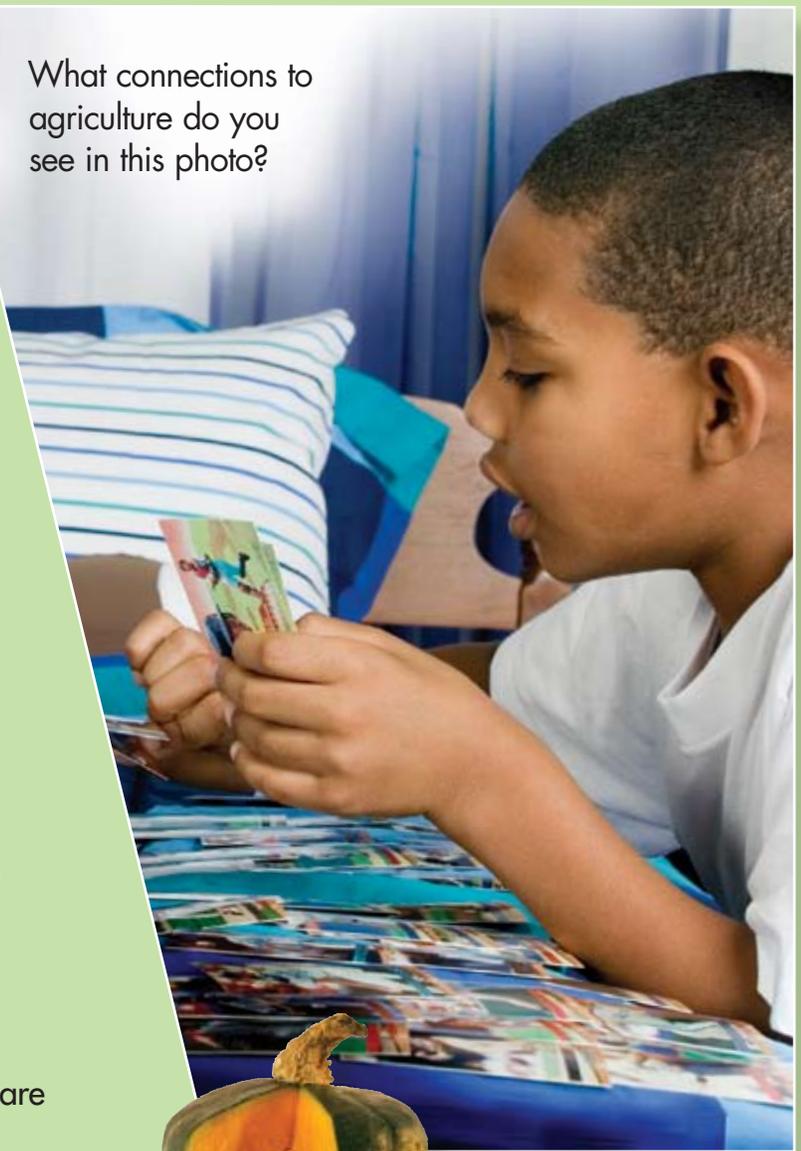# Agriculture Is Everywhere

Can you live without agriculture?

When you woke up in your bed this morning, you already had your first meet-up with agriculture. Somewhere in your bedding were materials made of fibers from cotton plants.

- Did you wash or shower with soap? That soap is made from fat from cattle and oil from corn and soybeans.

- Did you have cereal, eggs, milk, bacon, pancakes, buttered toast or juice for breakfast? Thank agriculture again!

- Did you pack a lunch in a paper bag, or finish today's math by writing on paper? That paper comes from another agricultural crop—trees. Corn and soybean **by-products** help hold the ink on the paper.

- How did you get to school? Did you walk in shoes of leather? Did you pass a city park, a golf course, an orchard or nursery? Did you see a windbreak or a sod farm? All of these are agriculture, too.

Can you have an ag-less day? There's just **no way!**

What connections to agriculture do you see in this photo?

This agricultural product is one of **Three Sisters**. What are the other two? See page 7.

What is Agriculture?

Maybe you said agriculture is farming. You thought of planting and harvesting crops and forests, or raising **livestock** and poultry. Maybe you said it was milking cows or selling fruits and vegetables. It's all this and more.

Agriculture is the industry that grows, harvests and brings us food, fiber, forests, turf and landscaping materials.

- **Food** comes from plants and animals.
- **Fiber** is the raw material from plants and animals that we use to make cloth and clothing, rope and more. Cotton, linen, silk, wool, sisal and hemp are fibers.
- **Forests** give us tree fiber that becomes lumber, furniture and pencils; pulp for paper; and wood for hundreds of other things.
- **Turf and landscaping** materials include flowers, ornamental plants and turf (sod) for beauty, pleasure and recreation.

Agriculture brings us almost everything we eat, wear or use each day.

Sun, Soil, Plants, Air, Water, Animals, Environment

Agriculture depends on workers and businesses. Even more, it depends on Earth's natural and renewable resources. Build the word puzzle and see what these resources are!

Agriculture is more than farming!

Agriculture is our nation's largest industry. More than 20 million Americans work in agriculture. They have jobs in:

- **Production:** growing and harvesting.
- **Processing:** changing raw materials into forms we can use.
- **Distribution:** getting the products to us.

Which part of agriculture does each group of workers below fit into **?**
Label the three groups: production, processing, distribution.
Circle a career that interests you. How can you find out more about it **?**

A

_____

- Rancher
- Forester
- Seed grower
- Veterinarian
- Dairy farmer
- Farm equipment dealer
- Greenhouse manager
- Animal genetics researcher
- Soil scientist
- Plant biologist
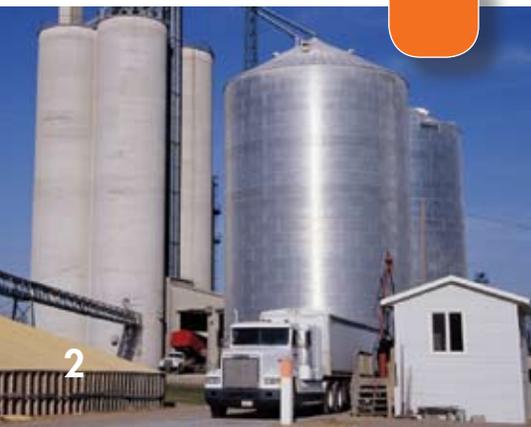- Sod farmer
- Gardener

B

_____

- Food safety inspector
- Cereal chemist
- Sawmill worker
- Corn canning factory worker
- Food biosecurity specialist
- Woolen mill engineer
- Fashion designer
- Leather tanner
- Nutritionist
- Carpenter
- Butcher

C

_____

- Exporter
- Truck driver
- Train engineer
- Restaurant server
- Greenhouse sales clerk
- Grocer
- Barge captain
- Ad writer
- Pizza delivery driver
- Farmers' market vendor
- Food store inspector

By each photograph, write the letter of the list it fits into.

Celebrating **Minnesota Agriculture!**

Agriculture is Minnesota's second leading industry behind only manufacturing. Agriculture represents over 367,000 jobs (15% of Minnesota jobs) and billions of dollars in our state. Whether you live in the city or country, it's a sure bet many of your friends or neighbors and maybe even you rely on agriculture for jobs.

What food, fiber, turf/landscape or forest businesses are in your community? Do you know anyone who works for an ag business or on a farm?

Match each company/organization to the raw (direct from the farm or soil) and processed products.

A **logo** is a sign or symbol that stands for a company. Circle the ag business logos you might see in your kitchen.

Hormel Foods
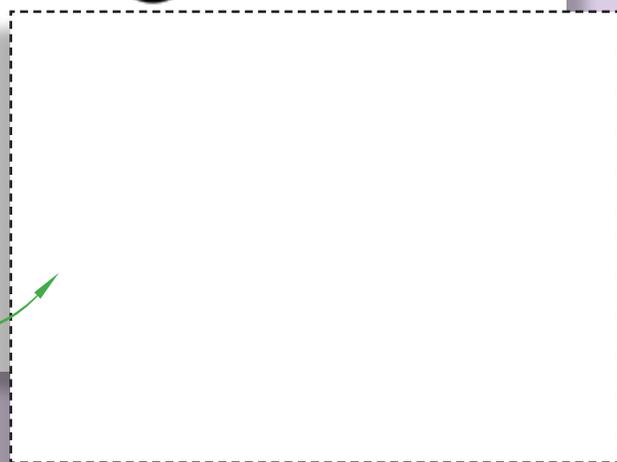
Land O'Lakes, Inc.

Malt-O-Meal

Gold'n Plump

Crystal Sugar / **American Crystal Sugar Company**

Old Dutch

Hey, that's me!
Try your hand at designing a logo that stands for you! Start with your initials.

Company/Organization	Raw Product	Processed Product
1. Gold 'n Plump	hogs	packaged chicken
2. Hormel	trees	sugar
3. American Crystal Sugar	oats	potato chips
4. John Deere	chicken	cereal and snacks
5. Boise	steel	pepperoni and ham
6. Schwan's	sugarbeets	farm machinery
7. Land O' Lakes	milk	ice cream
8. Old Dutch	potatoes	paper
9. Malt-O-Meal	milk	cheese and butter

Minnesota **AgBrags**

- The U.S. is the world's largest exporter of farm products. Can you name Minnesota's three biggest ag customers? (HINT: These are their flags.)

- In 1800 it took 373 human hours to produce 100 bushels of wheat. In 1987, it took less than 3 labor hours. What made the difference?

- Over 12,000 bison (buffalo) are raised on Minnesota farms.

- Today, Minnesota has 20 million more trees (over 19 inches in diameter) than it did 50 years ago!

Millions of tons of wheat, corn, soybeans, oats, sunflowers and other grains are shipped overseas each year from the Port of Duluth. Docks for oceangoing ships line 49 miles of harbor in Duluth/Superior.

Photo Courtesy University of Minnesota Agricultural Experiment Station

Minnesota Grown

What makes Minnesota such a terrific state for agriculture? It starts with a great variety of **soil types** and **terrain** that's good for farming. Add the right weather pattern. That means the right amount of rainfall at the right time in the right place during our **growing season**. All of this makes our state tops in many crops!

What grows where? Check out the map and clues. You'll discover Minnesota's four main growing areas. In which do YOU live?

Clues

Match these clues with the names of the areas. Write the name of each area in its region on the map.

1. Flat land with fertile prairie soils. Enough moisture to be a big producer of cash grains: wheat, oats, soybeans, barley, sunflowers, sugarbeets, dry beans and potatoes.

2. Fertile soils, more moisture. Location farther south gives longer growing season. Big producer of crops and livestock. Corn, soybeans, cattle and hogs are examples.

3. Hilly region dotted with hay and pasture lands. Leading area for dairy cattle and turkeys. Other livestock and garden crops, too.

4. Rough, rocky areas and less fertile forest soils. Few field crops, but many pine and hardwood forests.

Areas

A. Northeast

B. Southwest

C. Northwest

D. Central/Southeast

Ag Talk

Livestock and Crops: *Agricultural animals and the crops farmers raise mainly to feed them.*

Cash Grains: *Crops farmers raise to sell for money.*

Unscramble the letters to name the Minnesota county that leads the nation in sugarbeet production.
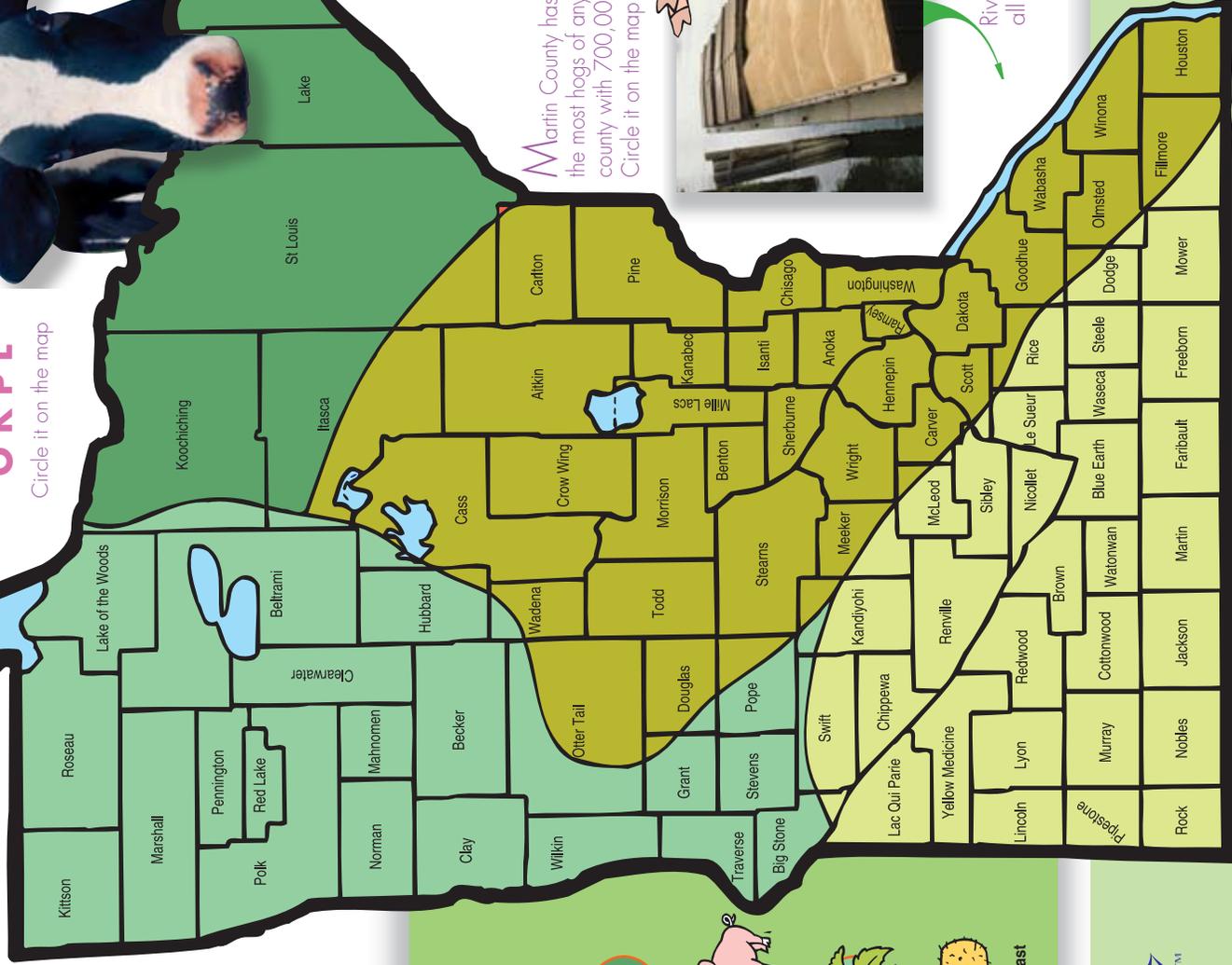
O K P L

Circle it on the map

Stearns County leads the state in bison (buffalo) production. Circle it on the map.

OCTOBER is National *Pork* Month.

Martin County has the most hogs of any county with 700,000! Circle it on the map.

The Mississippi River transports 66% of all grain exported from the United States.

Find it on the Map!

MINNESOTA GROWN™

Counties (map labels):
Kittson, Roseau, Lake of the Woods, Marshall, Pennington, Red Lake, Polk, Norman, Clay, Wilkin, Clearwater, Beltrami, Koochiching, St Louis, Lake, Cook, Hubbard, Becker, Mahnomen, Otter Tail, Grant, Stevens, Traverse, Big Stone, Douglas, Todd, Wadena, Cass, Crow Wing, Aitkin, Itasca, Carlton, Pine, Morrison, Benton, Mille Lacs, Kanabec, Isanti, Chisago, Sherburne, Stearns, Pope, Swift, Kandiyohi, Chippewa, Lac Qui Parie, Yellow Medicine, Lincoln, Lyon, Redwood, Renville, Meeker, Wright, Anoka, Ramsey, Washington, Hennepin, Carver, McLeod, Sibley, Nicollet, Le Sueur, Scott, Dakota, Goodhue, Wabasha, Winona, Houston, Fillmore, Olmsted, Dodge, Mower, Freeborn, Steele, Waseca, Blue Earth, Faribault, Martin, Watonwan, Brown, Cottonwood, Jackson, Nobles, Rock, Pipestone, Murray

Marshall - wheat
Redwood - soybeans
Brown - green peas
Clay - sugarbeets
Stearns - dairy

Martin - hogs
Morrison - beef cows
Otter Tail - bison
Anoka - sod

Koochiching - paper
Aitkin - bluegrass seed
Kandiyohi - turkeys
Lincoln - sheep

Jackson - corn
Roseau - canola
Sherburne - potatoes
Norman - sunflowers

St. Louis - wood products
Renville - tilapia (fish)
Dakota - farmers' market
Winona - hay

1. Find each county. Use this code to put colored dots on the map: green for forest products; blue for field crops or cash grains; red for dairy and livestock.

2. Look at your dots. What do you notice about where things grow in Minnesota? Unscramble the letters to discover five things that make each growing area different from the others. Hint: All the words appear somewhere on pages 4 and 5.

iosl yptes _____
thwaeer _____
llafinar _____
rraiten _____
gingorw saseno _____

Northwest

Question

Unscramble the letters to name this grain corp. **e l a y b r**

Your Answer _____

Northeast

Question

Your paper, pencils and books started out here. What is the crop?

Your Answer _____

Southwest

Question

We're third in the nation in growing this important ingredient in human and animal food. What's the crop?

Your Answer _____

Central/Southeast

Question

Minnesota's largest cities are in this area. Where might you see growers bring their products to city customers?

Your Answer _____

Think & Discuss

I'm TOP Turkey

- Why don't the same crops grow equally well across Minnesota?

- Why is the growing season shorter in northern Minnesota than in southern Minnesota?

- Why do we find lots of corn and soybean crops in major livestock areas?

Where do we stand?

Minnesota ranks in the **TOP ten** producers in the nation in these products! (2007 ag commodities)

1st in sugarbeets, turkeys, and green peas for processing **2nd** in canola, cultivated wild rice, oats, spring wheat and sweet corn for processing **5th** in mink pelts and total cheese
3rd in American cheese, dry edible beans, flaxseed, hogs and soybeans **4th** in corn and sunflowers **10th** in cattle/calves on feed
6th in barley, honey, milk cows, milk production, potatoes and red meat **7th** in ag exports

FOOD
Everybody Pays

You've been reading how great Minnesota is for growing foods. At the same time you've been hearing people talk about food costing more. Why is the cost of food rising?

Think and Discuss

- The price of fuel has steadily gone up. What's the connection between fuel costs and food costs? Think about food production as well as food distribution (page 2).

- Costs of feed, seed and fertilizer on the farm have gone up. How does that affect the price of food?

- Think about where some of our foods come from. How might weather events, such as Hurricane Ike on the Gulf Coast, floods in Illinois or drought in Australia affect the food supply? If supplies go down, what happens to prices?

- More people in more countries are demanding and using more fuel. That means we all are competing for scarce oil supplies. If demand for oil goes up, what happens to the prices of oil and food?

- More of our corn and soybeans are going into making **biofuels** instead of food products or feed for animals. How can this change food supply and food prices?

Rising Food Costs

What Can Families Do?

- Take less and waste less. Wasted food equals wasted money and energy.

- Compare prices. Do name brands cost more than store brands?

- Buy foods that are in season. Know the local growing season for different types of food.

- Buy foods that are on sale. Read the ads and clip the coupons before you shop.

What does your family do to save money on food?
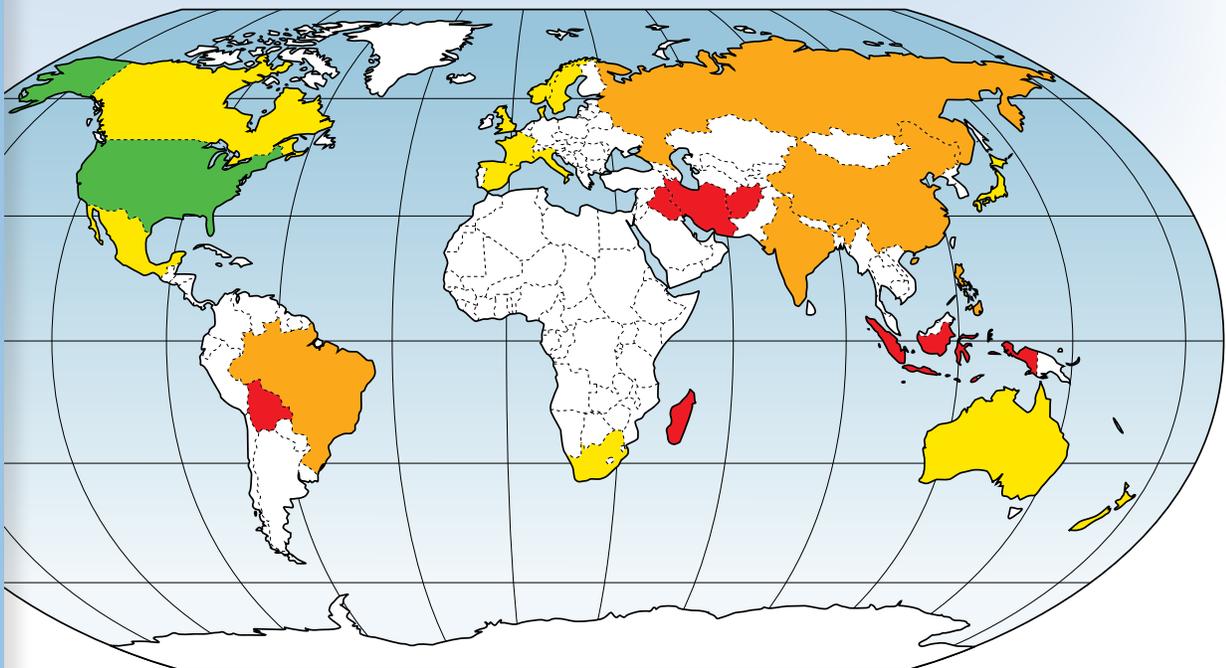
_____

_____

_____

_____

_____

Look below at some of the world's countries. What percentage of their income do people in each of these countries spend for food? You may need a world map to locate the countries.

Percentage of income spent on food

over 50%	26-49%	11-25%	10% or less

	Percentage
Afghanistan . .	*over 50*
Australia	_____
Bolivia	_____
Brazil	_____
Canada	_____
China	_____
Denmark	_____
France	_____
India	_____
Indonesia . . .	_____
Iran	_____
Iraq	_____
Italy	_____
Japan	_____
Madagascar .	_____
Mexico	_____
New Zealand .	_____
Norway	_____
Philippines . . .	_____
Russia	_____
Spain	_____
South Africa . .	_____
Sweden	_____
United Kingdom	_____
United States . .	_____

What do the countries that pay the **most** of their income have in common?

What do the coutries that pay the **least** of their income have in common?

Who pays least of all?

OUR BOUNTIFUL LAND: THE STORY OF FOOD

A merican Indians lived in our part of the country long before white settlers arrived and long before statehood. The two major tribes were the Ojibwe (sometimes called Chippewa or Anishinabe) and the Dakota (Sioux).

Thanks to our region's great variety of soil types, terrain, weather and growing seasons, nature provided everything these early people needed for survival year round. The Ojibwe lived and traveled among the northern lakes and forests of what would later become Minnesota. Living in harmony with nature, they caught fish and hunted bear, elk, deer, ducks and geese. They harvested wild blueberries, cranberries, plums and other fruits. They tapped maple trees to make maple syrup and maple sugar as they feasted from nature's bounty. In time, they became food producers as well as hunters and gatherers. In summer Ojibwe women planted corn, pumpkins and squash. They harvested wild rice growing in northern lakes.

The Dakota settled in the south and southwestern plains areas of what is now Minnesota. Dakota villages dotted the banks of many rivers (see map). River water was needed for drinking and crops, and the softer soil along riverbanks made for easier tilling. Dakota men hunted wild game, including bison. Dakota women were farmers, harvesting corn and squash. They ate most of the food as it ripened, but always stored some for winter eating and spring planting.
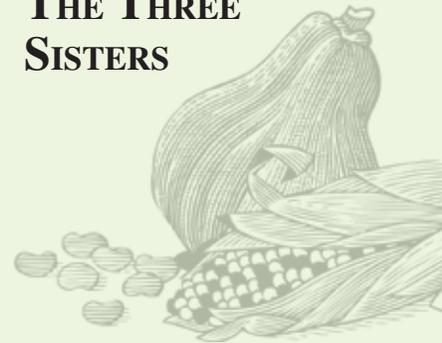
By the early 1820s, things were changing. Fort Snelling was built on a hill overlooking the meeting point of the Mississippi and Minnesota Rivers. The troops at Ft. Snelling needed a lot of food. Colonel Josiah Snelling ordered that 200 acres of land beside the Minnesota River be tilled for crops. Along with native foods, they planted wheat and oats that had been brought from Europe and the troops ate well. Reports say about 4,500 bushels of potatoes were stored for winter. Not bad for starters!

Illustration Courtesy Minnesota Historical Society

THE THREE SISTERS

In native lore, corn, beans and squash are often called the "Three Sisters." This name came from the Haudenosaunee, the People of the Longhouse (also known as Iroquois).

Many considered these crops to be special gifts from the creator. They were very important in the agriculture and nutrition of most of the Native people of the Americas. When planted together, the three sisters help each other. Corn provides support for beans. Beans absorb nitrogen from the air with the help of bacteria living on their roots. Corn needs a lot of nitrogen to grow. The large squash leaves shade the soil, slow weed growth and discourage animal pests.

Many stories, customs and celebrations have been created about the Three Sisters. Surf the web or check out the library to learn more.

THINK AND DISCUSS:

1. Why did the Indians in northern Minnesota and southern Minnesota eat and grow different foods?

2. How did the lives of people change when they learned to raise their own food instead of having to go out and search for it?

Use a detailed Minnesota map as a guide to:
- Label four rivers where Indians settled.
- Label the location of Ft. Snelling (see clues above).
- Label two lakes that were important Ojibwe food sources.

Acres of Pizza

Americans eat 75 acres of pizza every day.
An acre is about the size of a football field.

It's all thanks to agriculture!
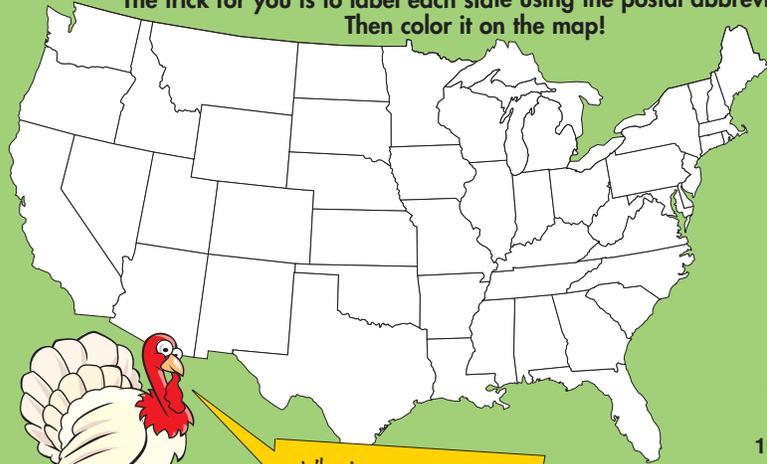
Name the things from agriculture in your favorite pizza.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

ON THE WEB

The **Smithsonian National Museum of Natural History** has a new exhibit, Dig It! The Secrets of Soil. Included are interactive displays, a pumpkin murder mystery, facts about critters that call soil home and much more! The exhibit will tour the nation.

Go to **forces.si.edu/soils** for details.

We're TOP Turkey!

In 2007, Minnesota led the nation in turkey production. The top ten turkey-producing states are listed below. The trick for you is to label each state using the postal abbreviation. Then color it on the map!

1. Minnesota
2. North Carolina
3. Arkansas
4. Virginia
5. Missouri
6. California
7. Indiana
8. Pennsylvania
9. South Carolina
10. Iowa

What can you **infer** about where turkeys are grown?

Food Miles

How far does food travel before it gets to your plate? During the summer, most people can find eggs, meat and vegetables from farms less than 100 miles away. Unless it's Minnesota grown, our food travels an average of 1,300 miles. Most of the food arrives by truck. For a typical semi-trailer load, that uses about 220 gallons of diesel fuel.

Eating local food cuts down on wasteful packing materials and means less fuel is used to bring food to your plate. It tastes better too! Where can you buy locally grown foods? Check it out on Minnesota Grown: **www.mda.state.mn.us/food/minnesotagrown**

Be a LOCAVORE: Buy locally grown foods.

Think Green

MINNESOTA STATE FAIR ★ ★ ★ ★

Over 1.78 million people attended the 2008 State Fair. Nearly one million took time to learn more about animal agriculture at the Fair's Miracle of Birth exhibit. During the 12 days of the Fair, **184 newborns** were born. That included **136 piglets, 13 dairy calves and 35 lambs**.

Did you know?

★ An average 500,000 corn dogs are eaten at the Fair each year.

★ 22,000 rolls of toilet paper are used at the State Fair each year. Thank a tree!!

★ Of all food items available, the fried candy bars have the most calories.

★ During a typical year, about 20,000 gallons of milk are served at the all-you-can-drink booth.

If you went to a fair this year did you try any new foods? What is your favorite fair food?

_____

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