

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. The following are a few examples of potential connections.

Minnesota Academic Standards Alignment

K-12 Academic Standards in Social Studies

1. (Grade 4, Economics Strand, Fundamental Concepts Sub-Strand, Standard 3) Benchmark: Define the productivity of a resource and describe ways to increase it.
2. (Grade 4, Geography Strand, Human Environment Interaction Sub-Strand, Standard 9) Benchmark: Explain how humans

adapt to and/or modify the physical environment and how they are in turn affected by these adaptations and modifications

3. (Grade 6, Geography Strand, Human Systems Sub-Strand, Standard 6) Benchmark: Locate, identify and describe major physical features in Minnesota; explain how physical features and the location of resources affect settlement patterns and the growth of cities in Minnesota.
4. (Grade 6, History Strand, US History Sub-Strand, Standard 15) Benchmark: Compare and contrast the Dakota and Anishinaabe nations prior to 1800.

K-12 Academic Standards in Science

1. (Grade 5, Nature of Science and Engineering Strand, Interactions among STEM and Society Sub-Strand, Standard 2) Benchmark: Describe how science and engineering influence and are influenced by local traditions and beliefs.
2. (Grade 5, Life Science Strand, Human Interactions with Living Things Sub-Strand, Standard 1) Benchmark: Give examples of beneficial and harmful human interaction with natural systems.

Common Core/Minnesota K-12 Academic Standards in English Language Arts

1. (Grade 4, Reading Informational Text Sub-Strand, Key Ideas and Details Standard) Benchmark: Explain events, procedures, ideas or concepts in a historical, scientific or technical text, including what happened and why, based on specific information in the text.
2. (Grade 6, Literacy in History/Social Studies Sub-Strand, Key Ideas and Details Standard) Benchmark: Identify key steps in a text's description of a process related to history/social studies.

National Health Education Standards and Minnesota Benchmarks

Standard: Students will comprehend concepts related to health promotion and disease prevention to enhance health.

MINNESOTA AGRICULTURE IN THE CLASSROOM

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www.mda.state.mn.us/maitc

- MN AgMag and AgMag Jr. Series
- Food for Thought MN Geography Curriculum
- Standards-based Lessons and Activities
- Supplemental Resources
- Professional Development Workshops
- Ag Literacy Grant Program

MAITC FOUNDATION

www.maitcfoundation.org

- Consider a financial gift to help educate students and teachers

2013 AGRICULTURE IN THE CLASSROOM NATIONAL CONFERENCE

- Featuring Andrew Zimmern, TV Food Personality and Cris Peterson, Children's Book Author
- Engaging Workshops and Traveling Tours

June 25-28, 2013
Marriott City Center
Minneapolis, MN

www.agclassroom.org/conference2013/index.htm



Interactive AgMag Available!
Check it out at AgMagOnline.com

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 and why Minnesota's landscape has changed over the past several hundred years
- introduce students to ten plants that have been designated by a panel of experts as most shaping our state.

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; reproducible Minnesota Ag Trivia activity in Teacher Guide.

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?

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

New!

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.

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 prompts, background information, extended activities and answers.
- Two reproducible activities: Minnesota Ag Trivia and Minnesota Map. See "Map Ideas" in column 1.

Highlights of Your Three 2012-13 Issues Include:

October: Overview: Agriculture is Everywhere

- Agricultural production, processing, distribution
- Major Minnesota agriculture crops/growing areas
- Minnesota agribusinesses and cooperatives
- Minnesota's changing landscape over the past several hundred years, including wild rice, white pine, wheat
- Ten plants that most changed Minnesota

January: Overview: Agriculture, the Land and You

- The production/processing/distribution cycle (highlighting pork)
- New developments in agriculture
- Global connections
- World hunger and population trends
- Minnesota's changing landscape, including soybeans, corn, alfalfa

March: Overview: Caring for Our Natural Resources

- The food, land and people connection
- Gardening for kids
- Earth-friendly agriculture
- Minnesota's natural resources
- My Plate and nutrition
- Minnesota's changing landscape, including American elm, apple, turf and lawn grass, purple loosestrife

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** (pg. 4); **precipitation** (pg. 5).

Discussion Prompters

Cover (Social Studies)

1. Agriculture is everywhere. What are the agriculture connections on this page? (*food, clothes, furniture, books, pencil, paper, school bus tires and fuel, backpack material, grass, wild rice, water and trees.*)
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.*)
3. **Mystery Photo:** *Wild rice.*

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?

- 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.*)
- 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.
- Why are logos important? (*They provide a quick visual way to identify companies and products.*) What Minnesota products are often advertised?
- What signs of drought did you see in 2012? Drought in a single year can cause a lot of damage to plants and animals, but drought in consecutive years is especially devastating. Google “drought” and “Dust Bowl” for extensive information. The Dust Bowl was not only caused by hot temperature and lack of rain. Poor agriculture practices contributed. Plowing under prairie grasses, leaving fields bare and not rotating crops left soil exposed to wind erosion. Farmers today are more aware of how they can reduce soil erosion. Still, drought is a significant concern to farmers everywhere.

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 (Northwest area) 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 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.*)
- 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, Science, Environmental Education)

- A panel of state horticultural experts was asked to identify which plants most changed Minnesota; you see their choices here. Do any of their choices surprise you? What other plants do you think should be on the list?
- How is purple loosestrife different than every other plant in this group? (*Purple loosestrife is a wetland plant that was brought in from Europe and Asia to be ornamental. It is an invasive species that quickly spreads and crowds out desirable plants in wetlands and waterways throughout the state. It can destroy native plants that are wildlife habitat for ducks, geese, beavers, frogs, toads and turtles. You'll learn more about it in Issue 3.*)

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

- Why is wild rice so important to many native peoples? (*Wild rice has been central to the culture of native communities in the northern lakes areas for centuries. Believed to be a special gift from the Creator, it's high nutrition meant survival to many communities.*)
- For fascinating wild rice information, check out www.mnwildrice.com/riceinfo.htm
- Minnesota's landscape was greatly changed by huge wheat fields stretching across the prairies as far as the eye could see. What happens if you plant the same crop in a field year after year? (*Different crops take different nutrients from the soil. Planting the same crop year after year uses up specific nutrients, attracts certain pests and "exhausts" the soil. Depleted soil can no longer produce good yields. Rotating crops (planting different crops) allows the soil to rebuild. Fertilizer also helps create richer soil.*)

Student Page 8 (Social Studies and Current Events)

- What is Lester soil? Lester soils are in 17 different counties in south-central Minnesota. They total over 600,000 acres. These deep, rich, well-drained soils formed under woody vegetation that has been removed in most areas for agricultural production. Main crops grown in Lester soil in Minnesota are corn and soybeans. Lester soil is very productive and significant to the economy in Minnesota.

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

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

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: Alfalfa

Name the main growing area: Central/Southeast

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

FIND IT ON THE MAP, Pg. 5

soil types, weather, rainfall, terrain, growing season

NAME THE PLANT, Pg. 6

wild rice, wheat, white pine

MINNESOTA AGRICULTURE, Pg. 8

Minnesota's biggest ag customers: China, Japan, Mexico and Canada
China is our leading customer.

FUN AND FOOD AT THE FAIR, Pg. 8

Agriculture

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

MINNESOTA AG TRIVIA

Mahnomen, grass, wheat, clear-cutting

What does a Minnesota farmer plow but never plant? Answer: Snow

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 in food and fiber industries?
a. 10 b. 40 c. 2
- 6.** Minnesota has a new state soil. It is
a. clay.
b. sand.
c. Lester.
- 7.** Minnesota's first farmers were
a. Cherokee Indians.
b. Dakota and Ojibwe Indians.
c. Apache Indians.
- 8.** In 2011, Minnesota ranked first of all 50 states in production of
a. soybeans and wheat.
b. ice cream and butter.
c. sugarbeets and turkeys.
- 9.** Which is Minnesota's state grain?
a. Wild rice
b. Wheat
c. Corn

Minnesota Ag Trivia

Work the math problem; write your answer in the blank under the problem. Then use the letter code to find the letter that goes with your answer and write it in the box. When you're finished, you'll have your trivia answers.

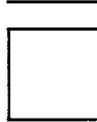
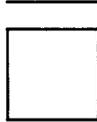
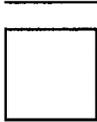
This Minnesota county's name is the Ojibwe word for "wild rice."

$22 - 2$ 3×3 $17 - 4$ $51 \div 3$ $6 - 2$ $18 + 2$ $16 \div 8$ $85 \div 5$
 $\underline{20}$



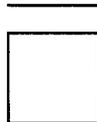
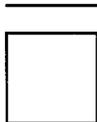
Wile rice isn't really rice at all. It's a form of _____.

$48 \div 4$ 9×2 $81 \div 9$ $44 - 22$ $88 \div 4$



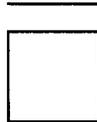
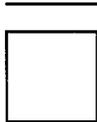
More foods are made with this than any other cereal grain.

$36 \div 6$ $39 - 26$ $18 \div 9$ $27 \div 3$ 8×3

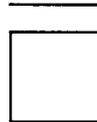
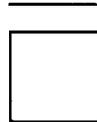
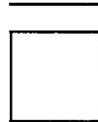
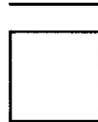


Northern Minnesota's landscape was greatly change by this logging practice called _____.

1×1 $57 \div 3$ $66 - 64$ $81 \div 9$ $9 + 9$



$24 - 23$ $25 \div 5$ 8×3 $96 \div 4$ $30 \div 10$ $9 + 8$ $96 \div 8$

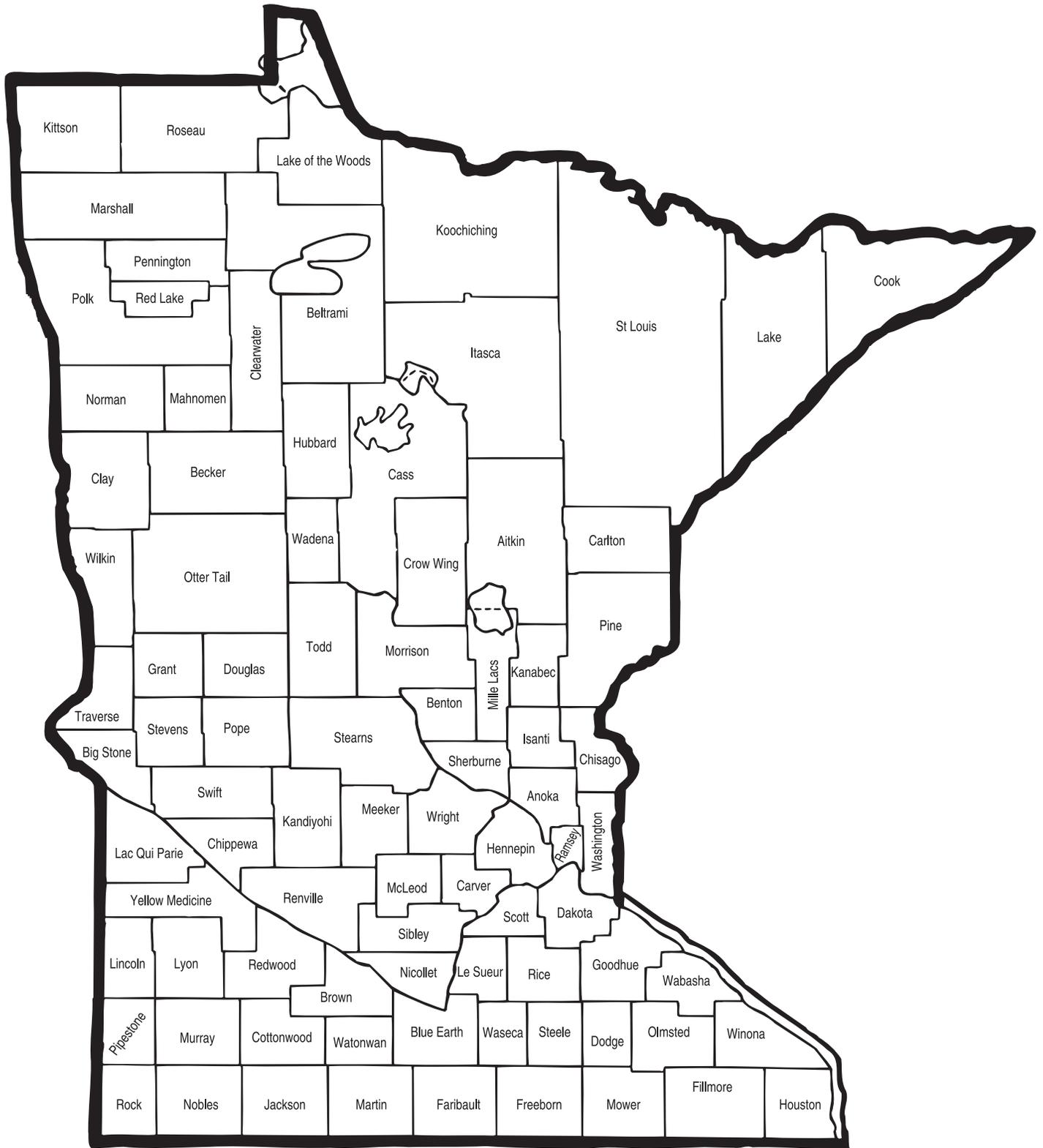


What does a Minnesota farmer plow but never plant?



Secret Letter Code:

1	2	3	4	5	6	7	8	9	10	11	12	13
C	E	I	O	U	W	Y	B	A	D	F	G	H
14	15	16	17	18	19	20	21	22	23	24	25	26
Q	J	K	N	R	L	M	P	S	V	T	Z	X



Minnesota

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