AgMag

Agriculture: Helping you every day!

Minnesota Agriculture in the Classroom

Specialty Crops

What Is Agriculture?

All over Minnesota (and the world!) there are farmers who raise plants or animals that become food or products for us to use. The system of growing, processing, and delivering these products to users is called agriculture.

Do you know how many ways agriculture is in your daily life, besides food?

- **Pajamas** and bedding may be made with cotton—a plant.
- **Soap** is made from fat from cattle and oil from plants such as palm, corn, and soybeans.

- Most of the **food** we eat comes from agriculture. That includes toast with jam and honey, apple juice, and smoothies made from fruit and vegetables.
- **Paper** comes from another agricultural crop—trees. Corn and soybeans may go into the soy ink in your books.
- The **tires** on your bus, car, or bike are made from the rubber plant, and rope from cotton.

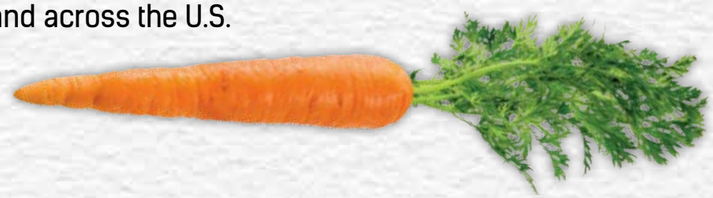
Specialty Crops

Crops like field corn, wheat, and soybeans are very important because they have many uses. But there are other farms that produce crops that are called "Specialty Crops." Specialty crops are crops grown and used by people for food, medicine, or decoration. Fruits, vegetables, tree nuts, herbs, and flowers are all examples.

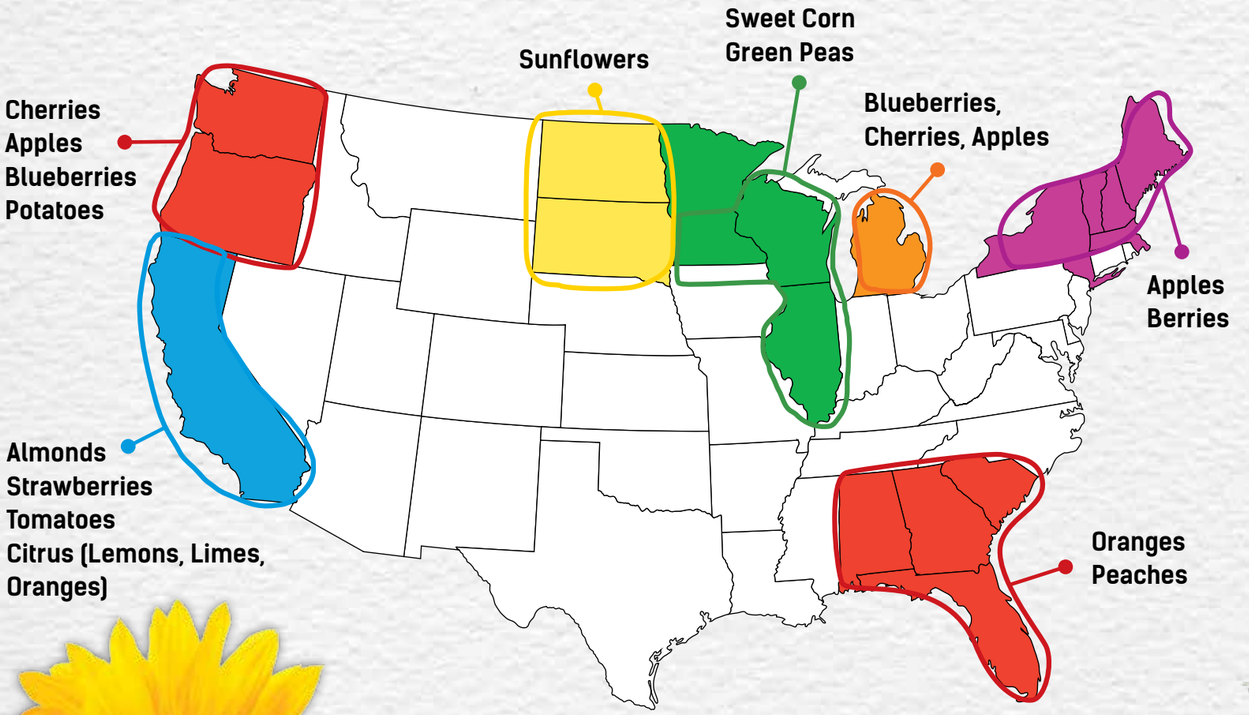
Find a glossary, teacher guide, and student resources at www.mnagmag.org

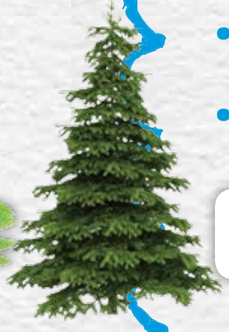
Where Are Specialty Crops Grown?

Not every kind of crop can be grown everywhere. Soil type, climate, and terrain cause different fruits, vegetables, flowers, and other specialty crops to grow in specific areas of the world, the U.S., and Minnesota. Look at these maps to see what kinds of specialty crops grow in Minnesota and across the U.S.

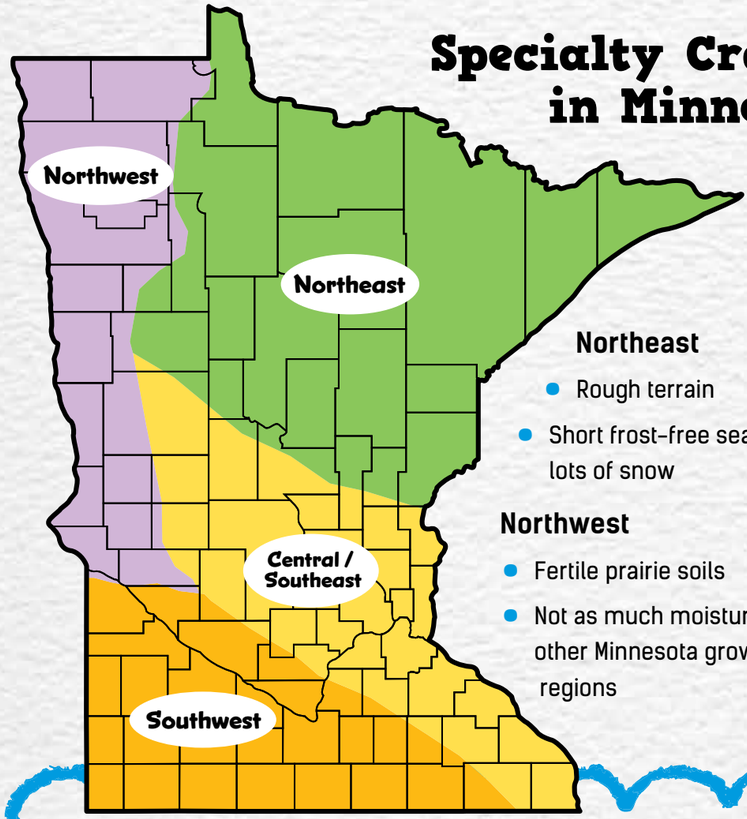


Specialty Crops Across the U.S.





Specialty Crops in Minnesota



Northeast
- Rough terrain
- Short frost-free season, lots of snow

Northwest
- Fertile prairie soils
- Not as much moisture as other Minnesota growing regions

Central/Southeast
- Hilly with moisture
- A variety of soil types

Southwest
- Fertile soils with lots of moisture
- More southern location creates a longer growing season

Where Does It Grow?

Look at the map of Minnesota above. In the box below each crop, name the region where each specialty crop grows. Then write which direction that is from where you live.

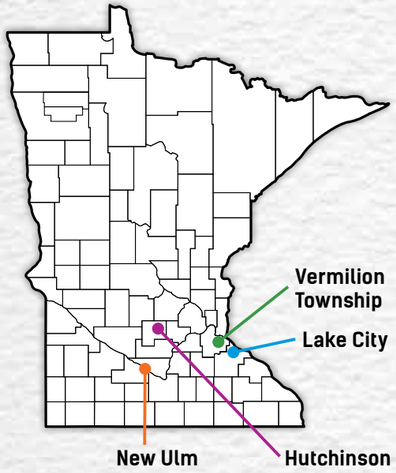
Potatoes
- Well-drained, fertile soil
- Warm days and cool nights

Sweet Corn
- Moist, fertile soil
- Warm temperatures and sun
- Long growing season

Christmas Trees
- Adapt and survive in a variety of conditions
- Thrive in well-drained soil and cool temperatures

Apples
- Well-drained soil
- Lots of sun
- Prefer to be planted on slopes

Who Are the Growers?



Lots of different people! Specialty crop farmers include people who have lived in Minnesota their whole lives, and immigrants from other countries. What they all have in common is their love of growing plants. They also have a lot of knowledge about science (and often engineering) in order to successfully grow these crops. Today they are educated in how to sustainably farm to keep farmland healthy for years to come. Let's meet some specialty crop growers!

Spring Bloom at Pepin Heights

Photo by Pepin Heights Orchard

Pepin Heights Orchard, Lake City

Pepin Heights grows apples on the bluffs overlooking the Mississippi River. This area is especially good for apples because of its climate. For example, gentle springtime breezes through the valley reduce the risk of early frost damage. Pepin Heights sells fresh apples. They press apples to make apple juice and apple cider, too.

They grow many apples developed by the University of Minnesota, including HoneyCrisp!

Workers pick and inspect every apple by hand before packing them for shipping. The apples are sold to retailers and distributors from Minnesota all the way to Texas.

Harvesting Apples
Photo by Pepin Heights Orchard

Loon Organics Farm, Hutchinson

Romanesco Cauliflower
Loon Organics Photo by Kristine Leuze

Laura Frerichs and her husband Adam Cullip own Loon Organics. They grow 50 types of vegetables, including tomatoes, peppers, lettuces, beets, carrots, and Romanesco Cauliflower (do you know what that is?). The three most valuable crops are tomatoes, broccoli, and lettuces.

They sell nearly 75% of their crops through Community Supported Agriculture (CSA), which is a membership program. There are 250 members who buy a share in what the farm is going to produce each year. In return, they get boxes of organic vegetables every week throughout the growing season.

The farm also grows crops like red clover, oats, peas, and buckwheat. These crops are not harvested to sell and eat. Instead, they are tilled back into the soil. That provides nutrients to the soil for seeds that will be planted in the future.

Harvesting brussels sprouts

HAFA Photos courtesy of Mike Hazard / Hmong American Farmers Association.

Hmong American Farmers Association (HAFA) Farm, Vermilion Township

The HAFA Farm is part farm, part school. Its members are Hmong immigrants from Laos and Thailand. At HAFA, they grow over 160 varieties of fruits and vegetables. Instructors teach sustainable practices that will help farmers improve their land so they can grow on it for many years in the future.

HAFA's top three crops are potatoes, carrots, and ground cherries. They sell their produce through farmers markets, wholesale, and CSA shares in the Twin Cities.

The Hmong culture is deeply rooted in agriculture. Many families farmed in Laos and Thailand for the sole purpose of feeding their families. Today members grow many mainstream crops (potatoes, carrots, tomatoes, etc.), but they also grow more ethnic produce such as bitter melon, bok choy, Thai basil, and Thai chili peppers.

Keith Marti, West of New Ulm

Keith Marti's top specialty crops are peas and sweet corn. He also raises commodity crops such as soybeans, Sudan grass, and winter rye. He plants seeds with an air seeder. An air seeder uses a strong air current to place the seed in the exact location where the farmer wants it to be planted. The air seeder lets Keith plant seeds in a wider area, faster than he could without the seeder.

Once the peas and sweet corn are harvested, they go straight to the Del Monte food company in Sleepy Eye and are canned within hours of harvest. They are then distributed across the U.S.

Farming Math: Imagine that your garden has 5 rows growing peas. If each row yields 6 pounds of peas, how many pounds of peas do you produce each summer? Write the number in the box.

_____ pounds

If You Were the Farmer

Which specialty crop would you most like to grow? On a separate sheet of paper, write about the crop, why you would want to grow it, and what you could do with the crop when it is grown. Then draw a picture of the crop.

How does the food get from the farm to you? Check out the Follow Your Food videos at: **https://mn.agclassroom.org/educator/video.cfm**

Where Can You Find Specialty Crops?

Specialty crops can be found in many places. Of course you can buy them at grocery stores. But you can also buy them at food co-ops, farmers markets, and plant and garden centers.

What You Will Find on the Label

Specialty crops may have a number of different kinds of information on their labels. Here are some you might see:

Minnesota Grown: This logo tells you that the product you are buying was grown in Minnesota, not someplace thousands of miles away.

Organic: The word "organic" is regulated by the USDA. To earn the organic label, crops must be grown in ways that protect soil and water quality. Organic farmers use crop rotation, mulching, tillage, and biological controls to control weeds and pests. Most synthetic (human-made) herbicides and pesticides are forbidden. Organic farmers are not allowed to use genetically modified or fungicide-treated seeds.

How Do Farmers Control Weeds and Pests?

Floating row cover

"We use insects like ladybugs to eat pests like aphids. We also use a floating row cover (a big white sheet of thin material) to cover young plants and protect them from bugs," said Laura Frerichs, co-owner of Loon Organics.

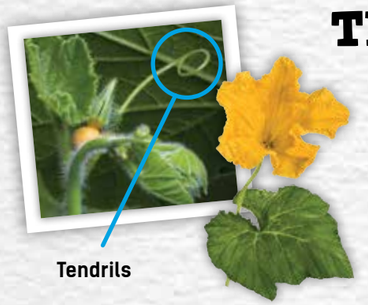
Pepin Heights Orchard is a non-organic farm that uses modern agricultural tools. This means that they sometimes help the apple trees grow better by controlling pests with chemicals. Summer rainfall can bring pests and diseases to the orchard, so they use Integrated Pest Management (IPM). IPM uses just the minimal amount of chemicals. They are only used when necessary.

Farmers make many decisions about what to plant and how to grow their crops. We make decisions about what food we are going to buy and eat. How does your family decide where to buy food and what foods to buy?

Plant Families

There are hundreds of different specialty crop plants grown. All plants have similar parts that are important to their survival. But many times, the plant parts look different. Plant scientists look for patterns in how these plant parts look and have created groups called families. Farmers use plant families to understand the growing needs of plants. Then they can provide the right soil, sunlight, and moisture so the plant will grow strong and healthy.

Three Plant Family Examples:



Gourd Family: Cucurbitaceae

Examples: gourds, watermelon, squash, pumpkins

Characteristics include:

- Yellow or white flowers
- Stems are usually hairy, and contain tendrils

Rose Family: Rosaceae

Examples: Rose, pears, plum, raspberry, strawberry

Characteristics include:

- Flowers with petals in multiples of 5, like 5, 10, or 15
- Most plants in this family produce a fleshy fruit – rose hips, pears, cherries, etc.

Potato Family: Solanacae

Examples: Potatoes, eggplant, peppers, petunias

Characteristics include:

- Flower petals that are fused together, not separate
- Seeds are held in a berry or capsule

Match: Plant Family → to Specialty Crop

Use the characteristics listed above for each family, and the pictures on this page, to help match the plant family to its specialty crop.

Gourd Family

Rose Family

Potato Family

Tomato

Cucumber

Apple

Why Do We Need Fruits and Vegetables?

Fruits and vegetables are some of the best sources of the nutrients we need to grow and thrive. No one food or food group gives us all the nutrition we need. Eating a wide variety of foods, especially vegetables and fruits, helps us be healthier.

Here are just a few sources of these needed nutrients:

Vitamin B2 (Riboflavin)

What it does: Produces energy in the body

What to eat: Mushrooms, broccoli, asparagus, spinach

Vitamin C

What it does: Helps our body make skin and blood vessels; maintains bones and teeth

What to eat: Cantaloupe, strawberries, broccoli, green and red peppers, leafy greens, tomatoes

Calcium

What it does: Builds strong bones and teeth

What to eat: Dairy products, as well as vegetables like broccoli, greens, and bok choy

Protein

What it does: Helps build muscles, bones, cartilage, skin, and blood; builds and repairs tissues

What to eat: Peas and beans, spinach, kale, brussels sprouts, mushrooms, broccoli

Smoothie Time!

One fun—and delicious—way to get lots of fruits and vegetables is to make smoothies with them. Yes—you can make smoothies with vegetables! Here is a basic recipe that you can change with different fruits and veggies.

Ingredients

- 3/4 cup (100 g) ice cubes
- 1 1/2- 2 cups (240 g) fresh blueberries, rinsed and hulled
- 1/4 cup unsweetened milk (see note)
- 1 handful chopped spinach

Instructions

1. Put ice cubes into a blender or food processor and blend until crushed.
2. Add blueberries, spinach, and milk, and blend until smooth.

Notes: Nut milks can be substituted. If you like smoothies to be a little sweeter, you can add sweetened milk, honey, maple syrup, or bananas.

Learn about and order our free educational materials at **mn.agclassroom.org**.

The Minnesota AgMag is a publication of Minnesota Agriculture in the Classroom, 625 Robert Street North, St. Paul, MN 55155. The program is a public/private partnership between the Minnesota Department of Agriculture and the Minnesota Agriculture in the Classroom Foundation. Statistics courtesy U.S. Department of Agriculture and Minnesota Agricultural Statistics Service. MAITC Program Staff: Keri Sidle and Sue Knott. Writer and Editor: Amy Rea. Creative Direction, Design and Production: Solberg Creative, LLC. Educational Consultant: Lee Nelson. Printed in the U.S.A.