That's MY Apple!

Skill Level:
- Beginner to intermediate

Life Skills:
- Communication, record-keeping, decision-making and problem-solving

Setting:
- A room with chairs arranged in a half circle and a table in front

Time:
- 20–30 minutes

Materials:
- ❑ Apples of similar size and color (one per participant)
- ❑ Basket or box
- ❑ Notebook paper (one sheet per participant)
- ❑ Pencil or pen (one per participant)
- ❑ Two or three large markers of different colors
- ❑ Flipchart or other large paper such as a poster board or three lengths of parchment paper
- ❑ Easel or open wall space
- ❑ Masking tape
- ❑ Stopwatch or clock with second hand (or digital equivalent)
- ❑ Hand-washing facilities or hand sanitizer (optional)
- ❑ Paper towels (optional)
- ❑ "General Information About Animal Identification" resource sheet (one per participant, optional)
- ❑ Recent news articles related to animal identification and traceability (optional)

Overview:
The Importance of Animal Identification – That's MY Apple! is designed to help young people learn about the basic requirements for animal identification. In the interactive lesson, participants will also learn the importance of proper animal identification while reviewing state and federal requirements.

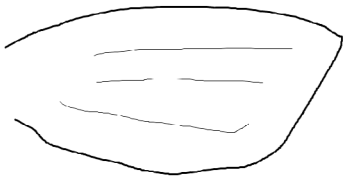
Objectives:
After completing this activity, participants will be able to:
- Identify and document the appearance and characteristics of objects such as apples and animals.
- Discuss the benefits to agricultural producers, government agencies and consumers of being able to identify and track the movements of individual market animals such as cattle, sheep and swine.
- Explain the general and species-specific identification requirements (such as tagging and ear notching) for cattle, sheep, and hogs.

PROCEDURE:

Before the meeting:

1. Read the activity instructions and gather the supplies you will need.

2. Draw a large cow ear (similar to this one) on a sheet of flipchart paper. Display it where everyone will be able to see it, but keep it covered until the appropriate point in the activity.



3. Set all of the apples on the table (or hard surface) at the front of the room.

4. Write the following definition of "scrapie" on flipchart paper and keep it covered until the appropriate point in the lesson.

   Scrapie is a fatal disease of sheep and goats. It attacks an affected animal's nervous system and eventually robs it of muscle control. There is no known treatment or vaccination against scrapie.

5. Consider searching online and printing off one or more news articles relating to animal identification and traceability. Search for terms such as "bovine tuberculosis," "bovine TB," "scrapie," "porcine epidemic diarrhea virus," "PEDv," "influenza viruses" and "zoonotic diseases."

During the meeting:

1. Direct the participants to chairs as they arrive. Pass out pencils or pens and notebook paper to each person.

2. Read aloud or paraphrase the following:

   Today we're going to play a game called "That's MY Apple!" with apples that will help us learn how to properly identify livestock (such as cattle, sheep and goats, and hogs). We'll also learn what our county fair, state and federal livestock ID requirements are and why livestock need to be identified and tracked this way.

3. Ask the group why it's important to be able to tell one animal from another. *(To make sure we have the right animals on our farms; to keep track of which animals have been bred and when, and when the females are due to deliver; to keep track of sick animals.)* Record their answers on the flipchart paper and display the sheet where everyone can see it.

4. Tell the group that now it's time to play the game. Give them a few minutes to wash their hands or use hand sanitizer, then have them gather around the table where the apples are displayed.

5. Tell them you're going to give each person an apple. They can look at and touch their apples, but they can't eat it or puncture it in any way.

6. Have the group return to their seats with their apples. Ask them to write their names on their papers. Now tell them they will have 4 minutes to draw or write a description of their apples on notebook paper. Keep track of the time so that participants only have 4 minutes to work.

7. Move around the room as the participants work, answering any questions that may come up. Give the group a 1-minute warning. After 4 minutes, or when everyone seems to have finished, have a volunteer collect all of the apples in a basket or box, then (gently!) spread them out on the table at the front of the room.

8. Next, tell the group they're going to take turns retrieving their apples from the table. Encourage them to refer to their notes or drawings if they need help identifying their apples. Have about four participants at a time come up to find and take their apples back to their seats. Once everyone has an apple, ask whether they all have their own apples.

9. Have any participants who haven't found their own apples take turns looking for their apples by walking around the group and looking at every apple until they think they've found their own. When group members are confident that they've found the right apples, ask for volunteers to explain what helped them identify their apples. Write their responses on flipchart paper and display the list where everyone can see it.

10. Collect the apples again and spread them out on the table at the front of the room.

11. Next have the participants pass their apple identification sheets to the person on their left. Tell them they'll have 1 minute to read the notes. (**Note:** You may need to help younger or less-skilled readers in the group read the notes.)

12. After 60 seconds, tell the group to turn the apple identification papers face down. Have four participants come up to the table to search for the apple they just read about. Once a participant has found the correct apple, have the person sit down and another person come up to search.

13. When all of the participants think they've found the right apples, have them take turns asking the person whose notes they used whether they've found that person's original apple. If they have the wrong apple, have both participants work together to find the correct apple. When all of the apples are back with their original owners, have the group wash their hands again, and tell them they may eat their apples.

14. While the participants are eating their apples, ask the group the following questions. You may want to record their answers on flipchart paper for them to refer to later.

    a. What did it feel like to not be able to find your apple?

    b. What did it feel like to rely on someone else's description to find their apple?

    c. What changed in your ability to select the correct apple? Was it easier or harder to find someone else's apple than it was to find your own? Why?

d. Why are detailed descriptions of objects and animals important?

e. If you were told to describe and then find another apple, how would your description and search methods change?

f. How is being able to find a particular apple similar to finding or identifying a particular animal?

g. What methods do we use to help identify animals?

h. Why is it important to accurately identify animals?

15. Now tell the group that they're going to find out about how livestock producers identify and mark their animals, starting with cattle. Read aloud or paraphrase the Introduction to and the "General Methods section of the General Information About Animal Identification" resource sheet.

16. Display the flipchart sheet with the drawing of the cow ear where the whole group can see it. Ask for two or three volunteers to come up and put an X on the spot on the ear where they think a radio-frequency identification (RFID) tag should be placed.

17. Use a different colored marker to indicate the correct location on the ear to place an RFID tag (see fig. 1 on the resource sheet if you're not sure). Ask the participants why they think the tag would go there. *(It's a relatively secure, consistent spot for all cattle handlers to look for such a tag, it won't impair the growth of a young animal's ear, a tag placed there would be visible from a distance and could be read easily by a scanning device.)*

18. Now read aloud or paraphrase the Special Mandatory Requirements for Cattle section of the resource sheet and answer any questions the group may have about the information. If the participants are specie specific, consider adding current news articles to strengthen the discussion.

19. Explain that now you're going to discuss the specifics of sheep and goat identification. Start by asking for volunteers to answer the question "What is scrapie?" (You may want to record their answers on flipchart paper.) After everyone has answered who wants to, uncover the flipchart sheet with the definition of "scrapie" on it and discuss it with the participants. Answer any questions about the disease and its treatment that they may have.

20. Next ask the group what it is about a disease like scrapie that makes it so important to tag sheep and goats for it. *(There is no vaccination or treatment for scrapie, and it's always fatal. Tagging sheep and goats allows producers and veterinarians to identify and trace animals that may have been exposed to scrapie so they can be removed from a flock.)*

21. Explain the important concepts of "traceability," which means knowing where diseased, exposed and at-risk animals are and where they have been, and "disease eradication," which means taking measures to identify and remove infected and susceptible animals from the population. Tell the group that over the last several years, great progress has been made in eradicating (wiping out) scrapie through the process of identifying and removing infected sheep as well as DNA testing to identify and remove the most susceptible sheep that lack genetic resistance.

22. Next, read aloud or paraphrase the information about identification requirements for sheep found in the Special Mandatory Requirements for Sheep section of the resource sheet, then lead a discussion of it and answer any questions the group may have.

23. Explain to the group that starting in 2014, hogs being exhibited at a show or fair must have official identification. For registered pigs, that just means remembering to bring the animal's registration paper for inspection at check-in. Crossbred or non-registered pigs must have official ear tags. Michigan Department of Agriculture and Rural Development (MDARD) staff will work with fairs to explain these requirements and make tags available.

24. Read aloud or paraphrase the Official Ear Tag, Tattoo or Ear Notching for Swine section of the resource sheet, then lead a discussion of it and answer any questions the group may have. (**Note:** You'll find more information about ear notching in the *Youth PQA plus: Our responsibility: Our Promise: Youth Manual* [National Pork Board, 2007]. For more information about what makes a swine tag official, contact the MDARD Animal Industry Division at 800-292-3939.)

ALIGNMENT TO SCIENCE & ENGINEERING PRACTICES:

How 4-H Increases Science Literacy

Nationally and in Michigan, 4-H has long enjoyed a reputation for engaging young people in positive, experiential (hands-on), and nonformal activities that are inquiry based. The activities in the *4-H Animal Science Anywhere* series can be used to enhance classroom science education. The activities are aligned with the eight Scientific and Engineering Practices from *A Framework for K–12 Science Education* (National Research Council, 2012, p. 42).

The activities in *4-H Animal Science Anywhere: That's MY Apple* were evaluated for their alignment with the Science and Engineering practices by Michigan State University (MSU) Extension Educator Tracy D'Augustino in 2016.

Table 1. How This Lesson Aligns With the Science and Engineering Practices (National Research Council, 2012, p. 42)

Science & Engineering Practice	Action	Activity Step
▸ Asking questions and defining problems	Participants discuss why it's important to properly identify animals.	3
▸ Developing and using models	Participants use the diagram of the ear to indicate where the ear tag should be placed.	16–17
▸ Planning and carrying out investigations	Participants engage in the apple identification activity.	5–9
▸ Analyzing and interpreting data	Participants analyze and interpret data collected by another person to find that person's apple.	11–13
▸ Using mathematics and computational thinking	Participants use a systematic approach to describing their apples.	6
▸ Constructing explanations and designing solutions	Participants explain how they know the apple they have is the one they described.	9
▸ Engaging in argument from evidence		
▸ Obtaining, evaluating, and communicating information	▸ Participants discuss the problems and questions they had when searching for their apples. ▸ Participants explain why animal identification is important.	14 Talking It Over

ADAPTATIONS & EXTENSIONS:

- **For Older or More Experienced Participants:** Challenge them to research why animal identification is so important for cattle and sheep. Encourage them to look for recent news articles and social media conversations about zoonotic diseases and traceability.
- **For Younger or Less Experienced Participants:** Allow them to work in small groups so they have fewer apples to search through. Consider having younger youth work with a partner. (**Note:** Make sure you have enough apples that both partners have apples to eat at the end of the game.)
- Make one copy of the "General Information About Animal Identification" resource sheet for each participant.
- Use cotton balls in place of apples in the game. Give the group 1 minute to alter their cotton balls to make them identifiable using any supplies they see in the area, then have the participants put their cotton balls in a pile. Have the group complete steps 5 to 10 of the activity with their cotton balls.
- To make the identification process easier during the game, use different types of apples that are a variety of colors, sizes and shapes.
- Talk about the effect of "bad apples." Ask the group to imagine a scenario in which one apple made the person who ate it sick. Tell them that now we have to determine as a group which apple started the sickness. How do we identify the apple? How are we going to trace it? Explain that the same process can be applied to groups of animals in which one animal may have started a sickness.

TALKING IT OVER:

Ask the group the following processing questions:

- Livestock producers are required to meet county fair, state and federal identification regulations. Name three other reasons for using the animal identification practices we've talked about today.
- Do all of the animals under your care meet the state and federal requirements for animal identification practices? If not, what can you do to remedy that?

REFERENCES & RESOURCES:

Michigan Department of Agriculture and Rural Development, Animal Industry Division. (2014). *2014 fair exhibition requirements.* Lansing, MI: Department of Agriculture and Rural Development, Animal Industry Division. Retrieved from michigan.gov/mdard/0,4610,7-125-1571_7075-319116--,00.html

Michigan RIFD Education Task Force. (2006). *Radio frequency identification ear tag application and management* [E2967]. East Lansing: Michigan State University, MSU Extension, Beef Team. Retrieved from beef.msu.edu/LinkClick.aspx?fileticket=KdWANZUL91I%3d&tabid=576

National Pork Board. (2007). *Youth PQA plus: Our responsibility. Our promise: Youth manual.* Des Moines, IA: National Pork Board, Pork Checkoff. Retrieved from pork.org/filelibrary/YouthPQAPlus/YPQAmanual.pdf

National Research Council. (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*. Washington, DC: National Academies Press.

ACKNOWLEDGMENTS:

Author: Julie Thelen, 4-H Livestock and Veterinary Science Educator, Michigan State University Extension

This bulletin was produced by ANR Communications and Marketing (*anrcom.msu.edu*) for MSU Extension (*msue.anr.msu.edu*).

MICHIGAN STATE UNIVERSITY | Extension

Produced by ANR Communications and Marketing for MSU Extension (*http://msue.anr.msu.edu/*).
1P–1R–09:2017-WEB–RM/MR WCAG 2.0

General Information About Animal Identification

Introduction

Animal identification is an important management tool in raising and caring for livestock. Keeping thorough records allows producers to track their animals' growth, veterinary treatment records and movements, as well as respond to disease outbreaks. Because some diseases can jump from animals to humans, it's essential to properly identify animals to help prevent and stop the spread of diseases.

Raising and caring for 4-H livestock projects require the animals to be properly identified. Most county fairs require a tag to be placed in the ear of all market animals. Some fairs may even pull hair samples, take nose prints or use other means to permanently identify animals.

In addition to what fairs require, there are state and federal identification requirements for both sheep and cattle that must be followed no matter the age of the animal's owner. Most hogs are permanently identified with ear notches, but a tag may be required as well.

Proper animal identification is more than just a requirement, it is essential in providing animal traceability. With the ever growing number of zoonotic diseases (diseases that can be transmitted from animals to humans), livestock producers must be accountable for the locations of animals they raise, buy and sell. When producers follow identification guidelines properly, great progress can be made to eradicate diseases such as scrapie.

General Methods

In general, there are two methods of animal identification – permanent and temporary:

Permanent

- Ear notches (swine only)
- Tattoos (cattle, sheep and swine)
- Hot iron or freeze brands (cattle only)

Temporary (for cattle, sheep and swine)

- Ear tags
- Paint brands
- Marking crayon and paint marks
- Back tags

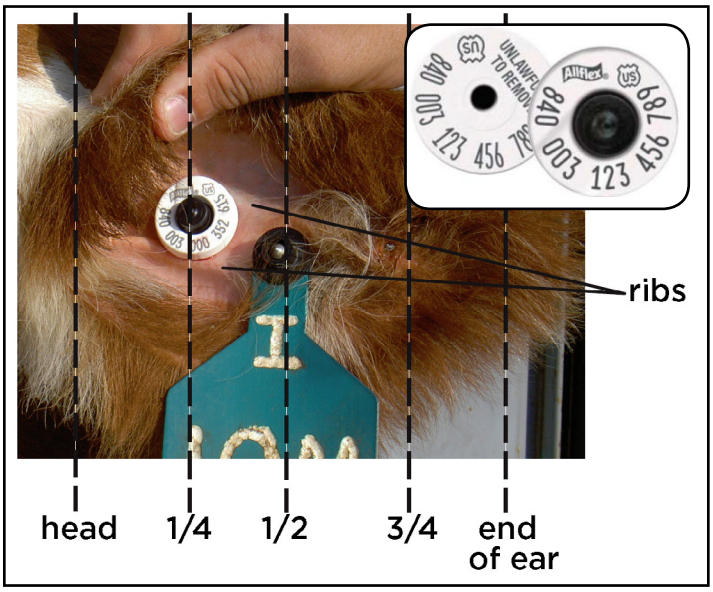


Figure 1. Proper RFID placement in cattle.
(Photos: Dr. Dan Buskirk, Department of Animal Science, Michigan State University)

Mandatory RFID Requirements for Cattle

All cattle – including those coming from out of state – being moved to a show, sale or exhibition in Michigan must have an official radio-frequency identification (RFID) ear tag. Official RFID ear tags should never be removed from an animal except at slaughter, and should never be reused. If an animal loses its official RFID ear tag and must be retagged, producers must cross-post the information that accompanies the number on the old tag to the number on the new tag.

Tag placement is an essential part of the cattle identification process. The official RFID ear tag should be placed in the left ear (the left side of the animal when viewed from behind). The tag should be placed between the cartilage ribs of the left ear about one-fourth of the distance from the head. Putting the tag in that spot will result in the greatest retention, yet allows for ear growth in immature animals. This location also allows the ear to heal while decreasing the odds of the animal losing the tag. Proper tag placement increases the ability for the tag to be read by reading devices

while also reducing the possibility of animal injury as a result of tagging (Michigan RFID Education Task Force, 2006).

Special Mandatory Requirements for Sheep

All sheep being moved within or outside of Michigan are required to have an official U.S. Department of Agriculture (USDA) scrapie program identifier before being moved off the farm. It is illegal to remove an official USDA individual animal identification method, so don't remove these objects before sale, weigh-in or exhibition.

Figure 2. Scrapie tag on a sheep. (Photo: Brianna Matchett, Matchett Sheep Farm, Charlevoix, MI)

To comply with the law, producers must ensure that all of their sheep and goats have one of the following official scrapie identifiers:

A. A USDA-approved scrapie tag.

B. The premises ID and a unique alphanumeric individual animal ID, legibly tattooed in the ear (right ear: premises ID; left ear: individual ID) or on the flank.

C. A tattoo of the registration number from an approved breed registry, but only if the number is printed on the registration certificate and the registration certificate moves with the animal. Also, USDA must be contacted to link the registration's producer preface with the premises ID.

D. Electronic ID implants are allowed, but only in registered animals from an approved breed registry, where the ID number is printed on the registration certificate. The owner must present the registration certificate and have a reader present with the animal.

If no scrapie identification is present, exhibitors won't be allowed to exhibit their project animals. For more information about the scrapie identification program, contact the USDA by phone at 866-873-2824.

Official Ear Tag, Tattoo or Ear Notching for Swine

With a new interpretation of the Animal Industry Act of 1988, all swine being exhibited must be officially identified. Registered hogs must be properly ear notched and be accompanied by corresponding registration papers. Hogs that are not registered must have an official ear tag or tattoo that includes the USDA code from the state of origin. These tags can be obtained by contacting the MDARD Animal Industry Division at 800-292-3939.

For registered purebred hogs, ear notching is an acceptable method of identification. Ear notching is the most common way to permanently identify all pigs. Ear notching methods vary from farm to farm, but is most commonly represented with the right ear notches (looking at the pig's face) identifying the litter number and the left ear notches identifying the individual pig's number. The notches each symbolize specific numbers and are added together in each ear to identify a litter number, followed by an individual number.

For more information about ear notching, see the *Youth PQA Plus: Our Responsibility. Our Promise: Youth Manual* (National Pork Board, 2007).

REFERENCES

Michigan Department of Agriculture and Rural Development, Animal Industry Division. (2014) *2014 fair exhibition requirements*. Lansing, MI: Department of Agriculture and Rural Development, Animal Industry Division. Retrieved from michigan.gov/mdard/0,4610,7-125-1571_7075-319116--,00.html

National Pork Board. (2007). *Youth PQA Plus: Our responsibility. Our promise: Youth Manual*. Des Moines, IA: National Pork Board, Pork Checkoff. Retrieved from pork.org/filelibrary/YouthPQAPlus/YPQAmanual.pdf