

These activities are intended to be used by Dairy Farmers and Dairy Princesses to visit the classroom and introduce the students to concepts presented in the “Discover Dairy -Animal Health” lessons for all levels. Each activity is intended to last about 20 minutes.

Objective: Demonstrate to students the steps dairy farmers take in ensuring that their dairy herd receives a nutritious diet, healthy living conditions and good medical care.

Desired Outcome: Students will be able to list three or four things farmers do to ensure their dairy cows receive adequate care.

ACTIVITY: A Balancing Act

Preparation: Use large Ziploc bags to gather samples of the ingredients that you or your family uses in your milk cow ration. Keep ingredients in separate bags. Be sure to include any unique ingredients like cotton seed or pretzel salt that you may use.

| Ingredient | One Cow | 120 cows |
|--------------|------------------|----------------------|
| Corn Silage | 40 pounds | 4,800 pounds |
| Haylage | 30 pounds | 3,600 pounds |
| Shelled Corn | 11 pounds | 1,320 pounds |
| Soybean Meal | 6 pounds | 720 pounds |
| Mineral Mix | 3 pounds | 360 pounds |
| Total | 90 pounds | 10,800 pounds |

Write on a poster how many pounds of each ingredient each cow eats each day and how many pounds total you feed to your cows each day. *See example to left.*

Find feed tub or large mixing bowl to take in to the class, along with a mixing spoon. Make sure the bowl is large enough to fit all of the ingredients into it.

Video:

If time and technology allow, show students the four-minute video on Discover Dairy and Animal Care. Show elementary students the elementary version and upper level students middle school version. Both videos can be found online at www.discoverdairy.com.

Classroom Discussion (Set materials up in front of classroom):

Introduce yourself and your role in the dairy industry. If you are a dairy farmer, talk about your farm, many cows you have, where your farm is and why you love being a dairy farmer.

Explain that a cow’s health is of the utmost importance to dairy farmers, because proper animal care leads to the production of high-quality milk. A cow must receive a nutritious diet, regular medical care and be kept in clean and comfortable living conditions to remain healthy. “Today’s classroom activity will show how farmers feed their cows a nutritious diet.”

DISCOVER DAIRY...and Animal Health

Classroom Discussion *(continued)*:

Ask: How can you make sure you eat a nutritious diet? (Answers may include choose foods from the five food groups, eat vegetables and fruits, avoid junk food, etc.) Do we always make the right choices when it comes to our diet? Do we sometimes have a bag of chips or a candy bar?

Explain that cows are a little like kids. They won't necessarily make the right choices if given a choice of foods they can eat. To make sure cows eat a well-balanced diet, farmers blend their foods together into something called a "Total Mixed Ration." Today we are going to make our own Total Mixed Ration.

Activity:

Pass around the bags of feed ingredients and explain that these are feeds your/the farmer's cows eat on the farm. Let them feel the feeds to see what they feel like. You can add what some of the feeds provide — for example, corn silage and haylage provide fiber and energy, while soybean meal provides protein.

Tell students how a TMR mixer is used to mix the feed together on the farm. A farmer works with a nutritionist who decides how much of each feed ingredient a cow needs to meet her nutritional needs. Then a farmer uses a TMR mixer, which looks like a big mixing bowl on wheels with a built-in weight scale, to weigh out the exact amount of the different feeds that the herd needs. The TMR mixer blends all of the feed together so that every bite a cow takes is perfectly balanced.

Have students add the ingredients together in the large mixing bowl or feed tub. In older classrooms, you can actually have the students weigh the ingredients with measuring cups or a weight scale to add value to the exercise. They can write down how much of each ingredient is in the tub and what the total amount is.

Summary:

Remind the students that providing a well-balanced diet for the cows to eat is just one way the farmer makes sure cows are kept healthy and well cared for.

*Ask: Do you remember other ways the farmer cares for their cows?
(Answers could include providing a comfortable place to live and regular veterinary care.)*

Encourage the students to learn more about what dairy farmers do on their farms to provide high quality milk and take good care of their cows at www.operationdairy.com. Remind them that farmers play an important role in providing a safe, wholesome food supply and taking good care of the environment. Thank them for the opportunity to visit their classroom.

After Your Presentation is Finished

Inform teacher of more classroom activities available at www.discoverdairy.com. Give them a Discover Dairy brochure and let them know the lessons meet state educational standards for math, science and reading and come complete with videos, reading guides and assessment-based worksheets.



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Objective: Demonstrate to students the steps dairy farmers take to ensure milk coming from their farm is wholesome, the highest quality and safe.

Desired Outcome: Students will be able to explain what happens on the farm to ensure the milk being produced there is wholesome, the highest quality and safe.

ACTIVITY: Look, Mom, No Hands!

Preparation: Gather the following items: milker gloves, milker claw with four inflations attached, teat dip or sanitizing solution, milk sample bottle or milk tester kit, and thermometer.



Make sure all items are clean and sanitized. Bring large photo, graphic or poster of a farmer milking a cow to show how a cow is milked. (Discover Dairy Poster would work)

Video:

If time and technology allow, show students the four-minute video on Discover Dairy and Milk Safety. Show elementary students the elementary version and upper level students middle school version. Both videos can be found online at www.discoverdairy.com.

Classroom Discussion (Set materials up in front of classroom):

Introduce yourself and your role in the dairy industry. If you are a dairy farmer, talk about your farm. Share how many cows you have, where your farm is and why you love being a dairy farmer. Explain that making sure the milk you produce on your dairy farm is safe and wholesome is an important part of what you do on the dairy farm.

Ask: How do we know the milk we drink is safe? (Answers could range from keeping it cold to checking expiration date.) Explain that you are going to talk about what the farmer does on the farm to make sure the milk they produce is safe to drink.

Use the items that you brought to go through your discussion. Explain that the most important thing the farmer does to ensure milk safety is take good care of the cows. Cows must be healthy and well cared for to give high quality milk. Cows need a well-balanced diet, fresh water and proper veterinary care.

DISCOVER DAIRY...and Milk Quality

Classroom Discussion *(continued)*:

Explain that on the table are other items we use to ensure milk is safe.

- ◆ *Ask the students why it is important that the farmer wears gloves to milk the cows.* Explain that the gloves are used to protect the cows. Human hands can carry germs. That's why we use disinfecting soap. We don't want those germs to get on the cow's udder, so we wear plastic gloves to protect the cow. *(Pass the gloves around.)*
- ◆ Before the cow is milked, the farmer uses sanitizing solution to make sure the udder, which is where the cow stores her milk, is clean and ready to be milked. The solution is dried off the udder with a towel before she is milked, and a protective coating is added after milking to protect her after she is done getting milked. *(Show group sanitizing solution.)*
- ◆ *Show the milker claw and inflations.* Human hands never touch the milk during the milking process. This machine is used to gently remove the milk from the cow's udder. It is hooked into a pipeline that carries the milk to a milk tank where the milk is cooled to below 40 degrees Fahrenheit. *(Pass around milker claw and inflation.)*
- ◆ *Show thermometer.* It is very important that milk is kept cold — both on the farm, in the processing plant, at the store and in your refrigerator. Milk must be kept below 40 degrees at all times, except during pasteurization which is when milk is heated to high temperatures and quickly cooled to remove any harmful contaminants and make it safer.
- ◆ *Show milk testing kit or milk sample bottle.* Before the milk is taken from the farm, a milk sample is taken to ensure the milk is safe to drink and free from any harmful substances. Milk is tested multiple times in route from the farm to your grocery store. Milk containing antibiotics or other harmful substances must be discarded at the farmer's expense.
- ◆ Remind students that keeping milk safe isn't just the farmer's job. Many other people, including the consumer, need to do their part to keep food safe. Encourage them to follow directions for storing foods, and to make sure they wash their hands to keep food products clean. Remind them that all milk products, especially fluid milk, must be kept clean, cold and covered to stay fresh and wholesome.

Summary:

Remind the students that farmers do many things on their dairy farm to produce safe, high quality milk.

Ask: Can you share some of the things that dairy farmers do to keep milk safe and clean? Reinforce their answers by adding a few examples from your discussion.

Encourage the students to learn more about what dairy farmers do on their farms to provide high quality milk and take good care of their cows at www.operationdairy.com. Remind them that farmers play an important role in providing a safe, wholesome food supply and taking good care of the environment. Thank them for the opportunity to visit their classroom.

After Your Presentation is Finished

Inform teacher of more classroom activities available at www.discoverdairy.com. Give them a Discover Dairy brochure and let them know the lessons meet state educational standards for math, science and reading and come complete with videos, reading guides and assessment-based worksheets. Explain to them that there are specific lessons about milk quality for both the upper elementary and middle school levels.



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Objective: Demonstrate to students what farmers do to take care of the environment and show how they play a role in the environment by protecting the soil, air and water quality.

Desired Outcome: Students will be able to explain the connection between the environment, the farmer and the consumer and list ways dairy farmers play a role in protecting the environment.

ACTIVITY: Top Crop

Preparation: Fill a Ziploc bag with top soil from your farm. Put some seeds (corn, soybeans, etc.) in another bag. If appropriate, take some dried cow manure and put it in a bag. Fill a gallon jug with water. Get a soda can or other type of can to use in your presentation. Gather pictures of your/another farm—the dairy barn, fields and the farmstead.

Video:

If time and technology allow, show students the four-minute video on Discover Dairy in the Environment. Show elementary students the elementary version and upper level students middle school version. Both videos can be found online at www.discoverdairy.com.



Classroom Discussion (Set materials up in front of classroom):

Introduce yourself and your role in the dairy industry. If you are a dairy farmer, talk about your farm, many cows you have, where your farm is and why you love being a dairy farmer. Explain that taking good care of the environment is an important part of the dairy farmer’s job, just as it is an important responsibility that we all share.

Ask: How can we take care of the environment? (Answers could range from recycling to not littering.) Explain that you are going to talk about what the farmer does on the farm to take good care of the environment and our soil, air and water resources.

Use the items that you brought to go through your discussion. Use the farm photos to explain that dairy farms are often in families for many generations, and that most farmers have a deep connection to the land where they farm. They want to take good care of the natural resources on their farm for their family and for future generations.

DISCOVER DAIRY...and the Environment

Classroom Discussion (continued):

Review the items on the table.

- ◆ *Hold up the Ziploc bag of top soil and pass it around the class.* Tell the class that top soil is very important to you as a farmer. It holds the nutrients and moisture that helps crops grow. If top soil is not taken care of properly, it can run off the land and into local streams and rivers, which can be hard on both the land and the river.
- ◆ Explain that farmers do many things to protect the soil on their farm. *Hold up bag of seeds and pass them around.* Each year, when they plant their crops for the cows to eat, they use farming methods that prevent top soil erosion. Two examples are no-till farming (when they plant the seed without disturbing or tearing up the soil) and rotational cropping (when they plant different crops on a rotation to add nutrients back into the soil).
- ◆ *Hold up water jug and pass it around.* Explain that water is another resource recycled on the dairy farm. Water on the dairy farm is used to wash the milking system, wash down barn alleys, cool milk more quickly and to water the animals. Cows drink a lot of water, about 40 gallons a day. That water is also recycled on the fields to use as a fertilizer and for irrigation.
- ◆ Along with drinking a lot of water, cows eat a lot of food, about 90 pounds a day. They use that food and water to produce two things, milk and cow manure. (*Hold up bag of cow manure*). Instead of looking at the cow manure as a waste product, farmers recycle it and use it as a natural fertilizer for the soil. That manure adds nutrients and moisture back into the soil to help crops grow and prevent soil erosion.
- ◆ Explain that some farms are producing energy from the natural resources on the farm, including manure, sunlight and wind. Manure from a 200 cow herd is able to produce enough electricity for the farmstead and 50 other homes. This is one more way farmers are caring for their environment.
- ◆ *Hold up the metal can.* Taking good care of the land on the farm is not just the farmer's responsibility, but everyone's. Ask the class if they know what the can is. Explain that if someone decides to litter and throw the can out the window, it can be harmful for both the environment and for the cow. The can could end up in a hay field or a corn field. If a cow would eat the can as part of her feed, it could harm her. Everyone needs to be respectful of their environment.

Summary:

Remind the students that farmers do many things on their dairy farm to take good care of the environment.

Ask: Can you share some of the things that dairy farmers do to take good care of the environment? Reinforce their answers by adding a few examples from your discussion.

Encourage the students to learn more about what dairy farmers do on their farms to take good care of their cows and the environment at www.operationdairy.com. Remind them that farmers play an important role in providing a safe, wholesome food supply and taking good care of the environment. Thank them for the opportunity to visit their classroom.

After Your Presentation is Finished

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