



MINNESOTA
Agriculture in the Classroom

AGMAG Teacher Guide



AgMag 3rd Grade - Fall Edition

ABOUT YOUR AGMAG

In 1985, the Minnesota Agriculture in the Classroom program (MAITC), is a unique public/private partnership between the Minnesota Department of Agriculture and the MAITC Foundation. The program goal is to advance agricultural literacy to all learners, especially K-12 students, and educators. MAITC's mission is "to promote understanding and awareness of the importance of agriculture." We are pleased to offer the free AgMag series for kindergarten through 6th grade. Each issue is written and targeted to each specific grade level. The magazine is sent early in the school year for beginning readers. Teachers can use it when the reading level of their students matches the reading level of the magazine. We publish two issues each school year, in October and March. Enjoy!

Why Ag in the Classroom?

Previously, 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 people have close contact with farming. They're not aware of their own—and the nation's—total dependence on agriculture. Think about it:

- Fewer than 2 out of 100 Americans work directly 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 one of the nation's largest industries. It generates billions of dollars each year; one out of every five jobs depends on it in some way.

Agriculture is constantly changing. But one thing remains the same: Agriculture is a vital part of your day! Even as early as the primary grades, it's important for students to gain an understanding and appreciation for the ways agriculture touches their lives, each and every day. Food doesn't magically appear in the grocery store or on the kitchen table. It all starts with agriculture.

AgMag 3 Fall Issue Theme: Agriculture: Helping You Every Day!

- What is Agriculture?
- Where Do Specialty Crops Grow?
- Who Are the Growers?
- Where Can You Find Specialty Crops?
- Specialty Crops at School
- How Can Tulips Grow in Minnesota in the Winter?



MINNESOTA ACADEMIC STANDARDS CONNECTION

SUBJECT	STANDARD CODE	BENCHMARK
Social Studies	3.2.8.1	Explain that producing any good or service requires resources. Describe the resources needed to produce a specific good or service. Explain why it is not possible to produce an unlimited amount of good or service.
Social Studies	3.2.10.1	Explain that consumers have two roles—as sellers of resources and buyers of goods and services; explain that producers have two roles—as sellers of goods and services and buyers of resources.
Science	3.1.3.2.2	Recognize that the practice of science and/or engineering involves many different kinds of work and engages men and women of all ages and backgrounds.
Science	3E.2.2.1.1	Organize and electronically present collected data to identify and describe patterns in the amount of daylight in different times of the year.
Science	3L.1.2.1.2	Plan and conduct an investigation to determine how amounts of sunlight and water impact the growth of a plant.
Health	7.5.2	Demonstrate a variety of healthy practices and behaviors to maintain or improve personal health.

GLOSSARY

Some words in your AgMag may be unfamiliar to your students. Many are defined in the articles. There is also a glossary on the AgMag website: <https://mnagmag.org/ag-terms-glossary/>. Words you might wish to pre-teach are:

Agriculture

Growing plants and raising animals that people use for food, clothing and many other things every day. It's also harvesting those farm products and getting them to us so we can use them. Agriculture is the industry that grows, harvests, processes, and brings us food, fiber, fish, forests, sod, landscaping materials, and more. It uses soil, water, sun, and air to produce its products. The process starts on farms, orchards, gardens, and ranches with the growing and harvesting of crops and livestock, then moves to processing plants before finally traveling as finished products to stores, farm markets, lumberyards, greenhouses, and more, where consumers buy the products. Agriculture is connected in some way with almost everything we eat, wear, and use.

Quote from an Unknown Source: “Agriculture is not simply farming. It's the supermarket, the equipment factory, the trucking system, the overseas shipping industry, the scientist's laboratory, the houses we live in, and much more. It affects the air we breathe, the ground we walk on, the water we drink, and the food we eat.”

Growing Season

The season of the year in which rainfall and temperature allow the crop to grow.

Peak Season

This season occurs when the crop is ready to harvest and we can use it or eat it when it is fresh and most delicious.

CSA Shares

Community Supported Agriculture (CSA) is a production and marketing model whereby consumers buy shares of a farm's harvest in advance.

Specialty Crop

A crop grown and used by people for food, medicine, or decoration. Fruits, vegetables, tree nuts, herbs, and flowers are examples.

Full Glossary Available at www.mnagmag.org/ag-terms-glossary.

AGMAG COVER: AGRICULTURE: HELPING YOU EVERY DAY!

Discussion Prompts

- What is agriculture?
- What are you wearing right now that came from agriculture?
- What did you eat today that came from agriculture?

Connecting Things to Agriculture

Your students may need a little guidance in connecting the everyday items they use to a raw agriculture product. Draw a diagram on the board that connects an item to agriculture.

- Ex: Cereal → main ingredient is grain → grown in a wheat field
- Ex: Pencil → cut and assembled in a factory → made from wood → wood cut from forest

Define:

Because agriculture related words may be new to some of your students, make sure to go over their definitions:

Agriculture

Agriculture is making things that grow on farms, like plants and animals, into things that we use.

Crop

Plants that are grown and harvested to feed people and animals or to make other things people need.

PAGE 2-3: WHERE DO SPECIALTY CROPS GROW?

Discussion Prompts

Begin this section by asking students if they know where bananas grow. **How about oranges or almonds? Why do they think these crops don't naturally grow in Minnesota? What fruits and vegetables can be grown in Minnesota?**

Not every crop can grow everywhere. Different crops need different amounts of warmth, water, sunlight, and time to grow. Use the examples on page 3 to help students explain why a crop grows well in one place but not another.

- **Why can apples grow well in Minnesota?**
 - *Minnesota winters provide the cold temperatures, or chilling hours, that apple trees need.*
- **Why can sweet corn grow well in Minnesota?**
 - *Minnesota summers are warm enough for the crop to grow and mature.*
- **Why are almonds better suited for California?**
 - *Almond trees bloom early and need mild winters. Minnesota spring freezes could damage the flowers.*
- **Why are oranges better suited for Florida?**
 - *Orange trees need warm weather for most of the year and cannot survive Minnesota winters.*

Ask students to compare two crops. **What does each crop need? Why would one grow well in Minnesota while another would not?**

Growing Regions:

Help students identify **Minnesota, California, and Florida** on the map.

If you'd like to go more in depth with growing regions in the U.S., consider splitting your class into groups and assigning each group a crop or growing region. Have each group become the "experts" on what the crop needs to grow and then present their findings to the class. They could present their findings on a poster, in a PowerPoint, or in some other creative way.

Use the [Minnesota Grown Directory](http://minnesotagrown.com/search-directory/) (minnesotagrown.com/search-directory/) to find specialty crops grown in your community. Ask students why those crops are able to grow in your part of Minnesota.

PAGE 4-5: WHO ARE THE GROWERS?

Discussion Prompts

Do you know a farmer? Who are they and what do they grow? There are many farmers in Minnesota, let's learn about some of them on this page!

There are 4 farms highlighted on these pages. One way to help students learn about each farm is to have them answer these questions about each grower:

- **Who is the farmer or farm?**
- **Where are they located?**
- **What do they grow?**
- **What resources do they need to grow their crops?**
- **How do they care for the land?**

The four farms featured are:

- *Hmong American Farmers Association Farm, Vermillion Township*
- *Dream of Wild Health Farm, Hugo*
- *Brand Farms, Farmington*
- *Better Greens, Monticello*

Think and Discuss:

Use the questions from the AgMag:

- Farmers use resources to grow specialty crops. **What resources did you read about?**
 - Possible answers could include soil, water, sunlight, weather, climate, land, seeds, workers, knowledge, tools, and equipment. Students may also mention specific resources from the grower profiles, such as greenhouses, irrigation, pollinators, or people who help plant, harvest, wash, pack, and deliver crops.
- **Why can't farmers grow an unlimited amount of every crop?**
 - Possible answers could include limits on land, water, weather, time, workers, money, equipment, and the specific growing conditions each crop needs.

If You Were the Farmer:

These fun, food-focused videos are a great resource for students as they learn about different crops that grow in Minnesota, and which crops they would grow if they were the farmer!

Use the QR code on pages 4-5 to watch videos and learn more about Minnesota specialty crop growers.

PAGE 6: WHERE CAN YOU FIND SPECIALTY CROPS?

Discussion Prompts

- **Have you ever seen a sticker on a fruit or vegetable from the grocery store? Sometimes they have the country or state where the produce was grown. What are the names of the places you have seen on those stickers?**
 - Answers will vary. Students may notice stickers that list places such as Minnesota, California, Florida, Washington, Mexico, Canada, Chile, or other states and countries. This can help students see that specialty crops are grown in many different places before they arrive at a grocery store.
- **Have you ever been to a farmers' market? What was it like?**
 - Answers will vary. Students may describe seeing fruits, vegetables, flowers, baked goods, honey, or other local products. They may also mention meeting farmers or producers, shopping outdoors, seeing booths or tables, or buying food grown close to home.

Producers & Consumers:

Producers and Consumers can be a hard concept for students to grasp. Review the examples in the AgMag.

Farmers are producers. They sell the things they grow, but they also buy resources such as seeds and land.

Consumers use resources, like money, to buy goods and services.

Use the existing producer and consumer video resource if you would like to explore these concepts further.

Farmers Market Activity:

Answers:

- How much money will you have left over? \$3
- How much will you save with a 20% off coupon when buying 5 apples? \$1
- Besides price, what else should you consider when choosing which fruits and vegetables to buy?
 - Possible answers could include appearance, taste, who grew it, where it was grown, freshness, and how or when you will be eating it.

PAGE 7: SPECIALTY CROPS AT SCHOOL

Discussion Prompts

- **Do you think any fruits or vegetables served at your school were grown in Minnesota?**
 - Answers will vary. Students may mention apples, sweet corn, potatoes, carrots, squash, or other fruits and vegetables.
- **How could you find out where the food in your school cafeteria came from?**
 - Students could check the lunch menu, ask cafeteria staff, or look for labels or signs.
- **Why might schools choose to buy food from nearby farms?**
 - Nearby food may be fresher, support local farmers, and help students learn where their food comes from.

Brand Farms near Farmington grows apples that are served to students at school breakfast and lunch. Their apples are also used for hands-on learning. Students can taste different varieties and compare traits such as size, color, flavor, and texture.

Apple Crisp Parfait:

The AgMag includes an Apple Crisp Parfait recipe courtesy of District 196 Nutrition Services. Use the recipe to identify the agricultural products used to make the parfait.

Ask:

- Which ingredient is the specialty crop?
- Which ingredients come from plants?
- Which ingredient comes from an animal?
- Which ingredients might be produced in Minnesota?

Before preparing or tasting food in the classroom, follow your school's food allergy and food safety procedures.

School Investigation:

Do some investigating to see if you can find specialty crops in your school.

What Minnesota specialty crops are served in your school's cafeteria?

Students could look at a school lunch menu or ask school nutrition staff where fruits and vegetables were grown.

PAGE 8: HOW CAN TULIPS GROW IN MINNESOTA IN THE WINTER?

Discussion Prompts

- What do you know about tulips?
- Have you ever seen tulips growing in your neighborhood or local park?
- Have you ever seen fresh tulips for sale during the winter?
- What do you think needs to happen for flowers to be sold in your local grocery store?

Have students turn to their neighbor and discuss the different things that would need to happen for flowers to be grown and sold during a Minnesota winter. Then have them share their ideas with the class.

Busch Flower Farm Virtual Field Trip:

Busch Flower Farm is a Plymouth, Minnesota flower company that grows tulips year round. The farm uses temperature, water, sunlight, and artificial light to control when the tulips grow and bloom.

If you'd like to take a virtual field trip to learn how the tulips are grown, use the existing [virtual field trip resource](https://www.youtube.com/live/QLer_Is5uRY?si=Lvds2C6-dlzgLwOS). (https://www.youtube.com/live/QLer_Is5uRY?si=Lvds2C6-dlzgLwOS)

Let's Graph It:

Students will create a line graph showing how many hours of daylight we receive at different times of the year in Minnesota.

Hours of Daylight:

- March 21: 12 hours
- June 21: 16 hours
- September 21: 12 hours
- December 21: 8 hours

Ask:

- When can tulips be grown using only natural daylight?
- When is additional light needed?
- Which date has the most daylight?
- Which date has the least daylight?

Remember, tulips need 12 hours of light each day to grow.

LESSONS

Farmers' Market Finds

(<https://minnesota.agclassroom.org/matrix/lessons/833/>)

Students explore the value of farmers markets to local communities and discover the benefits of locally-grown food.

FoodMASTER: Fruits

(<https://minnesota.agclassroom.org/matrix/lessons/259/>)

Students identify fruits that grow on a tree, bush, or vine, classify fruits as pome, drupe, berry, melon, or citrus, perform an experiment about the browning of fruit, and dry plums to make prunes.

Right This Very Minute

(<https://minnesota.agclassroom.org/matrix/companion-resources/946/>)

Students read *Right This Very Minute*, a table-to-farm book about food production and farming, and diagram the path of production for a processed product, study a map to discover where different commodities are grown, and write a thank-you letter to farmers in their local communities.

Three Sisters Garden

(<https://minnesota.agclassroom.org/matrix/lessons/297/>)

Students investigate the “three sisters” crops (corn, beans, and squash) and explore the benefits of planting these crops together.

Curriculum Matrix Lessons

(<https://minnesota.agclassroom.org/matrix/>)

Searchable database of over 500 lesson plans and resources. All lessons are agriculture focused and aligned with Minnesota academic standards.

ACTIVITY IDEAS

- **Use the online Minnesota Grown Directory to investigate Minnesota grown specialty crops and the farms that produce them.** *See if there are any farms located close to your school. If possible, invite a specialty crop grower to your school or organize a field trip to their farm.*
- **Investigate your school lunch menu for a specific day or week.** *Challenge students to identify the specialty crops included. Discuss which plants would be grown in Minnesota and which items might be grown in another part of the United States or world. Ask students why the crops grow well in those places.*
- **Have a Specialty Crop Chef competition!** *Encourage students to share a recipe that involves specialty crops or create their own. Use the Apple Crisp Parfait recipe on page 7 for inspiration. Invite students to prepare their recipe for students and/or school staff.*

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The following page is a printable resource to display in your classroom alongside the lesson.



-Quote from an Unknown Source