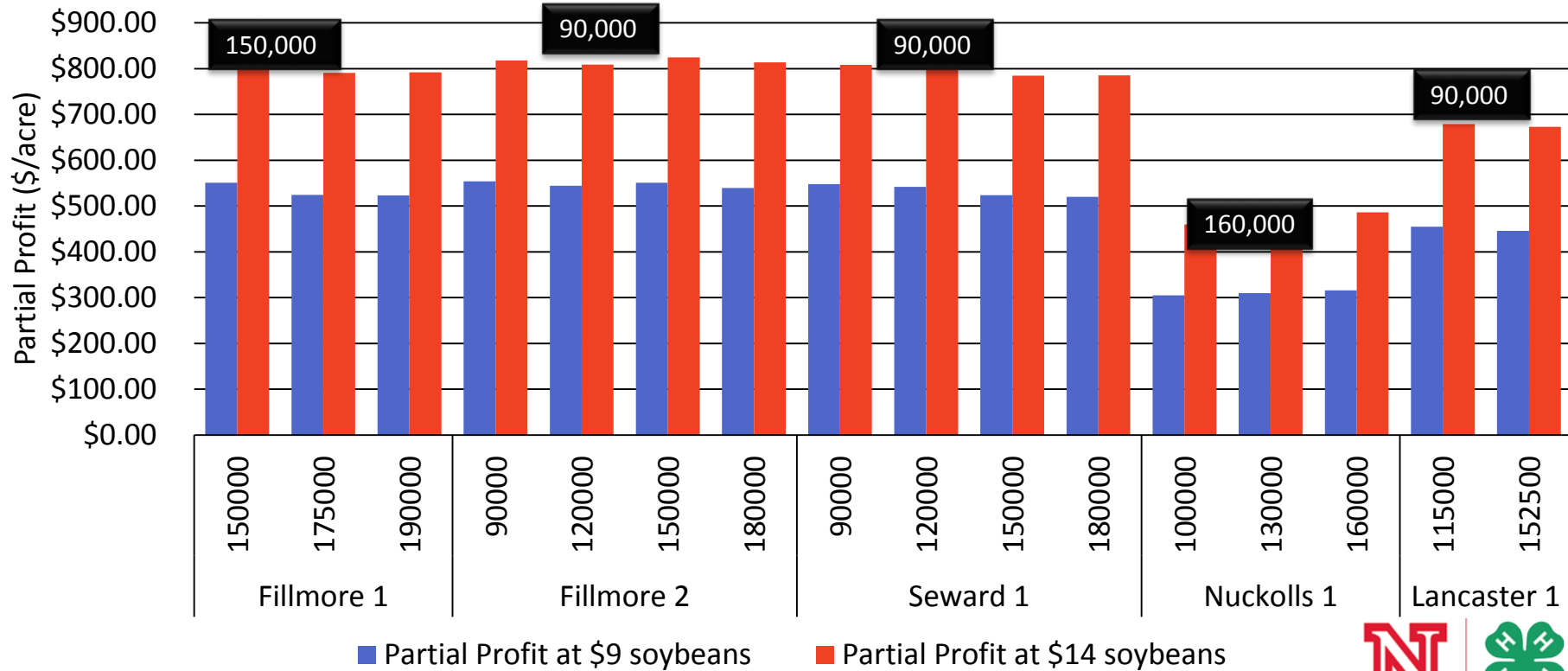
Bars with the same letters are not significantly different at  $P \leq 0.10$ . Significance letters apply within location.



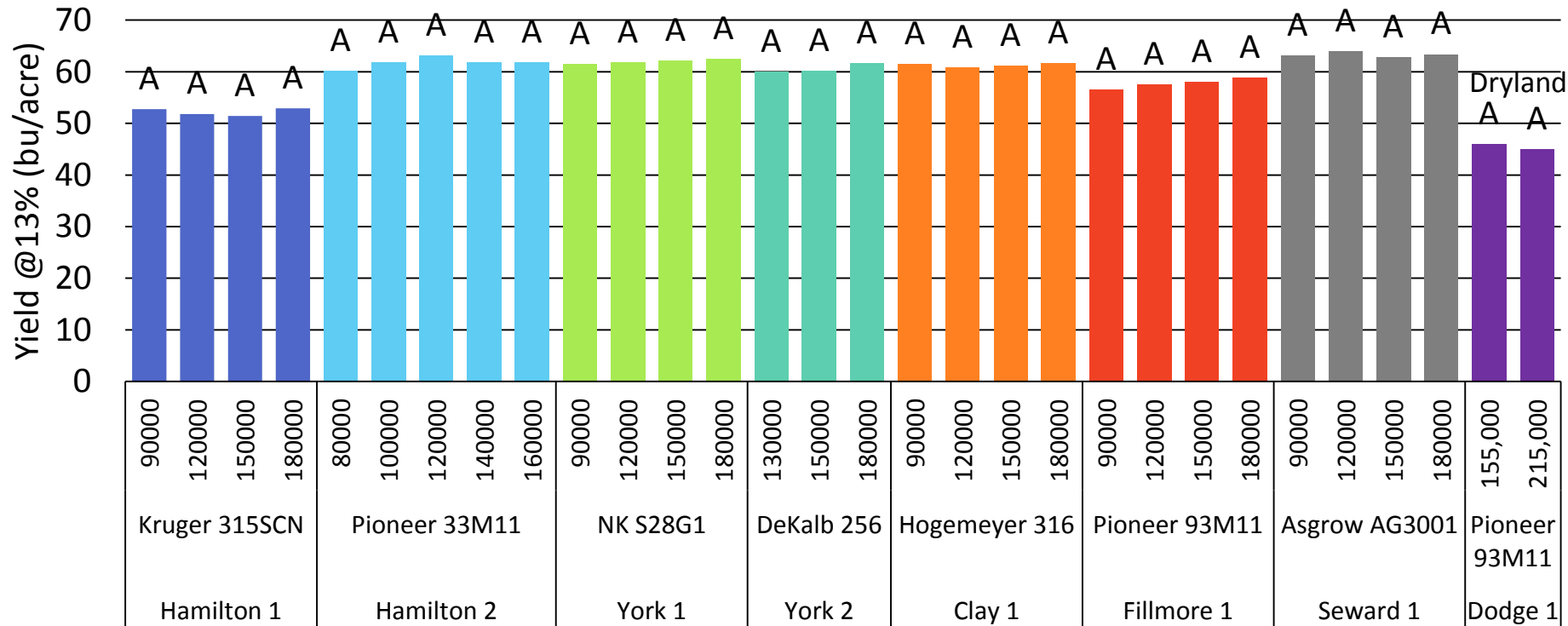
# 2006 PARTIAL PROFIT

Partial profit was calculated for each population by taking into account yield and seed price. Seed price for each population was assumed to be \$60/140,000 seeds. Partial profit is calculated as follows:  
 $(\text{Yield in bu/acre} \times \text{price of soybeans/bu}) - (\text{seed cost at given population})$

Most Profitable Population at each site (for \$9/bu soybeans).



# 2007 SOYBEAN POPULATION YIELDS



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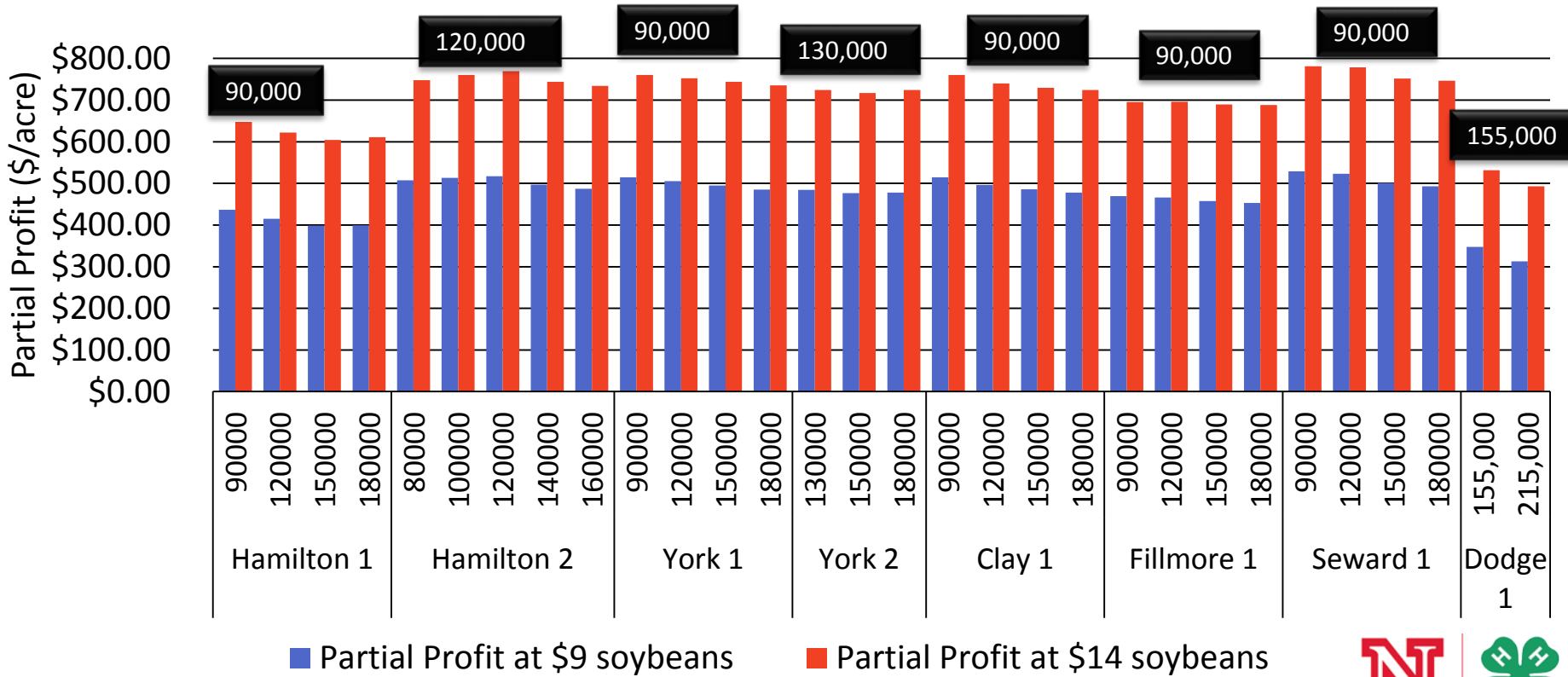




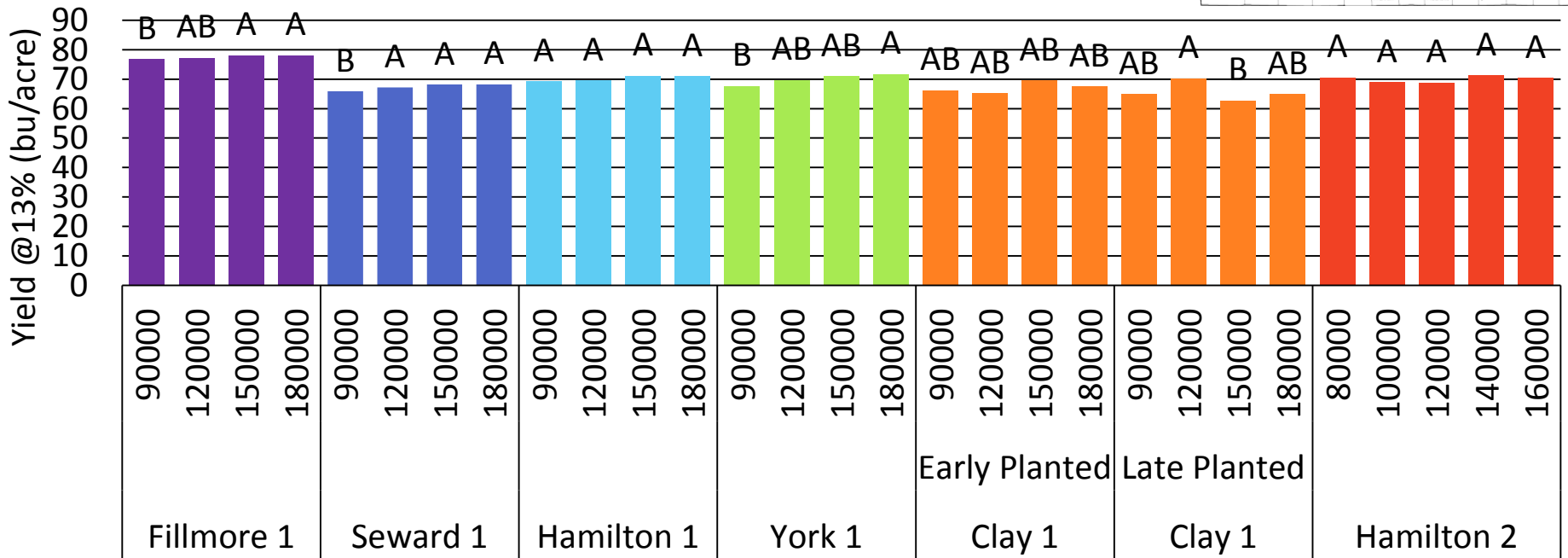
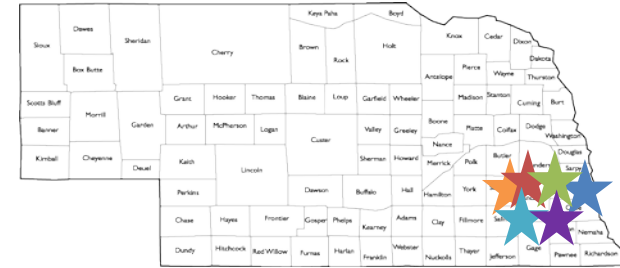
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Most Profitable Population at each site (for \$9/bu soybeans).



# 2008 SOYBEAN POPULATION YIELDS



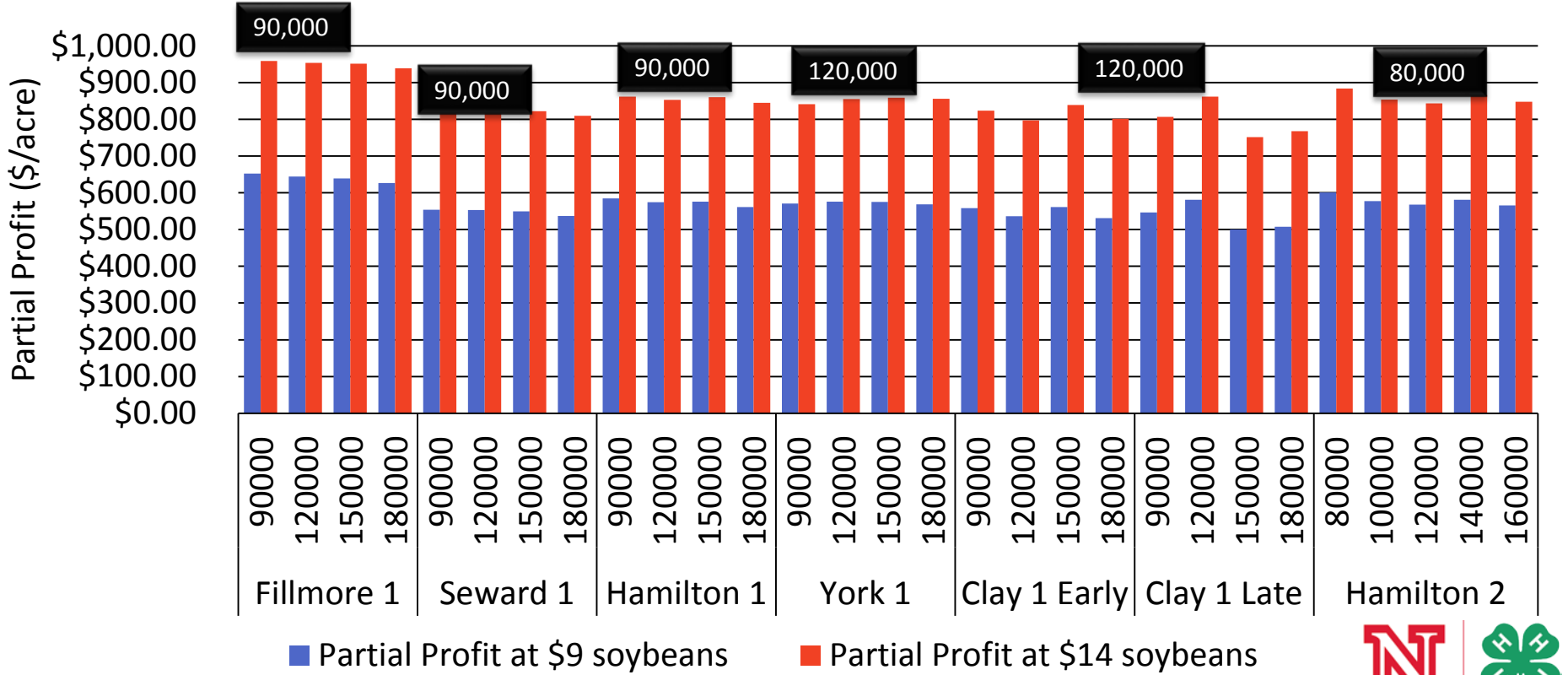
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# 2008 PARTIAL PROFIT

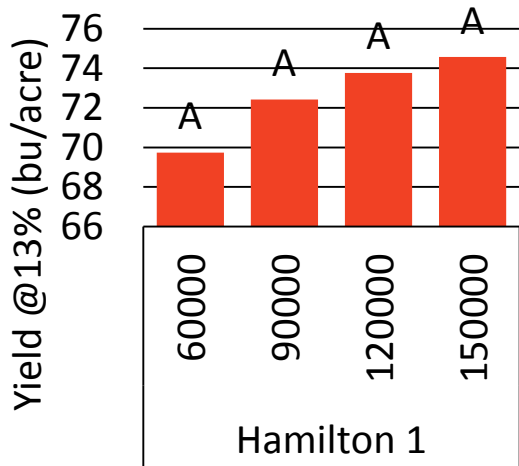
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Most Profitable Population at each site (for \$9/bu soybeans).

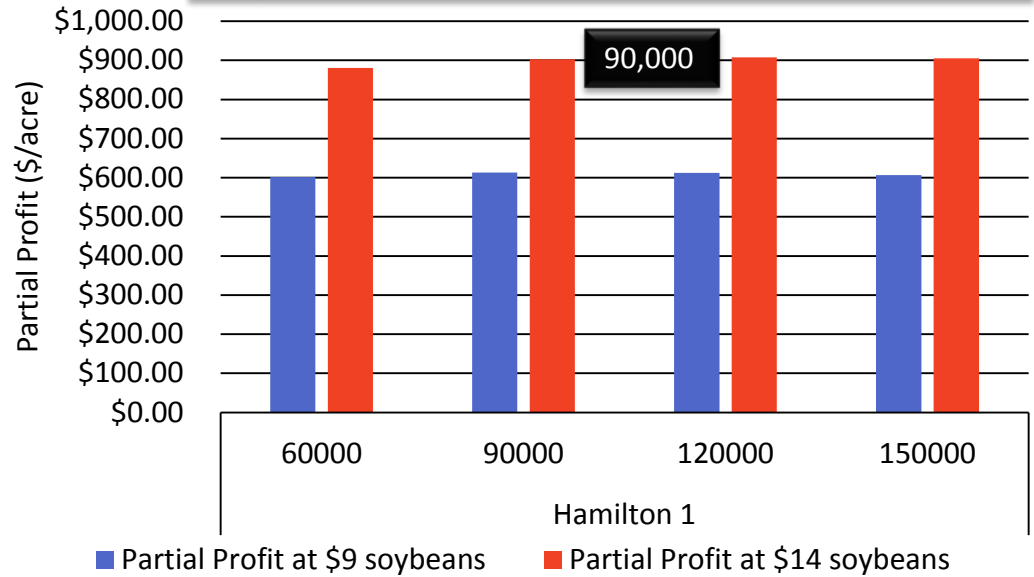


# 2010 SOYBEAN POPULATION YIELDS & PARTIAL PROFIT

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 (Yield in bu/acre x price of soybeans/bu) – (seed cost at given population)



Most Profitable Population at site (for \$9/bu soybeans).

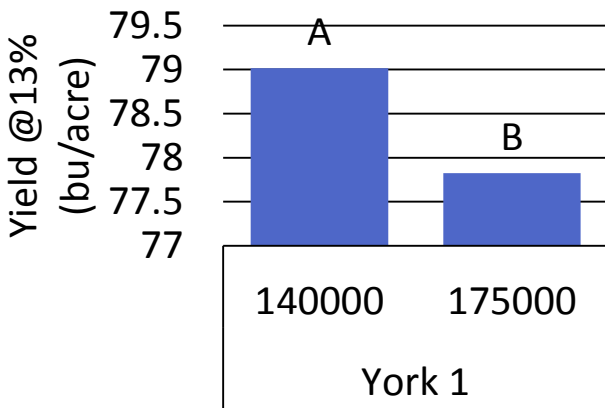
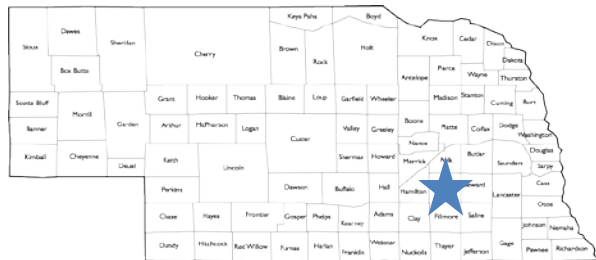


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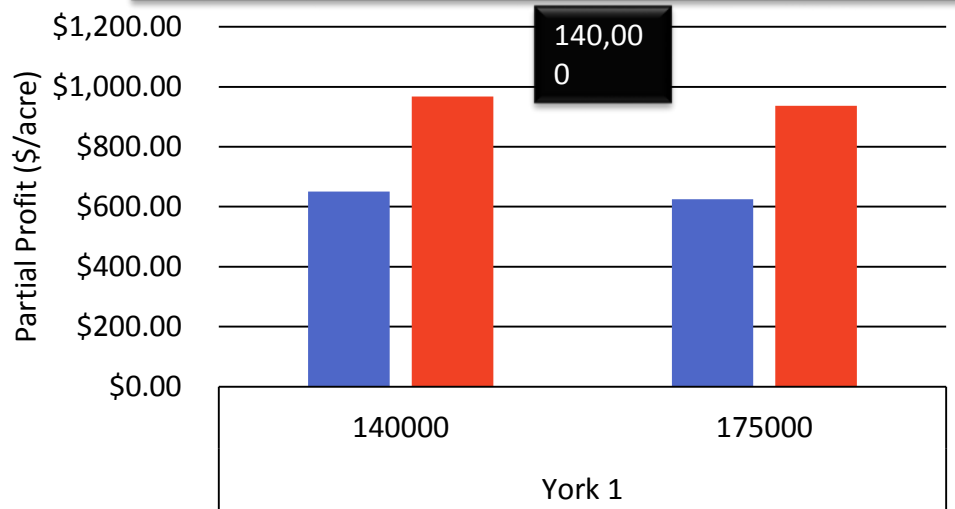


# 2013 SOYBEAN POPULATION YIELDS & PARTIAL PROFIT

Partial profit was calculated for each population by taking into account yield and seed price. Seed price for each population was assumed to be \$60/140,000 seeds. Partial profit is calculated as follows:  
 (Yield in bu/acre x price of soybeans/bu) – (seed cost at given population)



Most Profitable Population at site (for \$9/bu soybeans).



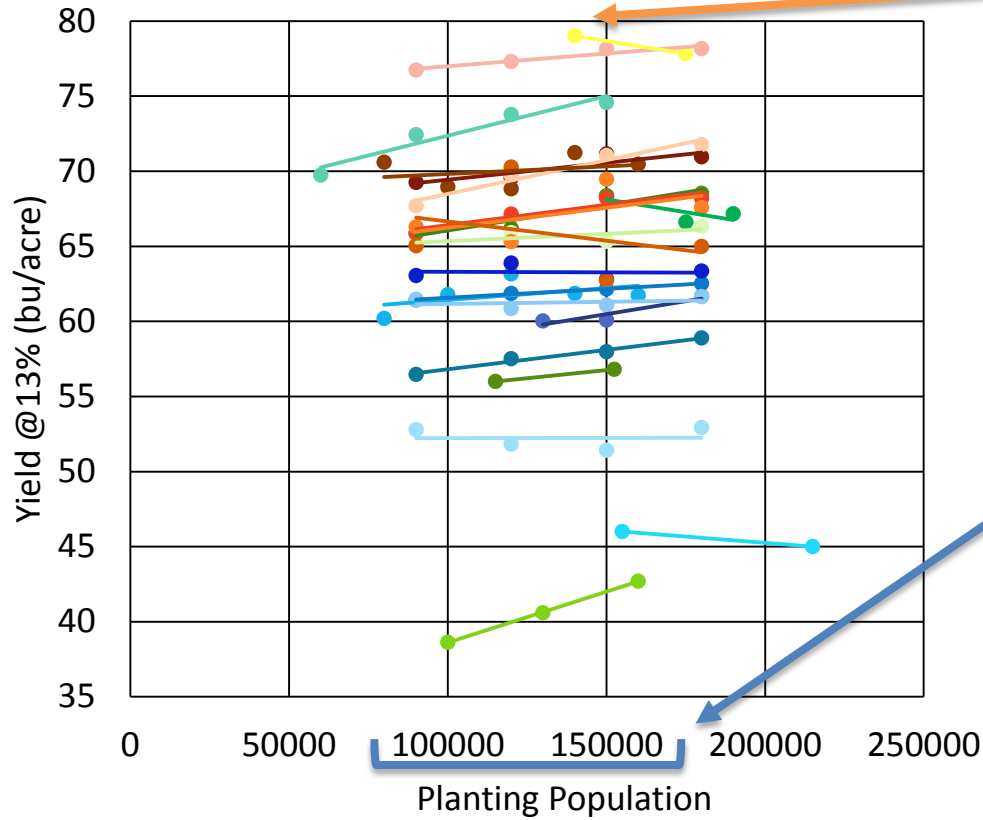
■ Partial Profit at \$9 soybeans ■ Partial Profit at \$14 soybeans

Bars with the same letters are not significantly different at  $P \leq 0.10$ .





# 2006-2013 POPULATION VS. YIELD



- 2006 Fillmore 1
- 2006 Fillmore 2
- 2006 Seward 1
- 2006 Nuckolls 1
- 2006 Jefferson 1
- 2007 Hamilton 1
- 2007 Hamilton 2
- 2007 York 1
- 2007 York 2
- 2007 Clay 1
- 2007 Fillmore 1
- 2007 Seward 1
- 2007 Dodge 1
- 2008 Fillmore 1
- 2008 Seward 1
- 2008 Hamilton 1
- 2008 York 1
- 2008 Clay 1 SCAL Early Planted
- 2008 Clay 1 SCAL Late Planted
- 2008 Hamilton 2
- 2010 Hamilton 1
- 2013 York 1

Highest yield was 79 bu/acre at a planting population of 140,000 spa in York County in 2013.

Most profitable populations ranged from 80,000 to 160,000. No sites saw increase in profit for populations higher than 160,000.

54.7% of Nebraskans planted between 140,000 - 170,000  
26.5% planted above 170,000 spa

(2014 CropWatch survey – 181 respondents)



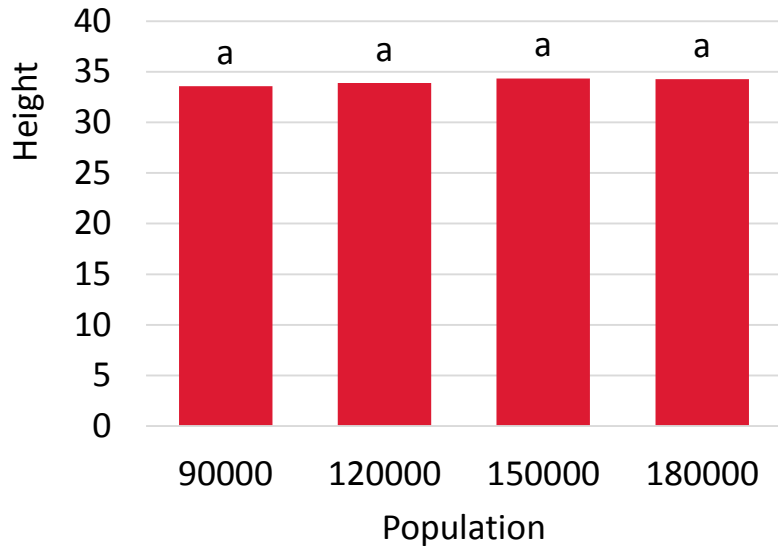
**EXTENSION**

Summary of sites with planting populations of 90,000, 120,000, 150,000, and 180,000

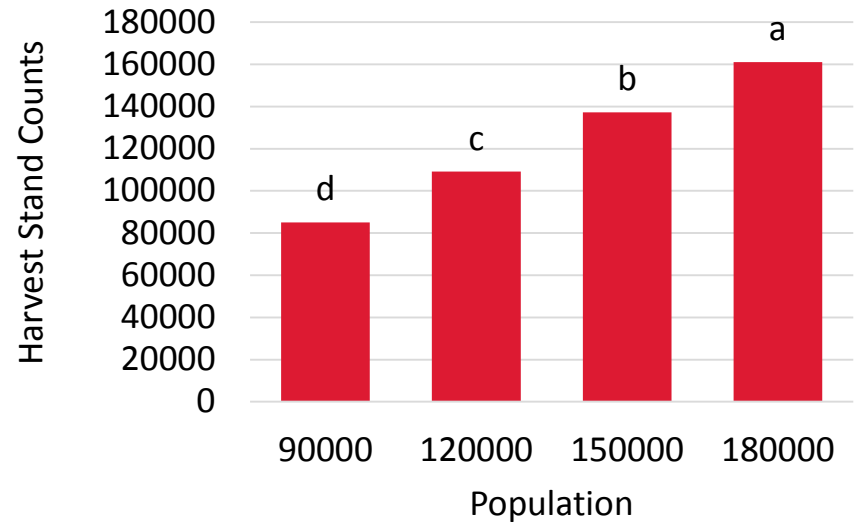
**Yield at 4 Planting Populations (seeds/acre)**

<b>Site</b>	<b>Year</b>	<b>County</b>	<b>90000</b>	<b>120000</b>	<b>150000</b>	<b>180000</b>
<b>1</b>	2006	Fillmore	66 B	66 AB	68 A	69 A
<b>2</b>	2006	Seward	65 A	66 A	65 A	66 A
<b>3</b>	2007	Hamilton	53 A	52 A	51 A	53 A
<b>4</b>	2007	York	61 A	62 A	62 A	63 A
<b>5</b>	2007	Clay	61 A	61 A	61 A	62 A
<b>6</b>	2007	Fillmore	56 A	58 A	58 A	59 A
<b>7</b>	2007	Seward	63 A	64 A	63 A	63 A
<b>8</b>	2008	Fillmore	77 B	77 AB	78 A	78 A
<b>9</b>	2008	Seward	66 B	67 A	68 A	68 A
<b>10</b>	2008	Hamilton	69 A	70 A	71 A	71 A
<b>11</b>	2008	York	68 B	70 AB	71 AB	72 A
<b>12</b>	2008	Clay	66 A	65 A	69 A	68 A
<b>13</b>	2008	Clay	65 A	70 A	63 A	65 A
<b>Average</b>			<b>64.4 C</b>	<b>65.2 B</b>	<b>65.4 AB</b>	<b>65.8 A</b>

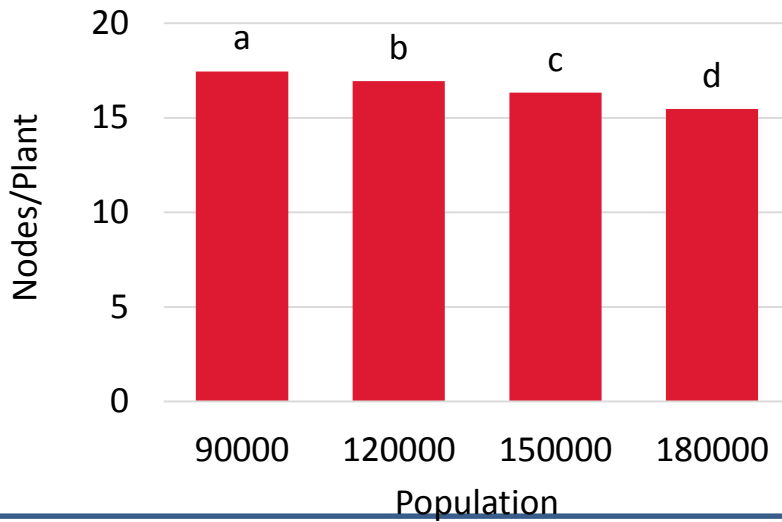
a) Plant Height by Population



b) Stand Count by Population



c) Nodes per Plant by Population



d) Pods per Plant by Population

