



GLOBAL  
AGRICULTURAL  
DEVELOPMENT  
FOUNDATION

**SNV**

**ProDairy**

For Professional Dairy Farmers

**Module 1**

# **CALF REARING**



This training module is part of 8 training modules:

1. Calf rearing
2. Nutrition and feeding
3. Hygienic milk production
4. Housing
5. Management of Napier
6. Health care
7. Fertility and reproduction
8. Herd Record keeping

These modules have been developed through a collaboration between

G.A.D.  
Foundation,  
Netherlands

ProDairy LTD

SNV Kenya  
Market-led Dairy  
Program

For More Information, Contact:  
Global Agricultural Development Foundation  
[sigridkootstra@hotmail.com](mailto:sigridkootstra@hotmail.com)

[www.gad-foundation.com](http://www.gad-foundation.com)

## TABLE OF CONTENTS

### 1. CALF REARING

- 1.1. Handling cow around calving
- 1.2. The just born Calf
- 1.3. Calf feeding and healthcare
- 1.4. Housing and growth
- 1.5. Calf diseases

## CHAPTER 1. HANDLING THE COW AROUND CALVING

### What to do?

Separate a cow to calve, take hygiene measures when giving birth.

Guide the normal birth process, call the Vet when difficulties are expected.

### What do we need?

Cow(s) near calving date, a bucket with water and soap, maternity pen.

#### A. Feeding of a dry cow

- Feed dry cow separate from cows in milk
- Tasty and fresh feed (cow has lower appetite)
- Healthy cow -> strong calf
- Milk fever
- Give lukewarm water to the cow after calving

#### B. Signs of birth approaching

##### Administration

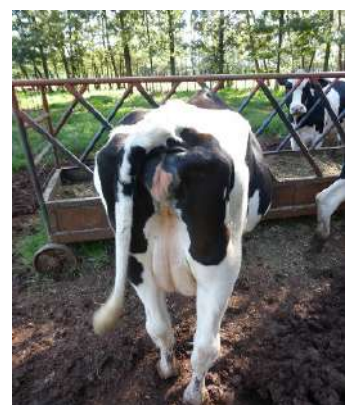
- Accurate administration of insemination dates helps to know the approximate date of calving.
- On average the calf is born some 280 days after the last insemination.
- But differences of 7 days less or more are normal.

##### Body signs

- The udder starts to develop about a week to ten days before calving.
- For heifers calving for the first time this period is longer.
- The vulva swells, and discharge of mucus is normal in this stage.
- Short before calving down there is change (relaxation) of ligaments at both sides of the tail.
- When the udder runs full and the tail is 'loose' the moment is near.

##### Separation and hygiene measures.

- Keep the cow separate from the herd in a clean place (that is not slippery) on a clean bedding, (the maternity pen)
- Allow the cow to show natural behavior as much as possible.



## C. Normal birth /position of the calf

- A normal birth takes some (up to 8) hours
- Signs of starting birth: 'tail-of', separation from the group, restless
- Contractions of the uterus open the birth way.
- The water bladder will break (not always seen)
- Next a bladder becomes visible containing the front leg hoofs. Check that the legs are in the right position and not bent.
- This bladder will also break, and in normal progress you will see the nose of the calf coming out
- When you see the eyes of the calf coming out during a contraction it is safe to assist and speed up the birth process.



## D. Support during calving down

- Observe the cow regularly (every 30 minutes) during the calving process! Also at night!!
- When normal progress is seen in most cases no support is needed.
- When the eyes come out during pressing you can start pulling the calf. Only pull during contractions and never into the direction of the tail. Never pull with more than 2 people at the time.
- In case no progress is seen or in case the calf is in an abnormal position call a vet.



## E. Handling the just born calf

- Remove all pieces of the placenta, especially from the nose and mouth
- Check and stimulate the calf to start breathing
- Disinfect the umbilical cord
- Put the calf in front of the cow
- Bring the calf to the calf pen



## F. The afterbirth (placenta)

- Check the cow regularly
- Keep the cow in a clean place
- The afterbirth will come off under normal conditions within 24 hours
- If after 36 hours the placenta still did not come off, call a vet



## CHAPTER 2. THE JUST BORN CALF

### What to do?

Take care of a just born calf, feed it and nurse it hygienically

### What do you need?

- A calf pen
- Bucket or drinking bottle
- Iodine
- Colostrum

### A. Feed colostrum

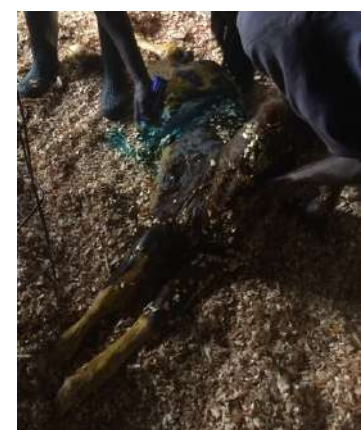
Start colostrum feeding as soon as possible and follow good hygiene practices. These are the best guarantees for a good start of the young calf life.

Feed colostrum:

- Directly after being born!!
- 3 – 4 times a day
- 1.5 – 2 litres per feeding

### B. Hygiene measures

- Direct separation of the calf into a clean calf pen.
- This also prevents too much contact between calf and cow resulting in restless animals and difficulties during milking.
  - When the calf is in the clean pen disinfect the navel with iodine.
  - Keep calves separate from other animals for at least two weeks
  - Keep the bedding dry and clean
  - Use only utensils that have been cleaned thoroughly
  - Wash hands!



## C. Feeding colostrum

- Colostrum is the first milk
- The first 3 days after giving birth the cow produces colostrum
- Colostrum is thick and yellow
- Colostrum contains antibodies against diseases, this will protect the calf in the first months of its life from several diseases.
- Early feeding of colostrum is necessary! - **Fast**
- Feed the colostrum immediately after milking the cow! - **Fresh**
- Feed at least 3 times a day colostrum! - **Frequent**



## D. Health control

At every feeding check the calf on

- Its activity
- Diarrhea
- Fever
- The navel



## CHAPTER 3. CALF FEEDING AND HEALTH CARE

### What to do?

Make sure the new born calf makes a good start

### What do you need?

- Milk / milk replacer
- Concentrates
- Clean utensils
- Thermometer

### A. Mortality

- Highest during first period of rearing
- Due to poor nutrition and/or poor hygiene and care taking
- Sometimes 25 % of the young calves die, that's too much.

### B. Importance of milk feeding

- Immediately after birth the young calf can be fed with (colostrum) milk only.
- Starting from the 2<sup>nd</sup> day concentrates must be offered.

Age	Milk litres per day	Early Weaner pellets in kg per day
1 <sup>st</sup> day	Colostrum 3- 4 times a day 1.5 litres	
Day 2 – 7	4 litres	Hand full
Week 2 – 9	5 litres	0.5 – 0.75 fresh! (build up)
Week 10 – 11	4 litres	1 kg
Week 12 – 13	3 litres	1.5 kg
Week 14 – 15	2 litres ( feed milk once a day)	1.5 kg
Week 16 onwards	Weaned	1.5 kg up to one year of age

- Fresh water and good quality roughage must be available at all times.
- After 4 months the calf is able to eat enough and to grow without milk.



## C. Feeding after weaning

- Feeding of 1.5 kg weaner pellets or dairy meal continues until calf is 1 year old
- Provide good quality Napier grass
- Give Napier grass as much as the calf likes to eat. (trough is never empty)
- Other feeds that are good for the calves: Sweet potato vines, Desmodium, Hay



- Good nutrition includes:
  - Trough and other feeding utensils are kept clean every day
  - The calf finishes all the food supplied because it is tasty (palatable)
  - There is access to drinking water all the time
  - The food is chopped into small pieces (1 – 2.5 cm)
  - Food is free of parasites
  - Feeds rich in energy & protein



## D. Growth control

- Daily control of health (during feeding) is part of the routine.
- A healthy calf is eager to drink the milk and finishes it in a short time.
- Check on: diarrhea, activity, discharges from nose and eyes, coughing (pneumonia) and parasites

- Sick animals often have fever, if possible check body temperature.

- A healthy calf shows
  - Activity
  - Empties the feed through
  - Drinks regularly
  - Is clean around the tail
  - Pays attention to the environment
  - Stretches itself after standing up
  - Has a straight back, bright eyes and a shiny coat



## CHAPTER 4. HOUSING AND GROWTH

### What to do?

Keep calves in a good, well ventilated housing and monitor growth

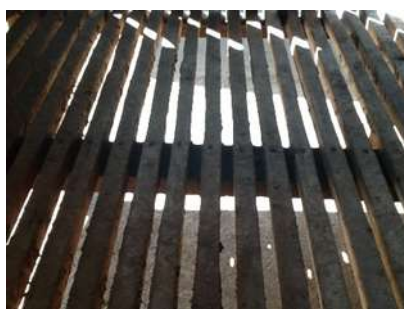
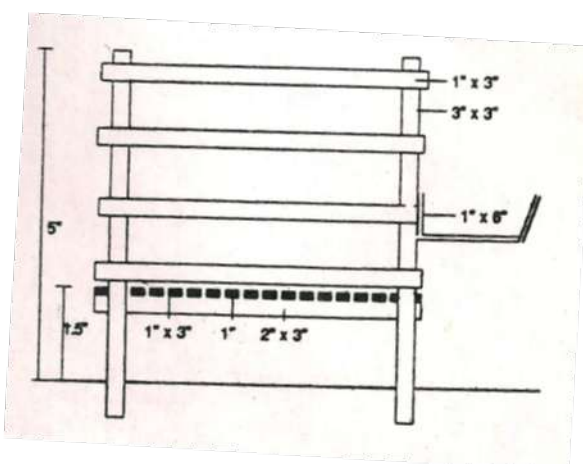
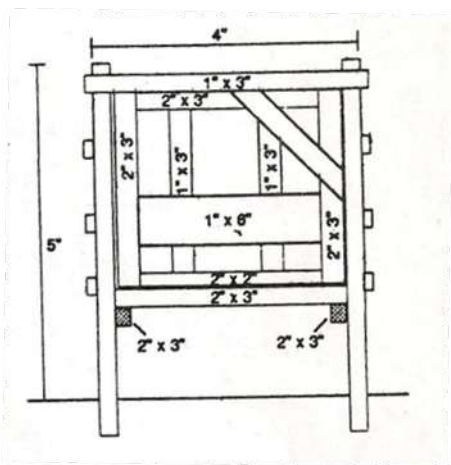
### What do you need?

- Calf-pen
- Measure tape / rope
- Growth table

### A. Housing

- A calf-pen saves lives
- Keep the pen clean and dry
- Less parasites
- Easy monitoring of growth

### B. How to make a calf-pen?



## C. Growth control

Measure the girth of the calf just behind the front legs.

Girth	Live weight (kg)
65 cm.	28
70 cm.	34
75 cm.	41
80 cm.	49
85 cm.	58
90 cm.	68
95 cm.	79
100 cm.	91
105 cm.	104
110 cm.	120
118 cm.	145
125 cm.	170
132 cm.	195
138 cm.	220
143 cm.	240
147 cm.	260
151 cm.	290
155 cm.	310
159 cm.	330
163 cm.	350



- A cow/calf card must be used to record information of each animal
- Measure the girth of all the calves every month, and write it on the card
- In this way you will see the performance of the calf every month

## CHAPTER 5. CALF DISEASES

### What to do?

If you see a sick calf, make the correct diagnosis.  
Start treatment in an early stage.

### What do you need?

- Thermometer
- Medicine

### A. Sign of Sick calf

- Not eating
- Not drinking
- Dull appearance
- Coughing
- Scouring
- Anemic

### B. Disease Control

- Feed sufficient colostrum
- House calf in a well-ventilated and shady area
- The calf pen and lying area are kept clean and dry
- Use utensils that are cleaned after every feeding
- Feed colostrum Fresh, Fast and Frequent to resist diseases
- Enough and High-quality feed allows the calf to grow strong
- Immediately start your program of preventive disease control
- If calf gets sick and needs treatment, make the right diagnosis and start treatment early



## C. Diseases

- Calf Scours
- Pneumonia
- Internal Parasites
- External parasites

## D. Calf Scours

The calf has diarrhea, appears dull and refuses to drink and eat.

The dung of the calf appears:

- Liquid
- Whitish in colour
- Strong smell

Prevention:

- Feed sufficient colostrum
- Keep calf pen clean at all times
- Use clean utensils
- Wash hands
- Give clean, fresh water daily

Treatment:

- Stop feeding milk
- Dilute in 3 litres luke warm water (9 soda bottles):  
1 teaspoon of table salt and 1 teaspoon of baking powder
- Day one feed the above solution in 3 feedings of 1 litre (3 soda bottles each time)
- Day two make a new solution and continue treatment
- Day three make a new solution and feed 3 times a day,  
Also feed 2 litres of water two times on day three
- If no improvement can be seen ask a vet for advice.

## E. Pneumonia

The calf is coughing, breathing fast and has high fever (Temp > 39.5 C).  
It appears dull, watery eyes and mucous from the nose.

Prevention:

- Feed sufficient colostrum
- Keep calf in well-ventilated area
- Calf pen not exposed to draught
- Fresh, clean air
- Use clean utensils
- Wash hands

Treatment: Ask a veterinary officer or a veterinarian for advice

## F. Internal Parasites

Round worms, Lung worms and Liver fluke are examples of internal parasites

The calf appears dull, has standing hair and a lusterless coat, is thin with the head looking proportionally big

The dung of the calf may have visible parasites

Prevention:

- Keep calf in a clean environment
- Do not allow calves to graze on contaminated pastures
- Avoid buying feeds that are contaminated with worm eggs
- General farm hygiene, do not contaminate feeds with manure
- Start deworming at an age of 2 months and repeat every 3 months
- Follow recommended dosage and method

Treatment:

- Deworm all cows on the farm regularly, at least every 3 months. Deworm new comers immediately

## G. External Parasites

Ticks, Lice and Mites are examples of external parasites.

Ticks can transmit internal parasites, which cause diseases like East Coast Fever, Babesiosis and Anaplasmosis

The calf will appear dull, develop high fever, anemic and jaundice.

It might pass blood in the urine due to the parasites transmitted to the blood by the ticks.

Ticks may be brought to the calf pen by fodder or dogs.

Prevention:

- Keep calf and cows under zero-grazing
- Keep dogs away from calves.
- Avoid using fodder that could be contaminated with tick (eggs or nymph)
- Start spraying the calf at the age of 2 weeks
- Spray the calf from 2 weeks onwards every week

Treatment

- If the calf shows signs of tick-borne fever seek veterinary advice

## H. Vaccinations and preventive health care

Activity	Type of disease	At what age	How frequent	Remarks
Debudding	Avoid horns	4 weeks		
Deworming	Internal parasites	8 weeks	Every 3 months	
Spraying	External parasites	8 weeks	Once a week	
Vaccination	Foot and Mouth disease	2 months	Every 6 months	
	Lumpy skin disease	3 months	Every 6 months	
"	Black quarter/Anthrax	4 months	Every 6 months	
"	Rift Valley Fever	5 months	Once in a lifetime	
"	Brucellosis	6 - 8 months	5 years	Only female animals

- Grazing young calves gives greater risk for ticks and internal parasites
- Group housing of calves from 3 months only possible when animals have the same age and size
- All vaccinations to be carried out by a qualified vet









  
**INVESTING IN  
DAIRY  
PAYS!**

**VISIT**

**WWW.COWSOKO.COM**

- ✓ Buy a Cow
- ✓ Meet Dairy Experts
- ✓ Visit Dairy Farms
- ✓ Buy Inputs
- ✓ Biogas