BEEF & DAIRY
STUDY GUIDE SUPPLEMENT
LEVEL III & IV

DISEASES:

BLACKLEG – the most common of a group of **bacterial** diseases caused by **Clostridium** bacteria that live in the soil. Usually the only symptom is sudden death. All calves should be vaccinated at about two months of age and revaccinated at weaning,

BLOAT -- the **build up of gas** in the rumen of an animal. Can cause death.
Cause – Usually too much green clover or alfalfa but can also be from over consumption of dry feed.

BRUCELLOSIS – "Bangs Disease" causes **abortion** and some sterility in cattle and **Undulant Fever** in people. Vaccination for Brucellosis is required by 8 months of age in dairy heifers and 12 months of age in beef heifers.

CANCER EYE – a cancerous **growth** that starts usually on the **inner eyelid** and grows rapidly taking over the eye and spreading into the face and jaw areas. There is no treatment except for removal of the eye in the early stages. This disease is more common in cattle with light pigment around the eyes.

COCCIDIOSIS – bloody diarrhea. Extremely contagious, often spread by chickens in the barn area.

FOOT ROT – bacterial infection of the tissue of the animal's foot.
Symptoms include **swelling of the foot, lameness** and redness between the toes.
Occurs most often in wet, muddy conditions.

GRASS TETANY – "grass staggers" caused by **low levels of Magnesium** in the blood. Early symptoms include uncoordinated stumbling, trembling muscles, grinding teeth, followed by convulsions and death. Most common in cows nursing calves under 2 months old grazing new spring pastures. More common in foggy, cloudy or windy weather.

IBR – Infectious Bovine Rhinotracheitis
Commonly called **"Red Nose".** A **virus infection** of the nasal cavity, sinus and windpipe. Nose and membranes around the eyes turn a bright pink to red. Will cause pregnant females to abort because of high fever and often leads into Pneumonia.
Calves should be vaccinated at weaning and adult animals vaccinated annually. Most vaccines for IBR contain a modified live virus and should not be given to pregnant females.

LEPTOSPIROSIS – caused by one of several strains of **bacteria** common to the S.J. Valley. The major symptom is **abortion** of the fetus at about 7 months. In younger cattle the disease slows growth and causes general unthriftiness.
Vaccination twice a year is recommended. (Safe for pregnant females)

MASTITIS -- a **bacterial infection** in the udder. **Milk will appear abnormal** (lumpy or stringy in bad cases) and the effected quarter or quarters will feel hard instead of soft and pliable. Mastitis is usually caused by an injury to the udder, dirty conditions or improper milking techniques. Left untreated the cow will lose production in the affected quarters.

MILK FEVER – may occur **in high producing** cows. It is **caused by a lack of Calcium in the blood**. First symptoms are staggering and lack of control of hindlegs. The cow soon goes down and may become paralyzed and unconscious. Prompt injection of a solution of Calcium in the vein usually brings rapid recovery.

PINK EYE – caused by a virus and usually spread from one animal to another by flies. Symptoms include **red watery eyes**, inflammation of membranes around the eyes in the early stages to a white spot on the eye and eventual blindness if left untreated.

PNEUMONIA – a respiratory disease characterized by high fever, **labored breathing**, loss of appetite and depression. Cattle with Pneumonia will often pant, breathing with their mouth open.

RINGWORM – a fungus infection easily recognized by the **rounded scaly spots** where hair has begun to disappear. Most often on the face around the eyes and on the ears.
Ringworm is highly contagious and spreads quickly from animal to animal as they scratch on fences and feeders.

TRICHOMONIASIS – contagious infectious veneral disease. Caused by a **protozoan.** The organism lives in the sheath of the bull and is **spread during mating**. Most common symptoms are cows that **return to heat 2 to 3 months after breeding**. An infected bull should be culled. Cows can recover if not bred for 60 to 90 days.

TUBERCULOSIS – TB an infectious **bacterial disease** that usually affects the respiratory system of all warm blooded mammals including humans. Most commonly spread through inhalation of the bacteria. **TB can spread to humans through the consumption of raw milk** or unpasteurized dairy products from infected animals.

SCOURS -- diarrhea, dehydration, and unthriftiness.
In baby calves the cause can be viral or bacterial. In older animals cause is usually overconsumption of milk or grain.

SHIPPING FEVER – high fever, depression and loss of appetite **caused by stress during shipping**. Calves with shipping fever may develop pneumonia and more serious problems.

WHITE MUSCLE DISEASE – weakness and paralysis of muscles of the hindquarters in young calves. Caused by a **deficiency of the mineral Selenium and Vitamin E.**

NUTRITION:

WATER – is an essential nutrient, it is a **part of every cell** in the animal body and is **necessary** for digestion, metabolism and **respiration**. Water makes up over 50% of the composition of the whole body.

TDN – Total Digestible Nutrients

PROTEIN – important for growth and milk production. Good quality **alfalfa hay** is an excellent source. **Cottonseed meal**, linseed meal or soybean meal may be added to grain mixtures to increase protein levels.

CARBOHYDRATES – provide energy for body maintenance, **growth**, **weight gain** and **milk production**. **Grains** are high in carbohydrates. Barley, wheat, corn, milo and oats are all good sources of carbohydrates.

FAT – excellent source of energy. One pound of fat **provides 2 ¼ times more energy** than one pound of carbohydrates. Grains are good sources of fat.

SALT – must be supplied to cattle of all ages. Salt is **necessary** for the **formation and retention of body fluids**, such as blood and digestive juices. Salt can be fed free choice in block or granular form and usually is added to grain rations.

CALCIUM – found in large quantities in milk. Needed for **strong bones** and teeth and is also **essential for blood clotting.** Calcium is usually provided by good quality alfalfa or legume hay.

PHOSPHORUS – important for bone growth and reproduction. Most grains are good sources of phosphorus in the diet.

CALCIUM : PHOSPHORUS RATIO – it is important that the calcium to phosphorus ratio be correct. With cattle it is approximately **two parts calcium to 1 part phosphorus** (by weight). It is especially important that the amount of calcium in the ration be greater than the quantity of phosphorus.

VITAMIN A —"carotene" needed for **growth, reproduction** and general health. Provided by **green grass** or good quality, **alfalfa hay**.

B COMPLEX VITAMINS – made by bacteria in the rumen. Even though the feeds may be low in these vitamins the cow makes her own.

VITAMIN C – made in the body tissue of the animal. It is not necessary to supply this vitamin in the feed.

VITAMIN D – often referred to as the **"sunshine vitamin".** It is formed by the action of sunlight on the animal's tissues. Vitamin D is **essential for the proper utilization of calcium and phosphorus** to produce normal healthy bones and teeth.

VITAMIN E -- needed for **proper function** of the **reproductive system** and to **prevent oxidized flavor** in milk. A deficiency of vitamin E in cattle can lead to **White Muscle Disease** in cattle.

VITAMIN K -- needed for proper blood clotting. Alfalfa leaves are rich in vitamin K.

PARASITES:

EAR TICKS – a small parasite that lodges in the ear and sucks blood. Most common symptom -- **drooping ears.** A heavy infestation will cause lower weight gain and general unthriftiness.

FLIES – bite and suck blood and are a tremendous annoyance to cattle. As a result, cattle **spend considerable time in shade or places of protection and don't graze** or eat normally which causes poor performance. There are several types: **Stable fly and horn fly are the most common** but there are others such as the **horse fly, heel fly and face fly. Face flies are the hardest to control** and may require treatment every 3 to 5 days.
Heel flies – lay eggs on the hair of the lower hind leg. These larvae penetrate the skin migrating to the back area where they develop into the cattle grub (warble). The process of these flies laying their eggs **causes animals to run with tail in the air** and in seeking relief may run through fences or into boggy areas.

GRUBS (WARBLES) – the maggot stage of the adult heel fly. Appear **as bumps on the animal's back**. Eggs are laid by the adult warble, known as the heel fly in the spring and early summer. The larvae hatch in 4 to 6 days, penetrate the skin and work their way to the back region where they mature in about 5 months. The mature grubs leave through the hide, drop to the ground and hatch into flies for the cycle to begin again. The economic loss due to damaged hides is severe if this parasite is not controlled. Use of systemic insecticides applied as a pour on do an excellent job of control. Pay careful attention to the "cut off" date for use in your area as killing a large number of grubs in the later stages may be toxic.

LICE – there are two varieties (**biting & sucking**) of this tiny parasite which becomes a problem in the winter months. Symptoms – **excessive scratching** and rubbing on fences, trees, etc. and patches of **missing hair** especially around the rump and tailhead and the neck and shoulders. Even moderate numbers can cause calves to grow more slowly and require more feed per pound of gain. Cattle should routinely be treated for lice in early spring or when symptoms appear.

SCREW WORMS – the maggot form of the screw worm fly (**blow fly**). This maggot **feeds only in living flesh**. The fly lays eggs on open wounds from castration or dehorning or in the navels of newborn calves and are most active in the summer months. Any animal **licking, biting or sratching at open wounds** should be checked carefully for these parasites. Infestations from screw worms cause losses in the millions of dollars annually. They are **most common in the southwest** portion of the U.S. but can occur anywhere.

STOMACH WORMS – general name for internal parasites including round worms and lung worms. These hidden parasites infest the stomach and intestinal wall causing poor performance by robbing the animal of nutrients. Common symptoms are **scouring, rough hair coat, and a potbellied appearance.** Cattle with **lung worms will cough or "rattle" when they breathe**. Cattle should be treated for stomach worms on a regular basis, especially if they are grazing on irrigated pasture.

Liver flukes – flatworm shaped like a small thick leaf. Present in areas of stagnant water. The liver fluke **requires a snail as the intermediate host**.

WARTS – caused by a virus. May be spread to non-infected animal with a skin abrasion by direct contact. More commonly found in younger animals.

Additional references:

Beef Group Activity Guides – Minnesota Cooperative Extension
Dairy Group Activity Guides – Minnesota Cooperative Extension
(available for check out at 4H office)
See Beef 2 for information on by-products and digestive system
This series can also be purchased from National 4-H Supply or directly from Uni. of Minnesota.

Fundamental of Beef Management – University of California Publication 3495
(available for purchase at the 4H office)