

# **K-STATE**

## **Research and Extension**

### **Kansas State University Extension**

### **Southcentral Kansas Replicated Wheat**

### **Variety Tests**

*Arkansas City, Caldwell, Argonia, Clearwater, Andale,  
and Newton Locations*

*Belle Plaine Location (abandoned due to lodging)*

Wheat plots were conducted in cooperation between K-State Agriculture Extension Agents Randy Hein, Zach Simon, Jill Zimmerman, Ryan Flaming, and Jenni Carr and Extension Agronomist Doug Shoup

*Special thanks to Southwest Seed Research for plot harvest and to DuPont, Syngenta, Impact Bank, Citizens State Bank, RCB Bank, Barnett Farms, Blankenship Seeds, McClung Bros., Ray Enterprises, and Sunnyvale Farms for sponsorship of trial.*

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## Research and Extension

### Arkansas City

Varieties were replicated 3 times at each location. Plot size was 5ft by 35ft. Fertility conducted according to farm cooperator.

Aphids were present at threshold levels in Arkansas City for much of the spring until predators increased in number. The varieties in the trial were not sprayed with fungicide despite stripe rust pressure increasing during the flowering stages of growth. Other diseases at higher than normal pressure were wheat streak mosaic and barley yellow dwarf virus. A slight hail even occurred May 9th.

In a separate paired plot study, Aproach Prima at 6.8 fl oz/ac in 15 gal/ac carrier volume was applied to Everest, SY Flint, and WB Cedar on April 20th. Stripe rust was present at low levels at the time of application but increased to high levels by May 10th.

Cooperator Ken Bryant

Soil pH = 6.7

Planted October 6th

Seeding rate of 75 lbs/acre

Wheat planted in a tilled field with wheat as the previous crop

Harvested June 14th

Variety	2016 Yield (bu/ac)	2015 Yield (bu/ac)	Variety Rating Stripe Rust (1=Res, 9=Susc)	Variety	Fungicide	Flag Leaf Disease (% infected)	Yield (bu/ac)
<b>Bentley</b>	<b>53.2</b>	58.9	5	Everest	None	81.7	37.1
<b>Iba</b>	<b>47.6</b>	<b>68.3</b>	5	Everest	Aproach Prima	65.0	43.1
LCS Chrome	47.2		2	SY Flint	None	11.7	54.3
SY Flint	46.4	<b>67.7</b>	2	SY Flint	Aproach Prima	8.3	54.2
SY Monument	46.4	<b>68.5</b>	2	WB Cedar	None	16.7	37.9
WB-4458	42.1	53.4	4	WB Cedar	Aproach Prima	13.3	38.9
KS061278	41.9			LSD (0.10)		11.7	5.7
KS061193	40.7			CV		24.2	8.7
OK09915C-1	40.3						
Larry	39.8	<b>74.7</b>	2				
Gallagher	39.4	<b>72.8</b>	3				
1863	39.4	66.2	3				
Zenda	38.7		3				
KS061470	38.4						
KS061862	38.0						
Winterhawk	37.9		6				
SY Grit	37.8		5				
SY Southwind	36.2	61.7	2				
LCS Mint	36.0	63.4	4				
Ruby Lee	35.5	54.4	7				
WB-Cedar	34.9	52.2	3				
DoublestopCL	34.5		5				
KS061705	33.7						
Everest	33.4	57.5	8				
KS080040	33.2						
Armour	31.1	58.7	7				
KanMark	30.9	59.1	6				
WB-Redhawk	29.2	47.6	8				
LCS Wizard	28.0	61.5	8				

\*\* Bold values are similar to highest yielding variety at  $p = 0.10$

Coefficient of Variance (CV) = 10.7

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## Research and Extension

### Argonia

Varieties were replicated 3 times at each location. Plot size was 5ft by 35ft. Fertility conducted according to farm cooperators.

The Argonia location soil pH was 4.5. Consequently several varieties were affected by acid soil conditions so severely that we dropped their data from this trial. These were known susceptible varieties to low soil pH and producers should use caution when selecting them to go on low pH soils. Stripe rust did infect the trial at moderate levels which may have contributed to some yield differences among susceptible varieties.

Cooperator T&M Angus Ranch

Soil pH = 4.5

Planted October 6th

Seeding rate of 75 lbs/acre

Tillage after wheat

Harvested June 14th

Variety	2016 Yield (bu/ac)	Variety Rating Acid Soils	Variety Rating Stripe Rust (1=Res, 9=Susc)
<b>Larry</b>	<b>59.5</b>		2
<b>KS061705</b>	<b>56.9</b>		
<b>KS061193</b>	<b>56.4</b>		
<b>1863</b>	<b>55.3</b>	Tol	3
<b>LCS Chrome</b>	<b>54.9</b>		2
<b>SY Flint</b>	<b>54.9</b>	Tol	2
<b>SY Southwind</b>	<b>54.5</b>	Tol	2
<b>DoublestopCL</b>	<b>54.3</b>	Tol	5
<b>KS061278</b>	<b>54.3</b>		
<b>SY Monument</b>	<b>53.2</b>	Tol	2
<b>Everest</b>	<b>52.7</b>	Tol	8
<b>OK09915C-1</b>	<b>52.2</b>		
<b>KS080040</b>	<b>51.5</b>		
<b>LCS Mint</b>	<b>50.9</b>	Tol	4
<b>KS061862</b>	<b>50.6</b>		
<b>Zenda</b>	<b>50.4</b>		3
KS061470	46.7		
WB-4458	45.6	Tol	4
WB-Redhawk	45.4	Tol	8
LCS Wizard	45.4	Tol	8
Gallagher	44.8	Mod Tol	3
Bentley	41.5	Mod Tol	5
WB-Cedar	36.9	Mod Tol	3
Armour	36.8	Tol	7
KanMark	-	Mod Susc	6
SY Grit	-	Susc	5
Ruby Lee	-	Mod Susc	7
Iba	-	Mod Susc	5
Winterhawk	-	Int	6

\*\* Bold values are similar to highest yielding variety at  $p = 0.10$

Coefficient of Variance (CV) = 13.9

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## Research and Extension

### Andale

Varieties were replicated 3 times at each location. Plot size was 5ft by 35ft. Fertility conducted according to farm cooperators.

Andale was a very uniform site despite a late no-till planting after soybean into dry conditions. November rainfall encouraged good fall germination but tillering was limited. Timely rainfall in the spring promoted good spring growth and good overall yields. Moderate levels of stripe rust infected the trial during the month of May.

In a separate paired plot study, Tebuconazole at 4.0 fl oz/ac in 15 gal/ac carrier volume was applied to Everest, SY Flint, and WB Cedar on April 27th. Stripe rust was present at low levels at the time of application but increased by May 11th.

Cooperator Greg Neville  
 Soil pH = N/A  
 Planted October 29th  
 Seeding rate of 75 lbs/acre  
 No-till after soybean  
 Harvested June 21st

Variety	2016 Yield (bu/ac)	2015 Yield (bu/ac)	Variety Rating		Variety	Fungicide	Flag Leaf Disease (% infected)	Yield (bu/ac)
			Stripe Rust (1=Res, 9=Susc)					
<b>Zenda</b>	<b>66.2</b>		3		Everest	None	45.0	55.7
<b>LCS Mint</b>	<b>64.3</b>	68.8	4		Everest	Tebuconazole	11.7	59.9
<b>Winterhawk</b>	<b>63.8</b>		6		SY Flint	None	6.7	55.5
<b>Gallagher</b>	<b>63.7</b>	<b>77.9</b>	3		SY Flint	Tebuconazole	5.0	58.8
KS061193	62.2				WB Cedar	None	8.0	58.9
SY Monument	61.2	<b>74.9</b>	2		WB Cedar	Tebuconazole	5.7	59.8
KS061278	61.1				LSD (0.10)		4.3	2.9
1863	60.9	<b>74.7</b>	3		CV		21.4	3.3
Larry	60.3	<b>77.1</b>	2					
Bentley	60.2	72.9	5					
KS061470	59.9							
WB-Cedar	59.6	<b>82.9</b>	3					
LCS Chrome	59.4		2					
KS061705	59.2							
Iba	58.6	63.2	5					
OK09915C-1	58.4							
Ruby Lee	58.1	57.3	7					
SY Grit	58.0		5					
DoublestopCL	58.0		5					
Armour	57.8	44.0	7					
Everest	57.7	58.5	8					
SY Southwind	57.6	<b>77.8</b>	2					
LCS Wizard	56.8	53.8	8					
SY Flint	56.4	68.4	2					
WB-Redhawk	55.8	54.7	8					
KS080040	54.7							
WB-4458	54.1	<b>79.5</b>	4					
KS061862	54.0							
KanMark	51.9	64.4	6					

\*\* Bold values are similar to highest yielding variety at p = 0.10

Coefficient of Variance (CV) = 4.8

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## Research and Extension

### Newton

Varieties were replicated 3 times at each location. Plot size was 5ft by 35ft. Fertility conducted according to farm cooperator.

The Newton location experienced the most drought among all of our wheat variety trials in SCKS. Fall growth was adequate but limited spring precipitation until the month of April limited yields at this location. All varieties in this trial were ground sprayed with a fungicide in the first week of May for stripe rust. As a result, the SY Flint, WB Cedar, and KS061193 entries were impacted by wheel traffic and data not shown. However in an adjacent trial comparing Everest, SY Flint, and WB Cedar, the varieties yielded 56.2, 61.9, and 54.5 bu/ac, respectively. All three varieties were treated with Quilt.

Newton (Cooperator Robbie Dryer)

Soil pH = N/A

Planted October 5th

Seeding rate of 75 lbs/acre

Tillage after wheat

All varieties were ground sprayed with Quilt the first week of May

Harvested June 21st

Variety	2016 Yield (bu/ac)
<b>SY Monument</b>	<b>63.6</b>
<b>WB-Redhawk</b>	<b>60.6</b>
<b>Bentley</b>	<b>58.8</b>
<b>DoublestopCL</b>	<b>58.4</b>
KS061705	57.3
Iba	57.1
KS061862	57.1
KanMark	56.5
Armour	56.3
Zenda	56.2
Gallagher	55.4
WB-Winterhawk	55.3
LCS Mint	55.0
Ruby Lee	54.3
Larry	54.1
KS061278	53.8
1863	53.6
KS061470	53.0
LCS Wizard	52.6
SY Southwind	52.2
SY Grit	51.8
LCS Chrome	51.2
Everest	49.7
KS080040	47.7
OK09915C-1	47.6
WB-4458	44.6
SY Flint	-
WB-Cedar	-
KS061193	-

\*\* Bold values are similar to highest yielding variety at p = 0.10

Coefficient of Variance (CV) = 7.9

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## Research and Extension

### Caldwell

Varieties were replicated 3 times at each location. Plot size was 5ft by 35ft. Fertility conducted according to farm cooperators.

Wheat emergence in the first rep was uneven and an April freeze event significantly affected only the plots in rep 1, so only 2 replications are represented. No significant yield differences among varieties were detected. No yield is reported for LCS Wizard and WB Redhawk because of a harvest malfunction.

In a separate paired plot study, soil profile samples were collected after wheat emergence. Chloride levels were 5 ppm indicating a recommendation of 20 lbs/ac Cl as KCl. Chloride fertilizer was applied to Everest, SY Flint, and WB Cedar in December.

Caldwell (Cooperator Greg Turek)

Soil pH = 5.2

Planted October 6th

Seeding rate of 75 lbs/acre

Tillage after wheat

All varieties were aerial sprayed with Quilt on April 26th

Harvested June 13th

Variety	2016 Yield (bu/ac)	2015 Yield (bu/ac)	Variety Rating Acid Soils
KanMark	66.4	33.3	Mod Susc
1863	62.5	45.3	Tol
Everest	65.6	43.9	Tol
Larry	64.3	43.5	
Zenda	57.7		
KS061705	66.9		
KS061193	71.2		
KS061862	69.1		
KS061278	70.4		
KS061470	67.3		
KS080040	68.3		
SY Southwind	73.3	44.5	Tol
SY Monument	61.2	<b>53.3</b>	Tol
SY Flint	60.3	<b>54.1</b>	Tol
SY Grit	67.2		Susc
LCS Chrome	62.2		
LCS Wizard	-	32.3	Tol
LCS Mint	66.8	34.6	Tol
DoublestopCL	67.1		Tol
Bentley	68.8	46.1	Mod Tol
Ruby Lee	69.6	34.7	Mod Susc
Gallagher	72.3	45.9	Mod Tol
Iba	60.6	39.0	Mod Susc
OK09915C-1	66.1		
WB-4458	64.1	39.8	Tol
WB-Cedar	66.9	39.4	Mod Tol
WB-Redhawk	-	35.7	Tol
Armour	64.1	41.5	Tol
Winterhawk	62.5		Int

Variety	Chloride (lbs/ac)	Yield (bu/ac)
Everest	0	60.3
Everest	20	61.1
SY Flint	0	68.6
SY Flint	20	61.7
WB Cedar	0	63.1
WB Cedar	20	66.3
LSD (0.10)		10.0
CV		7.8

\*\* No significant yield differences in 2016. Bold values are similar to highest yielding variety at p = 0.10.  
Coefficient of Variance (CV) = 12.2

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## Research and Extension

### Clearwater

Varieties were replicated 3 times at each location. Plot size was 5ft by 35ft. Fertility conducted according to farm cooperators.

No significant yield differences among varieties were detected in 2016. Stripe rust pressure at this location was moderate with some additional disease pressure from tanspot.

In a separate paired plot study, Aproach Prima at 6.8 fl oz/ac in 15 gal/ac carrier volume was applied to Everest, SY Flint, and WB Cedar on April 20th. Stripe rust was present at low levels at application but increased to high levels by May 11th.

Clearwater (Cooperator Mulvane COOP)

Soil pH = 7.4

Planted October 6th

Seeding rate of 75 lbs/acre

Tillage after wheat

Harvested June 14th

Variety	2016 Yield (bu/ac)	2015 Yield (bu/ac)	Variety Rating	Variety	Fungicide	Flag Leaf	Yield (bu/ac)
			Stripe Rust (1=Res, 9=Susc)			Disease (% infected)	
KanMark	68.7	<b>43.4</b>	6	Everest	None	36.0	52.4
1863	64.7	<b>46.1</b>	3	Everest	Aproach Prima	10.0	60.5
Everest	61.2	41.7	8	SY Flint	None	6.3	50.9
Larry	61.2	<b>55.3</b>	2	SY Flint	Aproach Prima	4.3	58.8
Zenda	60.6		3	WB Cedar	None	7.3	61.3
KS061705	59.9			WB Cedar	Aproach Prima	5.3	61.3
KS061193	60.9			LSD (0.10)		4.4	11.8
KS061862	63.3			CV		25.7	13.9
KS061278	63.7						
KS061470	58.7						
KS080040	69.4						
SY Southwind	67.8	40.3	2				
SY Monument	66.6	<b>58.0</b>	2				
SY Flint	68.2	<b>53.9</b>	2				
SY Grit	68.0		5				
LCS Chrome	63.3		2				
LCS Wizard	62.8	<b>50.6</b>	8				
LCS Mint	63.6	37.9	4				
DoublestopCL	61.7		5				
Bentley	64.5	<b>49.6</b>	5				
Ruby Lee	75.0	37.8	7				
Gallagher	66.8	<b>47.9</b>	3				
Iba	65.5	<b>51.8</b>	5				
OK09915C-1	72.1						
WB-4458	65.9	40.4	4				
WB-Cedar	60.8	38.0	3				
WB-Redhawk	68.2	27.4	8				
Armour	63.7	41.6	7				
WB-Winterhawk	66.3		6				

\*\* No significant yield differences in 2016 between any variety

at  $p = 0.10$ . Bold in 2015 signifies not different from the highest yielding variety at  $p = 0.10$

Coefficient of Variance (CV) = 11.1

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## Research and Extension

Wheat plots were conducted in cooperation between K-State Agriculture Extension Agents in Cowley, Sumner, Sedgwick, Harvey, and Harper counties and Southeast Area Extension Agronomist. Varieties were replicated 3 times at each location. Plot size was 5ft by 35ft. Fertility and weed control were conducted according to cooperator practices.

ArkCity		Argonia		Andale		Newton		Clearwater		Caldwell	
Variety	2016 Yield (bu/ac)	Variety	2016 Yield (bu/ac)	Variety	2016 Yield (bu/ac)	Variety	2016 Yield (bu/ac)	Variety	2016 Yield (bu/ac)	Variety	2016 Yield (bu/ac)
<b>Bentley</b>	<b>53.2</b>	<b>Larry</b>	<b>59.5</b>	<b>Zenda</b>	<b>66.2</b>	<b>SY Monument</b>	<b>63.6</b>	KanMark	68.7	KanMark	66.4
<b>Iba</b>	<b>47.6</b>	<b>KS061705</b>	<b>56.9</b>	<b>LCS Mint</b>	<b>64.3</b>	<b>WB-Redhawk</b>	<b>60.6</b>	1863	64.7	1863	62.5
LCS Chrome	47.2	<b>KS061193</b>	<b>56.4</b>	<b>Winterhawk</b>	<b>63.8</b>	<b>Bentley</b>	<b>58.8</b>	Everest	61.2	Everest	65.6
SY Flint	46.4	<b>1863</b>	<b>55.3</b>	<b>Gallagher</b>	<b>63.7</b>	<b>DoublestopCL</b>	<b>58.4</b>	Larry	61.2	Larry	64.3
SY Monument	46.4	<b>LCS Chrome</b>	<b>54.9</b>	KS061193	62.2	KS061705	57.3	Zenda	60.6	Zenda	57.7
WB-4458	42.1	<b>SY Flint</b>	<b>54.9</b>	SY Monument	61.2	Iba	57.1	KS061705	59.9	KS061705	66.9
KS061278	41.9	<b>SY Southwind</b>	<b>54.5</b>	KS061278	61.1	KS061862	57.1	KS061193	60.9	KS061193	71.2
KS061193	40.7	<b>DoublestopCL</b>	<b>54.3</b>	1863	60.9	KanMark	56.5	KS061862	63.3	KS061862	69.1
OK09915C-1	40.3	<b>KS061278</b>	<b>54.3</b>	Larry	60.3	Armour	56.3	KS061278	63.7	KS061278	70.4
Larry	39.8	<b>SY Monument</b>	<b>53.2</b>	Bentley	60.2	Zenda	56.2	KS061470	58.7	KS061470	67.3
Gallagher	39.4	<b>Everest</b>	<b>52.7</b>	KS061470	59.9	Gallagher	55.4	KS080040	69.4	KS080040	68.3
1863	39.4	<b>OK09915C-1</b>	<b>52.2</b>	WB-Cedar	59.6	WB-Winterhawk	55.3	SY Southwind	67.8	SY Southwind	73.3
Zenda	38.7	<b>KS080040</b>	<b>51.5</b>	LCS Chrome	59.4	LCS Mint	55.0	SY Monument	66.6	SY Monument	61.2
KS061470	38.4	<b>LCS Mint</b>	<b>50.9</b>	KS061705	59.2	Ruby Lee	54.3	SY Flint	68.2	SY Flint	60.3
KS061862	38.0	<b>KS061862</b>	<b>50.6</b>	Iba	58.6	Larry	54.1	SY Grit	68.0	SY Grit	67.2
Winterhawk	37.9	<b>Zenda</b>	<b>50.4</b>	OK09915C-1	58.4	KS061278	53.8	LCS Chrome	63.3	LCS Chrome	62.2
SY Grit	37.8	KS061470	46.7	Ruby Lee	58.1	1863	53.6	LCS Wizard	62.8	LCS Wizard	-
SY Southwind	36.2	WB-4458	45.6	SY Grit	58.0	KS061470	53.0	LCS Mint	63.6	LCS Mint	66.8
LCS Mint	36.0	WB-Redhawk	45.4	DoublestopCL	58.0	LCS Wizard	52.6	DoublestopCL	61.7	DoublestopCL	67.1
Ruby Lee	35.5	LCS Wizard	45.4	Armour	57.8	SY Southwind	52.2	Bentley	64.5	Bentley	68.8
WB-Cedar	34.9	Gallagher	44.8	Everest	57.7	SY Grit	51.8	Ruby Lee	75.0	Ruby Lee	69.6
DoublestopCL	34.5	Bentley	41.5	SY Southwind	57.6	LCS Chrome	51.2	Gallagher	66.8	Gallagher	72.3
KS061705	33.7	WB-Cedar	36.9	LCS Wizard	56.8	Everest	49.7	Iba	65.5	Iba	60.6
Everest	33.4	Armour	36.8	SY Flint	56.4	KS080040	47.7	OK09915C-1	72.1	OK09915C-1	66.1
KS080040	33.2	KanMark	-	WB-Redhawk	55.8	OK09915C-1	47.6	WB-4458	65.9	WB-4458	64.1
Armour	31.1	SY Grit	-	KS080040	54.7	WB-4458	44.6	WB-Cedar	60.8	WB-Cedar	66.9
KanMark	30.9	Ruby Lee	-	WB-4458	54.1	SY Flint	-	WB-Redhawk	68.2	WB-Redhawk	-
WB-Redhawk	29.2	Iba	-	KS061862	54.0	WB-Cedar	-	Armour	63.7	Armour	64.1
LCS Wizard	28.0	Winterhawk	-	KanMark	51.9	KS061193	-	WB-Winterhawk	66.3	Winterhawk	62.5

\*\* Bold values are similar to highest yielding variety at p = 0.10. No significant differences at Clearwater and