Theme 7: Animal breeding, fertility and calf management

CALVING & CARE TILL WEANING

A publication sponsored by the ICSIAPL project

You will learn about (learning objectives):

- The three stages of Calving process from start to end
- How to treat a calf during the first 24 hours after birth
- What to do to reduce calf mortality rate during the first 24 hours
- How to treat the "mother" cow after parturition
- Colostrum management

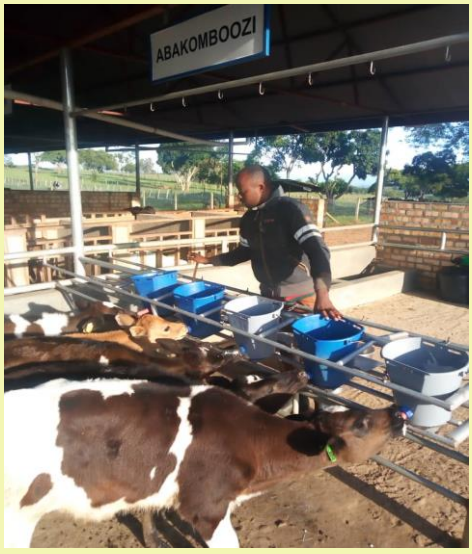
Calving

Worldwide in every farm system, many calves die during the first 48 hours

In most cases, it is the farmer who is responsible for these calf deaths/losses

In general, a high percentage of these losses are caused by;

- Lack of skills
- Lack of knowledge/low level of awareness; and
- Ignorance



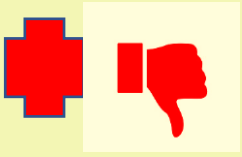
Checklist for pre and post-calving

To be checked			Action to be taken
Parturition area is very clean	Yes	No	
Vulva area of cow in labor is clean			
Cow's udder is clean and hairless			
All necessary equipment's are present			
Clean fresh cold water is available			
Calf hutch is ready for use			
Navel cord disinfection fluid is present			
Milk cans are disinfected and washed			
Feeding bottle, (tube feeding) near by			
Contacts Veterinarian available			
Cooling facilities available (colostrum)			

Calf Care ?

Cow Care ?

Hygiene!



+++Calf Care

+++Cow Care

+++Hygiene

Calf mortality

Example;

Negative impacts on calf mortality in the first 48 hours

- ❑ Poor comfort for the cow - calving process may delay
- ❑ Poor hygienic conditions - sterile calf immediately infected.
- ❑ Leaking milk, wet and dirty udder/teats - contaminated colostrum

Relative high risk of diseases and death

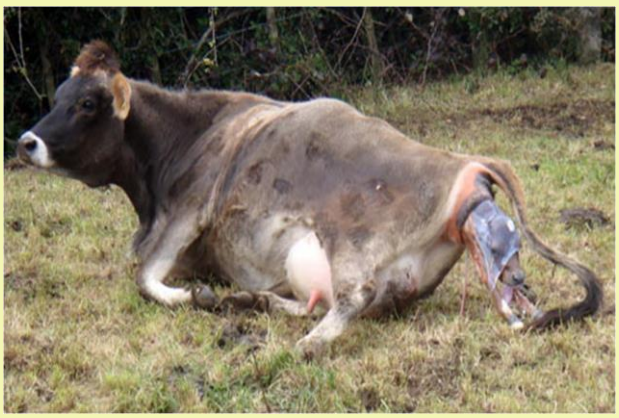
Calf survival

Example;

Positive impacts will help the calf to survive easily

- ❑ The best place to give birth
- ❑ Excellent hygienic conditions - clean environment
- ❑ Nice clean udder - Good quality colostrum, no unnecessary infections

High survival rate without diseases



Calving Process

The Calving process can be divided into three stages;

Stage 1

- Preparation for calving
- 3-6 hours in cows, up to 12 hours in heifers

Stage 2

- Birth of the calf
- 30 minutes in older cows, up to 4 hours in heifers

Stage 3

- Expulsion of the fetal membranes
- 2hoursr up to 12 hours

Incalf heifer

Calving Process: Stage 1 (3 – 12 hours)

Stage 1 is when the cow is getting ready to calve. This stage takes 3 to 6 hours in adult cows; while first calving heifers, it lasts up to 12 hours

The cow in labour will;

- separate herself from the herd
- Start raising tail and swishing regularly
- Start (mild) kicking and licking of the belly
- Be continuously lying down and getting up
- Show an arched back i.e. final preparation for labor
- Present the water bag
- Remove traces

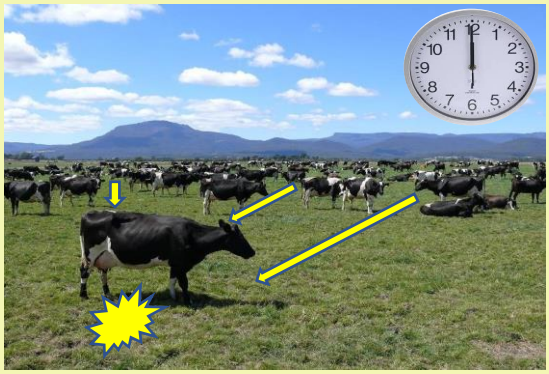
Cow separation

The cow separates herself from the herd in case the they are in the field, which is the most favorite area for parturition

In case of "controlled" calving, it is recommended to separate the cow from the herd 1-2 days before expected calving

Tail raising

Tail raising is one of the first signs of calving from a cow whose parturition process has started



Stage 1

Kicking and licking of belly

The kicking and licking behavior is a sort of contacting sign that the calf is moving inside. The calf decides when it wants to be born.

Continuously lying down and getting up

This behavior means that the calf slowly by slowly moves into the birth way

Usually about 30 minutes before abdominal contractions start, the calf goes into birth way. Inside the cow's birth way there are several receptors signaling the cow to push the calf out

Stage 1

Arched Back

The arched back (in a normal calving process) is a sign that the abdominal contractions have started, by this time the contractions become stronger

Visible abdominal contractions

Now the contractions are more visible and audible. Close observation is needed to monitor the progress

During this stage it is not known yet what the position of the calf really is

Stage 1

Water bag

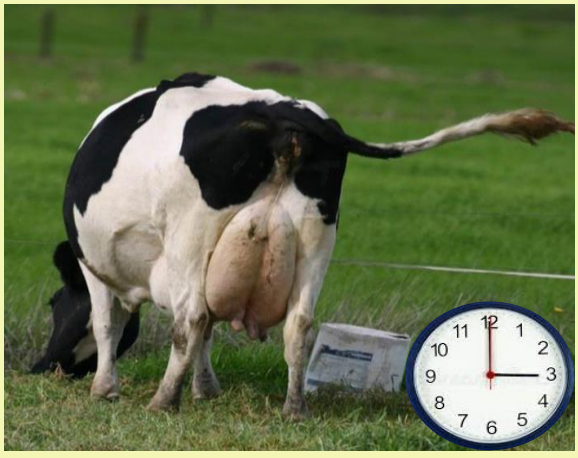
After contractions have started the waterbag is the first part that becomes visible

The waterbag will slowly by slowly stretch the birth way; when it is out the waterbag will break spontaneously.

Remove traces

Some cows will stand up after the waterbag has broken and will try to remove the traces of the upcoming birth. This is a natural habit to keep predators away from the newborn calf.

Stage 1



Wach this video:

https://www.youtube.com/watch?v=1Mtxft-8Pk4Watch

Presentation of the Calf

- When the front legs are visible with the dew claws pointing down, and soon after the calf's tongue and head, everything is fine so far

Calving Process: Stage 2 (30 mins – 4 hrs)

In older cows, this stage may go very fast, but in first-calving heifers' it can easily last 4 hours.

At stage 2, the cervix is fully dilated, and the calf has entered the birth way. Because of some discomfort, the cow will go up and down for a while before hard contractions follow.

Presentation of the Calf

When the front legs are visible with the dew claws pointing down, and soon after the calf's tongue and head, everything is fine so far

Calf is born

The Calf is now born and stage 2 is completed

The cow will stand up immediately and lick the calf intensively

Calving Process: Stage 3 (1-12 hours)

Stage 3 of the calving process is completed as soon as the placenta is off. Most usually it comes of within 6-8 hours

Calf care after birth

Immediately after the calf is born, all the emphasis must go to the calf

- Is the calf alive?
- Is the calf active?
- Is the calf breathing/stuffy?
- Is the calf's navel cord not bleeding?

Navel cord disinfection

Navel cord disinfection is a number one priority immediately after birth

Step by step procedure

Step 1; Localize the exact place of the navel to be sure the treatment is effective

Step 2; Dip the umbilical cord in the dip cup few times up and down to be sure that the whole area is disinfected

Step 3; Take the dip cup away after the treatment and asses the presence of sufficient dip agent

Step 4; To finalize; fill your hand with dip agent and massage the navel for 10-15 seconds

Source: *Roodbont*

3

Source: Roodbont

4

Important tips

Tip 1 The Whole procedure of navel disinfection must be repeated after 12 & 24 hours

Tip 2 Always wear gloves when dipping

Tip 3 Clean the dip cup after being used for one calf. Used (not cleaned) dip cup may cause infections.

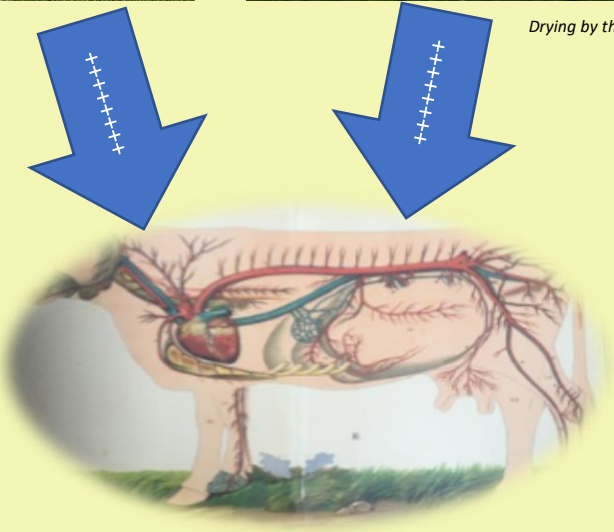
Licking and/or drying

Calf's blood circulation is stimulated under influence of licking by the mother or drying by the farmer

This activity for sure has a positive influence on the calf's suckling reflex and the calf's colostrum intake

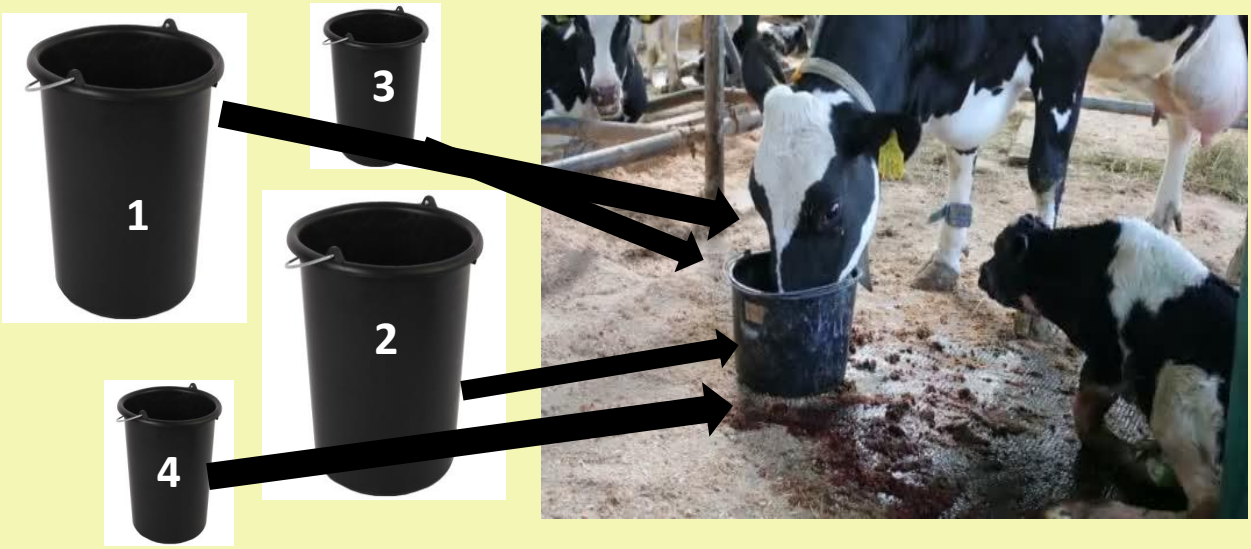
Licking by the mother

Drying by the farmer



Caring for both Calf and Cow

Good - High level of cow care, offering water
Bad - low level of calf care, dirty underground, the calf can easily be infected through (open) navel cord

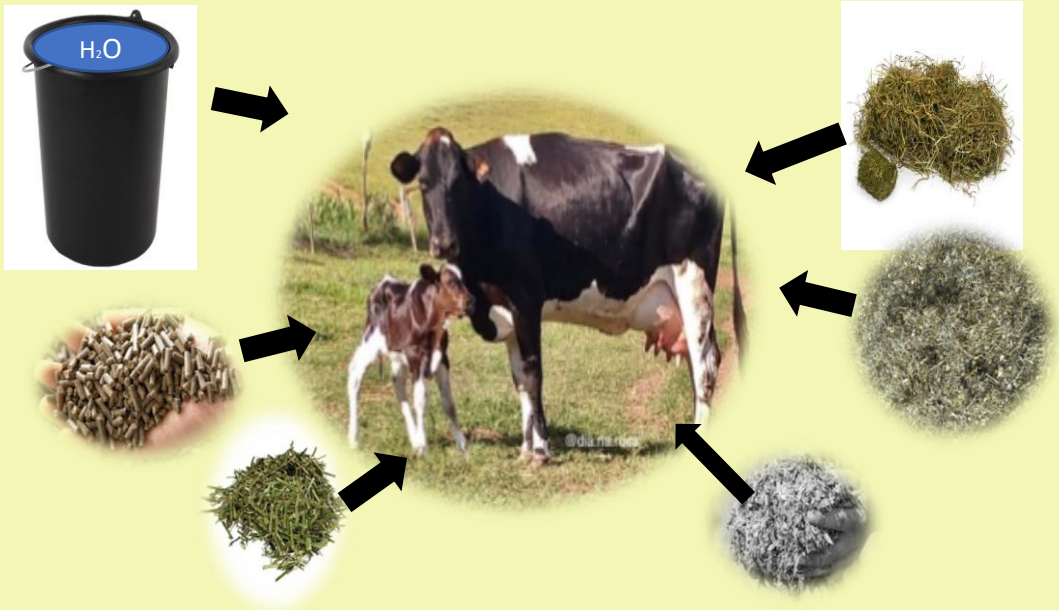


Cow care

For a newly calved cow, everything must be aimed at getting the feed intake going as quickly as possible

All the feedstuff available in the farm must be offered to the cow to fill up her stomach
Water, without limitation, is the cheapest medicine to increase the feed intake and to let the cow feel hungry

Remember: " A healthy rumen is a healthy cow"



!!!!

Be careful with concentrates.

Roughages can be given ad libitum

Placenta

Placenta will come off soon after calving, giving the cow the opportunity to lick the calf will help to drift off the placenta

Also frequent milking has a positive impact on drifting of the placenta

In healthy cows this process is completed within 12 hours after the calf is born

Hygiene

Maintain hygiene at all times

Background – Use of equipment during calving

Calving is the most important and most sensitive moment in a cow's life every year

(Too) many calves die because of a lack of prevention measures around birth

Farms lose most cows (either die) because of calving issues, mostly because farmers make wrong or no decisions

Many things can go wrong, which may affect the calf's health and the cow's health and performance. As such, putting more emphasis on hygiene and care will have a direct effect on calf and cow performance

Hygienic Calving pen

Successful calving all starts with good preparation. This means;

- When the cow is close to calving, it is important to separate the cow from the herd to allow the parturition process to take place quietly and undisturbed

- Take the cow to a spacious, clean calving shed that is well-filled with straw, with ample feeding and drinking facilities

1

How it should be

Unexpected

Water and disinfectant soap

As soon as the cow starts showing signs of calving, it is time to make sure that water and disinfectant soap is available

Disinfecting the vulva area

Washing and disinfecting areas around the cow's vulva, tail and rump is heavily recommended to protect "the sterile calf" and the cow's vulnerable birth canal from future infections

2

Special pulling chains/ropes

Preferably dry, but for sure disinfected, special pulling chains or ropes must be around when the calving process has started

Tip: This is how to tie and pull the strings in case assistance is needed. Other ways of application/tying and pulling can lead to permanent damage to the calf

!!

Important: Immediately wash and disinfect after use to be ready for the next calving

3

Clean hands and nails

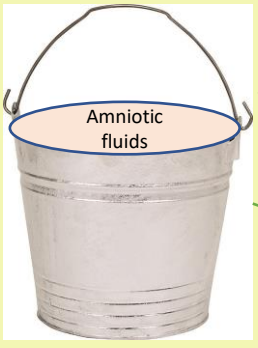
Washing hands and cutting nails before you start rectal research is a must

4

Stimulating feed intake using amniotic fluids

To stimulate feed intake immediately after calving, the amniotic fluids will help to increase the feed intake. This is in fact making use of the natural behavior of the cow

5



Cow feed

First aid incase of weak respiration

Clean cold water must be ready incase of weak respiration; cold water can act as a shock effect

Straw is beneficial for nose tickling, causing the calf to cough

Towels are used to dry the calf

6

Nose tickling causes the calf to cough

Umbilical/Navel cord disinfection

Without any doubt, the most important part of a normal birthing process is to disinfect the umbilical cord as soon as the calf is born

It is strongly advised to repeat this disinfection 2-3 times during the first 24 hours

7

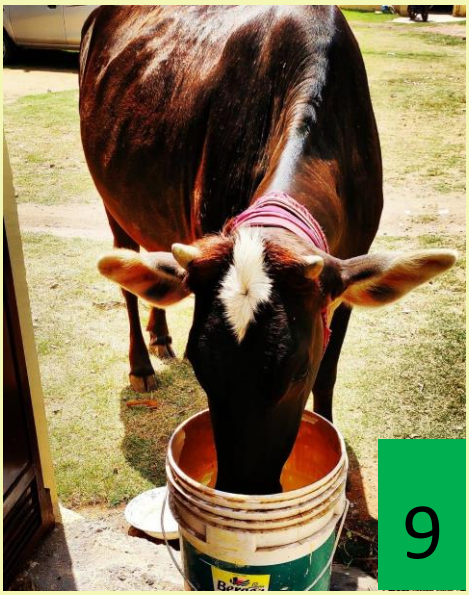
Preparations and demands for Milking and Feeding

First milking is done to harvest colostrum for feeding the calf. A number of milking equipment are required, clean and disinfected

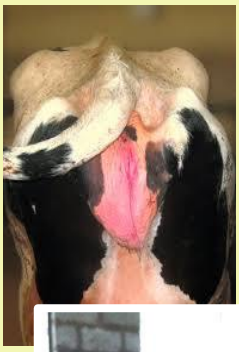
8

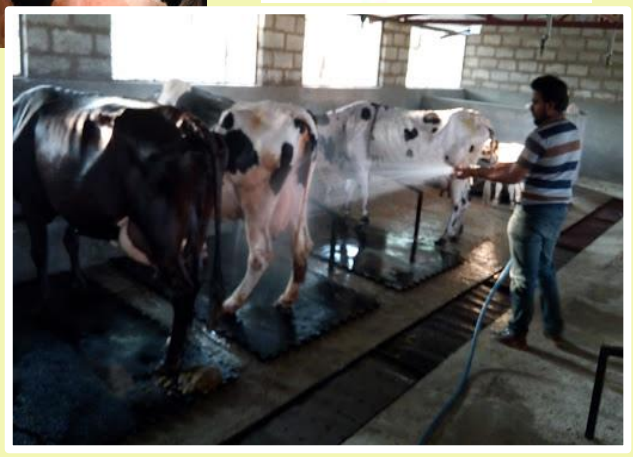
Disease prevention: Water and feed

Offer the cow lukewarm water followed by high-quality feed after she calves down



9





Cooling the cow's vulva (in case of dystocia/heavy parturition)

Sometimes the cow's vulva becomes slightly (or sometimes severely) swollen after assisted calving. Cooling the cow's vulva by spraying cold water will help stop the swelling process and reduce pain

10

Colostrum management in case of Feeding

Milk the colostrum as soon as possible (within one hour after calving)

Use clean buckets and wash your hands properly before milking

Before milking, clean the udder and teats intensively

Feed the calf at least 1.5- 2 litres of fresh colostrum

If some colostrum is left, store in a cool place (e.g., refrigerator) for use in the second feeding

Milk the cow again after 6-8 hours and store it in a cool environment for another feeding to the calf

Cooled colostrum must be warmed up to 40°C by the so-called 'Au-Bain Marie method.' That is;

- Put the colostrum in a container and inside another container with hot water 70-90°C . Continuously add hot water and stir the colostrum
- DO NOT put the water container with the colostrum container on a heat source

Colostrum management in case of Suckling

Keep cow and calf together but separate from the rest of the herd

Before suckling, udder and teats need be cleaned intensively

Always check the teat canals whether they are open

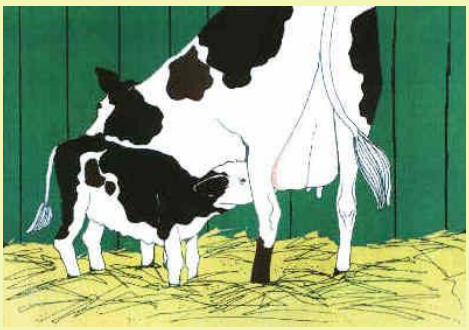
Also check all four teats for mastitis

Observe the behaviour of the cow (especially first calvers) and whether she allows the calf to suckle

A sleeping calf is a content calf, means the stomach is full

Active calf throughout the day means:

- Low intake of colostrum
- Dirty udder
- Deep udder (udder sagging closer to the ground)
- Poor maternal qualities



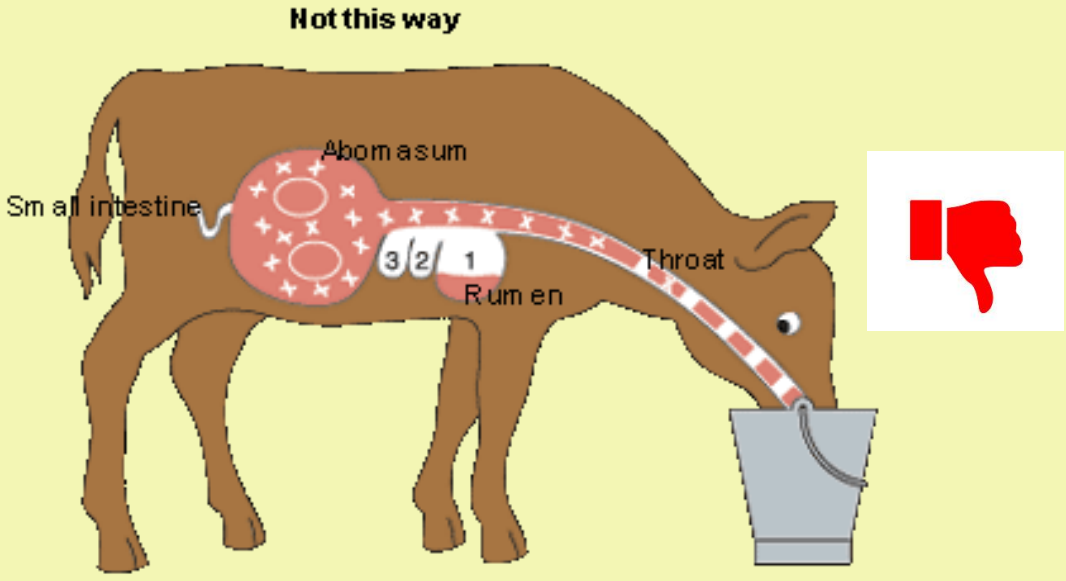
In summary, calves can suckle colostrum from;

- a milk-feeding bottle
- a teat bucket
- the 'mother' directly

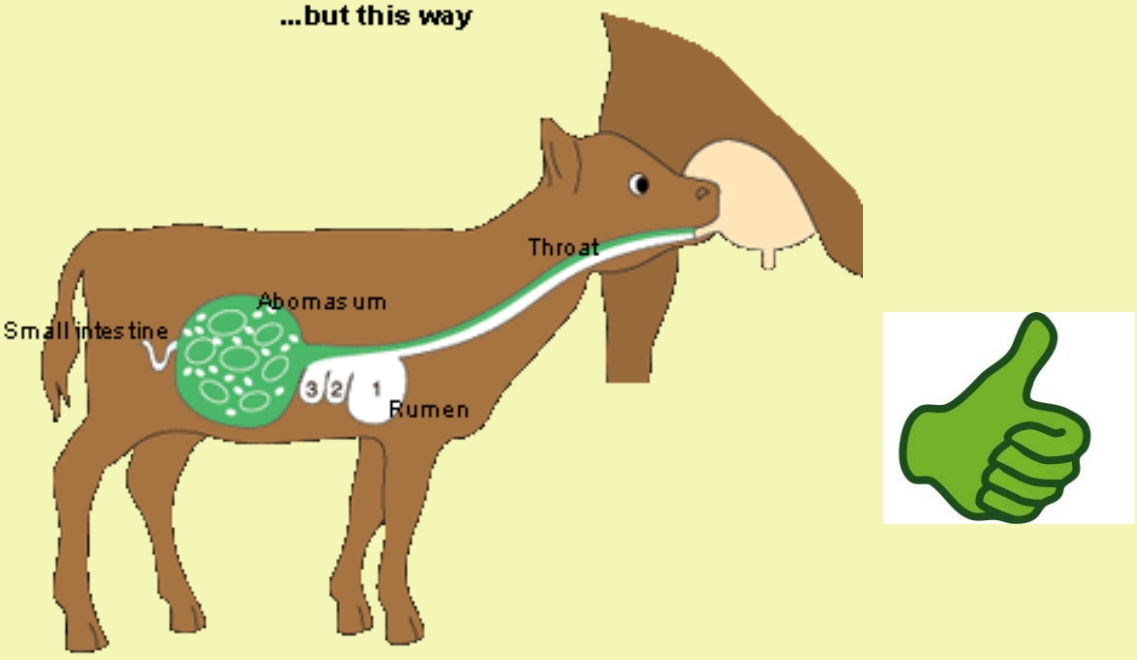
Suckling/feeding milk to calves

The way of suckling/drinking might be the cause of problems

This way of drinking may cause some digestible problems. Look at the milk that enters the rumen !!!!



This is how a calf should drink milk. This way, all the milk goes into the abomasum



Summary: Take home message(s)

Calf	Cow
Its all about Hygiene	Its all about accuracy
Poor hygiene is the most important reason why the mortality rate in new born calves in some farms is unnecessarily high	Poor accuracy is definitely the cause why many cows do not perform well in the first few weeks after calving
Beware! A calf is born without one single gram of resistance, and in any chance bacteria will get to enter the calf's body/bloodstream/respiratory tract and cause a disease to the calf	Beware! The period after calving is the most sensitive period for the cow. The cow is weak and starts mobilizing body reserves. Attention is required to guide the cow throughout this difficult period
First colostrum should be warm and clean; must be given as soon as possible	Water feeding is the cheapest medicine to let the cow eat and recover from parturition issues

Handling calves during difficult birth

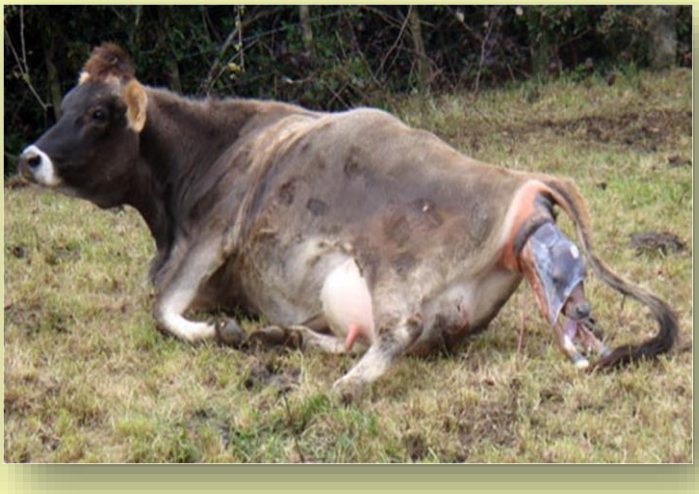
Calving is an annually recurring process that in most cases often runs smoothly. It is therefore very important that the farmer always keeps a close eye on the progress of the calving process.

The number of times that the calving process deviates and does not go as desired can be due to various reasons.

These abnormalities can have major consequences to the calf, many calves will die as a result of the abnormal birth process, and often little can be done about this.

But there are also situations where the farmer himself can still do the necessary to keep the calf alive.

Acting accurately with sufficient knowledge and skills can certainly save the lives of many calves.



Note:

When assistance is required according to the responsible person, then we speak about a difficult birth.

Normalities in calving process

If you deliver a live calf, it should:

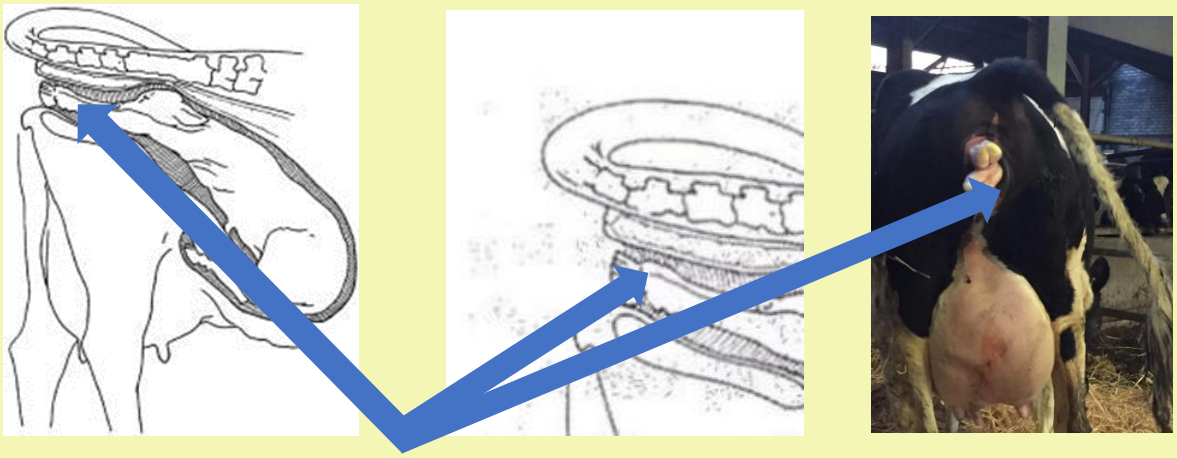
- Take its first breath in 30 seconds.
- Lift its head in 1-2 minutes.
- Roll onto its chest in two minutes.
- Attempt to stand in 15 minutes.
- Begin shivering in 30 minutes.
- Be standing in one hour.
- Be suckling in two hours.

The calf should also have:

- A rectal temperature of 38.8-39.4° celcius after birth and stabilizing to 38.3-38.8°C within one hour.
- A Pulse rate of 100-150 beats per minute, regular rhythm, strong pulse.
- 50-75 breaths per minute.
- No swelling or discoloration of the head, limbs or tongue.
- Pink, moist mucous membranes.

Normal calving down: Dew claws downward

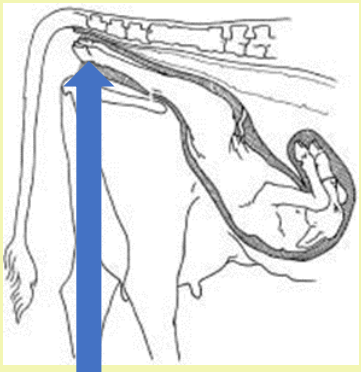
Always pay attention to the position of the dew claws. When calf is in normal position, dew claws are <u>always</u> pointed downwards.



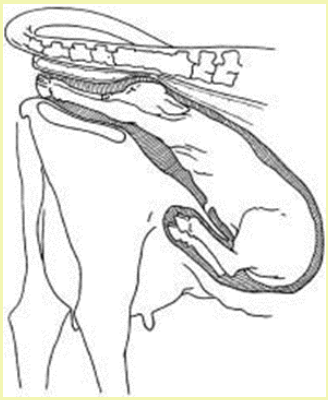
Normal presentation, dewclaws pointed downwards, one can feel the head.

Normal calving down: Legs and Head

Normal presentation of legs is not always correct. The calving process is delayed because calf is presented in supine position.



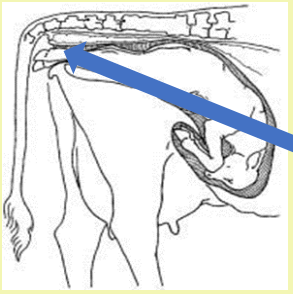
Legs seem to be in right position, but there is no head.

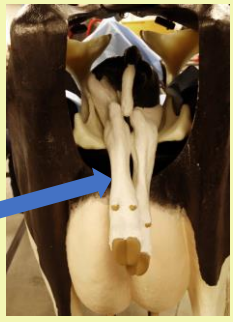


Legs are presented correctly, and the calf's head is nearby.

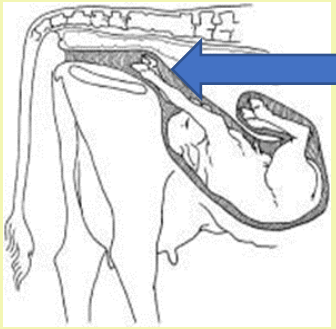
Abnormal calving: Dewclaws upward

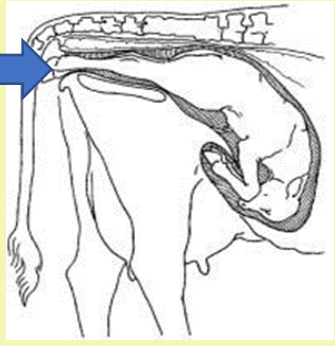
The first sign of abnormality is when the dew claws are pointed up-wards. Most probably the calf is in breech position.





Sometimes there is no progress during calving – could the calf be in a breech position?



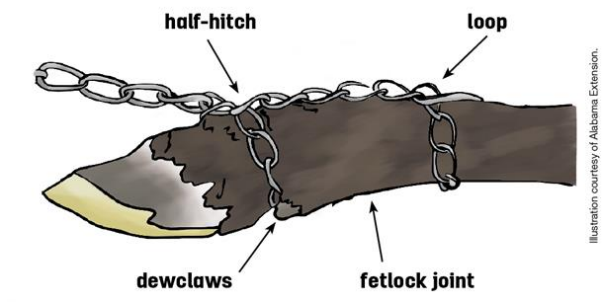


No tail! External assistance is required immediately. Calf must be turned before it enters the birth canal.

Dew claws upward!
Tail present = Breech position.

What to do during abnormal calving

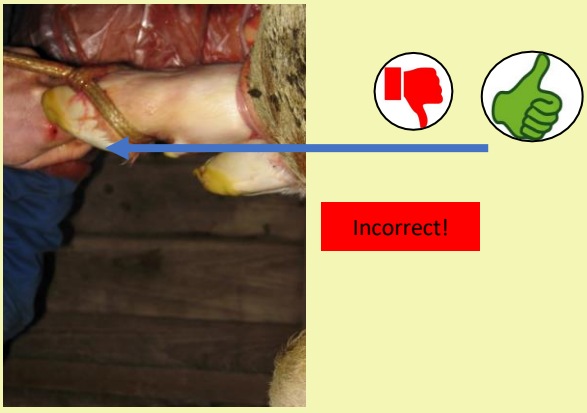
Placing OB chain

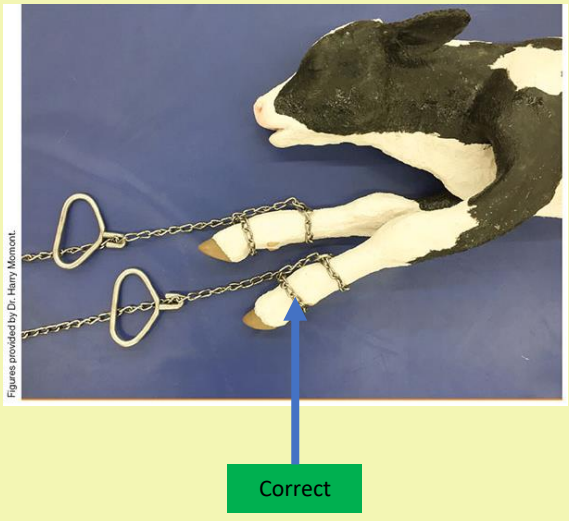


Video demonstration placing OB Chains

https://www.google.com/search?q=correct+placement+obstrical+chains&rlz=1C1GCEA_enNL914NL914&oq=correct+placement+obstrical+chains&aqs=chrome..69i57j33i10i160.18083j0j15&sourceid=chrome&ie=UTF-8

Beware:
Two strong people can exert a force of 180 to 270 kg while delivering a calf. Mean force required to fracture the leg is 170 kg.





This can:

- Brake the calf's leg(s).
- Pull off the claws.
- Attain 100% traction (more kgs, which is dangerous)

fetlock joint

Extraction of the calf

Pulling too hard on the calf will lead to severe muscle acidification in the calf. This severe acidification increases stress enormously and will certainly have an impact on the respiratory rate immediately after birth.

"Controlled" extraction

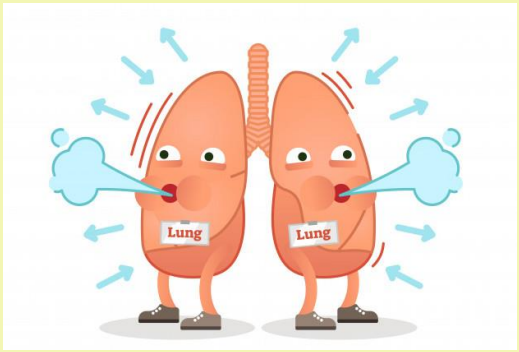
Forced extraction

What to do to a calf after birth

Assisted breathing

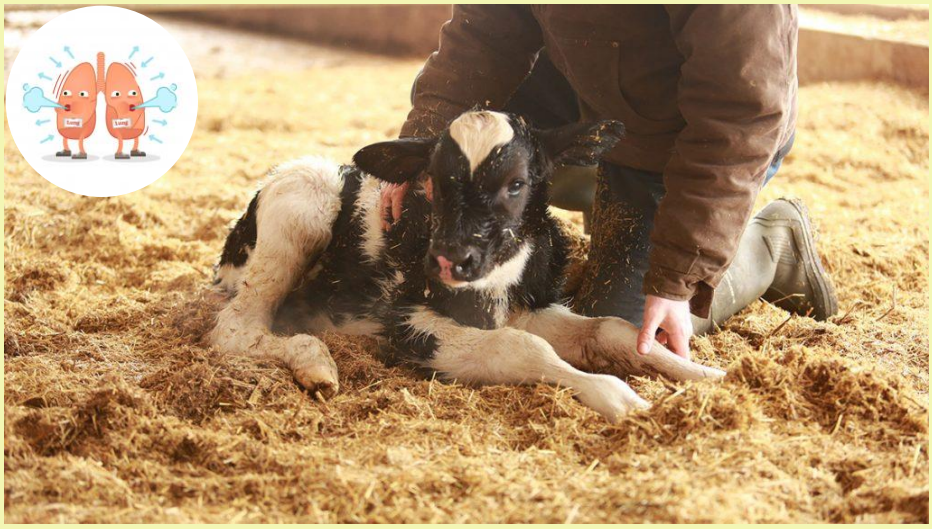
Assistance of the calf to breath is necessary in case of:

- Long calving process.
- Forced extraction.
- Abnormal presentation(s).
- Amniotic fluids in lungs.
- Dystocia.
- Twin birth.
- General weakness.
- Early birth.



Recovery position

If a calf needs assistance breathing, place it in the recovery position by rolling the calf into the sternal position where its chest and stomach are on the ground.



Front and back legs

The front and back legs should all be extended straight forward. This gives both lungs an equal opportunity to expand by reducing the amount of weight on them.

Vigorous rubbing

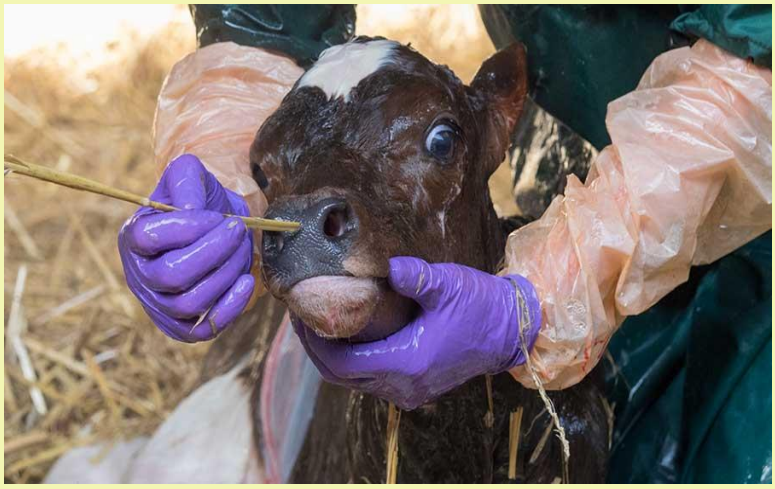
Vigorous rubbing can also be used to stimulate a calf ’s breathing.

Cold water

Pouring a bucket of cold water over the newborn calf often induces a startle response and will often help induce a cough response and then optimize/activate breathing.

Calf’s nose

Finally, tickling the inside of a calf’s nose with straw or a small amount of cold water in the ear may stimulate the calf to gasp and take a breath.

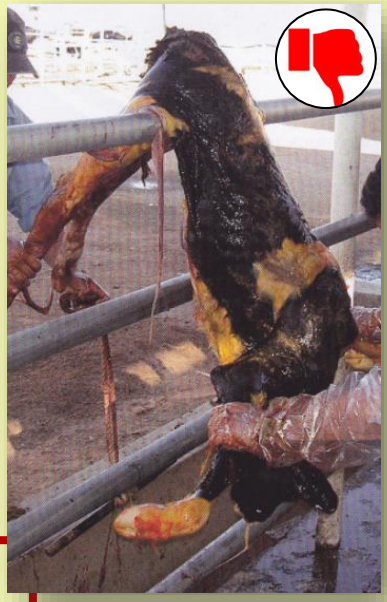


What to avoid after birth

Hanging the calf upside down might be harmful for two reasons:

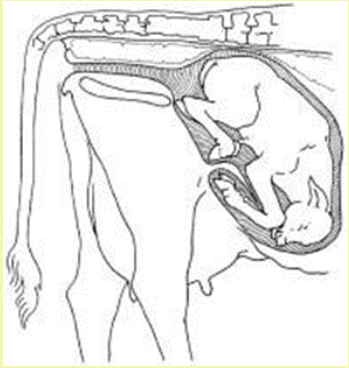
i. most of the liquid comes from the abomasum.
ii. hanging the calf upside down increases pressure on the chest, making it more difficult for the calf to breathe.

It is a misunderstanding; many people think that the liquid comes from the lungs.



DON'T!
Never hang the calf upside down

Before birth/Labour period can hint calf presentation

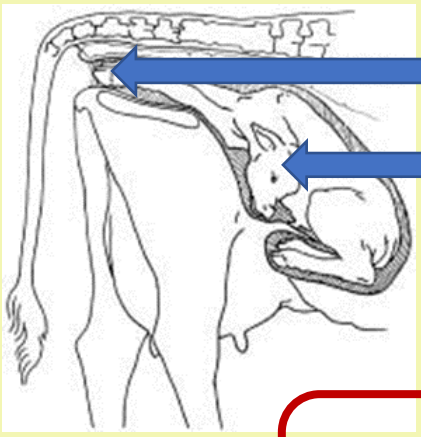


WATCH The TIME

Delayed action can cause calf's death before birth

Sometimes the cow is in heavy labour without visible progress/changes.

1. She needs an immediate check.
2. Only the calf's tail is visible
3. Call the veterinarian.



This position is mostly associated with death before birth

Beware

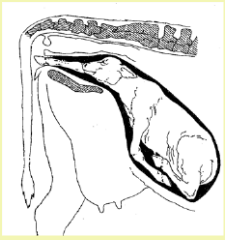
You might feel the legs and assume that the calf is in a good position. Always be sure that you can also feel the calf's head, if not (as shown in the picture), then this is a problem.

There is no time to loose when calf is in this position. In many cases, the calf has died already before parturition did start.

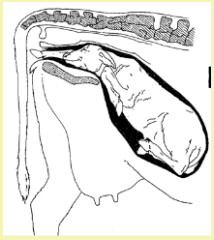
Other Calf presentations and how to handle them

Shoulder Flexion

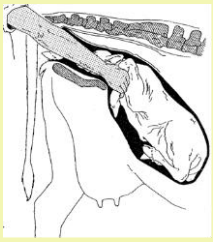
To adjust the position of the calf into normal, it is more comfortable to let the cow stand up.



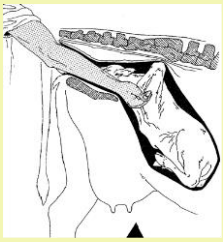
1. Push the calf back.
2. Grab calf's leg.



3. Bring leg just ahead of birth way.



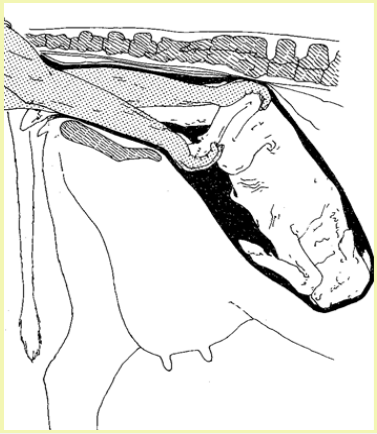
4. Go grab the leg between knee and hoof.



5. Protect the calf's hoof in the palm of your hand.
6. Bring the calf in normal position

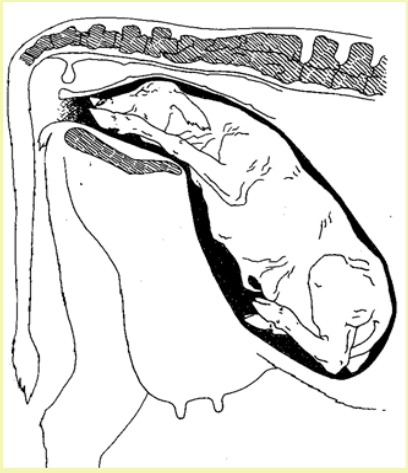
Hock Flexion

1. Push the calf back.



2. Bring calf's legs into birth way one by one.
3. If enough space, use both hands.
4. Push the hock, pull the "protected" hoof.

Johne's position

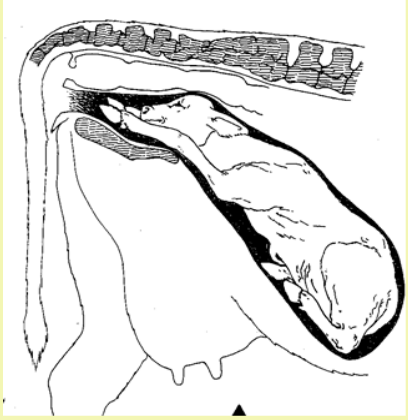


In this position, the head of the calf has moved too far forward in relation to the front legs.

The knee sits on the pelvic floor and the forearm stops the calf from moving further.

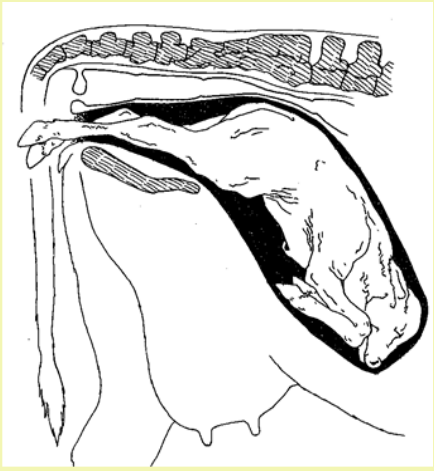
To correct this you have to push the calf back and straighten the legs out.

'Sub'-normal presentation



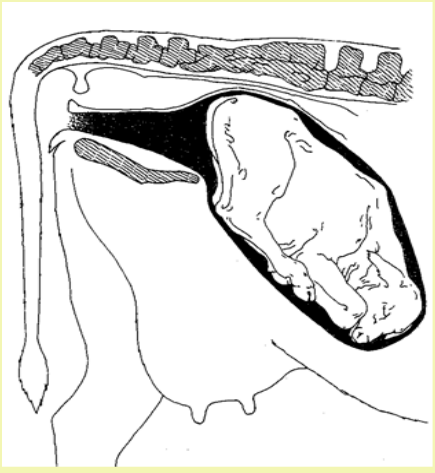
In this position the calf can be delivered once the head of the calf is out. You first have to stretch the two front legs, then pull them down towards the cow's udder.

Posterior presentation



1. The only way out.
2. Pull gently.
3. Make sure that the tail is folded between the hind legs and not curled to the side, or else it will damage the vagina wall.

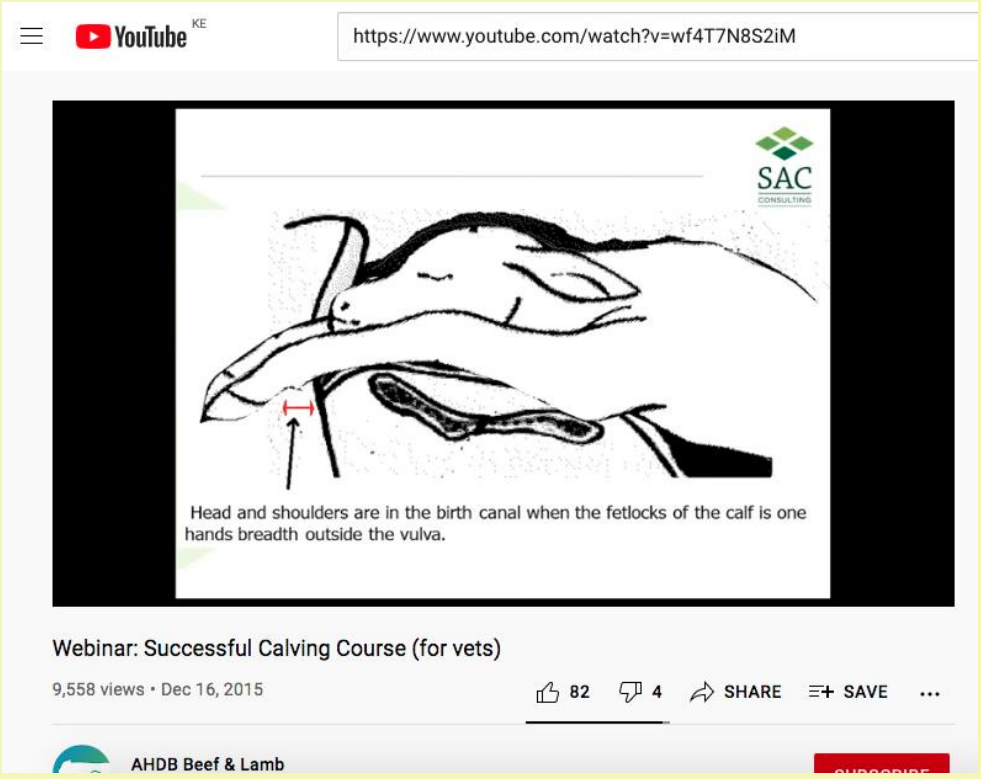
Breech position



1. Is very complicated.
2. Adjustment is not without risks.
3. See hock flexion.

15. Take home message: Watch video

https://www.youtube.com/watch?v=wf4T7N8S2iM



-END-

Milk CMR Schedule

Feeding and raising calves can be rather simple, as long as the calf stays with her mother.

If your calves are raised separate from the mother cow, choose a rearing schedule with whole milk and/or Calf Milk Replacer (CMR). This decision is based on finances and efficiency.

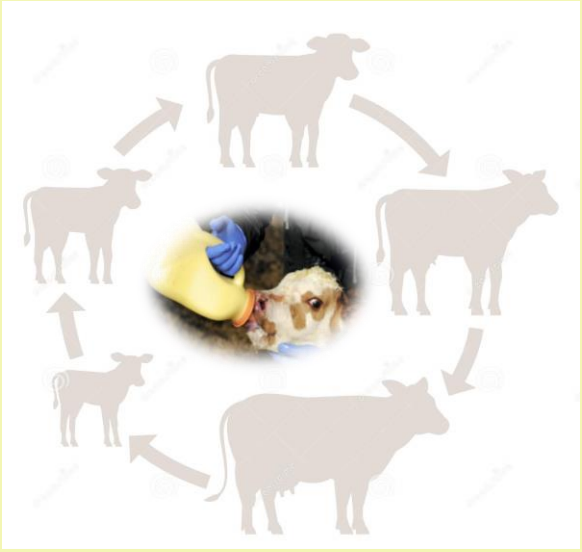
All Do’s and Don'ts for a successful ‘milk period’ must be held up to the light.

Rearing schedule i.e., whole milk and/or Calf Milk Replacer (CMR) is key to the growth of a calf into a future dairy cow

Whole milk

?

Calf Milk Replacer (CMR)



Cost analysis: CMR vs Cow milk

Choosing between whole milk and/or Calf Milk Replacer (CMR) is a decision based on finances and efficiency.

Calf Milk Replacer (CMR)

Consider CMR of 20 kilograms (kg)

- CMR price: € 62 (UGX 261,72), equal to € 3.10/kilo (UGX 13,085.10)
- Constituting Solution: 130-160 gr/litre.
- Feeding rate: 6 litres/calf/day.
- Hence, 6 x 130 gr = 780 gr powder OR;
  6 x 160 gr = 960 gr powder
- 780 grams = € 2.42/day (UGX 10,214.82) OR;
  960 grams = € 2.98/day (UGX 12,578.58).

Conversion rate: 1 Euro = UGX 4,221

Compare with what you get paid (milk) and what you have to buy (CMR)

Cow Milk

- Milk price: € 0.35 (UGX 1,477.35) per litre
- The milk is assumed to have;
  - Average fat & protein %
  - Low somatic cell count (SCC)
- Feeding rate: 6 litres/calf/day
- 6 x € 0.35 (UGX 1,477.35) = € 2.10 (UGX 8,864.10)/calf/day

Note:
Never feed abnormal (mastitis, high SCC milk) to your calves.

Comparison: Cow Milk vs CMR

Cow Milk

Amount
- Trials 10 litres/day.

Composition.
- Varying, but always use same cow!
- (too) low in trace elements and vitamins.
- Disease transmissions possible

Pasteurized (advised).
Temperature
Costs (Consider selling price to processors)

- When calves are suckling, they probably drink a lot more. It is also possible to feed more, but then there is absolutely no place for even small mistakes.
- Young calves need regularity, it is very important to feed them the same kind of milk throughout the rearing period, preferably from the same cow.
- Cow milk has its risks; in general cow milk is lacking several trace elements and vitamins that are crucial for the calf's growth and health status. To fill up this gap concentrate is needed. Also, several diseases can easily be spread throughout milk (John's Disease).
- To take away some risks, it is better to pasteurize the milk before feeding.
- Feeding temperature always must be 39-40°C.
- Calf rearing is always very expensive, milk consumed by the calf cannot be sent to the processor.

CMR

Amount.
- Scheduled/recommended by supplier

Composition.
- Always same.
- Required Vitamins /trace elements.
- Disease free.
- Preparation/constituting!

Drink temperature.
Costs (of CMR powder, water, electricity)

- Always choose the feeding schedule/recommendations advised by the supplier of the product.
- The big advantage of CMR is that calves always consume the same milk throughout the rearing period. Trace elements and vitamins are tailored to the needs of the young calf.
- Disease transmission throughout milk is excluded.
- Preparation is an art, training is advised!
- Feeding temperature always must be 39-40°C.
- CMR as a product is no doubt expensive; but CMR in case of health and growth might be relatively cheap.

Calf feeding schedule: Whole milk

Many decisions have to be made in calf feeding schedule, there is no room for mistakes. Consider;

1. How much.
2. How often.
3. How exact.

Feeding schedule for whole/CMR milk depends on;

i. Objectives.
ii. Weaning weight.
iii. Availability of concentrates.
iv. Management issues (roughage quality).

Example of a feeding schedule

Rearing Period			**Milk**	**Water**
8 weeks	10 weeks	12 weeks	2x/day	Ad lib
04-08 days	04-10 days	04-12 days	2.0 litre	
09-16 days	11-20 days	13-23 days	2.5 litre	
17-42 days	21-50 days	24-55 days	3.0 litre	
43-46 days	51-60 days	56-64 days	2.5 litre	
47-51 days	61-66 days	65-75 days	2.0 litre	
52-56 days	67-70 days	76-84 days	1.5 litre	

Note:

Constant nutrition in terms of quantity and composition is important for a successful rearing period/result.

Observe rule 1

1

Feed every day, milk from **same** cow to **same** calf.

Observe rule 2

2

Feed every day, healthy and clean milk, same temperature.

Observe rule 3

3

Feed every day, **healthy** and clean milk at the **same** time.

Feeding and treating a calf is similar to a baby.

Calf feeding schedule: Calf Milk Replacer (CMR)

There are many products (CMR) in the market, but with huge variety in terms of quality. Always compare different brands.

Preparation of CMR is a very sensitive and precise job, mistakes are not allowed. Every mistake during preparation has a negative impact on health status of the calf.

Be aware! Not every brand has the same concentration, read the operating instructions carefully.

General rules

Calf Milk Replacer (CMR)

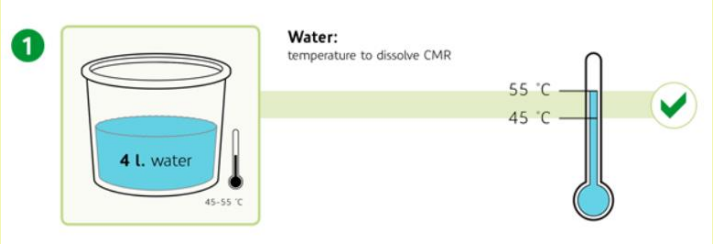
Exact weighing!

Exact measuring (temperature)!

5 minutes stirring

Use clean warm water

Water temperature



When the powder is dissolved in warm water, there is less chance of lump formation.

Further reading

Example how to prepare Calf Milk Replacer
https://www.frieslandcampinaingredients.com/insight/ready-to-feed-kalvolac-read-here-how-to-prepare-it-and-what-the-optimal-dosage-is/#content

Lump formation

Lump formation in the (not properly prepared) milk can have very unpleasant consequences to the calf; digestion process in the abomasum will be disrupted and the calf will develop diarrhea.

How to avoid lump formation

CMR/powder must always be stored in very dry environment.

Bags in use/opened, must be 1properly closed.

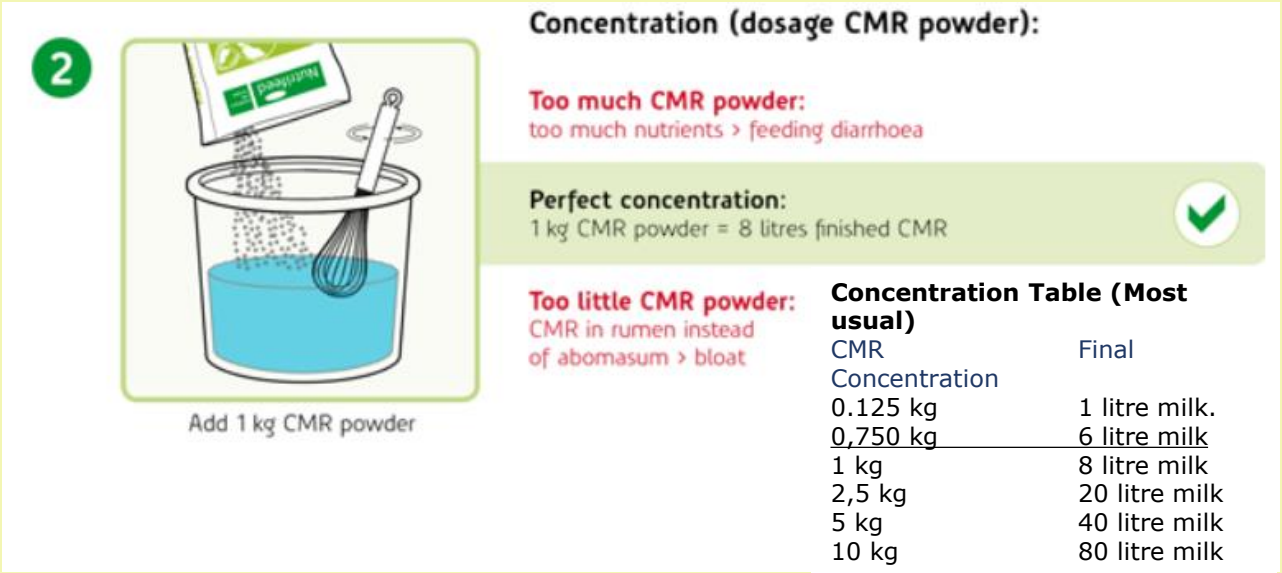
Use hot water of 55° Celsius to dissolve the powder.

Manual stirring time is at least five minutes and alternately turning right and left.

Before feeding, check the milk for the presence of lumps

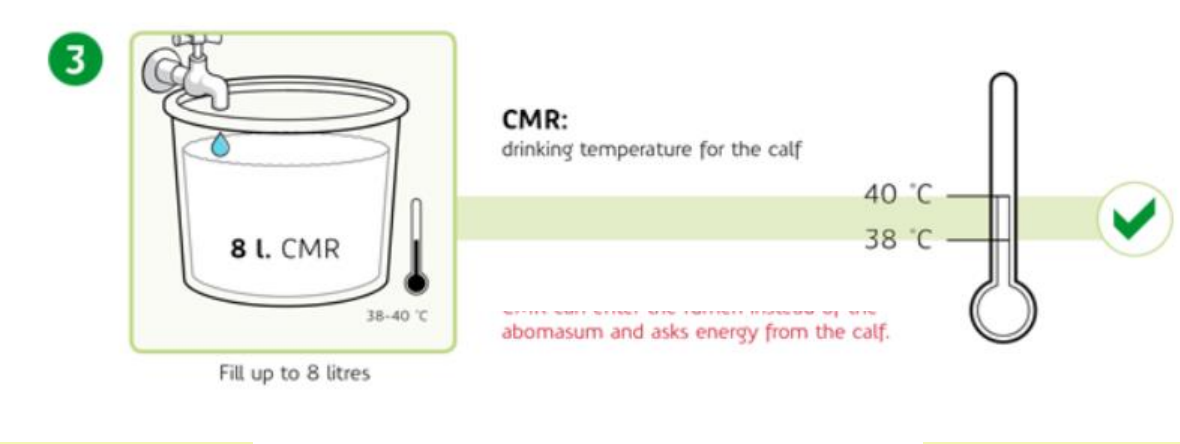
After proper stirring add the required amount of water and be sure drinking temperature is 39-40° Celsius.

Concentration/dosage of CMR powder



Drinking temperature (Cold Milk)

(Too) cold milk will enter the rumen instead of the abomasum, and sucks energy from the calf to warm up again; this means the energy that cannot be used to gain weight,



- END -

Summary: Take home message

- Feeding and treating calves is similar to a baby child.
- Every mistake you make is shown to you by the calf.
- Feeding schedules must be followed strictly.
- Changes and adjustments can be implemented slowly and must be well considered.
- The success of calf rearing depends on the farmers attitude knowledge and skills.
- There is no room for nonchalance; the calf demands regularity, time and precision.

Further reading: https://www2.sprayfo.com/calf-rearing

Use of equipment during calving

Calving is the most important and most sensitive moment in a cow's life every year

(Too) many calves die because of a lack of prevention measures around birth

Farms lose most cows (either die) because of calving issues, mostly because farmers make wrong or no decisions

Many things can go wrong, which may affect the calf's health and the cow's health and performance. As such, putting more emphasis on hygiene and care will have a direct effect on calf and cow performance

Hygienic Calving pen

Successful calving all starts with good preparation. This means;

- When the cow is close to calving, it is important to separate the cow from the herd to allow the parturition process to take place quietly and undisturbed

- Take the cow to a spacious, clean calving shed that is well-filled with straw, with ample feeding and drinking facilities

1

How it should be

Unexpected

Water and disinfectant soap

As soon as the cow starts showing signs of calving, it is time to make sure that water and disinfectant soap is available

Disinfecting the vulva area

Washing and disinfecting areas around the cow's vulva, tail and rump is heavily recommended to protect "the sterile calf" and the cow's vulnerable birth canal from future infections

2

Special pulling chains/ropes

Preferably dry, but for sure disinfected, special pulling chains or ropes must be around when the calving process has started

Tip: This is how to tie and pull the strings in case assistance is needed. Other ways of application/tying and pulling can lead to permanent damage to the calf

!!

Important: Immediately wash and disinfect after use to be ready for the next calving

3

Clean hands and nails

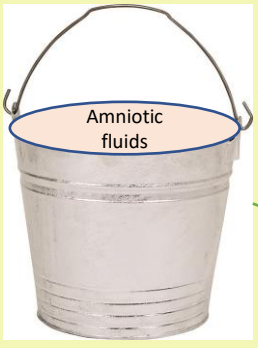
Washing hands and cutting nails before you start rectal research is a must

4

Stimulating feed intake using amniotic fluids

To stimulate feed intake immediately after calving, the amniotic fluids will help to increase the feed intake. This is in fact making use of the natural behavior of the cow

5



Cow feed

First aid incase of weak respiration

Clean cold water must be ready incase of weak respiration; cold water can act as a shock effect

Straw is beneficial for nose tickling, causing the calf to cough

Towels are used to dry the calf

6

Nose tickling causes the calf to cough

Umbilical/Navel cord disinfection

Without any doubt, the most important part of a normal birthing process is to disinfect the umbilical cord as soon as the calf is born

It is strongly advised to repeat this disinfection 2-3 times during the first 24 hours

7

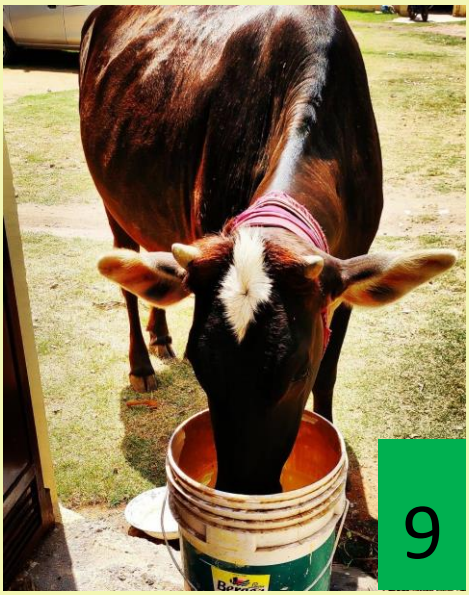
Preparations and demands for Milking and Feeding

First milking is done to harvest colostrum for feeding the calf. A number of milking equipment are required, clean and disinfected

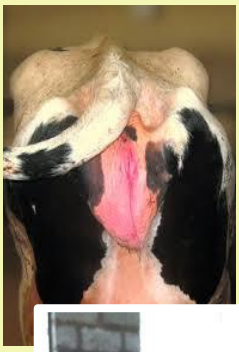
8

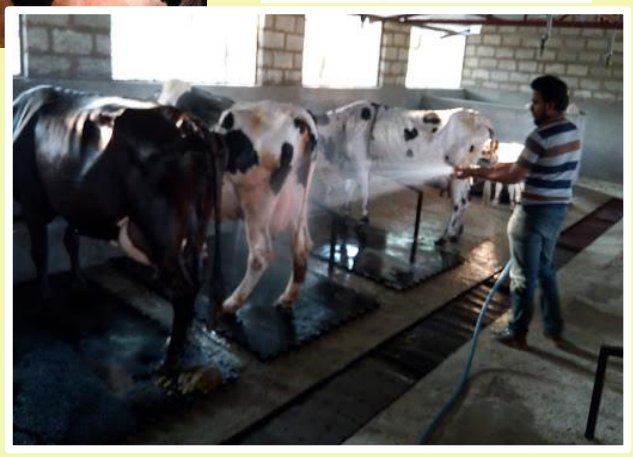
Disease prevention: Water and feed

Offer the cow lukewarm water followed by high-quality feed after she calves down



9





Cooling the cow's vulva (in case of dystocia/heavy parturition)

Sometimes the cow's vulva becomes slightly (or sometimes severely) swollen after assisted calving. Cooling the cow's vulva by spraying cold water will help stop the swelling process and reduce pain

10

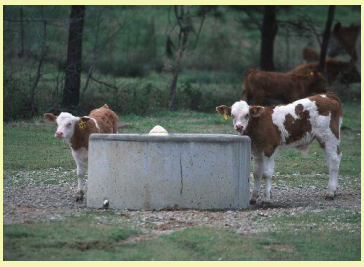
From birth to Weaning

- In several other topics we already emphasized on Colostrum management, Calf care after calving and Calf milk replacers (CMR)/Milk schedules.
- Before you start with this topic (From Birth to Weaning) it is recommended to look at these topics first.
- From Birth to weaning is the period in a calf's life that actionally nothing should go wrong. Anything that goes wrong during this period has a negative impact on the milk production when she becomes a milking cow. i.e.;
  - Poor colostrum management.
  - Poor growth rate.
  - Inefficient growth rate.
  - Poor stomach development.
- Monitoring the calf throughout this period pays back i.e.;
  - Dehydration check.
  - Manure score.
  - Regular weighing.
  - General health checks.

Note: *A farmer, cannot avoid everything, but a farmer has a huge responsibility in guiding a calf throughout the most important period of her life. The period from birth to weaning determines whether the calf grows into a productive dairy cow or not.*

Setting weaning goals/objectives

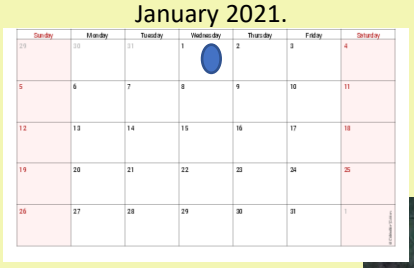
Simply put, weaning is the process of caring for the calf from milk to solid feed


The process from milk to solid food.

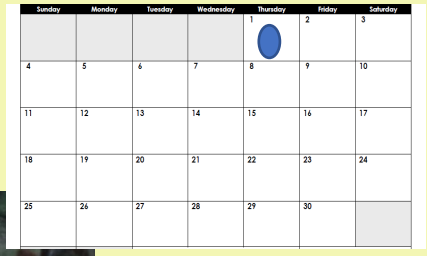
Weaning process takes about 90 days

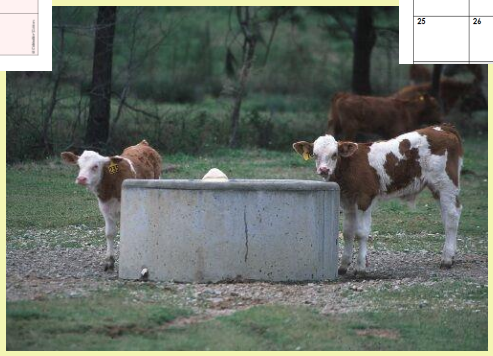
January 2021.



Average = 90 days !!!

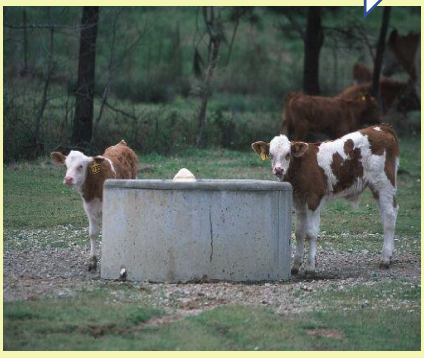
April 2021.





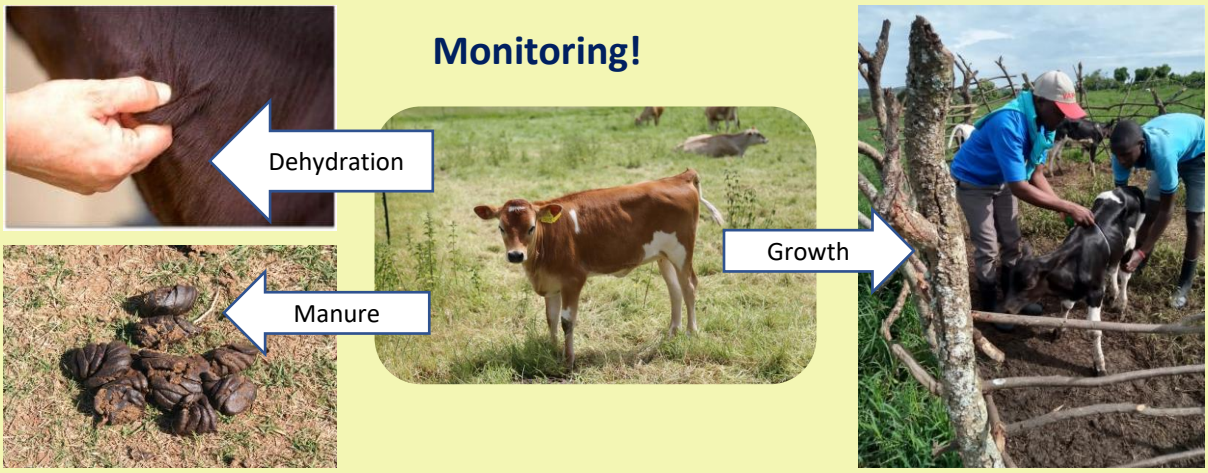
The aim is to double the body weight.

In this period we'd like to Double the Body weight!

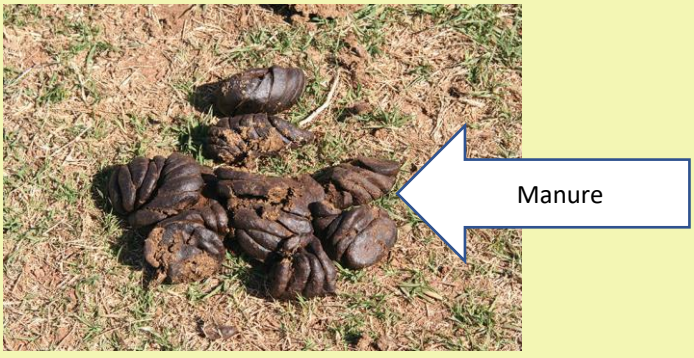

Monitoring weaning goals

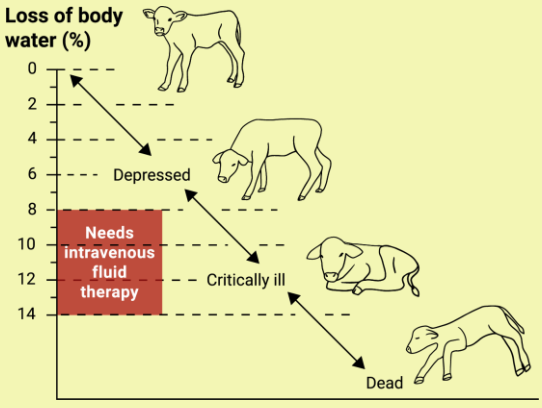
Monitoring the calf throughout this period pays back i.e.; Dehydration check, manure score, regular weighing (weight) and general health checks.



Regular skin check is advised to recognize the level of dehydration in time.

% dehydration	Demeanor	Sunken eye	Skin tent
<6%	Normal	None	None
6-8%	Depressed	2-4 mm	1-3 seconds
8-10%	Depressed	4-6 mm	2-5 seconds
10-12%	Comatose	6-8 mm	5-10 seconds
>12%	Dead	8-12 mm	>10 seconds





This manure score is not expectable in young calves during the period from birth to weaning!

- It indicates lack of moisture (water quantity and or quality) and protein
- In case of suckling calves, check the milk production of the mother cow.

Safe weaning

For every calf, weaning period is stressful. Stress has a huge impact on calf's health status.

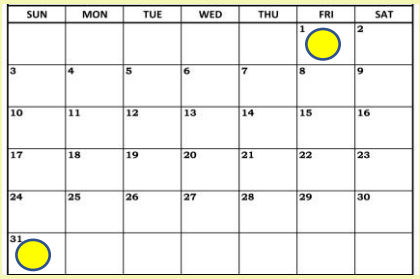
Whatever the rearing regime/scheme is, every calf is going to be weaned some moment.

It is farmers' responsibility to protect the calf from stress.

Weaning is a process (of weeks), hence prepare the calf slowly by slowly on what's going to happen during the process.

Example of a safe weaning procedure

January 2021



Suckling time (hours/day)

24 hours - 51 days

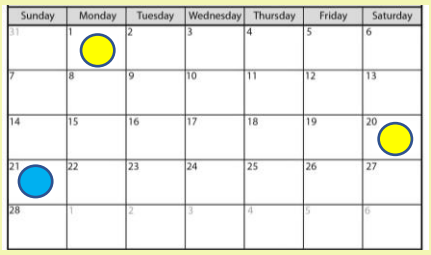
16 hours - 18 days

12 hours - 15 days

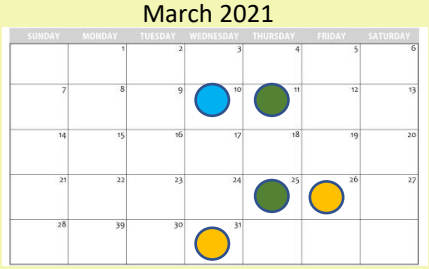
8 hours - 6 days

0 hours (No milk)

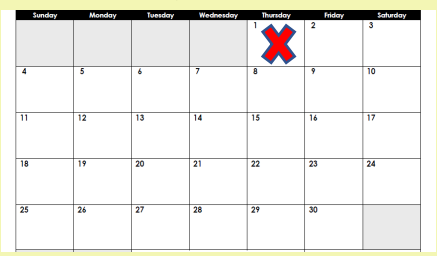
February 2021



March 2021



April 2021.



Weaning Protocol/Standard Operating Procedure (SOP)

Increase roughage to to improve rumen capacity

Reduce the amount of milk to be fed daily

Always allow access to clean fresh water

Provide concentrate feed

<u>Some points of attention which you should always consider;</u>

Slowly build up and reduce the amount of milk to be fed daily.

(if available) Provide concentrate feed to calves as soon as possible, to improve the rumen functionality.

Always allow access to clean fresh water, to optimize intake and digestion of roughages and concentrates.

Roughage must be available, to improve rumen capacity.

Growth rate

From the very first day in the calf's life, she should start growing. The growth process from calf to cow usually stops at the age of 3-4 years (when she is in second/third lactation).

Monitoring/measuring will help;

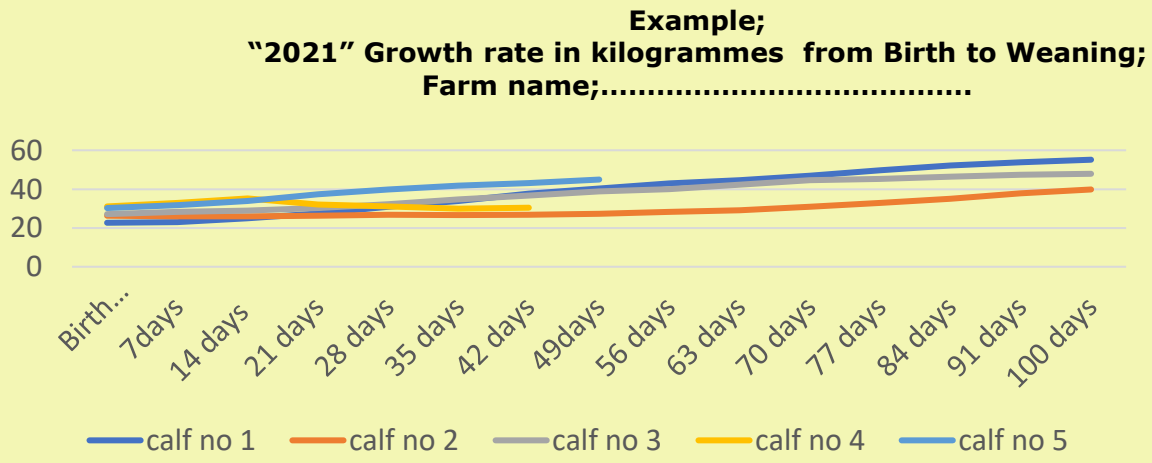
- estimate whether her growth rate is on track.
- the farmer intervene when necessary to avoid further losses.
- improve the key performance indicators (KPIs) for growth and performance.

Heart girth measurements cm's into kilo's

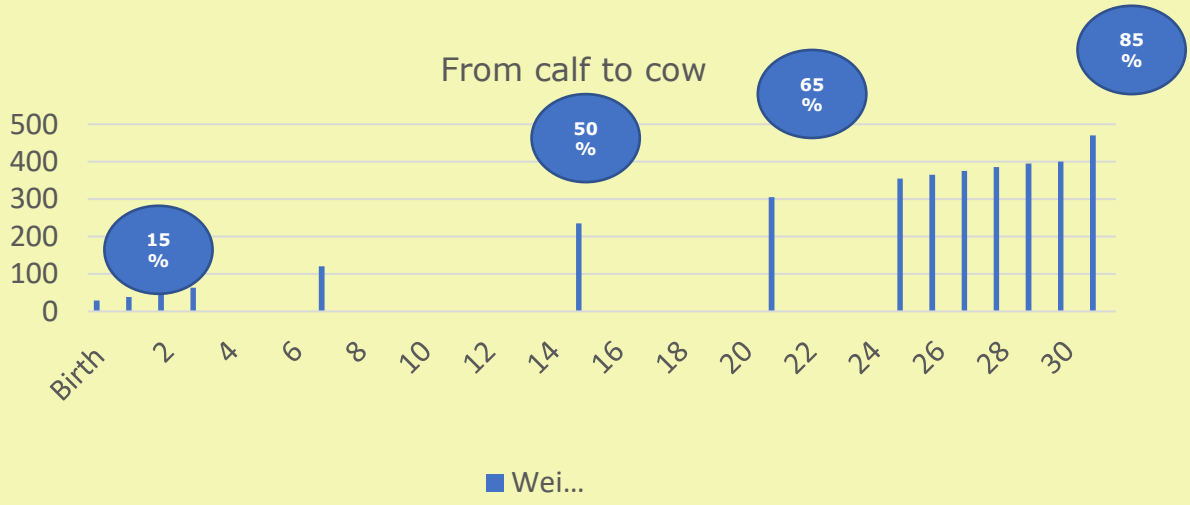
Cm's	Kg's	Cm's	Kg's	Cm's	Kg's	Cm's	Kg's
75	41	108	114	142	236	176	435
76	42	109	117	143	240	177	440
77	44	110	120	144	245	178	445
78	46	111	123	145	250	179	452
79	48	112	126	146	255	180	460
80	49	113	129	147	260	181	467
81	51	114	132	148	268	182	474
82	53	115	135	149	276	183	480
83	54	116	139	150	283	184	487
84	56	117	142	151	290	185	493
85	58	118	145	152	295	186	500
86	60	119	148	153	300	187	508
87	62	120	151	154	305	188	516
88	64	121	154	155	310	189	523
89	66	122	158	156	315	190	530
90	68	123	162	157	320	191	538
91	70	124	166	158	325	192	546
92	72	125	170	159	330	193	554
93	74	126	173	160	335	194	562
94	77	127	176	161	340	195	570
95	79	128	179	162	345	196	578
96	81	129	183	163	350	197	586
97	84	130	187	164	357	198	594
98	86	131	191	165	364	199	600
99	88	132	195	166	370	200	608
100	91	133	198	167	377	201	616
101	93	134	202	168	384	202	624
102	96	135	208	169	390	203	632
103	99	136	212	170	397	204	640
		137	216	171	404	205	645
104	102	138	220	172	410	206	650
105	104	139	224	173	417	208	654
106	107	140	228	174	424	209	657
107	110	141	232	175	430	210	660

Measuring = Assuring

Example of Growth curves in a farm



From calf to cow



Example: This adult cow on this farm weighs 470 Kgs.
Actual calving age is 30 months.

Explaining the Growth curves

	calf no 1	calf no 2	calf no 3	calf no 4	calf no 5
Birth weigh	22,8	26,3	27,1	31,2	30,3
7days	23	26	28,3	33	31,8
14 days	25	26,1	29	35,3	34
21 days	27,5	26,3	30,3	32,2	37,4
28 days	31	26,8	32,3	31,2	39,8
35 days	33,9	26,7	34,8	29,9	41,9
42 days	37,8	26,9	36,7	30,4	43,2
49days	40,3	27,3	38,9		44,9
56 days	43	28,4	40		
63 days	44,6	29,1	42,3		
70 days	47	30,9	44,6		
77 days	49,7	33	45,3		
84 days	52,2	35,1	46,4		
91 days	53,9	37,9	47,4		
100 days	55,2	39,9	48		

General Checkpoint at 42 days;

No 1; 357 gr/day.

No 2; 14 gr/day.

No 3; 228 gr/day

No 4; negative growth.

No 5; 307 gr/day.

Calf no 1: Grows quite well, and doubled its birthweight.

Calf no 2: Slow growth, because of low milk production from the mother ?? Extend suckling period!

Calf no 3: Has a good start, 2nd part of growth is decreasing.

Calf no 4: Had a great start, must be sick, or the mother is sick. Take action!

Calf no 5: Looks very promising, fast growing.

Summary take home messages

- The period from birth to weaning is the most important period of a calf's life.
- Every mistake will have impact the calf's health status.
- Every day observation is necessary to pick up problems in advance.
- Beware of the impact in case of adjustments/changes.
- Registration of body weights throughout the period is important. Reliable registration system will be a helpful tool.
- Several (farm related) standard operating procedures (SOPs) s are advised to develop.

- END -

Ministry of Foreign Affairs of the Netherlands

About the ICSIAPL Project

The Integrated & Climate Smart Innovations for Agro-Pastoralist Economies and Landscapes in Kenya's Arid and Semi-arid Lands is (ICSIAPL) is athree-year (2021 –2023) project funded by the European Union (EU) and the Ministry of Foreign Affairs of the Kingdom of the Netherlands (DGIS). It is managed through a delegated cooperation with the Embassy of the Kingdom of the Netherlands (EKN) in Nairobi.

The EU fund is attached to the DeSIRA Initiative(Development Smart Innovation through Research in Agriculture).

The project is implemented by SNV Netherlands Development Organisation, SNV,(lead partner) and the Kenya Agriculture Livestock Research Organization, KALRO (research partner).

KALRO
Kenya Agricultural & Livestock Research Organization

SNV