

When you see this  image, click to uncover something new!

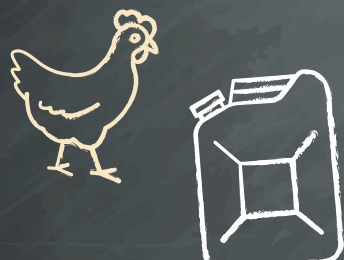
SOYBEANS

A Small Bean, A Big Impact

Do you like to eat cookies or pancakes or crackers? How about drinking lemonade or hot chocolate? Have you colored with crayons? Do you have a dog or a cat that you feed every day? Do you ride a school bus? All of these questions have something in common. All of these goods have soy or use soy! Soy comes from soybeans. Soybeans are grown in fields across America. The soybeans are processed and used in many products we eat and use every day. We are going to discover where soybeans come from! We are going to discover how soybeans grow! We are going to discover who grows soybeans! We are going to discover how a little bean is so important to you and me!

Click the soybean pod to play Illinois Soybean Association's "Pod to Plate" game! 

DID YOU KNOW?



People of all ages, animals, and machines use products made from soybeans. The people of all ages includes you! If you eat school lunches, you eat food with soybeans. The U.S. National School Lunch Program serves **soy-fortified** pasta. Babies can have soy, too. Some infant formula is made from soybeans. Your parents may cook with vegetable oil which comes from soybeans. Animals eat soy, too. Your pets and farm animals have soybean meal mixed in their food. Soybeans feed you and me, animals, and it helps machines go. The oil removed from the soybean makes biodiesel. Biodiesel powers the school buses and mail trucks. Other machines use biodiesel, too. The best part is soybeans are a **renewable resource**. It is a resource farmers plant to help feed us and make many different products.^{1,2}




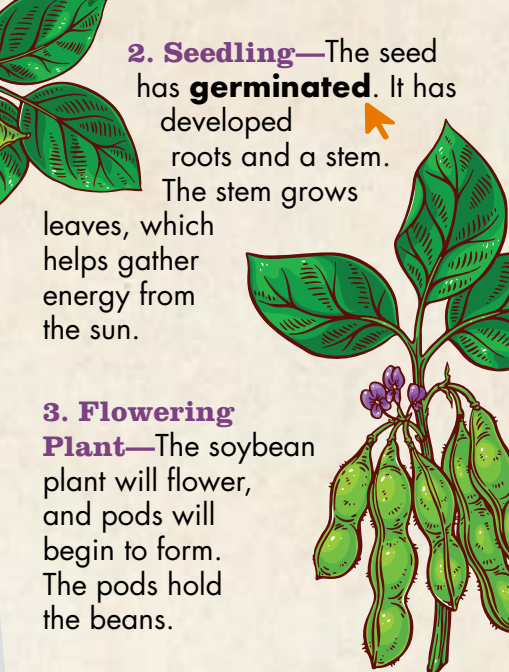
Where in America?

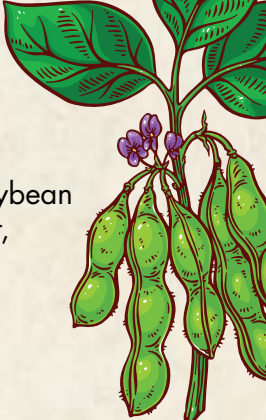
Soybeans grow in many states across America. Some states grow millions of acres of soybeans. Some states grow thousands of acres of soybeans. The map shows how many acres of soybeans are harvested in each state. Find your state. Does your state grow soybeans?




Have you planted a seed before? Did you watch it grow? When a seed is planted, it goes through many stages of growth. Soybeans go through different stages of growth, too. Each stage of growth is important. Something new happens during each stage. Check out what happens during each stage of plant life.

1. Seed—The seed is planted by a farmer in April or early May depending on where in the United States the farmer lives. 

2. Seedling—The seed has **germinated**. It has developed roots and a stem. The stem grows leaves, which helps gather energy from the sun. 

3. Flowering Plant—The soybean plant will flower, and pods will begin to form. The pods hold the beans. 

4. Mature Plant—The beans will grow and ripen in their pods.⁴ 

A Farming Family

Meet the Baldosser family from north central Ohio. Gary is a fourth-generation farmer. Today, he farms with his mom, Barb, and his sons Scott and Darin. Farming started in the Baldosser family with Great-Grandpa Lewis. Lewis began farming in the 1920s. He farmed 80 acres where he grew corn, wheat, hay, and oats. Lewis had a son, Olan, who wanted to continue what his dad had started. Olan is Gary's grandpa. Lewis and Olan farmed 160 acres. Over time the farm grew to 500 acres because of technology. Olan could farm with a tractor instead of horses. Tractors could pull equipment faster than horses.

Technology continued to improve. Olan tried a new crop. In 1955, he planted soybeans. The soybeans were planted with a four-row corn planter. An attachment was made for the corn planter. The attachment allowed soybeans to be planted successfully. As new crops were added to the farm, new family joined the farm, too. In 1967, Olan's son Ron started farming with him. Ron is Gary's dad. Ron married Barb and they both worked on the Baldosser farm. Olan and Ron worked in the fields. Barb would make sure they had food. Barb would also go to town and get parts if equipment broke down.

Olan retired from farming in 1981. When he retired, the Baldossers were farming 1,200 acres. Ron and Barb farmed and raised their two children. Gary grew up helping on the farm. Gary went to college at the Ohio State University. Gary earned a degree in Agricultural Economics. After he finished his degree, Gary came back to the farm. In 1991, Gary's full-time job was farming. He and his parents farmed 1,600 acres. They planted 600 acres of soybeans. The soybeans were no longer planted with a corn planter. The Baldossers now had a grain drill. The grain drill would plant 36 rows at a time.

Ron farmed his whole life. He did not retire from farming. Ron died in 2015. Barb still farms with Gary. Now Gary's sons have joined the family farm. Scott and Darin are the fifth generation. Scott and Darin both graduated from the Ohio State University. Both boys are excited to continue what their Great-great Grandfather Lewis started. Darin said, "I grew up watching my great-grandparents, grandparents, and dad take care of the land they farmed. I want to continue to care for the land."



The Baldossers started farming in the 1920s. The Baldossers are still farming in 2018. Many changes have occurred in those years. They started farming with 80 acres and now farm 2,100 acres. They no longer farm with horses but with 400 horse power tractors. Soybeans were planted with a four-row corn planter. Now soybeans are planted with a 48-row bean planter. Some things did not change in all those years. The farm was started by the Baldosser family. The farm is still run by the Baldosser family. Scott said he wants to farm because he is working with his family. The tradition continues after all these years.



TIME TRAVEL

on the Baldosser Farm

In 1955, the Baldosser family started planting soybeans. It was a new crop on their farm. When soybeans were first planted, a corn planter was used. Technology changed over the years. A soybean planter is now used to plant soybeans. Click each year in the timeline below to learn how farming has changed!



← Click to watch Illinois Soybean Association's "The Lifecycle of a Plant" video.

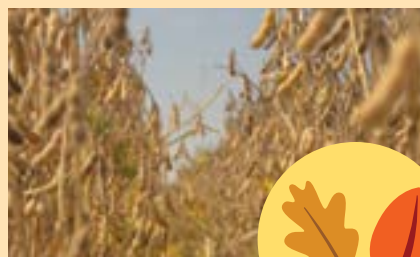
Farmers work year-round. There are four seasons in a year. Each season farmers have different things to do. Check out what happens each season.



Spring
Crops are planted.



Summer
Crops are fed.
Crops are treated for weeds and bugs.
Wheat is ready for harvest. It was planted in the fall.



Fall
Crops that have been growing since spring are harvested.
Cover crops are planted.
Cover crops help stop erosion, help with weed control, and help stop water contamination.



Winter
Broken parts on the equipment are fixed.
The equipment is cleaned.
Farmers go to classes to stay up-to-date on new ways to farm.



Soybeans Help the Wheels Go Round!

Farmers harvest soybeans in the fall. The soybeans go to a processing plant. Machines crush the beans to separate the soybean meal from the oil. Soybean meal is the edible part of the bean. Animals like pigs and chickens eat soybean meal. The oil from the bean makes many different products. One of those products is biodiesel. Biodiesel is a fuel. We use fuel in vehicles to get from one place to the next.

The United States has over 200 production plants. They make over two billion gallons of biodiesel. Biodiesel is "clean burning." Clean burning fuel is good for the environment. It is made from a renewable resource. Each year farmers plant soybeans so the plants can keep making fuel. The next time you ride a school bus, remember soybeans help make the wheels go round.^{14,15,16}



Tires from Soybeans

Soybeans aren't just driving the future, they are driving cars too! The Goodyear Tire and Rubber Company recently made a tire out of soybeans!

How did they do that? Scientists and engineers worked together to make a better tire. They discovered that soybean oil could be used to make rubber for the tires. This soybean rubber is a natural choice! It is less expensive and renewable. It also works well in hot and cold temperatures. This helps the tires perform well in dry, wet, and winter weather! Soybean rubber helps the tire grip the road.

Goodyear worked with the United Soybean Board to create this cool solution. The United Soybean Board is a group of soybean farmers who help tell the story of soybeans.



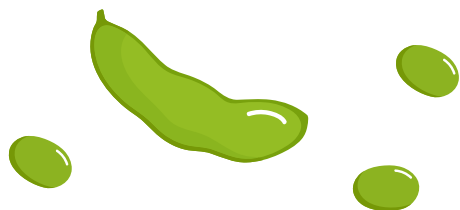
Stump
your
teacher!

In one year, 89,522,000 acres of soybeans were harvested in the U.S. On average, one acre produces 43 bushels.

How many bushels of soybeans does that equal?

Answer: 3.8 billion bushels¹⁵

SUPER SOYBEAN FACTS



One acre will yield approximately 7.7 million beans!¹⁰ Or, it takes 1.1 bushels to plant one acre of soybeans. Harvest will yield approximately 50 bushels per acre.

Soybeans sprout, and small plants begin to grow four to seven days after planting.

A planter will put a soybean seed about 1½ inches deep in rows that are 30 inches apart. Some farmers plant seeds with different row spacings.

Soybeans came from Southeast Asia. The Chinese were the first to farm soybeans around 1100 BC.

It takes approximately 180,000 seeds to plant one acre.¹¹

Soybeans are about 18% oil and 38% protein.

Biodiesel fuel is produced from soybean oil. It is non-toxic, renewable, and environmentally friendly!

Beginning in 2007, Ford Mustangs and other vehicles started making cars with soy foam in the seats.

A 60-pound bushel of soybeans will yield about 11 pounds of crude soybean oil and 47 pounds of soybean meal.

Thirty-one U.S. states grow soybeans commercially.

Soybeans are handled an average of 2.4 times and travel an average of 716 miles between the farm and port or crushing plant.¹³

One acre of soybeans will make over

**82,000
crayons!**⁸



•ACTIVITIES•

Try these activities with an adult or friend to explore more about soybeans!



Head over to your local library and find a book about soybeans! You can start by reading one of American Farm Bureau Foundation's recommended books **Auntie Yang's Great Soybean Picnic**.

Edamame are soybeans that are boiled or steamed. Ask an adult to help you steam edamame and taste it with salt or other spices.



Scavenger hunt time! Next time you are in a grocery store look at all types of labels and see how many items have some type of soybean product in it. Could be chocolate, candles, crayons, and so much more!



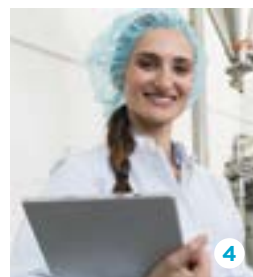
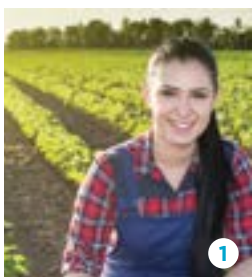
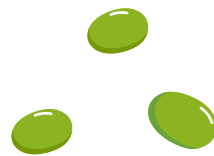
Still curious how many different foods are made with soybeans? Research a few soybean recipes, choose your favorite, and make it!



Careers that are SOY cool!

Did you know that there are tons of jobs that need soybeans? Soybeans play a huge role in feeding our livestock, people, and our economy. Soy do you want to learn more about these jobs? Let's dig into what they are all about.

1. **Soybean Farmer** – A type of farmer who farms and runs a soybean farm.
2. **Truck Driver** – A person that takes soybeans from the farm to the county elevator.
3. **Crushing Facility Manager** – This person runs a soybean processing plant to make sure that the carbohydrates and oil are processed in the right way.
4. **Manufacturing Plant Employee** – This person takes soybean products and mixes them with items from local farmers. They make buns, chicken nuggets, soups, fries, waffle cones, ice cream toppings, and other foods.
5. **Chef** – A person that takes soybean products and cooks them into yummy food for people — soy tasty!



National Learning Standards for AFBFA Ag Mag

The following standards identify general standard areas. Additional specific standards that fall within these areas may also be addressed.

Career Development, National Career Development Association

K-6 3.0 Helping Pupils Understand Career Applications of Subject Matter (K-6th Grade)

Common Core State Standards for English Language Arts

Reading Standards: Foundational Skills (K-5), Phonics and Word Recognition 3.0 (3rd, 4th, 5th grade)

Next Generation Science Standards Disciplinary Core Ideas

3, 4, 5-LS1: From Molecules to Organisms: Structures and Processes
5-PS3.D: Energy in Chemical Processes and Everyday Life
3-ESS2.D: Weather and Climate

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DIGITAL CONNECTIONS

Don't let the learning stop here! Check out these digital connections to learn more.

The Soybean Science program is a collection of instructional resources for science and agriscience teachers in all grades. The Soybean Science program is brought to you by the South Dakota Soybean Research & Promotion Council and the South Dakota Soybean Association.



➤ sdsoybeanscience.org

Soy Connection—How are soybeans used? Where are they grown? How do soybean farmers take care of the environment? Find out more on Soy Connection! Be sure to check out the 360°!

➤ soyconnection.com

Grow Next Gen—Find fun activities about soybeans. Learn about careers. Discover cool projects to do with your class using soybeans.

➤ grownextgen.org

Common Ground—What really happens on a farm? Who are farmers? What should I know about my food? Talk to a group of farmers on Common Ground and start having conversations about the food we grow and how we produce it.

➤ findourcommonground.com

