

Compelling Careers in Agriculture

Grade Level: 4-8

Lesson Overview

Ask most kids how many agricultural careers they can name, and they are likely to say, “Farmer, rancher... um, I can’t think of anything else.” As a result, many young people cannot see themselves in an agricultural career. This activity will introduce students to compelling careers in the ag industry.

Student Objectives

1. Recognize that our safe and abundant food supply is dependent on technology that is undergoing constant advancement.
2. Name at least one agricultural career in each of seven pathways below:
 - Agricultural Business
 - Agricultural Mechanics
 - Animal Science
 - Environmental Services
 - Food Science
 - Natural Resources
 - Plant Science
3. Describe one agricultural career in detail, including key features of the profession as well as education, skills and background needed to prepare for this career.

Materials

- ✓ package of a corn-based snack, such as corn chips or corn-based cheese puffs
- ✓ Harvesting Corn: Then and Now information sheet
- ✓ 20 Careers Needed to Create a Combine descriptive list
- ✓ combine photo
- ✓ Career Quest worksheet
- ✓ sample agricultural job listings
- ✓ markers and posterboard or access to computers with design apps (e.g., Canva or Adobe Illustrator)

Vocabulary

- **combine** - a self-propelled machine that cuts, threshes, and cleans grain crops. Combines have different front attachments called heads or headers which are designed for harvesting specific crops. Corn is harvested with a corn head; wheat and soybeans require a reel-type head known as a grain platform. (“Combine” is pronounced with the accent on the first syllable, which rhymes with “Tom”.)

Background Information

Global population continues to grow, and everyone has to eat. However, climate change and loss of farmland strain our ability to produce food sustainably. This may seem to most like a challenge faced only by farmers and ranchers, when in fact, it takes people in hundreds of professions to keep our food systems functioning. One in six jobs in the United States is related to agriculture, and the need for people trained to work in those positions is ever-growing.

Procedure

1. Show the class a package of a corn-based snack, such as corn chips or corn-based cheese puffs. (If appropriate and/or allowed, you could distribute single-serving bags of a corn-based snack for students to eat.)
2. Point out the fact that the main ingredient in the snack is corn. Invite students to speculate as to where the corn came from, and how it made it from the farm to their hands.
3. Display the combine photo included in this lesson. Ask students, “What is this machine called, and what does it have to do with you?”
 - It is called a combine (pronounced COM•bine)
 - Many of the foods we consume--like the snack we just discussed/ate--include grains harvested with a combine, such as bread made from wheat or chips made from corn.
4. Now ask the class, “How many people in what kinds of careers do you think were involved in developing this combine for farmers to use to harvest the grain that ends up in our food?” Prompt discussion by pointing out some of the many elements of the machine: wheels, auger arm, painting and labeling design, etc.
5. Using the Harvesting Corn: Then and Now information sheet, discuss how harvesting methods have changed over time. What has changed about the machines used? What has changed about the time it takes to harvest corn?
6. Distribute copies of Illinois Agriculture in the Classroom’s Career Ag Mag or project this interactive version for the class to see: <https://bit.ly/3hZwHwJ> Allow students time to review the Ag Mag, then review:
 - “How many career areas are available within agriculture?” (Over 250)
 - “What are the seven segments into which agricultural jobs can be organized?” (plant sciences, animal sciences, agricultural mechanics, agricultural business, environmental services, food science, and natural resources)
 - “About how many people in Illinois are working in agriculture-related jobs?” (almost 1 million)

7. Project <https://www.agcareers.com/career-profiles/> for the class to see (or have students visit the site on their own devices). Explore and discuss the seven career pathways shown. As each pathway is discussed, ask if any students have parents working within that type of occupation (whether in an ag-related career or not). Invite students to share what they know about their parent's career.
8. Refer back to the discussion of how many people in different careers it took to create and provide the combine to the farmer. Distribute copies of the 20 Careers Needed to Create a Combine descriptive list. Talk about several of the careers listed, discussing which of the seven pathways each might belong to and how that career might be connected to making the machine.
9. Ask students to review the careers shown on their list and circle five that they would be interested in learning more about.
10. Divide the students into pairs. Each pair of students should choose three careers from their combined list of 10 and rank them from 1-3.
11. Students should then work together to research their #1 ranked career, using the Career Quest worksheet as a guide. If they have difficulty finding information on their #1 ranked career, they may move to their next-ranked choice instead. They should begin their research using the following websites:
 - AgCareers.com Career Profiles <https://www.agcareers.com/career-profiles/>
 - Ag Career Websites, Illinois Agricultural Education and FFA <https://www.ilaged.org/ag-career-websites>
 - Ag Explorer, National FFA <https://agexplorer.ffa.org/>
 - USDA Living Science <https://www.agriculture.purdue.edu/usda/careers/>
12. Using sample job listings as examples and their completed Career Quest worksheet as a source of information, each pair of students should create a "Wanted" poster advertising a position available in their chosen career. Each poster should 1) contain a visual that makes the career more understandable, e.g., worker in career or setting in which career takes place, 2) be readable from a distance, and 3) demonstrate correct writing mechanics. Visuals may be drawings, magazine pictures, computer graphics, etc.
13. When the Wanted posters have been completed, ask each group of students to give a presentation on their findings.
14. Display Wanted posters in school hallways so that other students can learn about the career opportunities available within agriculture.

Extension Activities

1. Have students choose another agricultural career and create job listings that clearly describe the nature of the career as well as education and experience required.
2. Conduct a mock “Career Fair” in which students prepare to interview and be interviewed by other classmates for various ag-related careers.

Additional Resources

- Tassel to Table lesson coordinates well with this lesson.

Standards

Illinois Science Standard

MS-PS2-2. Plan an investigation to provide evidence that the change in an object’s motion depends on the sum of the forces on the object and the mass of the object.

Illinois English Language Arts Standard

RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts.

The **M**ultidisciplinary **A**gricultural **I**ntegrated **C**urriculum (mAGic) was created in 2004 under the leadership of the Illinois State Board of Education (ISBE) and the Facilitating Coordination in Agricultural Education Project (FCAE). Funding was made available through the FCAE grant budget from the agricultural education line item of the ISBE budget. This revision, as printed, was developed in September 2021.



These mAGic lessons are designed to bring agriculture to life in your classroom. They address the Illinois Learning Standards in math, science, English language arts and social studies.

Machines mAGic project update writers/reviewers: Rhodora Collins – Dekalb County; Suzi Myers – Kane County; Connie Niemann – Montgomery County; Debbie Ruff – Livingston County; Jennifer Waters – Sangamon County; and Dawn Weinberg – Hancock County.

20 Careers Needed to Create a Combine

Accountants manage, analyze and control financial accounts for businesses or individuals.

Ag Mechanics Teachers instruct students on topics related to mechanics in agriculture including welding, building structures, fencing, concrete and masonry, and use and repair of farm tools and implements.

Agricultural Corporation Executives direct corporate programs and manage financial and personnel decisions; ultimately responsible for corporation feasibility and profitability.

Agricultural Engineers design and develop systems, equipment and products for agricultural production, food and feed processing, natural resources, conservation, environmental protection, etc.

Agricultural Mechanics specialize in repairing and maintaining diesel engines used to power buses, trucks, locomotives, construction machinery, and farm and highway equipment.

Agricultural Safety Engineers develop, inspect, or construct safety projects and programs to prevent, eliminate, or control unsafe agriculture work environments.

Agricultural Supply Sales Representatives market agricultural supplies to dealers of these products.

Commercial Photographers take photos of merchandise, architecture and scenery for advertising and sales purposes.

Computer Operators operate computer hardware equipment to process business, scientific, engineering, or other data stored.

Computer Programmers write and edit computer programs for specific purposes; usually contracted by a company or individual to write programs based on customer needs.

Farm Equipment Dealers sell and service farm machinery and equipment.

Graphic Designers create and construct graphics for use in marketing, computer software, and other illustrative areas.

Machinists use hand tools and machine tools to produce components to exact specifications for industrial machines, aircraft, automobiles, and other manufactured goods.

Public Relations Representatives build, maintain, and promote positive relationships between an organization and the public it serves.

Purchasing Managers buy raw materials, machinery, equipment, supplies, and services required by business, industry, or government to produce goods or offer services.

Science and Technical Writers prepare instruction manuals, articles, reports, proposals, and sales literature on technical and scientific subjects.

Technical Illustrators lay out and draw pictures and diagrams for sales literature and owner's manuals.

Technical Service Representatives deal directly with customers in handling their technical difficulties with computers and software.

Training Managers use a planned program to prepare employees for promotion to management positions.

Welders join and fuse two or more metals or other material by applying heat, pressure, or a related process.

Source: National FFA Organization, © 2006



Image source: CNH Industrial America LLC. <https://www.caseih.com/northamerica/en-us/products/harvesting/corn-heads/4408>

Harvesting Corn: Then and Now

In the early 1900's, corn was harvested by hand, then shelled later by hand or by a horse-powered mechanical device.

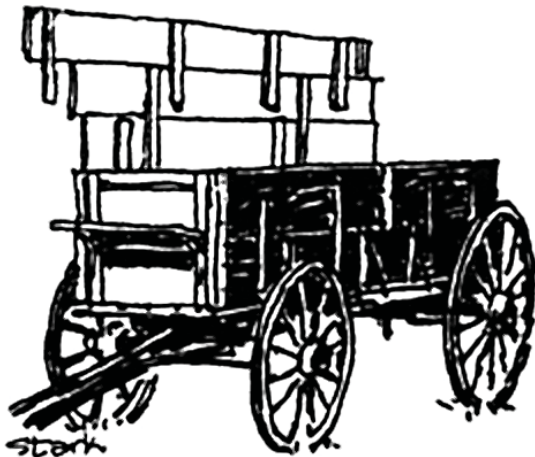


Using a team of horses and wagon, the farmer and family members often worked together to bring in the crop from the fields. Each ear of corn was picked by hand, using a metal husking hook or husking peg, strapped over a glove or mitten. The leather straps could be adjusted to fit an individual's hand, either for an adult or child.

With smooth, swift movements, the person cut each ear of corn from the stalk, removed the husk and threw it into a wagon, pulled by a team of horses. A bang board was attached to the top, far side of the wagon, to stop and drop the thrown ears of corn. As the farmer walked up and down the rows of corn, his team of horses moved alongside him, pulling the wagon.



Photo courtesy of Clayton Spratt



Each wagonload of corn was brought up to the farmyard and put in a corncrib. The crib was a building with slatted sides, used to store and dry corn. Two full wagons of corn, husked and in the corncrib, were considered a good day's work for one farmer.

*Text and drawings copyright 2000, Carolyn Splear Pratt, as seen at www.growingseasons.com. Used with permission. For more reflections on farm life in the early 1900's, see *Growing Seasons* by Elsie Lee Splear, ISBN 0-399-23460-8.*

EVERY CANADIAN BENEFITS WHEN FARMERS ARE PROSPEROUS



Science in the Corn Field

- Has Increased Yields By One-Third
- Has Cut Man-Time In Half
- Has Pushed Canada's "Corn Belt" Many Miles Northward

In just twelve years, Canadians have written a remarkable chapter into the progress and production of corn in this country. Crossing and recrossing hundreds of corn varieties, Canadian plant experts have developed superior hybrid strains of Canadian corn that are hardier and stronger . . . mature earlier . . . and yield up to one-third more grain or fodder.

Continuous research and field testing have aided engineers in developing modern time and labor-saving machines like the big, smooth-working Massey-Harris self-propelled Corn Picker (above) that picks more corn than 15 men using old-fashioned methods. These mighty machines have speeded up the harvest and freed more men for industry in times of national emergency.

Quick to recognize advance in plant breeding and modern machinery, enterprising Canadian farmers have steadily expanded hybrid corn growing in this country . . . harvesting hardy, bountiful crops to help make all Canadians more prosperous.

Massey-Harris manufactures 267 different types of time and labor-saving farm machines that are increasing food production so profusely every country in the world.

• RANDOM LIGHTING BY • WORLD WIDE DISTRIBUTION

MASSEY-HARRIS

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In 1946, the first self-propelled corn picker was introduced by Massey-Harris. With this machine, corn no longer had to be picked by hand, but it still had to be shelled afterwards.

The image here is a 1951 advertisement for a Massey-Harris self-propelled corn picker. It claims it "picks more corn than 15 men using old-fashioned methods." The wagonload of ears behind the picker shows that this machine did not shell the corn. A corn head attachment finally became available in the mid-1950's, making it possible for corn to be harvested and shelled by the same machine.

Image Source: www.adclassix.com

Today, combines can harvest over 100 acres of corn in an 8-hour day. GPS (global positioning system) receivers on each machine allow the combines to steer themselves, and yield monitors mean farmers can constantly track yields (amount of crop harvested).

Image © CNH Industrial America LLC.



Name _____

Career Quest

Use the following websites to answer the questions as they relate to the career you have chosen to research.

- Ag Explorer, National FFA <https://agexplorer.ffa.org/>
- USDA Living Science <https://www.agriculture.purdue.edu/usda/careers/>
- Ag Career Websites, Illinois Agricultural Education and FFA <https://www.ilaged.org/ag-career-websites>

1. What is the name of this occupation?
2. What are the duties or responsibilities of this job?
3. What skills are needed for this job?
4. What type of personality is needed for this job?
5. What physical requirements or limitations are associated with this job?
6. What educational background is required?

7. What courses should be taken in high school to prepare for this career?

8. What is the best type of post-secondary (after high school) education or training—trade/vocational, junior college, college/university, or apprenticeship—to pursue in order to gain the necessary skills and preparation for this career?

9. In your view, what are some positive aspects of this job?

10. In your view, what are some negative aspects of this job?

11. How does this profession help to better society?

12. What is the demand for people in this position today?

13. What is the outlook for this job in the future?

6214, Transportation Specialist, Central Illinois

 agri-search.com/job/6214

agrijobs



AGRI-SEARCH

Published

May 20, 2021

Location

Central Illinois, United States of America

Description

Respected animal nutrition company is seeking a Transportation Specialist for their Central Illinois facility. This individual will work cooperatively with the company's customer base, suppliers, and sales team to ensure overall satisfaction.

The ideal candidate will be people and detail oriented, have strong telephone communication skills, and must work well with strong personalities. Excellent problem solving and negotiation skills are required.

Responsibilities will include identifying and contracting new rail and truck companies, dispatching 70 leased trucks, negotiating company rates, scheduling pickup and delivery of ingredients and product, tracking shipments, and providing thorough and clear communication to the customers and suppliers.

This is an established and stable company that has the strength and vision to continue to grow, located in the heart of Illinois.

The salary for this position is \$45-\$55,000. This company also provides employee health benefits, and paid vacations and holidays.

Interested candidates should contact Chelbi Williams Alt or Vic Heinold.

[Apply Online](#)

3862, Software Training Manager, Missouri / Kansas

agri-search.com/job/3862-software-training-manager-missouri-kansas

agrijobs



AGRI-Search

Published

December 22, 2020

Location

Missouri / Kansas, United States of America

Description

Missouri Ag Technology company is seeking a Training Manager to develop, publish, and deliver training curriculum to their dealer network and internal associates.

As the successful candidate, you will be responsible for building the training material as well as delivering it via video, print, webinar, and in person formats. You will work closely with Sales and Marketing, Engineering, Customer Service, and the Dealer Network to ensure all material is accurate and up to date. This candidate will develop, track and report metrics related to training delivery, including timely deliver and quality.

You must have strong communication and interpersonal skills. Experience building content is a must. As product and processes are released, you will add to the curriculum, write scripts for training, and deliver the material.

This Ag Technology company has a relaxed atmosphere with an excellent team balance, and truly cares about the employee and customer experience. They are dedicated to helping farmers and continuously look for innovative solutions to grow farming.

Salary is in the \$65-95,000 range with an attractive benefits package with ample opportunity for growth and advancement.

Join this team today as this position is open immediately!

Qualified Training Managers with a passion for technology, agriculture, and working with dealers please contact Dave Allen or Chelbi Williams Alt.

[Apply Online](#)

6220, Feed Mill Manager, Eastern U.S.

 agri-search.com/job/3

agrijobs



AGRI-SEARCH

Published

July 22, 2021

Location

Eastern U.S., United States of America

Category

Feed & Nutrition

Description

Multiple positions are available with an Eastern US nutrition company for Feed Mill Managers. The Mill Manager is responsible for directing and managing mill operations which includes the supervision of all employees at the mill, oversight of quality in receiving and mill operations, inventory management, safety, driving production efficiencies, management of mill costs and meeting customer quality expectations.

This position requires a High School Diploma, and an Associates or Bachelor's degree is preferred. A minimum of 5 years of experience with 3 years in leadership, and the ability to lead continuous improvement in operations and service levels is desired.

Salary range \$65 - \$120,000 plus bonus and great benefits.

Qualified candidates should contact Vic Heinold.

[Apply Online](#)

4108, Senior Accountant, Texas High Plains

 agri-search.com/job/4108

agrijobs



AGRI-SEARCH

Published

April 22, 2021

Location

Texas High Plains, United States of America

Description

\$60,000 - \$70,000 plus benefits

Large commercial farming operation is seeking a Senior Accountant to manage their accounting department. This role is open due to an office relocation and shuttering of the old offices. Current accountant is retiring and not relocating.

This role is responsible for all accounting operations including billings, GL, AR, AP, Cost and Inventory accounting plus general counsel. You will prepare all reports, legal filings, month-end, year-end, and hire all accounting staff.

The company seeks an individual who is a CPA or CMA with a thorough hands-on knowledge of agricultural accounting. Working knowledge of crop farming will be helpful. You must be able to communicate professionally. The company will compensate you based upon your experiences. You'll receive full benefits and retirement options. This job is located in the Texas high plains.

Contact Jim Fleming.

[Apply Online](#)