



Chapter 4

Agriculture a Winning Relationship

Objective

Students will be able to:
identify the relationships between agriculture products and the resources that are used to produce them.

list byproducts of agricultural production and explain how these can be used to make the product more sustainable.

list methods used in agriculture to decrease the impact production has on the environment.

Materials

yarn and index cards

Time

50 minutes

Prior to the Activity

Read “Bringing Crops and Livestock to the Farm... Together” in *Agronomy Grow With It!*

Author

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Standards

MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem

MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

Have students read the section “Bringing Crops and Livestock to the Farm... Together” in *Agronomy Grow With It!* so students will have been introduced to beneficial relationships found in agriculture.

There are many examples of integrated crop-livestock systems ranging from cattle ranches that also grow grain crops or pasturing beef cattle over the winter on plants that are used to help protect the soil.

Direct students to select an agricultural product found in your area. Students should select something that is a common. Then direct them to find the following information and record it on the activity sheet *Agriculture a Winning Relationship*.

Products of production – What is produced with your agricultural product. Be sure to include any byproducts (something gained by producing the agricultural product, but is not the primary focus of production)

Example: Beef products are the meat, byproduct would be their manure

Consumed products for production – What is used to produce the primary product?
Example: Beef cattle use grain like corn and hay made of alfalfa or other types of grasses

What relationships exist between your agricultural product and others found in your area?

Example: Beef cattle need corn to grow so a farmer may grow corn to reduce the amount of corn they would have to purchase

How agriculture is using your product to aid in the production of another product?

How agriculture has changed to improve the environmental impact your product has?

Once students have found and recorded the information from the above questions they should have an idea as to how agriculture has partnered different products together to be more efficient and help the environment.

Reference the reading “Bringing Crops and Livestock to the Farm... Together” to provide students some added ideas concerning relationships that are found in agriculture.

At this time have the students list their products on the board randomly. The students will also need to record this information on the back of their activity sheet, *Agriculture a Winning Relationship*.

Once the class is done, ask the students if they found any relationships between their product and their peers’ products. Have them draw lines on their own paper to connect the products that have an effect on another.

Provide 10 minutes to work or until students seem to have quit finding relationships →

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There are two options for the next part. Depending on class size, time and materials you can select which option to go with.

Option 1. Students will stay seated for the activity and will be a small visual on the board:

As a class you can take turns having each student draw or direct you to making one of the connections between the products on the board. Have them explain how they are related. Make a simple note about the relationship for future reference on activity sheet, Agriculture a Winning Relationship. Once you have identified each of the relationships you should have a rather well connected web as each area has the potential to affect multiple others.

Option 2. Students will stand and be a part of the making of the web of relationships in agriculture:

Have the students make a circle in the center of the room or in a big open space where everyone is a part of the circle. Have them make a product tag that identifies the different products that are represented in the circle. Have the students either hang the tag around their neck, tape or pin it to their shirt, or hold it. Students then use a ball of yarn or string to identify the relationships they see in agriculture. The first student will begin with the ball. They select a product that it relates to and explain that relationship and then throw the ball of yarn to the person with the other product. The second person will do the same identifying a product that they are related to. Once you are able to finish the activity your end result should be a large web of connections in agriculture. Have students write a short journal explaining how their product fits into the “agricultural product web.” They should highlight the close relationships between their product and the others from the class but also explain the benefits of the relationship.



There are many examples of integrated crop-livestock systems ranging from cattle ranches that also grow grain crops or pasturing beef cattle over the winter on plants that are used to help protect the soil.

Select an agricultural product found in your area.

Product: _____

Once you have selected a product find the following information for your product of choice

1. Products of production – What is produced with your agricultural product? Be sure to include any byproducts (something gained by producing the agricultural product, but is not the primary focus of production)

Example: Beef products are the meat, byproduct would be their manure

2. Consumed products for production – What is used to produce the primary product?

Example: Beef use grain like corn and hay made of alfalfa or other types of grasses

3. Begin thinking about relationships that could exist between your agricultural product and others found in your area

Example: Beef cattle need corn to grow so a farmer may grow corn to reduce the amount of corn they would have to purchase

4. How is agriculture using your product to aid in the production of another product?

5. How has agriculture changed to improve the environmental impact your product has?

At this point you should have a few ideas as to how agriculture has partnered different products together to be more efficient and sustainable. Be prepared to identify and explain the relationships you found. →



Space for the relationship web:

Write a short journal explaining how their product fits into the “agricultural product web.”