## NORTHERN PLAINS **SEED GUIDE**



EDITION ONE



### Hello!

With more than 10 years of experience in the Northern Plains seed market, I've been watching LCS wheat thrive in trials and on fields for a while now. I'm excited to join the LCS team and work with you to find the best wheat for your acres.

This seed guide represents cuttingedge work by our breeding team to bring you the most advanced genetics on the market. Inside, you'll find proven performers and exciting new varieties, including our first-ever CoAXium® spring wheat.

I hope to see you in my travels across the region soon. In the meantime, reach out anytime. I'm here to help.

#### Troy Gerding

Regional Commercial Manager

→ 701.715.2538 

■ troy.gerding@limagrain.com



### Visit us 24/7

#### Limagrain Cereal Seeds. com

is home to the best wheat genetics in the Central Plains. Stop by anytime to find your next high-performance variety, get the most up-to-date data and contact your local seed dealer.

## Bred to thrive

#### HARD RED SPRING WHEAT, CONVENTIONAL

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Agronomic, disease tolerance and quality scores in this guide are based on the most recent data available at the time of publication, March 2024. Visit **LimagrainCerealSeeds.com** year-round to see the latest trial data.



### Rocketing to market first









HARD RED SPRING WHEAT

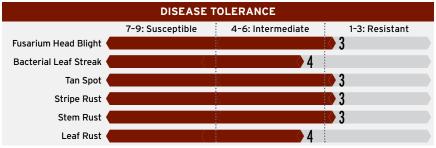
**LCS Boom** 



		VIEL S		
	,	YIELD		
	BU/AC ♦LCS	Boom 🌘 Trial Avg.	MEAN▶	
2023 NDSU Eastern	<b>73.3</b> 77.8	<u> </u>	<b>♦</b>	94% of mean
2023 NDSU Western	<b>59.5</b> 62.0	<u> </u>	<b>&gt;</b>	96% of mean
2023 UMN North	<b>96.0</b> 101.0	<u> </u>	<b>\</b>	95% of mean
2023 UMN South	<b>97.0</b> 100.5	<u> </u>	<b>&gt;</b>	97% of mean
2-Year SDSU Eastern	<b>49.4</b> 49.8	<u> </u>	<b>\</b>	99% of mean
2-Year SDSU Western	<b>57.4</b> 53.5	<u> </u>	•	107% of mean
		PROTEIN	 	
	Protein % LCS	Boom 🔷 Trial Avg.	MEAN▶	
2023 NDSU State	14.5 14.1	<u> </u>	i (	103% of mean
2023 UMN	14.2 14.0	<u> </u>	<b>\rightarrow</b>	101% of mean
2-Year SDSU Eastern	16.3 15.5	<u> </u>		105% of mean
2-Year SDSU Western	14.9 15.0	<u> </u>	<b>◇</b>	99% of mean

AGRONOMIC FEATURES						
LCS Boom Lanning ND Thresher SY Ingmar WB9590						
Test Weight	60.1	60.2	58.8	60.6	59.4	
Heading (days from planting)	45.0	50.0	50.0	48.0	45.0	
Plant Height (inches)	26.0	29.0	27.0	27.0	27.0	
Straw Strength	Good	Good	Good	Excellent	Very Good	

All available public and private data used in compiling scores



All available public and private data used in compiling scores

END-USE QUALITY						
Overall Quality Baking Quality Flour Protein Milling Quality						
Most Desirable	Desirable	Most Desirable	Desirable			

Data obtained from LCS Quality Laboratory

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#### HARD RED SPRING WHEAT

### **LCS Ascent**



## Take your yield to new heights



Top-end yield



High test weight



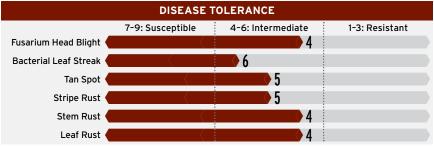
Excellent disease package



Beautiful look

AGRONOMIC FEATURES							
LCS Ascent AAC Starbuck Ascend-SD MN-Torgy WB9590							
Test Weight	60.5	60.6	60.2	60.4	59.4		
Heading (days from planting)	45.0	47.0	48.0	49.0	47.0		
Plant Height (inches)	28.0	30.0	31.0	29.0	25.0		
Straw Strength	Very Good	Good	Good	Good	Very Good		

All available public and private data used in compiling scores



All available public and private data used in compiling scores

END-USE QUALITY						
Overall Quality Baking Quality Flour Protein Milling Quality						
Desirable	Acceptable	Acceptable	Desirable			



### Why not have both?









HARD RED SPRING WHEAT

**77.6** 77.8

**59.5** 62.0

**99.0** 100.7

103.0 100.5

50.3

49.8

**61.7** 62.2

### LCS Dual

2023

**NDSU Eastern** 

NDSU Western

2-Year UMN North

2-Year UMN South

2-Year

SDSU Eastern

2-Year SDSU Central



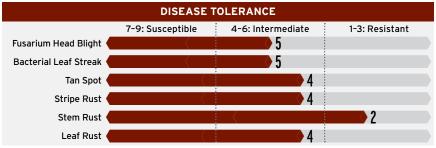
of mean

		PROTEIN	 	
	Protein %	LCS Dual 🔷 Trial Avg.	MEAN▶	
2023 NDSU State	13.6 14.1	<u> </u>	<b>&gt;</b>	96% of mean
2023 UMN	14.1 14.4	<u> </u>	<b>&gt;</b>	98% of mean
2-Year SDSU Eastern	<b>15.2</b> 15.5	<u> </u>	<u> </u>	98% of mean
2-Year SDSU Central	14.6 14.8	<u> </u>	<u> </u>	99% of mean

**YIELD** 

AGRONOMIC FEATURES						
LCS Dual Lanning ND Thresher SY Ingmar WB9590						
Test Weight	60.0	60.2	58.8	60.6	59.4	
Heading (days from planting)	46.0	50.0	50.0	48.0	45.0	
Plant Height (inches)	28.0	29.0	27.0	27.0	27.0	
Straw Strength	Very Good	Good	Good	Excellent	Very Good	

All available public and private data used in compiling scores



All available public and private data used in compiling scores

END-USE QUALITY						
Overall Quality Baking Quality Flour Protein Milling Quality						
Acceptable	Less Desirable	Acceptable	Acceptable			



### Bin-busting yield



Trial-topping vield



Improved protein over LCS Trigger



Very strong straw



Good tolerance to head scab

HARD RED SPRING WHEAT

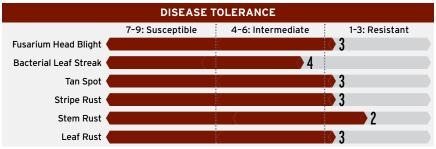
### **LCS Buster**



		YIELD		
	BU/AC	LCS Buster Trial Avg.	MEAN▶	
3-Year NDSU Eastern	<b>79.4</b> 74.7		<b>→</b>	106% of mean
3-Year NDSU Western	<b>63.8</b> 57.8			110% of mean
3-Year UMN North	108.0 100.7	<u> </u>	<b>♦</b>	<b>107%</b> of mean
3-Year UMN South	106.0 101.2	<u> </u>		105% of mean
3-Year SDSU Eastern	<b>54.6</b> 51.4		<b>\</b>	106% of mean
3-Year SDSU Central	<b>60.0</b> 54.6			110% of mean
		PROTEIN		
	Protein %	♦ LCS Buster ♦ Trial Avg.	MEAN▶	
2023 NDSU State	<b>12.2</b> 14.1			87% of mean
2023 UMN	<b>12.2</b> 14.4			85% of mean
3-Year SDSU Eastern	<b>16.3</b> 15.5		<b>\</b>	105% of mean
3-Year SDSU Central	<b>13.7</b> 15.2			90% of mean

AGRONOMIC FEATURES						
LCS Buster AAC Starbuck Ascend-SD SY Valda WB9719						
Test Weight	58.4	60.6	60.2	60.4	61.9	
Heading (days from planting)	51.0	47.0	48.0	49.0	49.0	
Plant Height (inches)	30.0	30.0	30.1	29.0	27.0	
Straw Strength	Good	Good	Good	Good	Very Good	

All available public and private data used in compiling scores



All available public and private data used in compiling scores

END-USE QUALITY						
Overall Quality Baking Quality Flour Protein Milling Quality						
Acceptable	Acceptable	Less Desirable	Acceptable			



### Bring the yield ... boom!



National Wheat Yield Contest winner



Excellent protein consistency



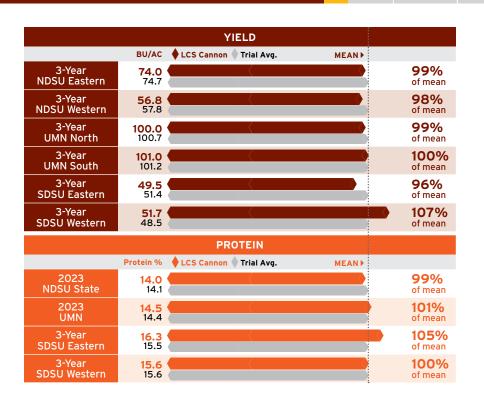
Very early maturity quick emergence



Strong straw and test weight

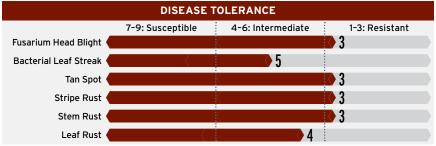
HARD RED SPRING WHEAT

### LCS Cannon



AGRONOMIC FEATURES						
LCS Cannon Lanning ND Thresher SY Ingmar WB9590						
Test Weight	60.7	60.2	58.8	60.6	59.4	
Heading (days from planting)	44.0	50.0	50.0	48.0	45.0	
Plant Height (inches)	28.0	29.0	27.0	27.0	27.0	
Straw Strength	Very Good	Good	Good	Excellent	Very Good	

All available public and private data used in compiling scores



All available public and private data used in compiling scores

END-USE QUALITY					
Overall Quality	Baking Quality	Flour Protein	Milling Quality		
Desirable	Desirable	Desirable	Acceptable		



# Blaze a trail to higher profits



Quality check for Wheat Quality Council



Consistent protein and top-end yield



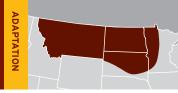
**Proven** Northern Plains performer



**Exceptionally wide** adaptation

HARD RED SPRING WHEAT

### **LCS Rebel**

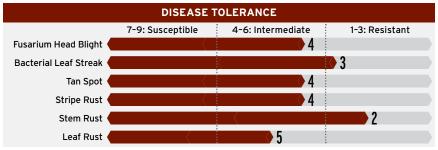


		YIELD		
	BU/AC	LCS Rebel Trial Avg.	MEAN▶	
3-Year (2020-22) NDSU Eastern	<b>73.6</b> 71.4	<u> </u>	<b>O</b>	103% of mean
3-Year (2020-22) NDSU Western	<b>44.2</b> 42.8	<u> </u>	<b>A</b>	103% of mean
3-Year (2019-21) UMN North	<b>101.0</b> 100.4	<u> </u>		<b>101%</b> of mean
3-Year (2019-21) UMN South	102.0 101.6	<u> </u>	<b>\</b>	100% of mean
3-Year (2020-22) SDSU Eastern	<b>50.9</b> 54.2	<u> </u>		94% of mean
3-Year (2020-22) SDSU Western	<b>46.2</b> 46.4		<b>♦</b>	100% of mean
		PROTEIN	*	
	Protein %	LCS Rebel Trial Avg.	MEAN▶	
2022 NDSU State	<b>14.5</b> 14.1		<b>\(\rightarrow\)</b>	103% of mean
2-Year (2020-21) UMN	<b>15.1</b> 14.9		<b>(</b>	<b>101%</b> of mean
3-Year (2020-22) SDSU Eastern	<b>16.1</b> 15.2		<b>→</b>	106% of mean
3-Year (2020-22) SDSU Western	<b>15.8</b> 15.5	<u> </u>		102% of mean

For all available data, visit LimagrainCerealSeeds.com

AGRONOMIC FEATURES						
LCS Rebel Lanning ND Thresher SY Ingmar WB9590						
Test Weight	62.3	59.2	58.3	59.8	60.1	
Heading (days from planting)	48.0	51.0	48.0	44.0	45.0	
Plant Height (inches)	33.0	33.0	30.0	28.0	27.0	
Straw Strength	Very Good	Good	Good	Excellent	Very Good	

All available public and private data used in compiling scores



All available public and private data used in compiling scores

END-USE QUALITY					
Overall Quality	Baking Quality	Flour Protein	Milling Quality		
Most Desirable	Desirable	Most Desirable	Most Desirable		



# Pull the trigger on higher yields



Blockbuster yield year after year

Top yielder in MN and ND

state trials



National Wheat Yield Contest



89

Very strong

HARD RED SPRING WHEAT

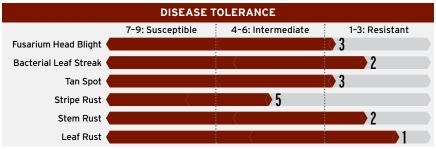
## **LCS Trigger**



		YIELD		
	BU/AC	LCS Trigger Trial Avg.	MEAN▶	
3-Year NDSU Eastern	<b>83.6</b> 74.7		0	<b>112%</b> of mean
3-Year NDSU Western	<b>63.6</b> 57.8			110% of mean
3-Year UMN North	109.0 100.7		0	108% of mean
3-Year UMN South	110.0 101.2		0	109% of mean
3-Year SDSU Eastern	<b>56.3</b> 51.4		0	110% of mean
3-Year SDSU Central	<b>60.8</b> 54.6		0	<b>111%</b> of mean
		PROTEIN		
	Protein %	♦ LCS Trigger ♦ Trial Avg.	MEAN▶	
2023 NDSU State	<b>12.3</b> 14.1			<b>87%</b> of mean
2023 UMN	<b>12.6</b> 14.4			88% of mean
3-Year SDSU Eastern	14.0 15.3			<b>92%</b> of mean
3-Year SDSU Central	<b>13.8</b> 15.2			91% of mean

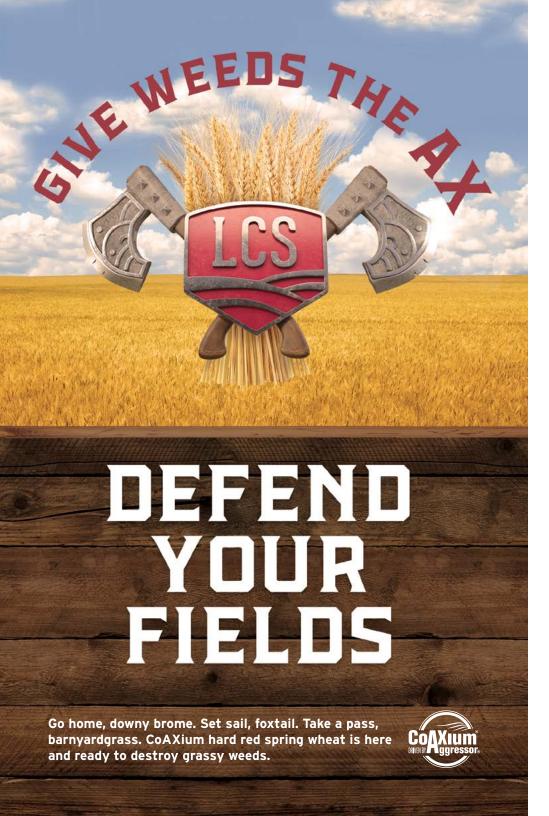
AGRONOMIC FEATURES								
	LCS Trigger	LCS Trigger AAC Starbuck Ascend-SD SY Valda WB9719						
Test Weight	60.1	60.6	60.2	60.0	61.9			
Heading (days from planting)	53.0	47.0	48.0	48.0	49.0			
Plant Height (inches)	31.0	30.0	31.0	27.0	27.0			
Straw Strength	Very Good	Good	Good	Good	Very Good			

All available public and private data used in compiling scores



All available public and private data used in compiling scores

END-USE QUALITY					
Overall Quality	Baking Quality	Flour Protein	Milling Quality		
Less Desirable	Less Desirable	Less Desirable	Less Desirable		



### Grow wheat, not weeds

The solution for yield-robbing weeds you've been asking for is here for spring wheat acres. Certified seed is available this season!

The CoAXium® Wheat Production System combines elite varieties and the patented non-GMO herbicide tolerance trait AXigen® with Aggressor® AX brand herbicides. This combination helps protect fields from Group 2-resistant grassy weeds that shrink yield through inter-crop competition and reduce overall crop quality.



Untreated downy brome

Treated with Aggressor AX

**Stewardship delivers cleaner fields and higher yields.** To prolong the utility, features and benefits of CoAXium technology, growers must:

- Sign a CoAXium grower stewardship agreement
- Use only Certified seed
- Use only labeled rates of Aggressor AX herbicides by weed species
- Prevent grassy weed escapes from going to seed
- Rotate herbicide modes of action between crop cycles
- Use CoAXium no more than two years in a row

The CoAXium hard red spring wheat LCS Hammer AX is part of the next generation of elite genetics from Limagrain Cereal Seeds. This game-changing line has been tested and retested for yield, trait tolerance, seedling vigor, disease tolerance and adaptation in a wide variety of growing conditions.

Get serious about grassy weed control. Fetch your AX. LimagrainCerealSeeds.com/CoAXium



## Smash grassy weeds



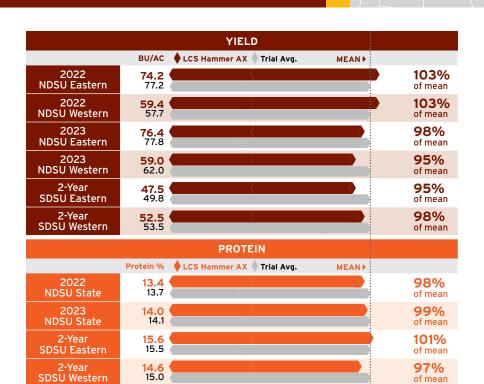






HARD RED SPRING WHEAT

### LCS Hammer AX



AGRONOMIC FEATURES						
	LCS Hammer AX	CS Hammer AX Ascend-SD MN-Torgy SY In				
Test Weight	59.4	60.2	60.4	60.6	59.4	
Heading (days from planting)	47.0	48.0	49.0	48.0	47.0	
Plant Height (inches)	26.0	31.0	29.0	27.0	25.0	
Straw Strength	Very Good	Good	Good	Very Good	Very Good	

All available public and private data used in compiling scores

DISEASE TOLERANCE								
	7-9: Susceptible 4-6: Intermediate 1-3: Resistant							
Fusarium Head Blight 🕊		<b>♦</b> 5	$\Diamond$					
Bacterial Leaf Streak	⟨		<b>\</b>					
Tan Spot 🕊		6	<b>\</b>					
Stripe Rust	(	<b>5</b>	<b>\</b>					
Stem Rust	<u> </u>	<b>5</b>	<b>\</b>					
Leaf Rust	<u> </u>	6	<u> </u>					

All available public and private data used in compiling scores

END-USE QUALITY					
Overall Quality	Baking Quality	Flour Protein	Milling Quality		
Desirable	Acceptable	Acceptable	Acceptable		

Data obtained from LCS Quality Laboratory



This variety requires the use of Certified Seed Only. A signed Stewardship Agreement is required before purchase.



### Racing to victory



**Excellent yield** potential



Well-rounded disease protection



Good tolerance to Fusarium head blight



**Broad** area of adaptation

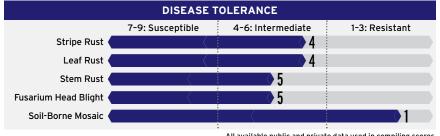
HARD RED WINTER WHEAT

### **LCS Runner**



AGRONOMIC FEATURES						
	LCS Runner	AP Bigfoot	CP7909	SY Wolverine	WB4309	
Test Weight	60.9	59.2	59.7	59.5	58.2	
Winter-Hardiness	Good	Good	Good	Good-Excellent	Good-Excellent	
Heading (Julian)	Medium	Medium	Medium-Early	Early	Medium-Early	
Plant Height (in.)	25.0	23.0	24.0	23.0	24.0	
Straw Strength	Good	Good	Fair	Good	Good	

All available public and private data used in compiling scores



All available public and private data used in compiling scores

	END-USE QUALITY					
Overall Quality Baking Quality Flour Protein Milling Quality						
Accep	table	Acceptable	Acceptable	Most Desirable		

Data obtained from LCS Quality Laboratory

**ADAPTATION** 



### Bred for the long haul



**Excellent** on variable soil types



Packs protein with yield





HARD RED WINTER WHEAT

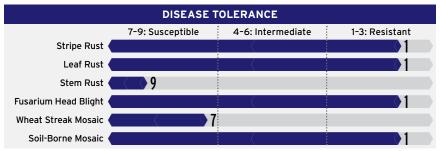
### **LCS Chrome**



		YIELD			
	BU/AC ♦	LCS Chrome 🔷 Trial Avg.	MEAN▶		
3-Year SDSU Eastern	<b>58.8</b> 63.8		•		<b>92%</b> of mean
3-Year SDSU Central	<b>62.5</b> 64.7	<u> </u>	<b>&gt;</b>		97% of mean
3-Year SDSU Western	<b>54.3</b> 54.7		<b>\</b>		99% of mean
	PROTEIN				
Protein % ♦ LCS Chrome ♦ Trial Avg. MEAN ▶					
3-Year SDSU Eastern	14.2 13.4		0.		<b>106%</b> of mean
3-Year SDSU Central	14.6 13.9	<u> </u>			105% of mean
3-Year SDSU Western	14.2 13.8	<u> </u>		•	103% of mean

AGRONOMIC FEATURES						
	LCS Chrome	CP7909	SY Wolf	WB4422	Winner	
Test Weight	60.1	59.7	58.7	60.2	60.0	
Winter-Hardiness	Good	Good	Good	Excellent	Good-Excellent	
Heading (Julian)	Medium-Late	Medium-Early	Medium-Late	Medium-Late	Medium	
Plant Height (in.)	26.0	24.0	24.0	25.0	26.0	
Straw Strength	Excellent	Fair	Excellent	Excellent	Good	

All available public and private data used in compiling scores



All available public and private data used in compiling scores

END-USE QUALITY					
Overall Quality Baking Quality Flour Protein Milling Quality					
Acceptable	Acceptable	Less Desirable	Acceptable		



### Strong and steady



National Wheat Yield Contest winner

**Excellent** 

Fusarium head

blight tolerance



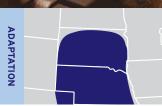
**Drought-tolerant** with top-end vield potential



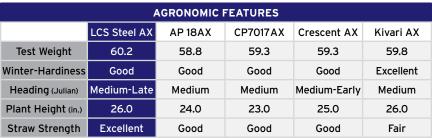
Very good straw strength and standability

HARD RED WINTER WHEAT

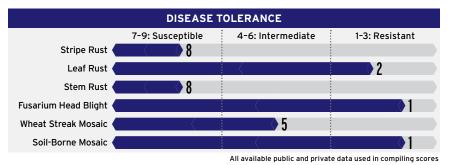
### **LCS Steel AX**



		YIELD			
	BU/AC ♦LCS	Steel AX 🔷 Trial Avg.	MEAN▶		
3-Year SDSU Eastern	<b>66.4</b> 63.8	<u> </u>	<b>♦</b>	<b>104%</b> of mean	
3-Year SDSU Central	<b>66.8</b> 64.7	<u> </u>	•	103% of mean	
3-Year SDSU Western	<b>56.4</b> 54.7		•	103% of mean	
PROTEIN					
	Protein % ♦ LCS Steel AX ♦ Trial Avg. MEAN▶				
3-Year SDSU Eastern	12.7 13.4			95% of mean	
3-Year SDSU Central	13.2 13.9			95% of mean	
3-Year SDSU Western	13.2 13.8	<u> </u>		96% of mean	



All available public and private data used in compiling scores



	END-USE QUALITY					
Over	Overall Quality Baking Quality Flour Protein Milling Quality					
Acc	ceptable	Acceptable	Desirable	Desirable		





### Engineered to beat weeds



**National Wheat Yield Contest** winner



Superior disease protection



**Top-end yield** with ability to handle tough acres



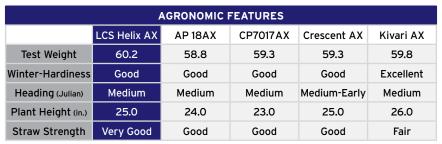
**Excellent** drought tolerance

HARD RED WINTER WHEAT

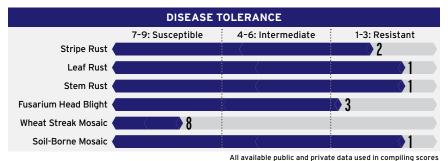
### LCS Helix AX



		YIELD			
	BU/AC ♦ LCS Helix	AX Trial Avg.	MEAN▶		
3-Year SDSU Eastern	<b>62.9</b> 63.8			99% of mean	
3-Year SDSU Central	<b>63.7</b> 64.7			98% of mean	
3-Year SDSU Western	<b>55.2</b> 54.7			<b>101%</b> of mean	
PROTEIN					
	Protein % ♦ LCS Helix AX ♦ <b>Trial Avg.</b> MEAN ▶				
3-Year SDSU Eastern	12.9	<u> </u>		96% of mean	
3-Year SDSU Central	13.5		<b>\</b>	97% of mean	
3-Year SDSU Western	13.4 13.8	<u> </u>	$\rightarrow$	97% of mean	



All available public and private data used in compiling scores



END-USE QUALITY						
Overall Quality Baking Quality Flour Protein Milling Quality						
Desirable	Desirable	Most Desirable	Acceptable			





### Superior wheat quality

Limagrain Cereal Seeds is the only private breeding program with a dedicated, state-of-the-art quality lab. The LCS Quality Laboratory utilizes a comprehensive set of data, compiled over multiple years, to determine the end-use quality of all wheat varieties we release. Key attributes include:

**Baking quality**, including loaf volume, cookie diameter and dough rheology.

Milling quality, including flour yields and protein loss from grain to flour.

**Dough properties,** including water absorption, gluten strength and percentage of protein content.

These characteristics are weighted and combined into a single score: baking quality (30%), dough properties (20%), milling quality (40%), test weight (5%) and flour protein (5%). Overall end-use quality is classified in one of four categories:

**Most Desirable**. Elite varieties with excellent intrinsic (kernel) qualities and a superior combination of milling, baking and dough properties.

**Desirable.** High-demand varieties with strong intrinsic qualities and very good to good milling, baking and dough properties.

**Acceptable.** One or more quality parameters may have minor flaws. Overall, these varieties are acceptable to end users.

**Less Desirable.** Varieties with quality parameters that are less than adequate for current end-user standards or a single critical flaw.

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### Looking for more?

See all available varieties bred for the Northern Plains online anytime, including conventional and CoAXium hard red spring wheat, hard red winter wheat, forage wheat and malting barley.

Find your next blockbuster variety LimagrainCerealSeeds.com/NP

See the most up-to-date trial results **LimagrainCerealSeeds.com/data** 

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