



NEBRASKA AGRICULTURE





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NEBRASKA

DEFINED BY AGRICULTURE

Nebraska agriculture has been described as expansive and diverse with an abundance of natural resources. The landscape varies from large pastures dotted with feeding cattle, to miles of rolling hills bursting with a wide variety of crops, and everything in-between.

But while Nebraska has everything needed to support all types of agriculture, including an abundant water supply and ample amounts of cropland and pasture, many would say its most important asset is its people.

Farms and ranches in Nebraska have been handed down from generation to generation, and families still serve as the hub of the state's number one industry, agriculture. Known for a hard-work ethic and a strong set of values, these families continue to produce the highest quality food products that help feed the world.

All Nebraskans seem to be connected to agriculture in one way or another. If they didn't come from a farm background, they are probably related to someone who did. Or they could very well work in the industry in a supporting role. After all, one in four jobs in the state is agriculture-related.

There is a wide span of agricultural jobs in Nebraska, including careers in the areas of insurance, equipment sales and repair, technology, irrigation, engineering and many more. Agri-business is vital to the state's economy and having a ready and willing workforce has helped those businesses thrive.

Nebraska also has the infrastructure needed to transport grain, livestock and all types of agricultural products to their intended destination. The railroads, semis, trucks and other vehicles have the necessary pathways to move from east to west and north to south throughout the state.

With monikers like Cornhuskers and The Beef State, it doesn't take long to figure out corn and cattle are two of the top commodities produced in Nebraska. The state has been among the leading producers in each category nationally for many years. The ready supply of corn as feed for the cattle results in producing premium-quality meat products, which are sought by consumers throughout the world.

Nebraska also leads the way in production of many other crops and livestock. It has been the number-one producer in the United States of popcorn and Great Northern beans, and among the state leaders in producing soybeans, wheat, dry edible beans, pork, grain sorghum and eggs.

The diverse range of agriculture products produced in Nebraska is due in part to the varying topography and changes in climate. There is a significant drop in elevation from west to east in Nebraska. This results not only in differences in climatic conditions, but also in soil type and landscape.

When it comes to weather in Nebraska, it is best described by an old saying that goes, "If you don't like the weather, just wait a minute, it will change." Conditions can change from cloudy to sunny, from windy to calm, and cold to warm in a single day. The state also features all four seasons, giving Nebraskans the chance to enjoy a true variety of what nature has to offer.

While Nebraska is the 16th largest state by area in the United States (77,358 sq. mi), it has a relatively small population at approximately 1.82 million. And it is estimated that three-quarters of that population resides in one-fourth of the state's area. That unique makeup provides the perfect setting for agriculture.

Welcome to Nebraska. Welcome to Nebraska agriculture.



Geography

From picturesque rolling hills, to fertile valleys, to expansive plains, to the awe-inspiring Sandhills, the geography of Nebraska is one of the most unique in the United States. The landscape changes dramatically, especially traveling from west to east. There is an elevation drop of 4,584 feet in the

430 mile distance from Panorama Point in the west, to the southeast corner of the state along the Kansas border. Nebraska also borders the magnificent Missouri River and is home to the unique Platte River ecosystem, as well as massive Lake McConaughy, which covers a surface area of 35,700 acres.



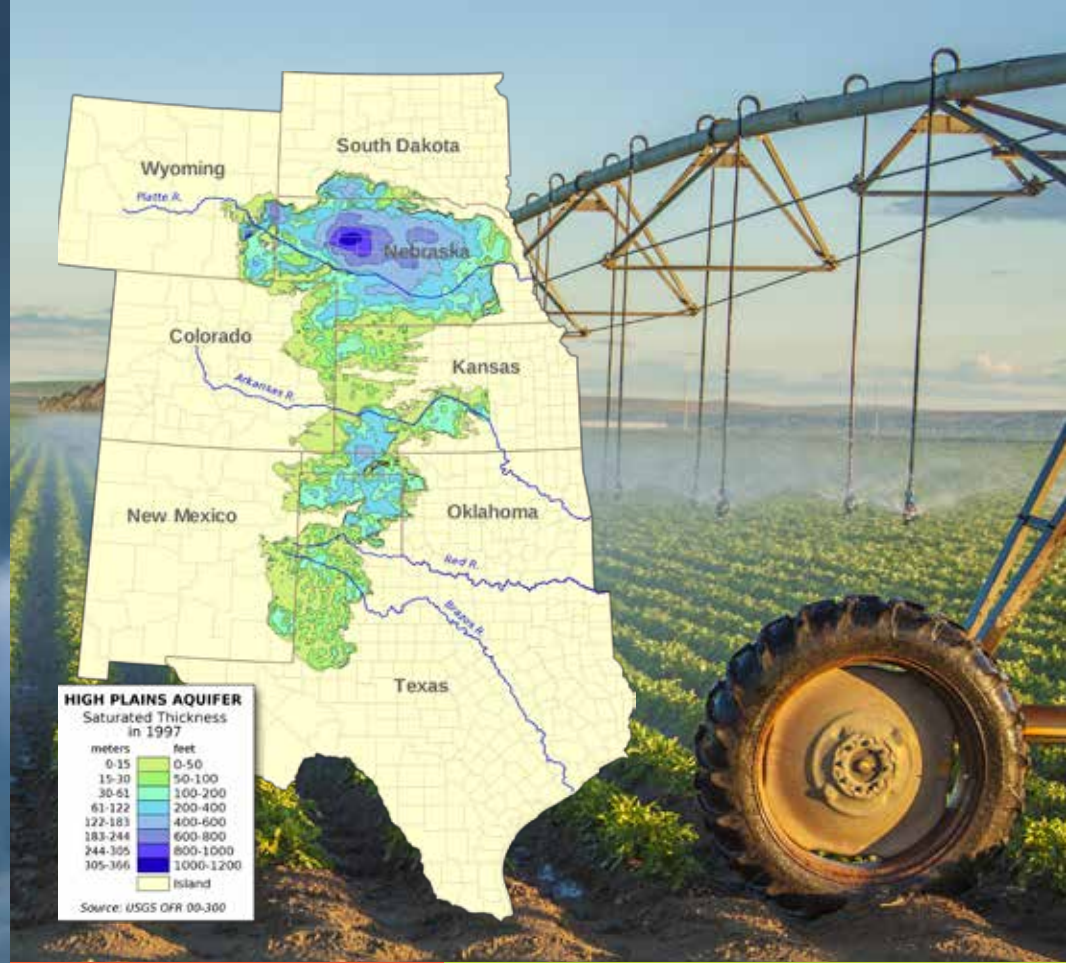
Soil

Nebraska's topsoil is primarily loam, which is a combination of clay, silt and sand. However, the proportions of those components can vary in different areas of the state, which will often dictate whether crops or livestock are

primarily produced in those regions. Portions of western and northwest Nebraska are predominantly sand, while areas to the east have more clay. All areas in between are a combination of sand, clay and silt.

Weather & Climate

Nebraskans are fortunate to enjoy all four seasons: spring, summer, fall and winter. While these seasonal changes can bring challenging weather at times, including thunderstorms and snowfall, it also opens up the door for diverse and sustainable agriculture. Meanwhile Nebraska's climatic conditions vary greatly from one end of the state to the other due to a significant drop in elevation from west to east. For instance, in northwest Nebraska, where the elevation reaches over 3,400 feet above sea level, the humidity levels are relatively low and the annual average rainfall is 18 inches. In the southeast corner of the state where elevation is only 840 feet above sea level, the average annual rainfall is much higher at over 30 inches.



Groundwater

One of Nebraska's most vital natural resources is its massive supply of groundwater. The High Plains Aquifer, also commonly referred to as the Ogallala Aquifer, stretches through parts of eight states, but its most abundant water resource is located in nearly two-thirds of Nebraska. This groundwater availability has been essential to the success of agriculture in the state.

Center pivot irrigation is the most common method of providing water to row crops in the state, and as a result, four of the largest manufacturers of center pivot systems in the world are located in Nebraska.

An accessible water supply also is vital to Nebraska's livestock and dairy production.

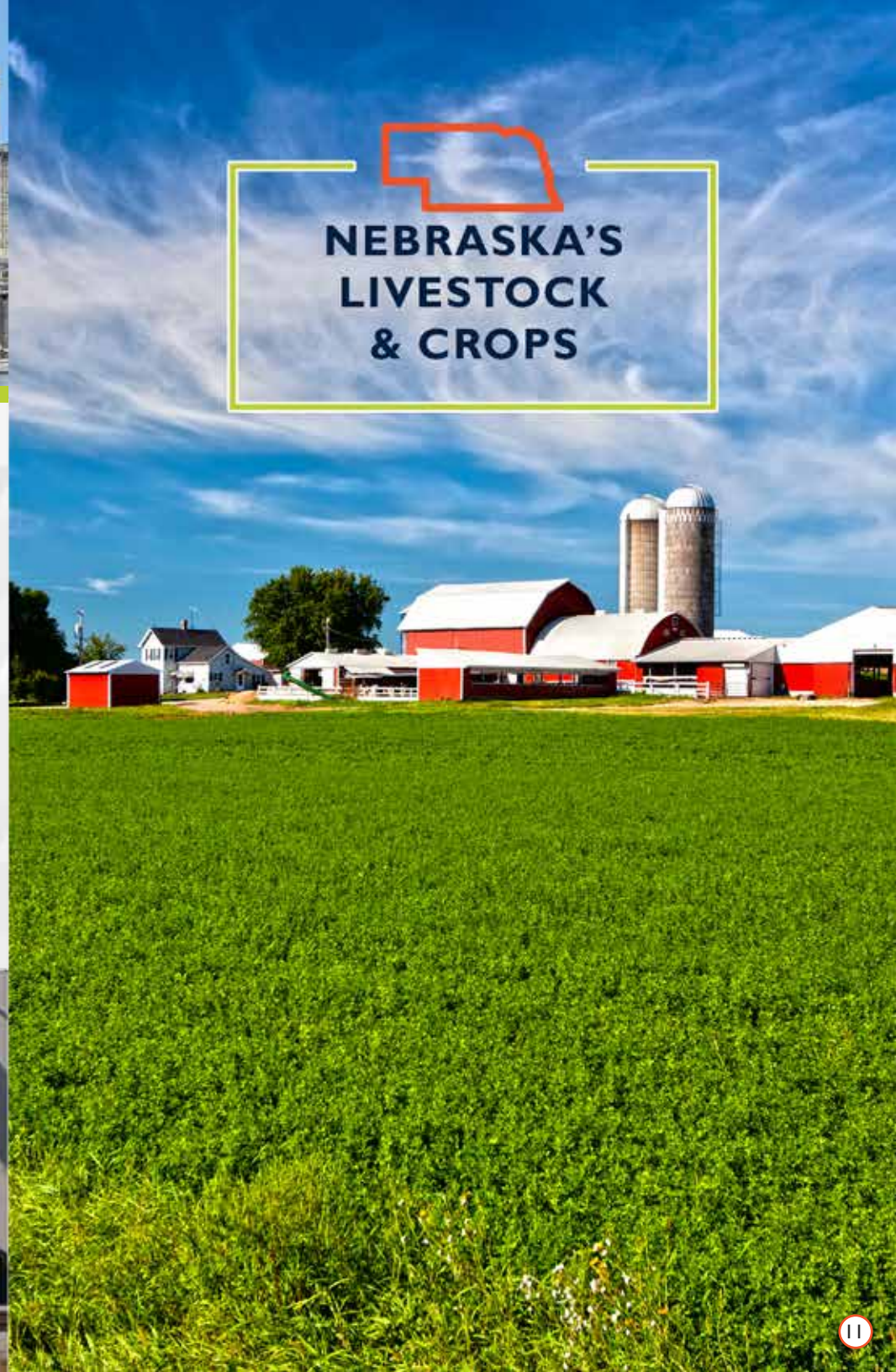


Ethanol

Nebraska is the second largest ethanol producing state in the nation. With approximately 25 operating ethanol plants utilizing the state's abundance of corn as the main feedstock, Nebraska produces more than 2 billion gallons of renewable fuel annually. Meanwhile, distillers' grains, a co-product of ethanol production, is important as both a domestic livestock feed ingredient and as a foreign export product. The linkage between corn, ethanol and livestock production has become known as Nebraska's "Golden Triangle."

Transportation

A solid transportation infrastructure is critical to the success of Nebraska agriculture. Two major railroad lines, Union Pacific and BNSF, have well-established track systems throughout the state. Interstate 80 carries vehicle traffic non-stop from east to west, while two other major highways facilitate north/south movement through Nebraska. There also are major airports in Omaha and Lincoln, as well as barge transportation along the Missouri River on the eastern border.



Beef production is the largest sector of agriculture in Nebraska, and Nebraska is the only state that is a national leader in every aspect of beef production: cow/calf, backgrounding, corn growing, cattle feeding and processing. Calves born on one of Nebraska's 19,000 cow/calf ranches typically spend the majority of their lives on grass before being sent to a feedlot for finishing. Cattle typically spend 3-6 months in the feedlot being fed a balanced ration of corn, forages, distillers' grains, and vitamin and mineral supplements. Corn feeding allows Nebraska producers to get greater marbling and tenderness in the final beef product.



- Corn-fed Nebraska beef is known worldwide for its flavor, tenderness and quality.
- Nebraska's beef industry generates approximately \$7.2 billion in annual cash receipts.
- Cattle outnumber people in Nebraska more than three to one.
- Every part of a cow is used for a wide variety of products, including leather, fishing line, biodegradable outboard motor oil, pet chew toys and gummy candies.



Nebraska's pork industry plays an important role in the state's agricultural economy. Pig farms vary in size and how the pig is raised. In Nebraska there are more than 3.1 million pigs. Advances in animal genetics, technology and management practices have changed, leading to leaner and more nutritious pork. Six of the most common cuts of pork have, on average, 16 percent less fat and 27 percent less saturated fat than 20 years ago.



- Nebraska's pork industry generates more than \$1 billion in annual cash receipts.
- Pork is consumed by more people worldwide than any other meat.
- Nebraska has the 6th largest swine herd in the country.



Virtually all of Nebraska's dairy farms are family owned and operated. Dairy farms will recycle and re-use many production inputs, such as sand that is used for bedding and water which will be used multiple times - from drinking to cleaning - before being used to irrigate crops. Since cows are milked two to three times per day and milk is perishable, dairy farms tend to locate near processing facilities to reduce shipping time and expense.



- Nebraska ranks 26th in total milk production.
- Milk sales account for nearly \$300 million of Nebraska's annual agriculture receipts.



Nebraska's sheep herds and goat herds provide a source of both food and fiber. Meat from sheep, called lamb or mutton, is high in protein. Consumption is typically greater in the larger population centers, especially on the east and west coasts. Goat meat, or chevon, is a staple in some foreign countries and a delicacy in others. Both lamb and chevon are common ingredients in many ethnic dishes. Sheep also are known for their wool production, while angora goats are known for their mohair production. Nebraska also is home to goats and sheep bred specifically for milking purposes. Milk is consumed and used in specialty soaps and lotions.



- There are around 80,000 sheep and lambs raised in Nebraska.
- Nebraska is home to more than 20,000 meat goats and around 4,000 dairy goats.
- Nearly 445,000 pounds of wool are produced each year in Nebraska.
- One sheep will produce 8 pounds of wool each year. That is enough to make a three-piece suit.



Most of the poultry raised in Nebraska are laying hens that play an important role in supplying eggs for further processing by egg companies in the state. Processed eggs are used for commercial, food service, and home use and include refrigerated liquid, frozen, dried and specialty egg products. They are comparable to shell eggs in flavor, nutritional value and most functional properties. There also are chickens raised for meat, called broilers, and turkeys raised in Nebraska.



- More than 9.5 million birds populate Nebraska's commercial laying facilities and produce more than 2.8 billion eggs each year.
- Nebraska ranks 10th nationally in egg production.
- Broilers grow from hatchling to 4-5 pounds in about seven weeks.
- A small number of commercial turkey producers raise birds that are exported to Iowa and Minnesota for processing.

The "Cornhusker State" prides itself on its corn production. Corn is the most widely grown crop in Nebraska and has a variety of uses, from feeding livestock and poultry, to producing ethanol, distillers' grains and even bioplastics. Nebraska has a unique advantage, known as the "Golden Triangle," where the combination of corn, livestock and ethanol production provides significant opportunity to add value at every step along the production chain. Nebraska is the third largest producer of corn in the country, second in ethanol production and distillers' grains, second in cow-calf production and first in cattle on feed.



- There are 23,000 corn farmers across the state, producing six times more corn than in the 1920s.
- In 2014, 8.95 million acres were used for corn production in Nebraska.
- More than 1.6 billion bushels were harvested in 2014, making Nebraska the 3rd largest corn-producing state in the nation.
- Today's corn farmers grow 87 percent more corn per ounce of fertilizer than they did 30 years ago and have cut erosion by 44 percent through new tillage practices.
- Nebraska is home to approximately 25 operating ethanol plants that use corn to produce around 2 billion gallons of ethanol each year.





SOYBEANS

Soybeans are Nebraska's second largest harvested crop. The most versatile of the major crops, soybeans can be grown in a wide variety of soils and climatic conditions. Consequently, soybeans are the most widely grown oilseed in the world. They often are used in rotation with corn because soybean plants return nitrogen back into the soil. The seed of the soybean plant—or bean—is processed for use in animal feed, human food products and renewable fuel. Soybeans also are being used to make several industrial-use products.



- Nebraska ranks 5th in soybean production in the United States.
- Livestock and poultry in Nebraska used the meal from more than 24.5 million bushels of Nebraska soybeans.
- A 60-pound bushel of soybeans yields about 48 pounds of protein-rich meal and 11 pounds of oil.
- 1 bushel of soybeans can make 1.5 gallons of biodiesel.



WHEAT



Nebraska produces two types of wheat: hard red winter wheat and hard white winter wheat. While providing all of the nutritional value and health benefits of whole grains, hard white winter wheat offers the look, texture and taste of enriched flour. It's popular in the same products as hard red winter wheat as well as Asian noodles and Middle Eastern flat breads. Hard red winter wheat is very versatile, with excellent milling and baking characteristics for pan breads and yeast-raised flour foods. This type of wheat also is commonly used as an improver for blending.



- Nebraska is in the top 12 wheat producing states in the United States.
- Nebraska has approximately 1.5 million acres in wheat production.
- Hard red winter wheat is the main source of flour for loaf bread, hamburger buns and other foods.
- Each year, Nebraska harvests between 55 and 70 million bushels of wheat. The average bushel of wheat weighs 60 pounds and can make 64 loaves of bread.
- Nebraska is one of nine states producing hard white winter wheat.
- As much as 50 percent of Nebraska's wheat is annually exported to international markets.





HAY

Hay is grown in every county in Nebraska and is a vital to the state's success as a cattle-producing state. Grass hay is either grazed in the pasture or baled in a variety of round and square bales where it is fed overwinter or shipped around the country. Hay can be grown in parts of the state where other crops may be unprofitable or unsuitable for the soil, including the Sandhills region, which is rich with sub-irrigated meadows. In these meadows, the water table is very close to the surface, making it difficult to grow crops but allowing hay to have constant water throughout the growing season.



- More than 6 million tons of hay and alfalfa were grown in Nebraska in 2014. Nebraska is the nation's 6th largest producer of hay and alfalfa.
- Alfalfa is well known for its high protein content which is especially important for the nutrition of dairy cattle.
- Nebraska also produces dehydrated alfalfa pellets, which can be economically exported to other states and countries.



ALFALFA



Alfalfa is a high-quality forage grown in Nebraska that differs from regular hay in several ways. Alfalfa has a reputation for having the highest nutritional quality and highest yields amongst all forage crops and is used extensively in beef and dairy operations. Alfalfa is typically baled and several cuttings are possible each growing season. Alfalfa is a legume like soybeans, peas and dry edible beans, which means it is capable of capturing nitrogen from the air and storing it in its root system. This allows alfalfa to act as a fertilizer, and it is commonly rotated with other crops like corn to keep soil productive and healthy.



BEES

Honey bees are an invaluable partner in the pollination of many crops. Fruit and nut trees would not be nearly as productive without honey bees. Honey bees will target one specific type of flower at a time which increases the likelihood that the right pollen will get on the right flower.

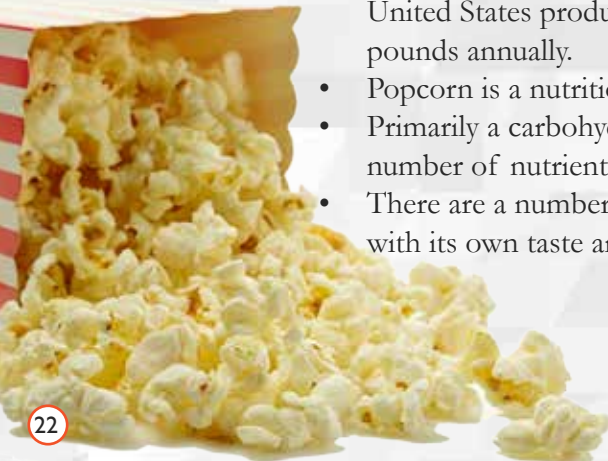
- There are approximately 50,000 bee colonies in Nebraska.
- Nebraska honey bee colonies produce more than 3.75 million pounds of honey annually.
- One honey bee will produce $\frac{1}{12}$ of a teaspoon of honey in its lifetime (about three weeks).





POPCORN

An ample irrigation supply, favorable climate and rich soils, have allowed Nebraska to be the top producer of popcorn in the country for several years. Approximately 45 percent of the U.S. popcorn supply is produced in Nebraska. The production process for popcorn is very similar to that of field corn and to most people, a corn plant and popcorn plant will look very similar. Yields from one acre of popcorn range from 50 to 100 bushels, depending on production techniques and the use of irrigation.



- Nebraska ranks 1st in popcorn production in the United States producing more than 350 million pounds annually.
- Popcorn is a nutritious and low-calorie snack.
- Primarily a carbohydrate, popcorn contains a number of nutrients and is a great energy source.
- There are a number of varieties of popcorn, each with its own taste and texture.

DRY EDIBLE BEANS



Dry edible beans are predominately grown in western Nebraska due to the arid climate in that region. The crop usually is grown under irrigation. When the plants have dried down and are ready for harvest, the plants are cut close to the ground in the early morning while they're covered with dew. The whole plant is allowed to dry in windrows before being combined. The combining process breaks the pods open and separates the dry edible beans from the plant material. After harvest, the beans are delivered to local processors where they are graded, cleaned and packaged for shipping to canners, grocery stores and overseas markets.



- Nebraska ranks 1st in the nation in Great Northern bean production, 2nd in the nation for pinto bean production and 3rd in the nation for all dry edible bean production.
- Several varieties are grown in Nebraska including: Great Northern beans, pinto beans, black beans, light red kidney beans, navy beans, pink beans and garbanzo beans.
- Nebraska annually harvests 125,000 acres of dry edible beans for a total production of more than 2.5 million hundred-weight bags. That is equal to approximately 1 billion servings of dry beans.
- Studies show that a diet including dry edible beans can provide many health benefits.





SUGAR BEETS

Sugar beets have been successfully produced in Nebraska for more than 100 years. Nebraska-grown sugar beets are a major contributor to the United States sweetener industry and are found in a wide range of food products, with some by-products going into livestock feed. The crop needs a long growing season, generally April to October, and days with abundant sunshine followed by cool evenings to facilitate the storing of sugar in the crop's roots. Approximately 90 percent of the sugar beets grown in the state are produced in the Panhandle.



- Nebraska generally ranks 5th in the nation for production of sugar beets and averages more than 1.3 million tons of production.
- The sugar beet is a root crop that's used for sugar production. In fact, more than half of U.S. sugar production comes from sugar beets.
- When fully grown, a sugar beet is about a foot long, and it weighs between 2 and 5 pounds.



POTATOES



Nebraska's water resources, sandy soils, and favorable climate promote great potato yields. Nebraska's central location in the United States also is a marketing advantage. Potato planting in eastern Nebraska begins in early April for a summer harvest, while central and western areas plant in early May for a fall crop. Unlike most other crops, potatoes are stored and marketed directly by the producers, creating year-round jobs.



- Nebraska has ranked high as 10th in the nation for potato production at 8.4 million hundredweight.
- The carbohydrates, vitamins, and minerals found in potatoes make them an important component of a well-balanced diet.
- About one-third of the states' potatoes are processed into potato chips. The rest of Nebraska's potatoes are table potatoes for grocery stores and seed potatoes.
- Special storage facilities keep potatoes fresh throughout the winter.



GRAIN SORGHUM

Grain sorghum, also known as milo, is an ancient grain and one of the four primary grain crops grown in Nebraska. It is used domestically and internationally as livestock and poultry feed. Sorghum is gluten-free and provides a dietary alternative for people who live with celiac disease. Nebraska farmers plant an average of 150,000 acres of sorghum annually. It grows well in regions with little precipitation because of its water use efficiency and high drought tolerance. Warm, dry summers in southeastern and south central Nebraska support this predominately dryland crop. Sorghum acreage is expanding where water for irrigation is limited.



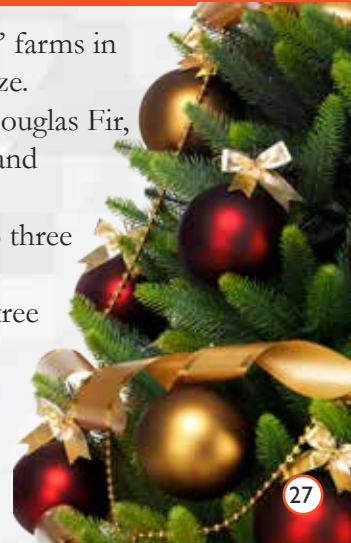
- Nebraska ranks 8th in the nation in grain sorghum, with more than 5 million bushels produced annually.
- Sorghum is chemically similar to the starch content in corn. Ethanol is made from sorghum.
- Sorghum flour and other whole-grain products are commercially available.
- A healthy export market for high-quality feed grains keeps sorghum in demand around the world, primarily in China, Japan and Mexico.
- Mature sorghum ranges in color from deep bronze to pearly white.

CHRISTMAS TREES

Each Christmas season, millions of trees are purchased from lots and tree farms across the nation. While they're growing, Christmas trees support life by absorbing carbon dioxide and emitting fresh oxygen. The farms that grow Christmas trees stabilize soil, protect water supplies and provide refuge for wildlife while creating scenic green belts. The trees are a renewable, recyclable resource that can be used for mulch in gardens and parks or be sunk into lakes to provide habitats and feeding areas for fish after the holiday season.



- There are approximately 15 “choose and harvest” farms in Nebraska. A typical operation is 3 to 8 acres in size.
- The top selling Christmas trees are Balsam Fir, Douglas Fir, Fraser Fir, Noble Fir, Scotch Pine, Virginia Pine and White Pine.
- For every Christmas tree that is harvested, two to three seedlings are planted in its place.
- The average growing time for a retail Christmas tree is seven years.





WINE GRAPES

Nebraska-grown grapes are produced into fine wines. Nebraska has more than 40 wineries and tasting rooms located across the state. Grape and wine production gained momentum in the 1990s and has continued to grow the past 20 years. Growers, winemakers, academia, government, distributors and marketers work in cooperation to advance the interests of the Nebraska grape and wine industry through advocacy and education. Nebraska's fertile soils, topography and humid continental and semiarid climates have been conducive to producing premium quality grapes that have resulted in award-winning wines.



- Nebraska grows many French-American hybrids and American varieties.
- Winter hardy grape varieties, among the reds, include Frontenac, Marechal Foch and de Chaunac and, among the whites, Brianna, Edelweiss, LaCrosse and Traminett.
- Nebraska has 611 acres of grapes and 550 vines per acre.
- More than 100,000 gallons of Nebraska wine are produced each year.

FRUITS & VEGETABLES



Fruit and vegetable production has experienced steady growth in Nebraska. While some areas may be more productive than others, production can be found throughout the state to varying degrees. This includes standard vegetables, such as tomatoes and cucumbers, to melons, pumpkins, squash, onions, berries, sweet corn and many other types of produce. This highly intensive enterprise requires specialized equipment, a large labor supply and the knowledge to produce and market a profitable crop. Innovative, time-honored methods such as high tunnels, mulches, cold frames and row covers are becoming increasingly popular among growers who wish to extend their harvest seasons to increase farm profitability.



- Many fruit and vegetable farms diversify their marketing efforts by selling at farmers' markets, roadside stands, community supported agriculture (CSA), u-pick operations and/or through wholesale and/or retail outlets.
- The number of Nebraska produce growers has increased 700 percent over the past decade from 78 in 2000 to more than 600 in recent years.
- Nebraska has approximately 100 farmers' markets, 240 roadside stands and 40 u-pick operations.





PROSO MILLET

Nebraska joins Colorado and South Dakota as the three states that produce 90 percent of the proso millet in the United States. Proso millet is a warm-season grass capable of producing grain between 60 to 90 days after planting. Because of its short growing season, proso millet has a very low moisture requirement and is capable of producing grain where other crops would fail. Proso millet is an excellent rotational crop and improves dryland wheat productivity. Proso millet is primarily grown in western Nebraska, with 111,000 acres harvested in the state in 2014.

The Nebraska Department of Agriculture would like to thank USDA, NASS, Nebraska field office, along with numerous Nebraska commodity groups and organizations, and several NDA employees, for providing input and photographs for this project.

For more information about Nebraska's agricultural industry, please visit:
www.nda.nebraska.gov/ag_contacts



- Proso millet has the highest water-use efficiency of all cereals.
- Primary use of proso millet in the United States is in bird feed.
- For human consumption, proso millet can be used to bake flatbreads, make tabbouleh (an Arabian vegetarian dish), as a snack when popped, or even for brewing beer.
- In 2014, the proso millet crop in Nebraska was valued at \$10 million.





Nebraska Department of Agriculture
301 Centennial Mall South
Lincoln, NE 68509
402.471.2341
www.nda.nebraska.gov

