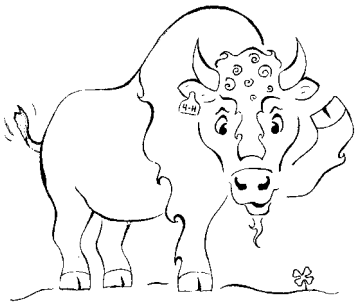
Bison Herd Health



Roll Call:
Name one sign a bison shows when it is not healthy.

_____

The healthy calf

As you get to know your calf and the animals in your herd, you will know what kind of behaviour is normal. A normal, healthy calf has these characteristics:

- bright, clear eyes
- eats regularly
- drinks water provided
- is active
- has a healthy looking hair coat

Keeping your animals healthy

Help to keep your animals healthy by giving them

- A dry, clean home.
- Clean, fresh water.
- Well balanced diets containing the right amounts of all the nutrients.

The unhealthy calf

If an animal starts behaving differently, or you notice anything that is not normal, your calf might be ill. Look for some of these signs that something is wrong:

Appearance
- depressed/or may appear weak
- dull

Posture
- standing differently from normal
- favouring some part of the body

Gait
- walks faster or slower than normal
- walks around more or less than normal
- stands in one spot
- wanders aimlessly

Condition
- too thin

Appetite
- eating more or less than normal
- growing too fast or too slow
- refusing to eat certain foods
- drinking more or less water than normal
- Behaviour
- bawling
- nervous

Urine
- not yellow and clear

Manure
- softer or harder than normal
- colour different than normal

Working with your vet

Once you have discovered an unhealthy animal and you cannot solve the problem yourself, you will need to get help. Call your local veterinarian.
To make it easier for the vet to find out what is wrong with your animal(s)

- How long has the animal been ill?
- Are there any recent changes in management or feed?
- What are the symptoms?
- Are you ready to discuss the symptoms?
- Be ready to help.

How are betsy and boris?

Betsy and Boris are two of my favorite calves. Let's see how healthy they are.

Put an (H) if you think he/she is healthy.
Put an (N) if you think he/she is not healthy.

_____ 1. Boris has a soft, shiny looking hair coat.

_____ 2. Betsy is breathing very heavily.

_____ 3. Boris is watching me very closely, with his ears alert.

_____ 4. Boris has bright, shiny eyes.

_____ 5. Betsy has a runny nose.

_____ 6. Betsy is just standing in the pasture hanging her head.

_____ 7. Boris is sucking his mother.

_____ 8. Betsy's manure is very loose.

Which calf is the healthy one - Betsy or Boris? _____

Looking at medicine

Drugs can be given through the mouth (orally) or with a needle (by injection). Whichever way you give the medicine, be sure to read the directions on the box or bottle. Follow instructions carefully for the amounts and ways to give it.

The amount of medicine you give an animal often depends on how big the animal is. It is important to give your calf the right amount. Giving it more will not make it get better faster. It may make it sicker.

Oral medications

Medicines given through the mouth work more slowly than those that are injected. That's because the medicines must go through the digestive tract before they can be absorbed into the bloodstream, where they go to work.

In the Feed Powder	Mix the drug well into the feed. It is important that the medication taste good, or the animal won't eat. If the animal does not get the required amount of the medicine it may become sicker.
Balling Gun Capsule Tablet Bolus	Put the balling gun in the animal's mouth at the back near the throat. Press the plunger to force the capsule, tablet or bolus down the animal's throat.
Drenching Bottle Liquid	Put the bottle in the animal's mouth at the back near the throat. Give the liquid slowly to make sure that animal swallows and the liquid goes down the esophagus and not into the lungs.
Topical Liquid	The liquid is applied on the neck area of the animal so that it cannot be licked off. The drug will then penetrate through the skin and give full body protection.
Flexible Tube or Hose Liquid	Slide the tube or hose into the animal's mouth and down the throat to the stomach. This can be used to put the medicine directly into the rumen. It can also be used to relieve pressure in animals with bloat.

Injections

Drugs may also be injected or given with a needle.

Subcutaneous injected beneath the skin	The best place to inject is just in front of the shoulder where the skin is loose. If the dosage is large, split it in half and give it in two locations. Some drugs cannot be injected subcutaneously because they will bother the animal.
Intramuscular injected directly into the muscle	Inject directly into the muscle to get drugs into the animal quickly. The two most common sites are the hind leg and the hip just behind the hook bones, or in the neck of the animal. Do not inject into a large blood vessel. It could kill the animal. If the dosage is large, split it in half and give it in two locations.
Intravenous injected into the vein	All intravenous injections should be done by a veterinarian or someone with experience. Use an intravenous injection if: - the dosage is very large - the drug must get into the bloodstream immediately - the drug is too irritating to be given to the animal any other way

When giving injections, always

- use sterile equipment
- make sure the injection area is clean
- read the label and follow the directions
- restrain your animal in a squeeze chute with a head gate
- consult your veterinarian if you are not sure

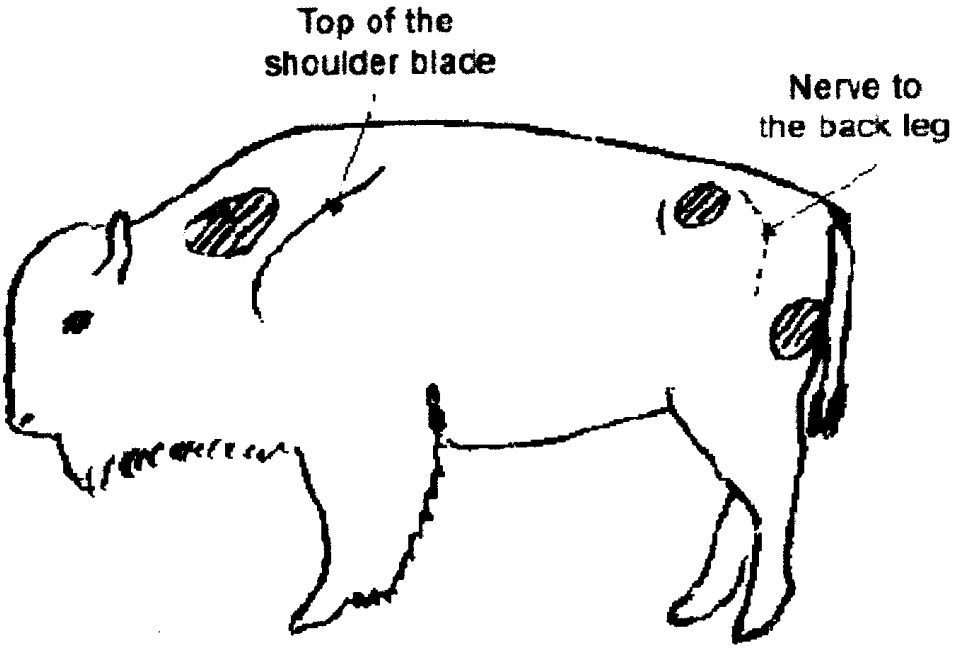


Diagram 2 - Intramuscular Injections

Activity: "P" or "N"

Below are some problems that can happen on the farm. Put a (P) if the farmer is trying to prevent diseases from happening on his farm. Put an (N) if the farmer is not preventing diseases from happening on his farm.

_____ A calf in the far pasture suddenly dies. He did not look sick yesterday. You decide to leave him there for the coyotes.

_____ With feed costs through the roof this year, you are happy that you are raising bison. You have some old low quality bales from a couple years back that you can feed.

_____ Each year when your calves are six months old, you vaccinate each of them for Bovine Virus Diarrhea (BVD).

_____ Yesterday you bought five new calves at the bison sale. You brought them home and put them in the pasture with your other 30 calves.

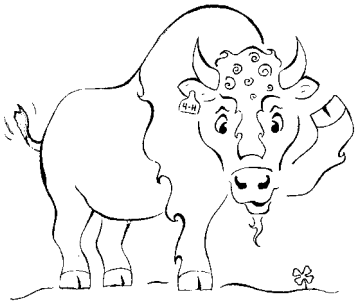
_____ A calf in the south pasture died this morning. You had no idea what the problem might be so you took him to the vet for an autopsy.

_____ A two month old calf has runny eyes and nose. He also has the scours. You decide to leave him and see how he is tomorrow.

_____ You bought 10 calves from the neighbour. He was only feeding them some good quality alfalfa hay. You want to get the calves growing, so you offer them a small amount of barley each day. Four days later you begin to slowly increase the amount of grain.

_____ You have been feeding your calves hay and barley. Your neighbour has some extra silage he wants to give away so he can clean out the bunker silo. In order to get them to eat it you take away all the other food sources. When they get hungry they will eat.

Breeding and Reproduction



Roll Call:
List one thing you must consider when managing your bison herd for fertility.

Managing for healthy cows

In order to have healthy calves, you must first have healthy cows and heifers. To have healthy cows and heifers, you must do a good job of managing them all year round.

Keep your cows healthy and fertile

- Feed them properly.
- Keep your animals free from disease and injury.
- Practice good breeding management.

Feeding

Feeding can be one of the biggest costs in a bison cow-calf operation. Proper feeding means you are giving your bison the amounts and kinds of nutrients they need. There are five main nutrients that all animals need. Can you name them?

1. _____

2. _____

3. _____

4. _____

5. _____

Many factors affect the amount of these nutrients that your cows and heifers will need. Let's look at some of these.

Age Heifers and young cows need more nutrients than mature cows. This is because they are still growing. Growth, together with producing a calf put great demands on the young cow's body.

Exercise Bison grazing on pasture or range land use energy as they move about. They need more nutrients than bison in pens with limited movement.

Climate Because bison are naturally adapted to our weather in Alberta, cold temperatures, strong winds and high humidity (more moisture in the air) will cause the metabolism of the bison to slow down. This is one of the most significant differences between the bison and the domestic beef cow.

Gestation Gestation is the period of time that the cow is pregnant, from the time she is bred and conceives to the time the calf is born. As the calf grows inside the cow, the cow needs more nutrients to take care of both of them.

Lactation Lactation is the period of time when the cow is producing milk. A cow in lactation has a very high need for nutrients.

Keep your animals free from disease and injury

Unhealthy bison will cost the producer money in the form of veterinary bills, antibiotics and lost production. Nutritious feeding programs, clean and dry facilities, accurate record keeping and disease prevention programs are all needed to keep your bison herd healthy.

Good breeding management

Practice good breeding management on your farm:

- Keep a watchful eye on the bison cows and see if you can detect their heat. You may have the most success detecting heat first thing in the morning and in the evening.
- Make sure you have enough fertile bulls to breed all of your cows during the breeding season. The industry standard at this time is somewhere between 1:10 and 1:15. (Bull:Cow ratio means you will need at least 1 bull for every 10 – 15 cows.) You may wish to increase the number of cows if you feel that your bull is able to handle the load. At this time the cost of bulls is low compared to cost of lost production.
- You may wish to pregnancy check all of your cows. This decision varies among producers depending on their herd management system. Because pregnancy testing is a stressful procedure it may cause an increase in abortions.
- Attempting to keep accurate records will help you to identify poor producers in the herd.
- Keep your cows healthy year round so they will be able to produce a healthy calf for you every year. Remember, if the health or environmental conditions are not right, the bison cow will sacrifice getting bred over her own health. This is quite different from most domesticated animals. The bison female is intuitive to her survival and therefore her system can gauge this rather effectively.

Breeding	Pregnancy
- Feeding level must be adjusted for condition of cows - Keep your cows in good condition - You may wish to consider vaccinating your cows	- Adequate feed, salt and minerals are needed - Check for abortions or signs of heat - You may wish to check and treat for parasites - Increase feed in the last 6 – 8 weeks before calving - Make sure you cattle do not become too thin or too fat (this may be difficult to visually monitor)
Weaning	**Calving**
- Check condition of cows - Increase feed to thin cows - Increase the nutrition in preparation of breeding - You may wish to treat for external parasites - Cull any females that are not suitable for breeding - Prepare your winter feeding programs	- Prepare for calving (You may need to separate the bull) - Ensure that adequate feed is provided - Be aware that the cow's needs for all nutrients increases after calving - Treat for lice if needed

Cow management review

Use each of these words only once to fill in the blanks in the summary.

cold	**greatest**	**cows**	**heifers**
energy	**slow**	**gestation**	**strong**

To have healthy calves, you must first have healthy _____.

_____ have greater nutrient requirements than mature cows. Grazing bison use _____ as they move about to find food. Climate affects the bison cow's nutrient requirements. Because bison are adapted to the climate, _____ temperatures, high humidity and _____ winds their metabolism will _____ down. In early _____, nutrient requirements do not change very much. However, during the last 6 to 8 weeks before calving, nutrient requirements increase. The cow's nutrient requirements are _____ when she is producing milk.

What three things must you do to keep your cows healthy and productive?

_____

_____

_____

What can you do to practice good management?

_____

_____

_____

Cow management - a word scramble

Unscramble these words to find some things related to good management of your cows and heifers.

lytheha _____

cttaliano _____

eiadsse _____

egnyer _____

gnnateemma _____

tginoteas _____

efhire _____

Managing the bison herd sire

The bull is very important in your herd. He has even more influence than the individual cows. A good bull can improve your herd performance. A poor bull can hurt your herd production and profits for several years.

The bull has an effect on the

- Number of calves born each year
- Length of your calving season
- Difficulty or ease of calving
- Growth rate
- Genetic potential of your herd

Obviously, the bull is a very important part of any breeding herd.

If we expect our bull(s) to stay healthy and be successful breeders, we must manage them properly all year round. We must be sure to:

Provide good nutrition

Nutrition has an effect on the reproductive performance of the bull. It is important to feed the bull properly all year round.

The term "rut" is a bit of a gray area when we speak about bison. Rut is meant to be the breeding season for animals that have a distinct anestrus period. Anestrus is a time when the cow will not get bred. Bison out in the wild actually appear to have an anestrus, or period where they do not get bred, however it has been shown that in captivity bison females on good nutrition will in fact conceive at any given time of the year. Therefore, evidence seems to point out that physiologically the bison does not have a period of rut once domesticated.

The maintenance period is the rest of the year before and after the breeding period. You should provide a well balanced diet for your bulls. This will give the bulls all the nutrients they need. A growing bull will need more nutrients than a mature bull.

Bulls that keep themselves in good condition are often called "easy keepers". These are the bulls that respond well all year round to your feeding program.

Fat bulls or thin bulls are not desirable. Overfeeding can lead to overfat bulls.

- Lower libido or desire to mate
- Be less able to mate
- More feet and leg problems caused by the extra weight they must carry around.

What does deficient mean?

Phosphorus deficiencies in bulls can lead to infertility, and vitamin A deficiencies can cause the sperm to be abnormal or infertile. The bull may be infertile and even have a lower libido.

Control disease, parasites and health problems

Any disease or injury that affects the general health of the bull will also affect his breeding ability. You must be able to prevent and identify any problems with your bulls.

Before the beginning of each breeding season, you may wish to have your bull evaluated for breeding soundness. A few veterinarians in Alberta are using specially adapted breeding evaluations for bison, however the majority are for the time being, using domestic cattle breeding soundness evaluations. However the nature of the bison makes this a stressful procedure for both the animal and the people involved.

Additional things to consider:

Skin

External parasites such as lice
Evidence of internal parasites

Feet

Abscesses, corns, cracks, lameness

Penis

Infections or abnormalities

Testicles

Firm and have no swelling

Good breeding management

Even though your bulls may be in good condition and free from disease and injury, you can still get poor breeding if you don't practice good breeding management.

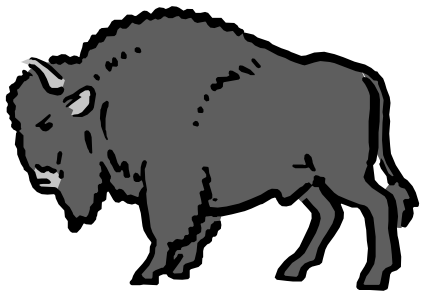
The ability of a bull to breed is limited. Poor breeding results can be expected with a bull that is

- Too young
- Too old
- Used too often
- Expected to breed too many cows

Under normal conditions, healthy bulls over three years of age can easily breed between 25 – 40 cows per breeding season. A well grown, healthy bull that is maintained in a pasture situation with good nutrition, and does not have to compete for dominance may be able to breed more than specified here. Because the value of calves and females are so high in this growing industry, very few producers are willing to push the numbers too far.

The number of bulls a producer will need will depend on

- Size of pasture
- Topography of pasture (hills or flat land)
- Fertility level of the bulls
- Number of cows and heifers to be bred



Test your bull knowledge

Match the phrases on the left with the most suitable phrase on the right.

Note: Some of the phrases may match with more than one phrase from the opposite column. Keep working at it until each phrase on the left has only one suitable match on the right.

Easy keepers	low fertility
Maintenance	determines the number of bulls needed
Vitamin A deficiency	desire to breed
Bull	determines the number of calves born
Libido	abnormal sperm
Overfeeding	causes foot and leg problems
Phosphorus	keeps your bull in healthy condition
Pasture size	usually do not need extra grain

Bison breeding

The reproductive cycle of the female bison determines when and if she will become pregnant. Let's look at it more closely.

The estrus cycle is a repeating period of time in which the cow becomes fertile, then non-fertile, then fertile again.

Estrus, or the heat period, is the fertile period of the cow or heifer. It is the only time when the cow or heifer will accept the bull.

Estrus occurs approximately every 21 days, similar to the beef cow. This may vary from 18 to 24 days depending on the cow.

Between 16 and 30 hours after the cow begins to show signs of estrus, she will ovulate. Ovulation occurs when she releases an egg from her ovary. If she has been impregnated by the bull, the bull's sperm will fertilize the egg and it will then develop into a fetus and eventually, a bison calf. If the cow does not conceive or does not become pregnant, she will repeat her estrus cycle in approximately 21 days.

The gestation period is the amount of time when the cow becomes pregnant until she gives birth to a calf. The gestation period of the bison cow is approximately 280 days or nine months.

The following chart shows the length of the gestation period of different animals.

Animal	Gestation period (days)
Bison cow	280
Dairy cow	280
Beef cow (British – Exotic)	283 - 286
Sheep	148
Swine	114
Horse	340 (some up to 365)
Human	280

Bison heifers reach puberty at the age of two. Puberty is when a heifer shows her first signs of female maturity. Conditions such as a good grass year may result in yearling heifers being bred.

It is believed that the following factors may have an influence on when a heifer will reach puberty:

- Nutrition she has received
- Age
- Weight
- Growth rate

Anestrus

Do you remember what anestrus is?

Some cows or heifers may not come into heat at all. This is called anestrus. There are many reasons for this:

- Not in the breeding phase of her cycle
- Infection in the reproductive tract
- Poor nutrition
- Cysts on the ovaries
- No ovaries (freemartin)
- Female may still be nursing
- Age
- Seasonal anestrus; most bison cows do not seem to cycle during the winter
- Your cow is already pregnant

Find the repro word

In the puzzle, find each of the following words.

Breeding
Estrus
Bull
Gestation
Calving
Heat
Cow
Heifer
Cull
Insemination
Cycle
Puberty

C
O R
W P C
C C U G
A Y L B E
L C L U E S
V L E L G R T
I E S L T N T A
N P T T A E H Y T
G B R E E D I N G I
E N U H E I F E R A O
I N S E M I N A T I O N

Each word is in a straight line – forward, backwards, up, down or diagonally.

After you find all of the words, there will be eight letters left. These letters form the word which completes this sentence:

"At the end of the breeding season, you want all of your cows and heifers to be _ _ _ _ _ _ _ _."

Calving

Spring time!!! Calving is definitely one of the most exciting times on the farm. It is the time of the year when your hard work in feeding and caring for the cows and heifers shows results. Your goal as a bison producer is to raise a strong, healthy bison calf from each one of your cows.

Because bison are still relatively new in the field of research, most of the information that we use at the present day is actually beef cow information. We will take the next few pages to learn the process that a beef cow takes when having a calf. Wherever possible we will highlight any differences that we know between a bison cow and a beef cow.

What are some possible signs?

Before a cow calves, she may show some or all of these signs:

- her belly "drops" or looks heavier
- vulva relaxes
- ligaments on both sides of the tall head relax and sink.

Just before labour begins, the cow

- becomes restless
- isolates herself from the herd
- lies down and gets up often
- raises her tail head
- stops eating
- tries to urinate often
- discharges a thick mucus from the vulva

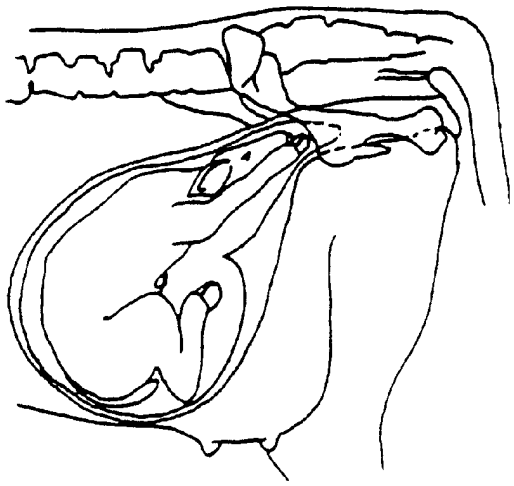
Stage one (relaxation)

Relaxation?? All you have to do is ask your mother or grandmother about having a baby. Do you think they would call it relaxing?? Just hold on a minute, and we will explain. The mother is going to have to relax parts of her body in order to allow the baby to come out. Her body does this without her having to tell her to do this. This first stage of calving lasts from two to six hours. The calf changes position in the uterus. Hormone changes in the body of the cow cause the uterus to begin contracting. In early labour, these contractions are about 15 minutes apart. The contractions become stronger and more frequent as labour progresses. The contractions are a lot like clenching and unclenching your fist. They begin at the horn of the uterus, working towards the other end, eventually forcing the calf out.

At the end of this stage, the water sac is forced into the cervical canal and pelvic area. The pressure breaks the sac and the fluid lubricates the birth canal. You will often see the water sac hanging from the vulva at the end of stage one.

Some domestic beef cows will calve even with people as an audience. However, the bison cow is even more prone to being uneasy and nervous if she senses someone around. She will be far more comfortable if she thinks she is alone.

Although the following illustration is a beef cow, the reproductive system of the bison is physically the same as in the domestic beef cow. The bison calf is slightly smaller, however the position of the calf would be the same.



Normal Position of the Calf Before Birth

Stage two (active labour)

The cow usually lies down just before or during this second stage. In a normal delivery:

1. The calf enters the birth canal.
2. The uterus contracts more often.
3. Contractions become stronger after the water has broken.
4. Powerful stomach muscles begin to contract too.
5. The calf's front legs and head are forced through the birth canal and can be seen.
6. The cow strains to push the calf's shoulders and chest out of the birth canal.
7. The calf's stomach muscles relax and the hips and hind legs straighten so the hips slide out of the cow more easily.
8. Once the hips pass out, the rest of the calf slides out easily.

The time to complete this stage is from 30 minutes to two hours.

Stage three (involution)

The uterus continues to contract after the calf has been delivered. The placenta or afterbirth usually is forced out of the cow within 12 hours of birth. Lochia, or birth fluids from the uterus, will exit the cow for up to two weeks after the birth. Complete involution (return to normal) of the uterus takes from 30 to 40 days, but may take longer after a difficult calving.

Calving problems

The most common problem that happens with calving is dystocia or difficult calving. This may be caused by many things:

- small or immature cow or heifer
- abnormalities of the pelvis in the cow
- distortion of the uterus in the cow
- very large calf
- more than one calf (twins – their limbs may become tangled)
- placement of the calf inside the cow.

In level two we will look further at how to deal with problem calving in bison.

After the delivery

Once the calf is born, the cow will begin to lick the calf. This is done to stimulate the calf. Sometimes a mother will give birth to a lifeless calf, and you may witness her bunting the calf around. She is doing this to jump-start the calf's system.

Newborn calves have an amazing ability to get up, move around and search out food from the mother. You may even witness the mother nudge the calf towards her udder to help it find the food.

What stage? It is important to be able to recognize what stage of labour the bison cow is in. Beside each of the cows below, indicate the stage by placing I, II or III in the blank.

_____ Suzy has been straining for 20 minutes.

_____ Mary Lou is wandering restlessly around the calving area.

_____ Belinda's water sac has just broken.

_____ Betsy has just lain down. Half an hour ago she was really uneasy and nervous.

_____ You can see the front legs of a calf coming out of Mazy.

_____ Lisa is bawling and very restless.

_____ Candy just delivered a strong healthy heifer calf 10 minutes ago.

Put these steps in order of when they occur. (1 happens first, then 2, and so on.)

_____ Calf nurses for the first time.

_____ Mother becomes restless.

_____ Contractions are about 15 minutes apart.

_____ Calf enters birth canal.

_____ Calf's front legs and head appear.

_____ Afterbirth comes out.

_____ Calf changes position in uterus.

_____ Calf's head and shoulders appear.

_____ Contractions are two minutes (or less) apart.

_____ Water sac is broken.

_____ Calf's hips and hind legs appear.