

Agriculture in Society

Agriculture is important in Iowa. Farms and fields cover the state. **Agriculture businesses** are found in small towns and big cities. They make and repair farm equipment. They sell supplies. They develop technology farmers use. They transport grain and livestock. They process grain and livestock into the food and fuel we buy. These businesses provide thousands of jobs. They fuel Iowa's economy.

Agriculture is an important part of Iowa's history too. The first people who settled here were farmers. They used Iowa's rich soil to grow crops and raise animals.

Agriculture is an important part of cultures around the world. In early days, humans relied on hunting and gathering to survive. Later people began growing food, developing new tools and techniques. They sold or traded what they grew. People shared resources and cities formed. Roads and railways were created to transport goods. Jobs were created because of agriculture.

Today, food, fiber and fuel are traded globally. Products often travel thousands of miles from where they were produced to where they are consumed. People around the world earn a living by raising and selling plants and animals.



AgriCULTURE

Did you know plants and animals influence how we live? Geography determines what will grow. What will grow determines what people eat.

As a result, people in Asia eat a lot of rice. People in Europe eat more bread and pasta. People living near the ocean eat a lot of fish. People inland eat more beef or pork.

Houses and clothes looked different too because of the materials available. Food, clothing and how people live is part of their culture. So...culture is influenced by its agriculture!

THINK & DISCUSS
What role does agriculture play in your community?



A Global Company with Iowa Roots

Henry A. Wallace knew that good corn farming required more than planting straight rows. Farmers needed seeds with good **genetics**, or traits. Good traits grow strong plants. Good traits produce big ears of corn. Wallace researched hybrid corn to increase **yield**. A **hybrid** is a cross of two plants with different traits. In 1926, he started the Hi-Bred Corn Company to sell this seed. Hybrid seed was a big advantage for farmers. They could grow more corn on their land.

The company **DuPont Pioneer**, remains true to Wallace's vision. Using cutting edge science, they develop improved seed to sell to farmers. For example, farmers can choose seed with traits that

make the plants resistant to diseases.

DuPont Pioneer is a global company. It operates in 90 countries. They have more than 175 research and production facilities around the world.

DuPont Pioneer's headquarters is in Johnston, Iowa. They provide seed to Iowa farmers and jobs to thousands of Iowans.

Today, DuPont Pioneer sells more than corn. They sell seeds to farmers around the world including:

- alfalfa
- canola
- cotton
- mustard
- millet
- rice
- sorghum
- soybeans
- sunflower
- wheat



Wallace: Photo courtesy of DuPont Pioneer

DIGGING DEEPER

Choose one crop sold by DuPont Pioneer. Where is it grown? How it is used?

DID YOU KNOW? Nearly all of the corn grown in Iowa is field corn. It is fed to livestock, made into fuel, and used to make food like cereal and chips.

A History of Agriculture in Iowa

Because of Iowa's rich soil, agriculture has been an important part of the state's history. For thousands of years many Native American tribes hunted, fished, and gathered food here. Some Native Americans began farming and growing corn, beans, and squash. These crops are known as the **Three Sisters**.



The Three Sisters

The Midwest is home to many **innovators** in agriculture. These people made important discoveries. They helped farmers develop new techniques. John Deere invented the moldboard plow to turn over the sticky prairie soil. George Washington Carver did important research on peanuts and soybeans. Henry A. Wallace studied **hybrid** corn. He founded a company to sell seed to farmers.

Norman Borlaug was another important Iowan working in agriculture. His research with wheat in Mexico and rice in India led to large increases in yields. He is credited with saving a billion lives and starting the **Green Revolution**.

Today, agriculture and farming are an important part of the Iowa economy. New advances in biotechnology and science help increase yields. Farmers are learning how to have less impact on the environment with no-till technology and precision agriculture.

Settlers first came to Iowa in the 1830s. They tilled up the rich prairie soil to plant their crops. The building of railroads brought many more settlers. John Stuart, Robert Stuart, and George Douglas realized the need to turn the crops into food. They founded the Quaker Oats company in Cedar Rapids, Iowa.

TODAY BIOTECHNOLOGY HELPS INCREASE YIELD AND PROTECT THE ENVIRONMENT

1980

Farm Crisis - many farmers face financial ruin

1960

Green Revolution

1930s

Great Depression - low farm prices

1926

Henry A. Wallace starts the Hi-Bred Corn Company

1914

WORLD WAR I - FARMERS PURCHASE LAND TO RAISE CORN, BEEF, AND PORK FOR THE WAR EFFORT

1900s

George Washington Carver attends Iowa State

A TIMELINE OF HISTORICAL AGRICULTURAL MOMENTS

NATIVE AMERICANS HUNTED, FISHED AND GATHERED FOOD.

1830s

Farmers first settle Iowa

1837

John Deere develops steel plow

1850s

Railroads brought many more settlers

1892

John Froelich invents gasoline powered tractor

1901

Jessie F Shambaugh starts after school clubs that become 4-H programs



Agriculture across the USA

We can get any food at any time simply by going to the grocery store. Do you ever wonder where the food you eat comes from? Why are different foods grown in different states?

Did you know corn is grown in all 50 states? Although almost 90% of corn is grown on farms in the Midwest. This map shows the most common places crops and livestock are raised. Just because you don't see corn in the Northeast or apples in the Midwest, doesn't mean you won't find them on farms there.

WHY IS THAT GROWN THERE?

What is grown in each state largely depends on the land and climate. High and low temperatures, growing season, and rainfall determine what crops farmers plant. Some crops like oranges and cotton grow best in warm climates. Others like blueberries and cranberries grow best where it is cooler. Mountain and desert areas can be used for raising livestock since crops do not grow well there.

Farmers also raise livestock in the same area where animal feed is grown. That is why Iowa is the number one pork and egg producing state! All of those pigs and chickens eat the corn and soybeans farmers grow here.

THINK & DISCUSS -
Could you grow rice in Montana? Could you grow oranges in Michigan? Why or why not?





A Gallon of Milk = \$3.60

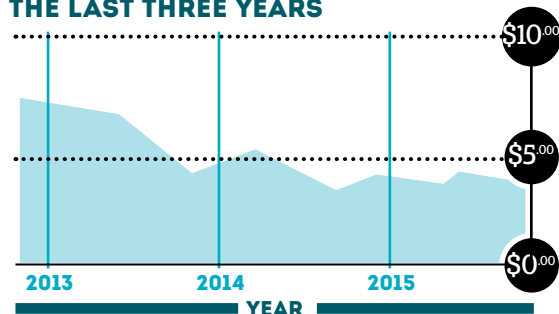


If you shop at a grocery store with your parents, you may notice that food might be different prices each time you go. How can a gallon of milk cost \$3.50 one week and \$3.60 the next? Prices tend to change based on **supply** of the product and consumer **demand**.

Iowa crops had very good weather in 2015. Because of good rainfall and warm summer days, corn and soybeans grew very well. This increase in the supply of corn led to a decrease in corn prices. In 2013, the price of corn was around \$7 per bushel. In 2015, the price of corn was around \$3.70 per bushel.

The supply of agriculture products affects the price we pay for those products. Consumer demand also affects price. When the new iPhone is released a lot of people want it. This high demand causes the price of the iPhone to be high. Wait a couple of years until everyone has the iPhone. The same phone will be sold for a lot less.

CORN PRICES PER BUSHEL IN THE LAST THREE YEARS



DIGGING DEEPER
Looking at the graph, can you tell in what year corn prices increased to \$5.00 per bushel? In what year did the price of corn fall the most?

CAREER CORNER:

As an agriculture economist, Dave Miller works with issues important to agriculture. Growing up he was interested in math and numbers. He now works with international and state trade policies. He looks at data and learns information from it. Students should consider agriculture economics for a career. He says, "There will always be a need to help the world understand agriculture."



Will the Bank Give Me a Loan?

Farming can be very expensive. Farmers need to be smart about how they spend money to make sure they can afford to continue farming. Sometimes farmers need to borrow money to pay for seeds, fertilizer, new equipment, livestock or new buildings.

Farmers need **credit** to be able to borrow money. A farmer with good credit repays loans on time. They can be trusted to repay future loans. **Lenders** provide money to farmers with the expectation that the farmer will pay them back. Lenders charge **interest** on loans which is a fee for using the money.

Loans can help expand farming operations. A new combine can cost \$350,000. That is more than a nice house! Building new structures or buying new land can also be expensive.

A farmer has to plant seeds in the spring of the year. But, the farmer won't get paid for the crop until after harvest in the fall. A farmer may have to borrow money for seeds, fertilizer, fuel, and chemicals. The farmer can repay the loan after they sell their crop.

CAREER CORNER:

Tom Venner is a financial officer for Farm Credit Services of America. He helps farmers find financial solutions to help grow their operations. For

students interested in a career in agriculture business, he said there is a bright future. He says, "Agriculture will always be a part of our economy."



THINK & DISCUSS: If a farmer buys a combine for \$350,000 and has to pay 10% of the loan back every year, how much would they pay the first year?

Working Together Makes Sense

People in agriculture have a history of working together toward a common goal. A **cooperative** is a farm or business that is run jointly by its members. Buying a new combine might be too expensive for one farmer to do. But if three farmers partner together to buy the combine they can all use it.

Farmers might also create a cooperative to sell their corn and soybeans. If several farmers work together they can sometimes sell their grain for a better price. They all benefit from receiving better prices.

Farmers may also create a cooperative bank to lend money to other farmers. This type of business can help provide loans to farmers so they have the money to buy machinery or inputs.



Three Iowans Who

Made a Difference

THINK & DISCUSS
 Is there a person in your life who influenced you?
 How do you make a difference to others?

Iowa has had many great innovators... maybe you'll be next!



Carver: Photo courtesy of the State Historical Society of Iowa, Des Moines

George Washington Carver was a very smart scientist. He was a student and teacher at Iowa State University. Carver found many uses for peanuts and soybeans. His research changed how farmers grow crops. He told cotton farmers they should plant peanuts every other year. This made soil better.

It also helped the cotton crops. Today, farmers plant corn one year and soybeans the next year thanks to Carver.

While at Iowa State, George Washington Carver would take long walks to study plants. Sometimes a young boy named Henry would join him. Although George was a college student and Henry was only six, they became great friends. George's love of plants and science rubbed off on Henry. By the time he was 11, he began doing experiments with corn. Henry's interest in corn grew.

As an adult **Henry A. Wallace** did research to increase corn yields. In 1926, he founded the first hybrid seed corn company. This company is now DuPont Pioneer. Wallace went on to become Secretary of Agriculture and Vice President of the United States.



Wallace: Photo courtesy of DuPont Pioneer

As Vice President he wanted to help people around the world grow more food. He worked to create research stations in other countries. He hired a young scientist from Iowa to work at a station in Mexico. This scientist was **Norman Borlaug**.



Borlaug: Photo courtesy of the World Food Prize

Twenty years later, corn production in Mexico had doubled. Wheat production increased by five times. Borlaug won the Nobel Peace Prize for his work on wheat. The work of Borlaug helped prevent worldwide **famine**.

DIGGING DEEPER

Carver, Wallace and Borlaug are just a few of Iowa's agriculture innovators. Do you know what made these other Iowan's famous?

- Jesse Hiatt
- Jessie Field Shambaugh

- John Kinzenbaw
- Ada Hayden
- Griffith Buck
- Mary Garst
- John Froelich

Millions of lives were saved thanks to Norman Borlaug... and Henry Wallace... and George Washington Carver.

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