Westport Analysis

Matias Ruffo

Matt Wiebers

Westport Notes

- Hand harvested data
- Four subsamples per plot
- Number of reps varied with previous crop
  - 4 for soybean, 2 for corn and wheat
- Yield adjusted down 15% to account for hand harvesting

ANOVA

Treatment	significance
Population	**<.0001**
Previous Crop	**<0.001**
Fungicide	**<.0001**
Population x Previous Crop	0.35
Population x Fungicide	0.60
Previous Crop x Fungicide	**0.02**
Previous Crop x Fungicide x Population	**0.08**

- There were significant differences due to Population/Row Configuration, Previous Crop, and Fungicide.
- The significant interaction between Previous Crop x Fungicide indicates that the response to Fungicide depended on the previous crop.
- The significant interaction between the 3 factors indicate that the response to any factor depended on the level of the other two.

Main Effects

Treatment	Yield (bu/ac)
35,000 pl/ac Single Row	226.3 B
45,000 pl/ac Twin Row	252.6 A
p-value	<0.0001

Twin Row

Treatment	Yield (bu/ac)
Fungicide	249.4 B
No Fungicide	229.4 A
p-value	<0.0001

Fungicide

Treatment	Yield (bu/ac)
Corn	225.6 B
Soybean	246.1 A
Wheat	246.6 A
p-value	<0.0001

Previous Crop

Mosaic

Fungicide x Previous Crop

Fungicide	Previous Crop		
	Corn	Soybean	Wheat
No Fungicide	208.3 Bb	242.2 Ab	237.9 Ab
Fungicide	242.9 Ba	250.0ABa	255.4 Aa

Different upper case letters indicate significant differences across previous crops for Fungicide treated or untreated corn.
Different lower case letters indicate significant differences for Fungicide application for a given Previous Crop.

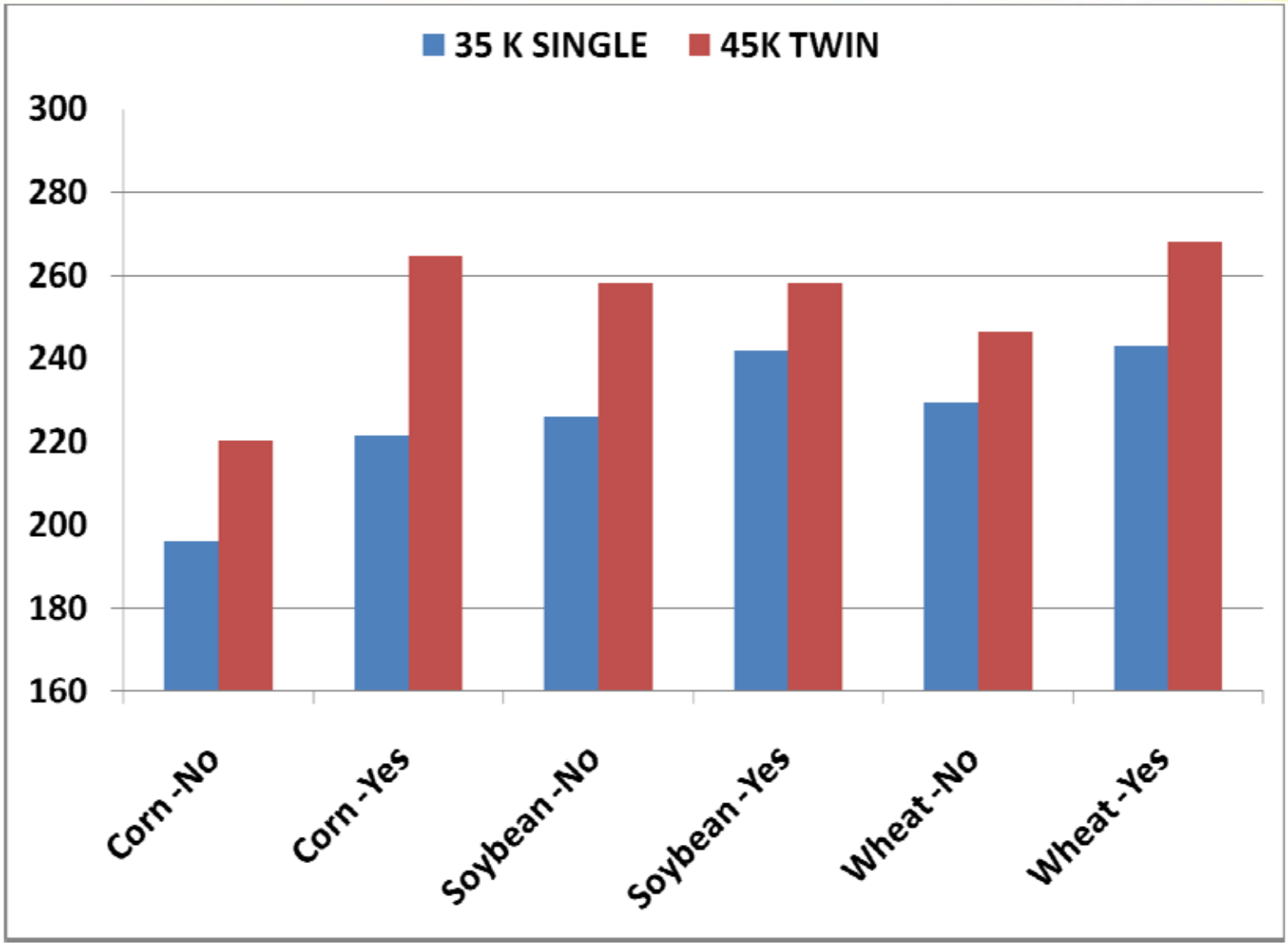
The response to fungicide was extremely large for corn (34.6 bu/ac), intermediate for wheat (17.5 bu) and smallest for soybean (7.8 bu) as previous crops.
Fungicide reduced the yield penalty associated with corn as previous crop. The yield difference for corn vs soybean was 33.8 bu/ac without fungicide and 7.1 bu/ac with fungicide.

Previous Crop x Fungicide x Row Configuration/Population

Population Row	Previous Crop	Fungicide	Yield (bu/ac)
35	Corn	No	196.2
35	Corn	Yes	221.4
35	Soybean	No	226.0
35	Soybean	Yes	241.9
35	Wheat	No	229.5
35	Wheat	Yes	243.0
45	Corn	No	220.4
45	Corn	Yes	264.5
45	Soybean	No	258.3
45	Soybean	Yes	258.1
45	Wheat	No	246.3
45	Wheat	Yes	267.9
		LSD (0.1) Soybean vs Soybean	11.1
		LSD (0.1) Soybean vs Corn or Wheat	13.9
		LSD (0.1) Corn vs Wheat	15.6

Mosaic

Previous Crop x Fungicide x Row Configuration/Population



- Very large yield response to population/row configuration with corn as previous crop.

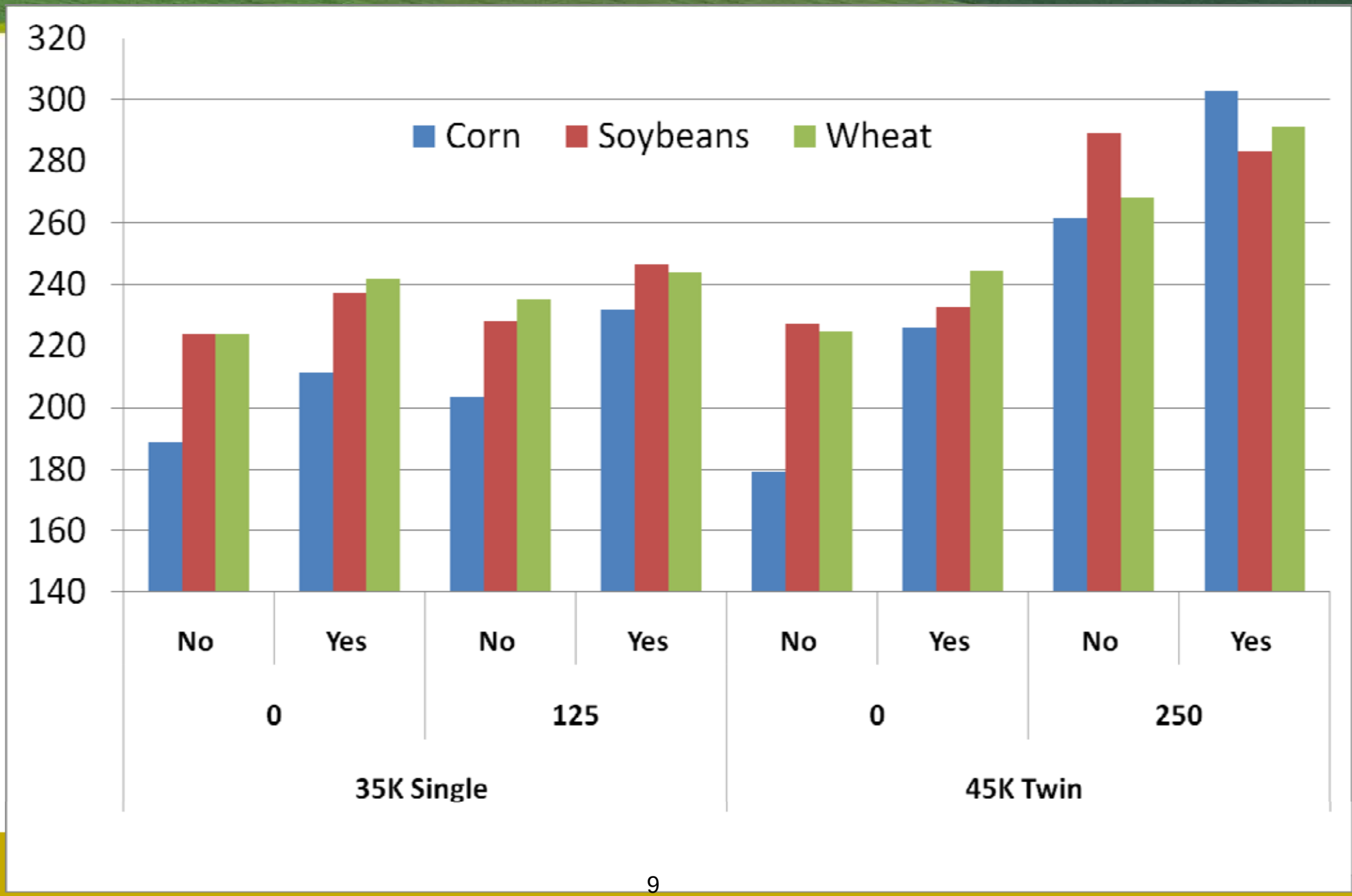
- Key message: Twin row planted corn at 45,000 pl/ac with fungicide took the continuous corn yield penalty away.

Summary of All Treatments

Sorted by Yield

Population / Row	Planter Fertilizer	Previous Crop	Fungicide	Yield
45K Twin	250	Corn	Yes	302.7
45K Twin	250	Wheat	Yes	291.2
45K Twin	250	Soybeans	No	289.4
45K Twin	250	Soybeans	Yes	283.3
45K Twin	250	Wheat	No	268
45K Twin	250	Corn	No	261.5
35K Single	125	Soybeans	Yes	246.6
45K Twin	0	Wheat	Yes	244.5
35K Single	125	Wheat	Yes	243.8
35K Single	0	Wheat	Yes	242.1
35K Single	0	Soybeans	Yes	237.2
35K Single	125	Wheat	No	235.1
45K Twin	0	Soybeans	Yes	232.9
35K Single	125	Corn	Yes	231.5
35K Single	125	Soybeans	No	228
45K Twin	0	Soybeans	No	227.2
45K Twin	0	Corn	Yes	226.2
45K Twin	0	Wheat	No	224.6
35K Single	0	Soybeans	No	224
35K Single	0	Wheat	No	223.8
35K Single	0	Corn	Yes	211.3
35K Single	125	Corn	No	203.3
35K Single	0	Corn	No	189.1
45K Twin	0	Corn	No	179.2

Summary of All Treatments



All Treatments: Factorial Analysis

Effect	Level	Yield		p-value
Population	35K	244.7		
Population	45K	245.9		0.83
Rate	0	221.9	A	
Rate	125	231.9	B	
Previous Crop	250	282.1	C	<0.0001
Previous Crop	Corn	233.6	C	
Previous Crop	Soybean	251.2	B	
Previous Crop	Wheat	250.9	A	0.002
Fungicide	No	235.5	B	
Fungicide	Yes	255.1	A	<0.0001

Fungicide	Corn	Soybean	Wheat
No	216.3	247.6	242.4
Yes	251	254.9	259.4
LSD (0.1) for Soybean vs Soybean			9.3
LSD (0.1) for Soybean vs Wheat or Corn			11.6
LSD (0.1) for Wheat vs Corn			13.1

Only the main effects of Rate, Previous Crop and Fungicide and the Fungicide x Previous Crop intereaction were significant.