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What You Can Do About

Cattle Ailments & Diseases



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**Agricultural Experiment Station
And
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The University of Arizona

What You Can Do About

Cattle Ailments and Diseases

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BEEF MEASLES

“Beef measles” is a misleading name to many feeders and stockmen. It is actually a descriptive name given to a parasitic disease of cattle.

What It Is

Measles refers to the cysts or larvae of the human tapeworm (*Taenia saginata*) which invades the muscles of cattle. These cysts develop from eggs or from segments of the tapeworm.

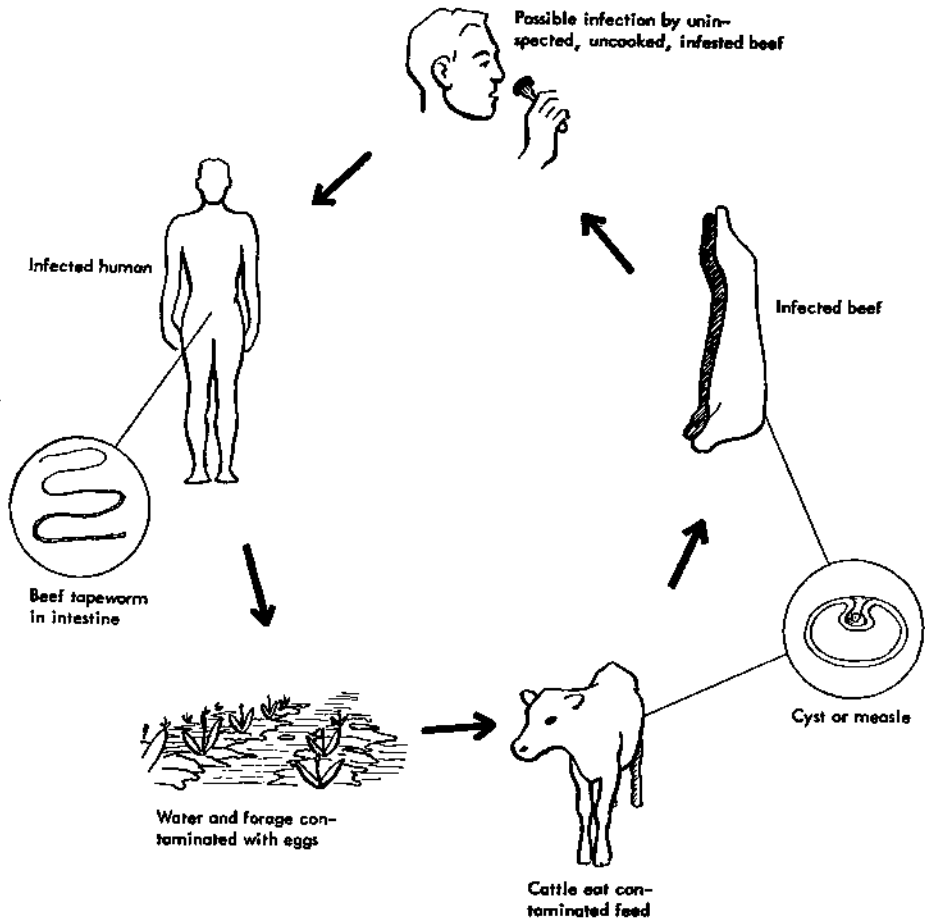
Cattle take the eggs into their bodies by drinking or eating water and forage which has been contaminated by feces from humans who have the tapeworm in their

intestines. (See chart showing this cycle, page 4.)

The human tapeworm (*Taenia saginata*) — commonly known as the beef tapeworm — is large and may be 25 or more feet in length. It is made up of 1,000 to 3,000 segments with a head, which attaches itself to the human intestine by four suckers. Many of the segments contain eggs which, after proper development, are excreted in human feces.

Each segment contains about 100,000 eggs and as many as 8 to 10 segments may be excreted daily by a human having a tapeworm. These eggs live for weeks if they are in water or moist soil. But, dryness and freezing kill them in a very short time.

Tapeworm Cycle



How It Spreads

Cattle that eat or drink food or water contaminated with these eggs become infected with measles. Soon after the eggs reach the animal's intestine, they penetrate the lining and move into the blood or lymph vessels. They are then carried to the connective tissue of the muscles, usually going to the forepart of the body first.

Each egg soon develops into a cyst (*Cystercircus bovis*) and after 18 weeks, reaches its maximum size—about the size of a pea. These cysts or “measles,” from very small pinpoint sizes to the mature size, localize in the connective tissue of the muscles. They develop at different rates so it is hard to determine their exact age. Most cysts die in the muscle of the animal after a year.

Control In Cattle

To prevent your cattle from getting measles, make sure they do not drink or eat water and forage contaminated with the eggs. Guard against these common sources of possible contamination:

1. Sewage disposal water used on a field where you plan to pasture cattle.
2. Water from canals or drainage ditches that might be contaminated by people.
3. Vegetable fields—to be grazed after a crop is harvested—where inadequate outhouses are set up for field workers.
4. Careless workers in pastures or around feedlots who can con-

taminate feed in troughs, stacks, or barns.

Protection of Humans

Humans are protected against infection of these cysts by federal and other meat inspectors who carefully examine meat carcasses for possible infestation. The meat is treated by refrigeration or condemned, depending on what the inspector finds.

The cyst is easily destroyed by cooking the meat—140 to 150 degrees F. is sufficient to kill it. By cooking meat thoroughly before eating it, people using uninspected meat can protect themselves.

CALF LOSSES

Calf raising is a major problem in numerous valley farms. The dairy calf is taken away from its mother soon after birth and subjected to various environmental conditions and artificial feeding. If the feeding of the young calf is improperly done, white scours and pneumonia, or both, attack it and the calf either dies or is permanently injured.

White scours and pneumonia are caused by infectious organisms normally found in the intestines and respiratory system. They become more dangerous after the vitality of the calf is reduced.

A history of an epidemic of scours often reveals that the first calf to die was exposed by faulty

feeding, and that the correction of the feeding alone will check the disease where other efforts fail.

Special Care

The farmer who is successful in raising calves usually follows a general routine which insures that the vitality of the calf will not be lowered. This assumes that the calf at birth is normal.

This routine includes several steps:

1. The calf is allowed to nurse its mother soon after birth and is allowed to be with its mother for approximately 12 hours.

2. The calf is then taken away and placed in clean quarters for about 18 hours. Care must be taken that the quarters are clean and well ventilated. The calf should not be allowed to eat any straw or other material.

3. The regular feeding begins after this 18-hour fast. The amount of milk for the first regular day should be about 6 percent of the body weight of the calf. This amount of milk for a calf of 60 to 70 pounds is about $\frac{1}{2}$ gallon. This should be fed in 3 feedings. To each feeding add one pint of lime water. A daily increase of $\frac{1}{2}$ pint of milk is sufficient for the calf up to 3 weeks. The milk should always be fed in clean pails and heated to about 100 degrees, or body temperature.

If this simple schedule is followed in connection with proper sanitation and housing, farmers should raise a far bigger percentage of calves without using the various types of medication and vaccination usually resorted to after the original damage has been done.

If calves are housed, they should be protected from sudden changes in temperature. Calves should be kept dry, warm, and clean. The best method in Arizona is to run the calves in clean corrals with plenty of shade.

Calves should not be allowed to eat coarse hay or dry material for the first few weeks. Losses from scours can be reduced by allowing the cows to freshen in the pasture. The navel should be disinfected with iodine as soon after birth as possible to prevent any infection from entering the body.

Treatment

The treatment of sick calves requires a knowledge of the degree of exhaustion that comes from lack of fluid and nutrition, the degree of toxemia from absorption, and the localization of the disease in the stomach or intestines. Antibiotics and sulfa drugs are used successfully in the prevention and treatment of this disease. These are administered as individual doses or in feed or water. Consult your veterinarian on the dosage and general program in the control of calf losses from scours.

The milk should be withheld at the onset of scours, and in its place barley water given. Another good practice is to give the calf 100 c.c. of its dam's blood subcutaneously. Anti calf-scour serum in 50 to 100 c.c. doses has proved beneficial.

These suggestions should correct many cases of scours, but **prevention** by careful feeding and management is the most important.

COWPOX

Cowpox is a contagious disease of cattle usually affecting the teats and udder. There are four stages of the disease starting with small raised pimples (papules) which de-

velop into blisters (vesicles). These blisters become filled with a pussy material (pustules) which break to form scabs.

The disease is caused by a virus,

which may stay in barns or corrals for long periods to infect susceptible cows. The disease is spread by direct or indirect contact. Milkers, flies or other insects, and dirty floors or corrals are the most common spreaders of the disease.

The disease may be difficult to recognize because it appears in several forms. The eruptions may be distinct or they may run together, causing large sores. Usually, after a cow has been inoculated, it requires from 3 to 6 days for the papules to appear. These develop through the four stages and, if proper care is taken, the disease runs its course in about two weeks.

Under adverse conditions the udder may be reinfected repeatedly and the disease stays on for a long time. Large deep sores develop and considerable difficulty is experienced in milking. Most cows are immune after recovery but there are a few that may become reinfected.

Treatment

Treatment consists of absolute cleanliness in milking and the

application of disinfectants to the udder. Do not use strong disinfectants on the udder because they will irritate the condition and cause injury.

The most effective treatments are equal parts of tincture of iodine and glycerine applied to the infected udder once daily. A 3 percent salicylic acid in glycerine is also very effective.

These treatments should be combined with very careful milking and cleanliness. The infected cows should not be allowed to run in dirty corrals, ditches or wet pastures because these cause increased irritations. Infected cows should be kept separate in clean surroundings and milked separately.

The milker should wash his hands thoroughly with a 3 percent creolin or other disinfectant so that he will not carry the infection, and also so that he will not become infected. The disease is transmitted to the hands and arms of people.

The virus should be killed in the barn by using lye water or other disinfectant after a thorough cleaning job.

FOOT ROT

Foot rot is a common ailment in cattle, occurring during the wet seasons or in cattle pastured on wet fields or corrals. The animals become lame on one or more feet.

The feet are swollen and abscesses, erosions or foul-smelling sores occur between the claws or in the soft tissue of the foot. Frequently the infection spreads under the hoof. The conditions resemble

an injury such as a nail puncture to the foot.

The cause of most foot rot is a micro-organism (*Actinomyces necrophorus*) which normally lives in the ground. Cattle kept on wet ground or under unsanitary conditions are usually the first to become infected. These conditions cause the foot to become irritated and sore.

The micro-organism gains entrance by way of these sore feet and a severe infection of foot rot results. The organisms multiply in the diseased foot and increase contamination of the soil.

Treatment

The control of foot rot is primarily sanitation. If possible, cattle should be placed on well-drained yards. All infected cattle should be isolated until cured, and in serious cases a competent veterinarian should be called.

The treatment consists of cleaning out the foot thoroughly. Abscesses or severe swellings should be lanced. The infection is then packed with lysol or a saturated

solution of copper sulfate, and bandaged. This should be kept on the foot for at least three days.

After removing the bandage, clean out all cheesy material and treat with an ointment or dusting powder. Infected cattle should always be kept in dry yards or barns and kept isolated. Bandages and other equipment used in treating cases should be disposed of properly.

Several of the sulfa drugs given by mouth and intravenously have proved to be good in the control of foot rot. There are several iodine preparations used with salt or in feed that help in the prevention of foot rot. Information on the use of these drugs should be obtained from your local veterinarian.

IMPACTION OF THE RUMEN

Frequently impaction of the rumen (paunch) occurs during periods when sudden changes in feeds for cattle are made. First-cutting alfalfa hay causes considerable digestive disorders and impactions. The sudden changing to pasture or from pasture to dry hay, or sudden increases in grain cause impactions.

Irregular feeding or watering, or continuous feeding of coarse feeds also cause impactions. Impactions frequently occur as complications of other diseases.

In impactions, the paunch works off the more succulent feeds and the heavy and coarser foods stay

in the lower portions of the organ. The churning action of the paunch, which is necessary in digestion, becomes lessened because the muscles of the paunch tire or fatigue working against the heavy mass.

The symptoms of impaction vary. The animal may have slight colicky pains. There are few or no movements of the rumen. There may or may not be bloat. The left flank is usually hard and doughy to pressure. The appetite is slight or entirely absent. The animal looks depressed and the eyes are dull. There usually is a grunt with the back humped, and the spine is curved to the left. Frequently there are bowel movements.

Treatment

The treatment is directed to eliminate the mass from the paunch and again establish the churning of the organ.

The first step is to withhold feed for at least a couple of days. This is necessary because frequently cattle start to eat and suddenly refill the tired paunch. Epsom salts are usually ineffective because the dose just lies in the paunch or passes over the top of the impaction.

The best results are secured by giving the animal a drug which will stimulate the paunch muscles. Thirty grains each of tarter emetic and barium chloride are given two times a day in a pint of water as a drench. This treatment should be

given for not more than three days. One pound of epsom salts should be given with the first or second drench.

This treatment will correct most impactions but if results are not secured after two days on average cases, it is suggested that a competent veterinarian be called.

Rumen tablets are available from most veterinary drug houses or from your local veterinarian. These tablets contain the drugs which stimulate the muscles. These tablets can be kept on hand and are the proper dosages.

If bloat is present, anti-ferments such as aromatic spirits of ammonia (2 ounces) or turpentine (1 to 2 ounces) should be given with the other medicine.

LUMP JAW IN CATTLE

(Actinomycosis)

Actinomycosis is the scientific term for "Big Jaw," "Lump Jaw," "Wooden Tongue," or "Big Head." All these are forms of the same disease affecting different parts of the head. They are caused by the same organism—ray fungus.

Actinomycosis is rather common under range conditions in Arizona and also in pasture lands. The "ray fungus" grows normally on grain crops and grasses or shrubs on the range. The fungus also is found in the mouths of normal animals.

Animals become infected when they graze plants which have sharp or bearded seeds and sharp thorns. The fungus gains entrance into the animal tissue through injuries

caused by the sharp objects on the feed. It is also possible to infect animals through wounds caused by shedding teeth or injury from other objects.

The number of infections occurring in cattle depends upon the number of fungi present on the plants and the possibility of these fungi being carried into a wound. The fungi do not grow easily, and consequently the number of affected animals is not as large as would be expected.

Several Forms

The disease assumes different forms according to the organs or

tissue invaded. Brief descriptions of some of the forms are as follows:

In "*Wooden Tongue*," the tongue is affected with the organism. The sharp awns or beards injure the back part of the tongue and carry the infection into the tissue. The fungi start to grow and cause an inflammation of the tongue.

The inflammation causes a swelling and hardening of the tongue. The swollen, hardened tongue becomes less flexible and interferes with normal taking in of food or chewing. Frequently the tongue protrudes from the mouth.

The animals lose weight rapidly because they cannot eat. The wooden-tongue disease may develop rapidly or it may take several weeks before any visible swelling appears.

In the "*Big Jaw*" form, the awns or beards affected with the fungus stick between the teeth and carry the infection into the bony structure of the jaws. Inflammation produces swelling and thickening of the bones. This swelling is also affected with pus-forming bacteria, and abscesses result.

The teeth are loosened, and the bone becomes large and soft, giving the lesion, or common swelling, usually seen on the infected cows. This form is usually chronic and takes a long time to develop, but there is no way to determine the rapidity of growth. Some may develop in a few weeks and others may take months.

In the old cases the swellings rupture, and a flaky pus is discharged.

The "*Lump Jaw*" form affects the softer tissues of the jaws and throat. The swellings are usually movable or loosely adherent to the bone. The swellings are hard and resemble an abscess. Some of these

swellings, when cut into, discharge a flaky pus, but most of them are just tough fibrous swellings.

It is possible for this fungus to affect other parts of the body if properly carried in through an injury. The lungs, intestines, udder, or liver may be affected. These conditions are relatively uncommon and are only found on post-mortem.

Treatment

There are several methods of treatment, depending upon the size and location of the swellings. Surgical treatment or removal of the "*Lump Jaw*" type should be done only by a qualified veterinarian because of the danger of cutting large blood vessels.

Frequently it is advisable to open large swellings which are filled with pus. This should be done by feeling for a soft spot in the swelling and then lancing the skin at the lowest place so that all the pus can drain out. The opening is then packed with gauze saturated in tincture of iodine.

Care should be taken in handling the discharges of these swellings because the organism can infect man.

The treatments most commonly used which give good results are medicinal treatments. Iodine is used in treating actinomycosis and is given by mouth as a drench or into the blood stream with a needle and syringe.

The Drench Method

Potassium iodide is the drug used in the drench method. Two drams of potassium iodide, dissolved in one pint of water, are given once a day. This dose should vary according to the size of the animal or the

effects that are produced. A dose of two drams is the average for a 700-pound cow.

For a calf, the amount should be cut down to one dram. For a large cow or bull, it should be three drams.

If the drug does not give the desired results, the dose should be increased. If the animal is affected too quickly, the dose should be reduced.

The drug should be given every day until symptoms of iodine poisoning are produced. These should appear in from a week to ten days following the daily drenching. The skin becomes dry, the eyes water, and there is a loss of appetite. When these symptoms appear, the drenching should be stopped for a week.

After a week, the animal should be again treated, until the symptoms are produced. Usually these two treatments will cure the condition, but sometimes it is necessary to repeat several times.

This treatment will correct a high percentage of the "Wooden Tongue" or "Lump Jaw" types, but only about 50 percent of the "Big Jaw" type. This method of treatment can be used by stockmen who can hold their cattle and treat them every day. On many ranches, it is impracticable to use this method.

Intravenous Method

The following method of injecting directly into the blood stream can be used by careful stockmen who are far removed from a practicing veterinarian.

Sodium iodide C.P. is used in treating actinomycosis when the treatment is administered by the blood stream. The dose of sodium iodide C.P. is $\frac{3}{4}$ ounce for a 400 to 500 pound animal; 1 ounce for 700 to 900 pound; and $1\frac{1}{2}$ ounce for 900 to 1100 pound animal.

The sodium iodide should be dissolved in 250 c.c. of sterile water. The solutions can be bought from several biological-supply houses or they can be made up by the local druggist. The proper solution of sodium iodide is then administered by gravity directly into the jugular vein. At least five minutes should be required in administering the solution.

Occasionally the animal has increased respiration or may fall during the administration of the drug. In either case, stop the dosing until the animal is again normal, and then continue slowly. There is little or no danger in giving sodium iodide if administered slowly.

The method of piercing the jugular vein and the equipment necessary for administering this solution should be demonstrated by a qualified veterinarian.

MASTITIS

(Garget)

All infections of the udder causing slight or extensive inflammation and swellings of the udder are generally called mastitis. There are numerous organisms which may cause these infections, but the most

common are streptococci. These infectious organisms may gain entrance into the udder from the outside or they may become localized in the udder following different types of udder injuries.

The eradication of this disease can best be handled by a competent veterinarian who understands the disease. Frequently serious spreads can be avoided if prompt attention is given to the early cases.

In Arizona there are many areas that do not enjoy veterinary service, and dairymen have to do their own control. The causes, control, and treatment of mastitis are given below to acquaint these dairymen with this most serious disease in dairy cattle.

Causes

Infected cow and udder injuries are the most common causes.

Infected Cow

Cows with infected udders shed infectious organisms at each milking. The organisms contaminate the milker's hands or milking-machine parts and in this way may easily be carried to normal, susceptible cows.

New additions to the herd are frequently infected with mastitis, and spread it to other cows. Dry cows or springers may not show any mastitis but, if infected, will develop at calving. It is advisable to isolate all new additions until they are proved clean. Generally after one attack of mastitis, the disease is apt to be permanent or recurrent in the cow.

Injuries to the Udder

Injuries to the udder are caused by faulty stable construction or by sucking among heifers. Confinement in stalls which are too short, narrow or slippery causes many injuries.

Exposure of the udder to filth, moisture, and cold because of wet yards or too little bedding causes inflammation in udders.

Dirty milking-machine parts or too high a vacuum causes infection or bruises. Machines left on the cows longer than 4 or 5 minutes may injure udders.

Incomplete or irregular milkings are harmful.

Milking tubes or dilators, if not properly sterilized, may introduce infection.

Allowing calves to nurse cows frequently causes injury.

Washing the udders and leaving them wet, and using dirty wash rags spreads infection.

The beginning and end of the lactation period place a heavy strain on the udder. Susceptible udders or mildly infected udders frequently become active during these periods. Udders require special care during these periods.

When drying off a cow, substitute hay for grain and if necessary reduce the amount of water. The udder should be watched very closely and all milk the cow gives should be entirely removed.

When mastitis is present, it may be impossible to dry off the cow without causing a flare up. Such cows should be milked continuously and not given a period of rest. After freshening, the udder should be milked to remove any engorgement. It is necessary to milk some cows before freshening to relieve engorgement.

Cows with infected udders should be on a diet restricted in protein. It is doubtful that heavy protein feeding causes mastitis in a normal udder, but it does exaggerate mastitis already present.

Control

The bacteriological examination of the milk in a laboratory is prob-

ably the most effective aid in the control of mastitis, but it is not generally available. The following steps are very effective if followed.

- Prevent injury to the udder by avoiding causes as described above.

- Isolate all cases of mastitis as shown by the routine use of the strip cup. When a cow shows watery milk, flakes, clots, or pus, she should be removed from the milking string and isolated.

- In washing the udder, use individual towels placed in a chlorine solution of 200 parts per million. The udder should be washed and then dried. Towels should be washed daily and new chlorine solution made daily.

- The milking machine should not be used on infected udders. In infected herds, the milking cups should be cleansed after each cow is milked. This can be done by dipping them in a chlorine solution and then rinsing in a pail of clean water. If hand milking is followed, the milker should wash his hands between cows or dip them in chlorine solution. Do not milk on the floor or allow wet milking.

- After milking, the end of each teat should be dipped in a chlorine solution 200 parts per million. This solution should be used on only 20 or 30 cows and then discarded.

- Barns or platforms should be cleaned daily and at least once a week scrubbed with a 4 percent lye solution.

- All new additions to the herd should be isolated until they are found to be clean.

Treatment

(The treatment of mastitis depends upon the type.)

Cows that show some evidence of mastitis by the strip cup or that have had mastitis should be milked separately from the normal herd. The quarters should be completely milked out at each milking. Care should be given these cows in drying them off. The grain ration should be restricted. These cows may develop acute cases.

Acute mastitis or garget is easily treated if the udder was normal before. The steps in treating these cases are:

1. Withdraw grain.
2. Give laxative of epsom salts.
3. Completely milk out infected quarters frequently—each hour if possible. While milking, massage the udder, using a lubricant so as not to irritate the udder too much.
4. At the beginning, when the udder is inflamed, use cold packs. After the inflammation is gone, use heat.

The understanding of the causes of mastitis and the management practices to control the spread of these causes are the most important methods of handling this disease. There are today many treatments for mastitis and they are of value only if combined with proper management practices. They should never be used as a substitute for good management.

The antibiotics injected into the udder are good in the early stages of the disease, if a proper diagnosis has been made and the right antibiotic is used. The dosage and dilutions written on the product should be carefully followed.

It should be remembered that

udders treated with antibiotic carry a residual for about 72 hours and the milk from these treated udders should not be used as market milk until after the 72 hour period.

In all cases of suspected mastitis, it is advisable to obtain the services of a veterinarian.

The eradication of this udder disease will require a careful program of sanitation in handling feeding, and milking. This program may include the use of injection medication, but at present the disease cannot be eliminated by the use of any drugs without sanitation.

MILK FEVER

Milk fever is usually a disease of good producers, occurring a few days before or after calving. The disease is caused by a sudden loss of calcium from the blood stream.

Arizona-grown alfalfa and grains contain ample supplies of calcium to maintain a normal amount of calcium in the blood. In milk fever cases, this loss of calcium is caused by glandular derangements, and much of the calcium is lost to the milk in the udder.

Milk fever can be cured by udder inflation treatment or by the injection of calcium intravenously. Calcium injected under the skin (subcutaneously) just before calving in repeated doses may prevent milk fever in many cases. Many dairymen can reduce the incidence of milk fever in their herds if they will follow certain management practices in regard to milking and feeding.

Special Care

The following suggestions can be followed on any dairy ranch without any added expense in time or money:

1. Feed the cows a good grade of alfalfa hay for 30 days be-

fore freshening. The grain should be restricted or completely omitted. A little bran or green pasture can be given to assure well-regulated or loose bowel movements. The cow should be fed the same feed for about 15 days after calving, and then concentrates should be gradually added.

2. When the cow freshens, allow the calf to nurse. After the calf has nursed, milk just enough milk to relieve the distension of the udder.

3. The cow should be milked partially for the next 36 hours, allowing most of the milk to remain in the udder. After the 36 hours, the cow can be milked out completely.

These simple rules will reduce the number of milk-fever cases because too much calcium will not be removed from the body and the amount of milk left in the udder will act similar to the inflation treatment. The feeding of hay will not cause the cow to produce too much milk at calving.

These suggestions will not prevent milk fever that happens just before calving or before milking,

but will prevent many cases that might occur the following day.

Cows with badly swollen udders or mastitis udders should be milked out immediately and delayed milking should not be used. If dairy-men have not had considerable experience with milk fever, they

should call a competent veterinarian immediately.

Always guard against giving any drenches to cows showing signs of milk fever, because frequently good cows are killed with drenches that go into the lungs.

RETAINED PLACENTAE

Frequently it is necessary to call a veterinarian to remove retained placentae, but many cases can be corrected or treated to prevent after-effects of sterility by routine home treatments. The object of the suggestions given below is to advise first-aid treatments which should be used by the dairymen in their care of cows.

General care of the cow includes proper feeding. Sudden changes in feeding should be avoided and the cow should be on a well-balanced laxative food. Pasture or bran usually supply this laxative. The animals should be protected from weather as much as possible and the udder should be cared for. These steps are necessary to keep up the general health of the cow.

Retained placenta is caused by many conditions, including infections and physiological conditions. The cotyledons do not shrink to release the placenta, or an infection causes adhesions. In either case the problem is to reduce the amount of infection present and to control new infection because of the decomposing membranes.

Treatment

The best product to use in these cases is the uterine capsule. Irriga-

tions with antiseptics are dangerous and should be employed only by trained individuals. Uterine capsules contain mild antiseptics to control infections, and material to prevent too rapid a decomposition.

Uterine capsules can be secured from your local veterinarians or through drug stores handling veterinary supplies. Every dairyman should have a supply of these on hand.

All cases in which the placenta is retained for 24 hours, or where trouble is anticipated, should be treated with capsules. Two capsules inserted into the uterus after 24 hours will usually control a retained placenta. If not, it may be necessary to repeat after another 24 hours. If no results are secured, it is advisable to have your veterinarian treat the cow.

It is absolutely necessary for the capsules to be placed into the uterus through the cervix. Frequently, dairymen who do not understand the anatomy, place the capsules in the vagina where they do little or no good. If dairymen do not understand this anatomy, they should have it explained by a veterinarian before expecting results from capsules.

RINGWORM

Ringworm is a contagious skin disease caused by fungi. It is commonly found in cattle, horses, swine and dogs. The infections are found around the head, neck, shoulders and rump, and udder areas.

This skin disease starts with a small nodule and spreads into a circular, raised, scaly area covered with crusts. The crusts are tightly attached to a moist, bleeding skin surface. These crusts, after a few months, become loose and drop off, leaving a bald patch.

The disease is spread by rubbing the fungus-containing material (such as crusts or hair) into injured skin. This spread occurs easily in dairy barns or corrals where cattle rub against fences, troughs or posts, where affected cattle have rubbed to relieve the itching caused by ringworms.

Ringworm infection, besides causing the cattle to look unsightly, may cause damage. Frequently, after scratching, the infection will bleed and screwworm flies attack, causing bad wounds. The infection may enter the eye and cause distress. Ringworm on the teats or udder interferes with milking.

Treatment

It is always advisable to control ringworm early before it spreads

over the body.

The crusts should be softened with an oil. Use anti-parasitic preparations in ointment form. Some of the best treatments are 10 percent salicylic acid in oil or vaseline, or 10 percent creosote in oil or vaseline.

Tincture of iodine diluted one-to-three with rubbing alcohol is good if applied around the ringworm and rubbed in well after the crusts have been softened with oil.

Benzene hexachloride, 0.2 percent gamma isomer, has proved to be a good control of this fungus.

Repeat in a Week

These treatments should be repeated after a week. If many cattle are affected or if the infections are spread over the animal, a good dip can be used and the entire animal washed. It is possible to soften up the scabs with soap and water first before dipping or spraying with the dip.

If ringworms appear on a farm, take care to control their spread. Affected cattle should be isolated and all posts and other equipment around the corrals and barns should be washed with lye water and sprayed with sheep dip, 3 percent. Examine new cattle before adding them to the herd.

WARTS

Warts on the skin and udder of cattle are rather common. A few warts on the back or neck seldom do any damage unless they are injured and screwworms infect them. Warts on the udder and teats of

dairy cows interfere with milking.

Warts generally are regarded as infectious and are caused by a virus. They are spread by direct or indirect contact. That is, an animal with skin wounds rubbing against

another animal with warts or rubbing against an object that the warty animal has rubbed against, becomes infected. The control of warts spreading in a herd should include isolation of infected cows.

Treatment

Warts are not easily removed in all cases, but several simple treatments have proved successful in a fair percentage of cases.

The treatment most commonly used with success, especially for warts on the udder, consists of a daily application of castor oil to the warty tissue. The castor oil should be rubbed well into the tissue each day. After a few days the

tissue becomes soft and drops off.

Warts can be cut off or tied off, but care must be taken to control the bleeding. After cutting or tying, the stump should be cauterized with silver nitrate. This method can be used if only a few warts are present or if they are located where the injury will not interfere with milking.

It is possible to control warts by a vaccine made from wart material. This vaccine can be secured from your local veterinarian.

If warts are causing considerable trouble in individual cows or the herd, a competent veterinarian should be contacted and material sent into the laboratory to prepare the proper vaccine.

POISONOUS PLANTS

A great many plants are detrimental to the health of animals and it is difficult to make a definition that would include all of them. Probably an acceptable definition would describe a poisonous plant as one which, when eaten by an animal over short or prolonged periods, will exert harmful effects on the system, or cause death.

Some plants that are usually regarded as good forage may, under certain climatic or soil conditions, develop toxic materials. Plants such as Johnson grass, white thorn (*Acacia*), and sorghums may produce cyanide (Prussic acid). Plants such as careless weed, petota, tansy mustard, alfalaria, oats, barley and tumble weed may develop large amounts of nitrates that can be converted to nitrites.

Valuable stock feeds may be detrimental when too rapid or sudden

a change is made in feeding, or when large amounts are fed over long periods.

Some plants are poisonous to one species of animal and may not affect another. Examples of these are lupines. Many species of lupine do not affect cattle but are toxic to sheep.

Some plants cause sudden death when small amounts are eaten, such as milk weeds and low larkspurs.

Some plants when eaten in small amounts may affect a certain organ in such a way as not to cause death or serious damage but may shorten life appreciably by decreasing the functions of the organ affected. An example of these is the group of Senecio, or Crotolaria, which affect the liver.

Some plants have a cumulative action or have to be eaten in large quantities before any detrimental

effect is noticed. Example of this type is the loco.

Some plants cause detrimental effects by mechanical injury. The sharped awned annual grasses, cactus and mesquite may cause injury to the mouth that would allow an entrance for the organisms that cause lumpy jaw.

Some plants under certain conditions cause death merely through the production of large amounts of gas in the stomach. Examples are the vetches, alfalfa and clover, and many weeds in the early spring.

The constant feeding of plants or grazing ranges deficient in either minerals, proteins, fats, or vitamins frequently lead to injurious or fatal results.

During droughts and periods of food scarcity, animals eat plants which normally would not be touched. Examples of these plants are the burrow and snake weeds.

The above variety of poisonous plants also affects the body in different ways. Poisons may affect certain parts of the body, such as the blood or circulatory system, the

nervous system, respiratory system or the digestive system.

Diagnosis

The diagnosis of plant poisoning is difficult in many cases, because the methods of detection of poisons in the blood and organs cannot be so extensively applied to plant poisons, as in the case of mineral poisons, owing to the fact that our knowledge of the poisonous plants is still very limited.

In cases of suspected plant poisoning, a complete history of the losses, symptoms, and conditions preceding the losses is necessary. An autopsy should be done by a veterinarian to determine if an infectious disease is present and also to secure a complete picture of the organs affected by the poisons.

Ranchers should determine the plants that are being eaten, and complete specimens should be sent to this department for identification by a plant taxonomist. Frequently after identification a diagnosis can be made. It may be necessary to conduct chemical tests on some of the plants that may contain nitrates or cyanide. Paunch contents are of doubtful value.

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