Agricultural Commodities in the United States

Unit: Introduction to the Agriculture, Food, and Natural Resources (AFNR) Industry

Problem Area: The AFNR Industry’s Role in Society

Lesson: Agricultural Commodities in the United States

Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:

1. Identify agricultural commodities used for food, and examine where they are produced in the United States.

2. Identify agricultural commodities and products used to provide clothing, and examine where they are produced in the United States.

3. Identify forestry products used to provide shelter, and examine where they are harvested in the United States.

Resources. The following resources may be useful in teaching this lesson:

E-unit(s) corresponding to this lesson plan. CAERT, Inc. http://www.mycaert.com.


Equipment, Tools, Supplies, and Facilities

- Overhead or PowerPoint projector
- Visuals from accompanying masters
- Copies of sample test, lab sheet, and/or other items designed for duplication
- Materials listed on duplicated items
- Computers with printers and Internet access
- Classroom resource and reference materials

Key Terms. The following terms are presented in this lesson (shown in bold italics):

- barley
- canola
- cash-settled butter
- cheese spot call
- commodity
- corn
- cotton
- feeder cattle
- frozen pork bellies
- lean hogs
- live cattle
- lumber
- milk
- oats
- pulpwood
- random length lumber
- rough rice
- soybean
- sugar
- timber
- wheat
- wool
Interest Approach. Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

Ask the students to define “commodity.” Once a definition has been established (perhaps with your input), ask the students to develop a list of agricultural commodities.

CONTENT SUMMARY AND TEACHING STRATEGIES

Objective 1: Identify agricultural commodities used for food, and examine where they are produced in the United States.

Anticipated Problem: What agricultural commodities are used for food, and where are they produced in the United States?

I. In 2013 the top 10 agricultural commodity–producing states, in terms of cash receipts, were (in descending order) California, Iowa, Nebraska, Minnesota, Texas, Illinois, Kansas, North Carolina, Wisconsin, and Indiana. A commodity is a raw material or unprocessed agricultural product that can be bought and sold. There are about 50 major commodity markets worldwide that facilitate investment trade in nearly 100 primary commodities. Some of the best-known agricultural commodities used for food are corn, wheat, oats, rough rice, barley, soybeans, rapeseed (canola), sugar, milk, cash-settled butter, cheese spot call, live cattle, feeder cattle, lean hogs, and frozen pork bellies.

A. Corn (maize) is a large cereal grain plant that has a leafy stalk on which ears are produced that contain the grains or seeds called kernels. It is one of the most valuable cereal grain crops grown in the United States and the world. Dent corn is the most common type of corn grown in the United States. It is referred to as field corn.

1. Corn is the most widely produced feed grain in the United States, accounting for more than 90 percent of total production. Around 80 million acres of land are planted with corn. Most of the crop is used as livestock feed. The remainder is processed into a multitude of food and industrial products, including starch; sweeteners, such as high-fructose corn syrup; corn oil; and ethanol for use as a fuel.

2. Corn is grown in most states, but production is concentrated in Illinois, Iowa, Indiana, eastern portions of South Dakota and Nebraska, western Kentucky and Ohio, and the northern two-thirds of Missouri. The top corn-producing
states, Iowa and Illinois, typically account for slightly more than one-third of the U.S. crop.

B. **Wheat** is a cereal plant that produces grain which is ground to make flour for bread, pasta, pastry, etc. Its production in the United States is second only to that of corn. Unlike corn, wheat is predominantly used for human consumption. Wheat is the leading food plant grown in the United States and is therefore considered the most important cereal grain crop.

1. There are two main classes of wheat.
   a. Spring wheat is planted in the spring, grows during the summer, and matures in early fall. Spring wheat is planted in the northern states, where the winters are harsh.
   b. Winter wheat is planted in the fall, establishes itself over the winter, and grows rapidly in the spring. Winter wheat is typically grown in the central Plains and the southern states.


C. **Oats** are annual grasses that were the last cereal grains to be domesticated. Oats probably originated from the Asian wild red oat, which grew as a weed in other grain crops. Belief is that oats were first cultivated in southeastern Europe or Asia Minor around 2,000 years ago.

1. Oats have many uses: human consumption, animal feed, and more.

D. Rice as it comes out of the field is called rough rice in the commodity markets. **Rough rice** is seeds of the rice plant that have not had the outer hull and bran layers removed.

1. Rice production is the largest single food-producing use of land. Roughly 9 percent of the earth’s arable land is used for rice production.
2. Eighty-five percent of the rice produced in the world is used for human consumption.
3. From 2012 to 2014 the top rice-producing states were (1) Arkansas, (2) California, (3) Louisiana, (4) Missouri, (5) Mississippi, and (6) Texas. Eighty percent of the rice crop in the United States is produced in Arkansas, California, and Louisiana.

E. **Barley** is a cereal grain used commercially for animal feed, the production of malt (an important ingredient in beer production), and human food applications.

1. Barley is the fourth largest grain crop after wheat, rice, and corn.
F. **Soybean** is a species in the legume family of plants grown for its beans; it can fix nitrogen from the air in the soil.
   1. Soybeans originated in East Asia. In 1879 a few farmers began to plant soybeans for use as forage for livestock.
   2. Soybean oil is a widely used vegetable oil.
   3. Soybeans are generally considered a source of complete protein. Soybean oil meal, soybean oil cake, and soybean meal can be used as sources of protein in animal feeds.

G. **Canola** is an oilseed that is crushed to produce oil and meal. Canola oil is also an important feedstock for the growing biodiesel market.
   1. “Canola” was originally a trademarked name of the rapeseed plant. The name was derived from “can” (for Canada) and “ola” (for oil low acid).
   2. U.S. canola production is concentrated in the Northern Plains, where a drier, shorter growing season makes corn and soybean cultivation less productive. The top canola-producing states are (1) North Dakota, (2) Oklahoma, (3) Montana, (4) Idaho, (5) Washington, (6) Minnesota, and (7) Oregon. The state of North Dakota alone produces more than 80 percent of the nation’s canola crop.

H. **Sugar** is a carbohydrate known as sucrose in its crystalline powder form. It is derived from either the sugarcane plant or the sugar beet. Sugar is used worldwide in the sweetening of soft drinks, foods, and medicines.
   1. The top sugarcane-producing states are Louisiana and Florida.
   2. The largest and most dynamic region for sugarbeet production is in or close to the Red River Valley of western Minnesota and eastern North Dakota. The top sugarbeet-producing states are Minnesota, North Dakota, Idaho, Michigan, and California.

I. **Milk** traded as a commodity generally means cow’s milk, specifically Milk Class III. Milk Class III refers to all Grade A and Grade B milk used in the manufacture of products other than those for which Milk Class I (fluid milk sold as such) and Milk Class II (cottage cheese and yogurt) are used. Milk Class III is generally employed in the production of cheese.
   1. Holstein cattle are the most popular breed of dairy cattle. This breed makes up more than 90 percent of the dairy cattle in the United States.
   2. In 2014 the leading dairy-producing states were (1) California, (2) Wisconsin, (3) New York, (4) Pennsylvania, and (5) Idaho.

J. **Cash-settled butter** refers to futures on Grade AA butter. Butter is typically a yellow or white dairy product consisting of an emulsion of milk fat and water that is obtained by churning cream.
K. Cheese spot call refers to cheddar cheese futures contracts. Cheese is a dairy product usually formed by curdling milk or cream. Cheese is curd of milk that has been coagulated and separated from whey.

L. Live cattle are cattle industrially raised for beef production from the calf stage until they reach between 600 and 800 pounds.
   1. Most ranchers breed their herds of cows in the summer, thus producing a new crop of calves in the spring. The calves are weaned from their mothers after six to eight months. They grow to near full size by feeding on pasture or other roughage before more intensive feeding.
   2. More than 50 percent of the total value of U.S. sales of cattle and calves comes from the top five states: (1) Texas, (2) Nebraska, (3) Kansas, (4) California, and (5) Oklahoma.

M. Feeder cattle are cattle that have reached 600 to 800 pounds and been moved to a feedlot where they are fed a special food mix to encourage rapid weight gain. An animal is considered “finished” when it reaches full weight and is ready for slaughter, typically at around 1,200 pounds, producing a dressed carcass of around 745 pounds.

N. Lean hogs are industrially raised pigs, swine, or hogs.
   1. These animals are slaughtered to obtain pork meat.

O. Frozen pork bellies are the source of bacon.

Teaching Strategy: Use VM–A to familiarize the students with websites devoted to various agricultural commodities used for food. Bring newspapers to class to view commodity trading pages, or have the students visit a website that posts agricultural commodity trading information. The idea is to identify agricultural commodities rather than to focus on the trading.

Objective 2: Identify agricultural commodities and products used to provide clothing, and examine where they are produced in the United States.

Anticipated Problem: What agricultural commodities and products are used to provide clothing, and where are they produced in the United States?

II. Cotton and wool are the two primary agricultural commodities used to provide clothing.

A. Cotton is a staple fiber that is the most widely used natural fiber for the manufacture of clothes and textiles.
   1. Upland cotton is native to North America. More than 99 percent of the cotton grown in the United States is of the upland variety. One percent of cotton produced in the United States is a superior long-staple type called pima.

B. **Wool** is a fabric made from the sheared hair of sheep, llama, or other ruminants. Sheep’s wool is used all over the world in the manufacture of clothing and fabrics.
   1. Cashmere wool is obtained from goats, mohair from goats, and angora from rabbits.

**Teaching Strategy:** Lead a classroom discussion on agricultural commodities and products used to provide clothing, and examine where they are produced in the United States. Refer students to [http://www.nass.usda.gov/Charts_and_Maps/Crops_County/pdf/CTU-PR13-RGBChor.pdf](http://www.nass.usda.gov/Charts_and_Maps/Crops_County/pdf/CTU-PR13-RGBChor.pdf) for information on upland cotton production.

**Objective 3:** Identify forestry products used to provide shelter, and examine where they are harvested in the United States.

**Anticipated Problem:** What forestry products are used to provide shelter, and where are they harvested in the United States?

III. **Timber** is trees of forested areas considered as a source of wood. Wood is the raw material from which forest industries manufacture countless products for home, factory, and office. Some uses of wood are for lumber, pulpwood, veneer, poles, railroad ties, and pilings.

A. **Lumber** is timber sawed into boards, planks, or other structural members of standard or specified length. It is used to produce furniture and other manufactured items.
   1. **Random length lumber** is lumber of varying lengths but generally in increments of evenly cut 2-foot boards.

B. **Pulpwood** is wood that has been reduced either mechanically or chemically to pulp.
   1. Pulpwood is primarily used for the manufacture of paper, fiberboard, chemical products, and paperboard.

**Teaching Strategy:** Lead a classroom discussion on forestry products used to provide shelter and where they are harvested in the United States. Assign LS-A.
**Review/Summary.** Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. If a textbook is being used, questions at the ends of chapters may also be included in the Review/Summary.

**Application.** Use the included visual master and lab sheet to apply the information presented in the lesson.

**Evaluation.** Evaluation should focus on student achievement of the objectives for the lesson. Various techniques can be used, such as student performance on the application activities. A sample written test is provided.

**Answers to Sample Test:**

**Part One: Matching**

1. h
2. d
3. j
4. c
5. a
6. i
7. e
8. b
9. f
10. g

**Part Two: Multiple Choice**

1. b
2. a
3. a
4. b
5. c
6. d

**Part Three: Short Answer**

1. A commodity is a raw material or unprocessed agricultural product that can be bought and sold.
2. Pulpwood is primarily used for the manufacture of paper, fiberboard, chemical products, and paperboard.
3. Milk Class I is fluid milk sold as such, Milk Class II is cottage cheese and yogurt, and Milk Class III is generally employed in the production of cheese.
Part One: Matching

Instructions: Match the term with the correct definition.

a. barley  f. wool  
b. random length lumber  g. cash-settled butter 
c. wheat  h. canola  
d. sugar  i. live cattle  
e. cotton  j. corn

1. An oilseed that is crushed to produce oil and meal
2. A carbohydrate known as sucrose in its crystalline powder form
3. A large cereal grain plant that has a leafy stalk on which ears are produced that contain the grains or seeds called kernels
4. A cereal plant that produces grain which is ground to make flour for bread, pasta, pastry, etc.
5. A cereal grain used commercially for animal feed, the production of malt (an important ingredient in beer production), and human food applications
6. Cattle industrially raised for beef production from the calf stage until they reach between 600 and 800 pounds
7. A staple fiber that is the most widely used natural fiber for the manufacture of clothes and textiles
8. Lumber of varying lengths but generally in increments of evenly cut 2-foot boards
9. A fabric made from the sheared hair of sheep, llama, or other ruminants
10. Term that refers to futures on Grade AA butter
Part Two: Multiple Choice

Instructions: Circle the letter of the correct answer.

1. Which are the two top wheat-producing states?
   a. Arkansas and California
   b. North Dakota and Kansas
   c. Iowa and North Carolina
   d. Nebraska and Oklahoma

2. Which are the two top rice-producing states?
   a. Arkansas and California
   b. Illinois and Iowa
   c. Iowa and North Carolina
   d. Texas and Georgia

3. Which are the two leading dairy-producing states?
   a. California and Wisconsin
   b. Illinois and Iowa
   c. North Dakota and Oklahoma
   d. Texas and Georgia

4. Which are the top two soybean-producing states?
   a. California and Wisconsin
   b. Illinois and Iowa
   c. North Dakota and Oklahoma
   d. Texas and Georgia

5. Which are the two leading swine-producing states?
   a. Arkansas and California
   b. California and Wisconsin
   c. Iowa and North Carolina
   d. Texas and Georgia

6. Which are the top two canola-producing states?
   a. Arkansas and California
   b. California and Wisconsin
   c. Illinois and Iowa
   d. North Dakota and Oklahoma
Part Three: Short Answer

Instructions: Answer the following.

1. What is a commodity?

2. What is pulpwood used for?

3. How do Milk Class I, Milk Class II, and Milk Class III compare?
Agricultural Commodities Used for Food


Beef Cows—Inventory, 2012: http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Ag_Atlas_Maps/Livestock_and_Animals/Livestock,_Poultry_and_Other_Animals/12-M144-RGBDot1-largetext.pdf

Hogs and Pigs—Inventory, 2012: http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Ag_Atlas_Maps/Livestock_and_Animals/Livestock,_Poultry_and_Other_Animals/12-M148-RGBDot1-largetext.pdf

Sheep and Lambs—Inventory, 2012: http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Ag_Atlas_Maps/Livestock_and_Animals/Livestock,_Poultry_and_Other_Animals/12-M151-RGBDot1-largetext.pdf
Commodities Chart

Purpose

The purpose of this activity is to identify commodities and where they are produced.

Objectives

1. Identify major commodities, and describe them and their uses.
2. Determine the top four states in terms of the production of each commodity.

Materials

- lab sheet
- writing utensil
- E-unit and/or computer with Internet access

Procedure

Complete the chart provided.

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