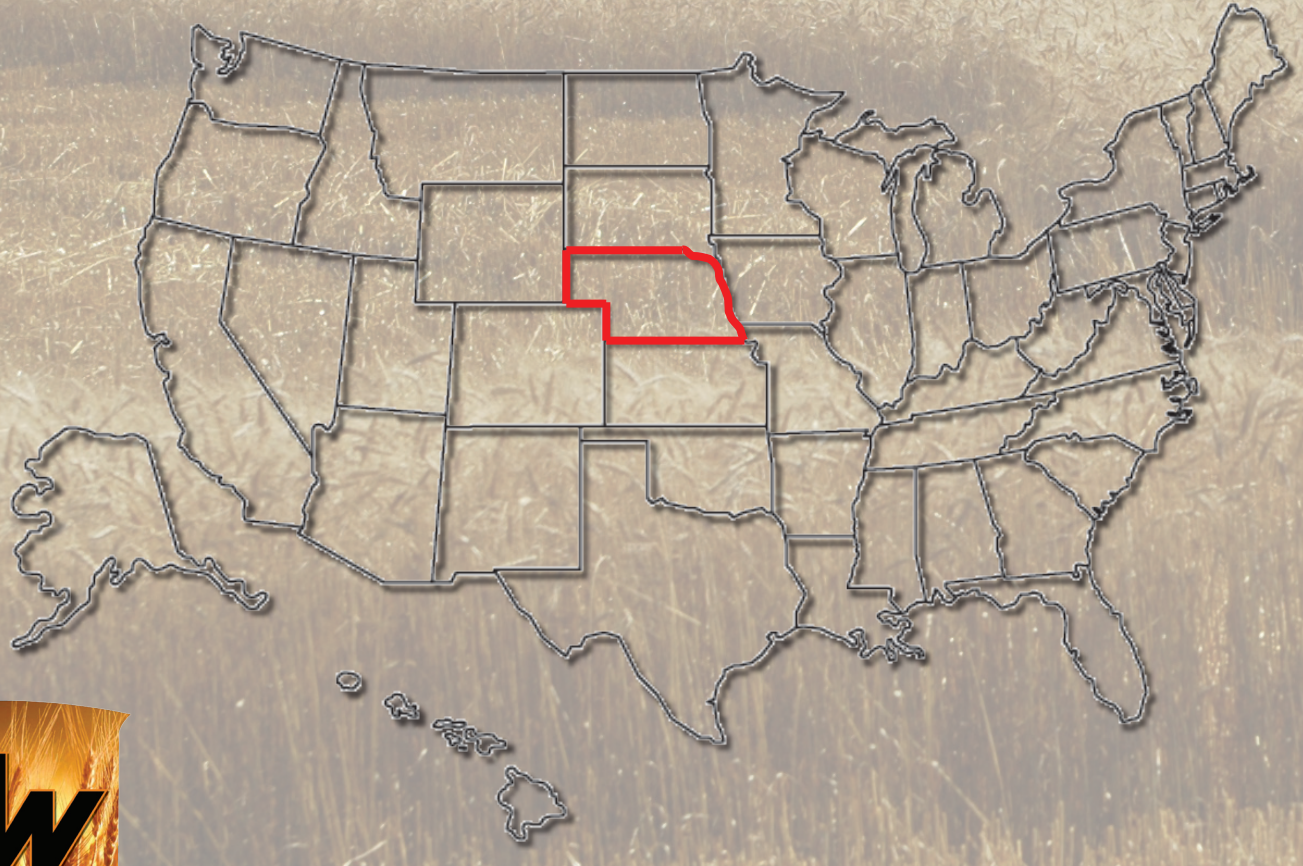
# NEBRASKA WHEAT
# Trade Tour Booklet



NEBRASKA WHEAT

Tour info current as of 2017

# NEBRASKA

Nebraska is home to more than 1.7 million people and 48,000 farms and ranches. More than 5,000 of those farms produce wheat. Nebraska farmers raise Hard Red Winter (HRW) and Hard White Winter (HWW) wheat. At all times, Nebraska wheat farmers work to meet the highest Federal Grain Inspection Service standards of quality.

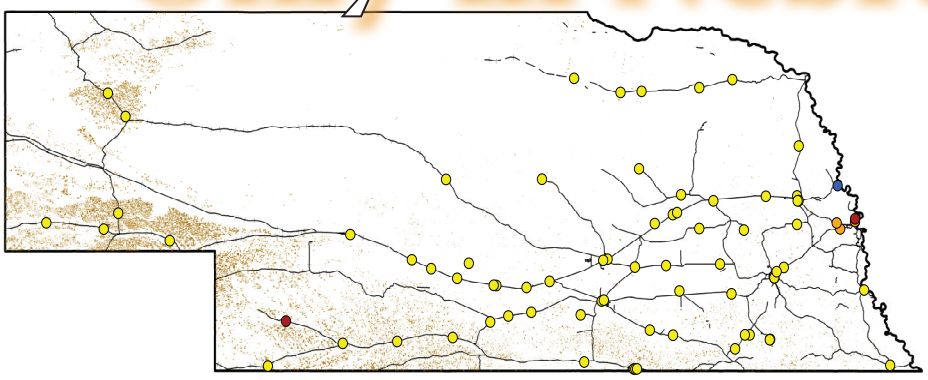
Geography, weather and soil type vary greatly across the state; But the dryland soils in the southwest and western regions of bhe state are prime grounds for the average 70 million bushels of wheat raised annually in Nebraska.

Half of Nebraska's wheat is exported annually due to Nebraska's location and accessibility to export markets via a vast transportation infrastructure. Nebraska is located in the center of the United States, meaning grain can easily be shipped to export markets in the Pacific Northwest, the Gulf of Mexico and/or the Great Lakes region. The railroad networks of both Union Pacific and BNSF crisscross the state, and the Missouri River provides barge transportation options to producers in eastern Nebraska.

NEBRASKA WHEAT

Nebraska Wheat is made of two organizations: the Nebraska Wheat Board and the Nebraska Wheat Growers Association. The Nebraska Wheat Board is a state agency responsible for overseeing the wheat check-off to ensure future viability of the wheat industry for our farmers. The Nebraska Wheat Growers Association is a non-profit, membership-based organization working to represent the state's wheat farmers. The following pages explain what Nebraska Wheat will show you when you visit our state.

# Only in Nebraska



- Shuttle train facilities
- Barge loading facilities
- Flour mills
- Major baking facilities

## Union Pacific Headquarters

Union Pacific (UP) is one of the nation's largest railroads, serving 23 of 50 states in the western two-thirds of the U.S. More than 4,000 employees work in the railroad's headquarters -- a 19-story glass and steel building in Omaha, NE. This building is also home to one of UP's main control rooms.

## National Manufacturing

Founded in 1939, and located in Lincoln, National Manufacturing is the world's leading supplier of analysis equipment for food science and production. With a variety of products ranging from insectographs to mixographs, risographs, fermentation cabinets and convection ovens, National Manufacturing designs and fabricates all equipment and software to exact customer specifications.

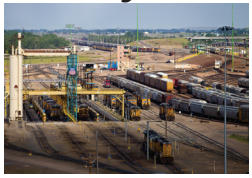
## Gavilon Grain

Gavilon connects producers and consumers of feed, food and fuel, linking agricultural supply with demand through its global supply chain network. The company provides origination, storage and handling, transportation and logistics, marketing and distribution, and risk management services to customers and suppliers across the globe. Headquartered in Omaha, NE, Gavilon employs 1,900 people at nearly 300 facilities and offices worldwide. For more information, visit www.gavilon.com.

## Bayer CropScience North American Wheat Breeding Station

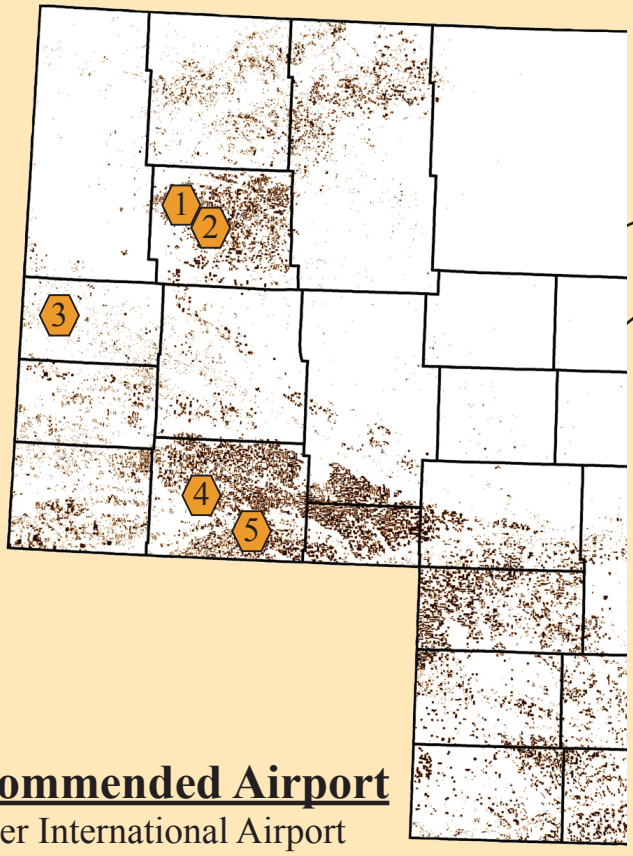
In 2010, Bayer CropScience established a partnership with the University of Nebraska-Lincoln which included sharing wheat germplasm and locating their North American Breeding Station within Nebraska. This company, a leader in researching new wheat varieties through traditional and biotech means, currently operates the breeding station near Beaver Crossing.

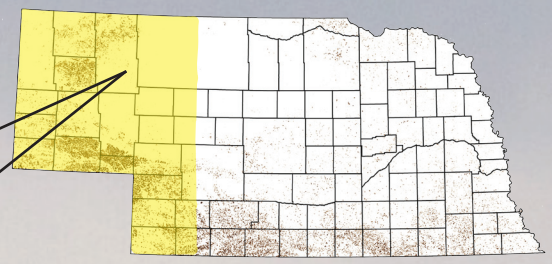
## Bailey Yard (UP)



Union Pacific's Bailey Yard in North Platte, NE is the world's largest railroad classification yard. Named in honor of former Union Pacific President Edd H. Bailey, the yard covers 2,850 acres, reaching a total length of eight miles. Bailey Yard has 17 receiving and 16 departure tracks handling 14,000 rail cars every 24 hours.

# Western Nebraska



Western Nebraska is the primary growing region for wheat in Nebraska. Over half of Nebraska's wheat is grown here. It's home to two major wheat research stations, three grain companies handling large quantities of both Hard Red Winter and Hard White wheats, and multiple family-owned and operated farms.

## Recommended Airport

Denver International Airport
Denver, CO (DEN)

## Best time to visit

- Harvest in Western Nebraska typically occurs in mid to late July.
- To see everything on this tour, at least two full days is recommended.
- Nebraska Wheat will happily accommodate teams at any date for any length of time and adjust tours accordingly.

## Main towns/locations

- Sidney - 262 km/2.75 hours from DEN, home to High Plains Ag Lab, Crossroads Coop
- Scottsbluff - 314 km/3 hours from DEN, home to Panhandle Research Center
- Hemingford - 413 km/4 hours from DEN, home to Farmers Cooperative Elevator

## Quality Data at a Glance

*This data represents the 2016 averages for this region which includes all or parts of grain sheds N05, N01 and N02. Three years of detailed quality results can be found on page 12.*

**Grade:** 1

**Test Weight:** 80 kg/hl

**Dockage:** 0.6%

**Protein:** 10.5%

**Buhler Flour Yield:** 75.8%

**Falling Number:** 387

## Cullan Seed Farm - Hemingford 1

**This farm specializes in raising Certified Seed - the wheat that farmers across the state will use to raise the grain exported around the globe. During this tour, visitors will see seed cleaning equipment and on-farm storage; they will learn how Certified Seed producers guarantee clean, quality seed for wheat production across the state; and they will be able to visit and ask questions of Chris Cullan, one of the farm's owners and a fourth-generation farmer.**

## Farmers Cooperative Elevator - Hemingford 2

This cooperative grain elevator was started in 1919. It has state-of-the-art facilities to collect grain from farmers at harvest and a 7.9 million bushel storage capacity. Shuttle trains can be loaded with grain in 10 hours with service to both domestic and international export facilities. Visitors can tour the facilities, see how grain is collected at harvest and how shuttle trains are loaded.
http://farmcoop.com/

## Panhandle Research and Extension Center - Scottsbluff 3

**The 800-acre Experimental Range was deeded to the University of Nebraska by President Woodrow Wilson in 1918. Fifteen faculty within the University work through this station to conduct research on small grains and the agriculture of western Nebraska. This is a major research station for wheat in the state. Visitors will tour the station, see the wheat test plots and visit with wheat researchers working on-site. http://panhandle.unl.edu/**

## High Plains Ag Lab - Sidney 4

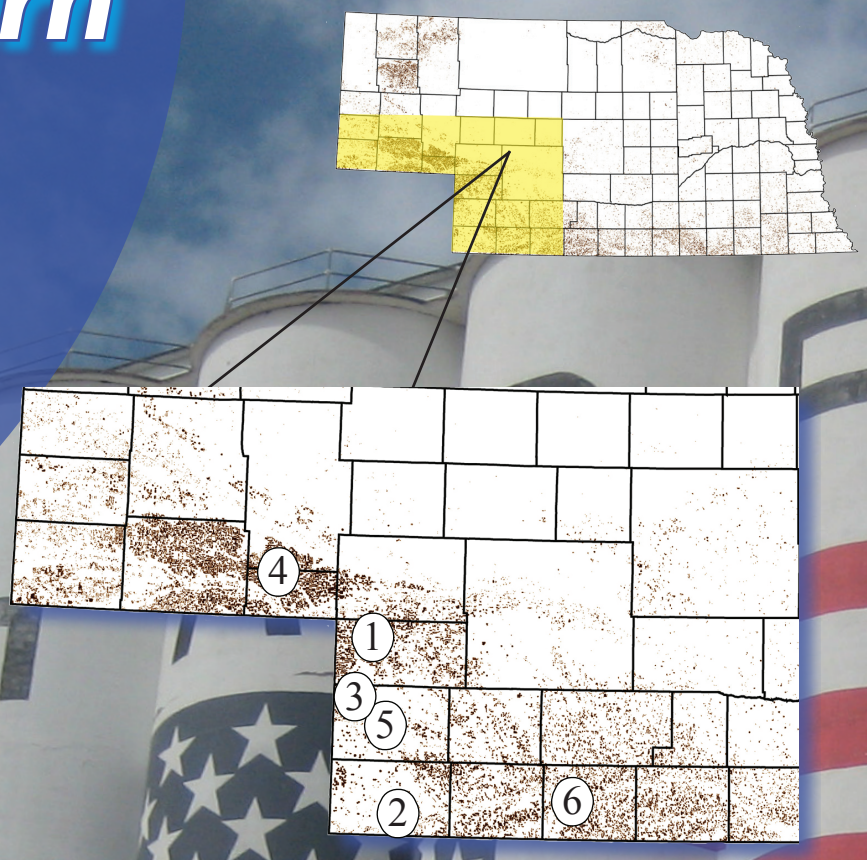
The High Plains Ag Lab (HPAL) is a satellite unit of the Panhandle Research and Extension Center that focuses on dryland crop rotations and livestock production. With 800 acres vested in dryland crop research, visitors can see some of the plots being used and visit with lead researchers. http://panhandle.unl.edu/hpal

## Larson Farm - Sidney/Potter 5

**Rick Larson has been farming in Banner County for more than 30 years. He raises both irrigated and dryland wheat, corn, edible beans and alfalfa. During this tour, visitors will see the equipment farmers use to plant and harvest up close. They may even get to ride in a combine. They will also see the irrigation systems farmers use and learn about how and why U.S. farmers diversify the crops they raise.**

# Southwestern Nebraska

***Southwestern Nebraska is ideal for wheat production. In addition to a major new wheat research facility near Grant, multiple shuttle facilities allow easy grain movement out of the area. Many of the state's certified wheat seed providers also farm in this area.***




## Airport Options

**Denver International Airport**
**Denver, CO (DEN)**

## Timing Recommendations

- **Harvest in Southwest NE typically occurs in late June to mid July.**
- **To see everything on this tour, at least two full days is recommended.**
- **Nebraska Wheat will happily accommodate teams at any period for any length of time and adjust tours accordingly.**

## Main towns/locations

- **Chappell - 282 km/2.5 hours from DEN, home to a Frenchman Valley Coop facility, V&F Farms**
- **Imperial - 328 km/3 hours from DEN, home to Frencham Valley Coop headquarters, Hughes Farm**
- **McCook - 411 km/4 hours from DEN, home to Peters Seed Farm**

## Quality Data at a Glance

*This data represents the 2016 averages for this region which includes all or parts of grain sheds NO2 and NO3. Three years of detailed quality results can be found on page 12.*

**Grade:** 1-2

**Test Weight:** 78.7 kg/hl

**Dockage:** 0.4%

**Protein:** 11%

**Buhler Flour Yield:** 76.8%

**Falling Number:** 403

## Henry J. Stumpf International Wheat Center 1

A branch of the West Central Research and Extension Center, the Henry J. Stumpf International Wheat Center focuses on the research needs and developments of wheat ranging from variety testing to management systems.

## Gavilon Grain 2

This shuttle-loading facility, located in Benkelman, NE is one of Gavilon's newer grain handling locations. Visitors will get to see how grain elevators take wheat in during harvest, how they store the grain and how shuttle trains are loaded for grain shipment to export elevators.

http://www.gavilon.com/location/gavilon-grain-benkelman

## Hughes Farm 3

Dan Hughes is a fourth-generation farmer and currently serves in the Nebraska legislature. Both of Dan's children returned to the family farm where they raise wheat, corn, millet, edible beans and sunflowers. Visitors will get to see how a large-scale family farm operates and learn about why many Nebraska farmers diversify the crops they grow. Visitors may also have the opportunity to enjoy a barbecue with local farmers and grain elevator representatives.

## V&F Farms 4

V&F Farms is a family owned and operated farm run by Larry and Kevin Flohr. They specialize in production of certified wheat seed. Visitors to this operation will get to see how different farming equipment is used, how irrigation is used and how local farms work to raise quality wheat.

## Frenchman Valley Farmers Cooperative 5

FVC was started as a grain coop in 1912, under the name Farmers Union Equity, but changed its name to the Imperial Equity Exchange in 1915. The oil company was first organized in 1927 as Imperial Coop Oil. In 1968, Imperial Equity and Imperial Coop Oil merged and became known as Frenchman Valley Farmers Cooperative, Inc. Since that time additional acquisitions have been made which have greatly expanded the territory and services offered by FVC. Today FVC is one of the state's largest wheat handling grain cooperatives. Visitors will tour the FVC headquarters in Imperial, NE and visit with representatives on how FVC's multiple grain elevators in satellite locations across the state helps them handle a large volume of wheat. *http://www.fvcoop.com/*

## Peters Seed Farm 6

Peters Seed Farm is a family operation run by Randy, Randon and Ryan Peters. Visitors will get to tour the Peters' farm, learn the role that Certified Seed producers play in the wheat chain, see the equipment used to clean seed wheat, and learn how Certified Seed improves the quality of grain produced.

# About Eastern Nebraska

***Eastern Nebraska is home to some of the state's leading research facilities. It also is the headquarters for several national and international companies responsible for grain merchandising and shipment. While not the state's main wheat producing region, farmers in the area are still committed to raising quality wheat.***

## Airport Options

**Eppley Airfield**
**Omaha, NE (OMA)**

**Lincoln Airport**
**Lincoln, NE (LNK)**

## Quality Data at a Glance

*This data represents the 2016 averages for this region which includes all or parts of grain shed NO4. Three years of detailed quality results can be found on page 12.*

**Grade:** 2

**Test Weight:** 78.2 kg/hl

**Dockage:** 0.4%

**Protein:** 11.1%

**Buhler Flour Yield:** 76.9%

**Falling Number:** 410

## Timing Recommendations

- **Harvest in Eastern NE typically occurs in mid June to early July.**
- **To see everything, including all research on this tour, at least three full days is recommended.**
- **Nebraska Wheat will happily accommodate teams at any period for any length of time and adjust tours accordingly.**

## Main towns/locations

- **Omaha - 83 km/1 hour from LNK, home to Gavilon and UP Railroad**
- **Lincoln - 83 km/1 hour from OMA, home to Grain Inspection, UNL research and National Manufacturing**
- **Fairbury - 122 km/1.5 hours from LNK, home to Knobel Seed Farm and close to Farmers Cooperative**

## Lincoln Inspection Service 1

Lincoln Inspection Service provides grain testing and grading based on Federal Grain Inspection Service (FGIS) standards. During the tour, visitors will see the equipment used during testing, learn how grades are assigned on the FGIS scale, hear from actual inspectors how the job is done and learn what role having a set grading system plays in ensuring quality standards are met on grain shipments.

*http://lincolninspection.com/*

## Farmers Cooperative 2

Farmers Cooperative is a full-service cooperative providing farmers with products and services in energy, grain, feed and agronomy. The cooperative has facilities in 60 communities across the state and into Kansas. During the tour, visitors will see how grain is unloaded and stored during harvest, as well as how it's loaded onto trains for shipping to export terminals.

*http://www.farmersco-operative.com/aboutus/*

## Knobel Seed Farm 3

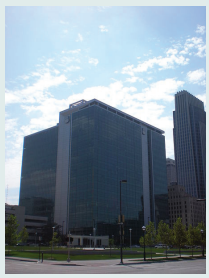
Mark Knobel is a Certified Seed producer from Fairbury. Visitors to this family-run operation will get to visit with Mark about how Certified Seed is produced and how his role as a Certified Seed producer improves the wheat sent to market. They will also tour the Knobel Seed Farm's seed cleaning facility, visit wheat fields and see farm equipment up close.

## Gavilon 4

Gavilon is one of the leading organizations in the grain industry, connecting producers and consumers. Visitors will tour part of the headquarter's facilities and visit with the company's leading grain merchandisers about how Gavilon collects and markets grain.

*http://www.gavilon.com/*

## Union Pacific (UP) 5



One of the nation's largest railroad, UP plays an important role in getting Nebraska's wheat to market. Visitors will get to visit with UP reps about how grain is moved in Nebraska and the U.S. and possibly see one of the railroad's main control rooms.

*http://www.up.com/*

## National Manufacturing 6

National Manufacturing Co. is a division of the Total Manufacturing Company (TMCO). Based in Lincoln, NE, National Manufacturing has specialized in the development of analysis equipment for food science and cereal chemistry laboratories since 1939. The offices and factories are located in Lincoln, so that all equipment ordered by customers can be designed and fabricated in-house to exact specifications and tolerances. The company's motto is "build machines that last a lifetime." Some of their most popular products include: mixograph, fermentation cabinets, risograph, seed sorter, convection ovens and insectograph. Visitors will tour the factory, see demonstrations of some cereal chemistry equipment and visit with the developers.

*http://www.national-mfg.com/*

# Wheat Research & Breeding

## University of Nebraska Breeding Program

Dr. P. Stephen Baenziger is the lead wheat breeder at the University of Nebraska-Lincoln, the Eugene W. Price Distinguished Professor of Small Grains Breeding and Genetics and is the Nebraska Wheat Growers Presidential Chair. He's one of the world's foremost experts on small grains breeding, and one of the people most familiar with what traits can be found in the wheat varieties farmers in Nebraska are planting and what traits the breeding program is looking to develop in new varieties. Visitors will get to visit with Dr. Baenziger about his work and tour the greenhouses where new varieties are being developed.
*http://agronomy.unl.edu/grains*

## Husker Genetics

Husker Genetics is responsible for getting new varieties of wheat from the breeders to farmers. They do this by increasing, maintaining supplies of and distributing Foundation Seed to certified seed growers. Foundation Seed is the wheat seed that is then planted and harvested by Certified Seed growers to provide high quality seed sources for Nebraska farmers. These important steps bring seedstock from the plant breeder's research plot to the farmer's field. Representatives from Husker Genetics will explain the process with team members when they visit the state.
*http://huskergenetics.unl.edu/*

## Dr. Tom Clemente

Dr. Thomas Clemente is the Eugene W. Price Distinguished Professor of Biotechnology and serves as director of the Plant Transformation Core Research Facility at the University of Nebraska-Lincoln. His research focuses on tool development for functional genomics and implementing genetic engineering for plants in value-added and disease control traits. Dr. Clemente will discuss how biotechnology works and technology's role in the future of agriculture. Visitors will also tour Dr. Clemente's lab and the greenhouses at the University of Nebraska-Lincoln's Beadle Center. *http://www.unl.edu/clementelab/*

## Wheat Quality Lab

The Wheat Quality Lab at the University of Nebraska-Lincoln is used by the breeding program to test the end-use characteristics of wheat varieties being developed. The goal is to develop wheat varieties with quality traits for both millers and farmers. Visitors will get to tour the lab, see the equipment used, and visit with researchers about the tests they conduct.

# Other Considerations...

## Hotels

**Nebraska Wheat will arrange all reservations for the duration of each team's stay in Nebraska. Nebraska Wheat chooses accommodations based on comfort, safety and convenience.**

## Meals

**Nebraska Wheat provides three meals per day for all team members for the duration of team's stay in Nebraska. Snacks and bottled water are also provided in the travel packet given to each team member upon arrival in Nebraska. We are happy to accommodate any special dietary preferences or restrictions team members may have.**

## In-State Transportation

**Nebraska Wheat will provide all transportation of team members, between all tour locations and accommodations for the duration of the team's stay in Nebraska, and will deliver the team safely to either the airport or a designated meeting spot with a neighboring state's wheat commission (provided the team is continuing their stay in the U.S. by visiting that state) once the team's visit to Nebraska is complete.**

## Combining Tours/Other Tour Locations

**At times some farmers or tour sites listed may be unavailable. In those instances, Nebraska Wheat will work to arrange a tour at a similar site. Examples of other sites that my be included in tours include: V&F Farms in Chappell with Larry Flohr, Robertson Farm in Elsie with Brent Robertson and the West Central Research and Extension Center in North Platte.**

**Nebraska Wheat is willing to combine parts of different tours should a team request it. However, before requesting the combination of tours, teams should evaluate how much time will be spent in the state. It takes six hours to travel from one side of the state to the other. In addition, Nebraska is located in two different time zones. The Eastern Tour takes place in a Central Daylight Time (CDT) zone. The Southwestern and Western Nebraska tours take place in the Mountain Daylight Time zone (MDT), which is one hour behind CST. Should a team wish to combine different tours, adequate time should be budgeted into the visit to account for travel.**

## Shopping/Souvenirs

**Nebraska Wheat understands that team members often wish to make some purchases while in the U.S. There are several large shopping centers and malls in Eastern Nebraska, and a few locations that can be visited on the Western and Southwestern Nebraska tours where visitors can source souvenirs and gifts for family and friends back home. If a team is interested in purchasing souvenirs and gifts, we are happy to accommodate them. It is easier to arrange the agenda if we know in advance that the team wishes to do some shopping, that way we can ensure adequate time is left between tours and meals. If there is something specific a team member is shopping for, just let us know. We'll do our best to help them locate it before leaving the state.**

## Contacting Us

**We are happy to answer any questions that may arise about potential tours. If there's something a team wishes to see that is not listed here, let us know. We'll do our best to accommodate them. Our office is open from 8am-5pm CDT, Monday through Fridays. We look forward to meeting you and hosting you in our state.**

Royce Schaneman
Executive Director
Nebraska Wheat Board

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**Email: wheat.board@nebraska.gov**
**www.wheat.nebraska.gov**

Caroline Brauer
Executive Director
Nebraska Wheat Growers Association

# Wheat Grading Data

| | Location | | Official Grade (U.S. NO.) | Test Wt (lb/bu) | Test Wt (kg/hl) | Dockage (%) | Damage Kernels Total (%) | Shrunken & Broken Kernels (%) | Total Defects (%) |
|---|---|---|---|---|---|---|---|---|---|
| 2016 | Nebraska | N01 | 1 | 62.0 | 81.5 | 0.4 | 0.4 | 0.6 | 1.1 |
| | | N02 | 1 | 62.4 | 82.1 | 0.3 | 0.6 | 0.5 | 1.1 |
| | | N03 | 1 | 61.6 | 80.9 | 0.3 | 0.7 | 0.5 | 1.3 |
| | | N04 | 1 | 61.4 | 80.8 | 0.4 | 0.3 | 0.8 | 1.3 |
| | | N05 | 1 | 62.2 | 81.8 | 0.6 | 0.2 | 0.9 | 1.2 |
| 2015 | Nebraska | N01 | 1 | 0.7 | 61.6 | 81.0 | 0.1 | 0.9 | 0.1 |
| | | N02 | 2 | 0.3 | 59.5 | 78.3 | 0.1 | 0.8 | 0.1 |
| | | N03 | 1 | 0.5 | 60.1 | 79.1 | 0.1 | 0.8 | 0.1 |
| | | N04 | 2 | 0.4 | 59.5 | 78.2 | 0.0 | 0.6 | 0.1 |
| | | N05 | 1 | 0.7 | 61.5 | 80.8 | 0.1 | 1.0 | 0.1 |
| 2014 | Nebraska | N01 | 2 | 59.0 | 77.6 | 0.7 | 0.3 | 1.1 | 1.6 |
| | | N02 | 1 | 60.1 | 79.1 | 0.7 | 0.4 | 1.3 | 1.9 |
| | | N03 | 2 | 58.8 | 77.3 | 0.9 | 1.4 | 1.2 | 1.7 |
| | | N04 | 2 | 59.6 | 78.4 | 1.0 | 1.2 | 1.0 | 2.2 |
| | | N05 | 2 | 59.2 | 77.9 | 1.1 | 0.3 | 1.0 | 1.5 |

# Kernel Quality Data

| | Location | | Foreign Material (%) | Kernel Size Large (%) | Kernel Size Med (%) | Kernel Size Small (%) | SKCS Avg TKW (g) | SKCS Avg Diam (mm) |
|---|---|---|---|---|---|---|---|---|
| 2016 | Nebraska | N01 | 1.1 | 66 | 34 | 1 | 30.6 | 2.60 |
| | | N02 | 1.0 | 73 | 26 | 1 | 30.9 | 2.59 |
| | | N03 | 1.0 | 74 | 25 | 1 | 31.7 | 2.63 |
| | | N04 | 0.7 | 78 | 21 | 1 | 32.2 | 2.67 |
| | | N05 | 1.2 | 63 | 36 | 1 | 30.8 | 2.62 |
| 2015 | Nebraska | N01 | 0.2 | 70.5 | 28.6 | 1.0 | 30.3 | 2.60 |
| | | N02 | 0.2 | 72.5 | 26.5 | 1.1 | 31.0 | 2.62 |
| | | N03 | 0.1 | 68.6 | 29.9 | 1.5 | 30.7 | 2.60 |
| | | N04 | 0.1 | 66.6 | 32.3 | 1.2 | 30.4 | 2.60 |
| | | N05 | 0.2 | 64.2 | 34.4 | 1.4 | 30.1 | 2.63 |
| 2014 | Nebraska | N01 | 0.2 | 74 | 25 | 0 | 33.1 | 2.70 |
| | | N02 | 0.1 | 78 | 21 | 0 | 33.6 | 2.74 |
| | | N03 | 0.1 | 78 | 22 | 0 | 32.7 | 2.70 |
| | | N04 | 0.1 | 71 | 28 | 1 | 31.9 | 2.66 |
| | | N05 | 0.1 | 71 | 29 | 1 | 31.9 | 2.65 |

# Other Wheat Characteristics

| | Location | | Wheat Protein (12% mb) | Indv Wheat Ash (12% mb) | Falling Number (sec) | Moisture (%) | SKCS Avg Hard |
|---|---|---|---|---|---|---|---|
| 2016 | Nebraska | N01 | 10.1 | 1.56 | 374 | 11.0 | 55 |
| | | N02 | 10.7 | 1.52 | 405 | 10.6 | 40 |
| | | N03 | 11.2 | 1.58 | 401 | 11.5 | 47 |
| | | N04 | 11.1 | 1.54 | 410 | 11.4 | 43 |
| | | N05 | 10.8 | 1.60 | 381 | 10.2 | 55 |
| 2015 | Nebraska | N01 | 11.1 | 1.60 | 381 | 11.4 | 49.0 |
| | | N02 | 11.6 | 1.64 | 405 | 10.8 | 53.4 |
| | | N03 | 12.3 | 1.71 | 400 | 12.6 | 54.9 |
| | | N04 | 12.2 | 1.69 | 420 | 12.6 | 56.0 |
| | | N05 | 11.3 | 1.64 | 365 | 11.5 | 50.8 |
| 2014 | Nebraska | N01 | 11.9 | 1.55 | 388 | 11.7 | 59 |
| | | N02 | 13.4 | 1.62 | 401 | 12.1 | 62 |
| | | N03 | 13.5 | 1.61 | 395 | 11.9 | 57 |
| | | N04 | 12.8 | 1.64 | 403 | 12.2 | 60 |
| | | N05 | 11.2 | 1.56 | 392 | 11.2 | 64 |

# Flour Data

| | Location | | Buhler Flour Yield (%) | Zeleny Sedimen Test (cc) | NIR Flour Protein (14% mb) | Flour Ash (14% mb) | Gluten Index | Flour Color L* | Flour Color a* | Flour Color b* |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | Nebraska | N01 | 72.9 | 42.5 | 10.1 | 0.47 | 94.1 | 88.1 | -1.4 | 9.4 |
| | | N02 | 75.3 | 42.6 | 10.6 | 0.57 | 95.3 | 87.8 | -1.3 | 9.9 |
| | | N03 | 75.0 | 44.6 | 11.3 | 0.59 | 90.9 | 87.9 | -1.2 | 9.9 |
| | | N04 | 74.5 | 42.8 | 11.1 | 0.58 | 91.9 | 87.7 | -1.1 | 9.8 |
| | | N05 | 74.9 | 46.1 | 10.1 | 0.55 | 95.7 | 87.7 | -1.3 | 9.5 |
| 2015 | Nebraska | N01 | 72.9 | 42.5 | 10.1 | 0.47 | 94.1 | 88.1 | -1.4 | 9.4 |
| | | N02 | 75.3 | 42.6 | 10.6 | 0.57 | 95.3 | 87.8 | -1.3 | 9.9 |
| | | N03 | 75.0 | 44.6 | 11.3 | 0.59 | 90.9 | 87.9 | -1.2 | 9.9 |
| | | N04 | 74.5 | 42.8 | 11.1 | 0.58 | 91.9 | 87.7 | -1.1 | 9.8 |
| | | N05 | 74.9 | 46.1 | 10.1 | 0.55 | 95.7 | 87.7 | -1.3 | 9.5 |
| 2014 | Nebraska | N01 | 74.4 | 46.3 | 10.7 | 0.50 | 94.5 | 91.39 | -2.1 | 9.8 |
| | | N02 | 76.3 | 53.5 | 12.1 | 0.54 | 92.2 | 90.94 | -1.9 | 9.8 |
| | | N03 | 74.7 | 52.4 | 12.2 | 0.52 | 93.2 | 91.31 | -2.0 | 9.5 |
| | | N04 | 73.4 | 53.5 | 11.6 | 0.52 | 97.5 | 91.35 | -2.0 | 9.5 |
| | | N05 | 75.2 | 48.0 | 10.2 | 0.52 | 96.5 | 91.44 | -1.9 | 9.5 |

# Dough Data

| | | | ALVEOGRAPH | | | | FARINOGRAPH | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Location | | P (mm) | L (mm) | W (10-4 J) | P/L Ratio | Abs (14%mb) | Development Time (min) | Stability (min) | MTI (BU) |
| 2016 | Nebraska | N01 | 56 | 107 | 179 | 0.52 | 55.7 | 4.5 | 6.2 | 49 |
| | | N02 | 58 | 101 | 170 | 0.57 | 57.5 | 4.3 | 5.4 | 46 |
| | | N03 | 62 | 99 | 183 | 0.63 | 57.7 | 4.8 | 6.5 | 33 |
| | | N04 | 65 | 90 | 173 | 0.72 | 59.2 | 4.3 | 5.4 | 45 |
| | | N05 | 60 | 88 | 176 | 0.68 | 55.0 | 4.7 | 6.6 | 43 |
| 2015 | Nebraska | N01 | 56 | 107 | 179 | 0.52 | 55.7 | 4.5 | 6.2 | 49 |
| | | N02 | 58 | 101 | 170 | 0.57 | 57.5 | 4.3 | 5.4 | 46 |
| | | N03 | 62 | 99 | 183 | 0.63 | 57.7 | 4.8 | 6.5 | 33 |
| | | N04 | 65 | 90 | 173 | 0.72 | 59.2 | 4.3 | 5.4 | 45 |
| | | N05 | 60 | 88 | 176 | 0.68 | 55.0 | 4.7 | 6.6 | 43 |
| 2014 | Nebraska | N01 | 71 | 104 | 222 | 0.68 | 58.1 | 4.7 | 5.2 | 48 |
| | | N02 | 70 | 118 | 240 | 0.59 | 60.7 | 5.7 | 8.9 | 26 |
| | | N03 | 71 | 106 | 234 | 0.67 | 59.6 | 6.8 | 9.8 | 23 |
| | | N04 | 76 | 108 | 258 | 0.70 | 59.4 | 5.2 | 7.9 | 33 |
| | | N05 | 81 | 93 | 245 | 0.87 | 57.7 | 4.2 | 7.7 | 31 |

# Baking Data

| | Location | | Bake Mix (min) | Bake Abs (14% mb) | Loaf Volume (cc) | Crumb Grain (1–10) | Crumb Texture (1–10) | Crumb Color |
|---|---|---|---|---|---|---|---|---|
| 2016 | Nebraska | N01 | 4.5 | 60.6 | 830 | 6.3 | 7.0 | Dull |
| | | N02 | 3.8 | 60.7 | 840 | 5.5 | 5.5 | Dull |
| | | N03 | 4.0 | 60.8 | 870 | 5.5 | 7.0 | Dull |
| | | N04 | 3.9 | 61.7 | 870 | 5.5 | 7.0 | Dull |
| | | N05 | 4.8 | 60.4 | 825 | 4.8 | 7.0 | Dull |
| 2015 | Nebraska | N01 | 4.5 | 60.6 | 830 | 6.3 | 7.0 | Dull |
| | | N02 | 3.8 | 60.7 | 840 | 5.5 | 5.5 | Dull |
| | | N03 | 4.0 | 60.8 | 870 | 5.5 | 7.0 | Dull |
| | | N04 | 3.9 | 61.7 | 870 | 5.5 | 7.0 | Dull |
| | | N05 | 4.8 | 60.4 | 825 | 4.8 | 7.0 | Dull |
| 2014 | Nebraska | N01 | 4.5 | 61.2 | 805 | 7.0 | 7.0 | dull |
| | | N02 | 4.0 | 62.7 | 865 | 7.0 | 7.0 | dull |
| | | N03 | 4.1 | 63.6 | 850 | 5.5 | 7.0 | dull |
| | | N04 | 5.0 | 62.4 | 850 | 6.3 | 7.0 | dull |
| | | N05 | 5.0 | 60.8 | 780 | 6.3 | 7.0 | dull |

All data is collected, compiled and provided by Plains Grains Inc. The state regions and testing methods remain the same across differing years to ensure all data remains comparable.