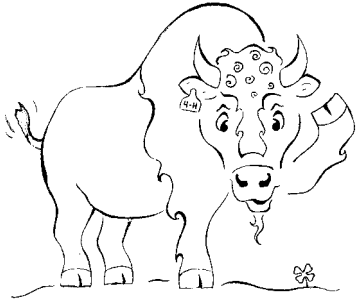


Feeds for Bison



Roll Call:

Name a feed ingredient that is used in a ration.

Rations and diets

Diet

A diet is the mixture or combination of feeds that provide the nutrient requirements. The diet you feed your animal contains those nutrients that keep your animal healthy, growing, producing and reproducing.

Ration

A ration is the daily amount of feed required by an animal.

The diet must contain the correct proportion of the nutrients the animal needs. The correct amount of a properly balanced diet gives you a ration that meets the animal's dietary needs.

More about rations and diets

When feeding bison, there are a few important concepts that must be clearly understood. Firstly, we know that bison are ruminants, therefore all diets must be roughage based prior to considering the use of grain supplementation. Another important factor to keep in mind, your animal's diet will be made up of roughages, supplements (salt and mineral) and in some cases concentrates. Each of these contains the necessary nutrients.

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Roughages

Roughages are high fibre feeds. Roughages include hay, silage, and straw. One major aspect of the bison advantage is their ability to utilize roughages very effectively.

Supplements

Supplements are a good source of one or more nutrients. They are added to a ration to make a more nutritious feed. They may provide energy, proteins, vitamins or minerals.

Salt is a mineral supplement. Salt, or sodium chloride, is important for the animal because he loses sodium and chloride through sweat and body wastes. Your animal can receive salt by licking a block or eating loose salt mixed in with the feed.

Concentrates

Concentrates are feeds that are high in energy. This includes the grains, such as oats and barley.

What are the roughages, supplements and concentrates that could be fed to a bison?

Roughages

Supplements

Concentrates

Palatability

Palatability is how acceptable the feed is to the animal. Just like each of us eat certain foods that we like and dislike the bison also have a variety of different preferences. The bison must eat enough of its ration to get the daily gains you want. If it does not eat enough, it won't get those gains and the feed and the nutrients in the feed will be wasted.

Eating patterns of the bison can be quite unpredictable. They have been witnessed to walk right past fresh grass growth to graze on last years dried growth.

About roughages

Hay

Hay is dried roughage that is harvested and stored with low moisture content.

Two types of roughages are used for hay crops:

1. grasses
2. legumes - clover, alfalfa, trefoil

What type(s) of hay are being fed to the herd of bison that you are observing?

The most common ways in which hay is packaged today are:

1. Small square bales weighing from 20 to 30 kg.
2. Large round bales weighing from 300 to 600 kg (may vary depending on whether they have been baled with a soft or hard core baler.)
3. Loose hay stacks weighing from 1 to 3 tonnes.
4. Large square bales weighing about 500 kg.

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How is the hay in our area mostly packaged?

The availability of feeds is very important to determine when balancing a feed ration.

Haylage

Haylage is a form of silage that is produced from grasses and legumes. Instead of being stored as long hay, it is chopped into shorter pieces by a forage harvester. The main difference between hay and haylage is that haylage has higher moisture content - around 40%.

Silage

Grasses, legumes or cereals harvested the same as haylage but stored with higher moisture content, about 60%, make silage.

Animals just being introduced to haylage and silage may need to be introduced slowly. Once they are used to the product they will have no problem digesting it.

About the grains

The grains are often referred to as concentrates, they are high energy feeds. Remember that as ruminants, bison should have a roughage-based diet and gradually be introduced to grains. As you will learn in later chapters bison may or may not be feed concentrates to finish them for market.

Wheat

Wheat is very high in energy.

Barley

Barley is the energy source used most often in Alberta's beef feedlots. It has less energy than wheat, but more than oats. Barley is a very dense feed. If you compare the weight of a pail of barley with the weight of a similar pail of oats, the barley pail will be much heavier. Therefore, it is important to measure your grains by weight, not by volume.

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Barley, when used in a straight ration may cause abscessed livers, for this reason many bison are finished on either a barley-oat combination, or straight oats.

Oats

Oats are very palatable. They are good to use when starting bison on grain. Although oats have less energy than wheat or barley some producers choose to use only oats to finish their bison.

Corn

In other parts of North America, corn is the most common energy feed used in cattle rations. However, in Alberta, very little corn is used because most Alberta climate conditions are not suited for growing corn. This may change in the future as scientists continue to develop new varieties that might be able to grow further north for feed purposes.

Feed intake

A bison will eat from 1.4 to 2.7 percent of their body weight each day in feed. This amount is on a dry matter or moisture free basis. The amount consumed varies depending on the age and condition of the animal. Older and fleshy bison will consume less feed per unit of body weight than younger, leaner animals. Think of this in terms of yourself.

What do we mean when we say "on a dry matter basis"?

If your haylage has 40% moisture, then it has 60% dry matter - because the dry matter plus the moisture makes up the haylage or 100%. If you feed 10 kg of haylage then you are only feeding 6 kg of dry matter the other 4 kg would be moisture content.

"Pack a lunch"

We have all been told about the importance of packing a balanced nutritious lunch for ourselves. If you were told to pack a lunch right now, what would you put in it? Make a list of the five things that you think would go into the perfect lunch. (If you choose a sandwich you must expand on what type of sandwich it is.)



Compare your answers to others!

With your club, discuss what each lunch list had on it. Were the lunches all exactly the same? Why were there differences or similarities? How available are the foods in your lunch?

These are all important questions whether we are dealing with our own lunch, or our bison's lunch!

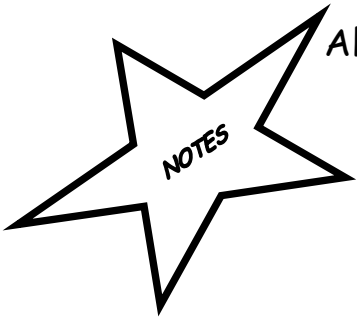
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"True or false"

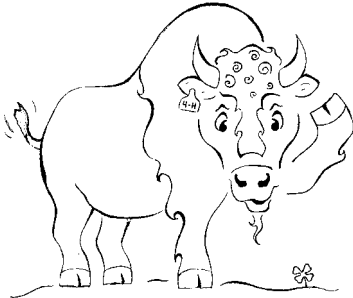
For each of the statements below, put a "T" in the blank if the statement is true, or and 'F' in the statement is false.



- _____ 1. Barley has more energy than wheat.
- _____ 2. Oats is more palatable than barley.
- _____ 3. A diet is the amount of feed required by the animal daily.
- _____ 4. Corn is a very common feed in Alberta.
- _____ 5. A pail of oats is lighter than a pail of barley.
- _____ 6. Silage contains more moisture than hay.
- _____ 7. Concentrates are high energy feeds; roughages are high fibre feeds.
- _____ 8. Alfalfa is a grass used to make hay
- _____ 9. Bison will consume up to 8% of their body weight per day.
- _____ 10. Oats have less energy than wheat or barley.
- _____ 11. If you feed 10 kg of hay with 90% dry matter, you are actually feeding 9 kg of dry matter.



Parasites of the Bison



Roll Call:

Name a parasite. _____

What are parasites?

A parasite is any living organism that survives on, or in a host animal. This organism, or parasite, gets all of its support for life from the host animal. This includes its food and shelter.

There are two types of parasites. These are the internal and the external parasites.

What is the difference between these two types of parasites?

An internal parasite

An external parasite

Some examples of each of these types of parasites are:

Internal

Roundworm
Stomach Worm
Tapeworm
Lungworm
Flukes

External

Ticks
Lice
Mite
Mange
Flies

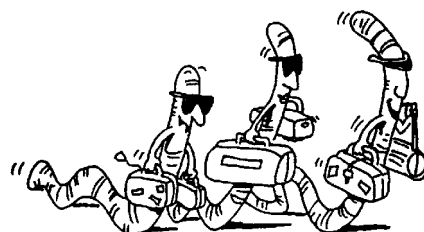
Find the parasites

In this word find puzzle are the names of many different parasites. The words are in a straight line - forwards, backwards, up, down or on a diagonal. Find as many parasites as you can. Record the words you find below.



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

"Look out guys - Here we come!"



Parasites and bison

Why do we need to worry about parasites?

Parasites harm our animals. They cause our bison to be stressed. When they are stressed, they don't perform well, and they are more susceptible to disease and infection.

The healthy bison

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

A bison with internal parasites may

- stop drinking
- have poor feed efficiency
- be weak and losing weight
- have decreased milk production
- be generally unhealthy

A bison with external parasites may

- be uncomfortable
- not eat or drink regularly
- lose weight
- have a rough and dull hair coat
- rub against fences, walls or trees

The bottom line is that infected bison will not be healthy. When they are not healthy, they will not grow or produce well. When they do not grow or produce well, this costs the producer money.

It is important to know that a bison with only a slight infection of parasites will look normal. Often, you cannot tell just by looking at the animal that there is a problem. A bison with a severe infection, or many parasites, will look sick.



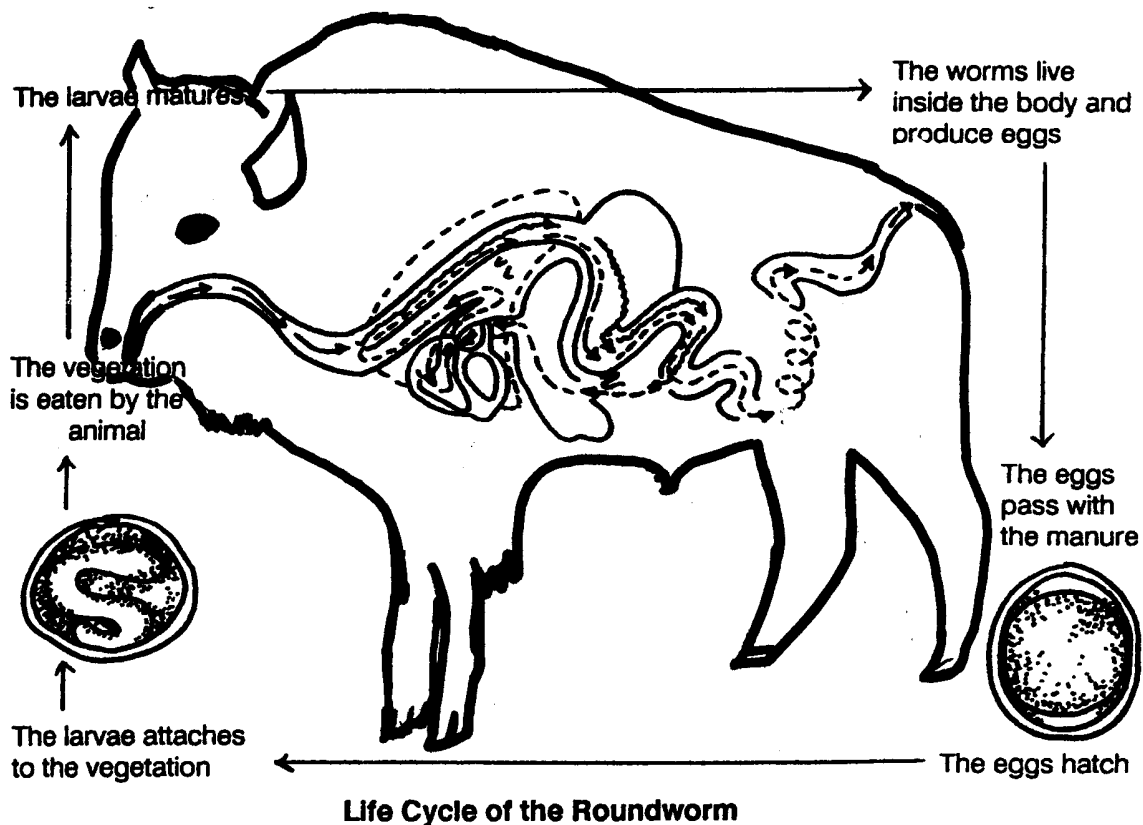
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With good management, you will be able to control parasites on your farm. This will keep your animals happy and healthy.

Controlling parasite infection

It is much easier and less expensive to control parasites by preventing them, rather than having to treat your animals once they have parasites. Because bison spend their time on pasture, they are more susceptible to parasites, especially worms.

To help you better understand how the bison can become infected, let's look at the life cycle of a common internal parasite, the roundworm.



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Suppose the bison has roundworms. The worms lay eggs while living inside the body. These eggs pass out of the body in the manure. While on the ground in the manure, the eggs grow into larvae. These larvae move from the manure to the grass. The animals eat the grass, taking the larvae into their body. Once inside the body, the larvae grow into adult worms. The cycle continues.

Types

There are three different species of roundworms that can live in the abomasum or fourth stomach of ruminants:

Type	Length
barberpole worm	35 mm.
brown stomach worm	15 mm.
threadworm	7 mm.

They suck blood while attached to the stomach wall. One or all three of these species may be found. A serious infection would include several thousand of these worms in one animal.

The thread worm is a common roundworm found in the small intestine. It causes harm only when found in large numbers.

How can your animal become infected with parasites?

Recognizing an infected bison is the first step in preventing a roundworm infection. Roundworm infection is usually a herd problem rather than an individual animal problem. If only a few worms are present, you likely won't notice any problems.

When many worms are present, the animal will begin to lose its appetite, not gain weight, appear thin and look poorly. Some may develop scours. To be positive that worms are the problem, manure samples can be analyzed for the identification and count of eggs. This will tell the producer which type of worm is present and how severe the problem is.

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In Western Canada, roundworms can be found in domestic cattle year round, particularly in young animals. Some people believe that bison are more capable of fighting off the effects of worms than are domestic cattle, however there is no proof as to this claim one way or the other. What we do know is that deworming will not harm your bison. If a problem does exist then simply deworming, without a change in management practices, will not aid much in controlling the problem.

There are several treatments on the market. Whether or not mass treatment is necessary is an individual farm decision. Consult your veterinarian for more information.