

UNIT I - INTRODUCTION TO AGRICULTURE

Lesson 4: Agriculture in Missouri

Competency/Objective: Describe agriculture in Missouri.

Study Questions

1. **What commodities are produced in Missouri?**
2. **Why is agriculture important in Missouri?**
3. **Why and how has Missouri agriculture changed?**

References

1. *Exploring Agriculture in America* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 2000, Unit I.
2. *Missouri Farm Facts 1999*. Missouri Department of Agriculture and U.S. Department of Agriculture. Missouri Agricultural Statistics Service, August, 1999. (Updated versions are available yearly from Missouri Agricultural Statistics Service <<http://agebb.missouri.edu/mass>>.)
3. Transparency Masters
TM 4.1 Missouri's 1998 Ranking in the United States
TM 4.2 How Has Missouri Agriculture Changed?
4. Handout
HO 4.1 1997 Cash Receipts
5. Activity Sheets
AS 4.1 Name That Drawing (Instructor)
AS 4.2 Agricultural Commodities Produced in Missouri
AS 4.3 Hat Day

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TEACHING PROCEDURES

A. **Review**

Agriculture is a major industry in the United States. Agricultural products provide food for U.S. consumers and are exported to several foreign countries. Agriculture is also an important industry in the state of Missouri.

B. **Motivation**

Conduct AS 4.1 so that students will appreciate the diverse components of Missouri agriculture.

C. **Assignment**

D. **Supervised Study**

E. **Discussion**

Q1. What commodities are produced in Missouri?

A1.

- a) The following commodities and their rank among the other 49 states per 1998 data are as follows:
- 1) Number of farms - 2nd
 - 2) Beef cows - 2nd
 - 3) Grain sorghum - 4th
 - 4) Hay (all types)- 4th
 - 5) Turkeys raised - 5th
 - 6) Concord grapes - 6th
 - 7) Rice - 6th
 - 8) Soybeans - 6th
 - 9) Hogs and pigs - 7th
 - 10) Cheese - 9th
 - 11) Watermelons - 9th
 - 12) Broilers - 10th
 - 13) Corn - 10th
 - 14) Winter wheat - 11th
 - 15) Cotton - 12th
 - 16) Ice cream - 12th
 - 17) Tobacco - 12th
 - 18) Eggs - 14th
 - 19) Milk - 15th
- b) Logging and wood products manufacturing contribute \$3 billion each year to Missouri's economy.
- c) Horticultural businesses produced almost \$68 million in sales in 1998.
- d) Missouri is a large supplier of Golden and Red Delicious, and Jonathan apples. More than 40 million pounds of apples are produced annually.

Divide students into groups and have them list agricultural commodities produced in Missouri. Write their answers on the board and discuss them. Next, show the left half of TM 4.1. Ask students to guess Missouri's ranking in the United States.

Have students complete AS 4.2 using copies of *Missouri Farm Facts* or the Internet <<http://agebb.missouri.edu/mass/farmfact/index.htm>>.

Q2. Why is agriculture important in Missouri?

A2.

- a) **A diversity of environmental factors enables agriculture to be produced in Missouri.**
 - 1) **Geography**
 - 2) **Vegetation**
 - 3) **Climate**
 - 4) **Soil fertility**
- b) **The value of agricultural products produced in Missouri each year is approximately \$4.5 billion.**
- c) **In addition to production agriculture, many people are employed in other areas of the agricultural industry.**
 - 2) **Agribusiness employs more than 15% of Missouri's labor force, which is one in every six workers in the state, or more than 400,000 people.**
 - 3) **The agricultural processing and marketing sector employs approximately 92,000 people.**

Missouri produces a variety of crops and other agricultural products. Use HO 4.1 to identify Missouri counties where crop and livestock production is concentrated. (The instructor should update the handout using the most current *Missouri Farm Facts*.) Conduct AS 4.3 to familiarize students with various agricultural careers.

Q3. How has Missouri agriculture changed?

A3.

- a) **Medium-size farms have declined the most.**
- b) **The average size of farms has increased.**
- c) **The average age of producers has increased.**
- d) **There are lower numbers of producers under the age of 35.**
- e) **Agricultural businesses are hiring more employees, especially females.**
- f) **Producers are continuing to adopt new technology.**
- g) **More attention is paid to soil conservation and water quality.**
- h) **The trend has been toward larger farming operations, the formation of farmer cooperatives, and the consolidation of agricultural businesses.**
- i) **The number of businesses involved in biotechnology and life sciences are increasing in Missouri.**

Use TM 4.2 to discuss changes in Missouri agriculture.

F. *Other Activities*

- 1. Use the Missouri Agricultural Statistics service <<http://agebb.missouri.edu/mass/index.htm>> and county Agri-Facts to identify key information about your county.
- 2. Ask a representative from the Missouri Department of Agriculture or the Cooperative Extension Service to talk to the class.

3. Have students write for their own copy of *Missouri Farm Facts* for home. They can request a copy from Missouri Agricultural Statistics Service, P.O. Box L, Columbia, MO 65205, (573) 876-0950, <<http://agebb.missouri.edu/mass>>.

G. Conclusion

Agriculture is very diverse in Missouri and is the most important industry. Agricultural production provides raw products, agricultural business, and career opportunities that directly contribute to the state's economy. More than 15% of Missouri's labor force is employed in agribusiness. Missouri products are used by consumers in the state, across the United States, and throughout the world. Missouri has changed and will continue to change agriculturally. However, the importance of the industry to the economy of the state will continue.

H. Answers to Activity Sheets

AS 4.1 Name That Drawing

There are no answers for this activity.

AS 4.2 Agricultural Commodities Produced in Missouri

Answers should be checked to the most current *Missouri Farm Facts*. The answers given below are for 1998 production.

Commodity	Area of Production
Corn	Northern half and Bootheel
Cotton	Bootheel
Wheat	North central and Bootheel
Soybeans	Northwest, north central, and Bootheel
Hay	Southwest
Dairy cattle	Southwest
Hogs and pigs	North and north central
Beef cows	Southwest
Sheep and lambs	Northern third
Grain sorghum	West central, central and Bootheel
Rice	Bootheel
Tobacco	Missouri River bottom

AS 4.3 Hat Day

The instructor should determine if the answers are appropriate.

I. Evaluation

A unit test is provided at the end of this unit. If a lesson quiz is needed, use questions pertaining to this lesson from the unit test.

Missouri's 1998 Ranking in the United States

Category/Commodity	Rank
Number of farms	2 nd
Beef cows	2 nd
Grain sorghum	4 th
Hay (all types)	4 th
Turkeys raised	5 th
Concord grapes	6 th
Rice	6 th
Soybeans	6 th
Hogs and pigs	7 th
Cheese	9 th
Watermelons	9 th
Broilers	10 th
Corn	10 th
Winter wheat	11 th
Cotton	12 th
Ice cream	12 th
Tobacco	12 th
Eggs	14 th
Milk	15 th

Source: *Missouri Farm Facts 1999*

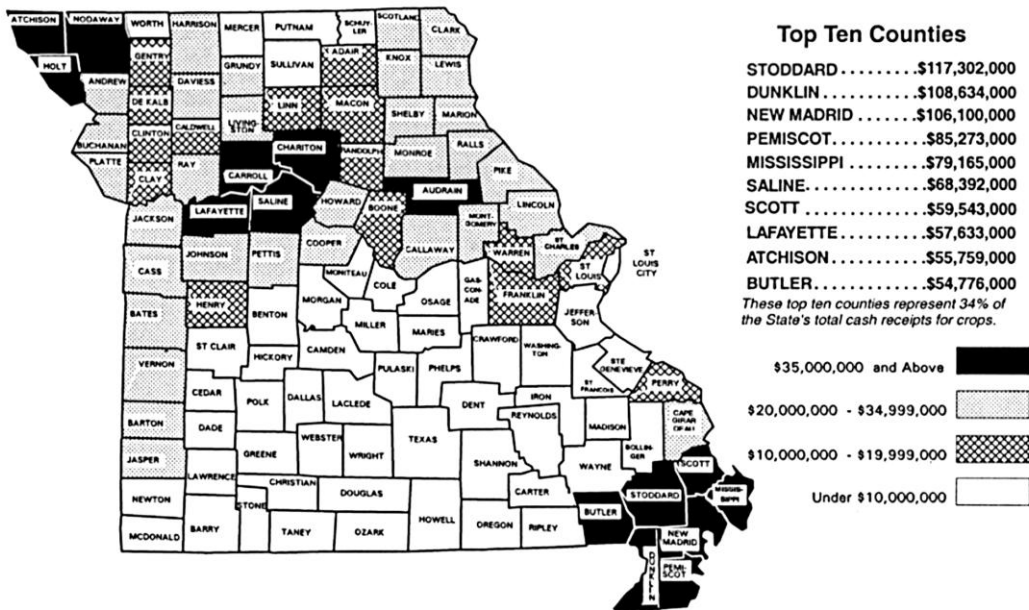
How Has Missouri Agriculture Changed?

Variable	Year	
	1982	1997
Land in farms (acres)	29,266,609	28,826,182
Percent of land in farms	66.3	65.3
Number of farms	112,447	98,860
Average size of farm (acres)	260	292
Number of farm operators by age		
• under 25	3,606	1,257
• 25-34	14,231	7,133
• 35-44	21,546	18,523
• 45-54	24,517	22,285
• 55-64	25,924	22,192
• 65 years or older	22,623	27,470
Average age of producers	51	55
Operator's principal occupation (percent)		
• Farming	52	45
• Other	48	55
Farms by value of sales (number)		
• Less than \$9,999	61,236	54,982
• \$10,000-\$49,999	32,053	26,664
• \$50,000-\$99,999	10,004	6,529
• \$100,000 or more	9,126	10,685

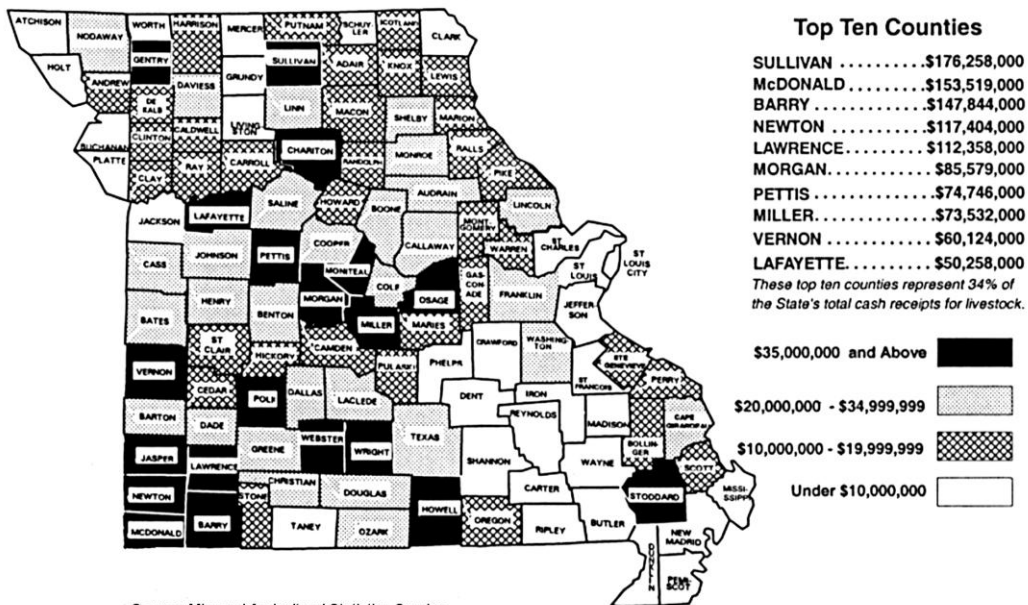
Source: Missouri Farm Facts 1999

1997 Cash Receipts

1997 Cash Receipts, Crops By Counties



1997 Cash Receipts, Livestock By Counties



Source: Missouri Agricultural Statistics Service

Name That Drawing

Objective: Students will understand different components of Missouri agriculture.

Materials and Equipment:

Poster paper, white board, or blackboard
 Markers or colored chalk
 Note cards

Procedure:

1. Write each of the words listed below for the four concepts on separate note cards.
2. Divide the class into four teams of four to six students. Each team will be given a set of cards for a specific concept. (If there are more students in the class, additional concepts should be developed.)
3. Explain the rules below:
 - a. Each team will select a person to draw an image to represent the word on the card.
 - b. All the words lead to a concept and each of the concepts has a commonality.
 - c. Each word is worth 5 points, the concept is worth 10 points, and the commonality is worth 15 points.
 - d. There is no talking between the team members and the person drawing.
 - e. Each team will have 2 minutes to guess all of its words and solve the concept puzzle.
 - f. The person drawing may pass on one word.
 - g. If a team does not correctly state its concept, each of the other teams can write the answer on a note card and gain the 10 points.
 - h. At the end of the game, each team will write its answer (commonality) on a note card.
4. The following are examples of words that can be used.

<p><u>Words</u> Corn Tractor Planter Soil Weeds</p>	<p><u>Words</u> Pig Cow Lamb Steak Feed</p>	<p><u>Words</u> Lawn Flower Greenhouse Tree Vegetable</p>	<p><u>Words</u> DNA Cloning Laboratory Scientist</p>
<p><u>Concept</u> Agronomy</p>	<p><u>Concept</u> Livestock or Animals</p>	<p><u>Concept</u> Horticulture</p>	<p><u>Concept</u> Biotechnology</p>

Commonality

The concepts should build to the commonality that all describe agriculture in Missouri.

Agricultural Commodities Produced in Missouri

Objective: Students will identify where major commodities are produced in Missouri.

Directions: Twelve agricultural commodities produced in Missouri are listed below. Using *Missouri Farm Facts*, identify areas of the state that have high concentrations of the commodity listed. Some information may be found on the Internet at <<http://agebb.missouri.edu/mass/farmfact/index.htm>>. One commodity has been done for you.

Commodity	Area of Production
Corn	Northern half and Bootheel
Cotton	
Wheat	
Soybeans	
Hay	
Dairy cattle	
Hogs and pigs	
Beef cows	
Sheep and lambs	
Grain sorghum	
Rice	
Tobacco	

Hat Day

Objective: Students will identify various jobs or careers in agriculture.

Directions: Interview a person who has a job in agriculture and answer the questions below. Role-play the person's job by wearing the hat to class and explaining what the person does.

1. Name of person you interviewed _____
2. Job title _____
3. Name of the business the person works for _____
4. Major sector of agriculture (one of seven identified in Unit I, Lesson 1)

5. What did you find out about the person's job?
 - a. Responsibilities _____

 - b. Favorable aspects _____

 - c. Least favorable aspects _____

 - d. Advice _____

