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." Click on "Go to Maps Index page." Scroll down to find the appropriate commodity, e.g, Map # 180 for beef, Map # 186 for dairy

cattle, etc.

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.

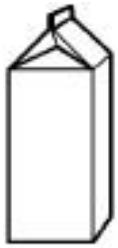
5. Look at the chart. Find the top five states where the main ingredient in your snack is produced.

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 2001 in your state. _____

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

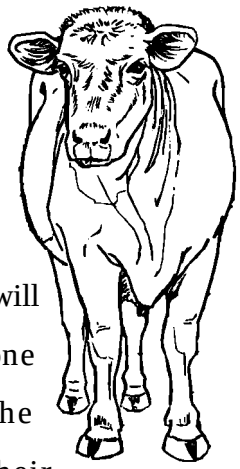
_____ _____

_____ _____

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.

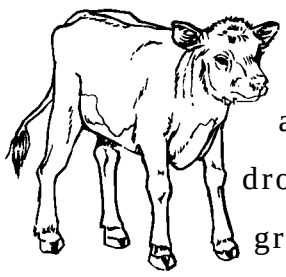
In a cow/calf operation, the farmer keeps cows for the calves they will produce. The mother cow carries the baby calf for a little longer than one school year. At birth the average calf will weigh 75-100 pounds, about the size of you and one of your friends. Calves grow by drinking milk from their mothers 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 and 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, January 1, 2001
Thousand Head

Alabama	1,360
Alaska	11
Arizona	350
California	5,150
Colorado	3,150
Connecticut	63
Delaware	27
Florida	1,800
Georgia	1,270
Hawaii	150
Idaho	1,960
Illinois	1,470
Indiana	880
Iowa	3,650
Kansas	6,700
Kentucky	2,260
Louisiana	860
Maine	97
Maryland	235
Massachusetts	48
Michigan	980
Minnesota	2,550
Mississippi	1,070
Missouri	4,250
Montana	2,550
Nebraska	6,600
Nevada	520
New Hampshire	42
New Jersey	48
New Mexico	1,580
New York	1,380
North Carolina	950
North Dakota	1,980
Ohio	1,240
Oklahoma	5,050
Oregon	1,360
Pennsylvania	1,640
Rhode Island	6
South Carolina	445
South Dakota	4,050
Tennessee	2,170
Texas	13,700
Utah	910
Vermont	295
Virginia	1,650
Washington	1,180
West Virginia	400
Wisconsin	3,350
Wyoming	1,550
U.S. (Total)	97,276.5

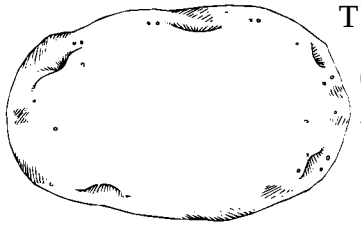
Source: NASS, USDA

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 American, 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 1840s 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.

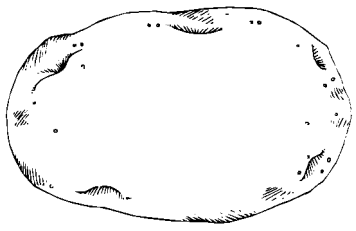
POTATOES

Production, 2001
Thousand Cwt*

Alabama	624
Arizona	2,214
California	12,788
Colorado	23,274
Delaware	1, 161
Florida	9,295
Idaho	127,980
Illinois	1,855
Indiana	928
Kansas	720
Maine	16,120
Michigan	14,030
Minnesota	18.425
Missouri	1,904
Montana	3,040
Nebraska	8,512
Nevada	2,340
New Jersey	638
New Mexico	2,198
New York	5,942
North Carolina	3,515
North Dakota	26,400
Ohio	984
Oregon	20,730
Pennsylvania	3,173
Rhode Island	135
South Dakota	648
Texas	5,190
Utah	345
Virginia	1,386
Washington	94,400
Wisconsin	31,955
Wyoming	31,955
U.S. (Total)	444,766

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

Source: NASS, USDA



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, 2001
Million Pounds

Arizona	5.0
Arkansas	5.5
California	550.0
Colorado	26.0
Connecticut	18.0
Georgia	9.0
Idaho	110.0
Illinois	43.6
Indiana	45.0
Iowa	8.3
Kansas	4.0
Kentucky	6.5
Maine	46.0
Maryland	40.8
Massachusetts	37.0
Michigan	900.0
Minnesota	24.0
Missouri	41.0
New Hampshire	29.5
New Jersey	60.0
New Mexico	6.0
New York	1,000.0
North Carolina	110.0
Ohio	102.0
Oregon	135.0
Pennsylvania	480.0
Rhode Island	1.8
South Carolina	6.0
Tennessee	9.0
Utah	20.0
Vermont	39.0
Virginia	330.0
Washington	5,000.0
West Virginia	83.0
Wisconsin	62.0
U.S. (Total)	9,435.2

Source: NASS, USDA

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, 2001
Thousand Bushels

Alabama	3,360
Arizona	8,517
Arkansas	50,440
California	35,105
Colorado	69,168
Delaware	3,477
Florida	369
Georgia	10,600
Idaho	85,150
Illinois	43,920
Indiana	25,080
Iowa	972
Kansas	328,000
Kentucky	23,760
Louisiana	8,000
Maryland	11,025
Michigan	35,840
Minnesota	79,655
Mississippi	11,700
Missouri	41,040
Montana	96,570
Nebraska	59,200
Nevada	270
New Jersey	1,215
New Mexico	8,160
New York	6,360
North Carolina	18,330
North Dakota	292,400
Ohio	60,300
Oklahoma	122,100
Oregon	33,250
Pennsylvania	8,320
South Carolina	9,030
South Dakota	76,766
Tennessee	18,360
Texas	108,800
Utah	6,034
Virginia	10,200
Washington	132,580
West Virginia	464
Wisconsin	10,708
Wyoming	3,048
U.S. (Total)	1,957,643

Source: NASS, USDA

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 10 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, sweet corn, flint 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, 2001
Thousand Bushels

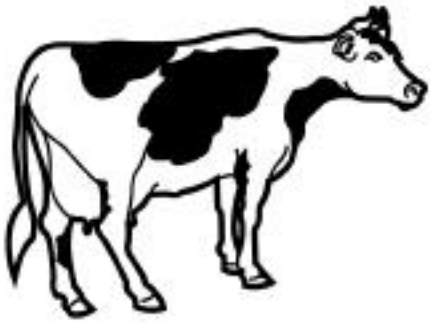
Alabama	16,050
Arizona	5.824
Arkansas	26,825
California	27,200
Colorado	149,800
Delaware	23,652
Florida	2,262
Georgia	29,480
Idaho	6,750
Illinois	1,649,200
Indiana	884,520
Iowa	1,664,400
Kansas	387,350
Kentucky	156,200
Louisiana	45,436
Maryland	55,760
Michigan	199,500
Minnesota	806,000
Mississippi	50,050
Missouri	345,800
Montana	1,924
Nebraska	1,139,250
New Jersey	7,392
New Mexico	8,280
New York	56,700
North Carolina	78,125
North Dakota	81,075
Ohio	437,460
Oklahoma	26,250
Oregon	2,520
Pennsylvania	97,020
South Carolina	25,920
South Dakota	370,600
Tennessee	81,840
Texas	167,560
Utah	2,130
Virginia	40,590
Washington	10,450
West Virginia	3,120
Wisconsin	330,200
Wyoming	6,375
U.S. (Total)	9,506,840

Source: NASS, USDA

Name _____

Where Does It Come From?

Milk

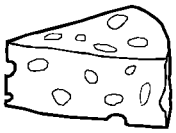


Just as beef cattle are raised mostly for their meat, dairy cattle are raised for their milk. The main breeds of dairy cows in the U.S. are Holstein, Guernsey, Jersey, Brown Swiss and Ayrshire. Some breeds produce more milk than others, and some produce richer milk than others.

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.

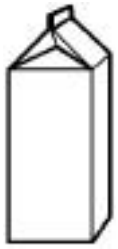
Cows make milk to feed their calves, but they are such big animals that they make much more milk than a calf needs. A dairy cow must have one calf a year, or she will stop producing milk. The cows must be milked twice a day and sometimes three times a day.



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.

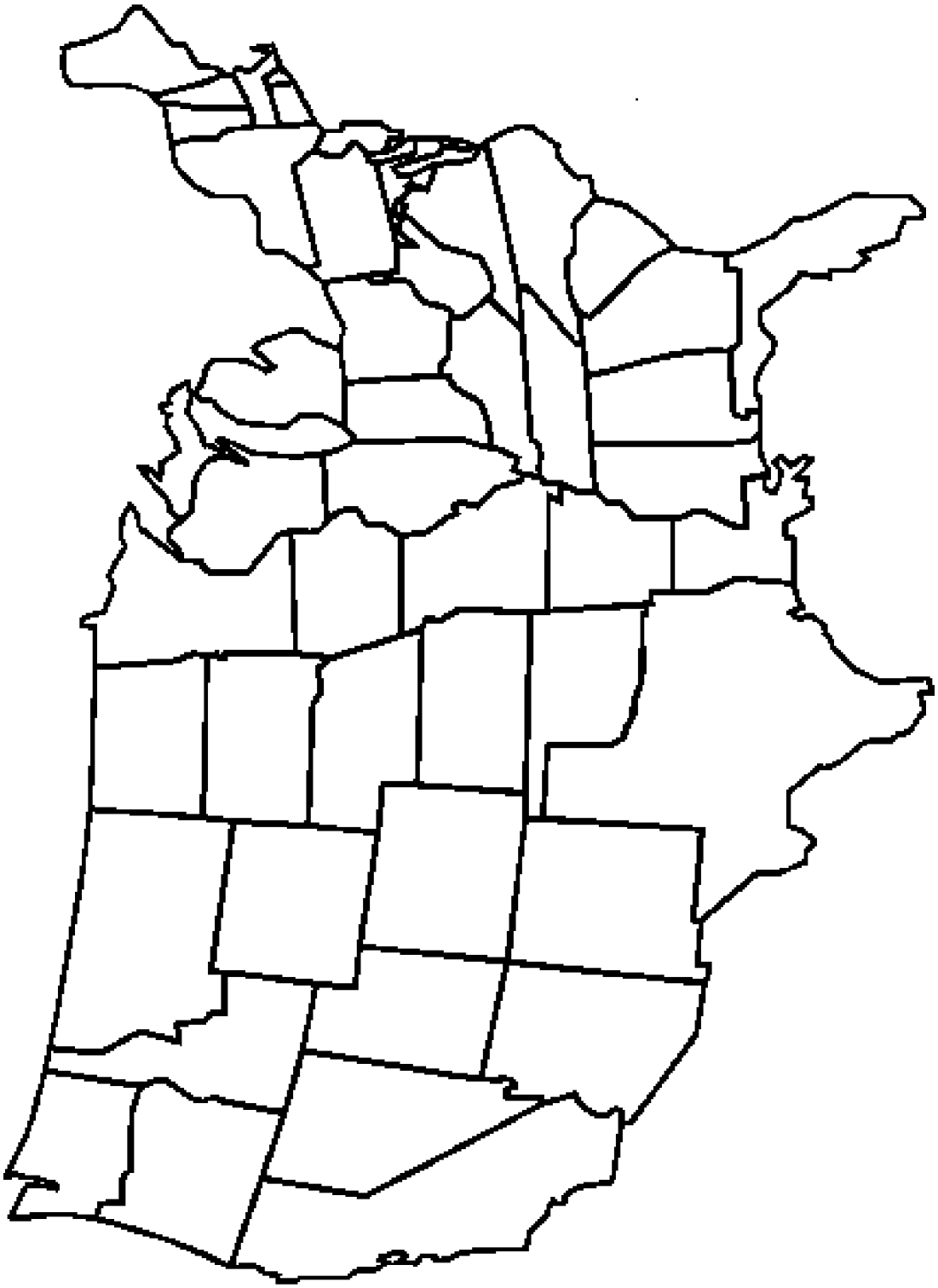


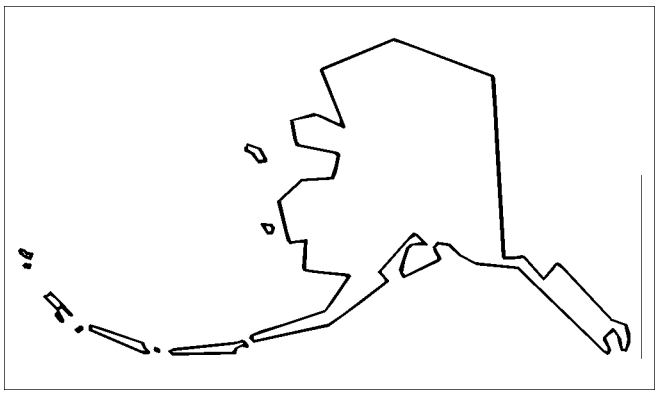
MILK

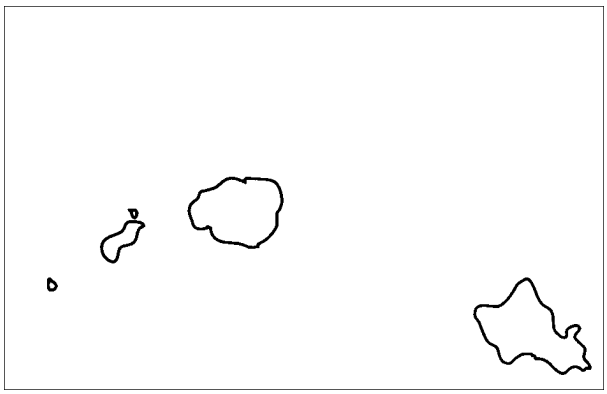
Production, 2001
Million Pounds

Alabama	300
Alaska	14
Arizona	2,895
Arkansas	432
California	33,251
Colorado	1,970
Connecticut	456
Delaware	151
Florida	2,411
Georgia	1,431
Hawaii	105.8
Idaho	7,757
Illinois	2,020
Indiana	2,560
Iowa	3,785
Kansas	1,610
Kentucky	1,660
Louisiana	632
Maine	654
Maryland	1,294
Massachusetts	358
Michigan	5,855
Minnesota	8,812
Mississippi	497
Missouri	1,949
Montana	346
Nebraska	1,156
Nevada	485
New Hampshire	323
New Jersey	233
New Mexico	5,561
New York	11,778
North Carolina	1,164
North Dakota	644
Ohio	4,319
Oklahoma	1,293
Oregon	1,717
Pennsylvania	10,849
Rhode Island	23
South Carolina	367
South Dakota	1,580
Tennessee	1,335
Texas	5,099
Utah	1,635
Vermont	2,667
Virginia	1,876
Washington	5,514
West Virginia	249
Wisconsin	22,199
Wyoming	63
U.S. (Total)	165,336

Source: NASS, USDA







Where Does It Come From? (answers)

1. Beef jerky: 2. beef; 3. student determined; 4. d; 5. Texas, Kansas, Nebraska, California, Oklahoma; 6. 49 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, Wyoming, North Dakota; 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, Oklahoma, Texas; 6. 42 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, Nebraska, Indiana, Minnesota; 6. 41 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, Minnesota; 6. 50 states; 7. specific to your state; 8. butter, chocolate milk, ice cream, yogurt, cheese and more.