

## Why Ag in the Classroom?

In times past, people were very aware of the role agriculture played in their lives. It meant survival! Nearly everyone—men, women and children—worked the land.

Agriculture still means survival. That will never change. But as time goes on, fewer and fewer people have close contact with farming. They're not aware of their own - and the nation's - total dependence on agriculture. Think about it:

- Only about 2 out of 100 Americans work in production agriculture (farming). This small group meets the food and fiber needs of the nation as well as many people abroad.
- Agriculture, along with its related occupations, is the nation's largest industry. It generates billions of dollars each year; one out of every five jobs depends on it in some way. It has massive impact on the American economy, greatly influences the U.S. international balance of trade and directly affects the number of jobs here at home.

Our citizens must be agriculturally literate in order to make responsible decisions affecting this giant lifeline. Building that literacy in tomorrow's leaders is what Ag in the Classroom is all about.

## Academic Standards Connection

The student Minnesota AgMag and other educational materials from Minnesota Agriculture in the Classroom can meet many

of the academic standards. These materials can serve as a wonderful "real life" connection and supporting piece as you incorporate the standards into your classroom activities. Here are a few examples of potential connections:

### SOCIAL STUDIES

**(Minnesota History Strand) Standard:** The student will demonstrate knowledge of Minnesota's indigenous peoples.

**(Economics Strand) Standard:** The student will understand the concept of interdependence in relation to producers and consumers.

### SCIENCE

**(History and Nature of Science Strand) Standard:** The student will understand how science is used to investigate interactions between people and the natural world.

**(History and Nature of Science Strand) Standard:** The student will recognize that science and technology involve different kinds of work and engage men and women of all backgrounds

### LANGUAGE ARTS

**(Reading and Literature Strand) Standard:** The student will use a variety of strategies to expand reading, listening and speaking vocabularies.

### MATHEMATICS

**(Data Analysis, Statistics and Probability Strand) Standard:** The student will represent and interpret data in real-world and mathematics problems.

## Hello Out There (Resources)

### MINNESOTA AGRICULTURE IN THE CLASSROOM

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[www.mda.state.mn.us/maitc](http://www.mda.state.mn.us/maitc)



Great resources available! Tell your primary level colleagues about our **new AgMag Jr.**, tell your middle school and junior high science colleagues about the **new "Fields of Energy" DVD** and tell your media specialist about our **children's literature book bundle**.

If your students are studying the states, have them visit the National Ag in the Classroom web site (click on State Profiles on the home page) to learn about each state's unique agriculture. You'll also find a wealth of teacher resources available (mostly free) from other state programs.  
[www.agclassroom.org](http://www.agclassroom.org)

### MINNESOTA DAIRY COUNCIL

Order a **FREE Wellness Activation Kit** and help your students make positive changes in their eating and exercise habits. The kit inspires students to get up and play for 60 minutes a day and to fuel up by eating more of the 2005 Dietary Guidelines for American Food. To order your school's 2008/09 Wellness Activation Kit, access **FREE** downloadable wellness tools and enroll for the monthly e-news update, hop online at [www.SchoolWellnessKit.org](http://www.SchoolWellnessKit.org). Kits will begin shipping in October 2008.

### SPECIAL PROJECT FOOD, LAND AND PEOPLE (FLP) WORKSHOP

Come learn about the interdependence of food, land and people and receive the 950-page, 55-lesson "Resources for Learning" teacher handbook. Modeled after Projects Learning Tree, Wet and Wild. "Mr. Wizard" (Dr. Vernon Cardwell) and "Mrs. Best Practices" (Susan Anderson) will entertain and educate you! Only \$45 including lunch. Saturday, November 15, 2008, at University of Minnesota, St. Paul. Contact Dr. Cardwell at 612-625-6754 or [cardw001@umn.edu](mailto:cardw001@umn.edu) to register or inquire about the workshop.

# About Your AgMag

Your AgMag is distributed primarily to teachers in grades studying Minnesota (usually fourth or sixth). If the magazine fits better into the curriculum program at another grade level, we encourage you to pass the material on to the appropriate teachers.

Offered at no cost to you, the AgMag is a product of Minnesota Agriculture in the Classroom. You'll receive three issues this school year: mid October, mid December and early March.

This first issue of your AgMag is designed to help you:

- provide students with a general understanding of agriculture and human dependence upon it, today and in the past.
- strengthen understanding of the role agriculture plays in students' daily lives.
- build awareness of Minnesota agriculture, its economic importance and how the state's geographic features influence agriculture.
- offer insights about native foods and Native Americans prior to the settlement of Fort Snelling.

## Integration

Your AgMag materials are created by experienced classroom teachers. An Editorial Review Committee provides content ideas and reviews each issue.

Some teachers use the magazine as a separate lesson; others integrate magazine content into specific areas of the curriculum. The subject matter and skills listed will help you select appropriate agriculture activities to integrate into other curriculum areas.

**Language Arts, Reading Literacy:** Use the articles and activities to develop a variety of skills: outlining; nonfiction reading; reading for the main idea; vocabulary development (bold words, pretest/post-test, activities throughout the AgMag, reproducible pages in Teacher Guide).

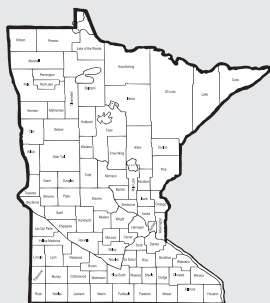
**Math:** Interpret state agriculture rankings, percentages and State Fair figures.

**Creative Writing:** Many of the articles are great launchers for creative writing. Examples: adventures at the fair, tracing family history to agricultural roots, life at Fort Snelling or in an early Indian village.

**Geography, Map Skills:** See activities pages 4 through 8. Locate the Minnesota communities named throughout the AgMag on a state map. Use the reproducible Minnesota map in the Teacher Guide as a handy aid for a variety of Minnesota concepts.

### Try This:

- Color the top-producing counties for various commodities. As a guide for coloring, Commodity Cards can be downloaded and printed for 19 commodities from the Minnesota Agriculture in the Classroom website: [www.mda.state.mn.us/mait](http://www.mda.state.mn.us/mait)
- Locate and label major Minnesota cities, major rivers and highways.
- Locate your town or community. Identify counties to the north, south, east and west of your county. Where is your county seat?



**History, Social Studies and Current Events:** See the cover and the articles and activities on pages 6, 7 and 8.

# In This Guide: Don't Miss...

- **SHOW WHAT YOU KNOW** pretest and post-test on page 4. Check your students' knowledge of key agricultural concepts before and after reading the AgMag!
- Discussion prompters, background information, extended activities and answers.
- Two reproducible activities: The Great Exchange, Minnesota Map. See "Try This" in column 1.

Highlights of Your Three 2008-09 Issues Include:

- October: Overview: Agriculture is Everywhere**
- Agricultural production, processing, distribution
  - Major Minnesota agriculture crops/growing areas
  - Minnesota agribusinesses and cooperatives
  - American Indian agriculture and native foods (prior to 1820s)
  - Food costs at home and globally
  - State Fair fun and facts
- December: Overview: From the Land to You; Ag in a Changing World**
- The production/processing/distribution cycle
  - Sourcing popular foods to their origins
  - New developments in agriculture
  - Global connections
  - World hunger and population trends
  - Early settlement and foods (1820s–1950s)
- March: Overview: Agriculture and the Environment**
- The food, land and people connection
  - Earth-friendly agriculture
  - Newcomers and new foods (1950s–present)

## Glossary

Some words in your AgMag may be unfamiliar to your students. These words often appear in bold type or in italics. Many are defined in the articles. Words you might wish to pre-teach are: **agriculture, by-products, (cover); industry, livestock, food, fiber, forests, turf and landscaping materials, production, processing, distribution (pg 2); logo (pg 3); soil types, terrain, growing season (pg 4); income, biofuels (pg 6).**

## Discussion Prompters

**Cover (Social Studies)**

1. Agriculture is everywhere. What are the agriculture connections in the photo? (*Clothes, bedding, pillows, curtains, headboard, baseball cards.*)
2. Why is it important for all people to know about agriculture? (*We all depend on agriculture for food, clothing and shelter. It's important to understand how our needs are supplied as we make decisions about using land, protecting resources, keeping food safe and much more.*)

**Student Pages 2 and 3 (Social Studies, Economics, Science)**

1. What have you eaten or worn today that came from an animal? A tree or plant? The soil? Which came from beef or dairy cattle? Hogs? Poultry?
2. Why do we say agriculture depends on natural and renewable resources? (*The things that are produced, processed and distributed all are dependent on soil, sun, air and water in some way. Animals and plants are considered renewable resources.*)
3. After students have tried matching the jobs to Production, Processing and Distribution, discuss some of the careers that are unfamiliar to them. (*A cereal chemist works with*

edible grains, often to develop new products. A plant biologist studies and works with plants. These people are technologists. Technologists are people who work to use scientific, mechanical or industrial information in ways that meet practical needs.)

- Discuss agriculture's customers. Who are they? How do they determine what is produced? (Customers can include each of us as well as other buyers: processors, distributors, other countries, etc.)
- Food production stories and advertising are always in the media. Compile a media journal of ads and articles about Minnesota agribusinesses and cooperatives. Why are logos important? (They provide a quick visual way to identify companies and products.) What Minnesota products are advertised nationally? What news of "homegrown" corporations or cooperatives can be found on the business pages of the newspaper?

### Student Pages 4 and 5 (Geography, Map Skills)

- What geographical features of Minnesota make it a good state for agriculture? (Variety of terrain and soil types, climate, rainfall, weather.)
- What makes the Red River Valley such a high-producing crop area? (Rich, fertile soils, adequate moisture, large flat areas for mechanized agriculture.)
- Which of the four regions has a main crop that has not always been considered agricultural? Explain your answer. (The northeast region. In the past, natural forests were cut down and not replanted. Today, trees are considered a renewable crop.)

### Student Pages 6 and 7 (Current Events, History, Social Studies)

In these times of rising food and fuel prices, students may be surprised to learn that we who live in the United States spend a lower percentage of our income on food than in most if not all other countries.

- Why do American families spend less of their income on food than in most other countries? (American incomes are

higher than in many other countries, so the percentage spent on food is less. The United States is blessed with a lot of land that is capable of producing food. Farmers have modern machinery that makes it possible to grow large amounts of crops quickly and efficiently. Science and technology have helped develop hardy, disease and weather-resistant crops that produce good yields. Water is available to growing crops. Good transportation, refrigeration and storage mean less waste of food. Grocery stores competing with each other help keep prices in check.)

- Recent high prices at the gas pump have fueled new American interest in alternative energy. Americans depend on fossil fuels like oil, coal and natural gas to heat our homes, generate electricity and fuel our cars. Fossil fuels are non-renewable resources. Once they're used up, they are gone for good. Renewable resources, however, can be renewed or made available forever. Agricultural scientists and farmers have been working with renewable plants and animal byproducts to grow renewable energy sources. What are some renewable sources of energy that come from agriculture? (Trees, ethanol and biodiesel fuel from plants, corn pellets for heat and methane from animal waste are examples.)
- Surf the net and check out the library for stories and legends about the Three Sisters. The crops were essential to the survival and nutrition of many Indian communities. What celebrations, customs and community events are based on these three important crops?
- How did Indian communities prepare their foods? How did they preserve foods through the long winter months? (Hunting and fishing were year-around activities. Meat, fish and many plant foods were dried in the sun and stored in earthen containers, baskets and in underground hollows.)

## ANSWERS: AgMag

### COVER

Connections to agriculture: The Three Sisters are squash, corn and beans.

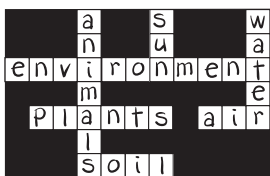
### AGRICULTURE: MORE THAN FARMING, Pg. 2

List labels:

A. Production; B. Processing; C. Distribution

Photos: C ; B; A

Crossword



### CELEBRATING MINNESOTA AGRICULTURE,

Pg. 3

- Gold'n Plump – chicken – packaged chicken
- Hormel – hogs – pepperoni and ham
- American Crystal Sugar – sugarbeets – sugar
- John Deere – steel – farm machinery
- Boise – trees – paper
- Schwan's – milk – ice cream
- Land O' Lakes – milk – cheese and butter
- Old Dutch – potatoes – potato chips
- Malt-O-Meal – oats – cereal and snacks

### MINNESOTA AGBRAGS, Pg. 3

Minnesota's biggest ag customers: Canada, Japan and Mexico

What made the difference? Modern machinery

### GROWING AREAS, Pgs. 4 and 5

1. C (Northwest) 2. B (Southwest) 3. D (Central/Southeast)

4. A (Northeast)

Leading sugarbeet county: Polk

### FIND IT ON THE MAP, Pg. 5

What do you notice about what grows where in Minnesota? Many things grow in clusters in certain areas, but some may grow all over the state. Livestock and the crops that feed them are generally located together. Five things that make growing areas different: soil types, weather, rainfall, terrain, growing season.

Northwest: What is the crop? Barley

Northeast: What's the crop? Trees (Forestry)

Southwest: What is the crop? Soybeans

Southeast: Where might you see growers? Farmers' markets

### FOOD: EVERYBODY PAYS, Pg. 6

Think and Discuss: The connection between food costs and fuel costs is that all parts of the agriculture cycle (production, processing, distribution) use fuel. As fuel costs more, these increases are passed on to the customer. Increased costs of feed, seed, fertilizer, etc. on the farm are also passed on. As demand for anything goes up, prices go up. As supply goes down, prices go up.

#### Income Spent on Food:

Afghanistan . . .	Over 50%	Japan . . . . .	.11-25%
Australia . . . .	.11-25%	Madagascar . .	Over 50%
Bolivia . . . . .	Over 50%	Mexico . . . . .	.11-25%
Brazil . . . . .	.26-49%	New Zealand . .	.11-25%
Canada . . . . .	.11-25%	Norway . . . . .	.11-25%
China . . . . .	.26-49%	Philippines . . .	.26-49%
Denmark . . . . .	.11-25%	Russia . . . . .	.26-49%
France . . . . .	.11-25%	Spain . . . . .	.11-25%
India . . . . .	.26-49%	South Africa . .	.11-25%
Indonesia . . . .	Over 50%	Sweden . . . . .	.11-25%
Iran . . . . .	Over 50%	United Kingdom	.11-25%
Iraq . . . . .	Over 50%	United States . .	.10% or less
Italy . . . . .	.11-25%		

Countries paying the most of their income are generally less developed countries. Developed countries tend to pay less. People in the United States pay least of all.

### OUR BOUNTIFUL LAND: THE STORY OF FOOD, Pg. 7

#### Think and Discuss:

- Indians in northern and southern Minnesota had different weather, soil types, terrain and growing seasons. Southern Minnesota is closer to the equator and generally warmer.
- Once people could raise their own food they could build villages and settlements. Before this they had to move to continually search for food.

#### Four rivers:

Mississippi, Minnesota, St. Croix, Cannon

Two lakes: Lake Superior, Mille Lacs

## ANSWERS: Teacher Guide

### SHOW WHAT YOU KNOW

- b 2. a 3. b 4. b 5. a 6. c 7. b 8. c 9. a

### THE GREAT EXCHANGE

- Settling began on the East Coast and moved west. Many areas were heavily wooded. Travel was slow and clearing ground for planting new crops was hard, slow work.
- sugarcane
- horses
- potatoes

**Note to Teachers:**

You are encouraged to send the Pretest and Post-test results to Ag in the Classroom to help document student learning. Use the attached postage-paid evaluation card.

Name \_\_\_\_\_

Check one  Pretest  Post-test

## Show What You Know!

*Take this short quiz before you read your AgMag, then again after reading the magazine. See the improvement!*

- 1.** Agriculture involves the growing and harvesting of food, fiber, forests and  
a. metals.                      b. landscape materials.                      c. plastic.
- 2.** An acre is a land area about the same size as  
a. a football field.                      b. a school gym.                      c. a classroom.
- 3.** The same crops grow well all over Minnesota.  
a. true                      b. false
- 4.** In agriculture, production means  
a. getting farm products from farm to consumer.  
b. growing of raw food and fiber.  
c. packaging products so they're ready for sale.
- 5.** What percent of Minnesotans work in food and fiber industries?  
a. 15                      b. 40                      c. 2
- 6.** The Three Sisters of crops are  
a. hay, oats and wheat.  
b. tomatoes, watermelon and peppers.  
c. corn, beans and squash.
- 7.** Minnesota's first farmers were  
a. Cherokee Indians.  
b. Dakota and Ojibwe Indians.  
c. Apache Indians.
- 8.** In 2007, Minnesota ranked first of all 50 states in production of  
a. soybeans and wheat.  
b. ice cream and butter.  
c. sugarbeets, green peas and turkeys.
- 9.** Fort Snelling is located  
a. where the Mississippi and Minnesota rivers meet.  
b. where the Mississippi and St. Croix rivers meet.  
c. where the Mississippi and Red River of the North rivers meet.

# A Great Exchange

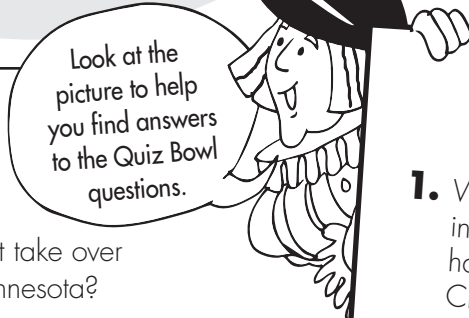
October, 2008 marks the 516th anniversary of the first voyage of Christopher Columbus to the Americas. Native peoples were already living in North and South America. The four voyages of Columbus started an exchange of plants, animals and people that changed the world forever.

On his second voyage, Columbus brought 17 boatloads of people to start a colony. The ships also brought many different kinds of plants and animals that native peoples had never seen before—things that completely changed the way they lived. This exchange went both ways. When Columbus returned to Europe, he took many plants that were new to Europeans, changing their cooking and eating. Some of the trades after 1492 included:



## The Great Exchange Quiz Bowl

1. Columbus' first journey was in 1492. Why did it take over 300 years for some of these foods to reach Minnesota?  
\_\_\_\_\_
2. This plant, brought by Columbus to the Americas, is used to make sugar. \_\_\_\_\_
3. The arrival of this animal changed the way Native Americans traveled and hunted. \_\_\_\_\_
4. When farmers in Europe planted this food crop from North America, they were able to produce more food and feed more people. \_\_\_\_\_

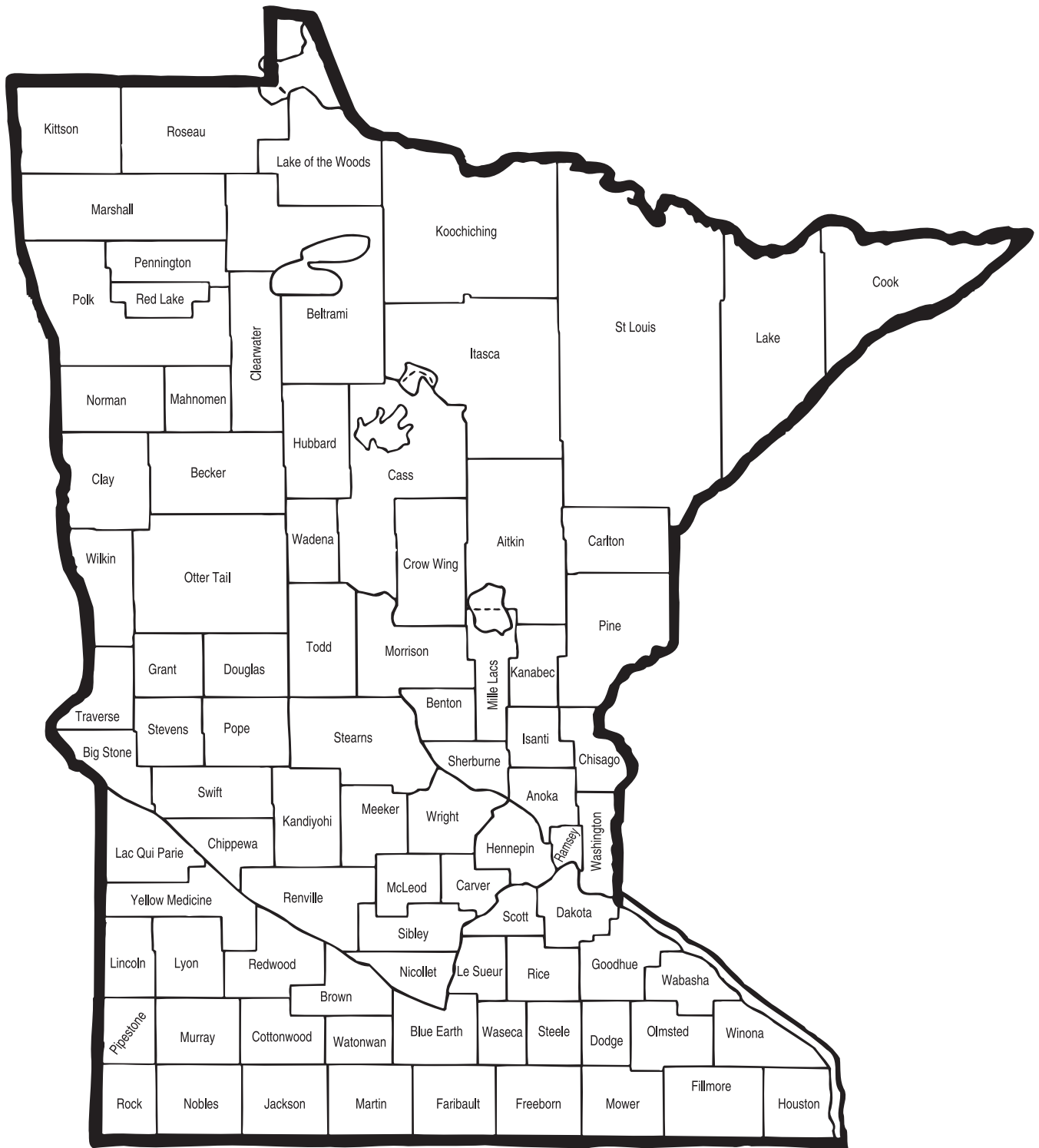


Look at the picture to help you find answers to the Quiz Bowl questions.

## Think and Discuss

1. Which of the foods in the great exchange have you eaten? Circle your answers on the ship sails above.
2. Some people say Columbus came from an Old World to find a New World. Why might it be more correct to say it was the meeting of two Old Worlds?





# Minnesota

Minnesota AgMag and Teacher Guide is a publication of Minnesota Agriculture in the Classroom. Minnesota Agriculture in the Classroom is a public/private partnership between the Minnesota Department of Agriculture and the Minnesota Agriculture in the Classroom Foundation. MAITC Program Director and AgMag Project Coordinator is Al Withers. The publication is developed and written by Jan Hoppe, B.S. and Jane Duden, B.S. Both are experienced educators and educational materials developers. Design, layout and production are by Northern Design Group.