



“Role” with It!

Middle School Food and Agricultural Literacy Curriculum

Precepts

- N. Decision Making
- N3. Make ethical decisions.

National Standards

- CS. 03.02.03.b. Practice ethical behaviors.
- FPP.01.02.02.b. Discuss the application of industry standards in the food products and processing industry.
- FPP.03.01.06.a. Explain the importance of food labeling to the consumer.
- FPP.04.03.04.a. Explain techniques for preparing ready-to-eat food products.
- NL-ENG.K-12.4 – Communication Skills
- NL-ENG.K-12.12 – Applying Language Skills
- NS.5-8.3 – Life Science
- NS.5-8.5 – Science and Technology
- NS.5-8.6 – Science in Personal and Social Perspectives
- NSS-EC.5-8.2 – Effective Decision Making

Student Learning Objectives

- As a result of this **unit** the student will...
- Create informed, education and confident consumer of agricultural products.
- As a result of this **lesson** the student will...
- Identify consumer's role in safe, home agricultural product use.

Summary of Content and Teaching Strategies

Objective 1: Identify consumer's role in safe home agricultural product use.

I. Agriculture production scenarios

- A. **Pesticide, herbicide** and **fertilizer** applications

Time

Instruction time for this lesson: 90 minutes.

Resources

Herren, Ray V. (2002). *The Science of Agriculture: A Biological Approach, Second Edition*. Albany, NY: Delmar Thomson Learning.

Tools, Equipment, and Supplies

- 2 baskets of apples
- Farmer's Market label
- Local grocery store label
- MS.IAS.6.2.AS.A – one per teacher
- MS.IAS.6.2.AS.B – one per teacher
- MS.IAS.6.2.AS.C – one per teacher
- MS.IAS.6.2.AS.ESS.A – one per student

Key Terms

The following terms are presented in this lesson and appear in **bold italics**:

Pesticide

Herbicide

Fertilizer

Growth Hormone

Antibiotics

BST – Bovine Somatotropin

Withdrawal period

1. What would you as a producer do?
 2. How are consumers affected by your decision?
 3. Should this be of concern to consumers?
- B. **BST**
1. What would you as a producer do?
 2. How are consumers affected by your decision?
 3. Should this be of concern to consumers?
- C. **Growth hormones** and **antibiotics**
1. What would you as a producer do?
 2. How are consumers affected by your decision?
 3. Should this be of concern to consumers?

**"Role" with It!****Interest Approach**

Prior to the lesson, collect two baskets of apples. Place these baskets in the front of the room for the class to see as they enter. Label one basket with the name of the local grocery store and label the other basket with "Farmers Market." Using the *Me-You-Us e-Moment®*, have students decide which basket of apples they would choose to buy. To add to the discussion, these baskets may also be labeled with a price to help influence the students' decisions. Have students' journal about their decision and share their decision with a partner. Then entertain students' decisions through a class discussion.

As you can see, there are two baskets of apples in the front of the room. One I purchased from insert name of local grocery store and the other I purchased from a local farmer's market. Both baskets of apples look awfully tasty, don't you agree? Which would you choose to buy? When I say, JOURNAL, take the next 90 seconds to journal about which basket of apples you would choose to buy and why. Be prepared to share this entry with a partner and then the class. What questions are there? JOURNAL!

Allow students 90 seconds to journal about their decision.

Now that your 90 seconds are up, take another 60 and share your responses with a partner.

Allow groups 60 seconds to share their journal entries. At the conclusion of this time, facilitate a class discussion on their decisions. Lead this discussion back to how these products were grown, whether or not chemicals were used in the growing process, freshness of the product, etc.

It will be interesting to see what choices have been made. One person in each partner group will have the opportunity to share their decision with the class. We will begin with the group closest to my left and gradually move around the room. Insert student's name will be the first to share his/her decision and the reasoning behind that choice.

After soliciting ideas from at least five students, use the following lead-in questions to get the students thinking about themselves as food producers and what they need to do in order to produce a quality product.

Thanks for sharing your responses. It is certainly interesting how just two baskets of apples can cause such discussion and controversy among a group of individuals. Although some decided to buy the basket of apples from our local grocery store, others found that those at the farmer's market would be more fresh and of a higher quality product. When we choose to buy that fresh product from the farmer's market, what risk might we be running?

Answers may include not knowing what chemicals, herbicides, or pesticides might have been used while growing the product.

That's correct. We have to trust that the producer of the food from the farmer's market is being honest with us about what chemicals, **herbicides**, or **pesticides** that may have been used during the growing process. We have to be careful when we are reading product labels. We have to trust that the person who labeled the product was being honest when they did so.

Today is an exciting day. We have the opportunity today to put on a different hat and view this from a different perspective. Being able to trust what is on a food label in our grocery store is important. Today, we are not going to just be a consumer, but we are going to take the role of a food producer. We are going to be a vegetable farmer, a fruit farmer, or an animal producer. We have the opportunity today to use our decision-making skills to make decisions about how we produce our food products. Will we choose the ethical decisions that may cost us more money and time, or will we choose the unethical decisions that might save us a few bucks? The choice is ours, and the consequences of our individual actions are too. On our journey today, we will need our best thinking caps and work gloves as we will be calling upon each other to make the best judgment for our personal farming business. Together will have to think through problems and make decisions that could ultimately affect the person who buys our food from the grocery store or farmer's market. It's a big task, but I am positive we are the group that is up to the challenge!



Scripted Content

Objective 1. Identify consumer’s role in safe home agricultural product use.

Divide the class into three or six groups (depending on class size). Three students per group will work great. Each group is given a different scenario or activity sheet **MS.IAS.6.2.AS.A, MS.IAS.6.2.AS.B, MS.IAS.6.2.AS.C.** For the first three minutes, their group will answer the first questions – What would you do in this situation? After the conclusion of the first three minutes, groups will pass their activity sheet to a new group. Each group will then use the next four minutes to read the scenario, read what the first group chose to do in that scenario, and then answer the second question – How are consumers affected by this decision? At the end of four minutes, groups will pass their activity sheet one more time to a new group. This rotation will have five minutes to read the scenario, read what the first and second groups concluded, and then answer the final question – Should this be of concern to consumers? Following this entire rotation, go through each scenario as an entire class discussing the conclusions of each of the groups.

In front of your group is a scenario. This scenario will tell you the type of farming operation you own or manage, and put a difficult decision in front of you. With the help of your farming partners, you will have the next three minutes to read the scenario and complete question number one – What will you choose to do in this situation? Be sure to elaborate and include enough reasoning for your decision to give others an idea of how you came to your conclusion. What questions are there? The three minutes start now – Let’s farm!

After the conclusions of the first three minutes, groups will pass their activity sheet to a new group. Each group will then use the next four minutes to read the scenario, read what the first group chose to do in that scenario, and then answer the second question – How are consumers affected by this decision?

Let’s start to wrap up our decision making and get ready for the next challenge. When I say FARM, each group will rotate their scenario and send it to another group. You and your farming partners will now take on a new role. You will read the scenario for background information, and then read what the first group decided to do about their scenario. Upon collecting this information, your group is responsible for responding to the second question – How will consumers be affected by this decision? You will have four minutes to complete this part of the activity. What questions are there? FARM!

At the end of four minutes, groups will pass their activity sheet one more time to a new group. This rotation will have five minutes to read the scenario, read what the first and second groups concluded, and then answer the final question – Should this be of concern to consumers?

Let’s wrap this up one more time in 5 – 4 – 3 – 2 – 1! Okay, farmers, we have one more task in front of us. In just a moment we will rotate your scenario one more time. This time you will once again read the scenario along with the first two responses. Next, you will respond to the final question – Should this be of concern to consumers? For the final time, let’s farm! Your five minutes starts now!

Following this entire rotation, go through each scenario as an entire class discussing the conclusions of each of the groups.

Great work, farmers! Thanks for putting on your thinking caps today. I look forward to hearing the great ideas we have come up with. Let’s dive right in with scenario 1.

Go through each scenario selecting one student to read the scenario and then selecting one member from group one to explain their decision. From there, hold a class discussion on the scenario as a whole and on the conclusions the last two groups came up with on their activity sheet. Use the following questions and/or statements for each scenario to help lead this discussion:



Scenario 1

- All chemicals go through numerous tests and must be approved by the Food and Drug Administration, Environmental Protection Agency, and others before they can be used for agricultural production.
- Most insecticides and chemicals used have a low level of toxicity to humans.
- If no insecticides or chemicals are applied to fruits or vegetables during growth, they will produce their own toxins to help fend off insects. This causes more stress to the plant, and it may be of less quality.
- Withdrawal periods and safety methods listed on the package labels should also be followed in order to ensure a safe product.

Scenario 2

- No research has proven that the milk from cows treated with BST is a risk to humans.
- There is no evidence proving the difference between milk from cows treated with BST and milk from cows with BST only naturally occurring.
- Withdrawal periods should also be used and followed.

Scenario 3

- Growth hormones used in beef production are placed under the skin and in the animal's ear.
- Ears are removed and discarded during slaughter.
- The FDA monitors hormone levels in beef to ensure that the levels are consistently below a maximum level that is safe for human consumption.
- No research has shown that **antibiotics** used in animal production are a risk to humans.
- Withdrawal periods and safety methods listed on the package labels should also be followed in order to ensure a safe product.

These are great ideas your groups have created. This serves as a reminder to us that we as producers are directly in charge of the safe use of some of these products. Although there will always be controversy, if we as producers follow the safety guidelines and restrictions on the chemical or antibiotic packages, our food will be safe for human consumption.

Review/Summary

Let's take a few moments to reflect upon the ideas we have explored today.

Take the next five minutes to reflect upon one of these scenarios and the decisions that you yourself would have made. After reflecting upon your decisions, journal about whether or not you feel that decision is ethical considering that others will be directly affected by what you choose to do.

Application

Extended classroom activity:

Conduct further research on one of these topics discussed in class, or on another up-and-coming topic in your area. Have students prepare and present an informational brochure, noting the safety standards needed in order to apply the particular material and still provide a safe product for human consumption.

FFA activity:

Set up a booth at the local grocery store with informational brochures and handouts about the safe use of agricultural products to grow food for consumers. Educate customers as they enter and exit to inform them of the safety precautions and research that has been done on these particular products.

SAE activity:

Interview a person involved in the agriculture production industry. Find out if they use chemicals, **pesticides**, **growth hormones**, etc. to treat their agricultural product. Investigate whether or not they are concerned about the use of these products. What do they see as the pros and cons of their use? Do they agree or disagree with their application? Do they think government should step in to now allow the use of these products?



Evaluation

MS.IAS.6.2.ASSESS – Complete the essay question.

Answers to Evaluation

Answers should reflect and/or include some of the following:

Scenario 1

- All chemicals go through numerous tests and must be approved by the Food and Drug Administration, Environmental Protection Agency, and others before they can be used for agricultural production.
- Most insecticides and chemicals used have a low level of toxicity to humans.
- If no insecticides or chemicals are applied to fruits or vegetables during growth, they will produce their own toxins to help fend off insects. This causes more stress to the plant, and it may be of less quality.
- Withdrawal periods and safety methods listed on the package labels should also be followed in order to ensure a safe product.

Scenario 2

- No research has proven that the milk from cows treated with BST is a risk to humans.
- There does not show to be any difference between milk treated with BST and milk with BST naturally occurring.
- Withdrawal periods should also be used and followed.

Scenario 3

- Growth hormones used in beef production are placed under the skin and in the animal's ear.
- Ears are removed and discarded during slaughter.
- The FDA monitors hormone levels in beef to ensure that the levels are consistently below a maximum level that is safe for human consumption.
- No research has shown that antibiotics used in animal production are a risk to humans.
- Withdrawal periods and safety methods listed on the package labels should also be followed in order to ensure a safe product.



Scenario 1:

For years gardening has been your hobby. You plant two large gardens each year, producing sweet corn, peas, green beans, squash, tomatoes, cabbage, kale, onions, and pumpkins. You have a rather large family and have never had trouble getting rid of your produce. In addition, you and your family enjoying canning and preserving the items that you grow each year. Since your garden produce is simply for you and your family's consumption, you are not concerned about the use of pesticides, herbicides, or fertilizer. In fact, you customarily apply all three in order to maintain the most production possible. After all, the food is just being taken home and never sold to others.

This year you have been approached with what may seem to be a great opportunity. A local businessman has chosen to begin a farmer's market in your town and he has asked you to supply the majority of the vegetables for the market. This could be great for you and your family as your hobby could quickly turn into a profitable business. After much consideration you decide to contribute to the farmer's market. You have one dilemma – Is it okay for you to use the same pesticides, herbicides, and fertilizers that you have used for so many years?

Helpful Information:

Pesticide – A substance used to kill pests

Herbicide – A substance used to kill plants

Fertilizer – A substance added to a plant to provide additional nutrients and increase plant growth and production

1. What decision do you plan to make?

2. How will consumers be affected by your decision?

3. Should this be of concern to consumers?



Scenario 2:

You are a fifth-generation dairy producer. You currently have fifty fully producing cows. Your family has a strong tradition in the dairy industry, and you plan to continue increasing the productivity and efficiency of your herd. You are always looking for ways to improve production and milk quantities. You recently read about a substance called BST or bovine somatotropin. Although this is a hormone that naturally occurs in dairy cattle to help cows begin to produce milk, studies have shown that cows can be treated with this hormone in higher levels to increase milk production even more. There are obvious concerns, the greatest being that this hormone stays in the milk and is therefore passed onto humans during the consumption of milk. But you can't help but think about what this increase in milk production could do to make your farm even more efficient and productive.

1. What decision do you plan to make?

2. How will consumers be affected by your decision?

3. Should this be of concern to consumers?



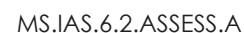
Scenario 3:

You are a beef cattle producer, and have been your entire life. You grew up on the family farm and are looking forward to taking over the operation one day. Your family looks to you for new technologies and upcoming applications that help improve and grow your three hundred head cow/calf herd. Although your family has not used growth hormones to improve the growth and productivity of your herd in the past, you are now considering this as an option for the operation. These growth hormones redirect a cow's energy into producing lean meat instead of fat. Your father, who heads up the operation, is not sold on the idea that these hormones do not leave residues within the meat. You do somewhat find this unusual because he does choose to use antibiotics to cure and prevent diseases in the cows and calves. Could these be a risk to humans too? Maybe if your dad is not comfortable with the use of growth hormones, he should also reconsider the use of antibiotics; or maybe there is nothing to worry about and you should go ahead and begin to apply the growth hormones to increase the herd's productivity.

1. What decision do you plan to make?

2. How will consumers be affected by your decision?

3. Should this be of concern to consumers?



Name _____

Choose one of the scenarios discussed in class today. Identify how you as that particular producer can ensure that you are producing a safe product for human consumption.

[illegible]