

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.



Interactive AgMag Now Available!
Check it out at
AgMagOnline.com

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

Great resources available! Tell your primary level colleagues about our **AgMag Jr.**, your media specialist about our **children's literature book bundle** and check out our new online series called **Agriculture: Serving Science and Society**.

Now Available! Updated full-color Minnesota Commodity Card Set (20 Cards)

If your students are studying the states, have them visit the National Ag in the Classroom website (click on Student Center, then on State Ag Facts) 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



MAITC FOUNDATION

MN Ag in the Classroom faithfully continues to provide educators with free educational resources. But, that doesn't mean you can't help support us with a small donation to the cause. Check us out at: www.maitcfoundation.org

MINNESOTA HISTORICAL SOCIETY

For great Minnesota historical pictures go to the Society's Photo and Art Database at: www.mnhs.org/collections

You might also want to consider visiting one of these very student-friendly historical sites for great hands-on learning:

- Oliver H. Kelley Farm at Elk River
www.mnhs.org/kelleyfarm
- FarmAmerica at Waseca
www.farmamerica.org
- Mill City Museum at Minneapolis
www.millcitymuseam.org

ABOUT YOUR AGMAG

Your AgMag is distributed primarily to teachers in grades studying Minnesota (usually fourth or sixth) or for use in science. 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: October, January and 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 and introduce careers related to agriculture.
- build awareness of Minnesota agriculture, its economic importance and how the state's geographic features influence agriculture.
- offer insights about how machines and technology changed agriculture over the past 100 years.
- build recognition of state symbols and the official Minnesota State tree, fruit, grain, flower and more.

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).

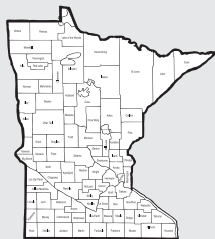
Math: Interpret state agriculture rankings and an annual precipitation graph.

Creative Writing: Many of the articles are great launchers for creative writing. Examples: tracing family history to agricultural roots, life in an early Indian village or on a settler's farm.

Geography, Map Skills: See activities on pages 4 and 5. 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.

MAP IDEAS (reproducible, page 6)

- Color the top-producing counties for various commodities. As a guide for coloring, Commodity Cards can be downloaded and printed from the Minnesota Agriculture in the Classroom website: www.mda.state.mn.us/maitc
- 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? What is your largest city?



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: "Name the Career" and Minnesota Map. See "Map Ideas" in column 1.

Highlights of Your Three 2011-12 Issues Include:

October: Overview: Agriculture is Everywhere

- Agricultural production, processing, distribution
- Major Minnesota agriculture crops/growing areas
- Minnesota agribusinesses and cooperatives
- How machines and technology changed agriculture over the past 100 years
- State symbols

January: Overview: Agriculture, the Land and You!

- The production/processing/distribution cycle (highlighting sugarbeets)
- New developments in agriculture
- Global connections
- World hunger and population trends
- How machines and technology changed agriculture over the past 100 years

March: Overview: Caring for Our Natural Resources

- The food, land and people connection
- Gardening for kids
- Earth-friendly agriculture
- Minnesota's natural resources
- How machines and technology changed agriculture over the past 100 years

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, tallow** (cover); **livestock, industry, food, fiber, turf and landscaping materials, production, processing, distribution** (pg 2); **logo** (pg 3); **soil types, terrain, rainfall, growing season, precipitation** (pg 4); **symbol** (pg 6); **organic, conventionally grown food** (pg 8).

DISCUSSION PROMPTERS

Cover (Social Studies)

1. Agriculture is everywhere. What are the agriculture connections on this page? (*Food, clothes, potato, furniture, bedding, books, pencil, curtains, Target Field turf, football, apple, milk stand at the Minnesota State Fair, wheat plant and more.*)
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.*)

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



Internet Activities: Invite internet research on any magazine article. Check out the printed website links as well as **AgMagOnline.com** featuring an all-new interactive AgMag.

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 match the jobs to Production, Processing and Distribution, discuss some of the careers that are unfamiliar to them. Guide students to see that each category includes many different and some overlapping roles.
4. 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 often advertised?
5. Target Field is loaded with agriculture connections. (*Sod, uniforms, food, etc.*) Have students brainstorm others.

Student Pages 4 and 5 (Geography, Map Skills)

1. What geographical features of Minnesota make it a good state for agriculture? (*Variety of terrain and soil types, climate, rainfall, weather.*)
2. What makes the Red River Valley (Northwest area) such a high-producing crop area? (*Rich, fertile soils, adequate moisture, large flat areas for mechanized agriculture.*)
3. Which of the four regions has a main crop that people may not always think of as agriculture? Explain your answer. (*The northeast region. In the past, natural forests were cut down and not replanted. Today, forests are replenished and trees are considered a renewable crop.*)
4. Discuss annual precipitation as an average of data collected over many years. Remind students of weather events such as drought and flooding. What effect do these have on farmers? How could deviations eventually impact our food supplies and prices?

Student Page 6 (Social Studies, History)

1. How do symbols communicate ideas more quickly than written words?
2. What is meant by the old saying "A picture is worth a thousand words"?
3. What are some slogans or sayings that represent Minnesota? (*"Land of 10,000 Lakes," "The Gopher State," "The North Star State" or the "Star of the North".*)
4. Take the Minnesota State Symbols game quiz on the Minnesota House of Representatives website: www.house.leg.state.mn.us/hinfo/StateFair3/index.htm

Student Page 7 (History, Social Studies, Cultural Diversity)

1. Mention that cities were the first places to get electricity. When President Roosevelt created the Rural Electrification Administration in 1935, only 10 percent of rural Americans had electricity. This lack of power prevented farmers from modernizing. It also forced some people to live in unhealthy conditions. Many rural Americans lived in homes with poor heating or poor sanitation. Most farmers had no indoor running water and no way to refrigerate their food. Google "Rural Electrification Act" to discover more.
2. In the 1930s many farm families moved to cities. What was happening in the 1930s to make many families leave their farms? (*Dust storms stripped millions of tons of top soil from fields, making land unproductive and harming livestock. The Great Depression financially ruined many farm families. More farm work could be done by machine so some members of the family could work elsewhere.*)
3. What do cows think of robot milkers? (*Cows actually like the robot. They are calmer, have less infection and disease problems. They give more milk as they are milked three or more times a day instead of twice a day. The cows actually enter the robot on their own when they are ready to give milk.*)

ANSWERS: AgMag

COVER

Connections to agriculture: See Discussion Prompter number 1 on page 2.

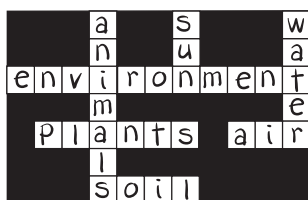
AGRICULTURE; MORE THAN FARMING, Pg. 2

List labels:

- A. Production;
- B. Processing;
- C. Distribution

Photos: C, B; A

Crossword



CELEBRATING MINNESOTA AGRICULTURE, Pg. 3

1. Gold'n Plump – chicken – packaged chicken
2. Hormel – hogs – pepperoni and ham
3. Minn-Dak Sugar – sugarbeets – sugar
4. John Deere – steel – farm machinery
5. Boise – trees – paper
6. Kemps – milk – ice cream
7. Pioneer – corn seed – ethanol
8. Old Dutch – potatoes – potato chips
9. Malt-O-Meal – oats – cereal and snacks

BASEBALL AG CONNECTIONS, Pg. 3

- Uniforms cotton
- Catchers mitt leather
- Bats wood
- Ice cream. milk
- French fries potatoes
- Home plate rubber
- Tickets/programs trees
- Baseball covers cowhide
- Pretzels. wheat

GROWING AREAS, Pgs. 4 and 5

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

Leading sugarbeet county: Polk

Name the animal: Alpaca

Name the crop: Wheat

Name the growing area: Northwest

MINNESOTA RAINFALL: WHAT AND WHERE, Pgs. 4 and 5

1. Least rainfall: Northwest; Most rainfall: Central/Southeast.
2. Specific crops need different amounts of moisture.
3. Above normal: Crops drown out or wash away. Yield is reduced. Below normal: Drought causes crops to wither or die. Yield is reduced.

Your turn:

Hay and Pastureland: Central/Southeast
 Sugarbeets: Northwest
 Corn and Soybeans: Southwest
 Forest and Pine Trees: Northeast
 Wheat: Northwest

STATE SYMBOLS, Pg. 6

State Seal: L'Étoile du Nord" is the Star of the North.

State Grain: Wild rice is hand harvested in lakes and marshes. Cultivated rice is planted and cultivated by machines in bogs.

State Fruit: Honeycrisp Apples were developed at the University of Minnesota.

State Mushroom: Morels are nicknamed sponge mushroom because they look like sponges.

State Tree: Our tallest tree is in Itasca State Park.

State Flower: Showy Lady's Slipper.

State Bird: Common loon.

State Fish: Walleye

TRUE OR FALSE, Pg. 6

All are true. Research online to learn more.

CRACK THE CODE, Pg. 8

The Produce Marketing Association (PMA) assigns the produce number codes. An organic code means it was grown and processed using organic farming methods: no toxic and persistent pesticides, bioengineered genes or toxic fertilizers.

- Organic foods: 2. Red pepper and 3. Broccoli

MINNESOTA AGRICULTURE, Pg. 8

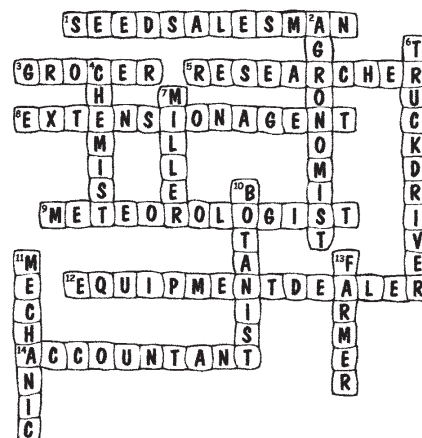
Minnesota's biggest ag customers: China, Japan, Mexico and Canada

ANSWERS: Teacher Guide

SHOW WHAT YOU KNOW

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

NAME THE CAREER



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

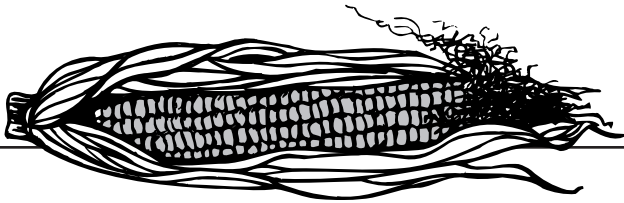
SHOW WHAT YOU KNOW!

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. sod. 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 is in food and fiber industries?
a. 10 b. 40 c. 2
- 6.** In the 1930s, what huge and helpful change came to farms?
a. Telephones
b. The steel plow
c. Electricity
- 7.** Minnesota's first farmers were
a. Cherokee Indians.
b. Dakota and Ojibwe Indians.
c. Apache Indians.
- 8.** In 2010, Minnesota ranked first of all 50 states in production of
a. soybeans and wheat.
b. ice cream and butter.
c. oats, sugarbeets, turkeys, sweet corn and green peas for processing.
- 9.** Which is Minnesota's state tree?
a. Red (Norway) Pine
b. Maple
c. White Oak

NAME THE CAREER

Did you know that more than 20 million Americans work in some phase of agriculture? But only two million people live and work on farms or ranches. Many of the remaining 18 million people are involved in the processing phase of agriculture. They change crops and livestock into products we can use. Corn doesn't grow in a can and corn oil doesn't suddenly appear in a bottle!



Identify the following agricultural careers by fitting them into the crossword puzzle.

accountant
agronomist
botanist
chemist

equipment dealer
extension agent
farmer

grocer
mechanic
meteorologist
miller

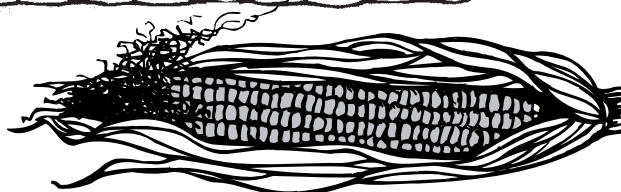
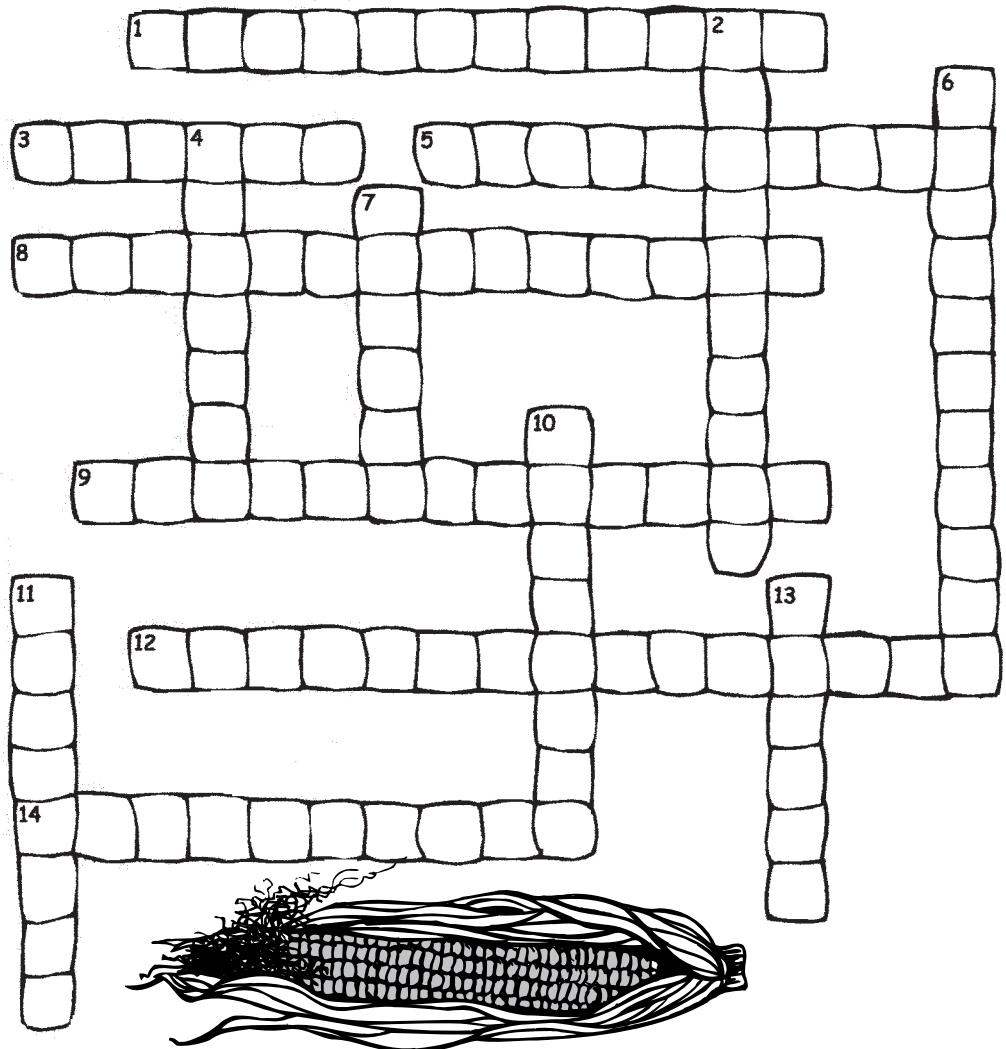
researcher
seed salesman
truck driver

Across

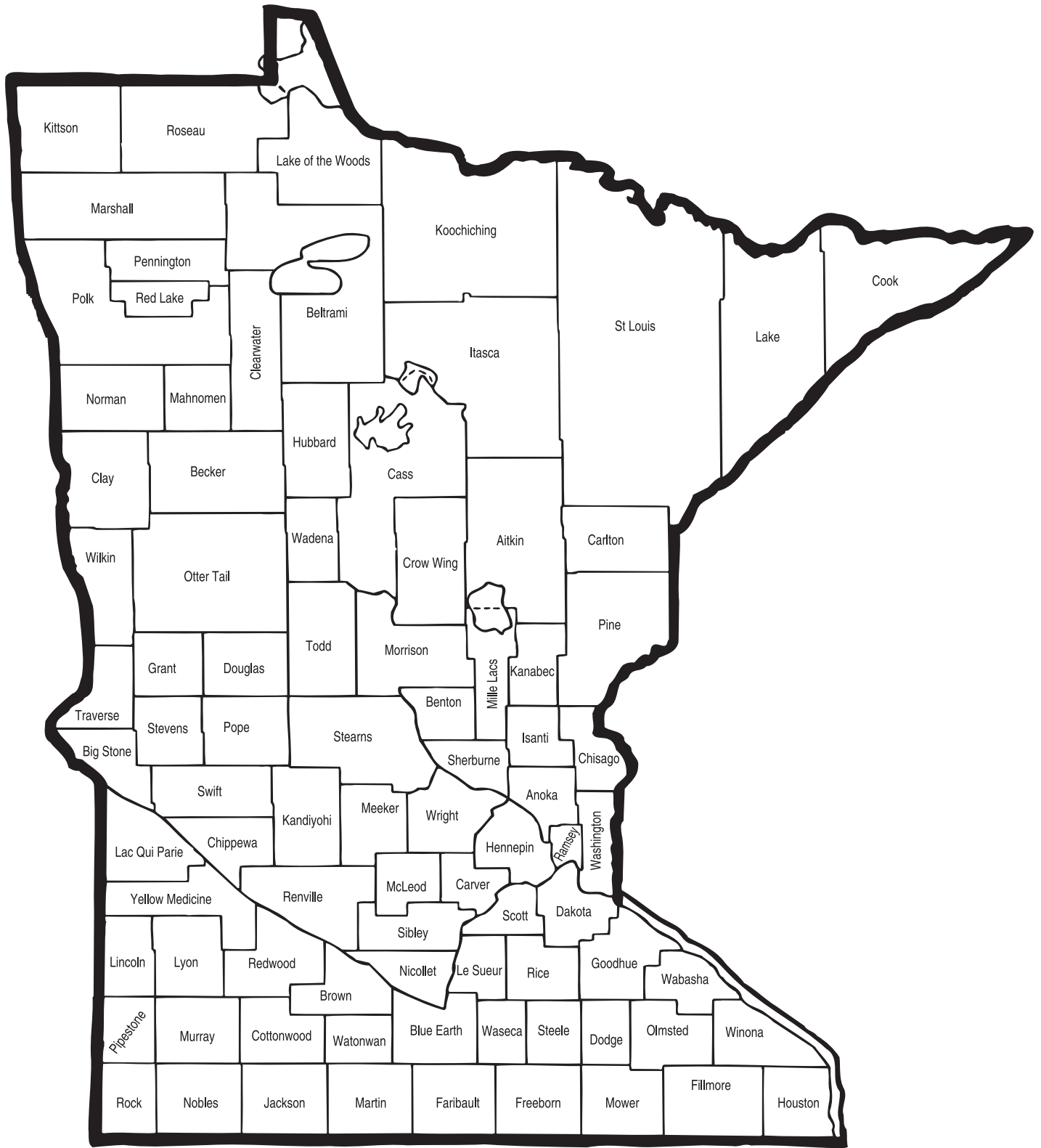
1. Supplies hybrid seed to the farmer
3. A person who sells food products
5. Scientist who investigates future uses of grains
8. Provides current information from university research to the farmer
9. Forecasts the weather
12. Sells the tractors, planters, tillage equipment and combines
14. Keeps the financial records

Down

2. Scientist who deals with crop production and soil management
4. Scientist who develops new and effective herbicides and pesticides
6. Hauls the crop from the farm to the processing plant or elevator
7. Grinds the grains into meal
10. Scientist who studies plants
11. Repairs and maintains the farmer's machinery
13. Responsible for planting, cultivating and harvesting the crop



Source: Adapted from *Captain Cornelius Magazine*, National Corn Growers Association



MINNESOTA

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