



Plant Science Merit Badge Workbook - Agronomy

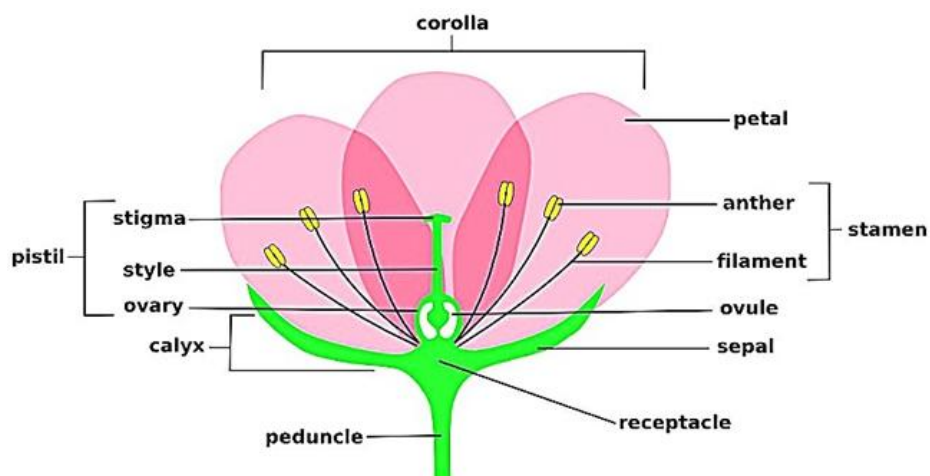
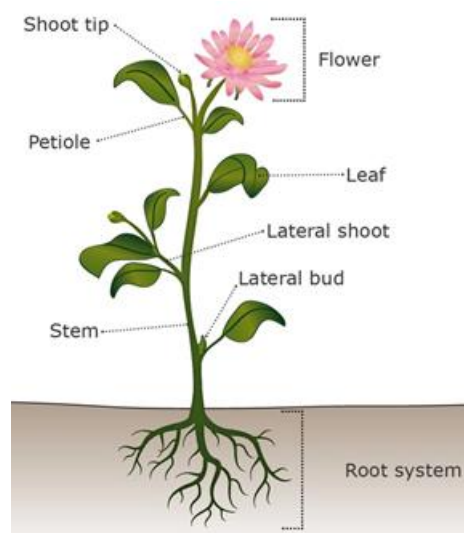
SCOUTMASTER BUCKY

Scouts participating in a Scoutmaster Bucky merit badge opportunity, whether online or in person, should consider using the Plant Science merit badge pamphlet for discovery and knowledge, along with the class preparation pages for clarifications, insights, and expectations.

<https://scoutmasterbucky.com/merit-badges/plant-science/plant-science-pamphlet.pdf>

<https://scoutmasterbucky.com/merit-badges/plant-science/plant-science-cpp.pdf>

REQUIREMENT 1: Make a drawing and identify five or more parts of a flowering plant. Tell what each part does.



Notes:



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REQUIREMENT 2: Explain photosynthesis.

Notes:

REQUIREMENT 2: Tell why photosynthesis is important.

Notes:



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REQUIREMENT 2: Tell at least five ways that humans depend on plants.

Way #1:

Way #2:

Way #3:

Way #4:

Way #5:



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REQUIREMENT 3: Explain how honeybees and other pollinating insects are important to plant life.

Notes:

REQUIREMENT 4: Explain how water affects plants.

Notes:



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REQUIREMENT 4: Explain how light affects plants.

Notes:

REQUIREMENT 4: Explain how air affects plants.

Notes:



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REQUIREMENT 4: Explain how temperature affects plants.

Notes:

REQUIREMENT 4: Explain how pests affect plants.

Notes:



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REQUIREMENT 4: Describe the nature and function of soil.

Notes:

REQUIREMENT 4: Explain the importance of soil.

Notes:



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REQUIREMENT 4: Tell about the texture of fertile soil.

Notes:

REQUIREMENT 4: Tell about the structure of fertile soil.

Notes:



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REQUIREMENT 4: Tell about the composition of fertile soil.

Notes:

REQUIREMENT 4: Tell how soil may be improved.

Notes:



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REQUIREMENT 5: Tell how to propagate plants by seeds.

Notes:

REQUIREMENT 5: Tell how to propagate plants by roots.

Notes:



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REQUIREMENT 5: Tell how to propagate plants by cuttings.

Notes:

REQUIREMENT 5: Tell how to propagate plants by tubers.

Notes:



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REQUIREMENT 5: Tell how to propagate plants by grafting.

Notes:

REQUIREMENT 5: Grow a plant by ONE of these methods (seeds, roots, cuttings, tubers, or grafting).

Be sure to bring proof of your plant project to share your work with your counselor

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

Notes:



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REQUIREMENT 6: List by common name at least 10 native plants that grow near your home.	
NATIVE PLANT #1:	
Common Name:	
NATIVE PLANT #2:	
Common Name:	
NATIVE PLANT #3:	
Common Name:	
NATIVE PLANT #4:	
Common Name:	
NATIVE PLANT #5:	
Common Name:	
NATIVE PLANT #6:	
Common Name:	
NATIVE PLANT #7:	
Common Name:	
NATIVE PLANT #8:	
Common Name:	
NATIVE PLANT #9:	
Common Name:	
NATIVE PLANT #10:	
Common Name:	



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REQUIREMENT 6:	List by common name at least 10 cultivated plants that grow near your home.
CULTIVATED PLANT #1:	
Common Name:	
CULTIVATED PLANT #2:	
Common Name:	
CULTIVATED PLANT #3:	
Common Name:	
CULTIVATED PLANT #4:	
Common Name:	
CULTIVATED PLANT #5:	
Common Name:	
CULTIVATED PLANT #6:	
Common Name:	
CULTIVATED PLANT #7:	
Common Name:	
CULTIVATED PLANT #8:	
Common Name:	
CULTIVATED PLANT #9:	
Common Name:	
CULTIVATED PLANT #10:	
Common Name:	



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REQUIREMENT 6: List five invasive non-native plants in your area and tell how they may be harmful.

INVASIVE NON-NATIVE PLANT #1:

Name:

How they may be harmful:

INVASIVE NON-NATIVE PLANT #2:

Name:

How they may be harmful:

INVASIVE NON-NATIVE PLANT #3:

Name:

How they may be harmful:



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INVASIVE NON-NATIVE PLANT #4:

Name:

How they may be harmful:

INVASIVE NON-NATIVE PLANT #5:

Name:

How they may be harmful:

REQUIREMENT 6: Tell how the spread of invasive plants may be avoided.

Notes:



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REQUIREMENT 6:

Tell how the spread of invasive plants may be controlled in ways that are not damaging to humans.

Notes:

REQUIREMENT 6:

Tell how the spread of invasive plants may be controlled in ways that are not damaging to wildlife.

Notes:

REQUIREMENT 6:

Tell how the spread of invasive plants may be controlled in ways that are not damaging to the environment.

Notes:



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REQUIREMENT 7: Name and tell about careers in agronomy.

Notes:

REQUIREMENT 7: Name and tell about careers in horticulture.

Notes:

REQUIREMENT 7: Name and tell about careers in botany.

Notes:



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REQUIREMENT 7: Write a paragraph about a career in one of these fields that interests you.

Selected Field:

Notes:



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Requirement 8 - Agronomy Option

AGRONOMY OPTION Describe how to prepare a seedbed.

REQUIREMENT 8a:

Notes:

AGRONOMY OPTION Make and use a seed germination tester to test 50 seeds of four of the following plants: corn, cotton, alfalfa, soybeans, clover, wheat, rice, rye, barley. Determine the percentage of live seeds.

REQUIREMENT 8b:

Use the chart below to help track your findings

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

# of seeds	type of seeds	# of live seeds / %		# of seeds	type of seeds	# of live seeds / %	
	Corn		%		Wheat		%
	Cotton		%		Rice		%
	Alfalfa		%		Rye		%
	Soybeans		%		Barley		%
	Clover		%				



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AGRONOMY OPTION REQUIREMENT 8c:	Explain one important insect pest and one important disease that damage each of the following: corn, small grains, and cotton.
CORN:	
Insect Pest Name:	
Notes:	
Disease Name:	
Notes:	



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SMALL GRAINS:

Insect Pest Name:

Notes:

Disease Name:

Notes:



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COTTON:

Insect Pest Name:

Notes:

Disease Name:

Notes:



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AGRONOMY OPTION REQUIREMENT 8c:

Explain one important insect pest and one important disease that damage each of the following: corn, small grains, and cotton. Collect and name five weeds that compete with crops in your locality. Tell how to control these weeds without harming people, wildlife, or useful insects.

WEED #1:

Name:

How to control without harming people:

How to control without harming wildlife:

How to control without harming useful insects:



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WEED #2:

Name:

How to control without harming people:

How to control without harming wildlife:

How to control without harming useful insects:



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WEED #3:

Name:

How to control without harming people:

How to control without harming wildlife:

How to control without harming useful insects:



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WEED #4:

Name:

How to control without harming people:

How to control without harming wildlife:

How to control without harming useful insects:



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WEED #5:

Name:

How to control without harming people:

How to control without harming wildlife:

How to control without harming useful insects:

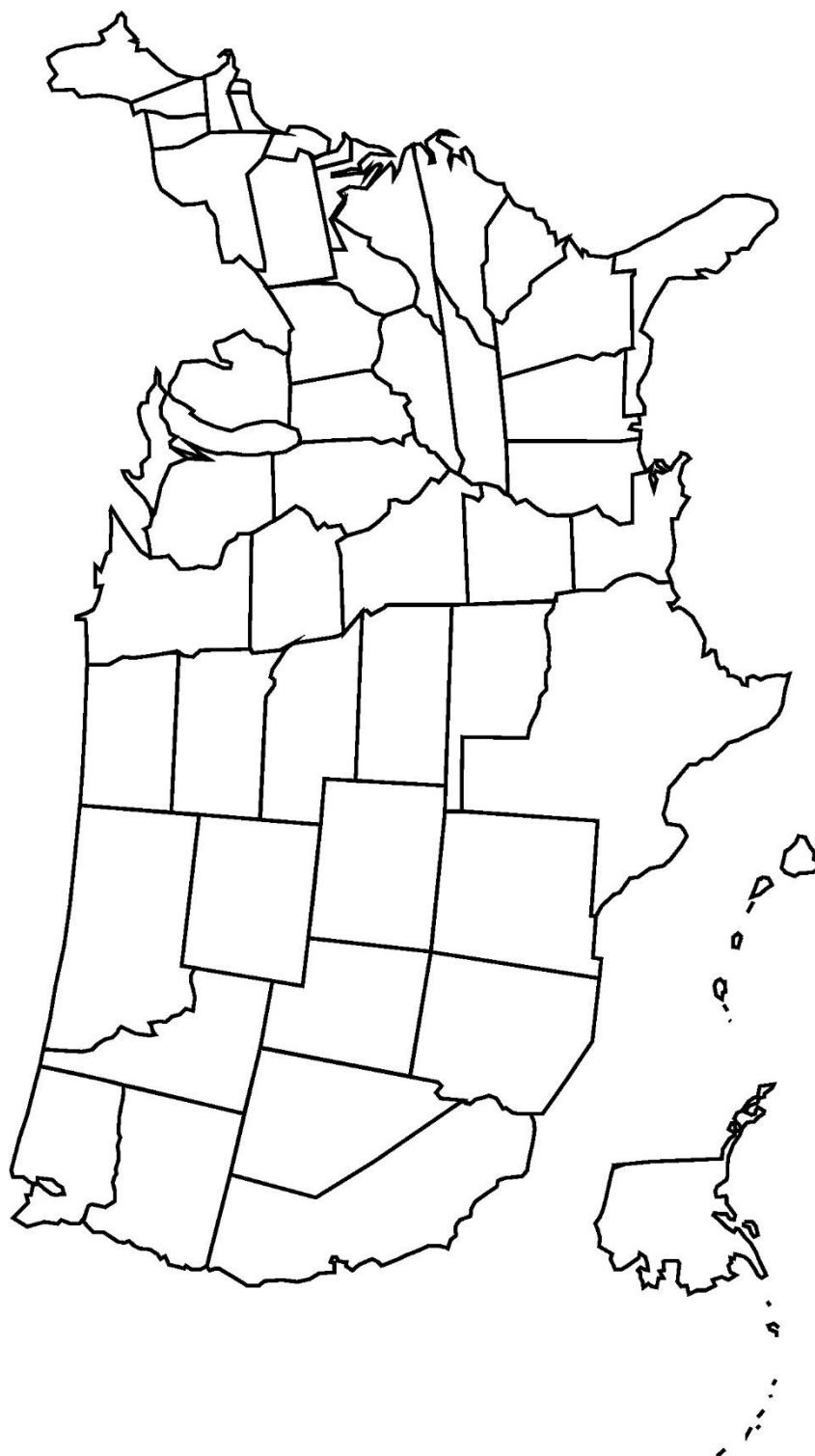


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AGRONOMY OPTION REQUIREMENT 8d:

On a map of the United States, identify the chief regions where corn, cotton, forage crops, small grain crops, and oil crops grow.





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AGRONOMY OPTION REQUIREMENT 8d:

Tell how the climate and location of these regions make them leaders in the production of these crops.

Corn:

Cotton:



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Forage Crops:

Small Grain Crops:



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Oil Crops:

DO ONE OF THE FOLLOWING (8E1, 8E2, 8E3, 8E4, OR 8E5) FOR REQUIREMENT 8E IN THE AGRONOMY OPTION

AGRONOMY OPTION	CORN - Grow a plot of corn and have your plot inspected by your counselor. Record
REQUIREMENT 8e1a:	seed variety or experimental code number.

This requirement must be reviewed with your merit badge counselor.
BE PREPARED!

Notes:



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AGRONOMY OPTION REQUIREMENT 8e1b:

CORN - Tell about modern methods of commercial corn farming.

Notes:

AGRONOMY OPTION REQUIREMENT 8e1b:

CORN - Tell about contributions that corn makes to today's food and fuel supply.

Notes:



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AGRONOMY OPTION REQUIREMENT 8e1c: CORN - Tell about an insect that can damage corn, and explain how it affects corn production and how it is controlled.

Insect:

How this insect affects production:

How this insect is controlled:

AGRONOMY OPTION REQUIREMENT 8e2a: COTTON - Grow a plot of cotton and have your plot inspected by your counselor.

**This requirement must be reviewed with your merit badge counselor.
BE PREPARED!**

Notes:



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AGRONOMY OPTION REQUIREMENT 8e2b:

COTTON - Tell about modern methods of commercial cotton farming.

Notes:

AGRONOMY OPTION REQUIREMENT 8e2b:

COTTON - Tell about the uses of cotton fiber and seed.

Notes:



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AGRONOMY OPTION REQUIREMENT 8e2b:

COTTON - Tell about the economic value of this crop.

Notes:

AGRONOMY OPTION REQUIREMENT 8e2c:

COTTON - Tell about an insect that can damage cotton, and explain how it affects cotton production and how it is controlled.

Insect:

How this insect affects production:

How this insect is controlled:



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AGRONOMY OPTION REQUIREMENT 8e3a:

FORAGE CROPS - Collect, count, and label samples of each for display: perennial grasses, annual grasses, legumes, and broadleaf weeds. Indicate how each grass and legume is used. Keep a log of the site where you found each sample and share it with your counselor.

Notes:



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AGRONOMY OPTION REQUIREMENT 8e3b:

FORAGE CROPS - Explain how legumes can be used to enrich the soil and how they may deplete it under certain conditions.

Notes:

AGRONOMY OPTION REQUIREMENT 8e3b:

FORAGE CROPS - Explain how livestock may enrich or deplete the soil.

Notes:



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AGRONOMY OPTION **FORAGE CROPS** - Name five poisonous plants that are dangerous to livestock.
REQUIREMENT 8e3c:

Poisonous Plant to Livestock #1:

Poisonous Plant to Livestock #2:

Poisonous Plant to Livestock #3:

Poisonous Plant to Livestock #4:

Poisonous Plant to Livestock #5:

AGRONOMY OPTION **FORAGE CROPS** - Tell the different ways of using forage crops as feed for livestock.
REQUIREMENT 8e3c:

Notes:



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AGRONOMY OPTION REQUIREMENT 8e4b:

Tell how to reduce harvesting losses.

Notes:

AGRONOMY OPTION REQUIREMENT 8e4b:

Tell about modern methods of growing one small grain crop.

Notes:



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AGRONOMY OPTION REQUIREMENT 8e4c:

SMALL GRAINS - Visit a grain elevator, flour mill, cereal plant, feed or seed company. Talk with the operator. Take notes, and describe the processes used and tell your patrol, troop, or class about your visit.

Place and Location Visited:

Operator's Name and Title you spoke with:

Notes:



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**AGRONOMY OPTION
REQUIREMENT 8e5a:**

OIL CROPS - Grow a plot of soybeans and have your plot inspected by your counselor.

**This requirement must be reviewed with your merit badge counselor.
BE PREPARED!**

Notes:

**AGRONOMY OPTION
REQUIREMENT 8e5b:**

OIL CROPS - Tell about modern methods of growing soybeans on a commercial scale.

Notes:



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AGRONOMY OPTION REQUIREMENT 8e5b:

OIL CROPS - Discuss the contributions soybeans make to our food supply.

Notes:

AGRONOMY OPTION REQUIREMENT 8e5c:

OIL CROPS - Explain why a hard frost can be dangerous to soybeans just after emergence.

Notes: