

WHERE DOES IT COME FROM?

17

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



VOCABULARY

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

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).

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.



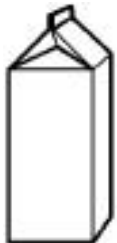
5. Look at the chart. Find the top five states where the main ingredient in your snack is produced.

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.



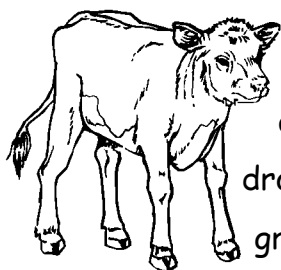
In a cow/calf operation, the farmer keeps cows for the calves they will produce. The mother cow carries the baby calf for a little longer than one school year. At birth the average calf will weigh 75-100 pounds, about the size of you and one of your friends. Calves grow by drinking milk from their mothers 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



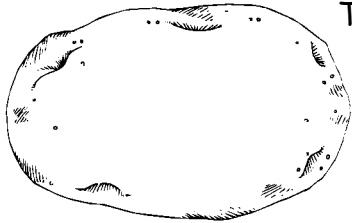
Alabama.....	1,438
Alaska.....	13
Arizona.....	841
Arkansas.....	1,842
California.....	5,234
Colorado.....	2,656
Connecticut.....	54
Delaware.....	22
Florida.....	1,739
Georgia.....	1,272
Hawaii.....	154
Idaho.....	1,990
Illinois.....	1,359
Indiana.....	862
Iowa.....	3,536
Kansas.....	6,321
Kentucky.....	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

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
Kansas	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

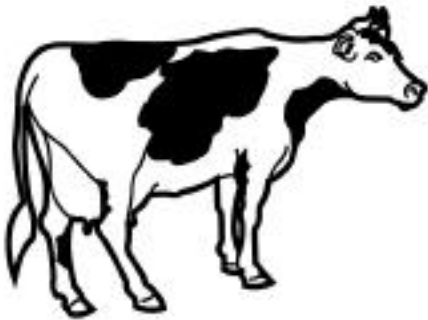
Thousand Bushels

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

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.

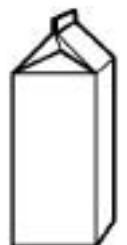


Cows make milk to feed their calves, but they are such big animals that they make much more milk than a calf needs. A dairy cow must have one calf a year, or she will stop producing milk. The cows must be milked twice a day and sometimes three times a day.

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.

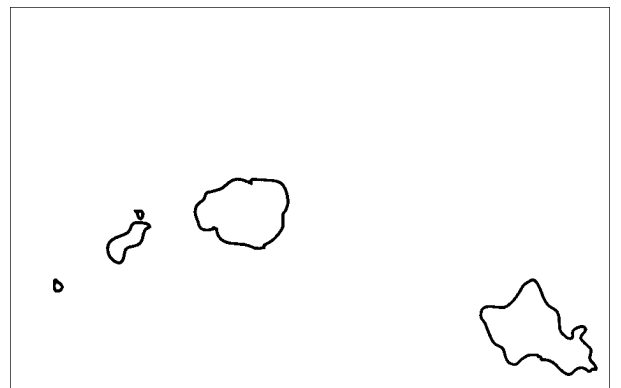
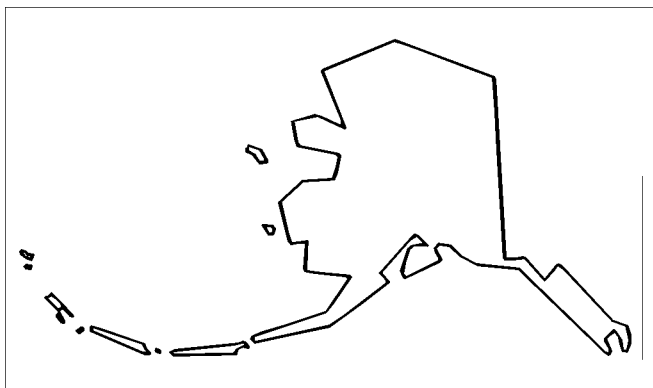
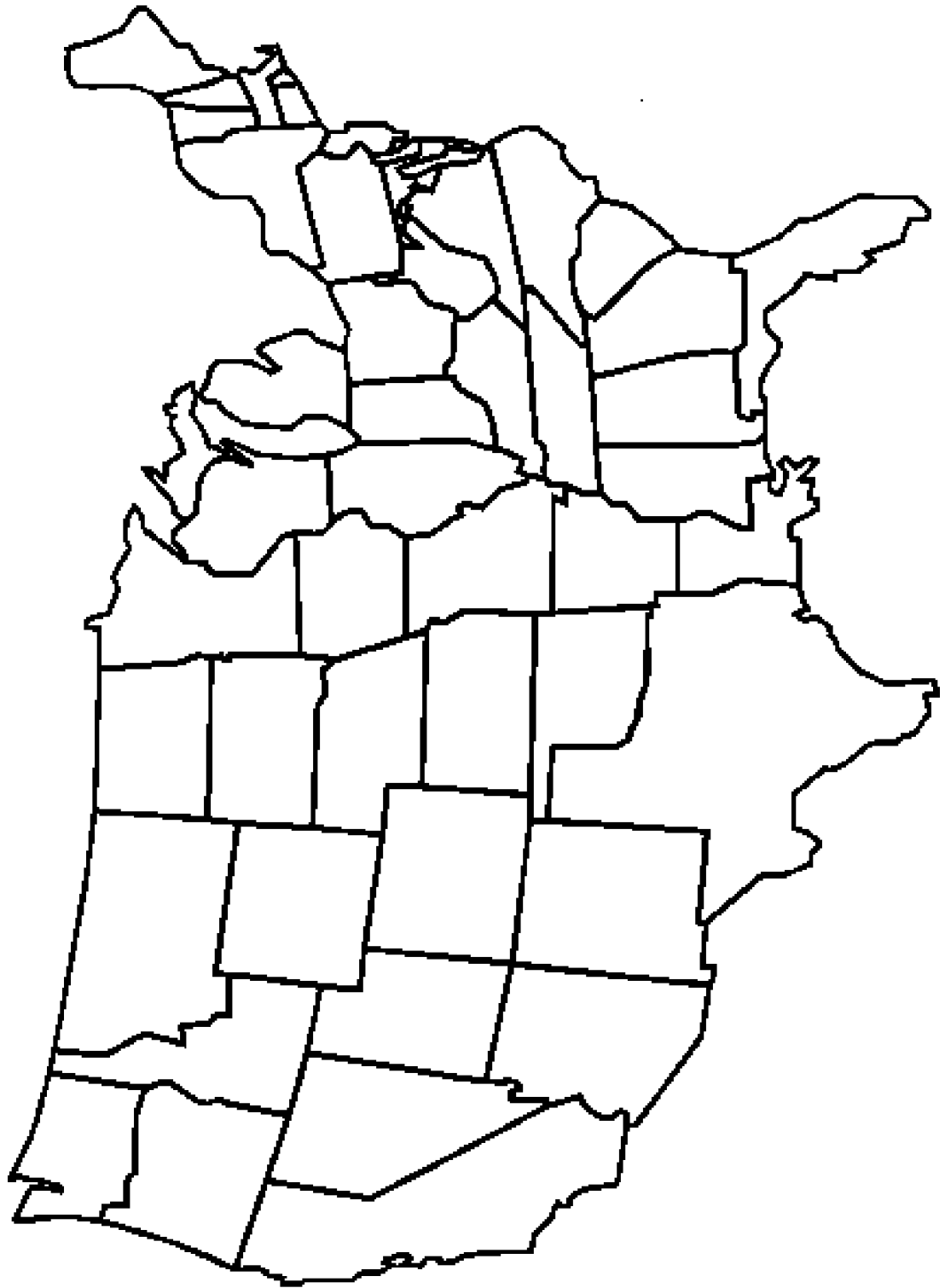




MILK

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



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.



