



Volume 22, Issue 2 2007/2008

AgMag

The Magazine of Minnesota Agriculture in the Classroom

From the Land to You!



What agriculture connections do you see in each of these photos?

What would people living in towns and cities do if there were no farmers? Where would they get food? Wool? Building supplies? Flowers, trees and shrubs? What would growers do if there were no town folks to buy their food or wool or wood or shrubs? What would it be like if each of us had to grow everything we need all by ourselves?

City people and growers need each other. We are **interdependent**. We buy and sell among ourselves so everyone can get the food, shelter and clothing they need. It all starts with agriculture. Agriculture grows what we need and changes it to forms we can use. Getting those things into our hands is part of agriculture, too.

When you put on a soccer jersey or play on a sod field, do you think about an agriculture connection? When you take a picture, do you think about beef products that went into the film? As you take a bite of cereal, do you ever think about the soil, water and all the workers between the grain field and your cereal bowl?

Agriculture starts with soil, seeds, water and energy from the sun. It continues as millions of workers and billions of dollars change and move agricultural products from the land to you. Agricultural products come to you through supermarkets, lumberyards, drugstores, clothing shops, Christmas tree lots, garden centers, restaurants and dozens of other places.

Ag makes the world go round!
Could you have an ag-less day?
There's just no way!

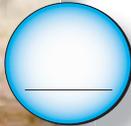


Steps along the Way

Where do the supplies come from that are made (processed) into the things we eat, wear and use every day? The **raw materials** come from the land, through the work of farmers and growers. Those raw materials are possible only because of the **natural** and **renewable resources** of planet Earth. Your wool sweater, your strawberry jam sandwich, your hockey stick—they're all thanks to renewable resources.



Photo Courtesy AITC Consortium



What happens to the raw materials between the land and you? It depends on the product. Which goes through more steps: grain between the field and your cereal box or carrots between the field and your salad bowl? What about your quarter-pound burger? It started out as a thousand-pound steer eating corn, soybean meal and grass. Your bread began as "amber waves of grain" and your wooden hockey stick as a tree.

Raw materials go through a cycle of processes before they get to us in forms we can use. After all, a handful of wheat kernels or a hunk of wool freshly sheared from a sheep wouldn't do us much good in these forms. The food, clothes and other things we use from agriculture all go through a cycle that:

- starts with sunshine, water, soil and plants
- uses energy and equipment
- provides jobs for thousands of workers
- changes forms and uses of raw materials and
- gets agriculture products to us in forms we can use!

The steps in the boxes below are part of most cycles.

Consuming
(People Using)

Producing

Processing

Marketing

Distributing



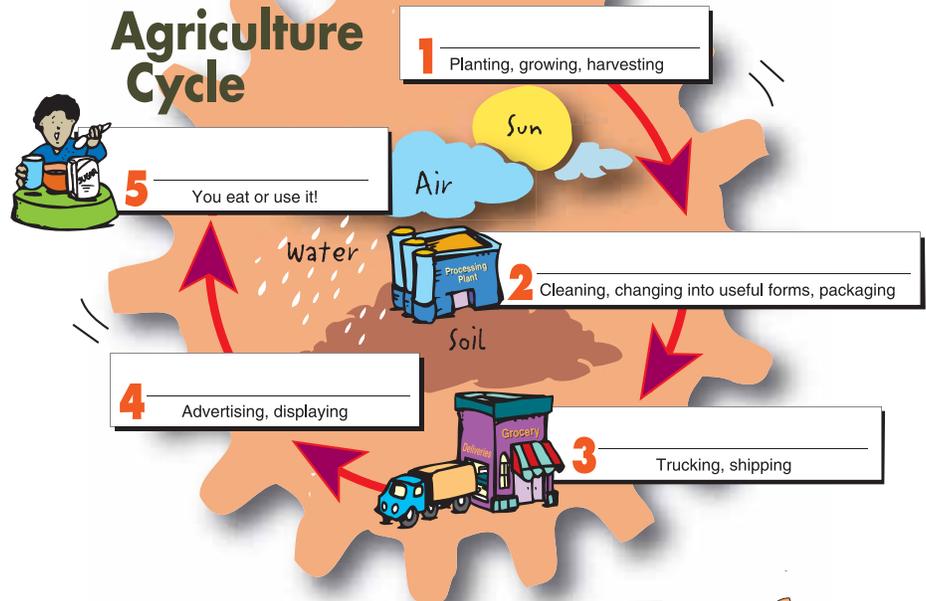
Photo Courtesy AITC Consortium



1. Label each step in the agriculture cycle.



Photo Courtesy University of Minnesota Agricultural Experiment Station



Archive Photo



2. In the circle on each photograph, write the number that matches its place on the Agriculture Cycle.

3. Write these activities into the cycle above wherever you think they happen. Some may belong in more than one place.

- testing
- selling
- researching
- cultivating
- inspecting
- eating
- buying
- storing
- planting

Think & Discuss

Why are sun, air, water and soil part of the picture?



Photo Courtesy University of Minnesota Agricultural Experiment Station



Where Does Your



Come From?

Do you know where the things you eat, wear and build with start out? Farms, fields and forests produce our agricultural products. Most of these products must be processed in some way before we can use them. Processing changes raw agricultural products into thousands of things we use every day.



Think about a pizza, for example. The parts of a pizza come from many different raw agricultural products. From the words in the word bank, choose the name of the agricultural product that is the source of each part of the pizza. Write it in the column on the left. In the column on the right, list another food that is made from that same raw product.

Pizza part	Raw Agricultural Product	Another Food (From the same raw product)
crust	_____	_____
sauce	_____	_____
cheese	_____	_____
pepperoni	_____	_____
sausage	_____	_____
hamburger	_____	_____

Raw Product Word Bank

beef milk pork tomato wheat

Fabulous Fractions

1. Use a ruler to divide this pizza into two halves.
 2. Next, divide the pizza into four fourths.
 3. Finally, divide the pizza into eight eighths so each slice is one-eighth of the whole pizza.
- How many pizzas would you need to give everyone in your class one slice of pizza? _____
 - How many pizzas would you need to give everyone in your class two slices of pizza? _____

Pizza crust is made from wheat. Farmers plant tiny wheat kernels in the ground. Wheat looks like fresh new grass when it comes out of the soil. It grows to about 24 inches high, with kernels (seeds) forming at the top of the plants. The farmer harvests these wheat kernels and hauls them in trucks or wagons to the country grain elevator. From there it is exported or sold to various industries which make animal feed or human food. Wheat passes through a milling process to become flour for pizza dough. At the mill, it is cleaned to remove weeds, stems and other plant material. Rollers press the kernels to break them into pieces. Finally the small wheat pieces are shaken onto screens to sift out the parts not used in wheat flour. The wheat flour is mixed with yeast, oil, sugar, salt and water to make pizza dough.



Simply Saucy

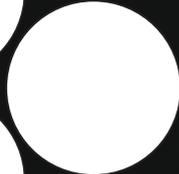
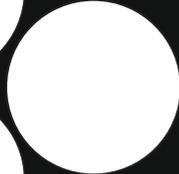
Pizza sauce comes from tomatoes. Tomatoes require 75 to 85 days to develop into mature plants with ripe fruits. When tomatoes are ripe, they are carefully packed into boxes and sent to grocery stores. Some tomatoes are sent to canneries where they are processed for sauces or ketchup. Special herbs such as oregano, dill and garlic are added to give pizza sauce its special taste.



Are tomatoes fruits or vegetables? _____

Pizza Probability

Pretend you are making pizzas and you have pepperoni, sausage and mushrooms for toppings. How many different pizzas can you make with these toppings? (None of the pizzas can have the same toppings as any of the others.) Fill in the circles until you run out of pizza topping combinations. The first one is done for you.



Cheese

Cheese is made mainly from the milk of dairy cows, however some cheeses come from goats. Milk goes through a series of processes to become cheese. Cheese is aged in cooled storage rooms or warehouses (aging helps give cheese its flavor). Aging times vary for different cheeses. The longer the ripening time, the sharper the cheese's flavor. Fill in the blanks and see the two most popular cheeses in the United States.

___ e ___ d a ___
 ___ o ___ z ___ e ___ | ___



Onions

Onion bulbs grow underground and have long green tops. They may be picked by hand or machine and are cleaned before shipping. Onions are either sold at grocery stores and farmers markets or sent to processing plants. At processing plants they are diced or processed to become ingredients for foods such as spaghetti, barbecue sauce and pizza. On average, each person in the U.S. eats 18.7 pounds of onions each year.

Why do many people have tears when chopping onions? _____

Pepperoni & Sausage

Pepperoni and sausage both come from hogs. The animals are fed a special blend of ground corn, soybeans, vitamins, feed supplements and minerals. The hogs go to market in five to six months when they weigh 240-250 pounds. The meat from hogs is ground up and special seasonings are added to make sausage, salami, hot dogs, bacon and pepperoni. Pepperoni is America's favorite pizza topping.

The meat from hogs is called _____.

Mushrooms

There are close to 2,500 types of mushrooms throughout the world, but the U.S. only has about 275 commercial mushroom growers. Mushrooms grow well in caves because they thrive in cool, dark places. They lack chlorophyll, the green substance used by plants to make food so they survive by soaking up nutrients from organic matter.

Why is it important to never eat wild mushrooms without an expert saying they're safe? _____



Did you know?

Americans eat more pizza during Super Bowl week than any other week of the year.

Agriculture in a Hungry World

In your first two AgMags this year, you learned a lot about agriculture in Minnesota and the United States. Our good climate, soil, water, weather, science and technology make American farmers the best food producers the world has ever known. Our farmers feed our whole nation. They also grow enough extra food to export millions of tons to the rest of the world. Many other countries produce a lot of food, too. Still, we hear about **malnutrition** and world hunger.

Why Are They Hungry?

There is enough food to feed everyone in the world. So why are some people starving? They simply can't get the food they need. Solve the crossword puzzle and you'll see some of the reasons food does not reach people who need it in many parts of the world.

List some places you've been hearing about in the news where people suffer from hunger. What might be some reasons their needs are not met?

Pass the bread, please!

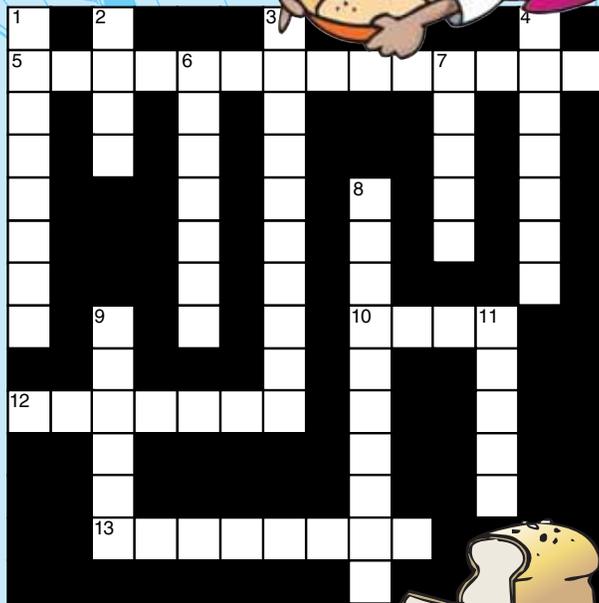
All countries produce some food...

ACROSS

- 5 Reliable ways of moving things from place to place
- 10 Poor growing season; _____ failure
- 12 Too little rain to grow crops
- 13 Rotting and molding

DOWN

- 1 Robbing
- 2 Fighting in or among nations
- 3 Leaders of a country
- 4 Too little money
- 6 Clean, dry places to keep food
- 7 Buying and selling between countries
- 8 Changing raw products into forms we can use
- 9 Overflowing of rivers and streams
- 11 Insects and rodents



Food supplies are hurt when certain things happen. Sometimes land and water quality goes down. Pollution, natural disasters like floods, droughts, insects and over-planting one kind of crop can cause this damage. Sometimes people don't have the technology to produce and protect crops.

It takes all the world working together to solve hunger problems.



Photo Courtesy Dave Hansen

More Mouths to Feed

On November 26, 2007, the world population was over 6,633,000,000 and rapidly growing. If the current growth rate continues, the number of humans on the planet could double to 12 billion by 2050. All will need food, clothing, water and shelter, roads and schools. Demand will grow for sewers, power plants, homes, factories, malls and airports. Much land will be taken out of farming to meet those needs.

Add population dots for the year 2007 and year 2050 on the graph below. Connect all the dots to see the change in population growth. Most of the people will live in countries that are **less-developed** and where people have low incomes. They will live in cities and be consumers, rather than producers, of food.

World Population Growth: 1750-2050

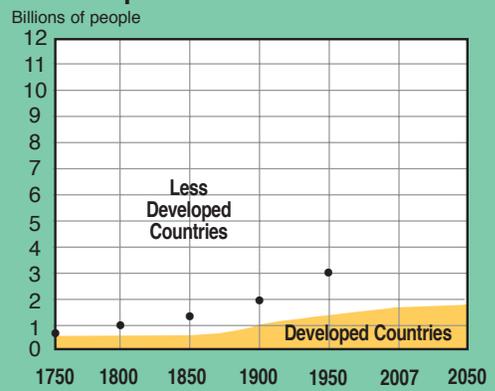


Figure and Compare!

Each day we add about 230,000 people to our world. How many people are added in an hour? Each minute? Each second?*

Two and one-half acres per person are needed to provide for every person's needs each year. Where will the food come from for all these people? That's the job of agriculture. Scientists and farmers are working hard to produce more food per acre.



The clock is ticking on this web site to show you what's up in world population.
www.census.gov/main/www/popclock.html

* See answers on page 8.



What's Your Ecological Footprint?

How many Planet Earths would be needed if everyone lived like YOU do?
 Take the online quiz at Earth Day Network www.myfootprint.org/



MINNESOTA AGRICULTURE THROUGH 150 YEARS OF STATEHOOD

During this school year, Minnesota will turn 150 years old. This milestone is called a **Sesquicentennial**, and it's something to celebrate! Your AgMag will look back at Minnesota's great agricultural heritage in 150 years of statehood.

As the 1900s began, the car and the tractor were among the few modern inventions that seemed like necessities to farmers. Farm kids were milking cows by 6:30 a.m. and walked miles to school. The good things and good times of city life came to Minnesota's farms more slowly than to cities. In the early 1920s too few people lived in rural areas to pay for the costs of bringing electricity there. Then farmers had trouble paying their debts after the boom times of World War I's high food demand ended. In 1929 the stock market crashed and people everywhere lost jobs. In the 1930s, huge dust storms stripped millions of tons of soil from the worn out fields. The Great Depression came to the nation, lasting for more than a decade.

People now saw the need for new farming techniques to protect the soil. Farmers rotated crops, used contour plowing and planted trees to protect against wind damage. World War II again brought demand for everything, and times got better. Soldiers came home to start families and the suburbs were born as builders converted thousands of acres of farmland into neighborhoods of homes. In 1950, more Minnesotans lived in cities than in the country for the first time in our history. What do you know about these key events?

Photos Courtesy Minnesota Historical Society



In 1921 General Mills created Betty Crocker as a symbol of the perfect homemaker. This imaginary lady answered letters about baking problems, wrote cookbooks, had a radio show and loaned her name to hundreds of products. Which ones have you enjoyed?



In 1935 the Rural Electrification Administration (REA) brought the conveniences of electricity to farming communities. Not until 1963 did 99 percent of Minnesota farms have electrical service. How did electricity change lives of farm families?



In 1935 protesting farmers brought a starving cow and horse to the steps of the capitol to dramatize the desperate conditions in rural Minnesota. Six years of drought had ruined crops and exhausted the land. Farmers had nothing to sell. No one had much money because of the depression. Banks took away many farms, and others were abandoned.



In 1938 Frederick Jones of Minneapolis invented a refrigeration unit for trucks and trains. People could now eat food transported from great distances and out of season. Jones helped start the Thermo-King Company. What foods do you eat today that probably travel in refrigerated units?



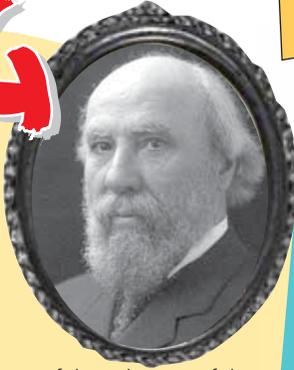
When turkey farmer Earl Olson bought a processing plant in Willmar in 1949, it was the beginning of Jennie-O Foods. By 1999, Jennie-O was known as the world's largest turkey processor. Today, Minnesota farmers raise more turkeys than in any other state.



1956 Congress authorized the National System of Interstate and Defense Highways. Eventually, I-35 and I-94 link urban and rural Minnesota. What changes did this bring to both cities and rural areas?

GRAB BAG

Answers: Page 6
Figure and Compare
Rounded figures:
Hours 9,600; Minutes
160; Seconds 2.7



Who's This?

This man was the most successful and powerful of all the people who ran railroads in Minnesota. Starting as a shipping clerk on the St. Paul wharves, he loved transportation and saw how it could help the country grow. He combined small railroads to create the Great Northern Railway. His nickname was The Empire Builder.

Photo Courtesy Minnesota Historical Society

Turkey manure is great organic fertilizer, too. Farmers and gardeners use it to enrich their soils.



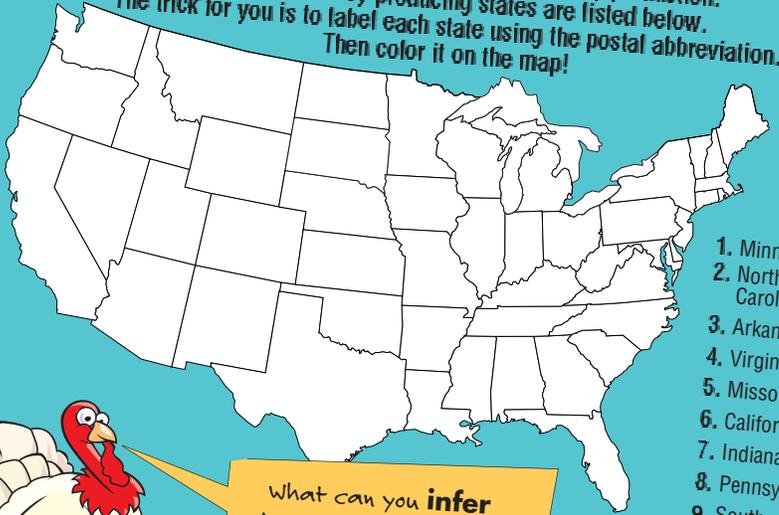
Who's This?

There's a clue on this page.



We're TOP Turkey!

In 2006, 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!

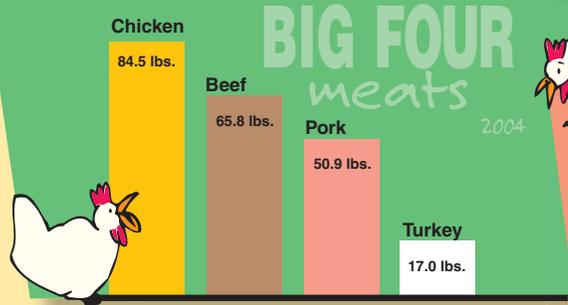


1. Minnesota
2. North Carolina
3. Arkansas
4. Virginia
5. Missouri
6. California
7. Indiana
8. Pennsylvania
9. South Carolina
10. Iowa

What can you infer about where turkeys are grown?



Which meat do Americans eat most?



Food Miles

How far does food travel before it gets to your plate? Unless it's Minnesota grown, our food travels an average of 1,300 miles. What's the easiest way to cut down on your food's gas bill? **Eat locally grown!**

Pizza History—Did you know?

It is believed that the first pizza was made in Italy between 730 and 130 B.C. The pizza was flat, round bread baked with oils, garlic, herbs, olives, and vegetables and covered with cheese. Why the rim? They needed something to hold onto! When Italians immigrated to the U.S., they brought pizza with them. American soldiers stationed in Italy during World War II (1941 -1945) fell in love with pizza. After the war, they wanted pizza here at home. Pizza soon became popular in New York and Chicago, and eventually all over the country.

Eleven Ways to Say Bread

Can you match the bread to the country? It's bread (or pasta) any way you say it!

- | | |
|-----------------|-----------|
| 1. Pita | German |
| 2. Tortilla | Mexican |
| 3. Lefse | Irish |
| 4. Soda Bread | Norwegian |
| 5. Spaghetti | American |
| 6. Brioche | Arab |
| 7. Bagel | Scottish |
| 8. Wonton | Jewish |
| 9. Scones | Chinese |
| 10. Stollen | Italian |
| 11. Johnny Cake | French |

On the WEB

Each year, more than **2 billion pounds** of feathers are produced by the U.S. poultry industry. That's enough to fill more than a billion pillowcases, a good reason to recycle the feathers. How? Find out here:

ON THE WEB "Going Coo Coo for Chicken Feathers"
www.ars.usda.gov/is/kids/animals/story1/story1.htm

Peas Please In 1928 he became the symbol of the Minnesota Valley Canning Company in Le Sueur. Where do you see the Jolly Green Giant today?

