

Why Agriculture?

Teaching about agriculture in Iowa is an ideal way for students to learn what their state is all about and provide real-life connections to science, math, and social studies concepts. Agriculture is a topic that students can easily connect to because they encounter it often. Who doesn't enjoy talking about food? Nearly everything we eat, wear, use -- even the fuel that powers the cars and buses we ride in -- comes from plants and animals grown on farms. Agriculture provides perfect real-world connections to STEM and makes learning relevant to students.

Helping students understand the farm-to-table connection is important in our consumer-driven society. Teaching students to be agriculturally literate connects their learning to everyday life. That is what the *Iowa Ag Today* series is all about.

About Iowa Ag Today

Iowa Ag Today is a great supplement to your science, social studies, and language arts curriculum. Each issue is chock-full of discussion topics, new vocabulary, and other materials that you can easily integrate into lessons. Major highlights of each issue include:

Issue 1: Agriculture is Everywhere

- What is agriculture?
- Iowa agriculture crops, livestock, & products
- Agricultural careers

Issue 2: Food, Health & Lifestyle

- Nutrition
- Food safety

Issue 3: Agriculture and the Environment

- Natural resource management
- Agriculture in global ecosystems

Issue 4: Culture, Society, Economy & Geography

- Agriculture and the development of civilizations
- Iowa's agriculture innovators
- Geography, global trade, and economics

Issue 5: Science, Technology, Engineering & Math

- Science and technology to increase food production
- Safe, healthy, abundant food
- Sustainable systems for a growing population

Issue 6: Plants & Animals for Food, Fiber & Energy

- Domestication of plants and animals
- Renewable and non-renewable resources
- Plant and animal needs
- Biotechnology

Integration Ideas

- Identify a problem and design a solution to help the problem. Problems could relate to farming efficiency, the environment, nutrition, or other agricultural issues.
- Compose informational writing explaining why a particular state or region is ideal for growing a certain crop. Use evidence from pages 4 & 5 and the state agriculture profiles found here: <https://agclassroom.org/teacher/agfacts/>
- Develop a list of agriculture businesses in your community. Invite an agriculture lender from a local bank or someone from another agriculture business to speak about how agriculture impacts the community.
- Use historical artifacts. You can obtain artifacts from the Iowa Agriculture Literacy Foundation (www.iowaagliteracy.org), University of Iowa (<https://archaeology.uiowa.edu/>), and Iowa Department of Cultural Affairs (<https://tinyurl.com/bdhkcr3t>)
- Have students skim *Iowa Ag Today*. Then have them write a compelling question. While reading, students can annotate in the jotting down thoughts and connections to their question.

Please leave this resource a review by scanning the QR code or going to:
<https://form.iotform.com/220474758731158>



Alignment with Standards and Lexile

Subject	Code	Standard Lexile Measure = 850L
		Essential Concept or Skill/Standard
Social Studies	SS.4.7	Explain causes of conflict or collaboration among different social groups.
Social Studies	SS.4.10	Describe how societies have changed in the past and continue to change.
Social Studies	SS.4.11	Describe how scarcity requires a person to make a choice and identify costs associated with that choice.
Social Studies	SS.4.12	Using historical and/or local examples, explain how competition has influenced the production of goods and services.
Social Studies	SS.4.14	Explain the reasons why the costs of goods and services rise and fall.
Social Studies	SS.4.15	Identify factors that can influence people's different spending and saving choices.
Social Studies	SS.4.17	Create a geographic representation to illustrate how the natural resources in an area affect the decisions people make.
Social Studies	SS.4.20	Compare and contrast events that happened at the same time.
Social Studies	SS.4.23	Explain probable causes and effects of events and developments.
Social Studies	SS.4.24	Develop a claim about the past and cite evidence to support it.
Social Studies	SS.4.25	Analyze the impact of technological changes in Iowa, across time and place.
Social Studies	SS.4.26	Explain how Iowa's agriculture has changed over time.

Glossary

Some words in *Iowa Ag Today* may be unfamiliar to your students. These words often appear in bold type. Many are defined in the articles. Words you might wish to review with your students after reading the magazine are: **agriculture businesses** (pg. 1), **soil productivity** (pg. 2), **genetics, biofuel, migrant, seasonal worker** (pg. 3), **supply, demand, avian influenza** (pg. 6), **steer, financial advisor, loan manager** (pg. 7)

Discussion Prompters

Cover (Agriculture in Society)

1. What agribusinesses affect you? (Answers will vary but may include implement dealers like John Deere and Kinze dealers, seed and fertilizer suppliers like cooperatives, precision agriculture like Ag Leader Technology, meat processors like Iowa Select, etc.)
2. In what ways does geography affect agriculture? How does it impact culture? (What we grow affects what we eat and celebrate – think of corn festivals in Iowa versus strawberry festivals in Florida. People have changed agriculture making it more efficient and lessening its impact on the environment.)
3. Use the *Try This* box and have students draw a farm. Then have students pair share. Encourage partners to make connections to their classmate's farm.

Student Page 2 & 3 (A History of Agriculture in Iowa)

1. What innovations do you think had to occur before the gasoline powered tractor? What effects did this invention have on Iowa's agriculture? (Before the gasoline tractor much of agriculture was human powered and animal powered using tools like plows, hoes, and scythes. The invention of the gasoline tractor showed that mechanical power was the future of agriculture and led to other innovations. In Iowa, John Deere purchased Froelich's factory, Waterloo Gasoline Engine Company, which has led John Deere to have a prominent presence in Iowa and agriculture today.)
2. In 1983 the Farm Crisis began along with the implementation of the Migrant and Seasonal Workers Act. How are these two events similar or different? How do you think they impacted each other? (Answers will vary)
3. Encourage students to use claims and evidence by choosing an event on the timeline. How does that event impact Iowa, agriculture, and them? (Answers will vary. Students could focus on conflict, collaboration, economics, innovation, etc.)
4. Students create their own historical timeline that led up to an event, or a futuristic timeline showing how an event impacted Iowa today. Students can then explain their reasoning to a partner.

Student Pages 4 & 5 (Agriculture & Climate Across the U.S.)

1. Why is the West Coast a good place to raise fruit, nuts, and vegetables? (a temperate coastal climate provides good temperatures and adequate rainfall)
2. How do terrain and climate affect where people live and their culture? (Answers will vary)
3. Why does the Midwest produce a lot of pork? (Pigs eat corn and soybeans which are grown in the Midwest. It is economical to raise animals close to their feed.)
4. Iowa gets many of its goods from other states. What do you think is the best way for these goods to travel? (Depending on the shelf life, goods can travel by rail, plane, boat, or interstate systems. Products that need to be sold within a week might travel by plane, while products that can be on shelves for months might travel by boat. Extend this learning using road maps and creating routes.)

Student Page 6 (The Price of Food)

1. What factors affect the price of eggs? (Prices usually change based on supply and demand. Note that in 2018, this trend is not followed as price and supply were both up for eggs. Encourage advanced students to explore this relationship.)
2. Use the "Digging Deeper" question to explore the graph with students. (In general, when supply is high, price is low and vice versa. In 2015 an outbreak of avian influenza caused egg supply to plummet and prices to skyrocket.)

Student Page 7 (Family and Farm Finances)

1. What factors are influencing Dwayne and Kim? (Kim: personal factors of her business and community factors to produce more food. Dwayne: family factors and financial decisions of his personal credit.)
2. If you were a financial advisor or loan manager, what advice would you give Kim and Dwayne? (Answers will vary)
3. Farm machinery is very expensive, and a combine can cost \$350,000 or more. What else could you buy for \$350,000? (a large house, 10 pickup trucks or cars, 5 college degrees, etc.)
4. 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? ($\$350,000 \times .1 = \$35,000$)

Student Page 8 (Five Iowans Who Made a Difference)

1. Is there a person in your life who influenced you? How do you make a difference to others?
2. Who are some other famous Iowans who improved agriculture?
 - A. Jesse Hiatt – discovered the Red Delicious apple
 - B. John Kinzenbaw – founded Kinze Manufacturing and is a leader in implement technology
 - C. Ada Hayden – Professor at Iowa State University and Curator of the Herbarium
 - D. Griffith Buck – Professor at Iowa State University who created more than 80 varieties of roses
 - E. Mary Garst – leader in the Iowa cattle industry and helped bring Russian leader Nikita Khrushchev to visit Iowa

Show what you know - Key

1. Geography determines what animals and plants are found naturally and can be grown in an area. People eat more of what is close by.
2. Answers will vary, but could include implements, seed companies, food processing, etc.
3. \$3.30
4. Supply, demand, illness, transportation, input cost (fertilizer, pesticides, seed, feed, etc.)
5. Florida, California, Texas, New Mexico because of the warm humid climate
6. Answers will vary, but should contain information on soil health, environmental practices, new laws, etc.
7. Answers will vary, but could be about mechanization (changes in the tractor and tools used), methods (GPS, field size, sustainable practices), types of crops (GMOs, breeds of livestock, etc.), etc.
8. Price of a product goes up when there is little available compared to the need for it. Price of a product goes down supply is high and demand is low.
9. Credit, influences/motivation, cost, etc.
10. Answers will vary, but look for connections to producing evidence and the mention of people such as George Washington Carver, Norman Borlaug, Wallace Family, Jessie Field Shambaugh, Sister Irene Munoz, etc.

Name: _____

Check one:

Pretest

Post-test

Show what you know!

Take this short quiz before you read Ag Today, then again after reading the magazine. See the improvement!

1.

In your own words, explain how geography influences what people eat and their culture. For example, people in California eat a lot of fish and people in Asia eat a lot of rice.

2.

Name two agriculture businesses in your area? _____

3.

In 2013, the price of corn was around \$7 per bushel. In 2015, the price of corn was around \$3.70 per bushel. What is the price difference? Show your thinking process.

4.

What factors influence the price of food?

5.

Which state(s) would have a climate suitable for growing oranges? Be sure to use evidence to support your claim.

6.

George Washington Carver researched soil and found that some crops can improve soil health. How do you think this has influenced agriculture today?

7.

In your own words, how has agriculture changed over time?

8.

In your own words, describe supply and demand. How does it affect the price of products we buy?

9.

What do you believe should be considered when making a big purchase?

10.

Name an Iowa and explain how they have made a difference on agriculture.

Name: _____

Supply & Demand Math

In 2015, many turkeys and chickens in Iowa became sick with a disease known as **avian influenza** or bird flu. Because many of these birds died, there weren't as many eggs being laid. This reduced the supply of eggs in grocery stores. People didn't stop eating eggs. The eggs that were available became more valuable. Prices in the grocery store went up from \$1.30 per dozen to almost \$1.90 per dozen.

- How much did the price increase? Show your thinking process.
- If a family uses two dozen eggs per month, how much more would they spend on eggs each month?
- How much more would they spend on eggs per year?

In the space below, write a story problem involving supply and demand for a friend to solve.