North Dakota Agriculture 2009

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North Dakota Agriculture 2009

From the fertile fields of the Red River Valley, west over gently rolling prairie and finally to the rugged badlands, agriculture dominates North Dakota's landscape, just as it dominates the state's economy and society. No other industry means more to our state. Agriculture is responsible for nearly one fourth of our economic base and for almost 25 percent of our jobs. Nine-tenths of North Dakota's land area is in farms and ranches.

The hard work of approximately 32,000 family farmers and ranchers makes North Dakota agriculture a $6 billion giant. These producers supply the nation and the world with vast amounts of food, feed and fiber. They are proud to be trusted providers of the finest agricultural products and to lead the nation in the production of thirteen important commodity categories, including spring wheat, durum, barley, canola and various pulse crops.

Agriculture is not an easy way to make a living. Unpredictable weather, shifting markets, a complex and sometimes contradictory federal farm policy are just some of the long-term challenges facing our producers. Add to those worries, environmental concerns, changing consumer demands and rapidly rising costs for fuel, equipment, labor and land.

Agriculture obviously also has its rewards, and there are exciting, new opportunities for producers. The growing renewable energy industries provide a large, new market for corn, canola and soybeans. These industries also give producers the opportunity to invest in ethanol and biodiesel production plants. Cellulosic ethanol technology is moving closer to reality, promising manifold growth in agriculture.

We hope you find this overview of North Dakota agriculture both enjoyable and informative, and we hope you will share what you have learned about this vital industry, the most important in our state.

Sincerely,

Doug Goehring
Agriculture Commissioner

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Director
ND Agricultural Statistics

Robert Carlson
President
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Photo by Katherine Plessner

Agriculture is Our Leading Industry

- North Dakota production agriculture generated more than $5.8 billion in cash receipts in 2007 (including government payments).
- The value of 2008 North Dakota crop production is estimated at $6.59 billion. This figure does not include sugarbeet or livestock production.
- Production agriculture is the largest sector of North Dakota's economy, making up nearly 25 percent of the economic base.
- Nearly 24 percent of North Dakota workers are farmers and ranchers or are employed in farm-related jobs.
- Value-added ag processing and farm input manufacturing generates $1.7 billion in business activity per year.
- North Dakota has 32,000 farms and ranches. The average size of a North Dakota farm is 1,238 acres.

Quick Fact:

North Dakota's land area is 68,976 square miles. There are an average of 9.2 people per square mile, and an average of 25.3 head of cattle per square mile.

Photo by Lynsey Frey

North Dakota Profile

Population:	637,709
Urban population:	56.3%
Rural population:	43.7%
Land area:	44.1 million acres
Land in farms:	39.6 million acres
Number of farms:	32,000
Average farm size:	1,238 acres
Number of counties:	53
Founded:	November 2, 1889 (39th State)
State Beverage:	Milk
State Bird:	Western Meadowlark
State Flower:	Wild Prairie Rose
State Grass:	Western Wheat Grass
State Tree:	American Elm
Highest Point:	White Butte, 3,506 ft (1,069 m)
Lowest Point:	Red River, 750 ft (229 m)

Top Commodities

Commodity	Value in (1,000 dollars)	Percentage of Total Cash Receipts*
Wheat	1,582,288	28.8
Soybeans	790,095	14.4
Cattle and Calves	741,066	13.5
Corn	537,828	9.8
Sugarbeets	279,023	5.1
Barley	228,122	4.2
Canola	226,322	4.1
Sunflower	219,271	4.0
Dry Edible Beans	204,676	3.7
Potatoes	154,015	2.8
Dry Edible Peas	110,240	2.0
Milk	80,105	1.5
Hay	71,907	1.3
Flaxseed	62,341	1.1
Hogs	50,642	0.9
Other Crops	32,414	0.6
Honey	28,594	0.5
Other Livestock	27,070	0.5
Lentils	24,850	0.4
Turkeys	22,488	0.4
Oats	10,244	0.2
Sheep & Lambs	6,331	0.1
Wool	406	0.0

*Excluding Government Payments
Source: Economic Research Service/USDA, 2007 data.

Photo courtesy of the North Dakota Soybean Council

Photo by Anastacia Hermes

Photo by Raina Saastad

What is an Acre?

An acre is a piece of land that measures 43,560 square feet, or 4,840 square yards or about 0.4 hectares.

The word acre comes from the Old English word æcer which meant a piece of land of an unspecified size. It is related to the Latin word ager (meaning field) from which we get the word agriculture.

In early medieval times, an acre was simply a piece of land that had been cleared for plowing or grazing. England's King Edward I standardized the size of an acre in 1305 by decreeing that it was 40 rods long and 3 rods wide. This was said to be the area that could be plowed by a yoke of oxen in one single day's work. There were regional variations in Scotland, Ireland and Yorkshire, where acres were much larger than the standard acre. A French acre was 6,108 square yards, while what is now Germany had many different versions of the measurement.

In 1958, the U.S. and British Commonwealth countries agreed on an international acre, although the U.S. continues to use the U.S. survey acre which is a tiny fraction larger than an international acre. The U.S. is one of the last countries in the world still using the acre in land measurement. Almost all other countries use the metric system's hectare.

Did you know?

- It takes a combine 9 seconds to harvest enough wheat to make 70 loaves of bread.
- A pig can run a 7-minute mile.
- An ear of corn contains approximately 600 kernels.
- More than 96 billion pounds of edible "surplus" food is thrown away in the United States each year.

Cash Receipts
North Dakota

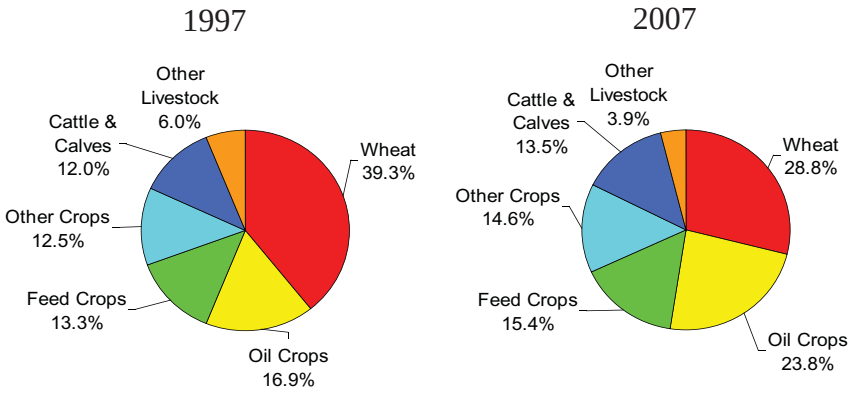


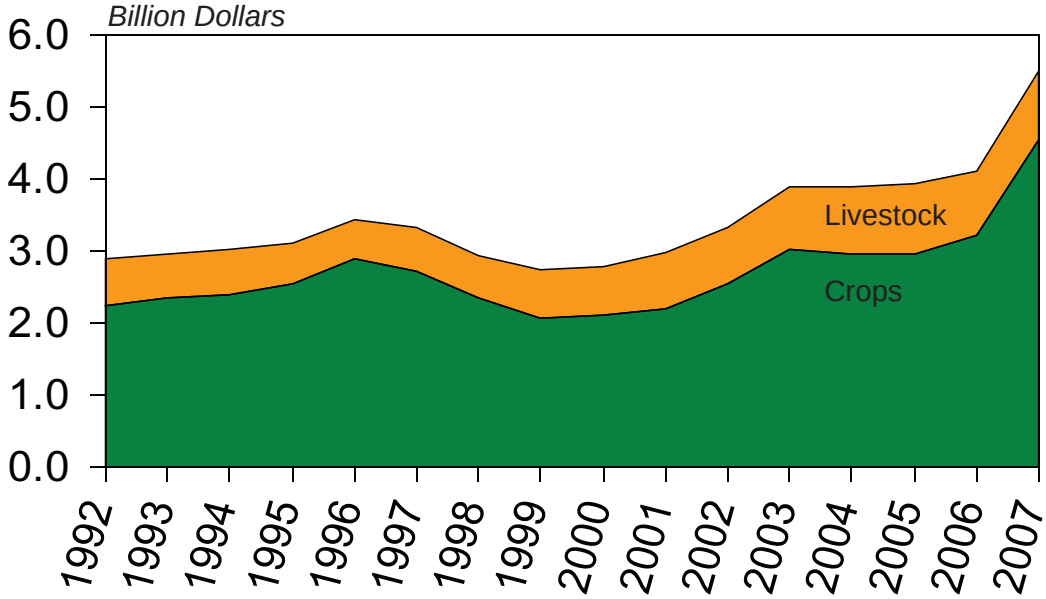
Photo by Lilah Krebs

North Dakota Leads the Nation in the Production of These Commodities

2008	Percent of the U.S.
First	
Flaxseed	96%
Canola	90%
Pinto Beans	65%
Dry Edible Peas	64%
Durum Wheat	50%
Navy Beans	46%
Spring Wheat	45%
All Sunflower	44%
Oil Sunflower	44%
Non-Oil Sunflower	42%
All Dry Edible Beans	39%
Barley	36%
Lentils	35%
Honey	22%

2008	Percent of the U.S.
Second	
Sugarbeets	19%
All Wheat	12%
Fourth	
Oats	7%
Fifth	
Potatoes	6%
Eleventh	
Alfalfa	3%
Soybeans	4%
Twelfth	
Corn for Grain	2%

Cash Receipts
North Dakota, 1992-2007



Quick Fact:

US farmers and ranchers receive only 19 cents of every dollar spent on food.

Did You Know?

North Dakota farmers and ranchers annually produce enough:

- Wheat for 15.5 billion loaves of bread.
- Soybeans to make 212 billion crayons.
- Potatoes for 171 million servings of french fries.
- Durum for 8.5 billion servings of spaghetti.
- Sunflowers to fill 726 million bags of sunflower seeds.
- Beef for 103 million hamburgers.
- Wool for 421,500 sweaters.
- Milk for 894 million glasses.
- Pork for 4.1 million pork chops.
- Corn to produce 770 million gallons of ethanol.
- Canola to fill the ND State Capitol tower more than 16 times.
- Sugarbeets to produce enough sugar to sweeten 27 billion gallons of Kool-Aid.
- Alfalfa to feed 529,000 cows for one year.

Photo courtesy of American Crystal Sugar

Photo by Lynsey Frey

Agriculture is an Important Part of Your Life

We use many products that are made from plant and animal by-products in our daily lives:

- **Healthcare:** pharmaceuticals, surgical sutures, ointments, latex gloves, x-ray film, gelatin for capsules and heart valves.
- **Personal care products:** shampoo, cosmetics, lotions, fingernail polish and toothpaste.
- **Construction:** lumber, paints, brushes, tar paper, dry wall and tool handles.
- **Transportation:** fuel, lubricants, antifreeze, tires and upholstery.
- **Manufacturing:** adhesives, solvents and detergents.
- **Printing:** paper, ink and film.
- **Education:** crayons, textbooks, chalk, desks, pencils and paper.
- **Sports:** uniforms, baseball bats, leather equipment and shoes.

Quick Fact:

Fifty cents of every food dollar is spent on food prepared outside the home.

Where Does Your Food Dollar Go?

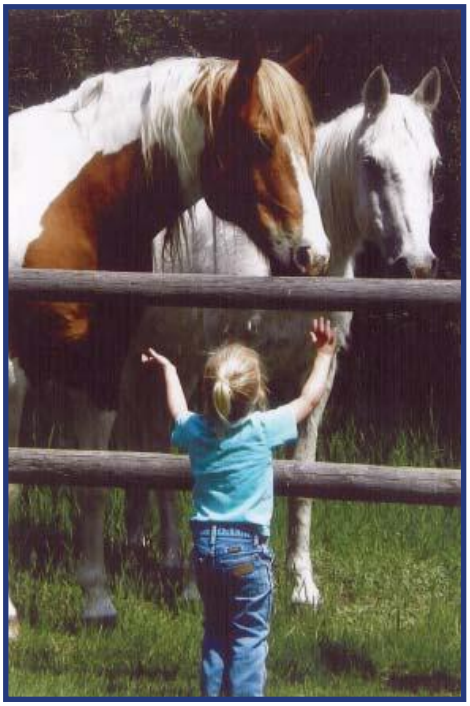
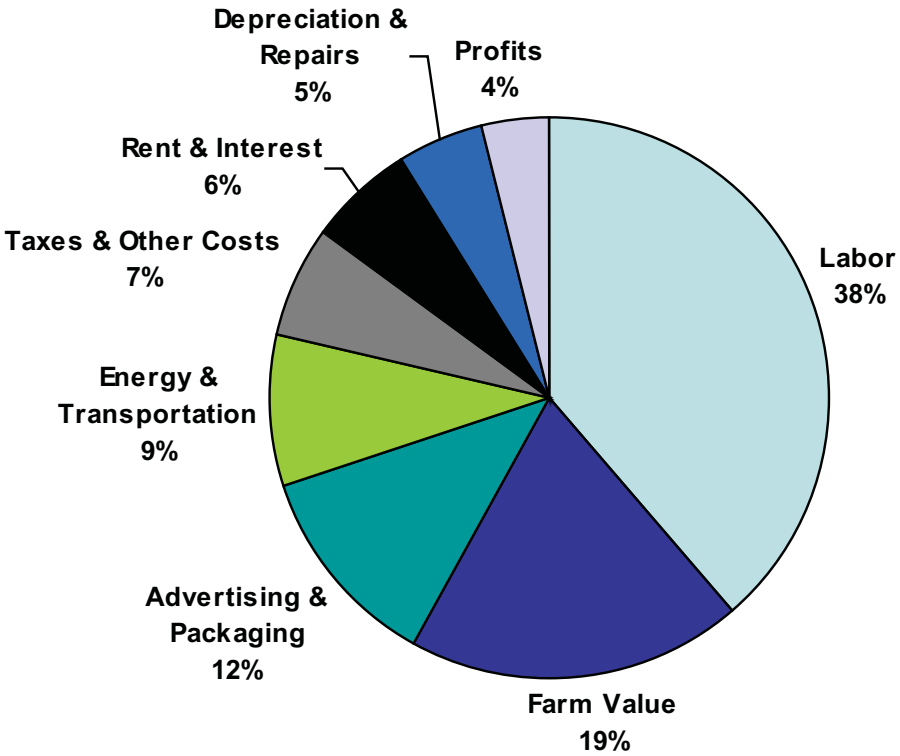


Photo by Darla Johnson



Source: Economic Research Service/USDA, 2005 data.

Photo by Donna Opoien

North Dakota's Top Agricultural Exports, FY 2007

Product	Value in Millions
1. Wheat and products	$1,030
2. Soybeans and products	$446
3. Feed grains and products	$311
4. Vegetables and preparations	$240
5. Other*	$217

*Category includes sunflower seed and oil, canola, flax and sugar

Quick Fact:

Nearly 90 percent of North Dakota's land area - 39.6 million acres - is in farms and ranches.

Top Producing Counties

Six North Dakota counties are the largest producers in the nation of the following products:

County	Products
Bottineau	Barley and Sunflower Seed
Cass	Soybeans
Cavalier	Canola
Divide	Dry Edible Peas
Grand Forks	Dry Edible Beans (excluding Limas)
Renville	Elk

North Dakota's Productive Landscape

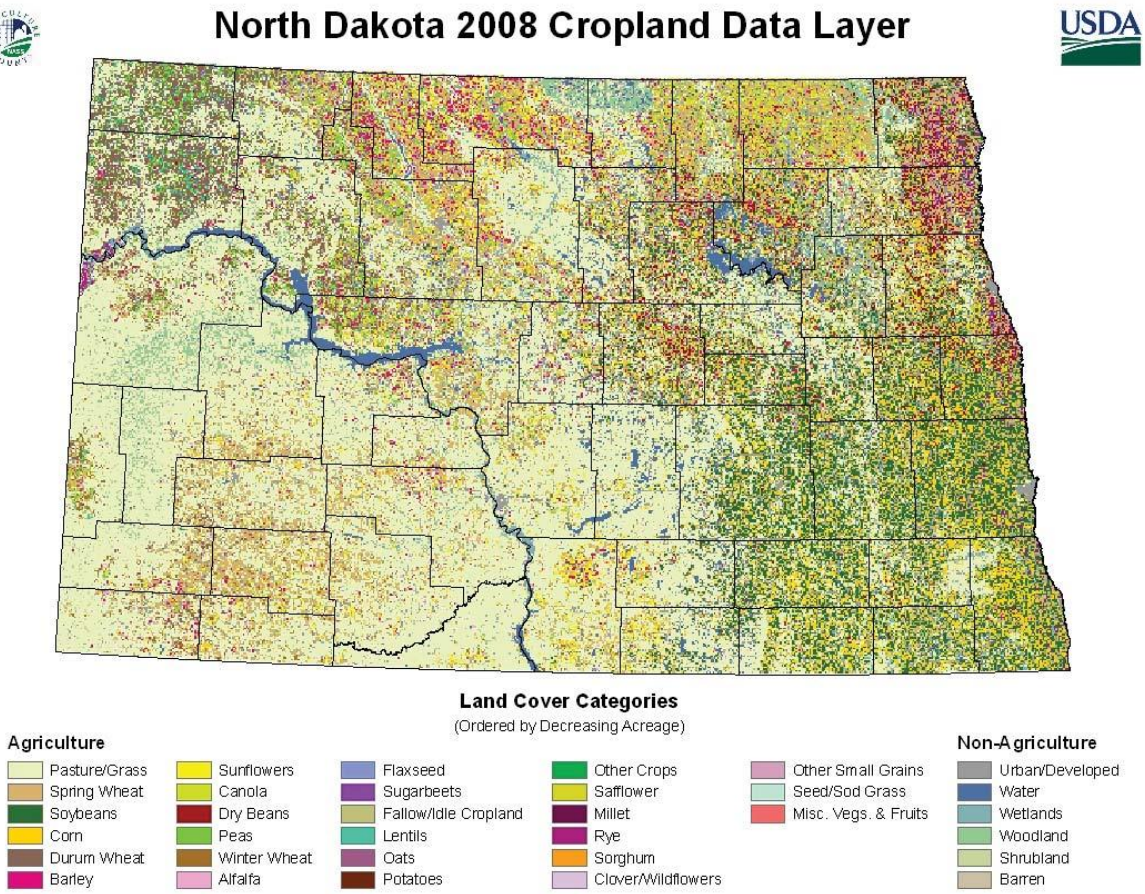


Photo by Duane Anderson

Renewable Energy and North Dakota Agriculture

North Dakota has a proud heritage as a generator and producer of many forms of energy. The development of renewable energy - including wind, biomass and biofuels - has been growing in recent years. North Dakota is now home to several biofuel production facilities, with more on the way.

Biodiesel is an alternative fuel produced from renewable resources like soybeans and canola. The biodiesel industy is beginning to take hold with a canola-based biodiesel facility at Velva capable of producting 85 million gallons per year.

Corn-based **ethanol** is also a growing industry in North Dakota. Ethanol plants in operation have a current production capacity of 243 million gallons of ethanol per year. New ethanol facilities currently under construction or in development will add more than 300 million gallons of production capacity per year.

North Dakota State University estimates that bioenergy production has the potential to generate $800 million in direct annual contributions to our state's economy. This calculation is based on production requirements of the federal Renewable Fuels Standard and on biomass production estimates calculated by the National Renewable Energy Laboratory.

A new generation of technologies and feedstocks may be on the horizon for the biofuels industry, and North Dakota has tremendous opportunities to capitalize on these developments.

North Dakota State University estimates that bioenergy production has the potential to generate $800 million in direct annual contributions to our state's economy.

Photo by Donna Opoien

Research is under way world-wide on the production of **cellulosic ethanol** from a variety of feedstocks. Cellulose (or lignocellulose) is a structural material in plant walls. Switchgrass and other perennial grasses, along with crop aftermath and forestry products, are some of the materials that are undergoing research for the production of ethanol.

A study conducted by Oak Ridge National Laboratory in Tennessee concluded that North Dakota ranks first in the nation in the potential to produce perennial energy crops. NDSU researchers estimate that the direct economic impact from a 50 million gallon biorefinery which converts wheat straw to ethanol would be $53.7 million.

The production process for biofuels yields more than just ethanol or biodiesel - it also yields **high quality co-products** (such as DDGs) that can be fed to livestock or converted to other products.

In the ethanol industry alone, North Dakota produces 437,000 tons of DDGs (dried distillers grains) annually. Projected DDG production from additional ethanol plants under consideration could reach 1.9 million tons per year.

Wind Energy and North Dakota Agriculture

- North Dakota's first wind farm, a 40-megawatt (MW) facility with 27 turbines, opened in 2003 near Edgeley.
- North Dakota leads the nation in utility scale wind resource development potential.
- North Dakota currently ranks 11th in nation in installed utility scale wind power.
- 714 MW of wind capacity has been installed in North Dakota with several more projects in the planning or construction phases.
- Nearly 500 wind towers have been erected in North Dakota, with major projects operating in seven North Dakota counties.
- Based on a study conducted by North Dakota State University, 1,000 MW of turbine capacity generates more than $2 million annually to landowners.
- North Dakota-based companies in Grand Forks and West Fargo manufacture wind turbine blades and wind towers. These businesses employ more than 1,200 people.
- Most of the turbines in newer and proposed wind farms in North Dakota are 1.5 to 2.3 MW. One of the largest, the 2.3-MW Siemens 93 has a rotor diameter of 93 meters (305 feet) – that's the width of a football field. The largest, most powerful wind turbine in the world is the German-manufactured Enercon E-126, rated at 6 MW. Mounted on a 650-foot tower, this turbine has a rotor diameter of 126 meters (413 feet).
- One of the world's largest wind farms with more than 1,300 wind towers generating a total of 2,000 MW is proposed for Ward, Burke and Mountrail counties in northwestern North Dakota. Currently, the 47,000-acre Horse Hollow Wind Energy Center in Texas is the world's largest wind farm with 421 turbines generating a total capacity of 735 MW.

Photo courtesy of North Dakota LIVING

Photo by Lilah Krebs

Carbon Sequestration

Agricultural carbon sequestration is the process through which agricultural and forestry practices remove carbon dioxide (CO2) from the atmosphere. Agricultural and forestry lands that absorb CO2 are also referred to as carbon "sinks." Agricultural and forestry practices can also release CO2 and other greenhouse gases into the atmosphere. Sequestration activities can help mitigate the levels of greenhouse gas emissions by enhancing carbon storage in trees and soils, preserving existing tree and soil carbon, and by reducing emissions of CO2, methane (CH4) and nitrous oxide (N2O).

North Dakota Farmers Union is an aggregator of carbon credits and developed a carbon credit program in North Dakota:

- North Dakota farmers and ranchers were paid approximately $2.6 million in 2008 for carbon storage.
- More than 1.5 million acres are enrolled in the carbon credit program. Most of the acreage – more than 80 percent – is enrolled as no-till acreage. The remaining acres are enrolled as seeded grass (including CRP), native rangeland and afforestation.
- Approximately 1,460 North Dakota producers are currently enrolled in the program, with an average of 1,130 acres enrolled.
- The NDFU carbon credit program has enrolled acreage in 52 of 53 counties in North Dakota.

Career Choices in Agriculture

Farm Production
Agribusiness Management and Marketing
Agricultural Research and Engineering
Food Science
Processing and Retailing
Banking
Education
Landscape Architecture
Urban Planning
Energy

Our Soils

Our soils range from thick black loam in the Red River Valley to more porous, sandy soils in the west.

North Dakota's motto is Liberty and Union, Now and Forever: One and Inseparable. The phrase "Strength from the Soil" appears on the state's coat of arms and on the governor's flag (both adopted in 1957).

The North Dakota State Soil is Williams. There are more than 2.2 million acres of Williams soils in North Dakota. The soil name comes from Williams County, which in turn was named for Erastus Williams, an important early figure in North Dakota history. The Williams series was recognized as an official soil series in 1900. Williams soils are among the most extensive and economically important soils in North Dakota. These soils are used to grow wheat, barley, oats, flax, and sunflowers and are also used as rangeland. Native vegetation includes western wheatgrass, blue grama, needle-and-thread, green needlegrass, and prairie junegrass. Natural fertility and the content of organic matter are high in these soils.

North Dakota farmers protect the soil by utilizing reduced-tillage and no-tillage farming and by planting shelterbelts.

Sponsored By

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