

IOWA

ag TODAY

Exploring the Connection between Agriculture and You!

ialf Iowa Agriculture Literacy Foundation

ISSUE 1

Agriculture is Everywhere

When you woke up this morning, you had your first encounter with agriculture. Your sheets and pajamas were probably made with the fibers from cotton plants.

Did you wash or shower with soap? That soap is made from fat from cattle and oil from plants such as palm, corn and soybeans.

Did you have cereal, eggs, milk, bacon, pancakes, buttered toast or juice for breakfast? Thank agriculture again!

Did you pack a lunch in a paper bag, or finish your math by writing on paper? That paper comes from another agricultural crop — trees. Corn and soybean by-products may go into the ink in your books.

Did you ride to school today? The bus or car you rode to school likely ran on biodiesel made from soybeans or ethanol made from corn, and its tires are made from the rubber plant. Did you pass a city park, a golf course, an orchard or nursery? Did you see a windbreak or a sod farm? All of these are agriculture too.



HOW DOES EACH OF THESE PHOTOS SHOW A CONNECTION TO AGRICULTURE?

CAN YOU LIVE A DAY WITHOUT AGRICULTURE? THERE'S JUST NO WAY!

— WHAT IS — Agriculture?

The business, science and practices of growing and selling plants and animals to be used for food, fiber and fuel.

- **FOOD** comes from plants and animals.
- **FIBER** is the raw material from plants and animals that we use to make cloth, clothing, rope and more. Fiber can be made from cotton, wood, wool, and even soybeans!
- **FUEL** can be made from crops like corn, soybeans, and sugarcane. Fuels made from plants grown on farms are called **BIOFUELS**.





Celebrating our Natural Resources

CARE for the Water

How do you like taking a shower in the same water molecules the dinosaurs waded in?

It's true! Much of the water we use today is the same water that has been recycled for millions of years since the earth was formed.

The earth recycles the same water over and over. This process is the **water cycle**. Water changes forms—from solid to liquid to gas—over and over again.

If all the world's water could fit into a gallon jug, only a single drop would be fresh and usable for human needs. The amount of fresh water isn't all we care about. We want the water we drink and use to taste good, smell good and look good. We want it to be safe.

The earth recycles one trillion tons of water every day. A gallon of water weighs 8 pounds. How many gallons are in just one ton (2,000 lbs.)?

The federal law helps protect our nation's waters. Rules reduce pollution in lakes, rivers, streams or groundwater. Farmers work to prevent nutrients and soil particles from entering the water supply. By creating **terraces** and planting **buffer strips** they slow down water. This reduces erosion and pollution.

CARE for the Soil

Soil is amazing!

Soil holds roots in the ground so plants don't fall over.

Soil holds water so roots can absorb moisture.

Soil holds minerals and nutrients that plants use for food.

Soil is home to other living things helpful to plants.

The soil beneath our feet is important too! Whose responsibility is it to care for the soil? Farmers have a big role to play. But each of us must also help. These soil care tips are things we can all do:

- Cover bare soil with new plants or mulch so soil won't wash or blow away.
- Stay on sidewalks and trails. What happens when people don't?

How can you help protect the soil?





Made in Iowa

Many companies across Iowa process raw agriculture products into foods we love! These businesses provide jobs and enhance the economy of their communities.

This map showcases where some of the foods we enjoy are made. The towns highlighted are home to at least one company known for making the featured products. The foods we love are made in many other parts of the state too!



- Le Mars
- Sioux City



- Ames
- Des Moines



- Dubuque
- Cedar Rapids
- Muscatine



- Mt. Pleasant



DIGGING DEEPER

What company is located in each of the cities highlighted on the map? Take a poll of adults you know and conduct internet research to find out who is right.



Iowa's Powerhouse Crops

Take a ride across Iowa and you will see corn and soybean fields from one side of the state to the other. Crops thrive here thanks to our state's soil and climate. Most of our crops are used as food for animals or people.

Animals are a huge part of Iowa's agriculture landscape too! Our livestock thrives because our state is the perfect place to grow the food (corn and soybeans) they need. Some of them like cattle also graze on grass in the summer or hay in the winter.

CORN grown in Iowa is fed to livestock, made into ethanol, and used to make foods like cereal, corn chips, and cornbread. But this corn is different from the type of sweetcorn we buy at the grocery store whole, frozen, or canned. Nearly all of the corn Iowa farmers grow is **field corn**, sometimes called dent corn or commercial corn. This corn is also used to make biodegradable plastic, packing peanuts, and carpet. And that's just the beginning. There are over 4,200 uses for corn and more are being discovered every day!



PIGS are sometimes called hogs or swine. The meat from pigs is called pork. If you had bacon, sausage, or ham for breakfast, it is likely that it came from a pig raised on an Iowa farm. Nearly one-third of the nation's pigs are raised in Iowa. Corn and soybeans are important ingredients in a pig's diet. This is one of the reasons why there are many farmers who raise pigs and grow corn and soybeans too!

SOYBEANS are **legumes**, members of a plant family that includes other beans, peas and lentils. Soybeans are grown across Iowa. They are used to make animal feed, biodiesel, and hundreds of items found at the grocery store. Soybeans are the only ingredient in vegetable oil. You are also likely to find soybean ingredients in salad dressing, noodles, and even chewing gum. Crayons, candles, and newspaper ink can be made from soybeans too!



CATTLE are raised in all of Iowa's 99 counties. Iowa farmers raise two types of cattle - beef and dairy.

BEEF CATTLE are raised for meat and have more muscular bodies. They turn the plants and grain they eat into meat we call beef.



DAIRY CATTLE use the plants and food they eat and turn it into milk. Only female cattle, called **cows**, produce milk. Milk from dairy cattle is made into products like cheese, yogurt, ice cream, and butter. While dairy cattle are used for beef too, producing milk is their main purpose.

THINK & DISCUSS - Billions of people around the globe depend on animals for food, clothing, and shelter. What have you eaten or used today that came from plants and animals?

& Livestock

Did You Know?
Iowa farmers raise more corn, soybeans, pork, and eggs than farmers in any other state!

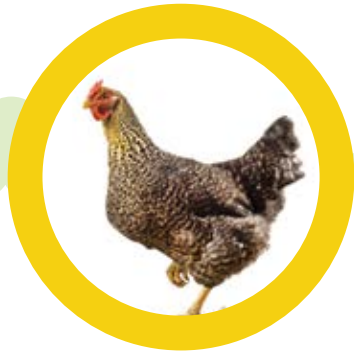
TURKEYS are the only major meat animal native to North America. Turkeys raised on farms today have white feathers, not brown like wild turkeys. The turkey on your thanksgiving table is likely a **hen** (female turkey). Nearly all turkeys raised in Iowa are **toms** (male turkeys). Their meat is enjoyed year-round as deli meat, ground turkey, and other tasty turkey products.



CHICKENS are raised for meat and eggs. Farmers raise two types of chickens, **laying hens** and **broilers**.

LAYING HENS are female chickens bred and raised for laying eggs. A hen can lay an egg every 24 to 26 hours - or about five or six eggs a week. Iowa is the top egg producing state. Almost one out of every five eggs in the United States is from an Iowa farm.

BROILERS are **rooster** or **hen** chickens bred and raised for meat. Broilers grow to between 6 and 8 pounds before they are harvested.



A TALE OF TWO KINGDOMS

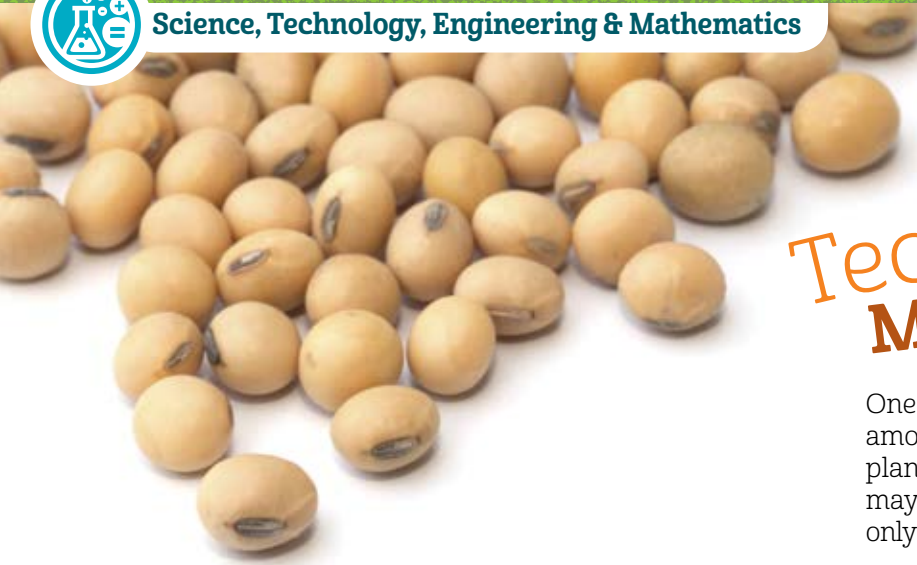
PLANTS

Plants are important because they can make their own food. They are also the source of food for other living things. We eat plants - roots, leaves, stems, flowers, and fruits. The animals we eat also eat plants! Plants become our medicines, clothing, paper products, spices, and building materials. We use plants for fuel too. That includes biofuels and wood, as well as the fossil fuels (coal, petroleum, natural gas) that came from plants a long time ago. Finally, we depend on plants for the oxygen we breathe. Without plants we would not survive.

ANIMALS

Only about one-fifth of the land in the United States is suitable for growing crops. The rest has poor soil, receives too little rainfall, or is too rough or rocky for farm machines to cross. Livestock can often graze in these areas. Animals, such as cattle, can also eat byproducts from making ethanol, cereals, and sweeteners. They turn these "leftovers" into eggs, milk, and meat that give us protein. Animals also produce the wool and leather we use for clothes, shoes, and baseball gloves. Animal fats are used to make soaps, cosmetics, paints, and much more. Thanks to animals we have better lives.





Technology: Mechanics and GPS



One way farmers can improve is by reducing the amount of fertilizers they use. Fertilizers help plants grow. They are expensive and too much may harm the environment. Applying fertilizer only where it is needed can reduce the amount used.

Farmers test the soil and know exactly how much fertilizer is needed. Farmers use **Global Positioning Systems** (GPS) to know where in the field they have applied fertilizer. More can be put on poor soil. Less on good soil. A computer in the tractor can automatically change the amounts. This is called **precision agriculture**. Precision agriculture reduces the amount of fuel used driving the tractor too! And, sometimes the farmer doesn't even steer the tractor. The computer can do it automatically!

Seed Science

For thousands of years farmers have been trying to make better seeds. They want to grow plants that use less water, produce more seeds, and resist disease. Scientists study plants to learn what traits are passed from parent to young. Through **biotechnology** high quality seeds have been developed. Biotechnology is the science of changing the genetic makeup of a plant or animal.

Supplying the best seeds to farmers starts in a lab. The best ones are then tested in the field. These plants are tested with cold, heat, water, disease, and pests. Seeds from the best plants are saved and replanted. This process is repeated over and over again to develop the seeds sold to farmers.

Seed science allows researchers to create new corn and soybean genetics. These better genetics allow farmers to grow more food using less water and chemicals. For example, some seeds are being changed so that they resist insects. If plants are resistant to insects then farmers don't have to spray. Knowledge, innovation and continuous improvement benefits everyone.

Energy

Renewable energy has been used on farms for hundreds of years. Windmills provided power to grind grain and pump water from wells. Today's farmers use renewable energy too!

- Some farmers use **wind turbines** for their farm's energy when the wind is blowing. Other farmers work with power companies for large-scale wind projects. These **wind farms** provide electricity to many homes and businesses.

- Corn and soybeans grown by Iowa farmers are used to make **renewable fuels**. Biodiesel made from soybeans is used to power tractors, trucks, and combines.

- Some farmers use **solar energy** to power the lights and heaters in turkey and pig barns. Solar panels can be installed on the roof or on the ground near the barn.



Solar Panels





Eat Well, Be Well!

Have you noticed all the buzz about better food choices? What does it mean to eat healthier? MyPlate is a great reminder. It is a visual healthy eating guide from the U.S. Department of Agriculture (USDA).

MyPlate shows how to divide your plate for a healthful meal. It shows the proportions and also details the food groups of vegetables, fruits, grains, proteins and dairy. A look at MyPlate reminds us to:

- eat less by avoiding oversized portions;
- eat more vegetables, fruits, and whole grains;
- choose from a big variety of proteins, and
- include calcium-rich foods.



DIGGING DEEPER
Use the USDA's Food-A-Pedia website to compare nutritional information on your favorite foods!

THINK & DISCUSS: The USDA hopes that MyPlate becomes your plate! Why?

PROTEINS AND WHOLE GRAINS

What counts as proteins and whole grains? Meat offers protein, but so do beans and other legumes. Whole grains like whole wheat and whole oats may be familiar, but there are many other whole grains, too. Millet and quinoa (say "KEEN w ah") are popular grains in many African and South American countries. Beans and legumes are important sources of protein in most countries around the world.

WISE CHOICES

MyPlate helps us remember to avoid foods that are high in sodium or empty calories. Empty calories have the same energy as other calories but few of the vitamins, minerals or other nutrients you need. Examples are sugary drinks; sweets like cookies, ice cream and candy; white bread and white rice.

Check your menu! Which of these is a better choice and why?

••••• TODAY'S MENU •••••

Drink:

- soda pop water or milk

Main Dish:

- turkey wrap with veggies Pepperoni pizza

Side:

- French fries raw veggies & dip jello

Dessert:

- Cookie Apple Hot Fudge Sundae

— CAREER CORNER —



Agriculture and the Environment

Paul Miller is a conservationist with the [Natural Resources Conservation Service](#). He works with farmers to develop plans that protect soil and water quality. By using knowledge in science and math he helps farmers and the environment.



Plants and Animals for Food, Fiber & Energy

Jerod Smeenk of [Frontline BioEnergy](#) has made a career of turning plants into fuel for vehicles. As an engineer he figures out ways to turn wood, corn stalks, and other plant material into diesel and jet fuel.



Food, Health & Lifestyle

Taylor Brown oversees the production of egg products at [Cargill Kitchen Solutions](#). As a food scientist she ensures eggs like those found in pre-made breakfast sandwiches are safe, uniform, and taste good.



Science, Technology, Engineering & Mathematics

Candice Engler works for [John Deere](#). She fits technology into the machinery farmers use. Her work helps farmers figure out what is wrong so they can fix it quickly. Her job as an engineer combines her love of farming, math, and figuring out how things work.



Culture, Society, Economy & Geography

Jim Knuth of [Farm Credit Services of America](#) works in agricultural lending which is an important part of Iowa's economy. Banks lend farmers money to purchase machinery, seed, or fertilizer.



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 **Iowa**
Agriculture in the Classroom