United States
Department of
Agriculture

National Agricultural
Statistics Service

Agriculture Counts

[UPDATED JUNE 2006]

Lesson Plans

K - 12

Featuring agricultural statistics

from the

USDA

National Agricultural Statistics Service

USDA

United States Department of Agriculture

National Agricultural Statistics Service

Dear Agriculture Educator:

We are happy to provide you with a copy of the Agriculture Counts Lesson Plans which are designed to incorporate agriculture into your curriculum. The lessons are structured for grades kindergarten through 12. Our goal is to create fun lessons that incorporate agriculture into English, math, geography, science, and social studies.

These lessons use surveys and censuses as the basis for showing why agricultural statistics are important in today's world. As information becomes more important in our daily lives, we must continue to teach each other where to find prime sources of reliable and complete data. The USDA's National Agricultural Statistics Service (NASS) is the best choice for agricultural data. Agricultural operators, agribusinesses, elected officials, and government and private agencies use the official statistics produced by NASS for making decisions that affect all of us.

NASS is the agency responsible for conducting hundreds of weekly, monthly, quarterly and annual surveys on production, economic and environmental topics. NASS prepares reports covering virtually every facet of U.S. agriculture. The abundance of information produced has earned NASS the title, "The Fact Finders of Agriculture."

One of the major reports produced by NASS, the 5-year census of agriculture, is the only source of uniform, comprehensive data about American agriculture at the national state, and county level. The strength of the census is its provision of local statistics, including facts about minor crops and livestock specialties, economic structure, and operator demographics.

We would like to give special thanks to Pat Thompson, Curriculum Coordinator, Oklahoma Ag in the Classroom, Oklahoma State University for creating the lesson plans.

If you need further census or survey data or assistance, please call our Agricultural Statistics Hotline at (800) 727-9540 or visit our web site at www.nass.usda.gov. These lesson plans and more are available on the web site. Thank you for including the lesson plans in your instructional plans, and for helping to show our future leaders that Agriculture Counts!

Sincerely,

R. Ronald Bosecker

R. Ronald Bosecker
Administrator

AGRICULTURE COUNTS

LESSON PLANS

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AGRICULTURE COUNTS

LESSON PLANS

INTRODUCTION

During the Civil War, the U.S. Department of Agriculture (USDA) collected and distributed crop and livestock statistics to help farmers assess the value of the goods they produced. At that time, commodity buyers usually had more current and detailed market information than did farmers. This circumstance often prevented farmers from getting a fair price for their goods. Producers in today's marketplace would be similarly handicapped were it not for the information provided by the USDA's National Agricultural Statistics Service (NASS).

NASS conducts weekly, monthly, quarterly and annual surveys and the five-year census of agriculture. Surveys provide current information about production, economics and environmental topics.

The five-year census of agriculture is the most comprehensive, detailed information-gathering program for agriculture. It is a complete accounting of agricultural production in the United States and is the only source of uniform, comprehensive agricultural data for every county in the nation. From 1840 to 1920 the census of agriculture was taken every 10 years. Since 1925 the census has been taken every five years (currently in the years ending in 2 and 7) to coincide with other economic censuses covering manufacturing, mining and construction.

The 2002 Census of Agriculture is the nation's 26th census. Anyone who receives a census report form is required by law to complete and return it.

NASS requests information from farm operators on the following subjects:

- Land use and ownership.
- Irrigated land.
- Crop acreage and quantities harvested.
- Livestock and poultry.
- Value of products sold.
- Product contracts and landlord shares.
- More detailed farm-related income.
- Computer and Internet use.
- Multiple operator characteristics.

Twenty-five percent of the report forms include additional questions on the following:

- Production expenses.
- Fertilizer and chemicals.
- Machinery and equipment
- Market value of land and buildings.
- Income from farm-related sources.

Report forms are tailored for various parts of the country and are specific to the crops grown in a farmer's particular area.

Besides helping the farmer get a fair price for the goods produced on his or her farm, census of agriculture data helps all of us as we plan for the future sustained by a safe and secure food supply.

Agribusinesses use census data to develop market strategies and to determine the most effective locations for service to agricultural producers. Farm organizations use it to evaluate and propose programs and policies that can help agricultural producers. Our elected representatives use census data to develop programs to protect and promote U.S. agriculture. Rural electric companies use the data to forecast future energy needs for agricultural producers and their communities. Colleges and universities use it in research programs to develop new and improved methods to increase agricultural production. State departments of agriculture use census data to plan for operations during drought and emergency outbreaks of diseases or infestations of pests.

HISTORY OF THE U.S. CENSUS OF AGRICULTURE

In 1791, President George Washington received a letter from an Englishman named Arthur Young, who had written to several farmers requesting information on land values, crops, yields, livestock prices, and taxes. By personally conducting a mail survey and compiling the results, Washington was able to gather enough information to reply fully to his English correspondent. This was, in effect, the nation's first agricultural survey.

Between September 24 and November 18, 1791, Washington sent Young three letters that provided agricultural statistics on an area extending roughly 250 miles from north to south and 100 miles from east to west. The strip ran through an area which is today Pennsylvania, West Virginia, Maryland, Virginia, and the District of Columbia, where most of the young country's population lived.

In 1796, Washington tried to establish a National Board of Agriculture to collect data about our nation's agriculture. Congress rejected the idea at that time.

In 1839 Henry Ellsworth, Commissioner of Patents, asked Congress to designate $1,000 from the Patent Office Fund for "collecting and distributing seeds, carrying out agricultural investigations, and procuring agricultural statistics." Congress approved his request, and in 1840 the first official census of agriculture provided a nationwide inventory of production. When the 1840 census information arrived, Ellsworth was able to combine it with other information to estimate production by states and territories. His estimates, made yearly through 1844, established the general pattern of annual agricultural reports that continues to this day.

THE BEGINNING OF THE USDA

USDA was established by Abraham Lincoln in 1862. The first USDA crop report appeared in July, 1863. NASS traces its roots all the way back to 1863, when USDA established a Division of Statistics.

The creation of USDA's Crop Reporting Board in 1905 (now called the Agricultural Statistics Board) was another landmark in the development of a nationwide statistical service for agriculture. A USDA reorganization in 1961 led to the creation of the Statistical Reporting Service, known today as NASS. The Agricultural Statistics Board is a part of this agency.

The Board prepares and releases the NASS reports. It consists of a permanent chairperson and secretary, and other NASS staff members chosen to partici-

pate in the preparation of a specific report based on their detailed knowledge of a particular topic.

Each year, NASS conducts hundreds of surveys and prepares reports covering everything about agriculture in the United States— production and supplies of food and fiber, prices paid and received by farmers, farm labor and wages, chemical use, and other various aspects of the farming and ranching industry. In addition, NASS' 45 State Statistical Offices publish data about many of the same topics for their individual states.

NASS publications cover a wide range of subjects, from traditional crops, such as corn and wheat, to specialties, such as mushrooms and flowers; from calves born to hogs slaughtered; from agricultural prices to land in farms. Because of the amount of information produced by the agency, NASS has earned the title, "The Fact Finders of Agriculture."

THE LESSONS

The enclosed lessons are intended as a starting point, to help you, as educators, discover the abundant learning opportunities available through exploration of the NASS data.

The six lessons were developed for students in grades K-3, 4-6, 7-8 and 9-12. One lesson is designed specifically for secondary level (9-12) language arts classes and one for secondary level math classes. All the data needed for completing the central part of each lesson is available with this packet, but for further exploration, additional data is available on the NASS Web site: www.nass.usda.gov.

Information is power, as farmers during the Civil War discovered when they were provided with the information they needed to get fair prices for their goods. The same will be true for your students as they learn where to find the reliable information they need to make good choices as consumers and citizens.

GUIDE FOR NAVIGATING THE NASS WEB SITE

Below are step-by-step instructions for locating some survey and census data from the NASS Web site www.nass.usda.gov/

Survey - Potatoes Report [Example: Potatoes, 2004]
At the NASS Web site, on the grey menu bar near the top, click on "Publications", then in the box to the right, click on "Title." Scroll until you get to the report title [Potatoes], click on "Potatoes" [PDF] for report by month, day, and year "09.22.05," then scroll down to page 13.

Census - Complete Volume 1 publication [U.S., State, and county level data]
At the NASS Web site, on the grey menu bar near the top, click on "Census". [Note: for 2002 U.S. Summary or State level data, click on "U.S. by Table" or "All States by Table." For 2002 State or county level data, click on "State Level by Table" or "All Counties by State by Table."]

Census - County Summary Highlights [Highlights for 2002 data]
At the NASS Web site, on the grey menu bar at the top, click on "Census", click on All Counties by State by Table." Select and click on your state (from the map or the state listing below the map), then click on the PDF Table 1 State Summary Highlights: 2002

Census - U.S. Agricultural Atlas Maps [Multi-color pattern and dot maps]
At the NASS Web site, on the grey menu bar near the top, click on "Census", then under "Specialty Products and Special Studies" click on "U.S. Agricultural Atlas Maps." Scroll down until you get to your map choice, then click on the map title desired.

Census - Ranking of State for Market Value of Agricultural Products Sold
At the NASS Web site, on the grey bar near the top, click on "Census", then under "Specialty Products and Special Studies," click on "Ranking: Market Value of Ag Products," Select and click on your state (from the map or state listing next to the map).

Agriculture Counts Lesson Plans, available in .PDF format, can be located on the NASS Web site at www.nass.usda.gov. In the box to the right, click on Visit the NASS Kids Site, then click on Ag for Teachers.

The Agriculture Counts Lesson Plans are provided by grade and subject series.

AGRICULTURE COUNTS

GRADES: K-3

SUBJECTS: Math, Reading, Social Studies, Visual Arts

OBJECTIVE: Students will read a story about our nation's first survey of agriculture, discuss reasons for counting things and gain practice by sorting and counting a variety of objects related to agriculture.

BACKGROUND

Do you remember when you first learned to count? For most people, counting is one of the first things their parents teach them. So if you're like most people you've been counting things almost as long as you've been talking.

Why do we count things? What kinds of things do we count? In ancient times people used tokens made from clay to keep count of things. If they wanted to remember how many sheep they had, they would gather as many of the tokens as they had sheep and place them in a safe place. Over time people began to keep count by making marks on the walls of caves to designate numbers. Some people think this was the first writing.

Why would ancient people need to remember how many sheep they had? They might need to keep track of them so they would know if any had wandered off. In that case they would need to go look for the one that was missing.

What are some of the things that you count? Maybe your mom tells you you can have three cookies. Or maybe you know you have 25 baseball cards and want to make sure your little brother didn't take any. Or maybe you know you will need 75 cents to buy a can of pop, and you need to know if you have enough money before you go to the store.

Counting is a very important part of all of our lives. The people who grow our food have to count very closely and keep very good records. They have to know how many acres to plant. They need to know how much seed and fertilizer they will need. And they need to know how many bushels of wheat or soybeans or peanuts their fields produced during the year. They keep careful records so they can make sure they are earning enough money to pay their

MATERIALS

Large bag of animal crackers

Snack mix (pretzels, peanuts, rice cereal, corn cereal, sunflower seeds, raisins)

8-10 paper plates

expenses. Those who raise animals need to know how many offspring their animals produce so they will know how much food to buy and how many they can sell. They need to know how much money they can expect to make, so they can plan for the coming year. Counting is a very important part of the farmer's job.

Our government needs to keep a good count of crops and farm animals so they will know what kind of help the farmers need to make sure we have enough food to eat. The U.S. Department of Agriculture's National Agricultural Statistics Service is the government agency responsible for keeping count.

VOCABULARY
agriculture
census
livestock
crop
fertilizer
expenses
counting
token
acre

ACTIVITY

1. Ask students why they count things. What kinds of things do they count? Write answers on the chalkboard.
2. Share background material, and read the story about Arthur Young and the President on Student Worksheet A.
3. Tell students they will be conducting their own agricultural census. Divide them into groups of four or five. Provide each group with a plate of animal crackers and a copy of the chart on Student Worksheet B.
4. Show students how to use tally marks to keep count. Explain that this is similar to the way ancient people kept count by drawing pictures on the walls of caves.
5. Have students draw pictures of the different animal crackers in separate columns on their worksheets. Then have students sort the animal crackers and use tally marks in the appropriate columns to count them.
6. Have students translate their tally marks into numbers, and ask one person from each group to make a "livestock report."
7. Draw a classroom chart on the chalkboard and record the data as the groups report it.
8. Repeat the process with the snack mix. Explain to students that the different ingredients in the mix represent different crops. Show students what each ingredient represents, and have students write the names of the different crops at the top of the columns on the chart on Student Worksheet C. Have students sort, count, record and report, as in steps five through seven.
9. Provide extra snack mix and animal crackers for students to eat.

ADDITIONAL ACTIVITIES

1. Provide students with other assortments to sort and count—

mixed seeds, mixed beans, mixed grains, variety candy mixes, crayons, bags of plastic farm animals, etc.

2. On a map of the U.S., have students locate the area surveyed in the story of Arthur Young and George Washington.
3. Have students make a mural like ancient cave drawings showing their animal cracker count. Use the classroom chart you made, and assign one animal to each of the groups. Students should make simple drawings to represent the animals they counted. Use brown paper and tempera paint in earth tones to make the mural look more like a cave drawing.
4. Make copies of the worksheets at the end of the lessons to give students additional practice counting.

EXTRA READING

Demi, *One Grain of Rice: A Mathematical Folk Tale*, Scholastic, 1996.

Mitsumasa Anno. *Anno's Counting Book*, HarperTrophy, 1986

Mitsumasa Anno. *Anno's Mysterious Multiplying Jar*, Paper Star, 1999.

Arthur Young and the President

In January of 1791, President George Washington received a letter from an Englishman named Arthur Young. Arthur Young had many questions about America.

"How much does it cost to buy land in America?" Arthur wrote.

"What kinds of crops grow there? How much does the land produce?"

"What kinds of animals do you raise on your farms? When you sell them, how much do you get paid?

President Washington didn't know the answers to all these questions, but he wanted to help. He thought as president of the new country he needed to know the answers to those questions.

But how could he find out what he needed to know?

He thought and thought and finally got an idea. He decided to send letters to all the farmers in the land and ask them the questions Arthur Young had asked him. This was our country's first agricultural survey.

At that time nine of every ten of the citizens of our country were farmers. Most lived and farmed in what is today Pennsylvania, West Virginia, Maryland, Virginia, and the District of Columbia.

Washington sent the letters out and waited. The mail was much slower in 1791 than it is today. There were no airplanes or even trucks to deliver the mail across country. There were barely roads. And certainly there were no telephones, e-mail or fax machines.

Finally, after several months had passed, President Washington started getting letters back from the farmers. When he got all the information back, he put it together.

Between September 24 and November 18, 1791, President Washington sent three letters to Arthur Young. These were our country's first crop reports.

Name _____

Agriculture Counts B

My Census of Agriculture

Livestock

Picture of animal	Count	Total

Name _____

Agriculture Counts C

My Census of Agriculture

Crops

Name of Crop	Count	Total
_____		
_____		
_____		
_____		
_____		

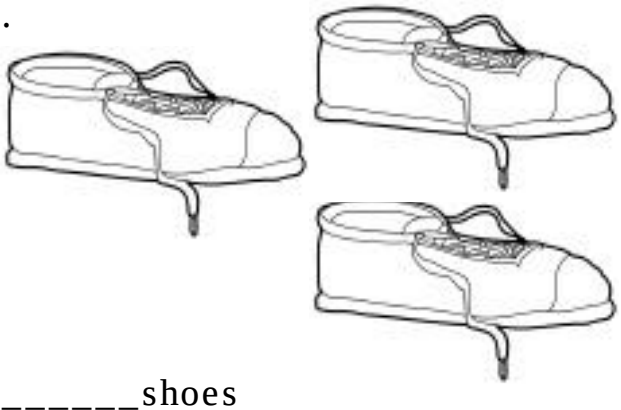
Name _____

Agriculture Counts D

Count and write the number.

1. 

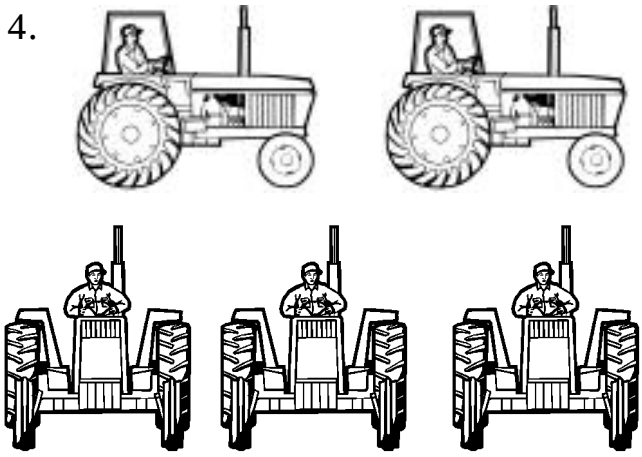
_____trees

2. 

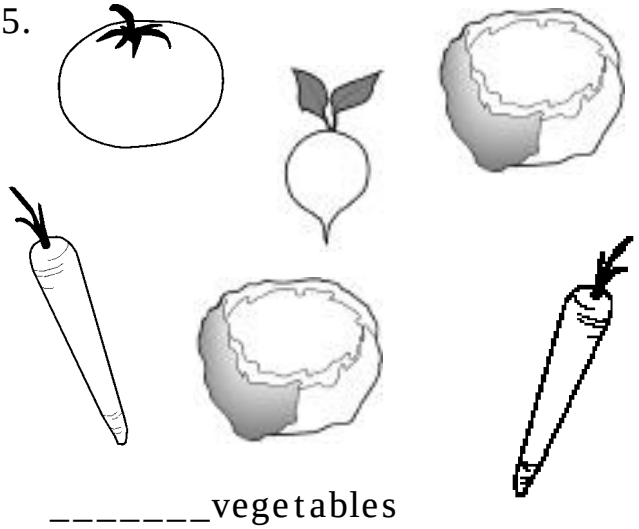
_____shoes

3. 

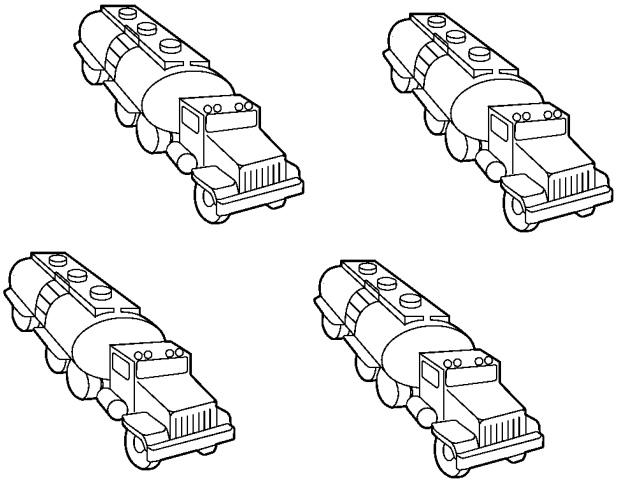
_____bugs

4. 

_____tractors

5. 

_____vegetables



_____trucks

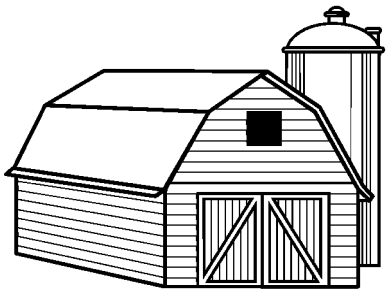
Oklahoma Ag in the Classroom, 1995

Name _____

Agriculture Counts E

Count and write the number.

1.



_____barn

2.

_____brushes

3.

_____pennies

4.

_____ducklings

5.

_____belts

6.

_____ice cream cones

Oklahoma Ag in the Classroom, 1995

WHERE DOES IT COME FROM?

GRADES: 4-6

SUBJECTS: Social Studies (Economics, Geography), Math, Language Arts

OBJECTIVE: Students will interpret U. S. Department of Agriculture's National Agricultural Statistics Service (NASS) data to discover where the agricultural commodities used in some common snacks were grown.

BACKGROUND

Different parts of our country are better for raising different agricultural commodities. Many of the fresh fruits and vegetables we eat grow in temperate parts of the country, like California, Florida and parts of Texas. That's because the growing season is longer in those parts of the continent. Wheat, barley, corn and other grain crops grow well in our country's midsection, in what once was grass land. In some parts of the country the land is not suitable for growing crops but provides good grazing land for cattle and other livestock. Potatoes grow best in cooler climates, so they are a good crop for mountainous regions where it stays cool longer in the spring. Some crops require a great deal of rain, and some need plenty of sunshine. We are able to produce many different kinds of products in our country because we have so many different climates.

Because of modern technology for storing, moving, and processing agricultural crops, we are able to have just about any kind of food we want to eat at any time of year.

The census of agriculture gathers numbers to help us know what grows best in which part of the country.

ACTIVITY

1. Share background material, and explore the meanings of the words "commodity," "product," "end product," and "byproduct." To illustrate, bring to class some examples of end products and the agricultural commodities from which they were made,

MATERIALS
(for 30 students)
5 small bags of corn chips (corn)

5 small bags of potato chips (potatoes)

5 small bags of apple chips or individual containers of applesauce (apples)

5 small packages of beef jerky (beef)

5 small packages of pretzels (wheat)

5 small packages of string cheese

large paper bag

classroom map of the U.S.

colored map pins, one color per group

map pencils

e.g., cotton ball (or raw cotton boll, if available) and cotton shirt, dry beans and bean dip, tomato and tomato sauce, apple and apple cider. Ask students to differentiate between the commodity and the end product.

2. Ask students to name their favorite foods. Write the foods on the chalkboard. Now ask students if they know what agricultural commodity these foods are made from and where the commodities grow. Write the guesses on the chalkboard.
3. Place all the snacks in a large paper bag, and have students draw from the bag to determine which group they will work with. Explain that each snack represents a major agricultural commodity grown in the U.S. Write the words "corn," "potatoes," "apples," "beef," "wheat," and "milk" on the chalkboard. Lead a class discussion to help students determine what product each snack represents.
4. For each group, make copies of the information about the specific agricultural commodity the group will be studying, the survey form, the data about their product and the map of the U.S. Have students read the information and answer questions on the survey form. Have the groups use the NASS data in the tables to determine where their assigned food grows and record that information on the survey form, using the questionnaire provided. Then have students locate the top five states where their snacks grow on the maps of the U.S. and color in those states.
5. Provide each group with a different color of map pins. Have each group report on its findings and mark the states where the designated food grows on a classroom map. Students should also report on growing conditions necessary for each product.
6. Lead a discussion in which you ask students what factors determine what is grown (climate, availability of land, transportation, storage capacities) in which states and how much is produced (climate, size of state, soil type).

VOCABULARY

statistics
agriculture
survey
analyze
data
production
yield
commercial
commodity
crop
product
end product
byproduct
cwt
irrigate
dormant

ADDITIONAL ACTIVITIES

1. If you have internet access for your students, have the groups compare their results with the "Inventory by County" maps on the NASS Web site. Go to the NASS Web site. Click on "Census of Agriculture." Click on "Agricultural Atlas Maps." Scroll down to find the appropriate commodity, e.g. Map # 139 for milk cows inventory, map # 144 for beef cows inventory.

2. Have students keep records for a week of what foods are served in the cafeteria. Have them research to find out what raw materials are used in the foods. Use the data to find out where the food is grown.
3. Have students interview those responsible for buying the food used in the cafeteria and determine how much, if any, local food is used in preparing meals.
4. Have each student choose a favorite food and research the three main ingredients in the food and where the ingredients are produced.
5. Data on NASS tables is presented in thousands. Have students multiply numbers or add zeroes to find the actual numbers of selected data.
6. Have students stay in their groups and research the states in which their ingredients were grown to find size, climate, population, other crops grown, etc. Then have each group choose a presentation method to report their findings to the class—skits, posters, etc.
7. Have students write as many statements as they can about the data and information provided.

EXTRA READING

Bartoletti, Susan Campbell, Black Potatoes: The Story of the Great Irish Famine, 1845-1850. Houghton-Mifflin, 2001.
Bial, Raymond, Corn Belt Harvest, Houghton Mifflin, 1991.
Corcoran, Barbara, Potato Kid, Macmillan, 1989.
Johnson, Sylvia, Wheat, Lerner, 1990.
Lauber, Patricia, Cowboys and Cattle Ranching Yesterday and Today, Thomas Y. Crowell, 1973.
Sabin, Louis, Agriculture, Troll, 1985.
Slawson, Michele Benoit, Apple Picking Time, Crown, 1994.
Watts, Barrie, Potato, Silver Burdett, 1988.

Name _____

Where Does It Come From?

1. My snack is_____

2. The main agricultural commodity used to make this snack is_____

3. Name some states where you think this commodity might be grown.

_____ _____ _____

4. Make a check mark next to the growing condition that comes closest to describing what your agricultural commodity needs.

a.__ Cool conditions.
b.__ Not too wet.
c.__ Sunny mild days when in bloom; plenty of rain mid summer.
d.__ Sometimes raised on land that cannot be used for other purposes.
e.__ Plenty of pasture and plenty of water.
f.__ Plenty of water.

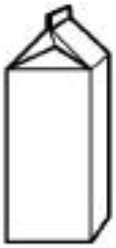
5. Look at the chart. Find the top five states where the main ingredient in your snack is produced.

1._____ 2._____

3._____ 4._____

5._____

6. Count the states listed._____ Are all 50 states represented? yes no



7. Is the state where you live on the list? yes no

If so, write the number showing how much of this agricultural product was

produced in your state. _____

8. List some products this agricultural commodity is used to make.

_____ _____

_____ _____

Name _____

Where Does It Come From?

Beef

We get meat from beef cattle and milk from dairy cattle. Although females from all cattle breeds produce milk and meat, some cattle are better at giving milk and some are better at providing meat.

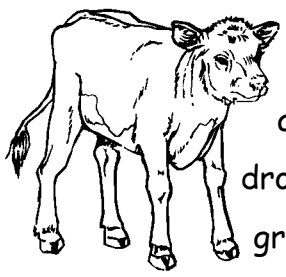
In a cow/calf operation, the farmer keeps cows for the calves they will produce. The mother cow carries the baby calf for a little longer than one school year. At birth the average calf will weigh 75-100 pounds, about the size of you and one of your friends. Calves grow by drinking milk from their mothers and by eating green grass from pastures. During the winter, calves stay in feed lots and eat grain. Sometimes they graze on wheat fields before it is time to let the wheat grow tall.

When the calves are big enough, about 800 pounds, they are sold to feed lots, where they are kept and fed.

From beef animals we get steaks, roasts and hamburgers. We also get leather for shoes, belts, baseball gloves and footballs. Gelatin in products such as ice cream and yogurt are made from the bones of the cow. Even chewing gum has an ingredient that comes from a cow. Here are some other products we get just from the fats and proteins produced by cattle.

makeup	detergent	floor wax
crayons	toothpaste	perfume

Cattle and calves for beef are produced in every state in the nation. They can be raised in many different climates and on many different kinds of land. In the West, cattle are often grazed on land that cannot be used for other purposes. This is land that erodes easily or is too rocky or dry. As long as the beef producer doesn't keep the animals for too long on one section of land, grazing animals help keep this land healthy. They fertilize the land with their droppings while their hooves break up the surface of the soil so tender grass can poke through.



CATTLE AND CALVES

Inventory -- 2002

Thousand Head

Alabama	1,438
Alaska	13
Arizona	841
Arkansas	1,842
California	5,234
Colorado	2,656
Connecticut	54
Delaware	22
Florida	1,739
Georgia	1,272
Hawaii	154
Idaho	1,990
Illinois	1,359
Indiana	862
Iowa	3,536
Kansas	6,321
Kentucky	2,395
Louisiana	856
Maine	90
Maryland	241
Massachusetts	51
Michigan	998
Minnesota	2,266
Mississippi	1,073
Missouri	4,460
Montana	2,397
Nebraska	6,203
Nevada	460
New Hampshire	40
New Jersey	42
New Mexico	1,591
New York	1,453
North Carolina	848
North Dakota	1,873
Ohio	1,241
Oklahoma	5,324
Oregon	1,361
Pennsylvania	1,633
Rhode Island	5
South Carolina	432
South Dakota	3,696
Tennessee	2,234
Texas	13,979
Utah	877
Vermont	284
Virginia	1,623
Washington	1,100
West Virginia	404
Wisconsin	3,338
Wyoming	1,270
U.S. (Total)	95,498

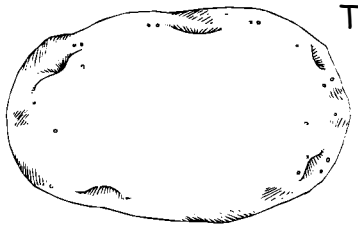
Source: USDA, NASS, 2002 Census of Ag

Name _____

Where Does It Come From?

Potatoes

The potato is not a root but a storage area, which is part of the plant's underground stem. The roots collect more water and food than the growing plant can use at one time.



The plant stores the excess food in oval packages, called tubers (the potato). When the greenery starts to wither and turn brown, the potatoes are ready to harvest.

Potatoes produce more pounds of protein per acre than corn, rice, wheat or oats. The average American eats about 125 pounds of potatoes and potato products each year.

Potatoes were first grown by ancient tribes living in the Andes Mountains of Bolivia and Peru as early as 200 AD. Archaeologists have found pictures of potato plants in designs on ancient pottery. The tribespeople preserved the potatoes by trampling them and then drying them.

Even though potatoes were first grown in South America, people in North America did not start eating them until after they became a popular food in Europe. European explorers carried potatoes from South America to Europe in 1570. About 150 years later the rulers of several European countries ordered their people to start growing potatoes. In Ireland, potatoes became the main food for the people. In the 1840's disease wiped out the potato crop in Ireland for two years in a row. Many Irish people moved to America then, because they had no food to eat.

Most of the world's potatoes today are grown in Europe. Potatoes are a truck crop grown in all 50 of the United States. A truck crop is a crop that is grown on a farm and taken to the market by truck.

Before they go to market, potatoes are graded according to size and quality. The price of the potato depends on how it looks and how much it weighs.

Potatoes grow best in cool weather and are an important crop in mountainous parts of the country, where the growing season is short.

From potatoes we get some of our favorite foods—French fries, mashed potatoes, potato chips and more.

POTATOES

Production – 2004
Thousand Cwt*

Alabama	228
Arizona	1,767
California	17,661
Colorado	25,786
Delaware	806
Florida	9,246
Idaho	131,970
Illinois	1,992
Indiana	1,120
Kannsas	1,360
Maine	19,065
Maryland	1,196
Massachusetts	800
Michigan	13,650
Minnesota	18,920
Missouri	1,992
Montana	3,551
Nebraska	9,288
Nevada	2,881
New Jersey	594
New Mexico	2,060
New York	5,184
North Carolina	2,700
North Dakota	26,765
Ohio	1,080
Oregon	19,775
Pennsylvania	2,640
Rhode Island	145
Texas	6,429
Virginia	1,200
Washington	93,810
Wisconsin	30,450
U.S. (Total)	456,041

*Cwt a unit of weight in the U.S. Customary System equal to 100 pounds.

Source: USDA, NASS

Name _____

Where Does It Come From?

Apples

Scientists say apples have been around for 750,000 years. In North America, the first apple orchard was planted in Boston, Massachusetts, in 1625.

As our country was settled, nearly every farm grew some apples. Most of the early varieties would be considered poor today. Of nearly 8,000 varieties known around the world, about 100 are grown in commercial quantity in the U.S.

Apples come in lots of colors and shapes. Each apple is loaded with minerals, vitamins and fiber. Apples are in the Pome family—a fruit whose seeds are embedded in the core of the fruit. The rose is also in this family. The average apple tree will bear fruit in three years, with full production coming in 8-10 years. A standard apple tree lives an average of 100 years.

Growing an apple takes all year. In the winter, while the trees are dormant, apple growers begin pruning—sawing off limbs and clipping branches to let the sunshine in. Pruning helps the tree produce better fruit.

About the time when frost ends in spring, the buds begin to swell. With the opening of the "King" blossom (the largest and centermost of the five blossom clusters), it is time for pollination to begin. Bee colonies rented from bee keepers must be moved in quickly. Sunny mild days are needed during bloom to encourage strong bee activity. Apples need more than one variety of pollen for the cross-pollination that ensures good fruit set.

Fruit size and firmness are affected by the moisture the apple trees receive in mid summer. If the weather is too dry, producers must irrigate.

August is the last growing month before the apples begin to ripen. Red apples need cool nights during harvest to trigger an enzyme which increases the amount of color or "blush." Apples bruise easily and must be hand picked. Picking begins around the end of August and ends in October.

Besides fresh apples for eating, apples give us applesauce, apple cider, apple juice, apple pie and other delicious baked treats.

APPLES

Total Production - 2004
Million Pounds

Arizona	22.2
California	370.0
Colorado	31.0
Connecticut	15.0
Georgia	14.0
Idaho	80.0
Illinois	49.0
Indiana	50.0
Iowa	2.1
Kentucky	5.5
Maine	31.5
Maryland	41.0
Massachusetts	28.5
Michigan	790.0
Minnesota	22.0
Missouri	49.0
New Hampshire	18.0
New Jersey	45.0
New York	1,040.0
North Carolina	145.0
Ohio	102.0
Oregon	140.0
Pennsylvania	455.0
Rhode Island	1.8
South Carolina	4.0
Tennessee	8.5
Utah	38.0
Vermont	32.5
Virginia	300.0
Washington	5,800.0
West Virginia	87.0
Wisconsin	52.0
U.S. (Total)	9,869.6

Source: USDA, NASS

Name _____

Where Does It Come From?

Wheat

Wheat is one of the oldest foods known to man. There are six classes and more than 30,000 varieties of wheat. The six classes are hard red winter, hard red spring, soft red winter, durum, hard white and soft white. They all have origins in seeds that were carried to the U.S. by European farm immigrants.

Since there are so many varieties of wheat, it can be grown in many different climates. Somewhere in the world wheat is being harvested every month of the year.

Planting of winter wheat begins before September in the northern U.S. and continues through October in the southern regions. The wheat will sprout and grow in the fall until a winter freeze occurs. It will then become dormant until spring, when it will mature until harvest. Winter wheat is harvested in May in the southern regions. Harvest continues through July in the north.

Too much rain creates problems at all stages of growth. Spring wheat may rot before sprouting. If planting is delayed because the ground is too wet, it may not mature.

If the plant does not have enough moisture, it will grow weak, and the wheat head won't produce plump kernels.

Hard wheat flours provide a variety of bread products. Durum semolina and flour are used to make pasta. Soft wheat is used to make crackers, cookies, cereals, cakes and pancakes. Wheat is also used to make wallpaper glue and other building products.

WHEAT

Production -- 2002
Thousand Bushels

Alabama	2,278
Arizona	9,601
Arkansas	34,968
California	33,591
Connecticut	3
Colorado	37,529
Delaware	3,605
Florida	212
Georgia	7,664
Idaho	78,507
Illinois	27,923
Indiana	15,345
Iowa	962
Kansas	262,980
Kentucky	16,448
Louisiana	5,708
Maryland	10,625
Michigan	28,249
Minnesota	64,610
Mississippi	5,980
Missouri	34,889
Montana	112,450
Nebraska	50,300
Nevada	384
New Jersey	1,718
New Mexico	4,212
New York	6,640
North Carolina	18,927
North Dakota	215,655
Ohio	46,929
Oklahoma	102,004
Oregon	34,080
Pennsylvania	8,937
South Carolina	5,710
South Dakota	42,414
Tennessee	13,061
Texas	75,132
Utah	3,848
Vermont	38
Virginia	10,213
Washington	128,411
West Virginia	304
Wisconsin	11,693
Wyoming	2,213
U.S. (Total)	1,577,005

Source: USDA, NASS, 2002 Census of Ag

Name _____

Where Does It Come From?

Corn

The corn plant is an American native. It was first grown by farmers in Mexico around 7,000 years ago.

Corn is an annual plant that grows seven to ten feet tall. It is actually a type of grass. Strong roots called prop roots help support the cornstalk. A tassel grows at the top and contains hundreds of small flowers that produce pollen.

Producers in the U.S. feed the largest part of the corn crop to cattle, hogs, sheep and poultry. The number of bushels of corn produced in the U.S. measures more than double that of any grain crop.

The different types of corn include dent corn, flint corn, sweet corn, popcorn and flour corn. Dent corn and flint corn are commonly called "field corn" because they are fed to animals. Sweet corn, popcorn and flour corn are used for human food.

Corn is planted in the early spring using a corn planter. The machine drops the kernels into rows and then presses the soil around each kernel. Before planting, the planter places fertilizer in the soil. The rest is up to the weather. Rain is extremely important because the corn plant needs a lot of water to grow.

Sometime between late September and November the corn will be dry enough to be harvested. Corn is harvested by a large combine. The machine cuts off the corn plant, removes the ear of corn and separates the kernels from the corn cob. Parts of the corn plant are left in the field to protect the soil for the next year.

There are more than 3,500 different uses for corn products, and more uses are being found each day. Corn makes oil, syrup, cereal, starch and more than 1,000 other products you can buy in the grocery store.

Corn kernels are used to make fructose, a liquid sugar used to sweeten soda pop and bakery goods. Cornstarch is also made from corn. It can be used to produce packaging materials which help protect the environment. Ethanol is made from corn and is used as fuel for cars, trucks and buses.

CORN

Production -- 2002
Thousand Bushels

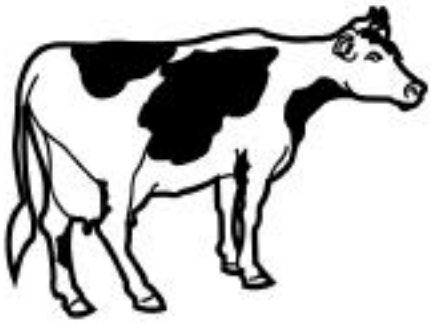
Alabama	15,240
Arizona	5.128
Arkansas	31,747
California	28,396
Colorado	102,653
Connecticut	362
Delaware	13,369
Florida	2,457
Georgia	26,720
Hawaii	203
Idaho	6,562
Illinois	1,418,566
Indiana	696,156
Iowa	1,851,276
Kansas	280,682
Kentucky	108,721
Louisiana	54,945
Maine	296
Maryland	30,042
Massachusetts	347
Michigan	234,709
Minnesota	989,888
Mississippi	58,488
Missouri	268,225
Montana	1,584
Nebraska	908,360
New Hampshire	113
New Jersey	4,031
New Mexico	8,509
New York	42,768
Nevada	34
North Carolina	58,918
North Dakota	111,380
Ohio	254,818
Oklahoma	23,642
Oregon	3,097
Pennsylvania	52,645
Rhode Island	4
South Carolina	11,148
South Dakota	295,167
Tennessee	64,081
Texas	197,109
Utah	2,134
Vermont	625
Virginia	22,659
Washington	14,156
West Virginia	3,057
Wisconsin	385,057
Wyoming	3,789
U.S. (Total)	8,613,062

Source: USDA, NASS, Census of Ag

Name _____

Where Does It Come From?

Milk

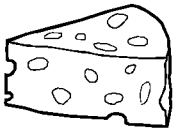


Just as beef cattle are raised mostly for their meat, dairy cattle are raised for their milk. The main breeds of dairy cows in the U.S. are Holstein, Guernsey, Jersey, Brown Swiss and Ayrshire. Some breeds produce more milk than others, and some produce richer milk than others.

A dairy cow weighs about 1,500 pounds. The average cow spends 6-10 hours a day eating. That's about 90 pounds of food. She eats hay (dried grass), grains (feed), and silage (chopped green grasses and green corn or beans). She drinks 25-50 gallons of water each day. That's nearly a bathtub full.

Cows that eat only grass produce about 48 glasses of milk a day.
Cows that eat grass and feed or silage produce 100 glasses a day.

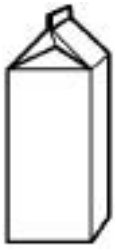
Cows make milk to feed their calves, but they are such big animals that they make much more milk than a calf needs. A dairy cow must have one calf a year, or she will stop producing milk. The cows must be milked twice a day and sometimes three times a day.



Dairy farmers are careful to keep the milk clean and avoid exposing it to the open air, which would contaminate it. The cow's udder is washed before she is milked to keep the milk clean.

Before modern milk delivery, when people traveled and wanted milk, they had to take their cows with them. Today a tanker truck picks up milk from the dairy each day and delivers it to the milk processing plant. At the dairy plant, the milk is pasteurized to kill any disease-causing bacteria.

The milk is processed into many different foods and dairy products, including butter, chocolate milk, ice cream, yogurt, cheese and more.

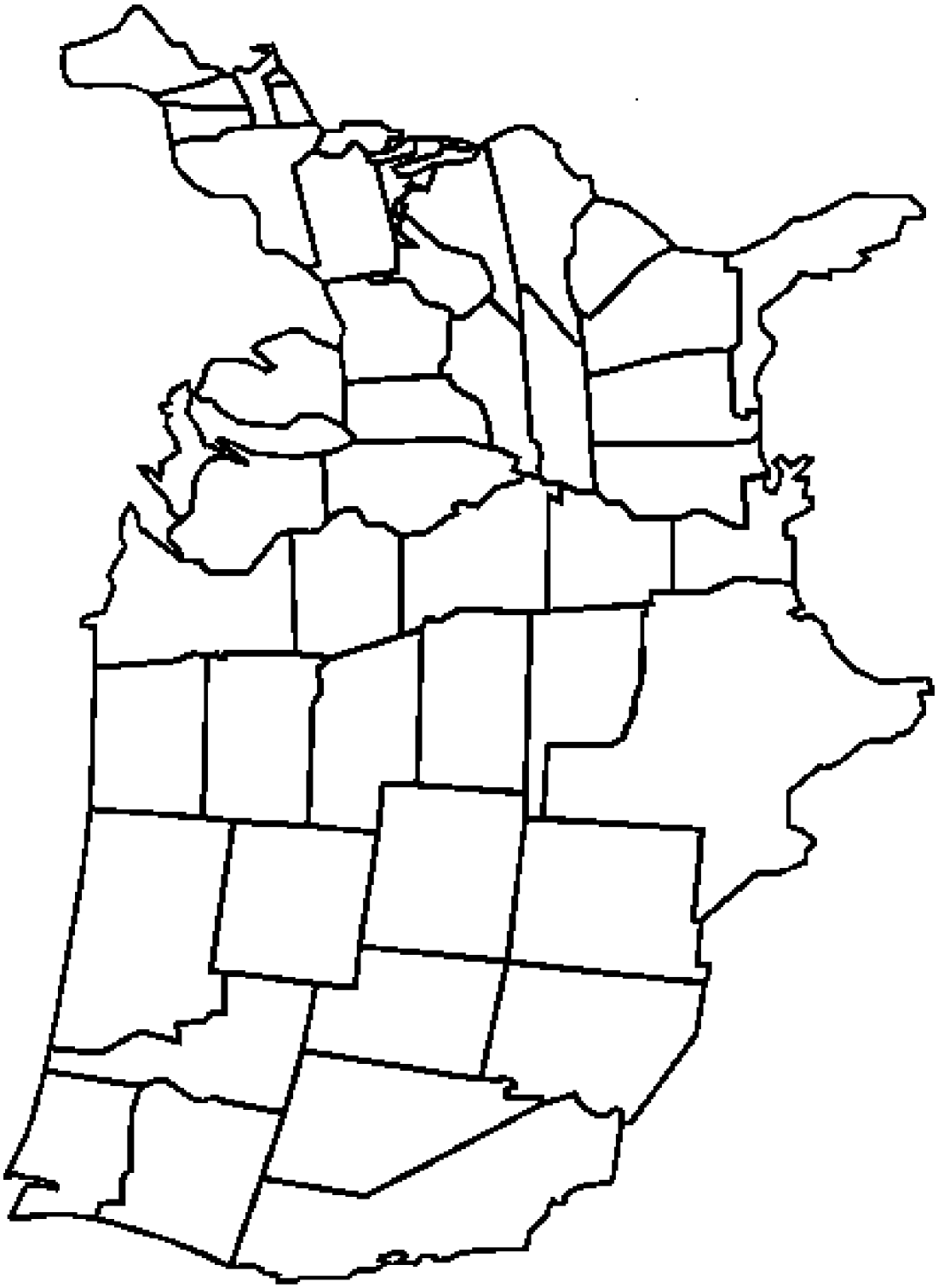


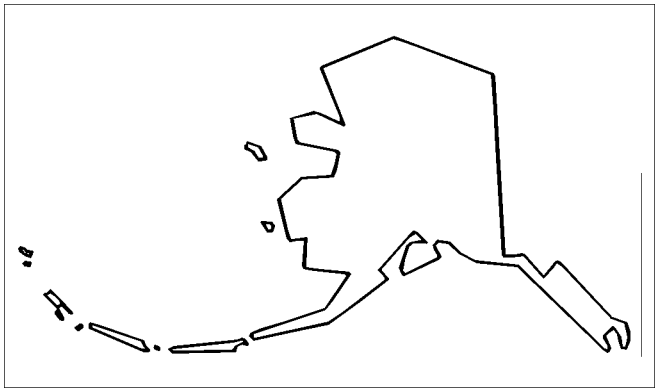
MILK

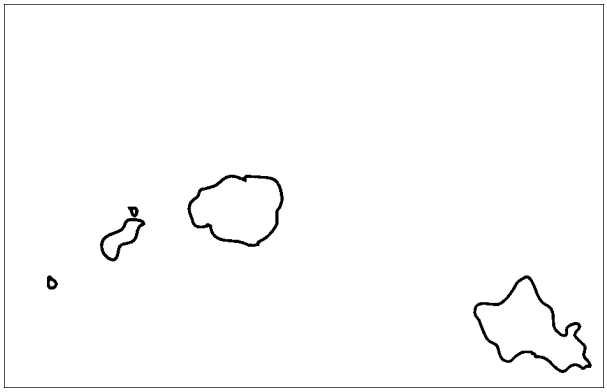
Production -- 2003
Million Pounds

Alabama	252
Alaska	16.7
Arizona	3,552
Arkansas	354
California	35,437
Colorado	2,153
Connecticut	413
Delaware	132
Florida	2,161
Georgia	1,444
Hawaii	92
Idaho	8,774
Illinois	2,047
Indiana	2,939
Iowa	3,810
Kansas	2,130
Kentucky	1,465
Louisiana	512
Maine	624
Maryland	1,215
Massachusetts	332
Michigan	6,375
Minnesota	8,258
Mississippi	423
Missouri	1,886
Montana	345
Nebraska	1,129
Nevada	485
New Hampshire	305
New Jersey	216
New Mexico	6,666
New York	11,952
North Carolina	1,044
North Dakota	520
Ohio	4,490
Oklahoma	1,312
Oregon	2,177
Pennsylvania	10,338
Rhode Island	22.1
South Carolina	318
South Dakota	1,330
Tennessee	1,205
Texas	5,630
Utah	1,622
Vermont	2,637
Virginia	1,731
Washington	5,581
West Virginia	216
Wisconsin	22,266
Wyoming	54
U.S. (Total)	170,394
Puerto Rico	820

Source: USDA, NASS







Where Does It Come From? (answers)

1. Beef jerky: 2. beef; 3. student determined; 4. d; 5. Texas, Kansas, Nebraska, Oklahoma, California; 6. 50 states; 7. specific to your state; 8. makeup, crayons, steaks, roasts, hamburgers, ball gloves, footballs, shoes, belts, ice cream, yogurt, chewing gum, detergent, toothpaste, floor wax, medicine.

1. Potato chips: 2. potatoes; 3. student determined; 4. a; 5. Idaho, Washington, Wisconsin, North Dakota, Colorado; 6. 33 states; 7. specific to your state; 8. French fries, mashed potatoes, potato chips.

1. Apple chips or applesauce: 2. apples; 3. student determined; 4. c; 5. Washington, New York, Michigan, California, Pennsylvania; 6. 35 states; 7. specific to your state; 8. apple-sauce, apple pie and other desserts, fresh apples for eating, apple cider, apple juice.

1. Pretzels: 2. wheat; 3. student determined; 4. b; 5. Kansas, North Dakota, Washington, Montana, Oklahoma; 6. 44 states; 7. specific to your state; 8. pasta, crackers, cookies, cereals, cakes, pancakes, wallpaper glue and other building products.

1. Corn chips: 2. corn; 3. student determined; 4. f; 5. Iowa, Illinois, Minnesota, Nebraska, Indiana; 6. 49 states; 7. specific to your state; 8. oil, syrup, cereal, starch, soda pop, bakery goods, cornstarch, fructose, ethanol, packaging materials.

1. String cheese: 2. milk; 3. student determined; 4. e; 5. California, Wisconsin, New York, Pennsylvania, Idaho; 6. 50 states; 7. specific to your state; 8. butter, chocolate milk, ice cream, yogurt, cheese and more.

THIS LAND IS OUR LAND

GRADES: 7-8

SUBJECTS: Math, Social Studies

OBJECTIVE: Students will interpret NASS data to determine loss or gain of farm land and compare land in production and crop production over a 50-year period.

BACKGROUND

All living things depend on soil to live. If we had no soil we would have nothing to eat. Soil that can be used for growing food is called arable land. Every year we lose thousands of acres of arable land. Between 1993 and 2003 we lost 30 million acres of arable land in the U.S. Some of the land is lost because people need places to live and build houses on it. Large portions get paved over every year for parking lots and shopping malls. Some is poisoned by industrial waste and other pollutants. Some of the land blows or washes away, and some of it just gets used up because it has been producing food year after year for many years.

Ever since George Washington conducted the first agricultural survey in our nation by gathering information about agricultural practices from his fellow farmers, conservation of farm land has been a primary concern. In 1788 he wrote, in a letter to Charles Carter, that improving "instead of exhausting our lands . . . ought to be the pursuit of every farmer. On this ground every experiment is a treasure, and the authors of them valuable members of society."

It took many years and loss of much valuable topsoil before American farmers learned the lesson George Washington had urged on them in 1788. The most dramatic loss occurred during the early 20th Century, when wheat shortages during World War I caused the price of wheat to rise. Because farmers could make quite a bit of money on wheat, and because the U.S. government encouraged them to do so, farmers on the fragile southern Great Plains plowed up the natural grass cover that had pro-

MATERIALS

1 large apple

1 sharp knife

a small cutting board

tected the soil for centuries and planted winter wheat. The area suffered severe drought between 1934 and 1937. With large areas of plowed land having no grassroot system to anchor it, much of the soil simply blew away. The dust storms and sand storms buried roads and houses. Clouds of dust reached as far east as Washington, DC.

In response to the disaster, the federal government created the Soil Erosion Service and the Civilian Conservation Corps to recover the land. Workers replanted grass, planted tree windbreaks and shelter belts and showed farmers scientific agricultural methods to help them protect the fragile ecosystem of the Southern Plains.

Farmers today are conservationists. They have to be. The land is their livelihood. Decades of conservation measures have started to pay off. The erosion rate by water on U.S. croplands has been reduced by 24 percent in the last 15 years. As of May, 2001, farmers had enrolled 31.4 million acres of farmland in the Conservation Reserve Program.

Although the total amount of land used for agriculture grows smaller every year, American farmers still are able to feed many more people on much less land than was possible in 1788 when George Washington was farming in Virginia. Back then one farm produced just about enough food for the family that lived on it and worked it. Today one farmer can produce enough to feed 135 people. In 1830 a farmer could produce 100 bushels of wheat on five acres of land. Today's farmer can produce the same amount on three acres, with far fewer labor hours. In 1850 the farmer could produce 100 bushels of corn on 2 1/2 acres. Today's farmer can produce the same amount on one acre.

VOCABULARY
arable
conservation
agriculture
survey
drought
ecosystem
bushel
acre

ACTIVITY

1. Use this demonstration to help students understand the importance of keeping track of land use. Tell students the apple represents the world. Use the diagram that follows to cut up the apple and explain distribution of land.
2. Divide students into five groups, and provide each group with the total land use data. Make sure students understand that the numbers are recorded per 1,000 acres. (Multiply each number by 1,000 to get the actual acreage.) Assign one decade to each group, and have the groups graph acres in agricultural use over the past 50 years.
3. Have the groups discuss their findings and write statements

about the decades they studied to share with the class. Lead a class discussion about land use. What does the data reveal about agriculture in the U.S.? Once the numbers went down did they ever go up again? Were there years when the numbers decreased at a greater rate than in previous years?

4. Have groups research the decades to which they were assigned and find factors that might have determined agricultural land use, e.g., economy, war, weather patterns, politics, etc.
5. Provide students with the charts on Student Worksheets B and C showing acres planted and production of wheat and corn. Have students graph this data. Are there years in which the production rate goes up even though the acres planted is down? Have students discuss possible reasons.

ADDITIONAL ACTIVITIES

1. Have students solve this problem: If one American farmer can feed 135 people, and there are 6 billion people in the world, how many American farmers would it take to feed all the people in the world?
2. Have students research population growth in the U.S. between 1950 and 2003 and graph those numbers with the data for land in agricultural production. Ask students to brainstorm in groups and make proposals to answer the question, "How can we continue to feed our growing population as agricultural land decreases?"
3. Have students figure the rate of agricultural land lost over the past 50 years and project rate of loss over the next 50 years. Do the same with population.
4. Have students research 1970 Nobel Prize winner Norman Borlaug and the Green Revolution to find one reason farmers are able to grow more food on less land. Students may look in the library for books and articles or use an internet search engine to find the information.
5. Have students research hydroponics and experiment with growing plants using this method.

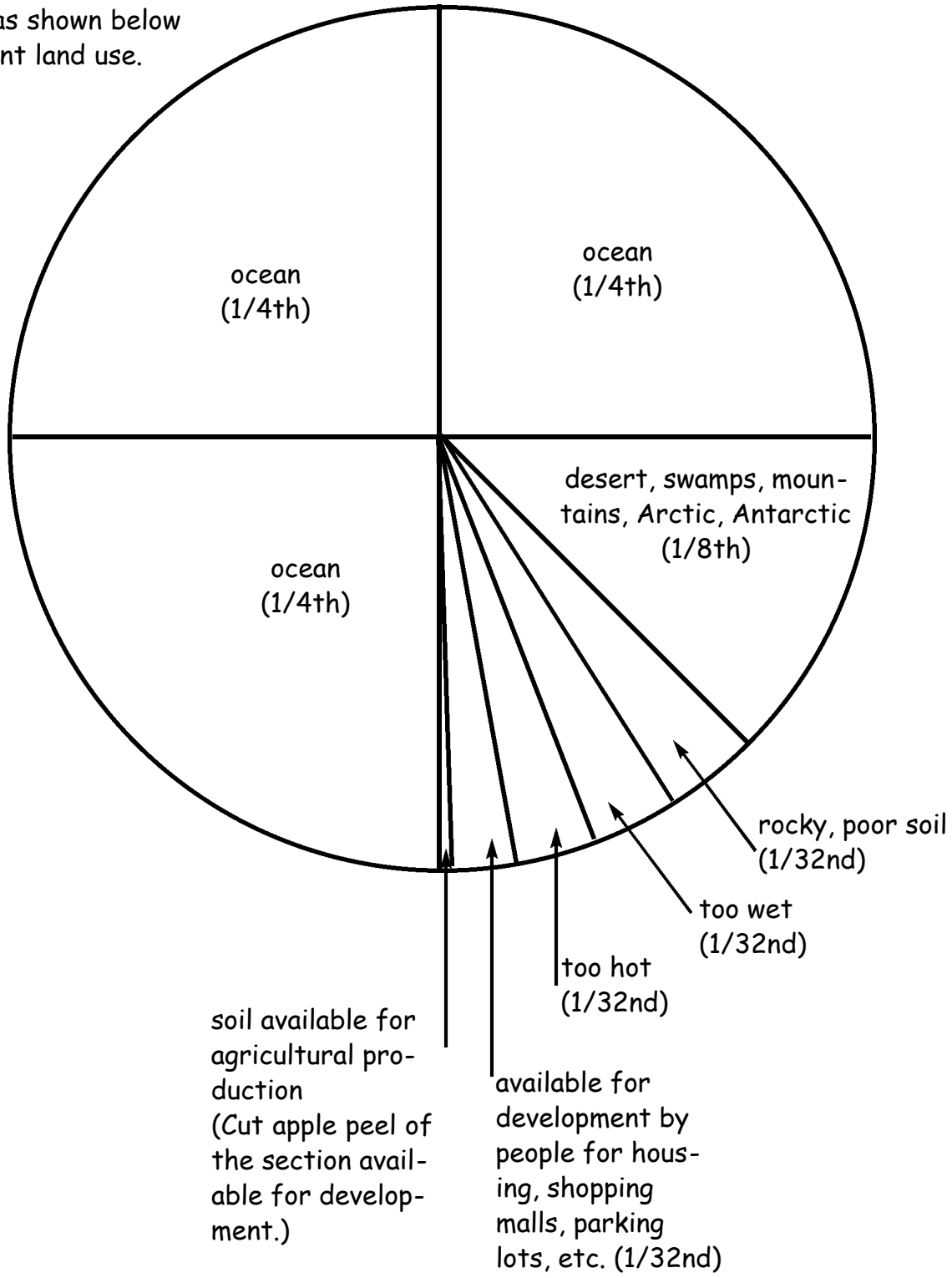
EXTRA READING

Andryszewski, Tricia, The Dust Bowl: Disaster on the Plains, Millbrook, 1993.
Bial, Raymond, Corn Belt Harvest, Houghton Mifflin, 1991.
Brandenburg, Jim, An American Safari: Adventures on the North

American Prairie, Walker Co., 1996.
Farris, John, The Dust Bowl, Lucent, 1989.
Hesse, Karen, Out of the Dust, Scholastic, 1998
Johnson, Sylvia, Wheat, Lerner, 1990
Sabin, Louis, Agriculture, Troll, 1985.
Staub, Frank, America's Prairies, Carolrhoda, 1996.

This Land is Our Land

Cut apple as shown below to represent land use.



Oklahoma Ag in the Classroom, 1994

U.S. Land in Farms, 1950-2005

Thousand Acres

1950	1 ,202,019
1951	1 ,203,500
1952	1 ,204,930
1953	1 ,205,740
1954	1 ,206,355
1955	1 ,201,900
1956	1, 197,070
1957	1, 191,340
1958	1, 184,944
1959	1, 182,563
1960	1, 175,646
1961	1, 167,699
1962	1, 159,383
1963	1, 151,572
1964	1, 146,106
1965	1, 139,597
1966	1, 131,844
1967	1, 123,456
1968	1, 115,231
1969	1, 107,811
1970	1, 102,371
1971	1 ,096,863
1972	1 ,092,065
1973	1 ,087.923
1974	1 ,084.433
1975	1 ,059.420
1976	1 ,054,075
1977	1 ,047,785
1978	1 ,044,790
1979	1 ,042,015
1980	1 ,038,885
1981	1 ,034,190
1982	1 ,027,795
1983	1 ,023,425
1984	1 ,017,803
1985	1 ,012,073
1986	1 ,005,333
1987	998,923
1988	994,423
1989	990,723
1990	986,850
1991	981,736
1992	978,503
1993	968.845
1994	965,935
1995	962,515
1996	958,675
1997	956,010
1998	952,080
1999	948,460
2000	945,080
2001	942,070
2002	940,300
2003	938,650
2004	936,295
2005	933,400

Source: USDA, NASS

Wheat Planted and Produced in the U.S., 1950-2005

	Wheat planted Thousand Acres	Wheat produced Thousand Bushels
1950	71,287	1,019,344
1951	78,524	988,161
1952	8,645	1,306,440
1953	78,931	1,173,071
1954	62,539	983,900
1955	58,246	937,094
1956	60,655	1,005,397
1957	49,843	955,740
1958	56,017	1,457,435
1959	56,706	1,117,735
1960	54,906	1,354,709
1961	55,707	1,232,359
1962	49,274	1,091,958
1963	53,364	1,146,821
1964	55,672	1,283,371
1965	57,361	1,315,603
1966	49,613	1,304,889
1967	67,264	1,507,598
1968	61,860	1,556,635
1969	53,450	1,442,679
1970	48,739	1,351,558
1971	53,822	1,618,636
1972	54,913	1,546,209
1973	59,254	1,710,787
1974	71,044	1,781,918
1975	74,900	2,126,927
1976	80,395	2,148,780
1977	75,410	2,045,527
1978	65,989	1,775,524
1979	71,424	2,134,060
1980	80,788	2,380,934
1981	88,251	2,785,357
1982	86,232	2,764,967
1983	76,419	2,419,824
1984	79,213	2,594,777
1985	75,535	2,424,115
1986	71,998	2,090,570
1987	65,829	2,107,685
1988	65,529	1,812,201
1989	76,615	2,036,618
1990	77,041	2,729,778
1991	69,881	1,980,139
1992	72,219	2,466,798
1993	72,168	2,396,440
1994	70,349	2,320,981
1995	69,031	2,182,708
1996	75,105	2,277,388
1997	70,412	2,481,466
1998	65,821	2,547,321
1999	62,714	2,299,010
2000	62,549	2,228,160
2001	59,432	1,947,453
2002	60,318	1,605,878
2003	62,141	2,344,760
2004	59,674	2,158,245
2005	57,229	2,104,690

Source: USDA, NASS

Corn Planted and Produced in the U.S., 1950 – 2005

	Corn planted Thousand Acres	Corn produced Thousand Bushels
1950	82,859	2,764,071
1951	83,275	2,628,937
1952	82.230	2,980,793
1953	81,574	2,881,801
1954	82,185	2,707,913
1955	80,932	2,872,959
1956	77,828	3,075,336
1957	73,180	3,045,355
1958	73,351	3,356,205
1959	82,742	3,824,598
1960	81,425	3,906,949
1961	65,919	3,597,803
1962	65,017	3,606,311
1963	68,771	4,019,238
1964	65,823	3,484,253
1965	65,171	4,102,867
1966	66,347	4,167,608
1967	71,156	4,860,372
1968	65,126	4,449,542
1969	64,264	4,687,057
1970	66,863	4,152,243
1971	74,179	5,646,260
1972	67,126	5,579,832
1973	72,253	5,670,712
1974	77,935	4,701,402
1975	78,719	5,840,757
1976	84,588	6,289,169
1977	84,328	6,505,041
1978	81,675	7,267,927
1979	81,394	7,928,139
1980	84,043	6,639,396
1981	84,097	8,118,650
1982	81,857	8,235,101
1983	60,207	4,174,251
1984	80,517	7,672,130
1985	83,398	8,875,453
1986	76,580	8,225,764
1987	66,200	7,131,300
1988	67,717	4,928,681
1989	72,322	7,531,953
1990	74,166	7,934,028
1991	75,957	7,474,765
1992	79,311	9,476,698
1993	73,239	6,337,730
1994	78,921	10,050,520
1995	71,479	7,400,051
1996	79,229	9,232,557
1997	79,537	9,206,832
1998	80,165	9,758,685
1999	77,386	9,430,612
2000	79,551	9,915,051
2001	75,702	9,502,580
2002	78,894	8,966,787
2003	78,603	10,089,222
2004	80,929	11,807,086
2005	81,759	11,112,072

Source: USDA, NASS

THE FACT FINDERS

GRADES: 9-12

SUBJECTS: Social Studies (American History, Economics)

OBJECTIVE: Students will interpret various tables from the NASS data to address contemporary issues in agriculture and compare them with historical issues.

BACKGROUND

In 1791, President George Washington received a letter from an Englishman named Arthur Young. Young had written to several farmers in the United States, requesting information on land values, crops, yields, livestock prices, and taxes. By personally conducting a mail survey and compiling the results, Washington was able to gather enough information to reply fully to his English correspondent. This was, in effect, the nation's first agricultural survey.

Between September 24 and November 18, 1791, Washington sent Young three letters that provided agricultural statistics on an area extending roughly 250 miles from north to south and 100 miles from east to west. The strip ran through an area which is today Pennsylvania, West Virginia, Maryland, Virginia, and the District of Columbia, where most of the young country's population lived.

Washington's reports to Young reflect some of the same concerns farmers have today. He worried that prices weren't keeping up with the cost of raising crops. He worried that some farmers weren't taking care of their land. He worried about the cost of transporting agricultural goods to markets and improving those routes.

Washington's legacy of surveying and reporting on the state of agriculture in our country continued during the Civil War, when the U.S. Department of Agriculture collected and distributed crop and livestock statistics to help farmers assess the value of the goods they produced. At that time, commodity buyers usually had more current and detailed market information than did farmers. This circumstance often prevented farmers from getting a fair price for the goods they produced on their farms. Producers in today's marketplace would be similarly handicapped were it not

for the information provided by USDA's National Agricultural Statistics Service (NASS).

The five-year census of agriculture is the most comprehensive, detailed information-gathering program for agriculture. It is a complete accounting of agricultural production in the United States and is the only source of uniform, comprehensive agricultural data for every county in the nation. From 1840 to 1920 the census of agriculture was taken every 10 years. Since 1925 the census has been taken every five years (currently in the years ending in 2 and 7) to coincide with other economic censuses covering manufacturing, mining and construction. The 2002 Census of Agriculture is the nation's 26th census. Anyone who receives a census report form is required by law to complete and return it.

NASS requests information from farm operators on the following subjects:

Land use and ownership.
Irrigated land.
Crop acreage and quantities harvested.
Livestock and poultry.
Value of products sold.
Product contracts and landlord shares.
More detailed farm-related income.
Computer and Internet use.
Multiple operator characteristics.

Twenty-five percent of the report forms include additional questions on the following:

Production expenses.
Fertilizer and chemicals.
Machinery and equipment.
Market value of land and buildings.
Income from farm-related sources.

Report forms are tailored for various parts of the country and are specific to the crops grown in a farmer's particular area.

Besides helping the farmer get a fair price for the goods produced on the farm, NASS survey and census data helps all of us as we plan for the future sustained by a safe and secure food supply.

Agribusinesses use the data to develop market strategies and to determine the most effective locations for service to agricultural producers. Farm organizations use it to evaluate and propose programs and policies that can help agricultural producers. Your elected representatives use census data to develop pro-

VOCABULARY
statistics
agriculture
survey
analyze
data
comprehensive
uniform
index

grams to protect and promote agriculture in the United States. Rural electric companies use the data to forecast future energy needs for agricultural producers and their communities. Colleges and universities use it in research programs to develop new and improved methods to increase agricultural production. State departments of agriculture use census and survey data to plan for operations during drought, and emergency outbreaks of diseases or infestations of pests.

NASS publications cover a wide range of subjects, from traditional crops, such as corn and wheat, to specialties, such as mushrooms and flowers; from calves born to hogs slaughtered; from agricultural prices to land in farms. Because of the amount of information produced by the agency, NASS has earned the title, "The Fact Finders of Agriculture."

ACTIVITY

1. Share background information, and discuss data collection. Show students Tables A and B under Issue # 1, and explain the use of index numbers for reporting data. Explain that the tables show index numbers for the prices farmers paid out and received in the years 1993-2000. Rather than show actual prices, the numbers show how the prices paid and received between 1993 and 2000 compare with prices paid and received between between 1990 and 1992. In the table, 100 stands for the average prices paid and received between 1990 and 1992, and the numbers for 1993-2000 show how the prices paid and received compare with the 1990-92 numbers. Have students use the chart to answer the following question: If farmers paid an average $50 per bushel for feed in the years 1990-1992, how much did they pay for a bushel of feed in 1993? (100=$50; price in 1993=$50 X 104 percent)
2. Divide students into three groups, and assign one of the following topics to each group: "Prices Received by Farmers vs. Prices Spent;" "Cost of Labor vs. Land Value;" "Caring for the Land." Students will use the NASS data provided to prepare group statements that provide modern-day comparisons with the statements about agriculture in the United States that George Washington made in 1791.
3. Have each group share its findings with the class and prepare questions about the issues they are examining to lead class discussions on the assigned topics. If necessary, use some of the questions below to help keep the discussions going.

Why was agriculture so important to President Washington, as leader of a new nation, that he personally conducted a survey to gather information about it?

Washington told Arthur Young that, at that time, labor was more valuable to the American farmer than land. Who were the laborers? What special circumstances existed then that do not exist today? (slavery) Who are today's agricultural laborers? (often migrant, or immigrant work - ers) What special issues surrounding labor exist today? What has happened since 1791 to change farm labor and the value of land in our country? (industrial revolution, mechanization of much farm labor, population growth mak - ing land more valuable, westward expansion)

If farmers cannot earn enough money to make a living or even cover their costs, who will feed us?

In George Washington's time, nearly everyone had to farm in order to survive. Advances in technology since then have made it possible for fewer farmers to feed more people, freeing the rest of us for other pursuits—medicine, art, information technology, etc. Yet poor agricultural practices continue to be blamed for degradation of our soil, water and air. What are the solutions? Should everyone go back to growing his or her own food? Should we encourage more research to develop more measures like those shown in the data?

ADDITIONAL ACTIVITIES

1. Have students watch the media for stories about agriculture and go to the NASS Web site—www.nass.usda.gov —to check the facts.
2. Much of Washington's report is concerned with wheat production. What are the top wheat-producing states in our nation today? (See NASS Web site.) Are any of the states included in Washington's report top wheat-producing states today? Why?

Name _____

The Fact Finders

ISSUE # 1: PRICES RECEIVED BY FARMERS VS. PRICES SPENT

In a letter to Englishman Arthur Young in 1791, George Washington expressed a concern that foreshadows one felt by farmers today, the difficulty of making enough money on the sale of their crops and stock to pay for the cost of producing them.

> ". . . although our agriculture, manufactures and commerce are progressing; although our taxes are light; although our laws are in a fair way of being administered well, and our liberties and properties secured on a solid basis by the general government having acquired more and more consistency strength and respectability as it moves on; yet, that no material change in the prices of (lands, stock, and grain) has taken place, except in a few instances of land, under peculiar advantages; nor is it probable there will be in the latter whilst there is such an immense territory back of us for the people to resort to."

Based on the data shown, what statement can you make about the trends in prices received for products and the costs of production? How are contemporary trends different from those George Washington reported? How are they the same?

INDEXES OF PRICES RECEIVED BY FARMERS, UNITED STATES, 1993-2000
PRICES RECEIVED (1990-92=100)

	1993	1994	1995	1996	1997	1998	1999	2000
ALL FARM PRODUCTS	101	100	102	112	107	102	96	96
ALL CROPS	102	105	112	127	115	107	96	96
Food Grains	105	119	134	157	128	103	90	86
Feed Grains & Hay	99	106	112	146	117	100	86	86
Cotton	89	109	127	122	112	107	85	82
Tobacco	101	102	103	105	104	104	102	107
Oil-Bearing Crops	108	110	104	128	131	107	83	85
Fruit & Nuts	93	90	97	118	110	113	112	99
Commercial Vegetables	117	109	121	111	118	123	110	123
Potatoes & Dry Beans	107	110	107	114	90	99	100	93
All Other Crops	103	105	106	108	108	108	108	108
Livestock & Products	100	95	92	99	98	97	95	97
Meat Animals	100	90	85	87	92	79	83	94
Dairy Products	98	99	98	114	102	119	110	94
Poultry & Eggs	105	106	107	120	113	117	110	107
Food Commodities	102	98	99	108	105	101	96	97

Source: NASS, USDA

INDEXES OF PRICES PAID BY FARMERS, UNITED STATES, 1993-2000
PRICES PAID (1990-92=100)

	1993	1994	1995	1996	1997	1998	1999	2000
PRICES PAID BY FARMERS FOR COMMODITIES & SERVICES, INTEREST, TAXES, & WAGE RATES	104	106	109	115	118	115	115	120
PRODUCTION ITEMS	104	106	108	115	119	113	111	116
Feed	102	106	103	129	125	110	100	102
Livestock & Poultry	104	94	82	75	94	88	95	110
Seed	101	108	110	115	119	122	121	124
Fertilizer	96	105	121	125	121	112	105	109
Agricultural Chemicals	109	112	116	119	121	122	121	120
Fuels	93	89	89	102	106	84	93	134
Farm Supplies & Repairs	107	109	112	115	118	119	121	124
Autos & Trucks	107	111	115	118	119	119	119	119
Farm Machinery	107	113	120	125	128	132	135	140
Building Materials	106	109	114	115	118	118	120	121
Farm Services	110	110	115	116	116	115	116	119
Rent	100	108	117	128	136	120	113	110
INTEREST	87	94	102	106	105	104	106	112
TAXES	108	106	109	112	115	119	120	123
WAGE RATES	108	111	114	117	123	129	135	140
PRODUCTION ITEMS, INTEREST, TAXES & WAGE RATES	103	106	108	115	118	114	113	118

Source: NASS, USDA

Name _____

The Fact Finders

ISSUE # 2: COST OF LABOR VS. LAND VALUE

President George Washington to Arthur Young, 1791 (in response to questions about agriculture in the U.S.)

> An English farmer must entertain a contemptible opinion of our husbandry, or a horrid idea of our lands, when he shall be informed that not more than 8 or 10 bushels of wheat is the yield of an acre; but this low produce may be ascribed, and principally too, to a cause which I do not find touched by either of the Gentlemen whose letters are sent to you, namely, that the aim of the farmers in this country (if they can be called farmers) is not to make the most they can from the land, which is, or has been cheap, but the most of the labor, which is dear, the consequence of which has been, much ground has been scratched over and none cultivated or improved as it ought to have been; whereas a farmer in England, where land is dear and labor cheap, finds it his interest to improve and cultivate highly, that he may reap large crops from a small quantity of ground.

Compare land and labor costs in the different regions shown in the following charts. Where are labor costs highest? Lowest? Where are land values highest? Lowest? What conclusion can you draw about the value of land vs. the value of labor today as compared with Washington's time? What other trends do you notice in the data?

HIRED WORKERS: WAGE RATES BY REGION AND UNITED STATES, 2001-2005

Dollars per hour

Region and State	2001	2002	2003	2004	2005
NORTHEAST CT, ME, MA, NH, NY, RI, VT	9.06	9.46	10.03	10.10	11.04
NORTHEAST II DE, MD. NJ, PA	8.47	8.87	9.83	9.26	10.56
APPALACHIAN I NC, VA	8.34	8.72	9.34	9.16	10.29
APPALACHIAN II KY, TN, WV	7.18	7.29	7.98	9.16	9.61
SOUTHEAST AL, GA, SC	7.88	8.08	8.87	8.10	9.45
FLORIDA	8.29	9.02	8.81	8.85	9.55
LAKE STATES MI, MN, WI	9.53	9.91	10.54	10.68	10.7
CORN BELT I IL, IN, OH	10.10	9.75	9.72	10.70	11.33
CORN BELT II IA, MO	9.05	9.74	9.50	10.15	11.50
DELTA STATES AR, LA, MS	7.73	7.95	8.63	9.03	8.68
NORTHERN PLAINS KS, NE, ND, SD	9.11	9.00	10.00	9.75	10.31
SOUTHERN PLAINS OK, TX	7.98	8.05	8.85	8.43	8.89
MOUNTAIN I ID, MT, WY	8.63	8.34	8.53	8.92	8.99
MOUNTAIN II CO, NV, UT	8.72	9.15	9.66	9.80	9.32
MOUNTAIN III AZ, NM	7.72	8.42	8.12	8.37	9.35
PACIFIC OR, WA	9.06	9.21	9.71	9.82	10.25
CALIFORNIA	8.75	9.15	9.38	9.46	10.36
HAWAII	10.66	10.90	11.04	11.11	11.95
U.S.	8.65	8.96	9.32	9.41	10.11

Source: USDA, NASS

NUMBER OF HIRED AGRICULTURAL WORKERS: 2000-2005

(1,000)

Region and State	2001	2002	2003	2004	2005
NORTHEAST CT, ME, MA, NH, NY, RI, VT	48	50	40	45	38
NORTHEAST II DE, MD. NJ, PA	45	41	34	35	39
APPALACHIAN I NC, VA	40	42	45	41	36
APPALACHIAN II KY, TN, WV	29	36	38	38	24
SOUTHEAST AL, GA, SC	37	33	38	31	37
FLORIDA	51	57	49	52	42
LAKE STATES MI, MN, WI	74	64	72	72	72
CORN BELT I IL, IN, OH	57	42	45	47	50
CORN BELT II IA, MO	41	25	26	22	29
DELTA STATES AR, LA, MS	43	38	31	33	34
NORTHERN PLAINS KS, NE, ND, SD	41	34	35	44	35
SOUTHERN PLAINS OK, TX	68	58	54	44	64
MOUNTAIN I ID, MT, WY	27	30	33	29	29
MOUNTAIN II CO, NV, UT	21	16	20	19	22
MOUNTAIN III AZ, NM	17	19	18	23	25
PACIFIC OR, WA	89	77	76	68	76
CALIFORNIA	223	265	230	200	181
HAWAII	8	8	7	8	7
U.S.	959	935	891	851	840

Source: USDA, NASS

Farm Real Estate: Average Value Per Acre, by Region and State, January 2001-2005

Region and State	2001	2002	2003	2004	2005
	Dollars	Dollars	Dollars	Dollars	Dollars
NORTHEAST	2,830	3,000	3,200	3,550	4,020
CT	7,700	8,500	9,500	10,200	10,800
DE	3,400	3,700	4,000	6,000	8,400
ME	1,500	1,600	1,750	1,850	1,950
MD	3,800	4,000	4,150	5,700	7,900
MA	7,300	8,100	9,300	9,900	10,500
NH	2,550	2,800	3,100	3,250	3,450
NJ	8,100	8,600	9,100	9,750	10,300
NY	1,520	1,610	1,700	1,780	1,880
PA	3,000	3,250	3,450	3,650	4,000
RI	7,700	8,300	9,300	10,200	11,200
VT	1,800	1,900	2,050	2,150	2,300
LAKE STATES	1,700	1,870	2,010	2,220	2,480
MI	2,280	2,470	2,680	2,920	3,150
MN	1,400	1,500	1,600	1,800	2,030
WI	1,950	2,150	2,300	2,500	2,850
CORN BELT	1,950	2,030	2,130	2,300	2,550
IL	2,290	2,350	2,430	2,610	2,900
IN	2,350	2,460	2,570	2,770	3,050
IA	1,850	1,920	2,010	2,200	2,490
MO	1,300	1,380	1,470	1,580	1,740
OH	2,470	2,600	2,740	2,930	3,180
NORTHERN PLAINS	556	576	594	632	704
KS	645	665	685	715	800
NE	735	760	775	825	910
ND	410	415	425	455	500
SD	405	430	460	500	570
APPALACHIAN	2,120	2,250	2,370	2,560	2,860
KY	1,750	1,830	1,900	2,000	2,200
NC	2,680	2,900	3,100	3,300	3,570
TN	2,200	2,300	2,400	2,500	2,700
VA	2,380	2,530	2,700	3,200	3,900
WV	1,270	1,330	1,400	1,500	1,600
SOUTHEAST	2,030	2,140	2,270	2,420	2,740
AL	1,640	1,700	1,760	1,860	2,050
FL	2,600	2,720	2,900	3,100	3,700
GA	1,900	2,050	2,200	2,350	2,590
SC	1,800	1,900	2,050	2,150	2,330
DELTA STATES	1,330	1,390	1,460	1,580	1,710
AR	1,350	1,410	1,480	1,650	1,820
LA	1,380	1,440	1,500	1,580	1,680
MS	1,270	1,330	1,400	1,480	1,580
SOUTHERN PLAINS	715	755	788	832	900
OK	655	680	705	745	805
TX	730	775	810	855	925
MOUNTAIN	471	500	523	550	599
AZ	1,250	1,400	1,500	1,600	1,750
CO	675	700	730	775	845
ID	1,200	1,240	1,280	1,360	1,480
MT	350	370	390	410	445
NV	450	465	480	500	550
NM	240	250	260	265	290
UT	975	1,040	1,100	1,150	1,230
WY	270	285	300	315	350
PACIFIC	2,120	2,240	2,350	2,480	2,700
CA	3,200	3,400	3,600	3,800	4,160
OR	1,100	1,150	1,200	1,250	1,350
WA	1,300	1,390	1,480	1,530	1,650

Source: USDA, NASS

Name _____

The Fact Finders

ISSUE # 3: CARING FOR THE LAND

President George Washington to Arthur Young, 1791 (in response to questions about agriculture in the U.S.)

> An English farmer must entertain a contemptible opinion of our husbandry, or a horrid idea of our lands, when he shall be informed that not more than 8 or 10 bushels of Wheat is the yield of an Acre; but this low produce may be ascribed, and principally too, to a cause which I do not find touched by either of the gentlemen whose letters are sent to you, namely, that the aim of the farmers in this country (if they can be called farmers) is not to make the most they can from the land, which is, or has been cheap, but the most of the labor, which is dear, the consequence of which has been, much ground has been scratched over and none cultivated or improved as it ought to have been; Whereas a farmer in England, where land is dear and labor cheap, finds it his interest to improve and cultivate highly, that he may reap large crops from a small quantity of ground. That the last is the true, and the first an erroneous policy, I will readily grant, but it requires time to conquer bad habits, and hardly anything short of necessity is able to accomplish it. That necessity is approaching by pretty rapid strides.

Washington criticizes farmers of his day for taking the abundance of land available for granted and not caring for it properly. American farmers had to learn the hard way that this resource was not limitless, although it may have seemed so in Washington's time. Look at the charts that follow and prepare a statement about the American farmer's conservation practices,* compared with those Washington reports in his letter.

Based on the information here, how are agricultural practices different today? How are they different?

*The charts report use of Integrate Pest Management (IPM) practices for different crops. IPM is a system of pest management aimed at reducing agricultural losses caused by pests using methods that cause minimal environmental damage and little or no health risk.

Percent of U.S. Farms Receiving Integrated Pest Management Practices, 2000

	Fruits and Nuts	Cotton	Vegetables	Soybeans
PREVENTION PRACTICES				
Tillage/etc. to manage pests	47	65	49	48
Remove or plow down crop residue	22	58	49	21
Clean implements after fieldwork	27	69	31	47
Water management practices	20	43	34	15
AVOIDANCE PRACTICES				
Adjust planting/harvesting dates	12	42	13	15
Rotate crops to control pests	6	48	67	75
Alternate planting locations	4	36	34	24
Grow trap crop to control insects	4	16	4	2
MONITORING PRACTICES				
Scouted for pests	51	72	50	44
Records kept to track pests	24	56	15	18
Field mapping of weed problems	11	27	17	20
Soil analysis to detect pests	15	32	14	19
Pheromones to monitor pests	16	35	5	1
Weather monitoring	35	39	26	25
SUPPRESSION PRACTICES				
Scouting used to make decisions	29	49	11	21
Biological pesticides	19	36	19	5
Beneficial organisms	17	21	22	2
Maintain ground cover or physical barriers	26	22	40	19
Adjust planting methods	10	7	27	14
Alternate pesticides	44	58	43	34
Pheromones to disrupt mating	10	15	3	*

*Insufficient reports to publish data

Source: NASS, USDA

The Fact Finders (possible answers)

Issue # 1: Based on the data shown, what statement can you make about the trends in prices received for products and the costs of production? How are contemporary trends different from those George Washington reported? How are they the same?

Prices received for products have gone down while the costs of production have gone up. The largest decrease in prices received was for food grains. The largest increase in expenses was for farm machinery and wage rates.

Issue # 2: Based on the data shown, where are labor costs highest? Lowest? Where are land values highest? Lowest? What conclusion can you draw about the value of land vs. the value of labor today as compared with Washington's time? What other trends do you notice in the data?

Labor costs are highest in Hawaii, the Corn Belt, and the Northeast. They are lowest in the Delta states of Arkansas, Louisiana and Mississippi, the Southern Plains of Oklahoma and Texas, and the Mountain states of Idaho, Montana and Wyoming. Farm real estate is highest in the Northeastern states of Rhode Island, Connecticut and Massachusetts and lowest in the Northern Plains states and Mountain states. Wages paid to workers and the total number of workers have risen slightly. The cost of real estate has risen. Mechanization of much farm work has reduced the need for labor. Land is probably worth more than labor today, as com - pared with Washington's time.

Issue # 3: Look at the data and prepare a statement about the American farmer's conservation practices, compared with those Washington reports in his letter.

Some American farmers have started to use practices that help conserve the soil, although in most cases, according to the data presented, it is less than 50 percent of all farmers. Scouting for pests was the most popular conservation practice, especially among cotton producers. Cotton producers were also most likely to use prevention practices like tillage and cleaning implements after field work. Soybean producers were most likely to rotate crops.

ARTHUR YOUNG AND THE PRESIDENT

GRADES: 9-12

SUBJECT: Language Arts

OBJECTIVE: Students will translate NASS data into prose for a variety of purposes.

BACKGROUND

In 1791, President Washington received a letter from an Englishman named Arthur Young, who had written to several farmers requesting information on land values, crops, yields, livestock prices, and taxes. By personally conducting a mail survey and compiling the results, Washington was able to gather enough information to reply fully to his English correspondent. This was, in effect, the Nation's first agricultural survey.

Between September 24 and November 18, 1791, Washington sent Young three letters that provided agricultural statistics on an area extending roughly 250 miles from north to south and 100 miles from east to west. The strip ran through an area, which is today Pennsylvania, West Virginia, Maryland, Virginia, and the District of Columbia, where most of the young country's population lived.

Washington asked Congress to establish a National Board of Agriculture in 1776, but Congress rejected the idea at that time.

The issue wasn't raised again until 1839, when Commissioner of Patents Henry Ellsworth persuaded Congress to designate $1,000 from the Patent Office Fund for "collecting and distributing seeds, carrying out agricultural investigations, and procuring agricultural statistics."

In 1840, the first census of agriculture collected detailed agricultural information to provide the first nationwide inventory of agricultural production.

The U.S. Department of Agriculture (USDA) was established by Abraham Lincoln in 1862, and its first crop report appeared in July, 1863. The National Agricultural Statistics Service (NASS) traces its roots all the way back to 1863, when USDA estab-

lished a Division of Statistics.

During the Civil War, USDA collected and distributed crop and livestock statistics to help farmers assess the value of the goods they produced. At that time, commodity buyers usually had more current and detailed market information than did farmers, a circumstance that often prevented farmers from getting a fair price for their goods. Producers in today's marketplace would be similarly handicapped were it not for the information provided by NASS.

NASS publishes reports covering everything about agriculture in the U.S.— production and supplies of food and fiber, prices paid and received by farmers, farm labor and wages, farm aspects of the industry. In addition, NASS' 45 Field Offices publish data about many of the same topics for their individual states.

NASS publications cover a wide range of subjects, from traditional crops, such as corn and wheat, to specialties, such as mushrooms and flowers; from calves born to hogs slaughtered; from agricultural prices to land in farms.

Because of the amount of information produced by the agency, NASS has earned the title, "The Fact Finders of Agriculture."

VOCABULARY
yield
survey
cwt
bale
bushel

ACTIVITY

1. Ask students how they get information to friends who they don't see every day. Record responses on the chalk board. Does anyone communicate by writing letters?
2. Share background information about the correspondence between George Washington and Englishman Arthur Young and the first agricultural surveys. Ask students where they would go to find the kind of information Arthur Young asked George Washington to provide. Why did the President of the United States think the questions were important enough to personally gather the information and reply?
3. Provide each student with the data on the following pages and a copy of the letter, a modern day version of the letter Arthur Young might have written to George Washington. Have students use the data to compose a reply. Students should cover the following topics in their letters: land value, crops, yields, and livestock prices.
4. Divide students into groups, and have each group select either a commodity or a state or region and use the data to

develop promotional brochures and posters and to make oral presentations, using technology (Power Point) when available.

ADDITIONAL ACTIVITIES

1. Provide students with excerpts from George Washington's letters to Arthur Young and others at the end of this lesson, and have them rewrite them in modern English.
2. Have students explore additional data on the National Agricultural Statistics Service Web site, www.nass.usda.gov. Have them choose a region or agricultural commodity and write news releases or reports.
3. Have students design surveys gathering specific information about their school to share with someone from another school, state or country. After students gather the information, have them use it to write letters to the other schools. Have students present the information to local audiences in a variety of forms—charts, graphs, prose, oral presentations, etc.
4. Have students design surveys about the agriculture in another country. Make arrangements to connect with an overseas classroom via e-mail. Divide your class into two groups, and have one group correspond overseas via e-mail and another using traditional mail service. Compare the results. Discuss advantages and disadvantages of both means of communication.

Name _____

Arthur Young and the President

[Date]

Dear _____,

It was nice to get your letter and to hear all about your school, your town and your friends. I loved the photos you sent of your family's camping trip. What a beautiful place!

It's always interesting to hear about life in your country. I hope I get to visit there someday. I would also love for you to come visit me. As you know, my family has a farm, and when I am not in school, I am usually helping with that.

What is farming like in your country? What kinds of crops grow there? Are there some crops that your country produces more than any other? How much is produced in a year? What kind of livestock do you raise? How much is it sold for? How much does farm land cost? Is it more expensive in certain parts of the country? Does the price stay the same, or does it go up and down from one year to the next?

As you can see, I have many questions. Thank you again for your letter. I look forward to hearing from you again.

Your Friend,
Pat

Farm Real Estate: Average Value Per Acre, by Region and State, January 2001-2005

Region and State	2001	2002	2003	2004	2005
	Dollars	Dollars	Dollars	Dollars	Dollars
NORTHEAST	2,830	3,000	3,200	3,550	4,020
CT	7,700	8,500	9,500	10,200	10,800
DE	3,400	3,700	4,000	6,000	8,400
ME	1,500	1,600	1,750	1,850	1,950
MD	3,800	4,000	4,150	5,700	7,900
MA	7,300	8,100	9,300	9,900	10,500
NH	2,550	2,800	3,100	3,250	3,450
NJ	8,100	8,600	9,100	9,750	10,300
NY	1,520	1,610	1,700	1,780	1,880
PA	3,000	3,250	3,450	3,650	4,000
RI	7,700	8,300	9,300	10,200	11,200
VT	1,800	1,900	2,050	2,150	2,300
LAKE STATES	1,700	1,870	2,010	2,220	2,480
MI	2,280	2,470	2,680	2,920	3,150
MN	1,400	1,500	1,600	1,800	2,030
WI	1,950	2,150	2,300	2,500	2,850
CORN BELT	1,950	2,030	2,130	2,300	2,550
IL	2,290	2,350	2,430	2,610	2,900
IN	2,350	2,460	2,570	2,770	3,050
IA	1,850	1,920	2,010	2,200	2,490
MO	1,300	1,380	1,470	1,580	1,740
OH	2,470	2,600	2,740	2,930	3,180
NORTHERN PLAINS	556	576	594	632	704
KS	645	665	685	715	800
NE	735	760	775	825	910
ND	410	415	425	455	500
SD	405	430	460	500	570
APPALACHIAN	2,120	2,250	2,370	2,560	2,860
KY	1,750	1,830	1,900	2,000	2,200
NC	2,680	2,900	3,100	3,300	3,570
TN	2,200	2,300	2,400	2,500	2,700
VA	2,380	2,530	2,700	3,200	3,900
WV	1,270	1,330	1,400	1,500	1,600
SOUTHEAST	2,030	2,140	2,270	2,420	2,740
AL	1,640	1,700	1,760	1,860	2,050
FL	2,600	2,720	2,900	3,100	3,700
GA	1,900	2,050	2,200	2,350	2,590
SC	1,800	1,900	2,050	2,150	2,330
DELTA STATES	1,330	1,390	1,460	1,580	1,710
AR	1,350	1,410	1,480	1,650	1,820
LA	1,380	1,440	1,500	1,580	1,680
MS	1,270	1,330	1,400	1,480	1,580
SOUTHERN PLAINS	715	755	788	832	900
OK	655	680	705	745	805
TX	730	775	810	855	925
MOUNTAIN	471	500	523	550	599
AZ	1,250	1,400	1,500	1,600	1,750
CO	675	700	730	775	845
ID	1,200	1,240	1,280	1,360	1,480
MT	350	370	390	410	445
NV	450	465	480	500	550
NM	240	250	260	265	290
UT	975	1,040	1,100	1,150	1,230
WY	270	285	300	315	350
PACIFIC	2,120	2,240	2,350	2,480	2,700
CA	3,200	3,400	3,600	3,800	4,160
OR	1,100	1,150	1,200	1,250	1,350
WA	1,300	1,390	1,480	1,530	1,650

Source: USDA, NASS

Crop Summary: Production, United States, 2005

Crop	Units	2005 (Thousand)
GRAIN & HAY		
Barley	Bushel	211,896
Corn for Grain	Bushel	11,112,072
Corn for Silage	Ton	106,311
Hay, All	Ton	150,590
Alfalfa	Ton	75,771
All Other	Ton	74,819
Oats	Bushel	114,878
Proso Millet	Bushel	13,545
Rice	Cwt	223,235
Rye	Bushel	7,537
Sorghum for Grain	Bushel	4,218
Sorghum for Silage	Ton	2,104,690
Wheat, All	Bushel	1,499,129
Winter	Bushel	101,105
Durum	Bushel	504,456
Other Spring		
OILSEEDS		
Canola	Pounds	1,580.985
Cottonseed	Tons	8,501
Flaxseed	Bushels	19,695
Mustard Seed	Pounds	35,114
Peanuts	Pounds	4,821,250
Rapeseed	Pounds	3,000
Safflower	Pounds	192,545
Soybeans for Beans	Bushels	3,086,432
Sunflower	Pounds	4,018,355
COTTON, TOBACCO & SUGAR CROPS		
Cotton, All	Bales	23,719.0
Upland	Bales	23,064.0
Amer-Pima	Bales	655.0
Sugarbeets	Tons	27,654
Sugarcane	Tons	27,134
Tobacco	Pounds	639,709
DRY BEANS, PEAS & LENTILS		
Austrian Winter Peas	Cwt	307
Dry Edible Beans	Cwt	27,222
Dry Edible Peas	Cwt	14,003
Lentils	Cwt	5,163
Wrinkled Seed Peas	Cwt	755
POTATOES & MISC.		
Coffee (HI)	Pounds	6,400
Ginger Root (HI)	Pounds	5,100
Hops	Pounds	59,914.5
Peppermint Oil	Pounds	6,980
Potatoes, All	Cwt	420,879
Winter	Cwt	4,892
Spring	Cwt	18,724
Summer	Cwt	16,237
Fall	Cwt	381,026
Spearmint Oil	Pounds	1,933
Sweet Potatoes	Cwt	15,747
Taro (HI)	Pounds	4,000

Source: USDA, NASS

Livestock: Average Prices Received by States, 2004

Dollars per cwt

	Lambs	Hogs	Beef Cattle
Alabama		43.90	80.70
Alaska		73.00	90.00
Arizona	95.00	59.30	101.00
Arkansas		47.40	82.60
California	90.40	49.50	68.70
Colorado	101.00	52.70	104.00
Connecticut		45.50	65.00
Delaware		44.70	80.00
Florida		43.70	63.20
Georgia		50.30	66.10
Hawaii		87.00	45.30
Idaho	95.60	49.00	78.00
Illinois	100.00	50.80	85.50
Indiana	102.00	48.90	72.20
Iowa	94.90	49.90	86.80
Kansas	95.80	47.40	84.80
Kentucky		48.10	84.30
Louisiana		44.10	63.70
Maine		45.50	78.00
Maryland		44.60	80.00
Massachusetts		45.50	70.00
Michigan	94.00	45.90	68.70
Minnesota	94.70	49.80	76.20
Mississippi		46.70	70.60
Missouri	101.00	46.10	92.30
Montana	112.00	52.30	91.00
Nebraska	98.30	50.80	88.70
Nevada	98.00	45.80	89.40
N ENG (1)	125.00		
New Hampshire		45.50	75.00
New Jersey		41.80	52.00
New Mexico	100.00	48.30	482.00
New York	114.00	43.80	47.70
North Carolina		50.60	79.80
North Dakota	103.00	51.40	89.80
Ohio	98.50	49.30	77.70
Oklahoma	96.00	44.10	96.60
Oregon	94.40	51.60	82.30
Pennsylvania	115.00	46.70	73.30
Rhode Island		45.50	65.00
South Carolina		49.00	81.20
South Dakota	115.00	50.40	89.30
Tennessee		47.30	77.90
Texas	110.00	44.90	86.50
Utah	101.00	53.90	90.00
Vermont		45.50	70.00
Virginia	101.00	46.60	79.20
Washington	96.00	48.90	94.00
West Virginia	102.00	46.10	67.20
Wisconsin	92.50	46.30	65.00
Wyoming	114.00	46.70	98.80
Other ST (2)	96.00		
U.S. Average	101.00	49.30	85.90

(1) Includes CT, ME, MA, NH, RI & VT

(2) Other States include: AL< AK< AR< DE< FL, GA< HI, KY, LA< MD, MS, NJ, NC, SC & TN

Source: USDA, NASS

Arthur Young and the President

Back before telephones, e-mail and fax machines, people relied heavily on letters for sharing all kinds of information. The following are quotes from letters George Washington wrote to an English agriculturalist, Arthur Young, and others. Read the quotes, and then rewrite them in modern English, as though you were writing them to a friend today. Try to guess the meaning of unfamiliar words by reading them in context. Also notice the punctuation, capitalization and spelling that is different from what is considered correct today.

1. I have a prospect of introducing into this Country a very excellent race of animals also, by means of the liberality of the King of Spain. One of the Jacks which he was pleased to present to me (the other perished at sea) is about 15 hands high, his body and Limbs very large in proportion to his height; and the Mules which I have had from him appear to be extremely well formed for Service. I have likewise a Jack and two Jennets from Malta, of a very good size, which the Marquis de la Fayette sent to me. The Spanish Jack seems calculated to breed for heavy, slow draught; and the other for the Saddle or lighter carriages. From these, altogether, I hope to secure a race of extraordinary goodness, which will stock the Country. Their longevity and cheap keeping will be circumstances much in their favor. I am convinced, from the little experiments I have made with ordinary Mules, (which perform as much labor, with vastly less feeding than horses) that those of a superior quality will be of the best cattle we can employ for the harness. And indeed, in a few years, I intend to drive no other in my carriage: having appropriated for the sole purpose of breeding them, upwards of 20 of my best Mares.

   George Washington
   (Letter to Arthur Young, December 4, 1788)

2. Every improvement in husbandry should be gratefully received and peculiarly fostered in this Country, not only as promoting the interests and lessening the labour of the farmer, but as advancing our respectability in a national point of view; for in the present State of America, our welfare and prosperity depend upon the cultivation of our lands and turning the produce of them to the best advantage.

   George Washington
   (Letter to Samuel Chamberlain, April 3, 1788)

3. When I speak of a knowing farmer, I mean one who understands the best course of crops; how to plough, to sow, to mow, to hedge, to Ditch and above all, Midas like, one who can convert everything he touches into manure, as the first transmutation towards Gold; in a word one who can bring worn out and gullied lands into good tilth in the shortest time.

George Washington
(Letter to George William Fairfax, June 30, 1785)

4. To tell a farmer. . . that his Cattle & ca. Ought to be regularly penned in summer and secured from bad weather in winter, and the utmost attention paid to the making of manure for the improvement of his fields at both seasons; that his oxen should be well attended to, and kept in good and fit condition, thereby enabling them to perform the labor which they must undergo; to remind him of these things would, I say, be only observing what every Farmer must be thoroughly sensible of his duty enjoins...

George Washington
(Letter to William Pearce, September 23, 1793)

5. I think it would be no unsatisfactory experiment to fat one bullock altogether with Potatoes; another, altogether with Indian meal; and third with a mixture of both: keeping an exact account of the time they are fatting, and what is eaten of each, and of hay, by the different steers; that a judgement may be formed of the best and least expensive mode of stall feeding beef for market, or for my own use.

George Washington
(Letter to William Pearce, December 7, 1794)

6. No wheat that has ever yet fallen under my observation, exceeds the White which some years ago I cultivated extensively; but which, from inattention during my absence from home of almost nine years has got mixed or degenerated as scarcely to retain any of its original characteristic properties. But if the march of the Hessian Fly, Southerly, cannot be arrested. . .this White Wheat must yield the palm to the yellow bearded, which alone, it seems, is able to resist the depredations of that destructive insect. This makes your present of it to me more valuable. It shall be cultivated with care.

George Washington
(Letter to John Beale Bordley, August 17, 1788)

MAKING SENSE OF THE CENSUS

GRADES: 9-12

SUBJECT: Math

OBJECTIVE: Students will compare properties of the mean and the median using NASS data.

BACKGROUND

During the Civil War, the U.S. Department of Agriculture (USDA) collected and distributed crop and livestock statistics to help farmers assess the value of the goods they produced. At that time, commodity buyers usually had more current and detailed market information than did farmers. This circumstance often prevented farmers from getting a fair price for their goods. Producers in today's marketplace would be similarly handicapped were it not for the information provided by the USDA's National Agricultural Statistics Service (NASS).

NASS conducts weekly, monthly, quarterly and annual surveys and the five-year census of agriculture. Surveys provide current information about production, economics and environmental topics.

The five-year census of agriculture is the most comprehensive, detailed information-gathering program for agriculture. It is a complete accounting of agricultural production in the United States and is the only source of uniform, comprehensive agricultural data for every county in the nation. From 1840 to 1920 the census of agriculture was taken every 10 years. Since 1925 the census has been taken every five years (currently in the years ending in 2 and 7) to coincide with other economic censuses covering manufacturing, mining and construction. The 2002 Census of Agriculture is the nation's 26th census. Anyone who receives a census report form is required by law to complete and return it.

NASS requests information from farm operators on the following subjects:

- Land use and ownership.
- Irrigated land.

- Crop acreage and quantities harvested.
- Livestock and poultry.
- Value of products sold.
- Product contracts and landlord shares.
- More detailed farm-related income.
- Computer and Internet use.
- Multiple operator characteristics.

Twenty-five percent of the report forms include additional questions on the following:

- Production expenses.
- Fertilizer and chemicals.
- Machinery and equipment.
- Market value of land and buildings.
- Income from farm-related sources.

Report forms are tailored for various parts of the country and are specific to the crops grown in a farmer's particular area.

Besides helping the farmer get a fair price for the goods produced on his or her farm, census of agriculture data helps all of us as we plan for the future sustained by a safe and secure food supply.

Agribusinesses use census data to develop market strategies and to determine the most effective locations for service to agricultural producers. Farm organizations use it to evaluate and propose programs and policies that can help agricultural producers. Our elected representatives use census data to develop programs to protect and promote U.S. agriculture. Rural electric companies use the data to forecast future energy needs for agricultural producers and their communities. Colleges and universities use it in research programs to develop new and improved methods to increase agricultural production. State departments of agriculture use census data to plan for operations during drought and emergency outbreaks of diseases or infestation of pests.

VOCABULARY
statistics
mean
median
central tendency
data
uniform
consistent
assess
goods
commodity

NASS survey and census data would just be a sea of numbers without tools for interpreting it. Statistics is the branch of mathematics that collects, organizes, and analyzes data. Various statistical operations can be performed on data such as those collected in a survey or census. One such operation is measures of central tendency. Measures of central tendency show averages. Median and mean are two types of central tendencies.

The **median** is a measure of the "middle" of the data. For an

odd number of data points arranged in ascending order, the median is actually the middle value. For an even number of data points it is the value halfway between the two middle data points. For example, census data for 2002 reports the number of farms for Payne County, Oklahoma, as being 1,115 in 1992; 1,281 in 1997; and 1,445 in 2002. In this set, the median, the middle number, is 1,281. Another set of data, for the entire U.S., shows 2,197,690 in 1994; 2,196,400 in 1995; 2,190,500 in 1996; and 2,190,510 in 1997. In this set, since there is an even number of data points, the median would be 2,193,450 (the halfway point between 2,196,400 and 2,190,500).

The **mean** is computed by adding all the numbers in the set (1,115, 1,281, and 1445 in the case of number of farms in Payne County, Oklahoma) and dividing the sum by the number of elements added (3). So the mean number of farms for Payne County, Oklahoma, from 1992 to 2002, would be 1,280.

ACTIVITY

1. Ask students what they know about statistics. How do statistics affect their daily lives? For example, those who are athletes might think of how statistics help them know how well they are performing.
2. Share background information about the census of agriculture. Ask students why it would be important to gather statistical information about agriculture. Explain that learning to interpret statistics can help them make good decisions as consumers and citizens.
3. Hand out the data showing statistical information about the number of farms in the U.S. between 1982 and 2002. Explain median and mean. (See background information.) On the chalkboard, write the number in the bottom right corner of each chart indicating the total number of farms in the U.S. for the years 1982-2002. As a class, find the median and the mean from that set of numbers.
4. Divide students into groups. Assign one region to each group, and hand out the worksheets. Have students work in groups to complete a worksheet for each region.
5. Have students report their findings and discuss what the numbers say about trends in agriculture for each region. Are farms growing larger as the total number of farms decrease?
6. Discuss central tendency. Ask which would be least influenced by a change in one of the individual numbers—mean or median?

What sorts of changes in a data set make the mean change? What sorts of changes in a data set make the median change? Discuss how these changes would affect interpretation of the census data.

ADDITIONAL ACTIVITIES

1. Have students look for examples in the popular press where the mean of a data set is cited and other examples where the median is cited. Why do you think the authors of those articles chose to cite those particular measures of center? Would readers have received a different impression of the data under discussion if other (or additional) measures of center had been reported?
2. If computers and Internet connections are available, direct students to the NASS Web site, www.usda.gov/nass/. For Census of Agriculture data, go to "Census of Agriculture, then click on "All Counties by State by Table" find your state, then your county. Have students find data for your state or county showing number of farms and economic sales classes for 1982 through 2002. Using the mean and median, have students describe the trends for farms in your county.
3. On the NASS Web site, have students find the top three crops grown in your state and county. Students may use NASS survey data, which provide more current estimates, or census information data, which provide information that is more comprehensive and is the only source of uniform agricultural data for every county in the United States.
4. Instruct students to find 10 other states or counties that grow the same crops as those grown in your state, and create a graph that shows the median and mean for production levels. Ask students "If you wanted to build a processing plant to add value to that crop, how might this historical data be useful?"

Name _____

Making Sense of the Census

Region_____

Total number of farms

1982_____ 1987_____ 1992_____ 1997____ 2002_____

Median_____ Mean_____

Farms earning $1,000-9,999

1982_____ 1987_____ 1992_____ 1997____ 2002_____

Median_____ Mean_____

Farms earning $10,000-99,999

1982_____ 1987_____ 1992_____ 1997____ 2002_____

Median_____ Mean_____

Farms earning $100,000 and over

1982_____ 1987_____ 1992_____ 1997____ 2002_____

Median_____ Mean_____

Did the total number of farms increase or decrease between 1982 and 2002?

Did the total number of farms earning $1,000-9,999 increase or decrease between 1982 and 2002?

Did the total number of farms earning $10,000-90,999 increase or decrease between 1982 and 2002?

Did the total number of farms earning $100,000 or more increase or decrease between 1982 and 2002?

What conclusions can you draw about this region from the statistics?

NUMBER OF FARMS: ECONOMIC SALES CLASS BY STATE, REGION, AND UNITED STATES, 1982

	$1,000-9,999	$10,000-99,999	$100,000 & Over	Total
NORTHEAST				
Connecticut	1,560	1,033	562	3,155
Maine	2,722	1,960	916	5,598
Massachusetts	2,203	1,760	658	4,621
New Hampshire	1,222	641	277	2,140
New Jersey	3,597	2,565	1,111	7,273
New York	13,585	15,572	7,396	36,553
Pennsylvania	20,986	19,959	7,241	48,186
Rhode Island	295	202	69	566
Vermont	1,792	2,276	1,341	5,409
TOTAL	47,962	45,968	19,571	113,501
NORTH CENTRAL				
Illinois	23,198	47,398	23,467	94,063
Indiana	27,027	32,777	11,794	71,598
Iowa	18,638	63,724	29,832	112,194
Kansas	21,028	37,416	10,514	68,958
Michigan	23,645	21,812	6,639	52,096
Minnesota	49,320	42,057	9,154	100,531
Missouri	51,892	50,077	6,861	108,830
Nebraska	9,766	34,121	147,051	190,938
North Dakota	5,651	23,575	6,340	35,566
Ohio	34,705	34,899	8,832	78,436
South Dakota	6,384	23,305	6,225	35,914
Wisconsin	20,123	43,195	13,880	77,198
TOTAL	261,214	454,198	290,785	1,006,197
SOUTH				
Arkansas	22,562	12,670	8,169	43,401
Delaware	928	1,158	1,022	3,108
Florida	14,738	10,085	4,707	29,530
Georgia	20,408	13,603	7,751	41,762
Kentucky	52,227	37,928	4,159	94,314
Louisiana	13,522	7,542	3,978	25,042
Maryland	6,271	5,343	2,782	14,396
Mississippi	20,412	8,833	4,842	34,087
North Carolina	30,421	24,250	9,019	63,690
Oklahoma	33,742	24,410	5,080	63,232
South Carolina	11,641	6,233	2,344	20,218
Tennessee	53,563	21,945	3,524	79,032
Texas	91,533	49,972	13,804	155,309
Virginia	27,164	14,030	3,920	45,114
West Virginia	10,976	2,330	474	13,780
TOTAL	410,108	240,332	75,575	726,015
WEST				
Alaska	353	82	26	461
Arizona	2,698	1,637	1,587	5,922
California	28,227	23,819	15,745	67,791
Colorado	8,607	10,654	4,423	23,684
Hawaii	2,222	1,422	360	4,004
Idaho	7,605	10,003	4,731	22,339
Montana	5,951	11,223	4,343	21,517
Nevada	991	926	436	2,353
New Mexico	5,604	3,788	1,477	10,869
Oregon	15,791	7,973	3,840	27,604
Utah	6,151	4,430	1,341	11,922
Washington	13,898	9,451	6,203	29,552
Wyoming	2,550	4,047	1,369	7,966
TOTAL	100,648	89,455	45,881	235,984
US	819,932	829,953	431,812	2,081,697

NUMBER OF FARMS: ECONOMIC SALES CLASS BY STATE, REGION, AND UNITED STATES, 1987

	$1,000-9,999	$10,000-99,999	$100,000 & Over	Total
NORTHEAST				
Connecticut	1,437	958	529	2,924
Maine	2,625	1,719	902	5,246
Massachusetts	2,584	1,779	720	5,083
New Hampshire	1,176	540	264	1,980
New Jersey	4,039	2,411	1,088	7,538
New York	12,070	13,323	7,299	32,692
Pennsylvania	19,227	19,293	7,614	46,134
Rhode Island	299	175	75	549
Vermont	1,772	1,891	1,394	5,057
TOTAL	45,229	42,089	19,885	107,203
NORTH CENTRAL				
Illinois	21,595	43,040	19,647	84,282
Indiana	24,829	29,533	10,953	65,315
Iowa	18,767	55,844	26,787	101,398
Kansas	21,313	33,349	9,379	64,041
Michigan	20,414	17,784	6,396	44,594
Minnesota	20,641	41,956	16,406	79,003
Missouri	45,783	40,904	8,892	95,579
Nebraska	11,515	32,909	13,979	58,403
North Dakota	5,917	22,350	5,947	34,214
Ohio	31,687	31,320	8,541	71,548
South Dakota	6,714	21,496	6,782	34,992
Wisconsin	18,576	26,392	15,357	60,325
TOTAL	247,751	396,877	149,066	793,694
SOUTH				
Alabama	22,390	9,490	4,486	36,366
Arkansas	21,313	12,302	9,100	42,715
Delaware	827	751	1,108	2,686
Florida	15,008	9,871	4,796	29,675
Georgia	19,080	11,215	6,896	37,191
Kentucky	49,261	30,485	3,547	83,293
Louisiana	11,985	6,889	3,709	22,583
Maryland	5,872	4,196	2,586	12,654
Mississippi	16,796	7,551	4,417	28,764
North Carolina	26,205	17,603	8,118	51,926
Oklahoma	32,325	23,584	5,071	60,980
South Carolina	10,204	4,777	1,905	16,886
Tennessee	46,446	18,292	3,464	68,202
Texas	91,516	52,415		143,931
Virginia	23,211	12,025	2,577	37,813
West Virginia	10,113	2,764	486	13,363
TOTAL	402,522	224,210	62,266	689,028
WEST				
Alaska	270	128	39	437
Arizona	2,631	18,732	1,707	23,070
California	26,997	25,786	17,071	69,854
Colorado	8,325	10,678	4,409	23,412
Hawaii	2,171	1,674	375	4,220
Idaho	7,566	9,214	4,453	21,233
Montana	6,302	11,671	4,197	22,170
Nevada	1,114	973	504	2,591
New Mexico	5,660	4,028	1,615	11,303
Oregon	14,997	7,863	3,845	26,705
Utah	5,870	4,549	1,389	11,808
Washington	12,667	9,347	5,940	27,954
Wyoming	2,522	3,892	1,583	7,997
TOTAL	97,092	108,535	47,127	252,754
US	792,624	771,711	278,344	1,698,748

NUMBER OF FARMS: ECONOMIC SALES CLASS BY STATE, REGION, AND UNITED STATES, 1992

	$1,000-9,999	$10,000-99,999	$100,000 & Over	Total
NORTHEAST				
Connecticut	1,379	943	446	2,768
Maine	2,371	1,622	903	4,896
Massachusetts	1,987	1,634	741	4,362
New Hampshire	1,070	583	266	1,919
New Jersey	3,858	2,564	1,060	7,482
New York	10,193	10,730	7,327	28,250
Pennsylvania	15,624	16,355	9,012	40,991
Rhode Island	268	197	77	542
Vermont	1,742	1,527	1,465	4,734
TOTAL	38,492	36,155	21,297	95,944
NORTH CENTRAL				
Illinois	17,555	33,735	22,186	73,476
Indiana	21,210	24,632	12,056	36,688
Iowa	15,956	46,242	30,882	93,080
Kansas	17,569	29,796	11,669	59,034
Michigan	17,173	16,598	7,075	40,846
Minnesota	17,086	33,837	19,102	70,025
Missouri	41,217	36,613	10,600	88,430
Nebraska	8,672	26,081	16,191	50,944
North Dakota	4,424	16,752	8,678	29,854
Ohio	26,333	28,283	9,674	64,290
South Dakota	5,783	18,114	8,714	32,611
Wisconsin	16,654	28,783	17,313	62,750
TOTAL	188,422	339,466	174,140	702,028
SOUTH				
Alabama	18,638	8,915	4,885	32,438
Arkansas	18,526	11,402	9,720	39,648
Delaware	656	685	1,091	2,432
Florida	13,079	9,837	5,108	28,024
Georgia	17,207	10,256	7,048	34,511
Kentucky	42,621	35,496	5,030	83,147
Louisiana	10,900	6,412	4,161	21,473
Maryland	4,814	3,822	2,710	11,346
Mississippi	15,450	7,048	4,624	27,122
North Carolina	21,260	15,678	9,342	46,280
Oklahoma	29,578	23,645	5,993	59,216
South Carolina	9,667	4,666	2,021	16,354
Tennessee	41,558	20,410	3,937	65,905
Texas	84,300	53,074	17,051	154,425
Virginia	20,793	12,614	4,214	37,621
West Virginia	10,025	3,127	619	13,771
TOTAL	359,072	227,087	87,554	673, 713
WEST				
Alaska	224	125	34	383
Arizona	2,193	1,726	1,463	5,382
California	22,211	22,583	17,817	62,611
Colorado	8,318	10,250	4,895	23,463
Hawaii	2,255	1,638	439	4,332
Idaho	6,842	7,889	4,890	19,621
Montana	5,560	9,992	4,861	20,413
Nevada	1,013	889	482	2,384
New Mexico	5,634	4,029	1,804	11,467
Oregon	14,066	7,924	4,175	26,165
Utah	5,552	4,445	1,500	11,497
Washington	10,604	8,058	6,659	25,321
Wyoming	2,269	3,662	1,855	7,786
TOTAL	86,741	83,210	50,874	220,825
US	672,727	685,918	333,865	1,472,068

NUMBER OF FARMS: ECONOMIC SALES CLASS BY STATE, REGION, AND UNITED STATES, 1997

	$1,000-9,999	$10,000-99,999	$100,000 & Over	Total
NORTHEAST				
Connecticut	1,588	1,003	464	3,055
Maine	2,397	1,626	767	4,790
Massachusetts	2,092	1,728	859	4,679
New Hampshire	1,389	693	275	2,357
New Jersey	3,946	2,386	1,161	7,493
New York	10,544	10,277	6,865	27,686
Pennsylvania	15,406	14,978	9,598	39,982
Rhode Island	275	246	97	618
Vermont	2,097	1,632	1,333	5,062
TOTAL	39,734	34,569	21,419	95,722
NORTH CENTRAL				
Illinois	15,853	26,615	23,170	65,638
Indiana	17,766	20,542	12,063	50,371
Iowa	14,416	35,690	31,456	81,562
Kansas	16,007	25,354	13,436	54,797
Michigan	15,650	15,348	7,273	38,271
Minnesota	16,257	26,642	20,639	63,538
Missouri	41,292	33,193	10,685	85,170
Nebraska	7,972	21,700	18,205	47,877
North Dakota	4,363	14,264	8,659	27,286
Ohio	24,117	25,132	10,742	59,991
South Dakota	5,042	14,621	9,447	29,110
Wisconsin	15,961	24,485	15,772	56,218
TOTAL	194,696	283,586	181,547	659,829
SOUTH				
Alabama	20,374	8,185	4,694	33,253
Arkansas	19,451	10,457	10,032	39,940
Delaware	577	639	1,078	2,294
Florida	13,298	9,565	5,177	28,040
Georgia	16,058	8,776	7,170	32,004
Kentucky	36,751	30,570	5,601	72,922
Louisiana	10,203	5,390	4,192	19,785
Maryland	4,265	3,474	2,597	10,336
Mississippi	14,084	5,945	4,521	24,550
North Carolina	19,953	12,704	10,146	42,803
Oklahoma	34,060	23,388	6,296	63,744
South Carolina	9,211	3,980	2,280	15,471
Tennessee	42,232	17,380	3,908	63,520
Texas	93,908	47,979	17,000	158,887
Virginia	19,731	12,018	4,121	35,870
WestVirginia	10,622	3,042	633	14,297
TOTAL	364,778	203,492	89,446	657,716
WEST				
Alaska	210	173	47	430
Arizona	2,005	1,594	1,348	4,947
California	19,613	21,912	19,727	61,252
Colorado	8,944	10,107	4,764	23,815
Hawaii	2,362	1,847	448	4,657
Idaho	7,132	7,148	4,791	19,071
Montana	6,115	9,594	5,357	21,066
Nevada	947	956	510	2,413
NewMexico	5,526	3,750	1,726	11,002
Oregon	15,300	8,443	4,568	28,311
Utah	5,736	4,547	1,637	11,920
Washington	10,222	7,307	6,753	24,282
Wyoming	2,398	3,880	1,900	8,178
TOTAL	86,510	81,258	53,576	221,344
US	685,718	602,905	345,988	1,634,611

NUMBER OF FARMS: ECONOMIC SALES CLASS BY STATE, REGION, AND UNITED STATES, 2002

	$1,000-$9,999	$10,000-$99,999	$100,000 & Over	Total
NORTHEAST				
CT 2	2,850			4,200
ME 2	5,100			7,200
MA 2	3,850			6,100
NH 2	2,500			3,400
NJ 2	6,900			9,900
NY	19,300	11,000	6700	37,000
PA	34,400	14,500	9300	58,200
RI 2	490			850
VT 2	4,050			6,600
Other States 1		7,860	4650	
TOTAL	79,440	33,360	20650	133,450
NORTH CENTRAL				
IL	27,300	25,000	20900	73,000
IN	31,600	18,000	10700	60,300
IA	28,100	34,200	28300	90,600
KS	28,000	24,700	8800	64,500
MI	31,700	15,100	6500	53,300
MN	35,400	26,200	19300	80,900
MO	59,800	36,800	10400	107,000
NE	13,100	19,700	16600	49,400
ND	8,600	12,600	9300	30,500
OH	45,000	23,500	9300	77,800
SD	8,800	12,800	10200	31,800
WI	37,000	22,000	18000	77,000
TOTAL	354,400	270,600	171100	796,100
SOUTH				
AL	31,000	9,300	4700	45,000
AR	26,600	11,500	9400	47,500
DE 2	1,020			2,400
FL	27,600	11,000	5400	44,000
GA	32,100	10,800	6400	49,300
KY	56,500	25,000	5500	87,000
LA	17,300	6,500	3700	27,500
MD 2	7,500			12,200
MS	29,800	7,900	4500	42,200
NC	33,700	11,500	9000	54,200
OK	52,000	25,000	6500	83,500
SC	18,500	4,300	1700	24,500
TN	66,000	17,500	4000	87,500
TX	157,000	56,000	16000	229,000
VA	31,200	12,400	4000	47,600
WV 2	17,200			20,800
Other States 3		6,050	3630	
TOTAL	605,020	214,750	84430	904,200
WEST				
AK 2	330			610
AZ 2 5	7,300			10,300
CA	34,200	25,300	20200	79,700
CO	17,200	9,900	4300	31,400
HI 2	3,100			5,500
ID	14,900	6,100	4000	25,000
MT	11,800	10,500	5600	27,900
NV 2	1,650			3,000
NM 5	12,100	4,000	1600	17,700
OR	26,800	8,900	4300	40,000
UT	9,700	4,100	1500	15,300
WA	20,200	8,900	6900	36,000
WY 2	3,700			9,200
Other States 4		8,160	4370	
TOTAL	162,980	85,860	52770	301,610
US	1,201,840	604,570	328950	2,135,360

1 CT, ME, MA, NH, NJ, RI, and VT.
2 Estimates not available for all sales classes.
3 DE, MD, and WV.
4 AK, AZ, HI, NV, and WY.
5 Includes some accounting for individual farms on reservation land.

AGRICULTURE COUNTS

LESSON PLANS

GLOSSARY

acre—A unit of area in the U.S. Customary System, used in land measurement equal to 4,840 square yards, or 43,560 square feet—about the size of a football field.

agriculture—The science, art, and business of cultivating soil, producing crops, and raising livestock; farming or ranching.

analyze—To examine methodically by separating into parts and studying their interrelations.

arable—Fit for cultivation, as by plowing.

assess—To determine the value of.

appraise—To estimate the quality, amount, size, and other features of.

bale—A large package of raw or finished material tightly bound with twine or wire and often wrapped.

bushel—A unit of volume or capacity in the U.S. Customary System, used in dry measure and equal to 4 pecks, 2,150.42 cubic inches, or 35.24 liters—about the size of a round laundry basket.

byproduct—Something produced in the making of something else.

census—An official, usually periodic enumeration of every person or item (e.g., farm) in a population, often including the collection of related demographic information.

central tendency—Statistical operations that measure averages (mean, median).

commercial—Of, relating to, or being goods, often unrefined, produced and distributed in large quantities for use by industry.

commodity—An article of trade or commerce, especially an agricultural or mining product that can be processed and resold.

comprehensive—Large in scope or content.

conservation—The protection, preservation, management, or restoration of wildlife and of natural resources such as forests, soil, and water.

consistent—Being in agreement with itself; coherent and uniform.

count—To name or list (the units of a group or collection) one by one in order to determine a total.

crop— Cultivated plants or agricultural produce, such as grain, vegetables, or fruit, considered as a group.

cwt—A unit of weight in the U.S. Customary System equal to 100 pounds.

data—Factual information, especially information organized for analysis or used to reason or make decisions.

drought—A long period of abnormally low rainfall, especially one that adversely affects growing or living conditions.

dormant—In a condition of biological rest or inactivity.

ecosystem—A system of relationships between organisms and their environment.

end product—The result of a completed series of processes or changes.

expenses—An expenditure of money; a cost.

fertilizer—Any of a large number of natural and synthetic materials, including manure and nitrogen, phosphorus, and potassium compounds, spread on or worked into soil to increase its capacity to support plant growth.

goods—Articles of trade or commerce, especially agricultural products that can be transported.

index—A number indicating change in magnitude of price relative to the magnitude at some specified point, usually taken as 100.

Integrated Pest Management (IPM)—A system of pest management aimed at reducing agricultural losses caused by pests using methods that cause minimal environmental damage and little or no health risk.

irrigation—The act of supplying with water by means of ditches, pipes or streams.

livestock—Domestic animals, such as cattle or horses, raised for home use or for profit, especially on a farm.

mean—The value obtained by dividing the sum of a set of quantities by the number of quantities in the set. Also called average.

median—The middle value in a distribution, above and below which lie an equal number of values.

product—Something produced by human or mechanical effort or by a natural process.

production—The act or process of making a product.

semolina—The gritty, coarse particles of wheat left after the finer flour has passed through the bolting machine, used for pasta.

statistics—The mathematics of the collection, organization, and interpretation of numerical data.

survey—A gathering of a sample of data or opinions considered to be representative of a whole.

uniform—Always the same.

token—Something serving as an indication of something else.

yield—An amount produced; a product.