

NORTH DAKOTA

Fall 2017



# Ag Mag

A Magazine about Agriculture for North Dakota Students

# Horticulture & Forestry

You may not think of vegetables, fruits and trees as agriculture, but they are an important part of our state's agricultural economy.

They also provide fresh and nutritious foods, fun areas to explore and beautiful landscapes.

## Horticulture

Horticulture is the science and art of cultivating fruits, vegetables, flowers and ornamental plants. In North Dakota, that may include raising philodendrons in your house; growing tomatoes, carrots or lettuce in a garden, field or greenhouse; tending apple trees in an orchard; or planting roses in your yard.

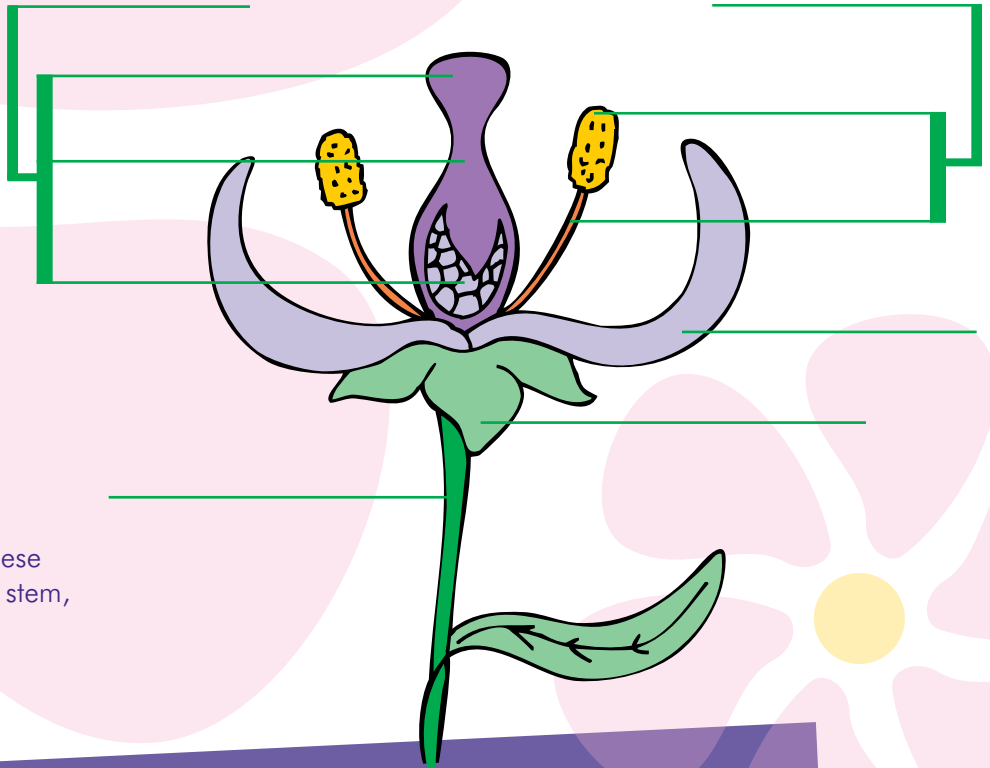
### Horticulture Definitions

Use a dictionary to look up each of the categories of horticulture and match it with the correct plants.

- |                           |                              |
|---------------------------|------------------------------|
| A. Arboriculture          | _____ grapes                 |
| B. Floriculture           | _____ vegetables             |
| C. Viticulture            | _____ landscape plants       |
| D. Olericulture           | _____ trees and shrubs       |
| E. Pomology               | _____ floral crops (flowers) |
| F. Landscape horticulture | _____ fruits                 |

# Flower Power

Flowers contain the male and female reproductive organs of a plant. Flowers attract pollinators, such as insects and bats, that carry the male pollen grains to the female stigma. Here the pollen grains germinate and eventually fuse with a female ovule, which then develops into an embryo that develops into a seed.



## Plant Parts

Label the parts of the plant using these words: sepal, stamen, style, anther, stem, pistil, filament, stigma, ovary, petal.

## Plant Life Cycles

Annual plants complete their life cycle in one year. Seeds are planted, usually in the spring, and the plants grow and develop their own seeds to be planted the next year. Perennials live more than two years. The bulbs, tubers or roots of perennials allow them to survive periods of dormancy during cold or dry seasons.

After each plant, write A if it's an annual or P if it's a perennial.

- Marigold \_\_\_\_\_
- Tulip \_\_\_\_\_
- Rose \_\_\_\_\_
- Sunflower \_\_\_\_\_
- Peas \_\_\_\_\_
- Strawberry \_\_\_\_\_
- Rhubarb \_\_\_\_\_
- Lettuce \_\_\_\_\_



# Career Corner

## Connie Lagerquist and Johannes Olwage, Horticulturists

International Peace Garden  
Rolette County, North Dakota

The International Peace Garden is a large park that straddles the border of the U.S. and Canada. It was established on July 14, 1932, as a symbol of the peaceful relationship between the two nations. The park is known for its beautiful floral landscapes, including an 18-foot floral clock. The park's horticulturists plant more than 150,000 flowers each year.

Connie Lagerquist grows and maintains the annuals and some perennials in the garden. She works in the greenhouse and prepares the grounds for planting. During the growing season, she and others pull weeds and prune trees and shrubs.

Johannes Olwage's main responsibility is managing the 6,000 plants in the Vitko Cactus and Succulent Collection. These plants from hot and dry places around the world are housed in a huge glass building.

"I am originally from hot and dry Namibia in Africa, so it is rather funny that I would end up running a mini indoor desert garden in North Dakota," Johannes said. "I love plants, and nowhere else in North Dakota can you find so many different species of plants in one place. The combination of outdoor perennial gardens, annual flower displays, the indoor cactus and succulent collection, and the natural aspen woodland setting makes this the ideal place for anybody who wants to observe or learn more about plants."

Johannes and Connie must know as much as possible about each plant so they can take care of them the best way possible.



While growing up, Connie gardened with her mother. This taught her the value of hard work that she has carried through the years.

"I work a lot outdoors," Connie said. "I meet people from all over the world, and I enjoy seeing people smile when they enjoy my work."

Johannes said, "I enjoy working at the garden because we get to create and be part of something beautiful that can be enjoyed and treasured by everyone."

Johannes and Connie encourage students to consider careers in horticulture. Jobs include landscaping, greenhouse production, plant retail sales, research and many more.

"There are a lot of opportunities," Connie said. "Follow your passion and make things happen!"

"Working with plants is fun," Johannes said. "You get to watch them grow, flower and produce fruit. Start by growing something in your backyard or on the windowsill, and watch the magic happen."



# Forestry

A forest is a large area dominated by trees. Many people use forests for hiking, hunting, other recreational activities and simply getting away from everyday stress.

List some benefits provided by trees:

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List some things in your home made of wood:

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List some kinds of trees you know:

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List some ways people damage trees:

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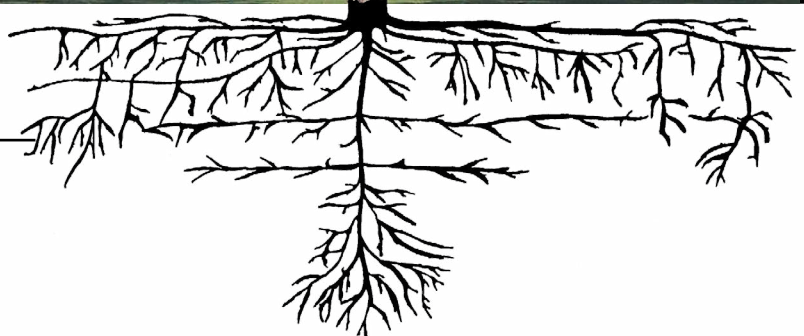
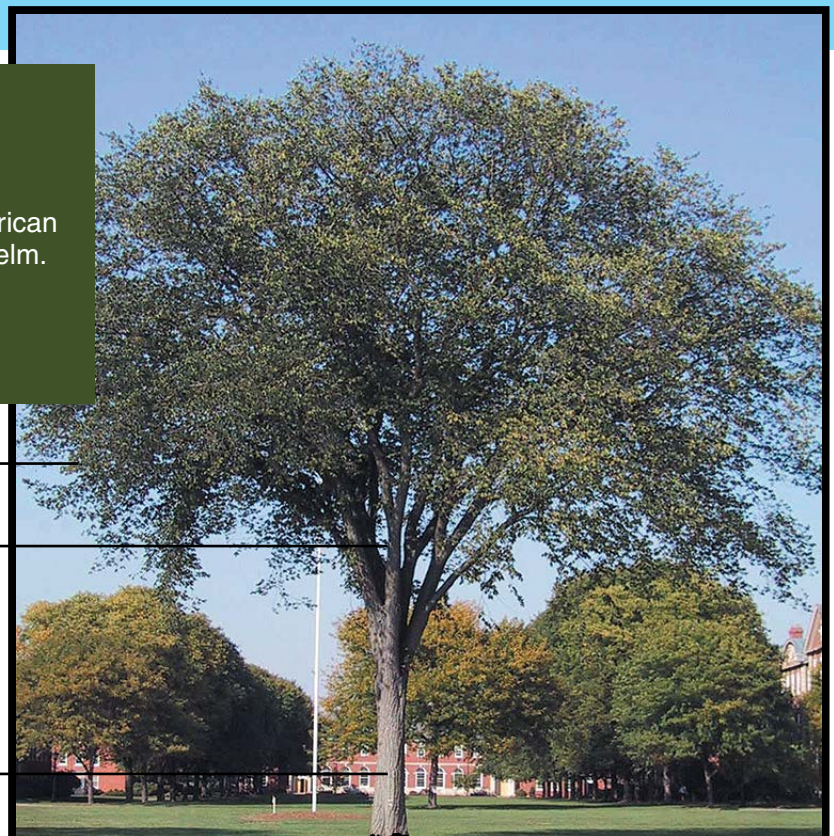
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## Parts of a Tree

The North Dakota state tree is the American elm. Identify the parts of this American elm.

- branch
- trunk
- roots
- leaves



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# Trees, Flowers and States



Match the state to its state tree, then write the names of the states on the map.

South Dakota	Blue Spruce
Texas	Palm
California	Pecan
Florida	Sugar Maple
Colorado	Kukui
Hawaii	Black Hills Spruce
Ohio	Redwood
Vermont	Buckeye

Now match the state to its state flower, and then identify those states on the map, too.

Arizona	Wild prairie rose
Colorado	Sunflower
Florida	Coastal rhododendron
Kansas	Saguaro cactus blossom
Massachusetts	Rocky Mountain columbine
Nevada	Orange blossom
North Dakota	Sagebrush
Washington	Mayflower



# Which Word?

Circle the correct spelling of the word that tells the story of this invasive species.

1. The (emerald or emereld) ash borer is an insect that is killing ash trees east of North Dakota as near as Minnesota.
2. The borer was discovered in (Michigan or Michagan) in 2002.
3. Scientists (spekulate or speculate) the borer arrived in the U.S. on a ship from China.
4. The adult (beetles or beatles) are metallic green and about 1/2 inch long.
5. The insects tunnel inside the wood, destroying the (vessles or vessels) that carry water and food throughout the tree, which causes the tree to starve.
6. Since the borer travels in wood, don't move (firewood or fire wood) from ash trees into North Dakota from other states.
7. The ash is North Dakota's most common tree. To reduce the risk of the borer destroying our forests over time, we should plant a (diversity or divercity) of tree species.
8. This borer will not harm oak, maple and (burch or birch) trees.



## Name the Body Parts

Label the parts of the emerald ash borer:  
head, antennae, mouthparts, thorax, wings,  
legs, abdomen



H. Russell, MI State U., Bugwood



USDA Forest Service

# Math Challenges

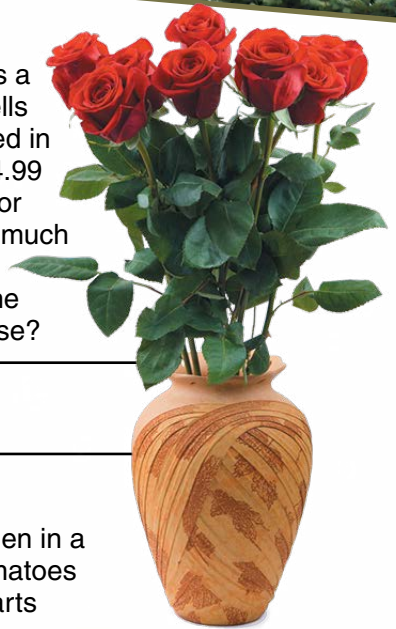
2. Kenyon needs 24 square feet for his raised-bed garden. If his plot is 4 feet wide, how long does it need to be?



1. Hunter planted 700 Christmas trees per acre on his farm. (One acre is about the size of a football field.) How many trees are planted on his 12-acre farm?



3. Amanda is a florist who sells roses wrapped in paper for \$14.99 or in a vase for \$19.99. How much more does it cost to buy the roses in a vase?



4. At the farmers market, Will sells three tomatoes for \$1, and Sue sells tomatoes for 40 cents each. Which farmer charges less for one tomato?



5. Abby has 1 gallon of tomatoes from her garden in a kettle, and the salsa recipe says to cook the tomatoes down to half the original volume. How many quarts will she have after cooking the tomatoes?

6. Nate picked enough strawberries to fill a 1-gallon bucket. How many pint boxes can he fill to sell?



7. The fertilizer label says the entire bag is for a garden that is 100 square feet. How much of the bag should Suneet use for his 5-foot by 5-foot garden?



8. Maleah's houseplant fertilizer bottle says to dilute 3 tablespoons of fertilizer in 1 gallon of water. However, she only needs a half gallon for her two plants. How much fertilizer should she put in the half gallon of water?

## Horticulture Haiku

A Haiku is a Japanese verse with three unrhymed lines. The first and third lines have five syllables, and the second line has seven syllables. Write a haiku about a flower or vegetable.

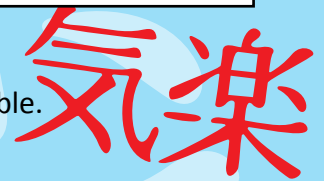
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Take this Ag Mag home to share with others what you've learned about horticulture and forestry.



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