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# LIVESTOCK MODULE: BEEF

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There's a lot more to getting beef 'from the pasture to your plate' than you might imagine. There's no quick way to a steak or roast of beef!

## WHAT WILL WE LEARN?

It takes 2 - 2 ½ years to get beef to reach your table. In this module we will look at what happens along this road.

## WHO CAN HELP?

There are a lot of people in this province that have expertise in beef production. Cow/calf and feedlot operators are your obvious choices. Other knowledgeable people include veterinarians, some Alberta Agriculture employees, ranchers, etc.

## WHAT DO YOU NEED?

Everything that you need to complete this module is included. You may find it beneficial to visit a cattle ranch or feedlot to help you understand more about cattle production and what it takes to get that beef from the 'pasture to your plate'.

## LET'S GET EDUCATED!

It takes a cow nine months to have a calf. If the calves go directly to a feedlot the cattle are marketed at 12-14 months of age. If the calves are pastured and then go to the feedlot the cattle are marketed at 22 months of age. Add it up and you will see why it takes 2-2 ½ years for beef to reach your table.

### The cattle industry has three major producers:

- 1. Cow-calf producers** own the basic cow herd. They produce calves and earn their income on the sale of these calves. Together, the cow and calf spend six to seven months on pasture, until the calf is weaned from its mother's milk.
- 2. Backgrounders** feed and care for cattle before they go to the feedlot. Backgrounders feed forage feeds such as alfalfa, hay and straw to smaller calves to increase their weight at a steady pace. Six to eight months feeding of hay and grass by a backgrounder results in a 350kg yearling, ready for the feedlot. Yearlings are cattle over one year of age which have not yet reached the age of two years.
- 3. Cattle feeders** finish cattle in their feedlots. During a feedlot stay of three to five months, cattle eat a balanced diet of grain, essential protein and mineral supplements, hay and silage (a finely chopped hay). The grain finishing makes the beef more tender. A 500kg feedlot finished steer is ready to be processed into beef. Feedlots range in size from those handling a few hundred head to feedlots that handle up to 40,000 animals at one time.

## Pasture To Plate

Getting beef from the field to your table is not as simple as it might seem. Cattle producers rely on elements they are unable to control, such as the weather, especially rain, and the value of cattle in the markets.

Cattle are bought by a processing plant to be converted from beef on the hoof to beef for the table. At the processing plant there is inspection of live animals and meat before chilling and grading. Refrigerated trucks take beef to stores and restaurants where it sells as steaks, roasts, stew and hamburgers.

A 500kg steer doesn't yield the same volume of processed beef. Once the hide, bones and other by-products are removed, there is about 41% of the steer or 205kg of retail beef available for the consumer. Parts of the animal not suitable for meat are used to make by-products. These parts are used in a variety of foods, toiletries, clothing, manufactured items and medicines.

Cattle today have more lean meat and less fat finish than cattle produced 30 years ago. This leanness is due to improvements in genetics and feeding. That means today's beef has fewer calories, 50% less fat, and 21% less cholesterol. This makes beef an excellent food choice because it is a nutrient-dense food providing an abundance of nutrients for a small amount of calories. Beef is particularly important for providing people with protein, zinc and iron. They are all necessary for growth, development and energy.

## LET'S HAVE SOME FUN!

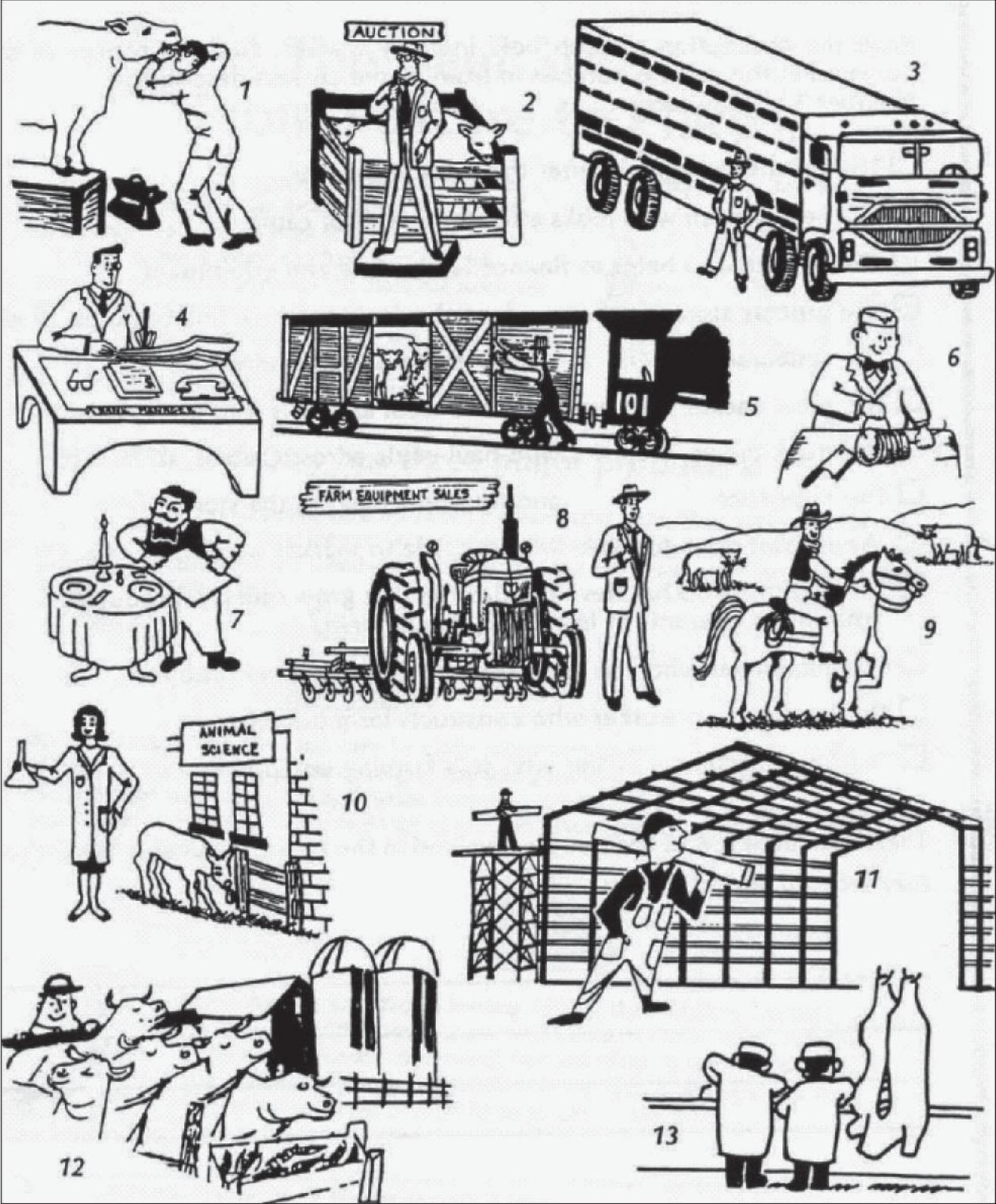
### BEEF – FROM PASTURE TO PLATE

The pictures on the following page represent some of the many people that work in the Canadian Beef Industry.

- Photocopy the sheet and cut out the pictures.
- Put the pictures in a bowl or bag.
- With some of the other members of your club take turns picking pictures out of the bag.
- Using the clues on the following page, try matching up the picture you choose, with the right description.
- Put the number in the box beside the description.

Once you have matched up all the pictures with the descriptions of the beef industry workers, you will have a better idea who is involved in getting the beef from 'the pasture to your plate'.

CANADIAN BEEF INDUSTRY WORKERS



## CANADIAN BEEF INDUSTRY WORKER DESCRIPTIONS

- \_\_\_ The rancher who looks after the cows and calves.
- \_\_\_ The veterinarian who looks after the health of cattle.
- \_\_\_ The banker who helps to finance land, cattle and equipment.
- \_\_\_ The grocery store butcher who forms the final link between all of.
- \_\_\_ The restaurant owner who serves these people and you.
- \_\_\_ The meat packer who processes the meat and sells it to grocery stores.
- \_\_\_ The truck drivers who haul cattle across Canada, to market.
- \_\_\_ The railroader who transports meat to the store.
- \_\_\_ The feedlot operator who finishes cattle to market weight.
- \_\_\_ The scientist who has developed cattle that grow quickly, producing maximum amounts of lean, high quality beef.
- \_\_\_ The auctioneer who acts as a sales agent for the beef producer.
- \_\_\_ The construction worker who constructs farm buildings.
- \_\_\_ The farm machinery dealer who sells farming equipment.

These are just a few of the people involved in the Canadian beef business. You may want to add a few to the list.

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## **SOLUTIONS!**

### **BEEF – FROM PASTURE TO PLATE**

- 9 The rancher who looks after the cows and calves.
- 1 The veterinarian who looks after the health of cattle.
- 4 The banker who helps to finance land, cattle and equipment.
- 6 The grocery store butchers who form the final link between all of them.
- 7 The restaurant owner who serves these people and you.
- 13 The meat packer who processes the meat and sells it to grocery stores.
- 3 The truck drivers who haul cattle across Canada, to market.
- 5 The railroaders who transport meat to the store.
- 12 The feedlot operator who finishes cattle to market weight.
- 10 The scientist who has developed cattle that grow quickly, producing maximum amounts of lean, high quality beef.
- 2 The auctioneer who acts as a sales agent for the beef producer.
- 11 The construction worker who constructs farm buildings.
- 8 The farm machinery dealer who sells farming equipment.

## **MORE! MORE! MORE!**

If you would like to learn more about the beef industry and raising cattle take a look at the Beef Project books. They are available on line at [www.4h.ab.ca](http://www.4h.ab.ca). You may need to ask your leader or 4-H Specialist for the user name and password to look at these resources. Perhaps you would like to take a Beef Project when you start 4-H next year.

## **RESOURCES USED TO CREATE THIS MODULE**

1. Canadian Western Agribitions' Teachers' Resource Package - AGRICULTURE AND YOU – AGRI-ED SHOWCASE – The Beef Story – From Pasture to Plate

# LIVESTOCK MODULE: **DAIRY**

## **Milk and the “Amoozing Milk Machine” – The Dairy Cow**

*Milk is cool – a most excellent drink for kids and adults. Where does milk come from? How is it made? What else can you make with it? To discover these awesome facts about the coolest drink on the planet, come along on a journey with “Milk...From Moo to You”!*

### **WHAT WILL WE LEARN?**

In this module we will learn about the ‘Amoozing Milk Machine’ – the dairy cow.

### **WHO CAN HELP?**

The best resource person for this module would be someone that operates a dairy. Although this module is all-inclusive, as all the information you need to complete it is included, one of the best ways to learn about a dairy cow is to visit her at home. You will be amazed by where she lives, what she eats and how much milk she can produce. Most dairy farms today are highly technical using automated feed, manure and milking equipment. A field trip to a dairy farm is something you won't soon forget.

### **LET'S GET EDUCATED!**

Did you ever wonder how the dairy cow happened to arrive in our great country? Well, just like Canadian people whose ancestors came from other countries, the dairy cows that are commonly found in Canada originally came from overseas. As people moved here, they brought dairy cattle with them.

When you think about a dairy cow do you think black and white? Well these cows are called Holsteins and they came from North Holland. 95% of all dairy cows used in Canadian milk production are Holsteins. The other 5% of dairy cows include Jersey, Guernsey, Ayrshire, and Brown Swiss.

You might be amazed by milk's journey from the cow to you. When does it start? When the dairy cow eats, the journey begins.

You're probably wondering what she eats. An average dairy cow weighs the same as about 20 4-H members that are the same age as you, all put together – that's about 650 kilograms! To keep this cow's large body functioning and to allow her to produce milk, she eats 4kg of hay (about the size of a small microwave oven), 16kg of silage (four small microwave ovens full), 10kg of mixed grains, salt, vitamins and minerals (2 ½ ice cream pails full), and she drinks 60L of water (2/3 of a standard bathtub full) – this is all in one day.

**It takes a cow 50-70 hours to turn grass or silage into milk!**

Cows are interesting creatures. They are called ruminants. This is because they don't have one stomach like you and I, they actually have four – and they don't just chew and swallow. They gulp down their food fast and later chew it again – yes the same food! The four parts to their stomach are: the rumen, the reticulum, the omasum and the abomasum.

First the food stops in the rumen, then it travels to the reticulum – it can actually travel back and forth from one of these stomachs to the other. The food is held there until the cow finishes eating.

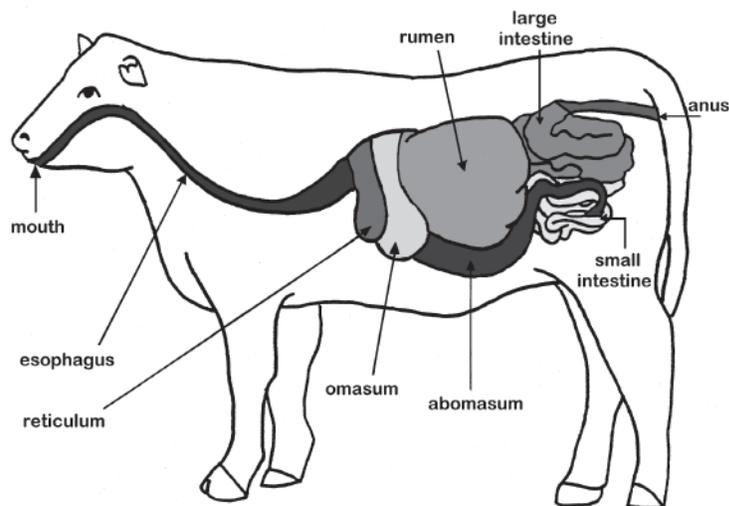
The rumen has bacteria in it that partially digests the food.

In the reticulum the food is formed into lumps the size of tennis balls, each called a cud. The cow uses her stomach muscles to bring the cuds up to her mouth one at a time so she can chew them again – this time more thoroughly.

If you see a cow laying down chewing, with no food in sight you'll know she is "chewing her cud". She then swallows the re-chewed, but this time, it goes into the third section of the stomach called the omasum. This is where softening and grinding of the food continues.

Finally, the food reaches the fourth compartment, the abomasum. Here it is digested much like the food in our stomach.

The small intestine finishes the digestion. Nutrients are carried by the blood to the rest of the cow's body.



**THE RUMINANT DIGESTIVE SYSTEM**

Before a cow can make milk, she has to have a baby. You might not believe this, but a cow has her first baby when she is only two years old herself. After a cow has a calf she will be milked for ten months. Each time she has a calf she will produce more milk. Dairy cows make about 7 300 L of milk each year (enough to fill 85 bathtubs!). Since their young calves need only about 255L (3 bathtubs full) of this milk for the first few months of life, all that extra milk is available for us to enjoy!

You're probably wondering where these cows live? Well a farmer's dairy cows are very special to him/her so he/she keeps them in large clean barns that protect them from cold and wet weather. When the weather is nice, they may roam the pastures and feed on fresh grass.

There are two types of dairy barns where cows can live. On smaller dairy farms cows live in a Tie Stall Barn. Each cow has its own stall where she can eat and move around. At milking time the cows stay in their stall and the farmer brings the milking equipment to them.

A second type of home for cows is the Loose Housing Barn. This is a sheltered area where cows can move about freely.

Larger dairy farms have Free Stall Barns. The barn has different areas – one is the eating and sleeping area. Tractors drive down the middle of this area to put the cow's food in the areas, which are called feed alleys. At milking time, cows are moved through gates to another part of the barn called the milking parlor. This is a very clean room, where the cow walks up a ramp, to stand in a stall on a raised platform. There are two rows of stalls and between them is an area where the farmer stands to attach the milking equipment to the cows udder-this of course is where the cows keep the milk until it is time for her to be milked.

Most cows are milked twice per day. If you have the opportunity to visit a dairy farm you will find out just how early dairy farmers have to get up. It is important that cows are milked at regular intervals everyday, so if you milk a cow at 5:00pm then she also has to be milked at 5:00am. That means the dairy farmers' day starts very early.

All the equipment the farmer uses in the milking parlor to milk the cow is thoroughly cleaned before and after each milking. Did you ever wonder how the farmer gets the milk out of the cows' udder? Well a special device called a milking machine is attached to her udder. This special machine has four cups (called a cluster), one cup for each teat. Before the cups are fitted on the cow, the farmer cleans the cows udder and teats. The cups gently suck the milk out of the teats. With these special milking machines the milk never touches a human hand. Milking each cow takes about five minutes and doesn't hurt them at all.

Where does this milk go? Well, it travels in pipes directly from the milking machines to a big tank in the barn. When it arrives there, it is quickly cooled to 4°C. This ensures that the milk stays fresher longer. That's the same temperature as your refrigerator at home.

Every second day, the milk is picked up from the barn by a big stainless steel, insulated milk truck and driven to the dairy. On very large farms, milk is picked up daily.

At the dairy the milk is pumped out of the truck into another cold storage tank, called a silo.

The milk is then pasteurized – this is a special process that kills harmful bacteria. Extra cream is taken out at the same time. The milk is also homogenized – this is to keep the milk fat from separating and floating to the top.

You're probably wondering when this milk is ever going to get to you so you can drink it – we're almost there.

Now the milk can be put into containers. Machines put the cold milk into cartons, glass bottles, plastic jugs or plastic bags. These containers are taken by refrigerated truck to your local grocery store.

Don't forget this isn't the only way you'll see milk in the grocery store. Milk is used to produce many other products. Ice cream, yogurt, sour cream, butter, cottage cheese and all other types of cheeses are dairy products made from milk.

Now when you take your next drink of milk, you will have a better understanding of where the milk came from before it arrived in the grocery store and what it took to get it there.

## LET'S HAVE SOME FUN!

Now that you have learned about the 'Amoozing Milk Machine' let's have some fun with what you have learned.

### WACKY WORD SCRAMBLE

Remember these words? Do they look a little mixed up? Use the Let's Get Educated section of this module to unscramble these milk related words.

RDIAY \_\_\_\_\_

NIEHLOST \_\_\_\_\_

GHCEINW ETH DCU \_\_\_\_\_

MREUN \_\_\_\_\_

EITCMUURL \_\_\_\_\_

LMKI \_\_\_\_\_

OTYGRU \_\_\_\_\_

YIRDA WCO \_\_\_\_\_

TDZAPUISRE \_\_\_\_\_

OMHGNEZEIDO \_\_\_\_\_

SNRACTO \_\_\_\_\_

GINKLIM HCMANEI \_\_\_\_\_

TEINEISTN \_\_\_\_\_

CSOAMTH \_\_\_\_\_

**What would you use to count cows?**

**A Cow-culator**

## FROM MOO TO YOU

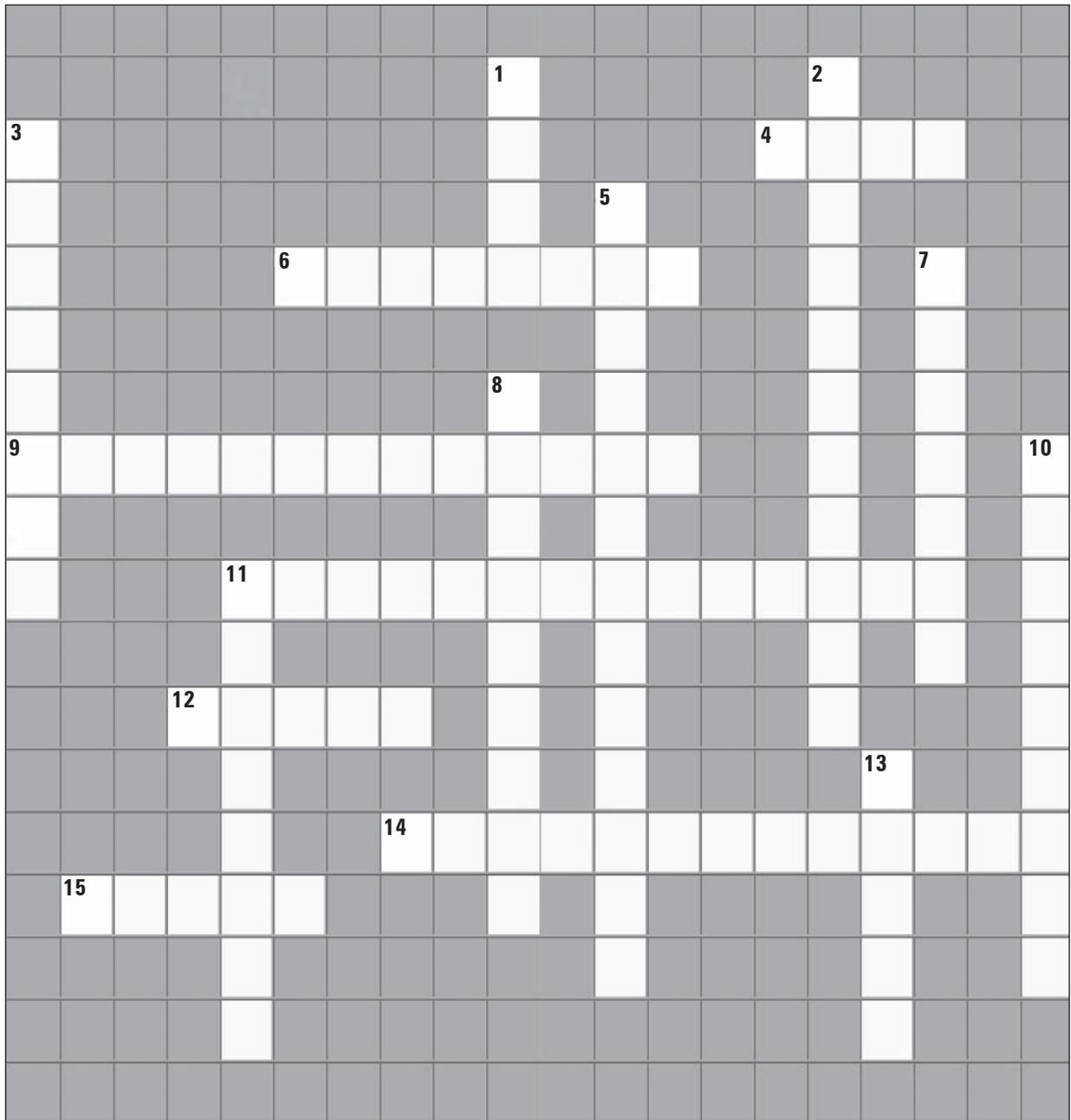
**Solve the following clues and enter the answers into the crossword puzzle.**

### DOWN

1. A cow has this many stomachs.
2. The dairy cow produces the equivalent of \_\_\_\_\_ bathtubs of milk per year.
3. She produces milk. (2 words)
5. This is a special process that kills harmful bacteria in the milk.
7. Milk can be packaged in these containers.
8. Some dairy cows live in this type of barn. (2 words)
10. A dairy cow drinks \_\_\_\_\_ of a bathtub of water each day. (2 words)
11. Black and white dairy cow.
13. Milk is picked up from the dairy farm with a stainless steel, insulated \_\_\_\_\_.

### ACROSS

4. It takes about \_\_\_\_\_ minutes to milk a cow with a milking machine.
6. This is made from milk and is one of a kids favorite treats. (2 words)
9. This is what you call it when a cow brings her food back up to chew it again. (3 words)
11. This keeps the milk fat in milk from separating and floating to the top.
12. Nutrients are carried by the \_\_\_\_\_ to the rest of the cow's body.
14. This is where the cows are milked. (2 words)
15. This is a cow's first stomach.



**TRY THIS DELICIOUS CREATION:****YUMMY YOGURT POPS****Ingredients:**

1 cup (250ml) - plain yogurt

$\frac{3}{4}$  cup (175ml) - frozen orange juice concentrate

$\frac{3}{4}$  cup (175ml) - cold milk

**Directions:**

In blender container combine plain yogurt, juice concentrate and milk. Cover and blend at high speed until smooth. Pour mixture into 12 popsicle molds or 6 (3oz./100ml) paper cups. Freeze until partially firm, then insert wooden stick into each pop. Freeze until firm.

**Preparation time:** 5 minutes

**Freezing Time:** 8 hours

**Makes:** 6-12 pops



## WACKY WORD SCRAMBLE

- |                     |                 |
|---------------------|-----------------|
| 1. RDIAY            | Dairy           |
| 2. NIEHLOST         | Holstein        |
| 3. GHCEINW ETH DCU  | Chewing the cud |
| 4. MREUN            | Rumen           |
| 5. EITCMUURL        | Reticulum       |
| 6. LMKI             | Milk            |
| 7. OTYGRU           | Yogurt          |
| 8. YIRDA WCO        | Dairy cow       |
| 9. TDZAPUISRE       | Pasteurized     |
| 10. OMHGNEZEIDO     | Homogenized     |
| 11. SNRACTO         | Cartons         |
| 12. GINKLIM HCMANEI | Milking machine |
| 13. TEINEISTN       | Intestine       |
| 14. CSOAMTH         | Stomach         |

## MORE! MORE! MORE!

To learn more on dairy production:

1. Check out the 4-H resource material on this topic.
2. Contact the Alberta Milk Producers at [www.albertamilk.com](http://www.albertamilk.com) to find out about educational materials for children.
3. Check out the website [www.moo2you.ca](http://www.moo2you.ca).

## RESOURCES USED TO CREATE THIS MODULE

1. **“The Milky Way”** produced by Alberta Milk Producers
2. **“Milk From Moo to You”** produced by Alberta Milk Producers
3. **“Agriculture and You”** produced by Western Canadian Agribition
4. **Website: [www.edhelper.com](http://www.edhelper.com)**

## LIVESTOCK MODULE: **GOAT**

*There are over 100 goat breeds in the world, ranging in size from the 20-40 pound tropical breeds to breeds of European and African decent weighing 100 pounds and more.*

*Let's learn about these intriguing animals.*

### **WHAT WILL WE LEARN?**

In this module you will learn that all goats are not the same, and can have different purposes. Goats can be categorized according to what they are used for - dairy, fleece, meat, pack or dual purpose. Now let's find out the differences.

### **WHO CAN HELP?**

Perhaps a leader in your club or a neighbor might be familiar with the raising of goats. It would be helpful to have someone that knows about goats so they can assist you with any questions you might have. Also if you don't own any goats yourself it would be great if you could visit the farm of someone who does.

### **WHAT DO YOU NEED?**

Everything you need to complete this module is included.

### **LET'S GET EDUCATED!**

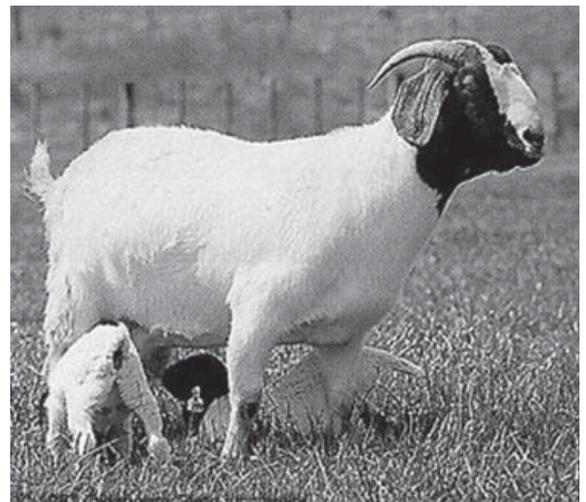
#### **MEAT BREEDS**

##### **Boer**

(also known as South African common goat)

These goats were developed in South Africa for their meat, hardiness and brush control abilities.

Boers are specifically meat goats. A Boer goat should have a deep broad chest, good back, strong shoulders and heavy muscling in the rump. They are large framed animals resembling, in many ways, the Nubian goat. The most obvious difference is the size. Mature weights between 200 and 350 pounds for females are considered normal.



Boers are generally white with a reddish brown head and usually a white blaze down the middle of their face. They have long ears that should hang down the sides of their faces.

## Pygmy

The Pygmy Goat was originally called the Cameroon Dwarf Goat. The goat is mostly restricted to the West African countries. The Cameroon goats were exported from Africa to zoos in Sweden and Germany where they were on display as exotic animals. From there they made their way to England, Canada, and the United States.



Pygmy goats are smaller than any other recognized breed of goat. On average a full-grown buck stands at about 20 inches wide while the full-grown female goat is somewhat less. They are usually not over 60 pounds and are blue in color. A goat in milk may give about one pint of milk at both morning and evening milking. Since they are small and easy to handle, Pygmy goats make excellent animals for medical, psychological, chemotherapeutic and physiological scientific research.

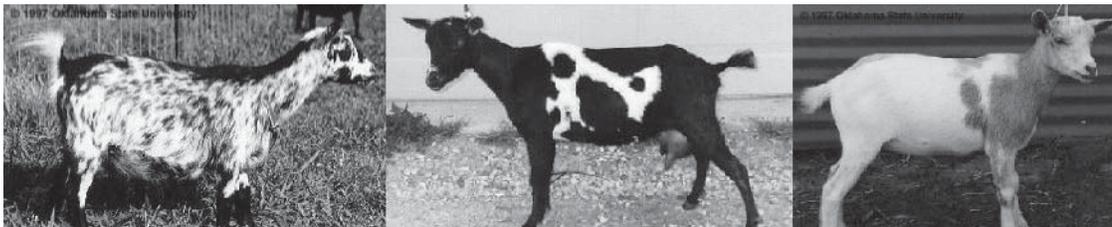
## Nigerian Dwarf

The Nigerian Dwarf is a miniature goat of West African Origin.

They make wonderful pets and are great projects for young children in 4-H.

The coat is soft with short to medium hair. Any color or combination of colors is acceptable, though silver agouti (roan) is considered a moderate fault. Shown below is the rainbow of colors these gentle and loveable animals can come in.

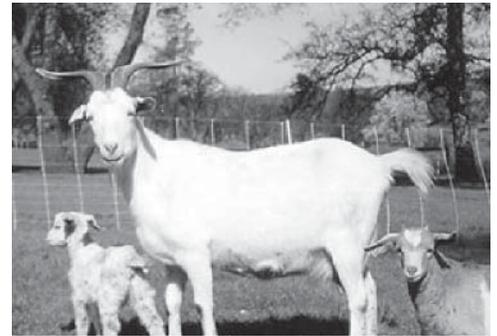
As you can see color is one of the BIG factors that makes breeding Dwarves so popular. You never can be sure what color the babies will be until they are born; even then you can't be sure because many times their color will change.



## Kiko

The appropriately named Kiko goat was purpose-bred in New Zealand for meat production – the Maori word “kiko” meaning flesh or meat.

The Kiko breed was established by crossbreeding selected feral does with Anglo-Nubian, Toggenburg and Saanen bucks, with further cross-breeding in the second and third generations. After four generations of selective breeding – selection being on the grounds of survivability and growth rate in a hill country environment – a dramatic improvement in liveweight and animal performance was achieved. By 1986 the Kiko breed was established and the herd was closed to further cross-breeding.



## DAIRY BREEDS

### Alpine

The Alpine Dairy Goat is also referred to as the French-Alpine and is a breed of goat that originated in the Alps. The goats of Alpine type that were brought to the United States from France were selected for much greater uniformity, size, and production.

The Alpine dairy goat is a medium to large size animal, alertly graceful, and the only breed with upright ears that offers all combinations of colors giving them distinction and individuality. They are hardy, adaptable animals that thrive in any climate while maintaining good health and excellent production.

The hair is medium to short.

Toggenburg color and markings, or all-white is discriminated against. Alpine colors are described by using the following:

- Cou Blanc - (coo blanc) white neck and dark hind quarters
- Cou Clair - (coo clair) tan neck and dark hindquarters
- Cou Noir - (coo nwah) black neck and hind quarters
- Sandgau - (sundgow) black with white underbelly
- Pied - spotted or mottled
- Chamoisee - (shamwahzay) grayish yellow

The face is straight; a Roman nose is discriminated against.



© Oklahoma State University  
Provided by Crystal D'Eon

## La Mancha

The LaMancha goat originated in the U.S.A.

It has excellent dairy temperament and is an all-around sturdy animal that can withstand a great deal of hardship and still produce. Through official testing this breed has established itself in milk production with high butterfat.

Any color or combination of colors is acceptable with no preferences. The hair is short, fine and glossy.

The LaMancha face is straight with the ears being the distinctive breed characteristic. There are two types of LaMancha ears - the "gopher ear" and the "elf ear". One type of ear has no advantage over the other.



© Oklahoma State University  
Provided by Karen Lee

## Nubian

The Nubian is of mixed Asian, African, and European origin.

It is a relatively large, proud, and graceful dairy goat known for high quality, high butterfat and milk production. The hair is short, fine and glossy. Any color - solid or patterned, is acceptable.

The head is the distinctive breed characteristic, with the facial profile between the eyes and muzzle being strongly convex. The ears are long, wide and pendulous. They lie close to the head at the temple and flare slightly out and well forward at the rounded tip, forming a "bell" shape.

## Toggenburg

The Toggenburg is a Swiss dairy goat from Toggenburg Valley of Switzerland. They are also credited as being the oldest known dairy goat breed.

This breed is medium size, sturdy, vigorous, and alert in appearance. The hair is short or medium in length, soft, fine, and lying flat. Its color is solid, varying from light fawn to dark chocolate with no preference for any shade. Distinct white markings are as follows: white ears with dark spot in middle; two white stripes down the face from above each eye to the muzzle; hind legs white from hocks to hooves; forelegs white from knees downward with a dark lien (band) below knee acceptable; a white triangle on either side of the tail; white spot may be present at root of wattles or in that area if no wattles are present. Varying degrees of cream markings instead of pure white acceptable, but not desirable.



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The ears are erect and carried forward. Facial lines may be dished or straight, never Roman.

## Oberhasli

The Oberhasli is a Swiss dairy goat.

This breed is of medium size, vigorous and alert in appearance.

Its color is chamois. Does may be black but chamois is preferred. Chamois is described as: Bay - ranging from light to a deep red bay with the later most desirable. A few white hairs through the coat and about the ears are permitted. Markings include: two black stripes down the face from above each eye to a black muzzle; forehead nearly all black, black stripes from the base of each ear coming to a point just back of the poll and continuing along the neck and back as a dorsal stripe to the tail; a black belly and udder; black legs below the knees and hocks; ears black inside and bay outside; bucks often have more black on the head than does, black whiskers, and black hair along the shoulders and lower chest with a mantle of black along the back; bucks frequently have more white hairs through the coat than does.



provided by Dave Battjes

The face is straight. A Roman nose is discriminated against.

## Saanen

The Saanen Dairy Goat originated in Switzerland.

It is medium to large in size with rugged bone and plenty of vigor. Does should be feminine, and not coarse.

Saanens are white or light cream in color, with white preferred. Spots on the skin are not discriminated against. Small spots of color on the hair are allowable, but not desirable. The hair should be short and fine, although a fringe over the spine and thighs is often present.



Ears should be erect and alertly carried, preferably pointing forward. The face should be straight or dished. A tendency toward a roman nose is discriminated against.

## FIBER BREEDS

### Angora

The Angora goat originated in the Himalayas of Asia.

The fiber they produce is known as mohair and is from an Arabic word meaning “select” or “choice”. This select fiber is long, strong, warm, and lustrous. This mohair is the most valuable characteristic of the Angora as compared to other goats. The average goat in the U.S. shears approximately 5.3 pounds of mohair per shearing and is usually sheared twice a year. They produce a fiber with a staple length of between 12 and 15cm.



Modern Angoras are often classified according to the type of ringlet or lock hair in which the hair grows. Ringlet type goats are often referred to as the C Type, while B Type is used to designate those with a flat mohair lock. In the case of the ringlet type goat, the mohair is carried in tight ringlets throughout almost its entire length and represents the finest mohair produced. The flat lock, in contrast, is usually wavy and more bulky in appearance.

The Angora goat is a small animal as compared to sheep, common goats, or milk goats.

The Angora is a very picturesque animal in which both sexes are horned. The bucks usually have a pronounced spiral to the horn, which comes back and away from the head; the horns of mature bucks sometimes reach two or more feet in length. In contrast, the horn of the female is comparatively short, much smaller, and has only a very slight tendency to spiral. The horn of the female seldom exceeds nine or ten inches. The ears are heavy and drooping.

### Cashmere

This is not a breed but a description of all goats that produce cashmere, a very fine fiber. Sixty percent of the world's supply of cashmere is produced in China. The first Cashmere goats were imported from Australia and New Zealand in the late 1980's.

They are sheared once a year and a full grown adult buck will yield as much as 2.5 pounds of fleece. The fleece consists of two kinds of fiber, cashmere and guard hair. On average, 20% of the fleece is cashmere and 80% is guard hair.



## LET'S HAVE SOME FUN!

Now let's have some fun with some of the knowledge you've gained about goats.

### WHAT'S MY ORIGIN

As you have discovered, virtually all goats originated somewhere other than Canada. Using the map of the world, let's identify the wide range of areas where the different types of goats originated.

1. On the the bottom of this page, are names of the different breeds and types of goats that we have talked about in this module.
2. Photocopy the names, cut them out and glue them on the map of the world to indicate where each breed originated.
3. You may want to use a larger wall size map for this activity, if you have one.
4. To check your answers go back to the Let's Get Educated section on the previous pages.

**BOER**

**PYGMY**

**LA MANCHA**

**NUBIAN**

**ANGORA**

**CASHMERE**

**NIGERIAN DWARF**

**TOGGENBURG**

**OBERHASLI**

**KIKO**

**ALPINE**

**SAANEN**



## **MORE! MORE! MORE!**

The 4-H Branch has a number of publications available for the Goat Project. If you are interested in these cute, loveable animals talk to your leader about getting a look at some of these books.

## **RESOURCES USED TO CREATE THIS MODULE**

1. [www.ansi.okstate.edu/breeds/goats/](http://www.ansi.okstate.edu/breeds/goats/)
2. 4-H Skills For Life – Animal Science Series – Getting Your Goat produced by the National 4-H Cooperative Curriculum System, Inc.

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## LIVESTOCK MODULE: SHEEP

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*There's nothing cuter than a newborn lamb, but these little creatures need lots of TLC (tender loving care) to keep them happy and healthy.*

### WHAT WILL WE LEARN?

We will learn about THE NEWBORN LAMB.

### WHO CAN HELP?

This module will be the most rewarding for you if you can visit a sheep farm. If you know someone that raises sheep, talk to them about this module. See if you could visit their farm during lambing season. This season can be a lot of work, but is also very rewarding and fun.

### WHAT DO YOU NEED?

No special supplies needed for this module.

### LET'S GET EDUCATED!

In this module we will focus on the lamb after it is born. The lambing process is another topic in itself.

### FEEDING THE NEWBORN LAMB

Feeding the newborn lamb properly is very important to the future growth of the lamb. You need to be sure that the newborn lamb receives enough of the right nutrients. That is why it is very important to make sure that the lamb suckles as soon as possible after birth. By suckling early, the lamb will receive Colostrum from the mother's milk.

#### What is Colostrum?

Colostrum is the first milk the mother sheep (or ewe) produces. It is thick, rich milk that the ewe produces for her newborn lamb.

#### Why Does The Newborn Lamb Need Colostrum? And Need It Fast?

The lamb's stomach can only absorb the nutrients from the colostrum for the first three or four hours after birth. That is why the lamb must get the colostrum quickly.

**There are many things in the colostrum that are necessary for the lamb. Let's look at these:**

**PROTEIN**

**VITAMINS**

**MINERALS**

**And most important, ANTIBODIES**

### **What Are Antibodies?**

Antibodies are disease fighters. They are the tiny creatures in the blood that get together and attack diseases. The ewe gives these antibodies to the lamb through the colostrum in the milk, so that the lamb will be able to fight disease until it is old enough to make its own disease fighters.

If the lamb is not able to get fresh colostrum from its mother, you can always give it colostrum in a bottle. If a ewe has a lot of milk when she lambs you can milk some of it from her and freeze it. This way if you need colostrum for a young lamb you can warm it up when required. Lambs aren't always able to be nursed by the ewe.

### **The lamb may not be able to stay with its mother if:**

- The lamb is orphaned when the ewe dies or won't mother her lamb.
- The ewe does not have enough milk for her lamb.
- The lamb is a twin or triplet and the ewe doesn't have enough milk for all her babies.

These lambs are called orphans and they have to be raised artificially. This means that someone other than the ewe is supplying the lamb with its nutrients. These nutrients will come from a product called milk replacer. For one reason or another, most sheep farmers end up with one or more of these lambs that they need to care for.

Perhaps you could offer to help with this job. It's a lot of fun, as the little lambs become very dependant on whoever feeds them and end up adopting them as their mother.

## WHAT DOES IT TAKE TO CARE FOR YOUR ORPHAN LAMBS?

Milk replacer is a special powder that you mix with water. It makes a liquid that has all the characteristics and nutrients of milk. When mixing the milk replacer the sheep farmer always reads the instructions on the label. It gives the most accurate directions according to the age of the lamb that is being fed.

Keep orphaned lambs in a warm, dry enclosed area. Don't mix any large lambs in with smaller ones.

Show the lambs the nipples on the bottles you have selected to use for feeding the milk replacer, and watch to make sure that they are drinking.

Clean the feeding equipment regularly. Make sure the pens are kept clean and dry.

At 7-10 days provide creep feed and fresh water.

- Creep feed is a special ration that is high in protein and energy.
- Always be sure to provide a good supply of fresh, clean water.

At about four weeks, provide the lamb with some good quality alfalfa hay.

### **The main causes of newborn lamb deaths are:**

- Chills
- Unsanitary conditions
- Starvation

Your goal is to raise healthy lambs so that you can have strong rams and ewes, or market lambs.

## SO WHAT DO WE NEED TO DO TO RAISE HEALTHY LAMBS?

Here are a few hints to help you raise your lambs successfully:

- During very cold weather, keep your ewes indoors to lamb. When it is extremely cold, newborn lambs chill very quickly.
- Make sure your lambing pens are clean, warm and dry. Keep the area well bedded.
- Avoid any drafts in your lambing pens. Make sure they are well ventilated.
- Most important – watch your ewe to make sure she is a good mother.
- Check your newborns for sharp teeth! You may find that your lamb is not nursing – is the ewe letting it nurse? It may be that your lamb has razor sharp teeth that are painfully cutting the ewe's teat. You can solve this problem by filing the lamb's teeth with an emery board!

## LET'S HAVE SOME FUN!

### FEEDING THE NEWBORN LAMB

In the cryptogram you see below, each letter has a number that represents it. By placing the correct letters on the blanks you will solve this cryptogram.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
9	6	1	20	12	26	25	24	8	11	19	17	16	7	13	14	21	2	5	18	15	22	4	3	10	23

\_\_\_\_\_  
 9 7 18 8 6 13 20 8 12 5      9 2 12      20 8 5 12 9 5 12

\_\_\_\_\_  
 26 8 25 24 18 12 2 5      18 24 12 10      9 2 12      18 24 12      18 8 7 10

\_\_\_\_\_  
 1 2 12 9 18 15 2 12 5      8 7      18 24 12      6 17 13 13 20      18 24 9 18

\_\_\_\_\_  
 25 12 18      18 13 25 12 18 24 12 2      9 7 20      9 18 18 9 1 19

\_\_\_\_\_  
 20 8 5 12 9 5 12 5      18 24 12      12 4 12      25 8 22 12 5

\_\_\_\_\_  
 18 24 12 5 12      9 7 18 8 6 13 20 8 12 5      18 13      18 24 12      17 9 16 6

\_\_\_\_\_  
 18 24 2 13 15 25 24      18 24 12      1 13 17 13 5 18 2 15 16      8 7      18 24 12

\_\_\_\_\_  
 16 8 17 19      5 13      18 24 9 18      18 24 12      17 9 16 6      4 8 17 17

\_\_\_\_\_  
 6 12      9 6 17 12      18 13      26 8 25 24 18      20 8 5 12 9 5 12      15 7 18 8 17

\_\_\_\_\_  
 8 18      8 5      13 17 20      12 7 13 15 25 24      18 13      16 9 19 12      8 18 5

\_\_\_\_\_  
 13 4 7      20 8 5 12 9 5 12      26 8 25 24 18 12 2 5

## SOLUTIONS!

### FEEDING THE NEWBORN LAMB

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
9	6	1	20	12	26	25	24	8	11	19	17	16	7	13	14	21	2	5	18	15	22	4	3	10	23

A N T I B O D I E S A R E D I S E A S E  
 9 7 18 8 6 13 20 8 12 5 9 2 12 20 8 5 12 9 5 12

F I G H T E R S . T H E Y A R E T H E T I N Y  
 26 8 25 24 18 12 2 5 18 24 12 10 9 2 12 18 24 12 18 8 7 10

C R E A T U R E S I N T H E B L O O D T H A T  
 1 2 12 9 18 15 2 12 5 8 7 18 24 12 6 17 13 13 20 18 24 9 18

G E T T O G E T H E R A N D A T T A C K  
 25 12 18 18 13 25 12 18 24 12 2 9 7 20 9 18 18 9 1 19

D I S E A S E S . T H E E W E G I V E S  
 20 8 5 12 9 5 12 5 18 24 12 12 4 12 25 8 22 12 5

T H E S E A N T I B O D I E S T O T H E L A M B  
 18 24 12 5 12 9 7 18 8 6 13 20 8 12 5 18 13 18 24 12 17 9 16 6

T H R O U G H T H E C O L O S T R U M I N T H E  
 18 24 2 13 15 25 24 18 24 12 1 13 17 13 5 18 2 15 16 8 7 18 24 12

M I L K , S O T H A T T H E L A M B W I L L  
 16 8 17 19 5 13 18 24 9 18 18 24 12 17 9 16 6 4 8 17 17

B E A B L E T O F I G H T D I S E A S E U N T I L  
 6 12 9 6 17 12 18 13 26 8 25 24 18 20 8 5 12 9 5 12 15 7 18 8 17

I T I S O L D E N O U G H T O M A K E I T S  
 8 18 8 5 13 17 20 12 7 13 15 25 24 18 13 16 9 19 12 8 18 5

O W N D I S E A S E F I G H T E R S .  
 13 4 7 20 8 5 12 9 5 12 26 8 25 24 18 12 2 5

### MORE! MORE! MORE!

If you enjoy this Newborn Lamb module check out the Sheep Project books to see if you would like to continue learning about sheep production.

### RESOURCES USED TO CREATE THIS MODULE

1. The Sheep Project resources produced by the Alberta 4-H Branch.
2. [www.puzzlemaker.school.discovery.com](http://www.puzzlemaker.school.discovery.com)

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## LIVESTOCK MODULE: **SWINE**

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*How big can a pig be? Well the largest pig on record was a Poland-China hog named "Big Bill". He weighed an amazing 2552lbs. and was so large that he dragged his belly on the ground. He had a shoulder height of 5 feet and a length of 9 feet.*

***NOW THAT'S A LOT OF BACON!!***

### **WHAT WILL WE LEARN?**

In this module, you will learn a little about the very intelligent and remarkable pig. You will learn a little about where and how pigs live, and some interesting facts about sows, boars and piglets.

### **WHO CAN HELP?**

The best person to help you with this module would be the operator or employee of a swine operation.

### **WHAT DO YOU NEED?**

This module contains everything you need to complete it.

### **LET'S GET EDUCATED!**

Hog, swine and pig are names for a very intelligent and remarkable animal.

Modern day pigs probably descended from two wild swine species - one from Europe and the other from Southeast Asia. Archaeologists think that the Chinese were the first people to domesticate wild pigs. This happened about 9 000 years ago. Christopher Columbus and Spanish explorers brought pigs to the Americas. Today, farmers raise pigs in almost every part of the world.

Adult pigs have heavy, rounded bodies. They are famous for their long, flexible snouts, short legs with cloven hooves and short tails. Pigs have thick but sensitive skin which is covered by coarse bristles.

Female pigs are called sows. Male pigs are called boars. Young pigs are called piglets. Piglets that have been weaned from their mother are called weanlings.

Pigs or hogs come in a variety of colors and have different characteristics. The characteristics are the litter size, how fast and how well the pigs grow, the carcass structure and composition.

## TYPES OF HOG FARMS

**Multiple Units** are farms that raise pigs to provide breeding stock to other producers.

**Farrow to Finish** farms raise pigs from when they are born to when they are finished. Finished is the word that means the pigs are ready for slaughter. Farrow is the word that is used for when pigs are born.

**Farrow to Weanling** farms raise pigs from when they are born to when they stop nursing from the sow. The weanling pigs are sold to finishing operations.

**Finishing Operations** buy weanling pigs and raise them until they are finished as slaughter hogs.

Most pigs are raised in large, modern barns. Raising pigs indoors protects the animals from weather that is either too hot or too cold for the pigs. Pigs are very sensitive to hot temperatures because they do not have sweat glands. They also have small lungs for their body size. The pigs are kept in barns with ventilation systems that keep the pigs cool in warm weather and warm in cold weather. Raising pigs indoors also keeps the pigs safe from diseases and predators.

Pigs require special feed, good health care and safe buildings. For example, to prevent the spread of diseases, farmers may limit the number of visitors in pig barns. Some farmers ask visitors to shower or put on special clothing before they go into the barns. Producers also use the help of people such as veterinarians and feed specialists. All of these things keep pigs healthy and productive.

A mother sow carries her piglets for 3 months, 3 weeks and 3 days before giving birth. Piglets are born in litters. There are usually eight to twelve piglets in a litter. Piglets are very small when they are born. A mother pig can be very large. The piglets could be crushed accidentally by the sow; so special pens called farrowing crates are used. These crates let the piglets nurse from the sow but keep the piglets safe from harm.

When pigs are born they have very little hair and body fat. This means the newborn piglets can become very cold. Heat lamps are used to keep the piglets warm. Sometimes special areas and the concrete floors are heated as well.

At the end of the three-week nursing period, the piglets are weaned. This means they are old enough to be taken from the sow and begin eating on their own. They are now called weanlings or weaners.

As the pigs grow they are fed special diets depending on their age and size. This means that farmers change the pigs' feed rations as they grow.

The feed ration contains large amounts of highly digestible ingredients, vitamins, minerals, proteins and energy. The sources of protein include soybean, canola and pea meal. The sources of energy are grains such as corn, wheat, barley, oats, triticale and rye.

## LET'S HAVE SOME FUN!

### WHERE DO PIGS LIVE?

#### Types of Hog Farms

Test your knowledge without looking back at what you have learned. Draw a line connecting the type of hog farm as listed on the left with the correct description on the right. Once you are done, go back to the Let's Get Educated section of the module to see if your ideas were correct.

**Farrow to finish**

**Farms that raise pigs to provide breeding stock to other producers.**

**Multiple units**

**Farms that raise pigs from when they are born to when they stop nursing from the sow.**

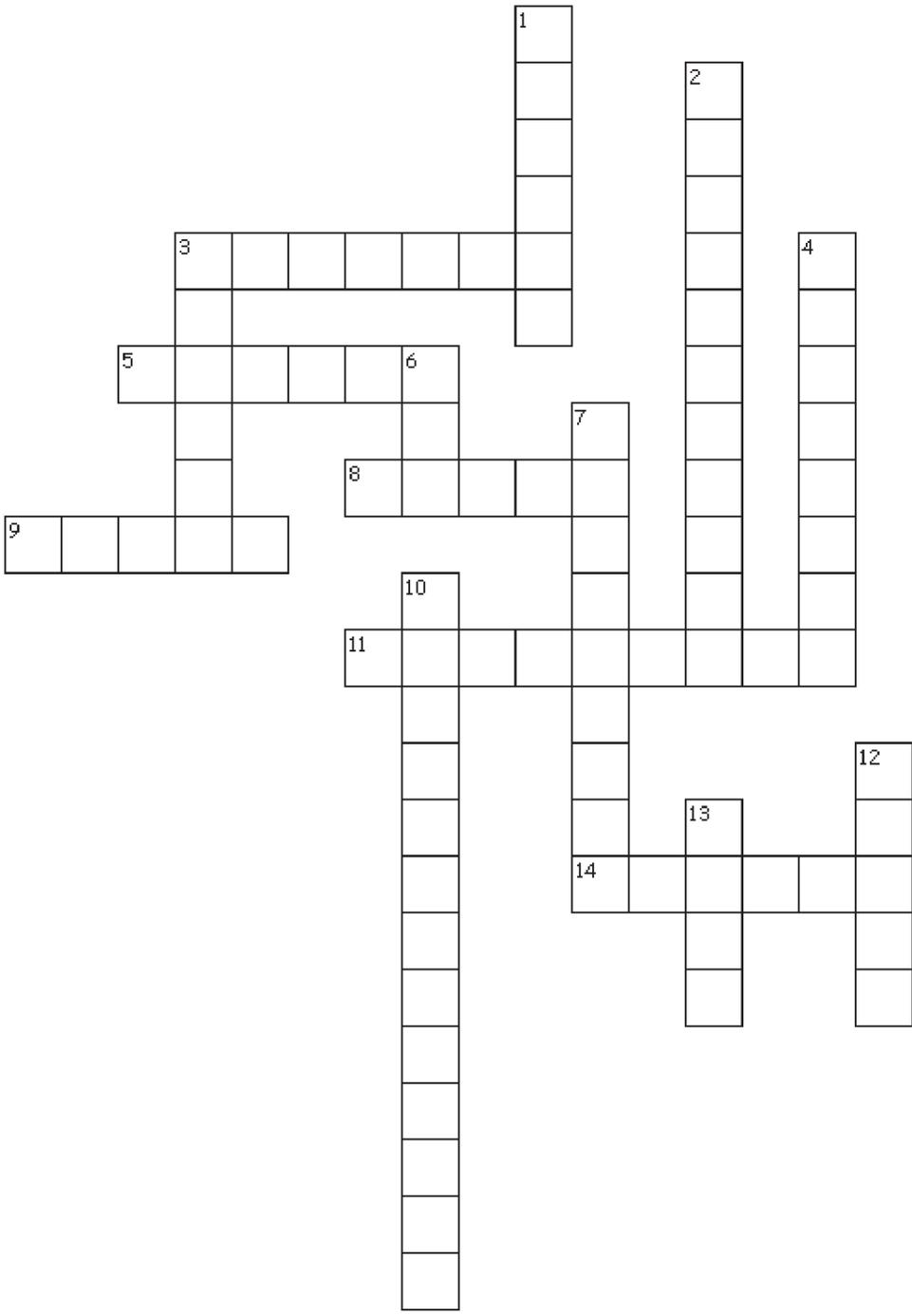
**Finishing operations**

**Farms that buy weanling pigs and raise them until they are finished as slaughter hogs.**

**Farrow to weanling**

**Farms that raise pigs from when they are born to when they are finished.**

### SWINE, HOGS & PIGS



**Across**

3. It is thought that the \_\_\_\_\_ were the first to domesticate pigs.
5. Pigs have long, flexible \_\_\_\_\_.
8. \_\_\_\_\_ is another name for a pig.
9. Pigs do not have \_\_\_\_\_ glands.
11. Piglets that have been weaned from their mother are called \_\_\_\_\_.
14. Some farmers ask visitors to \_\_\_\_\_ before entering the pig barn.

**Down**

1. A young pig is called a \_\_\_\_\_.
2. Pigs are kept in barns with \_\_\_\_\_ systems.
3. This is one source of protein for feeding pigs.
4. Raising hogs indoors keeps them safe from \_\_\_\_\_ and predators.
6. A female pig is called a \_\_\_\_\_.
7. Because baby piglets have little hair or body fat these are used to keep newborns warm.
10. Hog producers use the help of \_\_\_\_\_ to manage the health of their pigs.
12. Pigs are raised in large modern \_\_\_\_\_.
13. A male pig is called a \_\_\_\_\_.

## SOLUTIONS!

### WHERE DO PIGS LIVE?

#### Types of Hog Farms

**Farrow To Finish** - Farms that raise pigs from when they are born to when they are finished.

**Multiple Units** - Farms that raise pigs to provide breeding stock to other producers.

**Finishing Operations** - Farms that buy weanling pigs and raise them until they are finished as slaughter hogs.

**Farrow To Weanling** - Farms that raise pigs from when they are born to when they stop nursing from the sow.

### SWINE, HOG and PIGS

#### Across

- It is thought that the **Chinese** were the first to domesticate pigs.
- Pigs have long, flexible **snouts**.
- Swine** is another name for a pig.
- Pigs do not have **sweat** glands.
- Piglets that have been weaned from their mother are called **weanlings**.
- Some farmers ask visitors to **shower** before entering the pig barn.

#### Down

- A young pig is called a **piglet**.
- Pigs are kept in barns with **ventilation** systems.
- This is one source of protein for feeding pigs. **Canola**
- Raising hogs indoors keeps them safe from **diseases** and predators.
- A female pig is called a **sow**.
- Because baby piglets have little hair or body fat these are used to keep newborns warm.  
**Heat lamps**
- Hog producers use the help of **veterinarians** to manage the health of their pigs.
- Pigs are raised in large modern **barns**.
- A male pig is called a **boar**.

## **MORE! MORE! MORE!**

The 4-H Branch has produced resource books for the Swine Project. If you enjoyed what you learned about pigs in this module and would like to pursue this project further, talk to your leader about having a look at these books.

## **RESOURCES USED TO CREATE THIS MODULE**

Information for this module was obtained from:

- 1) The Canadian Western Agribition – Agriculture and You Publication
- 2) The Farmfair International AgAwareness Program Teachers Guide.