MANUAL

TABLE OF CONTENTS

AT THE SHOW

THE SHOW RING

SAFETY

SHOWMANSHIP

EXHIBITOR RESPONSIBILITIES

STEWARDSHIP

THE SHOW RING

The show ring is a long established and well recognised agency for comparing animals, and promoting the identity of studs and achievements of stud masters. Its successful history and continued support attest to characteristics:

1. It provides an occasion for animals to be compared and rated in terms of other similar individuals.
2. It gives breeders an opportunity to compare their animals with others, and thus to determine how effectively their own herd members survive the placings of an impartial judge and the weight of public opinion.
3. It gives a form for the exchange of ideas and encourages the formation of new opinions and concepts on breeding, feeding and presentation.
4. It is a form of advertising and directs attention to a particular animal or a featured herd.
5. For the visitors and spectators it sets standards of excellence and tends to inspire breeders to improve their own cattle.
6. On the broader sphere, with effective communication, it could become an excellent contact point between town and country people.
7. Change is inevitable and must be encouraged. New ideas, new concepts, new methods of showing and presentation must emerge, not because of change for the change sake, but because the show ring must keep pace with progress.
8. The show ring can, and must work towards a greater understanding of the goals of the researcher and the producer. It should become a very active arm of the rural extension service.

SAFETY

Think before you act to prevent accidents! Have respect for all animals. When we are startled or scared our first reaction is to protect ourselves. The same applies to cattle. Charging and kicking are ways in which cattle defend themselves. This can lead to serious injury to the handler.

WAYS TO PREVENT ACCIDENTS

1. Always let an animal know you are around it. Speak to the animal when you approach it and before you touch it. Do not yell or loudly whistle when working around the cattle. This makes cattle nervous and hard to handle.

2. Move around the cattle slowly. Many animals react to movement before they see what is moving.

3. Cattle cannot see directly behind the hindquarters, so approach slowly from the side by the shoulder so that you are seen. By doing this, cattle are less likely to be startled and kick you.

4. Always be cautious when approaching a cow with a calf. Cows have a strong mothering instinct and will do anything to protect their calves. Even a cow that has always been easy to handle and trusting towards people may charge after she has calved. Be cautious even when she is tied up. Do not put yourself in front her, where she could pin you against the rails or wall, with her head (This is a sure way of getting bruised and broken ribs).

5. Never have the lead shank of the halter wrapped around your hand or fingers when leading cattle. If the animal is spooked and bolts, you will be dragged. Keep your right hand on the lead close to the animal's head and hold the rest of the lead shank in your left hand (Figure 5).

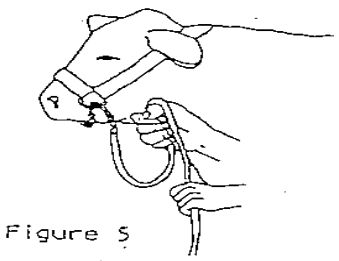


Figure 5

6. WEAR PROTECTIVE BOOTS! Hard-toed, leather boots should be worn when you are working around the cattle. Running shoes, sandals and thongs will not prevent your toes from being crushed.

7. Never use an electric prod or whip on your project animals. Electric prodders scare cattle, making them nervous and hard to handle. The crack of a stock whip is one of the highest pitched noises there is. A stock whip is painful to an animal's ears and has the same result as an electric prodder.

8. Be careful when removing the side bars from a portable grooming chute. If the animal's head is secured in the head gate or tied in front of the chute and it manages to swing its body out through the side opening, the chute may tip over. If possible, use a grooming chute with two removable bars on each side and remove them one at a time.

9. When leading an animal into a chute or crush, walk alongside the chute instead of into the chute with the animal. ALWAYS tie an animal using quick release knots so it can be untied quickly in an emergency.

10. Always lead cattle with a halter and nose ring. This will give you more control over the animal.

11. When handling a bull, try to keep all the other cattle away from his sight and smell.

12. Handle bulls in well-built pens with another person present.

13. Untie bulls and nervous cattle from the outside of the pen.

14. Never turn your back on a bull. This applies to all cattle, but especially bulls. One tends to get over-confident working with cattle but you never know when they can turn on you.

15. Do not crowd animals when they are entering or leaving a truck or pen. Crowded animals can easily get bruised in the rib, loin and hip area. Bruised carcasses cause a serious loss to the packer.

16. Do not give animals much room to move around inside the truck or trailer. When animals have a lot of room to move around, the driver has less control of the vehicle because the weight shift can unbalance the vehicle. Animals are more likely to injure themselves by falling or fighting.

17. Make sure the tailgate is securely fastened. The results can be disastrous if the tailgate opens while hauling animals.

18. Make sure animals have good footing. The floor becomes very wet and slippery during trucking. Sand is better footing than straw (it can be slippery).

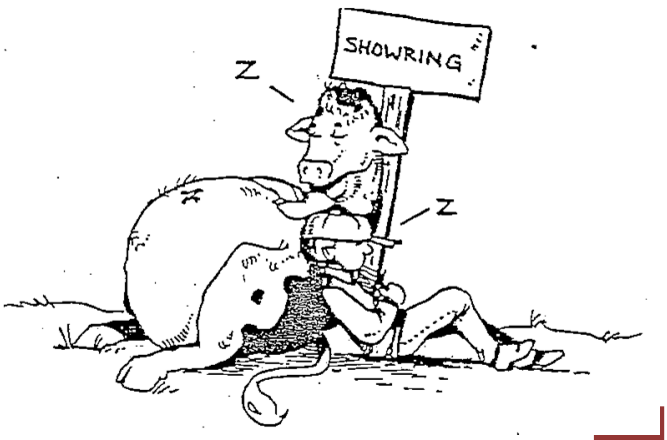
19. If you are tying cattle in the truck or trailer, tie them short so they cannot fight or get tangled in the rope.

20. In the shed, keep all the areas clean and dry to prevent slippery footing.

21. Do not leave bailing twine lying around. As soon as you open up a bale, hang the twine up out of the way or destroy it. This will prevent you or the cattle from getting tangled up in it. It will also keep cattle form eating it (this can cause digestive problems).

22. Keep a first aid kit in the yards. A cut or scratch can get infected when working around cattle so have the bandages on hand.

Whatever you are doing around the farm, stay alert! There are hundreds of ways accidents can happen on the farm. Just remember – THINK BEFORE ACTING TO PREVENT ACCIDENTS!



SHOWMANSHIP

Showmanship means presenting your animal in a way that looks best. Getting ready for shows should start as soon as you get your animal(s). The following practices are used to prepare an animal for the show ring:

1. Feeding:
    - Market cattle – feeding for growth, condition and finish.
    - Breeding cattle – feeding for growth, condition, maintenance and reproduction.
2. Training to lead.
3. Training the hair coat.
4. Training for correct response to the show halter, show stick and people.
5. Clipping.
6. Washing.
7. Grooming.

Anybody who thinks these can be done a couple of days before the first show will quickly learn it is impossible. It takes time and work to get an animal conditioned for a show, but the results can be very satisfying.

Learning to do the work properly comes with experience. The following hints will help you:

1. Watch experienced people getting their cattle ready for a show.
2. Watch these people in the show ring (notice how they set up their animals and how they present them to the judge).
3. Ask questions.
4. Learn by your mistakes.

PROCEDURE

These practices were started as soon as you got your project animal.

1. Feeding – Proper feeding is the most important part of getting your animal ready for a show. You can groom and train your animal to perfection, but if that animal has not been fed properly throughout the year it will not do well at the show. Nothing replaces good nutrition in producing a properly finished appearance.

2. Training Your Animal to Lead – How to train to lead has been covered earlier. However, to stress this point, remember that embarrassment can be described as: "taking an unstrained animal into a show ring". Showmanship is presenting an animal, not chasing behind, trying to catch it or, for that matter, pulling for all your worth in an attempt to "jump start" it!

Also remember that a show halter can be a whole new experience for an animal if it has always been led with a rope halter. The sound and feel of the chain can spook cattle. Once your animal has learned to lead on a rope halter; practice leading with a show halter. It is important to make sure the halter fits properly. A poorly fitting halter reduces your control.

3. The Show Stick - A show stick is used to "set an animal up". This means standing the animal squarely and correctly. A calf's first response to a show stick is usually to kick it, try not to be in the line of fire! Introduce the animal to a show stick slowly and gradually. Start by scratching the animal's belly with it and gradually move it down towards the hooves. Put the point of the show stick between the toes below the hairline. At the same time as you do this, pull on the halter. To move the back feet forward, hook the show stick below the dew claw and pull forward. At the same time, pull forward on the halter shank. To position the front legs, use the show stick in the same way, or use your foot to push on the hoof. Now that all four legs are placed, check to make sure that the animal is standing squarely. Take a step back and take a side view of the animal. If your animal has a slight dip in the back, the show stick can be used to bring the topline up. Remember; you are bringing the animal topline up and keeping the animal still – not sawing it in half! Never use your stick as a disciplinary tool.

When you are practicing for the show ring, have someone handle your calf as the judge will do in the show ring.

Cattle do not take kindly to sudden surprises on show day. If you want your animal to be calm and cooperative, start working with it in the beginning of the project year.

SHOWRING CHECKLIST:

1. What time does the show start?
2. What class am I in? If you are not in the first class, keep track of the time it takes for the judge to place a class. If they are a very fast judge, you had better get busy!
3. How do I want my animal to look? To achieve this, how much time it is going to take me to complete the job? Consider how fast you work and how much practice you have had in getting an animal ready for the show ring).
4. Now to you and your appearance: Neat, tidy, suitable attire, clean boots, hair done.
5. Neck card on your animal or number bib on yourself. Check the catalogue and make sure you have the correct number on.
6. Be ready when called by the Steward, for your class.

EXHIBITOR RESPONSIBILITIES

Exhibitor responsibility is often overlooked by some exhibitors and this can be very detrimental to the overall success of a show. In extreme cases some exhibitors seem to adopt the attitude that the show is for their exclusive benefit. Exhibitors' responsibilities fall into five categories:

1. To the breed they represent.
2. To the Judge.
3. To the Stewards.
4. To the public.
5. To fellow exhibitors.

THE BREED REPRESENTED

Exhibitors have a responsibility to the breed they represent to act as an ambassador for the breed at all times and only present animals which are worthy representatives of the breed. Irrespective of the animal's merits only animals which are in acceptable show ring condition should be shown. This does not mean that they to be "mud fat" but an acceptable standard of presentation is required.

Exhibitors should ensure that all staff and leaders are correctly and neatly attired as this adds a great deal in the overall standard of presentation. Due care and attention should be made to keeping the shed neat and tidy. An untidy team will detract greatly from the overall display and this will reflect on the exhibitors who do look after their stalls.

The show ring to exhibitors is challenging, sometimes rewarding, sometimes disappointing, sometimes frustrating, but most of all it is a lot of hard work and a very necessary and worthwhile means of promotion for any breed.

THE JUDGE

Exhibitors should cooperate at all times with the judge and obey instructions. Judges' decisions however unpalatable they may be should be accepted graciously. Exhibitors are quite entitled to seek a judge's opinion on decisions affecting their cattle however this should be done in the right place at the right time. Judges should not be approached in an

offensive manner, as they are acting in an honorary capacity and have made their placings on the basis of their beliefs. Everybody can't be winners, so if you are not able to accept being beaten you should not be showing.

It is bad manners for exhibitors to carry on a conversation with the Judge, among themselves, or with spectators while in the ring. This applies particularly when ribbons are being presented and when the Judge is commenting on a class.

THE STEWARDS

Exhibitors have a responsibility to cooperate with stewards and obey their instructions so that showing can be conducted as smoothly as possible. This applies equally to the ring stewards, marshalling stewards, the Judge and the public.

Stewards do not gain any benefit from the show; they are acting in an honorary capacity, and while it may be a labour of love, it must be recognised that they are there to see your cattle are properly presented to the Judge and the public.

THE PUBLIC

The public as stated previously are an all important part of the show ring. Many exhibitors become completely oblivious to the public, however, the show ring would not last long if the public did not to come and watch. The public should be given every opportunity to see your animal at its best all times. Remember that even if the judge doesn't like your animal there may be a buyer in the crowd willing to make you a very handsome offer. Collectively the public buys more bulls than do judges, so if exhibitors are to take full advantages of the show ring as an advertising medium, they must present and parade their animals to the public, as well as the judge.

STEWARDSHIP

RESPONSIBILITIES

Responsible stewardship is an extremely important part of the smooth running of any show. Stewards should be selected for their ability and general interest in stud cattle. It is also desirable that they have a specific interest in the particular breed with which they are to work. Your responsibilities as a steward are at threefold - to the Judge, the public, and to the exhibitor.

TO THE JUDGE

You must act almost like an efficient aide-de-camp. You are responsible to create for the Judge the best opportunity or climate in which to concentrate on judging. They must be able to see the animals well in all aspects - walking or standing in all 360 degrees. Ideally, this must be done without the Judge having to speak to competitors or worry if they are carrying out instructions. At the conclusion of judging each class the Judge's decision will be announced, and then the Judge is introduced for commentary on the class.

TO THE PUBLIC

You are responsible to see that the cattle are displayed clearly for spectators to view. The public must be able to follow clearly what is being done so they can form opinions and follow the Judge's actions. Some thought must be given to the best way to do this and it should be discussed with the Judge before the start of proceedings. With their approval, you are to see that the agreed manner and form of display is carried out, to enable the public to see and participate fully. Showing is an expensive form of promoting stud animals to the public, and the best possible display must be afforded to do this.

TO THE EXHIBITOR

The exhibitor is essential to the whole showing procedure. He is footing most of the bill for this expensive promotion. If you know the exhibitors well you can obtain their cooperation. If not, their cooperation must be won by your courteous efficiency. Announcers must know or make the effort to find out their names, also the correct pronunciation of their stud and animal names for clear announcements. This way they can get full recognition of any awards

that are made, preferably as soon as they are made. This is essential for exhibitors to gain maximum benefit from their successes and to retain the spectator's interest in proceedings.

The Chief Steward should meet with the exhibitors shortly before judging starts. This provides the opportunity for the marshalling stewards to be introduced and general procedure explained. Marshalling areas and entry and exit points to and from the ring should be indicated to avoid confusion.

You are responsible to check that every animal is correct, identifiable where necessary and marshalled accordingly ready for the next class. This should be either in catalogue order or order of age, as desired, to obtain the smooth, uninterrupted flow of judging, from class to class.

You are responsible to the exhibitors and the system generally, to see that the exhibitor's correct animals are paraded for championship and reserve championship awards. The second prize winner in the class from which the champion was selected should also be paraded. This is so often overlooked and can create an embarrassing display, where, with forethought and reference to the results, the correct animal can be added to the ring. This happens while the champion is being decorated so the reserve judging can continue smoothly.

The steward is in charge of the ring and must maintain control of it at all times, being concise, decisive and firm on its control without being over officious with the exhibitors. Remember the exhibitor with a team of cattle has had quite a few hours work under way on judging day before he enters the ring, and is under considerable pressure.

As the showing of stud cattle is mostly a matter of presentation, your own presentation must receive thought and planning. You should be clean, neatly and tastefully attired, efficient, on time, ONE HOUR BEFORE, and equipped to do the job.

CATTLE SELECTION/JUDGING

SELECTING AN ANIMAL

JUNIOR JUDGING

GENETICS AND HERD IMPROVEMENT

SELECTING AN ANIMAL

Selecting an animal is the most important part of showing. A number of factors need to be considered when selecting an animal; these factors are discussed in the next section. Some factors vary between steers and heifers, however a number are similar.

There are several steps in finding the ideal calf for your project. The first step is to learn the parts of a beef animal (Figure 1).

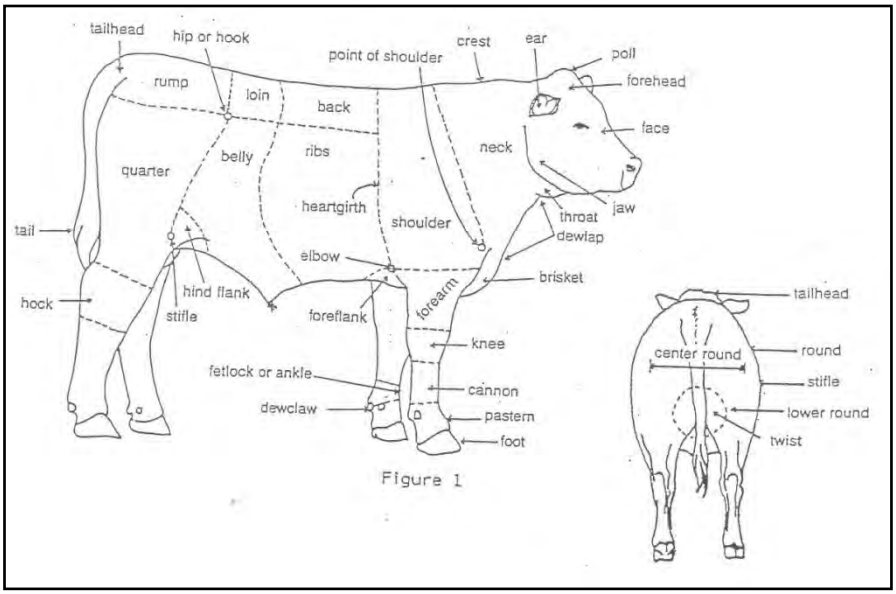


Figure 1. Parts of a beef animal

1. Age and Weight

It is important to find out the age and weight of the steer or heifer you are choosing. Is the animal an appropriate weight for its age and breed? Weight for age is relevant to breed type, for example a Belted Galloway will weigh far less at 12 months of age than a Charolais.

2. Temperament

Choose an animal that you will be able to handle. An animal that has a nervous or has an aggressive temperament will not gain weight quickly, will be unpleasant to work with and can pose a safety risk.

1. Aggressive characteristics – For example, charging or kicking.
2. Flight distance – Does the animal move away from you from a far distance.

3. Nervous characteristics – Showing the whites of their eyes, shaking, or resisting pressure such as the crush.

3. Health

A sick calf will be slow at growing and gaining weight. Most calves will not eat well when they are sick. Ensure that the animal has undergone a preventative drenching program and has been treated for lice. To attend a show, the animal must be free of other contagious skin diseases, i.e. ringworm, and warts.

Look for a calf that –

- Has a healthy coat of hair and is shiny.
- Looks alert.
- Has a moist nose, but not a runny nose.
- Enjoys its food.
- Does not look hungry or thirsty (if it has the ability to get food and water).

4. Frame Size

The frame of an animal is its skeleton. If a calf has a very small frame, its frame size will never increase to a medium or larger size. A large framed calf will grow into a large framed steer (or cow).

The actual skeleton of an animal cannot be seen. The height, width and length of an animal indicate its frame size. As a rule of thumb, do not choose a very small framed calf because it will likely be over-finished by show time. On the other hand, a very large framed calf may also be a poor choice because it may be under finished (lack fat and muscle) at show time.

A big calf may not be the best calf. Remember that you have a certain number of days to finish your project.

5. Structural Soundness

Structural soundness is a major factor influencing longevity and efficient function. This is important even in steer assessment as they have related breeding cattle remaining in the herd.

Cattle with the correct anatomy and skeletal structure will produce carcass that yields the desired kind of beef and they will do it more economically – broad chest floor, long body, wide spring of ribs, heavy boned, correct jaws, feet, and legs.

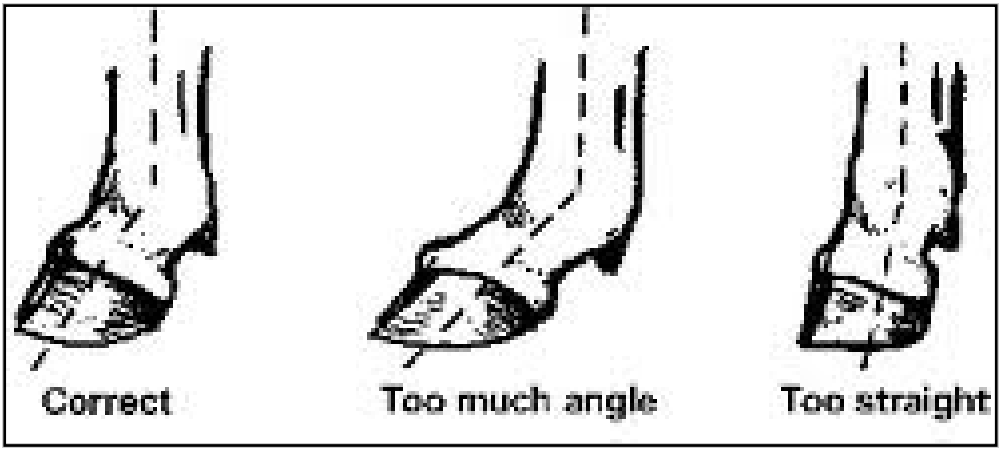


Figure 2a. Leg structure in beef cattle

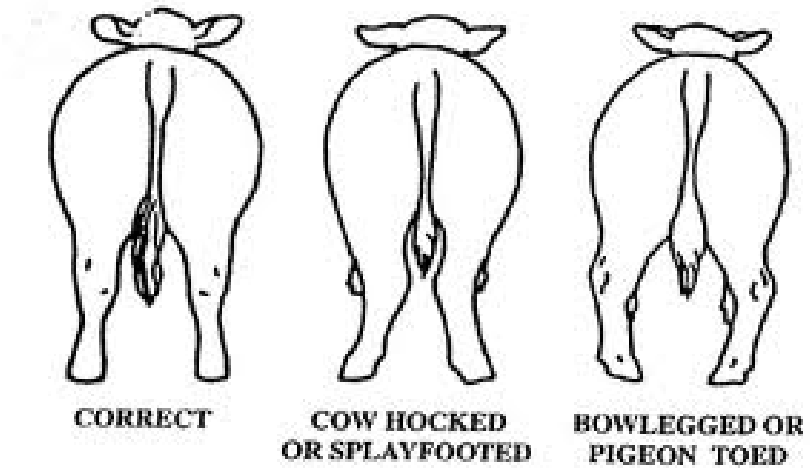


Figure 2b. Leg angles in beef cattle

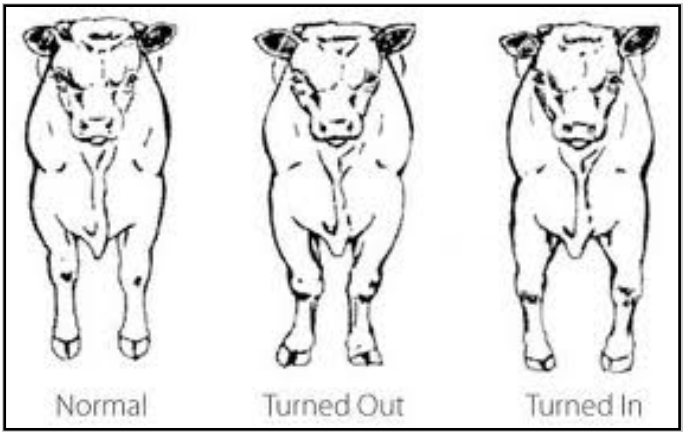


Figure 2c. Leg angles in beef cattle

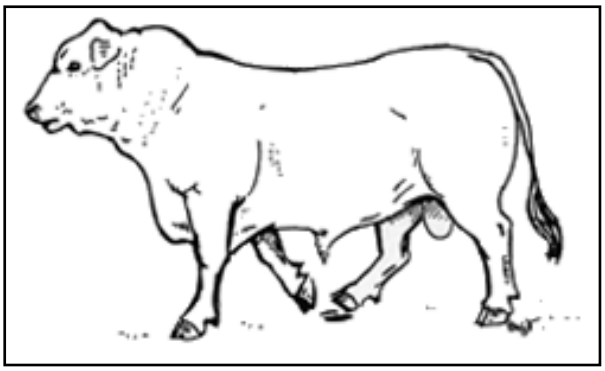
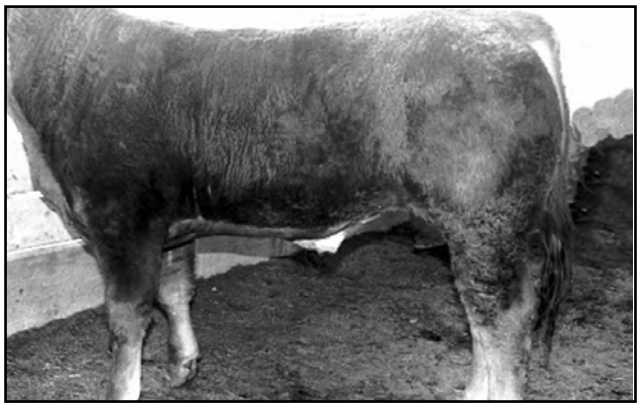


Figure 2d. Look for a free moving walk – with the back feet stepping where the front feet left off.

6. Muscling

Look at the way the calf stands. If the calf stands with its feet placed closely together, it lacks muscle. Look for muscling through the centre of the round because this is where the more expensive cuts of meat come from.



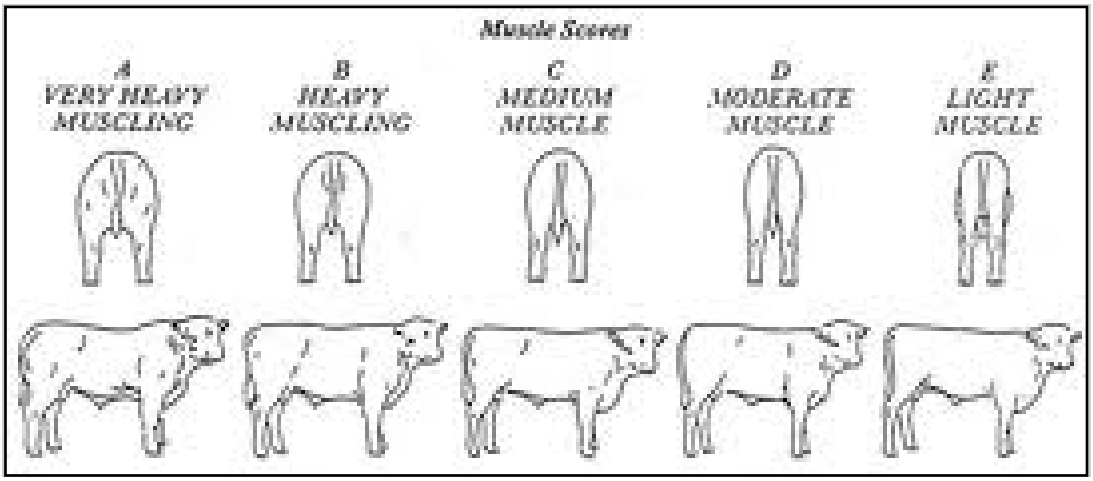


Figure 2d. Muscling in beef cattle. The top picture illustrates heavy muscling in beef cattle.

7. Trimness

Choose an animal with a clean (trim) brisket, flank and twist. Mature looking calves tend to waste when they are finished because they begin to deposit fat earlier than a trim animal.

8. Femininity

Consider all of the above, plus if she is of breeding age a heifer should have a feminine look. This is illustrated by refinement of head, neck and shoulder with long smooth muscling and some udder and teat development to indicate fertility in the young female. She should possess a wide placement of the hip and pin bones to facilitate calving ease.

JUNIOR JUDGING

Junior judging is a skill which can be developed with practice. It incorporates the skills of visual assessment of livestock and public speaking. It is essentially about comparing one animal's merits to the merits of other animals in a class. Livestock producers, breeders, feeders and buyers all judge and evaluate livestock for their potential as either breeding or market animals.

Competitors are scored on:

- Accuracy of observation
- Ability to compare animals
- Speaking ability
- Presentation and Dress

Junior Judging competitions are a great way to refine your ability to make decisions, present arguments or a reason behind a decision and improve your public speaking skills and confidence.

For more information on the structure of Junior Judging competitions and some handy hints see the following websites:

Agricultural Shows Australia Beef Cattle Junior Judging Handbook

https://agshowsaustralia.org.au/wp-content/uploads/2018/03/National-ASA-Beef-Cattle-Young-Judges-Championship-Handbook.pdf

New South Wales Department of Primary Industries Schools Program

"Beef Cattle and Meat Sheep Junior Judging Guide"

https://www.nswdpi-schools-program.com/junior-judging-guide

Note: Competitors must be neatly and suitably attired. Long hair is to be restrained and closed in shoes are essential. Shorts, chewing gum and poor presentation are unacceptable and will be marked down accordingly.

Junior Judging is a great opportunity to develop and practice skills, the more you do it the more confident you will be. Observe other judges, listen for feedback and most of all ENJOY YOURSELF!

GENETICS AND HERD IMPROVEMENT

Selection of the correct genetic characteristics (traits) is pivotal in beef cattle production. Animals which are used for breeding must possess traits which make breeding easier, make animals productive and functional, and suit the desired market.

Selecting the Correct Animal for Breeding

In selecting individuals, the aim is to choose superior animals which will not only maintain their superiority for their own lifetime, but will pass the superiority on to their own offspring.

Some selection terminology that is often used by beef producers is –

- ***Phenotype*** – applies to the physical characteristics that can be observed by looking at the animal. What you see then = phenotype.
- ***Genotype*** – applies to the genetics that the animal has to make up their physical appearance.
- ***Selection Differential*** – is the difference between the average of the groups before and after the selection. The size of the selection differential will depend upon:
  - The accuracy of selection. If inaccurate assessments are made, the real differential is lowered.
  - The number of characteristics under selection and the extent of correlation between them.

Selection for Lifetime Performance

To avoid wasting resources on unproductive animals, it is desirable to make selections as early as possible in the animal's life.

Accuracy of selection can be improved by:

- Improve assessment techniques – eg. eye judgment can be replaced by measurement or a scoring system.
- The use of Estimated Breeding Values (Breedplan).
- Accurate record keeping.

Breeding Systems

A key decision for breeding beef cattle is which breeding system to use. Regardless of the breeding system chosen, the breeder must strive for genetic improvement in the traits identified as economically important for both the current and future performance of the herd.

The basic objective of animal breeding is to enhance the efficiency of production and the quality of the product for the end-consumer through planned genetic change. The choice of whether to straight breed or cross breed will be related to your ability to match your cattle, the environment and the market.

- **Random Mating –** When selected animals are mated at random without regard to their relationship.
- **Purebreeding –** Breeding animals from the one breed together.
- **In-Breeding –** When matings of related animals are made. Sometimes, this is known as line breeding.
- **Out-Breeding –** When matings are made between unrelated animals, which include matings of unrelated animals within the same breed.
- **Crossbreeding –** When matings are made between animals from different breeds (See Figure x).
- **Strain or Line breeding –** When matings are made between animals from different strains or inbred lines.

In our current market, purebreeding and crossbreeding are the predominant methods of breeding. Purebreeding produces not only progeny for further finishing, but also replacement females for the herd. Crossbreeding capitalises on the existing genetic differences between two or more breeds to produce progeny that have characteristics suitable for a defined market or environment. The decision to crossbreed is also often related to the potential gains of hybrid vigour, an additional boost to production. Hybrid vigour, or heterosis, is the difference between the performance of the progeny and the average performance of the parents. In general, the more distantly the parental breeds are

related, the greater the amount of heterosis that can be expected. The greatest level of heterosis results from the crossing of the least related purebred *Bos indicus* and *Bos taurus* breeds.

ARTIFICIAL BREEDING IN BEEF CATTLE

Artificial breeding in cattle refers to both Artificial Insemination (A.I.) or Embryo Transfer (E.T). Artificial Breeding in beef cattle has become increasingly popular because of the following reasons –

- Genetics from the past or overseas can be easily accessed.
- It can decrease costs with the use of limited amounts of superior genetics.
- It can create sire variation with easy management (limited number of bulls).

Artificial Insemination is defined as the process of collecting sperm cells from a bull and manually introducing them into the reproductive tract of a cow or heifer. In commercial application, this also involves extending one collection of semen into several doses and freezing it in liquid nitrogen to be stored indefinitely and/or shipped. A more recent development is the ability to sort sperm cells into fractions that will yield primarily either heifer or bull calves.

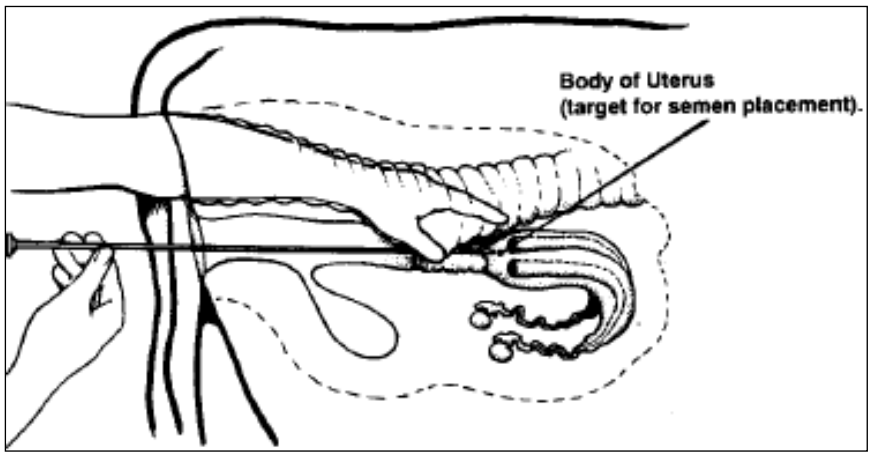


Figure 3a. Illustration of the Artificial Insemination of a beef cow

Embryo Transfer is defined as multiple injections of hormone to stimulate and multiply the ovulations in the cow that you want to get the embryos from.

- The donor cow is inseminated at normal time but 12 hours apart and 3-4 times.
- Seven (7) days later the rinsing out of the uterus to extract the embryos and ova (unfertilised, fertilised or degenerate).
- Isolation of the good embryos using a microscope and then transfer into the recipient cows or frozen.

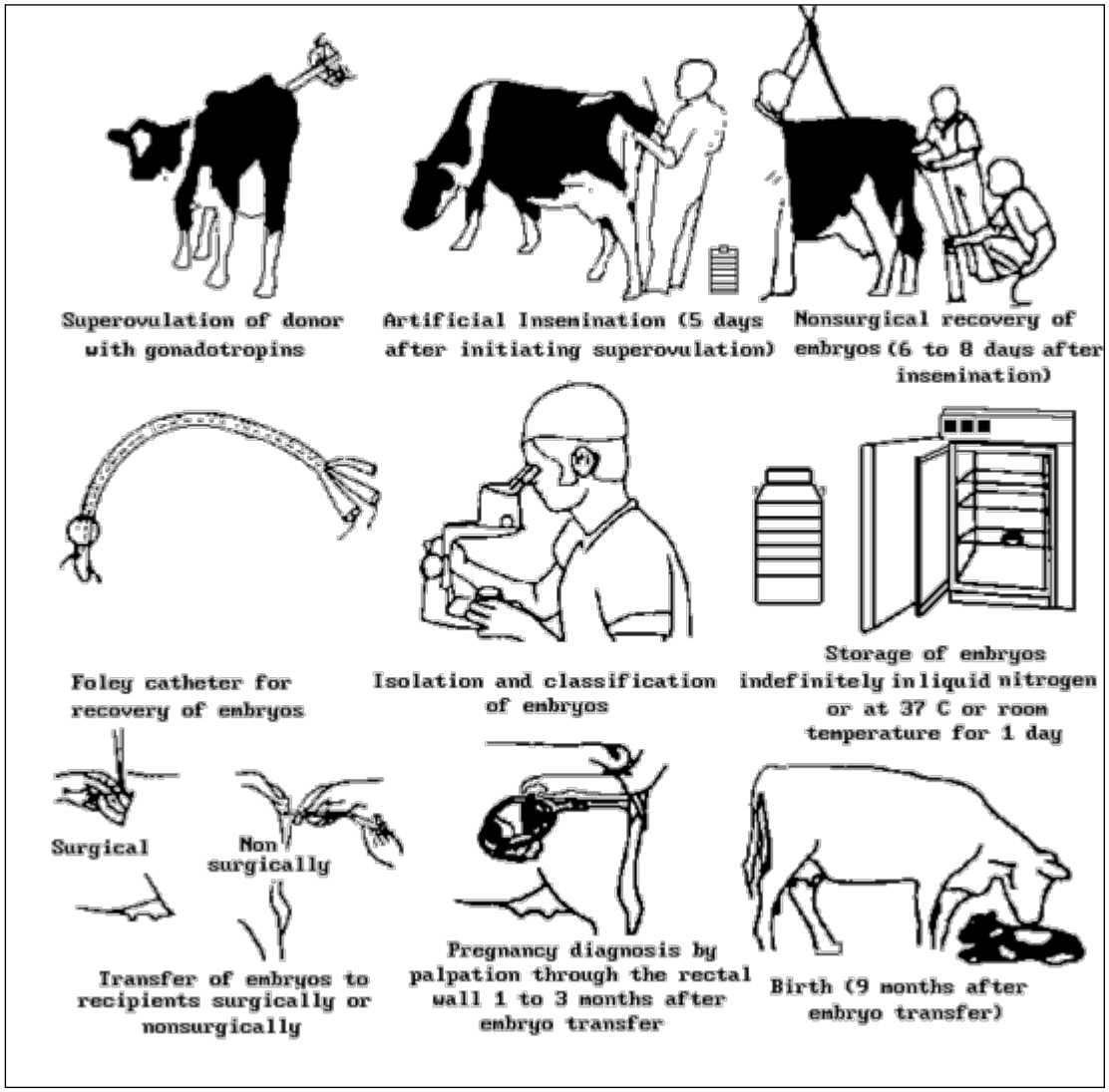


Figure 3b. A diagrammatic representation of Embryo Transfer in beef cattle.

SHOW PREPARATION

HALTER BREAKING

LEADING

HAIR TRAINING

CLIPPING

HALTER MAKING

USEFUL KNOTS

HALTER BREAKING

When your animal arrives in the yards, it will be under stress. Stress is a state of mind and body caused by environmental and mental upsets. Some causes of stress are:

1. Bad weather (not enough shelter, damp, draft, dirty housing)
2. Castration
3. Dehorning
4. Weaning
5. Transporting
6. New surroundings
7. Rough handling
8. Branding, ear tagging, implanting
9. Poor feeding
10. Fatigue (being tired, weariness)

An animal's body is less able to fight off sickness if it is under stress. Therefore, handle your new calf with care. Have these things ready for your calf when it arrives:

1. Shelter
2. Enough space
3. Clean and dry bedding
4. Hay
5. Clean fresh water

HOUSING

Cattle are healthier and more content if they are kept outside. However, a shelter should be provided to:

1. Break the wind
2. Protect the animal during poor weather
3. Provide shade from the sun

An open shed on high ground (so it will not trap moisture) is usually enough shelter. It is important that housing be dry and well ventilated (so fresh air can circulate). This helps the animal keep cool during the summer months and warm during winter.

The shed should be kept clean and fresh bedding supplied every day. This will give your calf a clean and dry place to lie down. A clean, dry shed or barn also helps to reduce fly problems and keep your animal clean (the hair coat can become strained from manure and urine).

Keep your animal/s in a yard or paddock with enough space to exercise and be comfortable. Cattle seem to do better if they have the company of other cattle. If possible, keep another calf in the paddock with yours.

As soon as you get your calf, start halter breaking it. The older and bigger a calf gets, the harder it will be to halter break. There are several different ways to halter break cattle. People will be willing to tell you the different methods that work for them.

- One way is to slip a halter on the animal and tie it up in the crush as soon as you get it. Do not expect miracles; your calf will be nervous and disrespectful of the halter at first. It will probably pull, yank, and jump around trying to get free. Keep a close watch on the animal when it is first tied up. If the animal should slip and fall while fighting to get free it could choke itself. Use either a hackamore halter, or one with a ring to allow the section under the jaw to slacken as soon as it stops pulling back. They learn quite quickly not to pull with this method as the jaw becomes very sore. When tying for the first few times outside of the crush, tie the rope fairly short, 12-18 inches between the halter and fence, so the animal cannot get its legs tangled up in the rope. It is very important to tie the animal with a quick release knot so that it can be untied quickly if necessary. Tie at eye level initially so as not to create undue pressure on the spine and hind legs. Later when halter broken, tie the head up high to teach it to stand with its head up and feet under it properly. Always keep a knife close by in the yards so that the rope can be cut if you cannot untie it quickly. Brushing your calf while it is tied will usually help to calm it down. Leave it tied up for

a couple of hours the first day. Tie your calf up each day for about an hour until it stops fighting the halter, and you. Stay with the animal as much as possible, talking to it a lot. Voice reward is very important.

- Another method that is sometimes used is leaving a rope halter on the calf and letting it drag the lead shank. When the calf steps on the lead it will give a tug, bringing the calf to a halt. If this is done, take care that there is nothing the rope can get caught on. Having a halter on your calf all the time makes catching and working with your animal easier. Hackamore halters can be bought at saddleries. This type of halter does not have a lead on it, but has a ring under the chin piece so a snap-on lead on be attached. This type of halter should not be left on cattle that are housed around trees. The halter could get caught in the branches.

- Wash the animal as soon as it is controllable. Rinsing with water seems to take out the rest of the fight, and prevent some later kicking problems. Introduce the nose clip during the early stages of tying up. Don't wait until the week before the show, even if the animal eventually leads easily without it. They frequently react unfavourably for several days.

LEADING

Lessons in leading your calf should begin early. Calves grow quickly and become heavier and stronger the longer you avoid the lesson.

The calf must learn that it cannot escape from you after it has been haltered. The calf needs to be taught that when the lead shank tightens it is supposed to stop pulling. This is important for tying and leading. Teaching the calf to stand tied before it leads will help you.

When you begin leading your calf, you may choose to have someone help you. Many calves will run before they learn to walk with you. With help, you can control the calf. Do not let the calf get its head down or go ahead of you. You will not have any control.

Use some psychology – lead it to the feed bin, or water trough. You may have the opposite problems with your calf: stubbornness. If your calf refuses to walk and enjoys tug-o-wars, get someone to walk behind the calf. A tap on the animal's rump will usually get it moving again. Twisting the tail will also help get the animal moving again. Do not twist the tail too hard. Twist it in a loop or push it up in an S – curve.

If you are leading the animal by itself and it stops and won't start walking again, try pulling the calf at right angles. This throws the animal off balance and it will likely start walking again.

Never stop leading an animal when it is not cooperating with you. Take off the halter when the animal has walked properly and you are satisfied with its improvements. Always remember to finish on a good note and don't expect an animal to keep repeating the same thing over and over. When it has done the right thing a couple of times – stop. Animals

often tire of being handled on a daily basis, and can become sour. Vary the program – THEY LIKE DAYS OFF TOO!

When you are leading your animal, remember the following points:

1. Never wrap the lead around your hands or body (if the animal bolts, you may get dragged).
2. Hold the lead close to the animal's head so you have more control.
3. Educate the calf to lead without attaching a rope to the nose clip initially. Remember its purpose is to provide added control, and pressure should only be applied as an emergency measure. It is an emergency brake, not where you lead from.

HAIR TRAINING

Training the Hair

Start training your animal's hair early in the year. Train the hair to lay the way you want. This is called "breaking the hair".

Work the hair in an upward and forward direction using a rice-root brush and Scotch comb. The more brushing and combing done on an animal the better. A good time to do this is while the animal is eating (everyday).

Washing

Wash your animal once a month starting a couple of months before the show. Rinse the animal down as often as possible.

Following these steps:

1. Before starting to wash your animal, get everything ready.
2. Collect all the equipment you will need - halter, rope, hose, bucket, brushes, combs, soap.
3. Put a nylon halter on the animal. When rope gets wet, it swells and could suffocate the animal if it is not slackened or cut off. A nylon halter will not swell when it gets wet.
4. Put on wet weather gear and boots (unless you want to have a bath too!).
5. Brush or use a blow dryer to remove straw, dust, dead hair and manure from the animal.
6. Fill the bucket with warm water and add soap. Livestock soap is used because it is not harsh. Other soaps remove more oil from the hair, leaving a dull hair coat.

Steps in washing:

1. Wet the animal down.
2. Soap the animal from top to bottom using a brush to work the soap in and the dirt out. Scrub all areas - including head, tail, legs, and hooves.

3. Rinse the soap off. Start from the top and work down. If rinsing bottom to top, the soapy water will run down under the belly. Poor rinsing leaves hair dull, and the animal may get dandruff.
4. Be careful when washing and rinsing the head. Hold the ears shut and downwards so no water gets in. If water does get into the ears, the animal will hold them lopsided.
5. Rinse the animal well, making sure all the soap is out of the hair.
6. A conditioner can be applied, brushed into the coat and rinsed off.
7. Remove excess water and with the flat side of the Scotch comb or the side of your hand. Start at the top and work down, drawing it underneath the belly also. Many animals are irritated by dripping water.
8. Check the animal for signs of lice, mange, ringworms, warts, pinkeye, etc.
9. Finally, use the Scotch comb to bring the hair back up. Blow-dry the animal or let it dry in the sunlight if it is warm enough outside. In either case, comb the hair with a Scotch comb while it is drying.

Washing keeps the skin clean so it can breathe. This helps hair growth. **NOTE** - Hot weather is hard on the hair coat. If possible, keep your animal in a well-ventilated (fresh air coming in, stale air going out), cool shed during the day. Turn the animal out at night when the temperature goes down.

Blow-drying

Blow-drying an animal can help to train the hair if it is done properly.

- Blow the hair in the same direction as you have been brushing the hair (in the direction you want it to lay).
- Start at the top of the animal and work the end of the nozzle with it at an angle. By doing it this way, there are no lines left in the hair from the force of the air from the blower.
- Move the nozzle back and forth quickly so the hair dries evenly.
- Make sure to blow-dry all of the animal - legs, brisket, under the belly, etc.

- Use a Scotch comb in your other hand to work the hair in the same direction as it is being dried. Keep the nozzle fairly close (about 2 inches) to the animal's body making full use of all the air from the blower.

CLIPPING

Clipping is done to make the animal look trimmer and cleaner. Again, clipping is learned by actually doing it and by watching experienced people clip their cattle for shows.

If your family or friends have cattle that are not shown, it's a good idea to use these animals to practice on. Do the first clipping job on your animal a couple of months before the show. This will give any mistakes time to grow back. Do not get too "clipper happy" at first. You can always go back over the animal and take more off if it is needed.

Before starting to clip an animal, it is very important to know some facts about clippers. First of all, clippers are very expensive and therefore should be treated with care.

1. In order to do a good job of clipping, the clippers must have sharp blades. Get the blades sharpened or replaced as soon as they begin to get dull. The life of sharp clipper blades will depend on the type of hair they are clipping and how much they are used.
2. Before using clippers, remember to oil them. There are holes in the clipper heads. This is where clipper oil is squirted in. Oil lubricates the blades. It is important to oil the blades during the time when you are clipping. The clippers will get very hot and dull if they are not oiled enough.
3. After clipping, clean the clippers.
4. Reduce the tension on the blades before putting the clippers away.

Make sure you tighten the tension before starting the clippers the next time you use them. When you are clipping, check and make sure the blades are not loosening. If this is happening, you will probably notice that the hair is not being cut as well as it should be. Ensure the blades don't loosen while you are clipping or they may fly apart and hurt you or the animal.

There are several different types of clippers that can be used for beef cattle. When you are learning to clip an animal, the flat-head type of clippers should be used because they are easier to control. The flat-head type should always be used to clip the following areas:

1. Head
2. Underside
3. Brisket
4. Tail

Sheepshear type clippers are usually used to 'block' an animal. Blocking an animal means clipping the hair so it is approximately the same length all over the body.

Gouges and Blending

Mistakes can happen easily when clipping. All it takes is one move of the animal while the clippers are in action. It is helpful to use your free hand as a guide underneath the clippers behind the blade. You should have fewer problems with gouges and cuts by doing this. If you do happen to create a gouge, you do not have to treat it like a disaster! Carefully clip lightly around the gouge, blending it as well as possible. Mistakes are a good reason why you should clip your animal 2-3 weeks before the show to give the hair a chance to start to grow back and smooth over.

You can do the final touch-ups on the animal the day before the show or when you get to the showgrounds.

Blending

You cannot avoid clipping lines but you can hide them so the animal does not look choppy. The goal is to make the animal look as smooth as possible. Tilt the clippers on the side lightly and run them lengthwise along the line.

Another way is to hold the clippers upright with you free hand underneath the blade for more control. Gradually increase the angle of the clippers as you work up the side of the

animal. This makes a gradual increase in hair length so the animal looks smoother and the clipping line does not stand out so much.

Hints for a Successful Clipping Job

1. The job will be much easier and safer if the animal is in a clipping chute. Leave the halter on your animal. Tie the head quite high and short.

2. Move around the animal slowly. Take your time to actually start clipping. If the animal has never been clipped before, let the clippers run a couple of minutes before starting. The noise of the clippers will usually spook the cattle at first.

3. Use a Scotch comb to work the hair up while you are clipping. The Scotch comb will bring up hairs that have been missed so they can be clipped the same length as the rest.

4. Clip for a while and then stand back a few feet and take a look at the whole animal. Walk around the animal and make sure you are clipping both sides the same.

WHERE TO CLIP

Cattle are clipped to make them look better. In order to make your animal look better, you must be able to see its strong points and weak points. A good clipping job can make the animal's strong points stand out. Perhaps more importantly, the animal's weak points can be made less noticeable.

For example –

WEAK POINT – your heifer has very heavy and prominent shoulders (shoulder area does not blend in well with the rest of her body; lacks smoothness).

Clipping for improvement: Shoulders

1. The hair over the heifer's shoulders should be clipped close to the hide.
2. The hair behind the shoulder should be left longer.
3. Final touches include blending the two areas together so no lines can be seen.

WEAK POINT – you steer has an uneven top line.

Clipping for improvement: Back

1. You want to try to hide these dips in the back.
2. Make the hair stand up using a hair stiffener a Scotch comb.
3. Run the clippers straight along the topline.

The following are important points to remember when clipping cattle:

1. No two animals are to be clipped exactly the same way. Clip each animal as an individual. This is because no two animals have exactly the same weak points and strong points in their conformation.
2. Steers, heifers, cows and bulls are all clipped differently. For example, a heifer is clipped to look feminine. On the other hand, a bull is clipped to look masculine.
3. Each breed of beef cattle are clipped in a different way. The differences are usually very minor but it is something you should watch for.
4. Trends change from year to year. The best way to stay on top of changes in cattle clipping is to go to different cattle shows and watch other clippers.

There are several areas on the body that are clipped on all beef animals. These are:

1. Belly – Clean up guard hairs. Depending on your animal, you may want to take the hair shorter if the animal is extremely deep, or you may want to leave more hair on if they are lacking in depth. Assess your animal before you begin. Blend the long hairs to the side of the animal into the clipping line so that the animal looks smooth and the change of hair length does not show as much.

2. The Brisket – Clipping the brisket will clean up the front quarter of the animal. A wasty brisket (too much brisket) is not wanted on a beef animal. Therefore, hair on this area only adds up to the look of bulkiness or waste. Work the clippers up the brisket, dewlap, throat and jaw area. Flat-head clippers should also be used to do this. Blend in the hair on the sides by clipping with the direction of the hair.

3. The Head – There are different ways of clipping the head. Hair on a steer's head is usually all clipped off. Another method is to clip all the hair off the poll. On females this makes the

head look longer and more feminine. Do not clip inside the animals ears. Just trim up the long, straggly hairs along the outside of the ear. Flat-head clippers are used to clip the head.

4. The Tail – There are also several ways to clip the tail. Trends change, watch other people clipping and find out how it's being done. A couple of ways are as follows:

a) Clip on either side of the tail starting about 1/3 of the way down from the tailhead. This leaves a V-Shaped strip of hair down the centre of the tail. Gradually let the hair stay a little bit longer as you work upwards. Leave the hair on the tailhead. This hair can be squared off and trimmed later with the scissors when you groom your animal. Trim up the hair on the rest of the tail on either side, being careful not to clip to close to the tail.

b) Run the clippers straight up the middle of the tail, holding the tail, holding the clippers flat against the tail. Again, leave the hair on the tailhead. Clip off the longer hairs on the sides of the tail so they are even.

5. The Neck – The hair on the crest (top of neck) area should be clipped. These hairs can either be clipped right down or just trimmed. If an animal is heavy in the crest hair can be clipped right down. Run the clippers with the hair down the sides of the neck.

6. Legs – The legs are better left alone until they are boned. Clipping is then easier as the hair is standing out from the leg. Long hairs on the back of the hocks can be trimmed to show correctness of the leg to the tail.

A final point to remember about clipping cattle – **PRACTICE MAKES PERFECT!**

USEFUL KNOTS

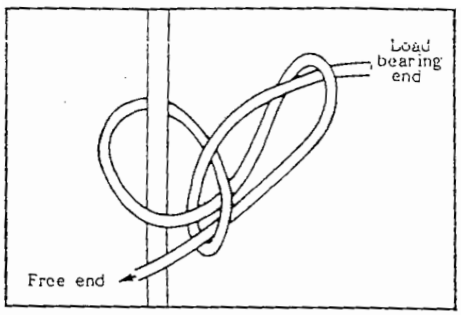
THE BOWLINE KNOT

Prerequisites:

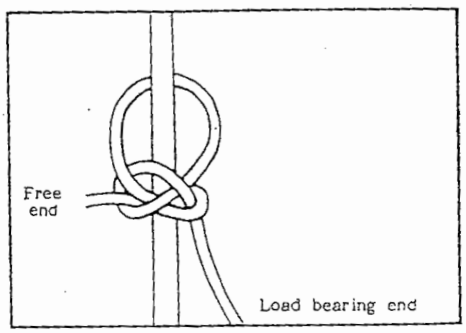
- Rope
- Post or tail

The bowline knot is one of the most common and useful knots; it makes a firm, non-slipping noose which is easy to untie. The knot can take tremendous force, but is easy to undo by the operator.

It is a handy knot to tie around a horse's back neck when tethering out, as there is no chance of it slipping up and strangling the animal. The knot is also used when towing



4. Pull on the load bearing end.

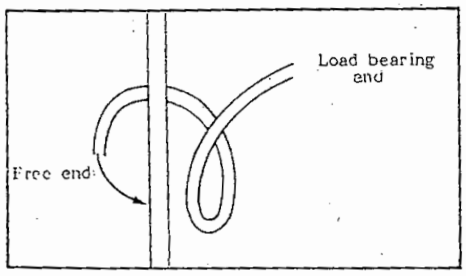


vehicles out of boggy areas.

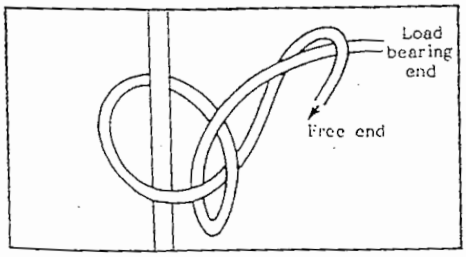
Procedure

1. Place the rope around a post or over a rail.

2. Make an overhand loop.



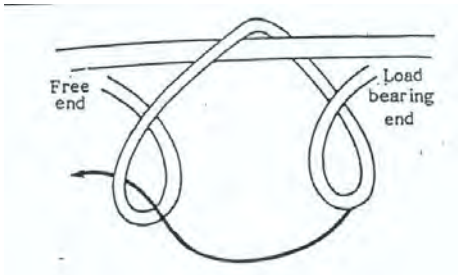
3. Pass the free end down through the loop, behind the load bearing rope and back up through the outside of the loop.



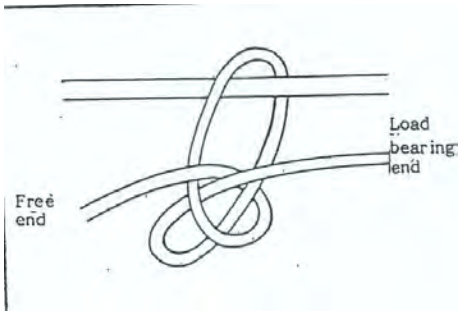
THE QUICK RELEASE KNOT

This knot is used for tying up animals and allowing you to release the knot quickly.

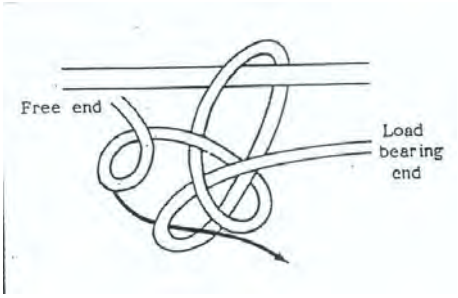
1. Place one end of the rope over the rail (if tying to a post the rope should go from right to left).
2. Make overhand loops on each rope.

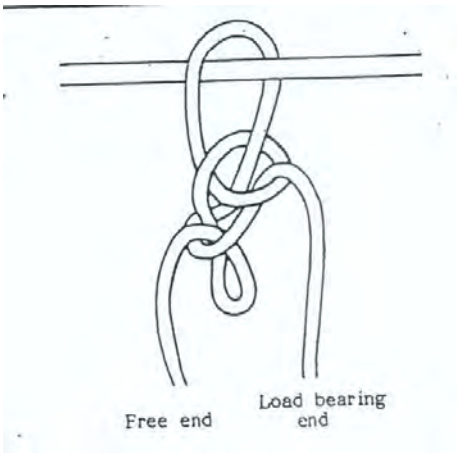


3. Place the right loop through the left loop and pull tight.



4. Push a loop from the free end (left rope) through the overhand loop that remains. Pull tight.
5. To release, pull free end.





CATTLE MANAGEMENT PRACTICES

BREEDING CATTLE

CALVING CATTLE

INJECTING CATTLE

TATTOOING CATTLE

WEIGHING CATTLE

BREEDING CATTLE

Female Oestrus Cycle

Cattle are classified as a polyestrus species, which means that they will have regular oestrus cycles throughout the whole year. Each oestrus cycle lasts on average 21 days, but individuals can range from 17-24 days. The oestrus period (stage in the cycle where ovulation occurs) lasts on average 15 hours, but individuals can range from 6 to 24 hours. Oestrus cycles will commence when heifers reach puberty between 4 and 8 months depending on the individual and species.

Identifying an Ovulating Cow

- During the oestrus cycle the cow will display signs of being “on heat” for the 6 to 24 hour period.

Indications that the female is ‘on heat”

- The cervix and vagina secrete considerable amounts of clear, thin fluid, which, from time to time, may be observed escaping from the vulva.
- The vulva is often enlarged and inflamed.
- There will be high activity levels between the individual and other members of the herd, with some trying to mount the individual on heat.
- If there is a bull within the herd he will seek out the female “on heat” due to the pheromones she is secreting.
- The cow on heat will stand for mounting (by either other cows or the bull) when it is the appropriate time for copulation to occur.
- It may be noted that the root of the tail becomes scared from mounting attempts and the flanks covered with mud from hooves of mounting animals.

The Pregnancy

- Duration of pregnancy varies between 278 and 288 days. The accepted average is 283 days.
- Cows carrying twins usually have shorter pregnancies.

CALVING CATTLE

Signs that a cow is about to calve

When handing animals in advanced pregnancy, some care and consideration for their condition is essential, and the application of common sense and kindliness should prevail.

- The udder becomes swollen, tender and hot to the touch, teats will yield a serous fluid and this gradually becomes thicker and ultimately forms colostrums.
    - Function: Ensure there is a milk/colostrum supply for the newborn
- The vulva swells, and the lips become soft and flabby, the lining membrane is reddened, and mucus is discharged in long filaments which soil the tail and hocks.
    - Function: Mucus aids in lubrication of the birth canal
- The abdomen becomes more predominant, the flanks are hollow, and the animal walks sluggishly and unwillingly, and also seeks out a sheltered location to quietly deliver her calf.
- It is advisable to allow a cow in advanced pregnancy to have access to a paddock that offers adequate forms of shelter and comfort.
- If the weather turns bad or the feed is very green, then some form of roughage or supplementary feed should be made available.
- Finally, if prior knowledge of a peculiar habit of the individual are known from records, then precautionary practice may be carried out. However, in all cases, supervision at calving will yield dividends.

Figure 4. A cow at the start of calving.

Parturition in Cattle

The process can be broken down into three key stages:

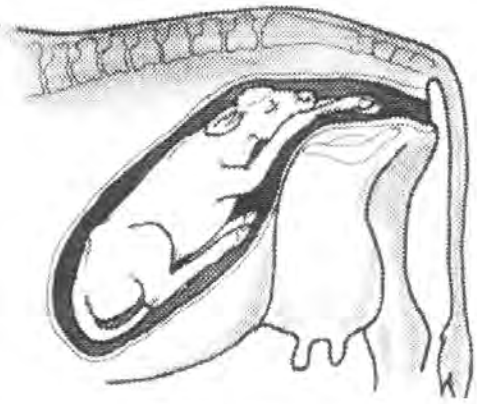
- Stage I = initiation of contractions
    - Average time is 2 to 6 hours
- Stage II = expulsion of the foetus (calf), aided by contractions
    - Average time is 30 to 60 minuets
- Stage III = expulsion of the foetal membranes (placena)
    - Average time is 6 to 12 hours

Normal delivery should be completed within 2 to 3 hours after the water sac (amnion) appears in heifers and 1 to 2 hours in cows. If prolonged, the calf may be born dead or in a weakened condition.

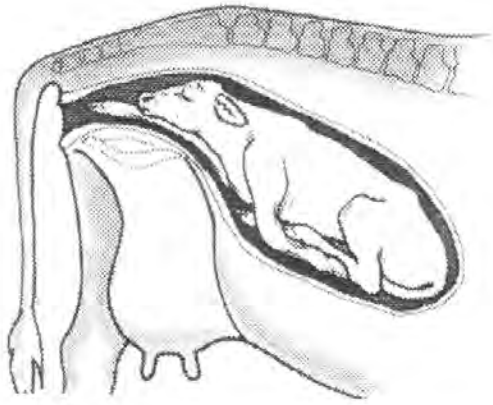
'Difficult' Birth in Cattle

A "difficult" birth is termed dystocia and usually will occur in Stage 2, some possible causes included:

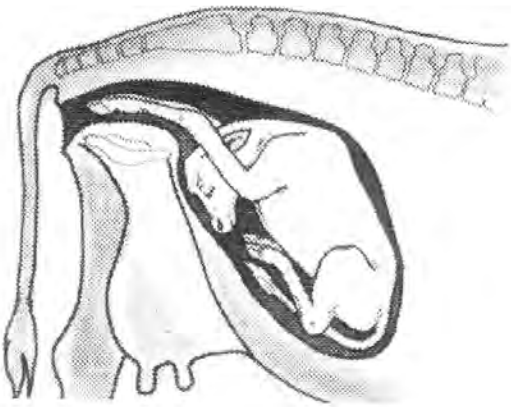
- Foetal size – not proportion to dam size
- Failure of foetal rotation/ abnormal presentation
- Multiple births



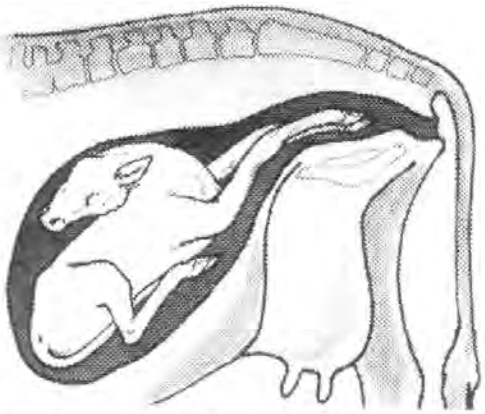
Normal anterior position.



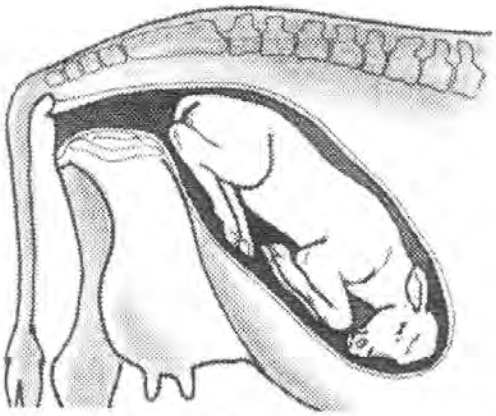
Anterior position, one foreleg retained. Head and foreleg must be pushed back while retained leg is flexed and brought into position.



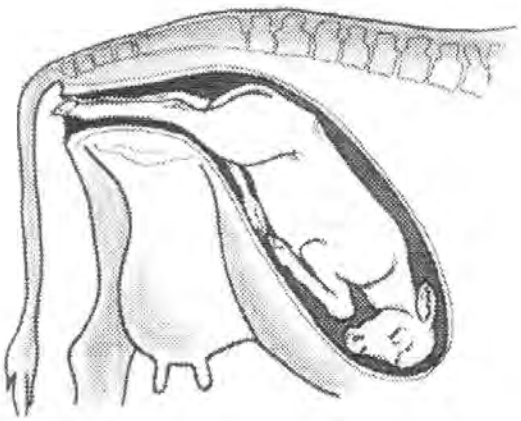
Head deviated ventrally. Push head and shoulders back and bring head up into position.



Head deviated to the side. Push forelegs back to get room and bring the head into position.



Breech position. While applying forward pressure to the rump, bring the hind legs into the pelvic canal.



Normal posterior position. Frequently requires traction for delivery.

Figure 17 Some different birth positions. Source: N. Bruce Haynes (1994) *Keeping Livestock Healthy* (3rd edition).

Steps in Calving Assistance

1. Conduct a pelvic exam
    - Vulva and rectum should be scrubbed, hands and arms should be clean and an O.B. sleeve should be worn .
2. Determine position of fetus
3. Examine size of the calf relative to the birth canal
    - If too big it can paralyse the cow – If determined early, a successful C-section can be done.
4. Attach obstetrical chains to the front legs
    - Loop of each chain around each leg – Slide chain up on the cannon bone 2-3 inches above the ankle joints and dew claws – Ensure chain pulls from bottom of the leg (dew claw side)

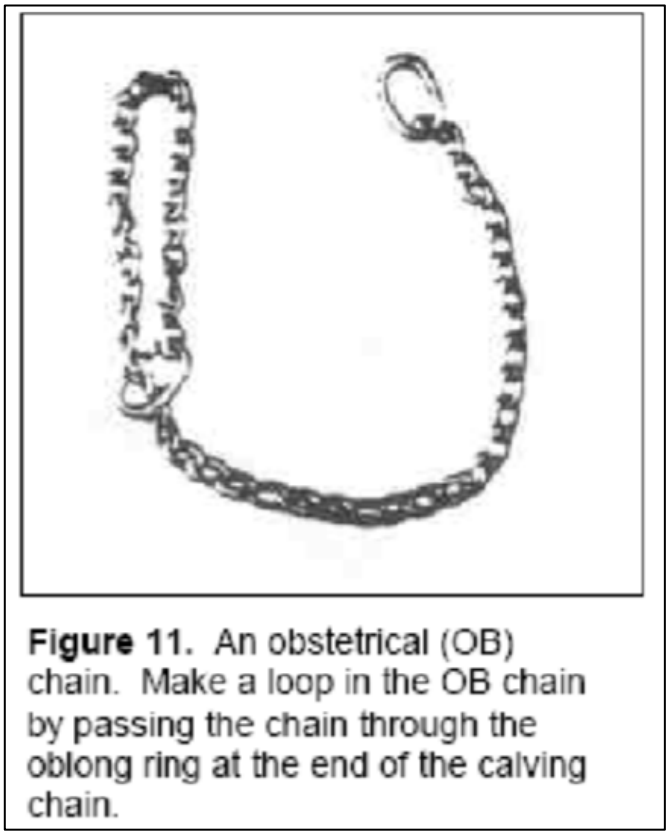
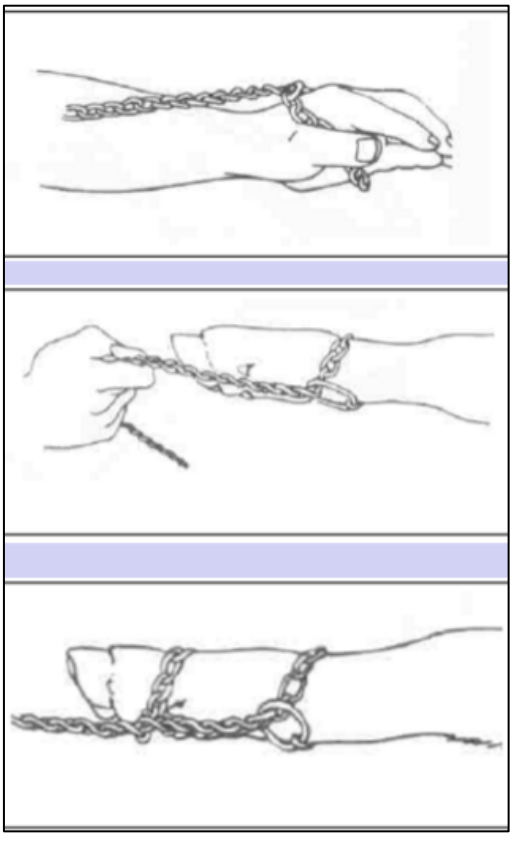


Figure 11. An obstetrical (OB) chain. Make a loop in the OB chain by passing the chain through the oblong ring at the end of the calving chain.



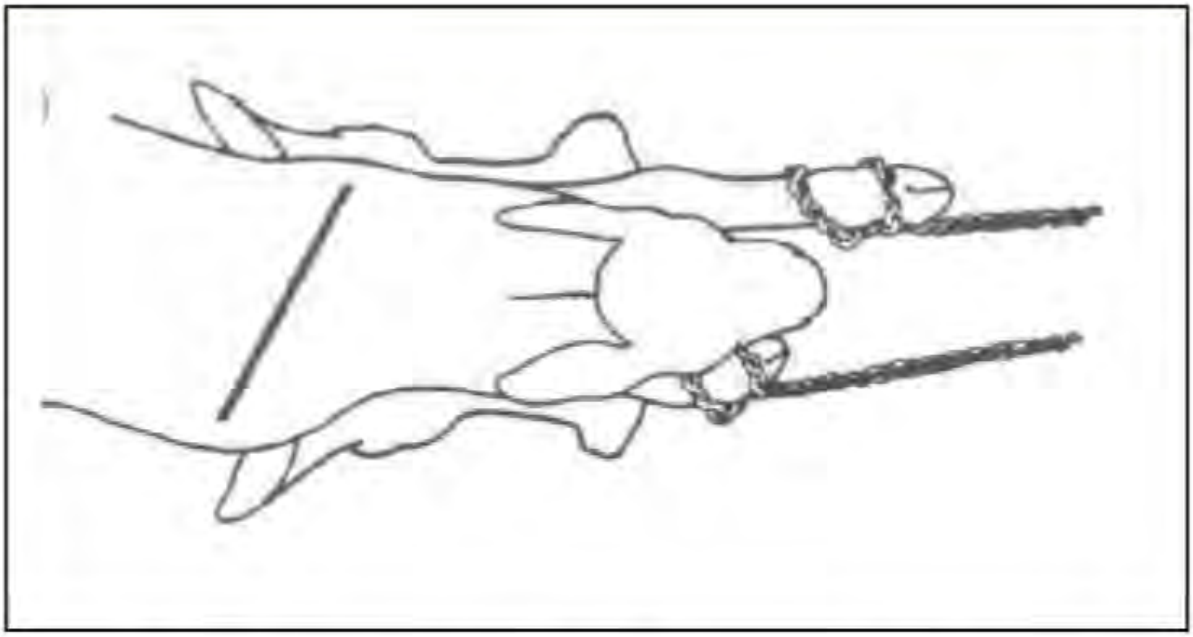


Figure 13. Some calves can be delivered by pulling both legs evenly. However, it is best to pull alternately on one leg and then the other a few inches at a time. When the legs are "walked out" in this manner, the shoulders or hips are allowed to pass through the pelvic girdle one at a time.

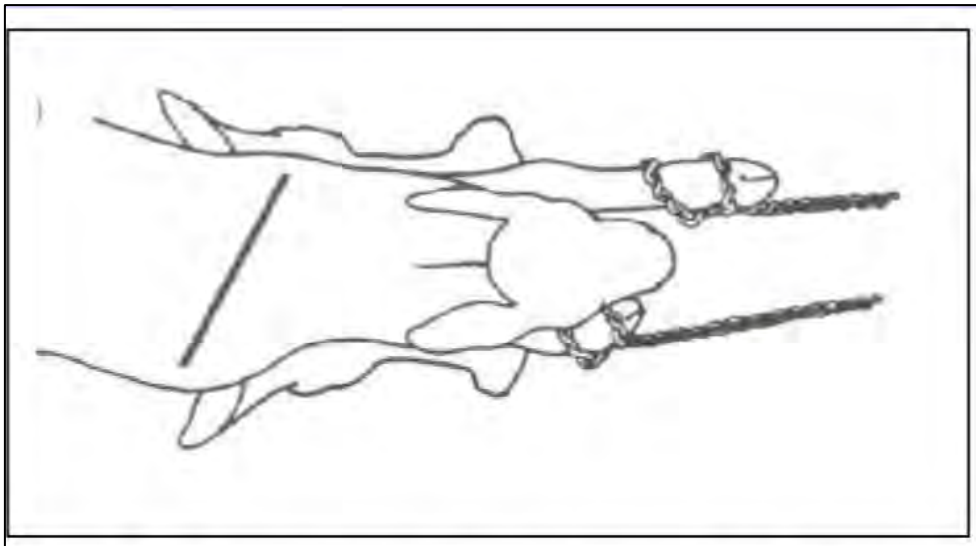


Figure 13. Some calves can be delivered by pulling both legs evenly. However, it is best to pull alternately on one leg and then the other a few inches at a time. When the legs are "walked out" in this manner, the shoulders or hips are allowed to pass through the pelvic girdle one at a time.

Starting the Calf

- Clear the airways and clean mucus from mouth area.
- Stimulate the calf by rubbing vigorously.
- It may help to drain fluid from the lungs by raising the rear end of the calf into the air.
- Breathing may also be stimulated by encouraging the calf to cough.

Post-delivery Problems

1. Uterine Prolapse
    - Caused by: Prolonged labor, difficult birth, excessive traction.
    - This is the turning inside out of the uterus. The organ rapidly swells and becomes contaminated.
    - If this situation occurs is can in some cases be fixed when appropriate action is taken rapidly, a vet will often be required.

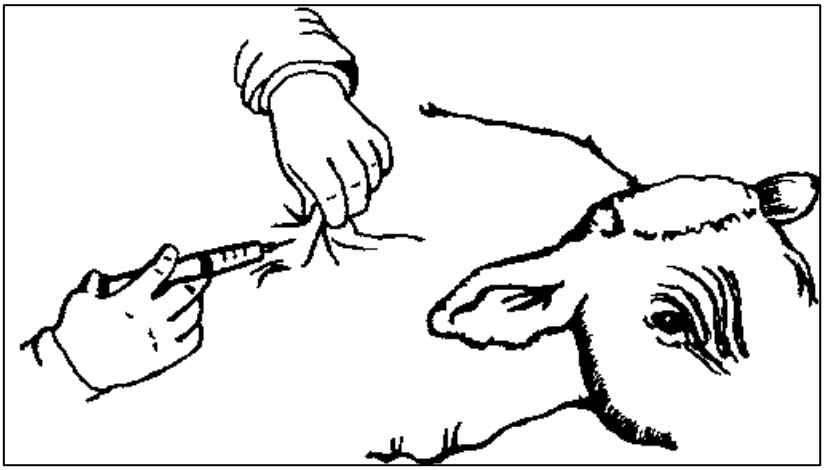
2. Retained Afterbirth
    - This mainly occurs in young cows and when part of the “afterbirth” is still adhering to the uterine walls.
    - After 12 hours if the membranes have not come away a vet may be required to administer drugs to assist with the process.

INJECTING CATTLE

There are several types of injections that are administered to farm animals; subcutaneous, intramuscular, intravenous, along with many other forms that we will discuss on another day. It is very important to always remember that the directions on the label should always be followed correctly.

Subcutaneous

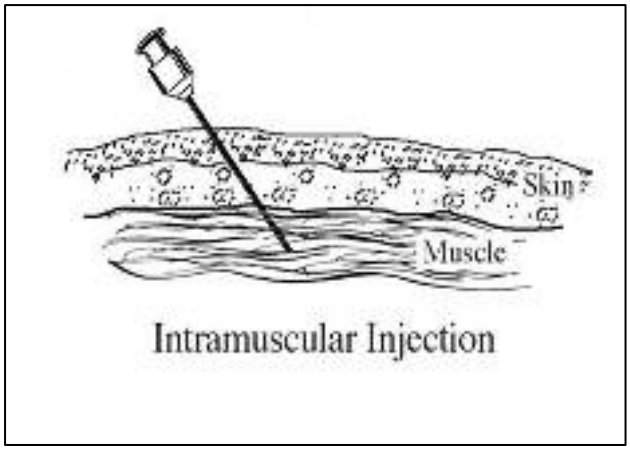
Injected underneath the skin, not in a muscle. A tent should be made with the skin, by pulling on it. For cattle the neck, in front of the shoulder should be used. Large amounts of fluids can be injected under the skin without fear of pressure build up.



Intramuscular

Injected into the muscle. Intramuscular injections are absorbed much faster than subcutaneous injections. The needle is inserted directly into a muscle. One must be aware of fat deposits because if the drug is injected into fat it may not be absorbed properly. The skin should be pulled up before inserting the needle and then released once the needle is in. By releasing the skin it covers up the hole made and prevents it from leaking out.

Damage can occur if the injection is not placed properly. It should not be placed in prime cuts because if an infection develops an abscess can occur. Money will be lost at time of slaughter because the cut will not be saleable.



Intravenous

Make in a vein, most commonly used is the jugular, once inserted the needle should be directed towards the head, slow flow of medication should be used. If a vein is not visible then thumb pressure or a tourniquet should be applied to stop the blood flow and enlarge the vein.

TATTOOING CATTLE

Proper identification at birth and legible tattoos are essential to maintaining accurate parentage and production records. You will get satisfying results if you follow these 10 steps.

Helpful Tips:

- Calves should be identified at birth with an ear tag. Incorporate sire and dam identification either by code or by colour of tag. Waiting until the calf is at least three months of age before tattooing will give you more satisfactory results.
- For best results always use fresh tattoo paste that has not been frozen. Check with your breed society if tattoo paint of a particular colour is required.
- No two animals of the same sex should have the same tattoo within a herd.
- Use a flashlight or spotlight when checking hard-to-read tattoos. Press light to the outside of the ear to illuminate the marks.
- Buyers should check legibility and verify tattoos with registration certificates before making payment or accepting delivery.
- If any tattoo is unreadable or you put it in the wrong ear, do not alter it. Check with your breed representative for instruction to correct this problem.

1. Check your equipment for tattoo identification before you begin the actual job. You will need a crush adequate to restrain the animal; herd records for reference; alcohol/Betadine and sponge for cleaning the ear; at least two sets of tattoo digits and letter digits if used; a tube of fresh tattoo paste and a toothbrush and tattoo pliers with which removable digits may be used.

2. Sterilise your tattoo set with alcohol or an equivalent disinfectant. The use of dirty tattoo equipment can transmit wart viruses and other diseases from one animal to another. Warts will not only obscure the tattoo, but often spread to other parts of the body. Sanitation is always important in herd management and cleanliness is especially significant whenever the blood system is involved.

3. Check your records to be sure of the exact tattoo you are going to use to identify the animal you have in the crush. If the tattoo is incorporated into the animal's registered name and herd number it will have more meaning to you later on, and will simplify your record-keeping.

4. Check every tattoo by testing it on a piece of cardboard before you apply it to an animal's ear. It is easy to put the tattoo digits backwards in the pliers, or to make a simple mistake when arranging the digits. This quick test will prevent mistakes. It is best to check and then re-check.

5. Dampen a sponge with alcohol or antiseptic solution to remove the wax from the ear lobe. If the wax is not removed it will prevent the tattoo paste from penetrating the skin and making a permanent mark.

6. Clean the ear at the upper lobe where the tattoo will be applied. Make sure ear tag does not interfere with tattoo.

7. Put the paste in the upper lobe before applying the tattoo. This is an optional step, but many breeders feel this method will carry some of the paste into the ear as the tattoo digits are pressed into the skin. Some breeders recommend blunting the needle tips to increase the size of the holes and to reduce bleeding.

8. Tattoo the ear in the upper lobe and in the inner area where the hair won't obscure the tattoo marks. Place the tattoo pliers parallel with the ear ribs and press firmly. The needles shouldn't penetrate the entire ear as this will increase bleeding.

9. Rub the paste in with your thumb, finger, or with a toothbrush. This should be continued until all bleeding has stopped and you are positive that the paste has filled the needle holes. This step is essential for getting a legible and permanent tattoo mark.

10. Check all tattoos at weaning or at other times you have the animals in a crush. You should always check tattoos carefully before you offer your cattle for sale or exhibition.

WEIGHING CATTLE

One of the key management practices in a profitable beef producing enterprise is regular, accurate monitoring of body weights. Recording weights has also become an important component of Breedplan recording. Modern recording systems have improved with increases in technology and can assist in record keeping.

HEALTH AND NUTRITION

THE DIGESTIVE TRACT

NUTRITIONAL REQUIREMENTS

WATER REQUIREMENTS

EXTERNAL PARASITES

INTERNAL PARASITES

IMPORTANT CATTLE DISEASES

THE DIGESTIVE TRACT

Cattle are classified as ruminants, this indicates that there are four compartments to their stomach. Each compartment has a specialised function which allows the animal to efficiently breakdown ingested material.

The pathway of ingested material:

1. **MOUTH** - Food enters the digestive tract through the mouth, where it is chewed into smaller pieces and swallowed.
2. **RUMEN** – The first compartment where ingested material will enter.
    - The rumen is full of many microorganisms that help the animal with the digestion of material.
3. **RETICULUM** – Closely associated with the rumen and performs a similar function.
4. **OMASUM** – Internal wall contains many folds to aid with further digestion of material and water absorption.
5. **ABOMASUM** – The acidic stomach, performs functions similar to monogastric species.

Swallowed food will enter into the rumen initially, the animal will then regurgitate the food for re-chewing) when the food is broken down into small enough pieces it will travel through the digestive tract as shown below.

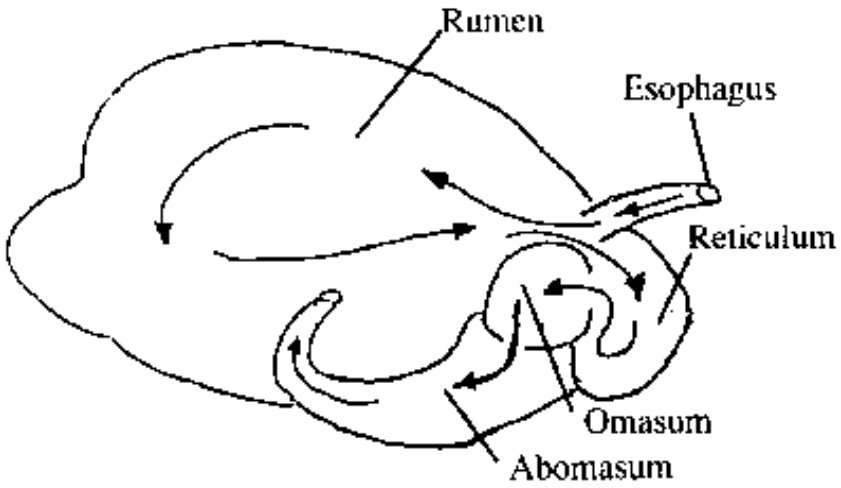


Figure 1. Ruminant Stomach
→ Flow of Digesta

NUTRITIONAL REQUIREMENTS

Introduction to Feeding Cattle

Cattle require a balanced diet that is high in nutritional value for optimum performance, growth and development. The purpose of the animal (eg. replacement heifers, steers) will affect the method of feeding. Awareness of what the individual animal's purpose is will help to reduce feeding costs and improve the quality of the final animal.

Categories of Feed type:

1. *Maintenance* (keeping the animal alive) - Animals require energy from feed to keep warm, to move, and for general body maintenance. If an animal is not getting enough of the right kind of feed, it will lose weight because its minimum needs are not being met.

2. *Growth* - Feed must be available to make an animal grow.

3. *Reproduction* - When a cow has a calf inside of her, she needs to support herself plus the calf. Her feed needs changing and she must eat a balanced ration for herself and for the calf. Bulls need to be in good condition to be able to breed. Heifers need to reach the level of maturity where they are able to be bred and carry a calf.

4. *Fattening and finishing* - Feed must put weight on an animal. The weight gained will be muscle and fat.

5. *Production* - Feed must supply the animal with enough nutrients to provide for such things as milk production.

There are several essential nutrients (nutrients that an animal must have). These are: water, carbohydrates, fats, protein, vitamins and minerals.

Nutritional Components

1. **Carbohydrates** - The simplest form of an energy source
    - What are they used for:
        1. Muscle movement
        2. Growth
        3. Reproduction
        4. Milk production
        5. Maintaining body temperature
    - What are some possible sources:

        Many types of grains and roughages.
    - Excess Consumption:

        Any carbohydrates that the animal does not use for energy is converted and stored in the body as fat.
2. **Protein** - Protein is a nutrient that is very important for growth. Protein helps to build and repair:
    - What are they used for:
        i. Muscles
        ii. Organs inside the body.
        iii. Skin.
        iv. Hair.
        v. Hooves.
        vi. Horns.
        vii. Nerves.
        viii. Blood cells.
        ix. Bones.
        x. Enzymes needed for digestion and other life processes
    - What are some possible sources:
        i. Grain and good quality hay are sources of protein.
    - Excess Consumption:
        i. Any carbohydrates that the animal does not use for energy is converted and stored in the body as fat

3. **Fats** - Fats supply the animal with energy. Fats contain about 2.5 times as much energy as the same amount of carbohydrates. Fat is added to the diet to:
    - Decrease dust
    - Make the feed tastier (increase palatability)
    - Increase the amount of energy cattle eat
    - Fats are found in grain.

4. **Vitamins** - Vitamins are important nutrients that cattle must have for:
    - Building strong bones and teeth.
    - Healthy skin
    - Blood clotting
    - Fertility (ability to reproduce)
    - Normal digestion
    - Normal growth

5. **Minerals** - Minerals are divided into two groups, major and trace elements. All of these are essential. An essential mineral is one which has a certain job it does in the body and must be given to the animal in its diet. The following are major essential minerals:
    - Calcium (Ca).
    - Phosphorus (P).
    - Sodium (Na).
    - Potassium (K).
    - Sulphur (s).
    - Chlorine (Ci).
    - Magnesium (Mg).

These minerals are needed in large amounts. Trace minerals are needed in small amounts. Theses may be supplied by mineral supplements or trace mineralised salt.

Cattle need minerals for:

- Healthy hair and coat.
- Growth.
- Muscle movement.
- Digestion of food.
- Without the proper amount of minerals, deficient symptoms can appear. You may choose to add a supplement to the diet to be sure the animal gets the proper minerals.

Ration and Diets

Diet: A diet is the mixture or combination of feed which are fed to an animal to meet its dietary requirement.

Ration: A ration is the amount of feed requirement by an animal every day. The diet must contain the proportion of the nutrients the animal needs to stay healthy, grow, gain weight, and reproduce. The correct volume of a properly balance diet will provide a ration that meets all of the animals dietary requirements.

These nutrients will be supplied by:

- **Concentrates -** grain and small pelleted feeds are concentrates. Concentrates are high energy feeds.
- **Roughages -** hay is called roughage. Roughages are high fiber feeds.

(Remember that concentrates are high in digestible energy and low in fibre. Roughages are high in fibre and low in digestible energy).

- **Supplements** – supplements are a good source of one or more nutrients. They are added to the rations to make the feed more nutrients. They may provide protein, energy, vitamins and minerals. Salt is an example of a mineral supplement. It is very important that cattle have salt in their diets. It is lost easy in sweat and body wastes. Salt can be fed to the cattle in the following ways:
    - Mixed in with feed
    - Given in block form that cattle lick from (salt blocks)

Palatability is how acceptable (tasty) the feed is to the animal. It is affected by flavor (sweet preferred), smell, appearance, temperature, texture and dustiness. The way the feed is prepared can affect any or all of these. If you are using concentrated feed it must be coarse ground to prevent digestive problems (bloat is common). A fine spray of water (molasses may be included) will reduce palatability problems related to dustiness.

When you feed, palatability becomes even more important. Your project animal must eat enough of its ration to produce the daily gains you want. If it does not want to eat the feed, the available nutrients in the feed are wasted. You will need to change your ration to one the animal will eat.

Problems with digestibility are similar to those of palatability. Digestibility is the percentage of nutrients in the feed that can be used by an animal. This is affected by the animal's stomach that breaks the food down into usable units. Digestibility is affected by the form of food for example, grains that have a hard outer coat often pass through the digestive tract before digestion is complete. Crushing the seed coat increases digestibility.

WATER REQUIREMENTS

An animal must have water in order to live. Animals should have water available to them all the time. If animals do not have enough water, they will eat less and lose weight. Water makes up about 70% of an animal's body weight, and as a result is very important.

The amount of water that cattle need depends on the following:

1. The amount and kind of feed in their diet (if the feed is dry the animal will need more water).
2. Size of animal.
3. Temperature - Cattle need more water in summer when the weather is hot.

It is very important that the water is clean and fresh. Cattle can get sick from drinking dirty, stale water.

At the show, if an animal is not drinking you can try the following –

- Add a sweetener, eg. cordial or molasses
- Include a mineral block in the water to aid in hydration

EXTERNAL PARASITES

The key with detecting external parasites on cattle is to detect their presence early. This way an effective treatment can be carried out so as to not allow a major concern to development.

The types of parasites that are found on cattle are:

1. Lice.
2. Ticks.
3. Itch mite.

1. Lice is common in all rainfall regions.
2. Ticks mainly occur in the drier region.
3. Itch mite (Keds) occur all over and their presence can be confused with ringworm. They are microscopic in size, and burrow under the skin and cause crusty lesions.

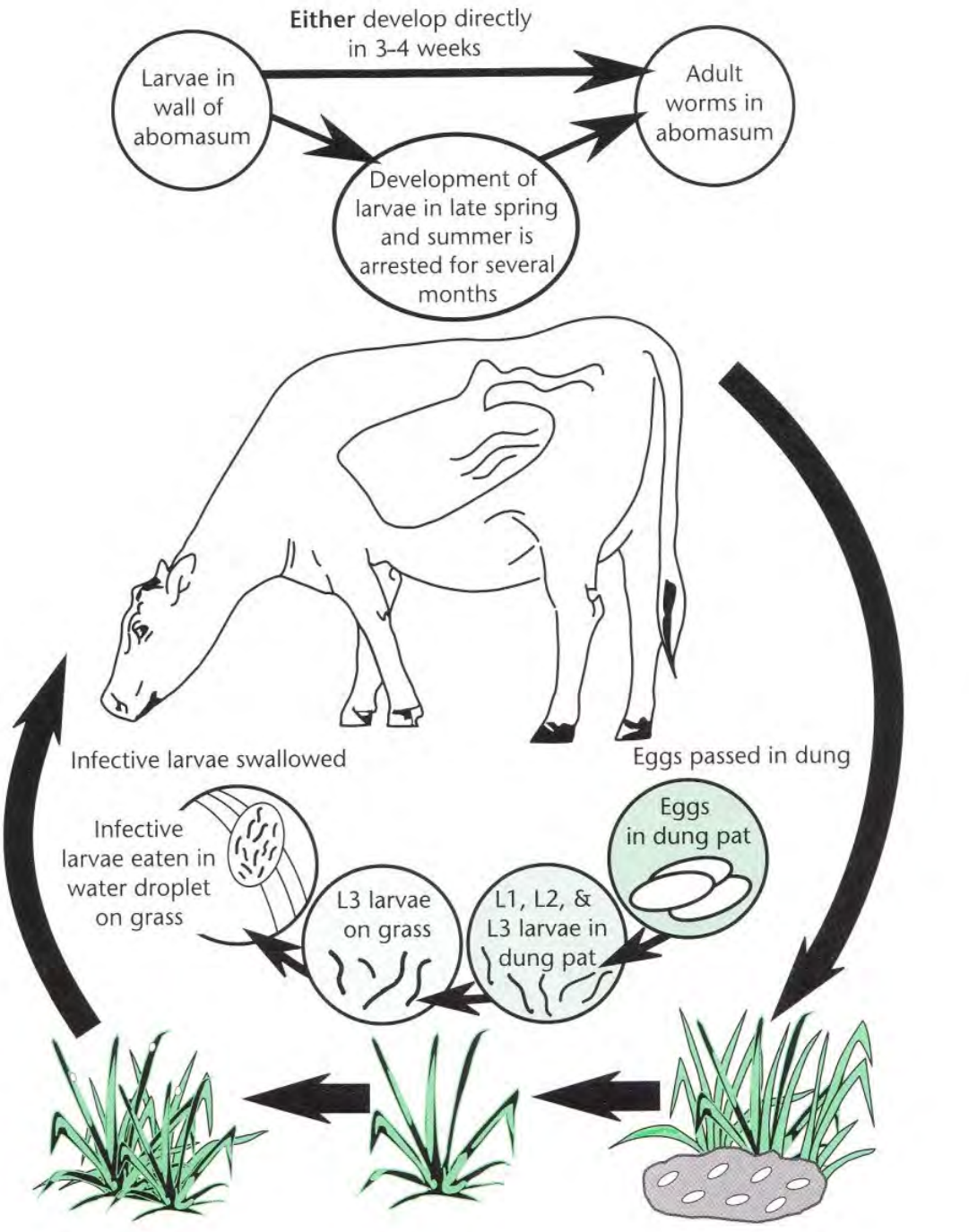
In all cases, the general symptoms are signs of ill shrifts, dull coat and sore areas due to rubbing.

Some diseases to look for:

- **Bloat** – Usually high rainfall regions. Excessive production of gases in rumen or first stomach.
- **Brucellosis (contagious abortion)** - Causes foetal abortion. Once disease is contracted, there is no cure. A vaccine can be administered.
- **Foot Abscess (acute foot soreness)** – Usually manifested in lush pasture and damp conditions. Penicillin injections will hasten the recovery period.
- **Mastitis (disease of the mammary glands)** - milk goes watery. If untreated, this disease can become serious and can cause death. A penicillin course will clear up the complaint.
- **Milk fever** – Comes on quickly in high producing cows. This is due to rapid draw on calcium deposits. Treatment with Calcium borogluconate is usually very effective if discovered quickly and is administered subcutaneously.

INTERNAL PARASITES

- **Gastro-intestinal "worms"**
  - Ostertagia
  - Generally only treat animals under 2 yrs
- **Liver fluke**
  - Relies on Lymnaea snail – inter host
  - summer green feed



IMPORTANT CATTLE DISEASES

Ringworm:

- Most commonly affects calves and characteristic lesions (small, round, hairless scabs) are often seen around the face and around the eyes.
- Rapidly transmissible between animal via direct or indirect (eg. Use of shared equipment) contact.
- **Humans can contract this disease** from the animal, it may result in the appearance of similar lesions
- The condition is usually self treating, however the application of topical ointments may aid to reduce the recovery time.

Pinkeye:

- Highly contagious disease that effects the superficial structures of the eye (ulcers may be visible), usually in animals under the age of 2 years old.
- Low levels of vitamin A and/or dusty crowded conditions can increase the risk of disease development.
- The disease may result in reduced productivity of the animal.
- Treatment options and vaccines are available.

Leptospirosis:

- Cattle can act as carriers of this disease and shed high amounts in their urine.
- The disease may result in mild clinical signs or reproductive problems.
- **Humans can contract this disease** from the animal, it may result in fever like symptoms which can progress if untreated.

Q Fever:

- Cattle can act as carriers of this disease.
- **Humans can contract this disease** through contact with contaminated cattle and their products.
- The disease results in an influenza-like illness, which can range in severity with individuals. Note: a human vaccine is available.

Johne ’s disease:

- Chronic contagious wasting disease.
- Cattle are usually more than 2 years of age when clinical signs are observed.
- Australia has a national program set up to monitor and contain any outbreaks of this disease.

Clostridial Diseases:

- A group of diseases that can result in death of cattle.
- Vaccinations are available.

1. *Enterotoxaemia (pulpy kidney)*
   - Associated with sudden change in diet.
   - Most common in young animals (4-18mth) in good condition.
   - Clostridial bacteria multiply in gut and produce toxins.

2. *Black Leg*
   - Clostridial bacteria multiply in gut and produce toxins.
   - Disease will first appear as bruising and lameness.

3. *Malignant Oedema*
   - Soft tissue – jelly like fluid between muscles.
   - Follows dehorning, castration or wound.

4. *Black Disease*
   - Liver, usually after fluke infection.

5. Tetanus
   - Deep wounds. Signs are cocked ears, tail eye lids, arched back.
   - After castration or puncture wound.

SA JUNIOR HEIFER EXPO…

EDUCATING TOMORROW'S LEADERS TODAY