IOWA ag TODAY

CULTURE & SOCIETY

YOU CAN'T LIVE WITHOUT IT!

Agriculture is everywhere! Not just in Iowa's countryside, but in our homes and schools, too. Look around. Nearly everything you see was made from a plant or animal raised on a farm. The food we eat, the clothes we wear, the products we use, and some of the fuel that powers our vehicles come from agriculture.

Agriculture fuels our economy! Food, fiber, and fuel are traded globally. Products often travel thousands of miles from where they are produced to where they are consumed. Crops and livestock grown in Iowa are sent around the world. Likewise, Iowans utilize agriculture products grown in other states and countries too. Our grocery stores would be sparse without products like fruit, sugar, tea, spices, coffee, and rice imported from other places. People around the world earn a living by producing, transporting, marketing, and processing agriculture products.

Agriculture is an important part of history! Not just in Iowa, but in societies around the world, agriculture shapes history. Humans first relied on hunting and gathering to survive. Later, people began growing food for their families. These subsistence farmers developed new tools and techniques that enabled them to grow more. Soon they began trading or selling what they grew. Towns and cities formed. Roads and railways were created to transport goods farther.

Agriculture is an important part of a sustainable future! The world's population is expected to reach 9 billion by the year 2050. To feed this growing population, we will need to grow 60% more food than we do today with limited resources.

Science and technology is already enabling farmers to grow more food with less land and water. But, there is always room for improvement. Scientists, engineers, and farmers are all working to make modern agriculture even better so we can sustainably feed the world.

ag·ri·cul·ture \a-gri-kəl-chər\ n : The business, science and practice of cultivating the land, producing crops, and raising livestock to be used as food, fuel, clothing, shelter, and other non-food products.

THINK AND DISCUSS

Make a list of things that you've needed today that came from agriculture. Be sure to include examples of food, fiber, fuel, and other non-food products.

Process This

Have you ever heard of processed food? Processed means that the food has been altered in some way. This is done to make the food taste better, last longer, or to be easier to digest.

One of the first ways humans processed food was to cook it. Not only does this make foods easier to digest, but we now know that cooking meats to specific temperatures can also protect us from foodborne illnesses. Humans have also long been drying and salting meats to preserve them.

About 7,000 years ago, humans began processing milk into cheese, yogurt, and butter. Milk would spoil sooner than these foods, and was also harder to digest. When you think that ice boxes (the refrigerator's predecessor) weren't available until the 1800s, our early ancestors had to be clever in how to modify their foods to withstand longer periods of time.

Now think about what you eat today. For breakfast, you might have instant oatmeal and a glass of milk. The oats were cleaned, steamed, rolled, roasted, and packaged in a factory before being shipped to a grocery store. The milk was refrigerated immediately after being harvested from the cow, and pasteurized to kill harmful bacteria. It was also processed for butterfat percentage to get skim, 2%, and whole milk. The milk was homogenized and fortified with vitamins like vitamin D, before being bottled and shipped to the store.

For lunch, you might have baby cut carrots, that were washed, trimmed, and packaged. You might also have chips. They were once whole potatoes that were washed, cut, fried, and given extra flavoring and preservatives before being packaged. This could go well with a sandwich, with milled wheat flour for the bread. On that, you could have cooked, cured, preserved, and refrigerated meats. You may add pasteurized, inoculated, heated, brined, and aged cheese. You'll likely have some washed and refrigerated vegetables or some expertly flavored condiments on your sandwich, too!

Because of the science of preserving food, we can distribute food great distances. In the 1800s, beef demand was high across the country. This was also when refrigeration was hitting its stride. With the help of railroads, the cool, safe beef could travel hundreds of miles from farm to consumer. Today, this means that we can export American grown food worldwide, and import foods to enjoy year-round.

THINK AND DISCUSS **Think about different foods you like to eat, and brainstorm the processes the original products went through before it got to you. What were the purposes of those processes? Were they necessary?**

FARMING THEN & NOW

THINK & DISCUSS.
In the 1930's one farmer produced enough agricultural products to feed about four people. By 1960 that increased to 26. Today's farmer feeds about 168 people. What other advances in technology have allowed farmers to grow more? How did this affect jobs and where people live?

100 Years Ago

50 Years Ago

Today

The telephones and cars around when your grandparents were your age are a lot different than the ones we use today. Imagine how different transportation and communication was when their grandparents were kids. Farming has changed a lot too.

100 years ago

When your great-great grandparents were your age, a typical Iowa farm looked like those we see in children's books. Farms usually had a few cows, chickens, and some pigs. Most grew corn, hay, and oats, and had a large garden too. The farm provided nearly everything the family ate. Some grain and livestock were sold to buy other necessities and upgrade buildings and farm equipment. Some farms had tractors, but they were not commonplace yet.

During World War I, the demand for farm products soared. Farmers enjoyed good overseas markets. The U.S. government guaranteed prices for farm products to supply the army. Farmers planted more acres and expanded their herds. These good times for farmers ended in the 1920's. Iowa farmers experienced a recession after the government ended the guarantees. Prices for crops and land fell. This signaled the beginning of the Great Depression in Iowa.

50 years ago

At first glance, farms when your grandparents were your age were similar to farms today. Most Iowa farmers grew corn and soybeans and raised pigs, cattle, or poultry. They used tractors, planters, and combines, but they were much smaller than those used today. Tractors with cabs were a luxury to farmers in the 1960's.

Farmers focused on growing better crops and livestock. Instead of saving seed from year to year, they purchased hybrid seed corn. Improved genetics resulted in more consistency and higher yields. The same is true with livestock.

Today

Farms today are specialized and high-tech. Farmers use tablets, laptops, drones, and more. If farmers raise livestock, they usually raise one type. This enables them to acquire the facilities, technology, knowledge and skills needed to produce it, and produce it well. Many livestock barns have Wi-Fi and automated feed and climate control systems. Farmers can monitor a cow in labor or adjust the temperature in a barn from their smart phones. If the power goes out, back-up generators start and the farmer is alerted with a text. This technology enables farmers to be efficient and better care for their animals.

DID YOU KNOW?
The first gasoline powered tractor was made in Iowa! It was invented by John Froehlich in 1892.

CAREER CORNER

1 IN EVERY 5 JOBS IN IOWA IS IN AGRICULTURE. MAYBE YOU COULD HELP FEED AND FUEL AMERICA WITH A CAREER IN AGRICULTURE!

Rita Hart

As a state senator, Rita spends half of her time at home and half in Des Moines at the Capitol. She kicks off the morning by checking her email answering citizens' questions or meeting with them in person. She spends time with other state senators and discusses the laws and legislations that are being put into action. She also does a lot of committee work before ending her day reading the latest news issues for the state.

When working from home, she focuses more of her time listening and meeting with citizens from her district.

"People who live in the state are affected by the laws that we pass in the state legislator," she said. "What we do directly impacts others."

The laws and regulations that the government puts in place directly impact agriculture. For Rita, agriculture is an important subject because it's at the heart of Iowa's economy.

David Geiger

A great way to find out what is happening locally and globally is through the news. That is David Geiger's job. David is an agriculture journalist and does the agribusiness report for WHO-TV and KCRG-TV. Each day on the noon news show, David will air a live three-and-a-half-minute agriculture report. In these reports, he covers many topics like agricultural markets, local and national agriculture stories, and interviews many different people in the agriculture industry.

After he writes the script, he will go through a few practice runs. Then, he goes in front of the camera to capture the story. Not only is he the news anchor of his show, but he is also the director, script writer, digital editor and so much more. David does not come from an agriculture background. Everything he knows about the industry, he learned on set.

"As a journalist, I can ask all the questions I want. And all the farmers I have interviewed are really smart. Some have engineering degrees and a lot of education, so I have been able to learn a lot from them."

Mikayla Sullivan

Startups are created because someone sees a problem and so they set out on a journey to solve the problem. By the year 2050, the world population will reach 9 billion people. How can we feed an additional 2 billion people? This is the question that faced Mikayla Sullivan and her teammates. This led to a business and a potential solution to help end world hunger. Mikayla and her teammates focus their attention on the food that is being wasted. Up to a third of all the food on Earth is wasted every year. Mikayla's business, KinoSol, is a start-up company aimed at reducing food waste.

By using the dehydration process in underdeveloped countries, families can preserve their food longer. Mikayla and her team came up with this idea in college. Now each teammate has a different job to make the business succeed.

"There is not a typical day. That's kind of the cool thing about a startup company," she said. "Sometimes I am traveling around the world to test out our product in different locations or meeting with people in certain countries. I can never get bored, and I love it."

Jon Kinzenbaw

As a kid, Jon Kinzenbaw kept himself busy. "I did not enjoy peddling a bike or riding a horse for fun. I spent my time fixing and building things, like building my own go-cart. I did this through the skill of welding," he said.

Jon worked for an implement dealer and did mechanic work directly after high school. Soon, he realized he did not want to work for somebody else. He wanted to become the boss of his own business. Starting out with a bank loan and $25 in his pocket, he opened his own welding shop at the age of 21 building his own business.

Jon listened to his customers, friends, and neighbors and figured out solutions to their machinery issues. His innovation led to creating and designing different implements for farmers to use.

"It's all about the people, the relationships fostered with others, and the trust that was built that has made my story and my business so successful," he said.

From plows and grain carts, to the first rear fold planter, Jon's inventions are used throughout the agriculture industry. Jon's company, Kinze, has been operating for over 50 years.

Jon's best advice for students is, "Learn all you can about a particular trade or industry. Pick something early on to master, stick with it, and excel at it."

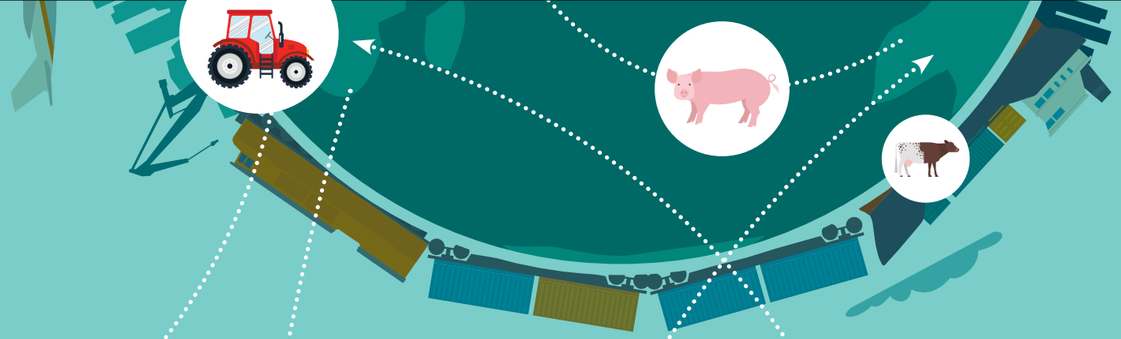
Jason Demaray

Jason Demaray is a Retail Commercial Lender with a specialization in the swine industry for Farm Credit Services of America. In this position, Jason works with customers to figure out what type of loan FCS can lend to their operation. Jason spends his days traveling around four different states visiting customers' farms.

"We believe that the on-farm service is a great model to follow. It's convenient for the farmer because they do not have to leave the farm, and it allows me to understand their operation better and help them figure out the best loan options," he said.

Jason's best advice for someone looking at careers is, "Hard work and a positive attitude will take you a long way. Opportunities and jobs in agriculture are endless. It can be learned but the most successful people, regardless the industry, are the ones who are passionate and willing to work and learn."

JON'S BEST ADVICE FOR STUDENTS IS, "LEARN ALL YOU CAN ABOUT A PARTICULAR TRADE OR INDUSTRY. PICK SOMETHING EARLY ON TO MASTER, STICK WITH IT, AND EXCEL AT IT."



TRADE YOU!

Think back quickly to what you know about early explorers and conquerors. What was their purpose for discovering new lands, or acquiring others? Well, basically it was stuff. Stuff and money.

Ancient Vikings took to the seas to find neighboring lands with of goods of value. Trade routes in China and Eastern Europe allowed for people to trade goods, like silk. The East India Company transported a lot of goods. When Christopher Columbus landed in North America, he was just looking for an easier way to get to India and trade for spices and cotton.

Today, a lot of pork is grown in Iowa. In fact, Iowa produces more pork than any other state in the U.S.! But Iowans still like to eat things that aren't pork. So, we can sell or **export** our pigs and pork products, and use that money to buy or **import** other things, like pineapple or almonds.

Trade makes a lot of sense. Iowa can't grow pineapples or almonds because it doesn't have the right climate. Iowa's rich soil give it an advantage in growing corn and soybeans. Corn and soybeans are then fed to pigs. The environment in Iowa (temperature, rain, soil, etc.) determines what kinds of plants can be grown and what kinds of animals can be raised.

Trade helps both the importer and the exporter. Land that is good for growing pineapple might not be the best place to raise pigs. Farmers in the tropics can get pork through trade and specialize on growing pineapple.

Governments understood early on that trade means their people benefit financially. Instead of each family **subsistence farming** to only feed themselves, people can specialize. Specialization gives people a job with an income. With this income, they can buy things they need and things that improve their quality of life.

Countries like the U.S., Canada, and Mexico trade with each other and with countries around the world. Sometimes countries that trade a lot will create **trade agreements,** like the North American Free Trade Agreement. These agreements can make it easier to trade goods across the participating countries' borders by lowering costs for the importer and raising profits for the exporter.

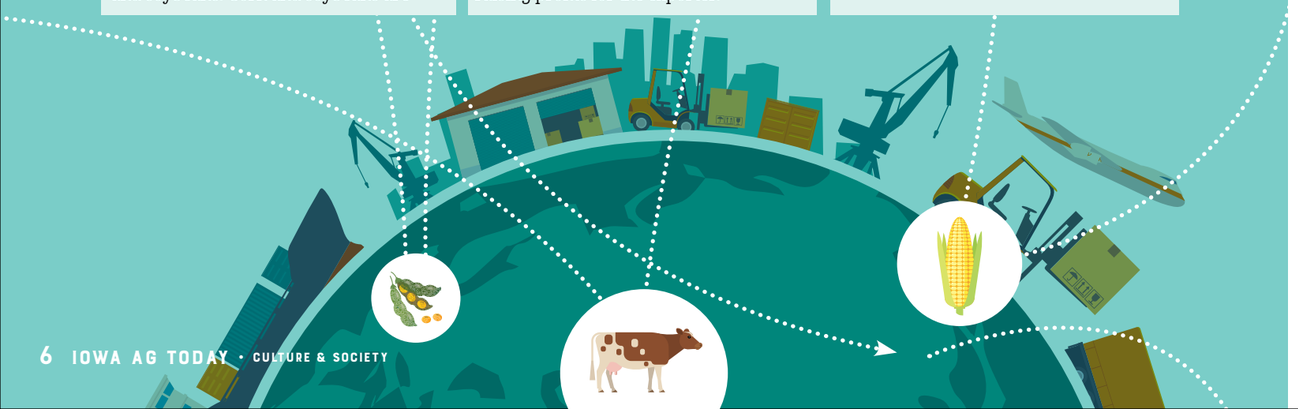
SO WHAT ARE IOWA'S TOP EXPORTS AND EXPORTING COUNTRIES? LET'S TAKE A LOOK.

Iowa's Top Exports:

Corn	$1.176 billion
Tractors	$633 million
Pork (fresh)	$454 million
Herbicides	$365 million
Soybean by-products	$342 million
Brewing by-products	$326 million
Pork (frozen)	$321 million
Civilian aircraft, engines, and parts	$262 million
Soybeans	$254 million
Aluminum alloy plates	$209 million

Top Countries Iowa Exports to:

Canada	$3.369 billion
Mexico	$2.279 billion
Japan	$1.103 billion
China	$491 million
Germany	$432 million
Australia	$295 million
France	$276 million
South Korea	$267 million
Brazil	$252 million
United Kingdom	$243 million



THINK & DISCUSS. **Why might a farmer or a farm family chose to incorporate their farm into a business?**

WHAT IS A FAMILY FARM?

Ninety-seven percent of farms are family owned. According to the United States Department of Agriculture, **family-owned** farms remain the backbone of the agriculture industry. In fact, there are more than 2.1 million farms in the United States that are family owned and operated.

Family farms might include several members of a family. However, farms are still a business. Families can reduce financial risk by structuring the farm as a business. Different types of businesses include partnerships, limited liability company (LLC), S-Corp, or a C-Corp. Some farmers are self-employed, too. Setting a farm up as a business can **diversify risk.** A drought could cause a farm to lose all its crops. Being set up as a corporation gives them more financial flexibility. Self-employed farmers also pay different amounts of taxes than corporations do. Farm corporations could still be small, and might only include a mom, a dad, and one or two others.

Farms have gotten bigger over the last 100 years. Farming used to be more **labor intensive.** Small, diversified farms have changed into large, specialized farms. Diversified farms would raise a little bit of everything like Old MacDonald's farm. Specialized farms today might raise only one or two crops like corn or soybeans. They will likely only raise one type of animal, like pigs.

Farmers might partially own other businesses too. When several farmers join together to form a business it is called a **cooperative** or co-op. Co-ops can sell seed, animal feed, fertilizer, chemicals, or a variety of other products. They can provide important services, too, like **crop scouting,** soil testing, or custom spraying. This can help farmers keep a stable supply of what they need. They can ensure fair prices as well.

Farmers can sell their crops to **grain elevators** and sell their livestock to **packing plants.** These can be cooperatives as well. A farmer can own shares in a grain elevator, a seed supply business, and the farm where the crop was grown. When a farmer owns shares in several businesses like this it is called **vertical integration.**

DID YOU KNOW?
80% of U.S. farms are small family farms. Small family farms have cash sales of up to $350,000 annually.

Could you be a future farmer?
YES! 18% of farmers started farming within the last 10 years.

AMERICAN AGRICULTURE!

From sea to shining sea, agriculture is the backbone of this country. Blueberries from Maine, cotton from Texas, and soybeans from Illinois, all provide value to feed, clothe, and fuel our country.

Iowa is the top producing state of corn, soybeans, pigs, and eggs. Iowa also produces a lot of beef and other **commodities.** Agricultural products sold in Iowa bring in about $31 billion annually. Only California sells more agricultural goods than Iowa.

One in five Iowans works in agriculture. Agriculture is not only farming. People who work in agriculture might research new plant varieties, engineer tractors, or work in food processing. There are more than 300 careers, and about 60,000 U.S. job openings each year in agriculture.

The rich, fertile soils of Iowa drew settlers to the state in the mid-1800s. These early grain farmers needed markets to sell their crops. Brothers John and Robert Stuart founded the Quaker Oats company in Cedar Rapids to buy local **cereal grains** and turn them into a variety of products for people on the east coast. Railroads were also built to send cattle from the grasslands to the **slaughterhouses** of Chicago. With these businesses, railroads, and jobs came more people.

Iowa agriculture has made an impact globally as well. A **typhoon** that hit Japan in 1959 killed a lot of livestock. Iowa flew 35 pigs to Japan to help repopulate their herds. Many of the pigs in Japan today have **lineage** that can be traced back to Iowa. These good relationships means that Iowa has trading partners to buy the products we grow. High demand for these products ensures good prices for farmers.

This history of being a leader in agricultural production carries a weight of **stewardship.** Farmers need and want to have high quality soil to grow their crops. Farmers practice new techniques like **cover crops** and **no-till farming** to ensure soil health. Manure from livestock is returned to the fields where it can add nutrients and build organic matter.

THINK & DISCUSS.
Why is it important for Iowa to have good relationships with other states and countries?

DID YOU KNOW?
There are approximately 30.5 million acres in Iowa used for growing crops and raising livestock.

THINK & DISCUSS.
How do farmers care for soil and water and return value to the land?

CAREER CORNER
How many careers in agriculture can you name? Challenge your friends to see who can name the most!

Iowa Agriculture Today is a publication of the Iowa Agriculture Literacy Foundation. Special thanks to Farm Credit Services of America in part for making this issue possible. Thanks also to the following organizations for their continued support: Iowa Corn Growers Association, Iowa Farm Bureau, Iowa Pork Producers Association, Silos and Smokestacks National Heritage Area, HogSlat, Ag Ventures Alliance, the Iowa Beef Industry Council, GROWMARK, and DuPont Pioneer.

To learn more or access an electronic version of this publication, visit us at www.iowaagliteracy.org.
Or contact us at Iowa Agriculture Literacy Foundation, 5400 University Ave., West Des Moines, 50266.