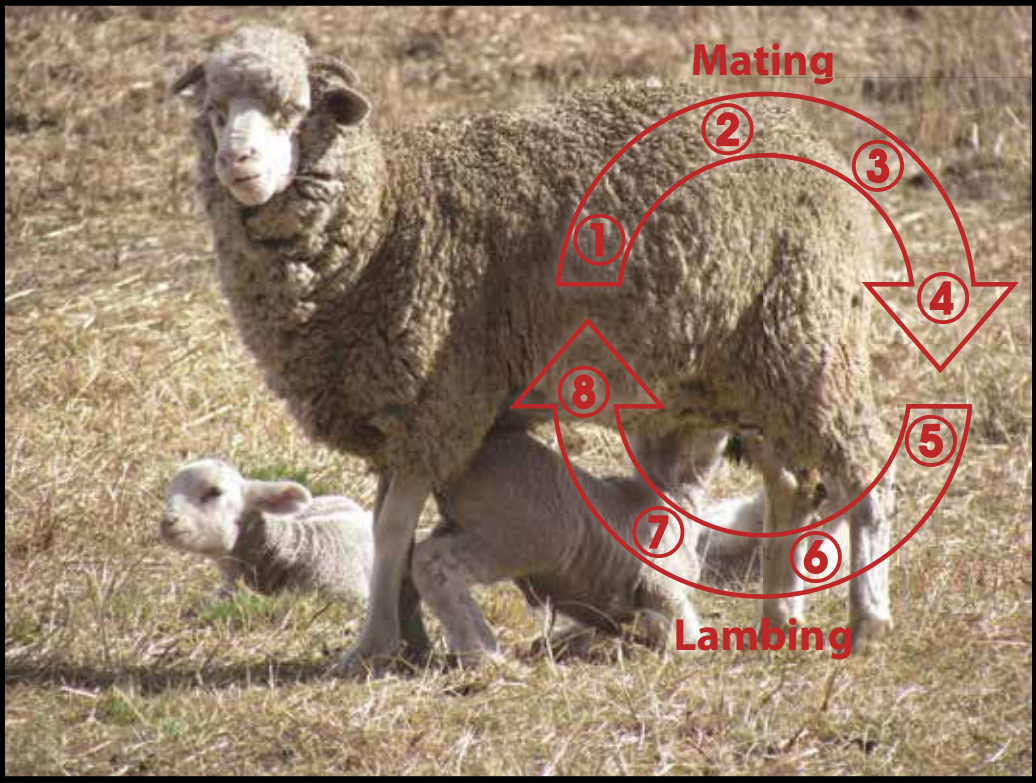
LIVESTOCK HANDLER TRAINING MANUALS

MODULE 2: PRODUCTION MANAGEMENT

Production management in sheep



Managing the mating and lambing processes to ensure the survival of newborn small stock.

English

ANIMAL HEALTH IS IN OUR DNA

AFRIVET TRAINING SERVICES

LIVESTOCK HANDLER TRAINING MANUALS

Management of the small stock production cycle

Managing the mating and lambing processes to ensure the survival of newborn small stock.

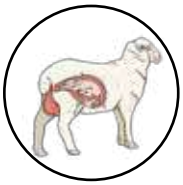
CONTENTS

Developed by Dr Danie Odendaal

Published by Agri Connect (Pty) Ltd for Afrivet
Tel: +27 (0) 12 817 9060
Fax: +27 (0) 12 809 007
E-mail: enquiries@afrivet.co.za

www.afrivet.co.za



The production management plan of small stock is developed around the two major events in the production cycle

Mating

Concentrating the mating period is the most important management tool.

Most ewes can fall pregnant within two heat cycles, enabling all of them to lamb over a concentrated period of time. This will ensure that very focused observation can be provided during and after lambing.

When ewes lamb once a year, preparations for and management of the mating period can be planned very well in advance.

Far more sophisticated planning is needed when ewes are re-mated fairly soon after lambing in an accelerated lambing system. However, the basic principles of preparing for and management during mating stays the same.

There must be a focused approach to both the preparation of rams and ewes in order to have high reconception rates over a concentrated mating period.

Lambing

The biggest challenge in sheep production is the survival of the new-born lambs.

Fertility (reconception rate) has largely improved in small-stock farming.

The main limitation now is the number of lambs born that do not survive the first 24 hours after birth or up to weaning.

Lamb deaths can be reduced by better management and especially observation by the livestock handler during the lambing process.

The livestock handler must have the knowledge, skills and equipment to provide the needed support.

Training livestock workers can have a huge impact on the profitability of small-stock farming because each lamb's death represents a major loss.

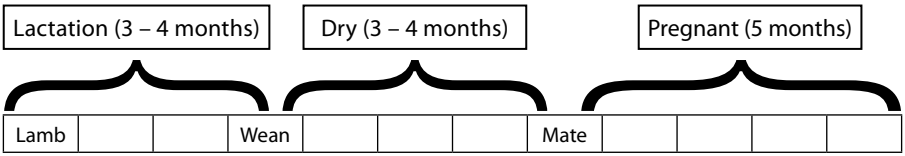
Mating season – breeding

The natural breeding season

Environmental conditions affect the reproductive activity of small stock. Changes in daylight hours play an important role and reproductive activity is higher during the months when daylight becomes shorter (autumn) or daylight becomes longer (spring).

If no fixed mating period is practised (the ram stays with the ewes during the whole year) there will still be a natural period where most ewes will conceive due to changes in environmental conditions (length of daylight and available nutrition) that favour reproductive activity. This occurs naturally during the autumn and spring.

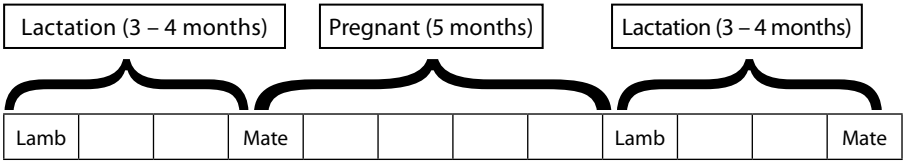
When ewes lamb once a year, the 12 months' production cycle is very basic, with the two management focus points as discussed in this module.



Because ewes have a shorter pregnancy period and are dry before they are mated again, small stock can be more adaptable than cattle to limited grazing conditions.

Accelerated breeding

Under very intensive grazing conditions, sheep can be managed to lamb every eight months if adequate food is available. The dry (rest period) then basically falls away.



The need for a fixed and limited mating season

In commercial farming (managed mating, rotational grazing and planned flock health programme) the decision on when and for how long to mate the ewes is actually the only management decision that is controlled by the farmer. But this decision determines the management plan for the whole production cycle of small stock.

Spring lambing season											
Sonar			Lamb			Wean				Mate	
9	10	11	Birth	1	2	3	4	5	6	7	8
Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
2	3	4	5	6	7	8	9	10	11	Birth	1
	Wean				Mate		Sonar			Lamb	
Autumn lambing season											

All management actions are planned around the time of mating and lambing because it happens at a known (predetermined) time. To get a high conception rate over a limited mating period several management actions must be carried out at specific critical control points. This can only be done when there is a fixed mating period.

The oestrus cycle of ewes

When non-pregnant ewes become reproductively active it means that they come into oestrus (standing heat, ready to be mated by the ram) at regular intervals. This will happen until they conceive (fall pregnant).

The oestrus cycle (from one standing heat to the next) in ewes is on average 15 to17 days. In goats the interval is a bit longer, with an average of 17 to 21 days.

Reproductive activity in the non-pregnant ewe can be stimulated, as will be discussed in this module.

Mating

1 Pre-mating management of the rams

Critical control points in managing specific stages of the production cycle.

Basic and comprehensive (once-a-year) testing of rams is needed before the start of the mating season.

Breeding soundness examination	Semen that will be available for fertilising the ewes at the start of the mating season takes six weeks to be produced. Therefore, rams must be tested at least eight weeks before the start of the mating season in order to identify rams with problems well in advance. The minimum examination that must be done is palpating the
Vaccination	Vaccinations against bluetongue must be completed at least eight weeks before the start of mating (sheep only).
Deworming	Rams work mostly on sight but smell is also important to identify ewes in heat. Rams must be treated against internal parasites, including nasal worms, before mating starts.
Hoof trimming	When rams are examined before mating, their hooves must also be inspected and corrective hoof trimming done. Overgrown hooves can have a severe impact on the working ability of rams.
Supplementation	The amount of semen produced can be dramatically improved with improved nutrition, six to eight weeks before the start of mating. This also includes supplementing the rams' diet with trace minerals and vitamins.
Exercise	The short mating season is not long enough for rams that didn't work to become fit and active. Inactive rams need to be walked for 30 minutes twice a day in the weeks before mating starts.

Checklist of actions that must be completed during this stage of production

- ☑ Breeding soundness examination.
- ☑ Vaccination of rams.
- ☑ Supplementation provided according to needs and body condition score.
- ☑ Hoof trimming.
- ☑ Worm egg counts completed during breeding soundness examination to establish the need for deworming.
- ☑ Deworming action, if needed.
- ☑ Rams exercised.

The checklist can be drawn up to ensure that all the basic management steps are taken. This is a very basic list that can be expanded, on the advice of the flock veterinarian, to cater for various production circumstances.

Components of a breeding soundness examination

- Physical examination of the ram.
- Examination of the testicles.
- Examination of the penis.
- Collection and examination of the semen.
- At the same time the ram's teeth, condition score and feet will be checked.

2 Pre-mating management of the ewes

Critical control points in managing specific stages of the production cycle.

Ewes can effectively be stimulated to show heat at the start of mating. The condition score at the beginning of the mating season is still the most important factor determining a high rate of reproduction.

Management of ewes to stimulate reproductive activity	The "ram effect" is an old practice in which the sight and smell of the ram is used to stimulate ewes to cycle. This is recognised as "the ram effect". To exploit this effect ewes are first isolated from the sight, sound and smell of all rams for at least two to three weeks before joining. Then both sexes are put in adjoining paddocks to view and smell each other through the fence. After about four days the gate is opened between them. The more modern way is to introduce teaser rams for two weeks before the start of mating to stimulate the reproductive activity of the ewes.
Vaccination	Most of the yearly vaccinations are given before lambing but sheep must be vaccinated against bluetongue (sheep only) and a reproductive disease such as enzootic abortion before the start of mating.
Deworming	During mating the ewes must not be disturbed. Worm eggs must therefore be counted and internal parasites treated before the start of mating.
Supplementation	Change in nutrition is an effective way of stimulating reproductive activity. This is called flush feeding and consists of 0.5kg to 1kg of high-energy feeding per ewe per day. It is effective in ewes having a condition score of 2.5 to 3.

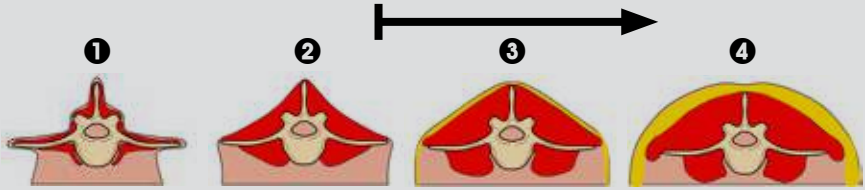
Checklist of actions that must be completed during this stage of production

- ☑ Ewes vaccinated before start of mating.
- ☑ Worm egg counts completed and ewes dewormed, if necessary, before start of mating.
- ☑ Condition score done and ewes in a poor condition sorted into a different group.
- ☑ Flush feeding planned and provided two to three weeks before the start of mating.
- ☑ Teaser rams introduced two weeks before mating.

The checklist can be drawn up to ensure that all the basic management steps are carried out. This is a very basic list that can be expanded, depending on different production circumstances.

The condition of all ewes and young ewes to be bred must be scored.

Ewes with a condition score of 2.5 and gaining fast before the start of mating will be very active reproductively. A condition score of >3 will enhance the percentage of twin pregnancies.



3 Management during the mating period

Critical control points in managing specific stages of the production cycle.

Because of the very limited mating period any difficulties must be addressed immediately. Otherwise, it will affect the outcome and results obtained during this limited mating period very negatively.

Ram to ewe ratio	Mating ratios of one ram to 40 to 50 ewes seem to be normal. Ram lambs that are large enough (30 kg to 40 kg) are given 30 ewes. But a good, fit ram will easily mate 100 ewes (sheep only).
Joining the rams with the ewes	The decision on the date of the start of the mating season is made by taking into consideration the date on which lambing is planned to start, which is on average 146 days after the start of mating.
Specific observations during mating	The mating ability (technique) and capacity (number of ewes mounted over a short period of time) of rams must be evaluated at the start of the mating season when there will be a large number of ewes on heat. As rams are reared in homosexual groups, they may take time to learn how to mate correctly. A ram that mounts an ewe and then ejaculates will thrust forward (back feet can lift momentarily off the ground).
Take action if problems are observed	Injured rams cannot work effectively and must not stay with the ewes once signs of disease are observed. Dominant rams that don't mate or ejaculate can affect the percentage of successful pregnancies and must be identified and removed.
Take the rams out	The length of mating depends on a predetermined date but it can also be slightly adapted according to environmental circumstances.

Checklist of actions that must be completed during this stage of production

- ☑ Join the rams with ewes on a predetermined date.
- ☑ Workers are trained to look for difficulties with mating and make a record of problem rams.
- ☑ Injured rams or rams that don't work are removed/replaced immediately.
- ☑ Spare rams are available if rams must be changed.
- ☑ Workers are trained to look for other problems that can arise during the limited mating season, such as the availability of water, supplementary feeding and adverse environmental conditions.
- ☑ Rams are removed on a predetermined date.

Very focused observations during mating:

- The signs that an ewe is in heat are very different to those in cattle. The livestock worker must know the specific signs and behaviour to observe, especially during the first three weeks after the start of mating.
- Ewes do not mount other ewes as cows do.
- The odour of the oestrous ewe stimulates the ram, although it is the ewe who seeks out the ram and stays close beside him.
- She sniffs him and chases after him.
- She crouches and urinates when a ram sniffs her side or genital area.
- She fans her tail when the ram sniffs her.
- The male responds to urination of the oestrous female by sniffing, extending the neck and curling the lip. This is the flehmen response. The tongue goes in and out and the male may bite the female's wool, and raise and lower one front leg in a stiff-legged striking motion. If the female is receptive she will stand for copulation.

4 Post-mating determination of pregnancy

Critical control points in managing specific stages of the production cycle.

Ewes that are in different reproductive stages cannot be effectively managed and supplemented as a mixed group.

Supplementation after the end of the mating period	To maintain pregnancy, the focus must specifically be on nutrition immediately after the mating period. During the 30 days after mating the implantation of the foetus is taking place. The ewe's condition must be maintained during this first part of pregnancy with no major changes in nutrition.
Sonar scan	Pregnancy scans can be done as from 35 days after the end of the mating season. At the same time the condition score of the ewes can be recorded. Because this is done over a short period time, the small stock farmer must pre-book this visit at the veterinarian.
Separate management groups according to the results of scanning	Ewes must be grouped depending on their pregnancy status and pregnant ewes depending on whether they have single foetuses, versus twins or triplets. Severe nutritional deficiencies must be rectified by isolating pregnant small stock that are in a poor condition so as to provide extra supplemental feed.
Review management plan depending on the season in which the ewes will lamb	Because the expected date of the start of lambing is now known, the management plan for these ewes can be reviewed by considering the seasonal circumstances during the period of pregnancy and lambing. This is done in consultation of the flock veterinarian who knows about seasonal disease trends, as well as new disease trends that could become a potential problem.

Checklist of actions that must be completed during this stage of production

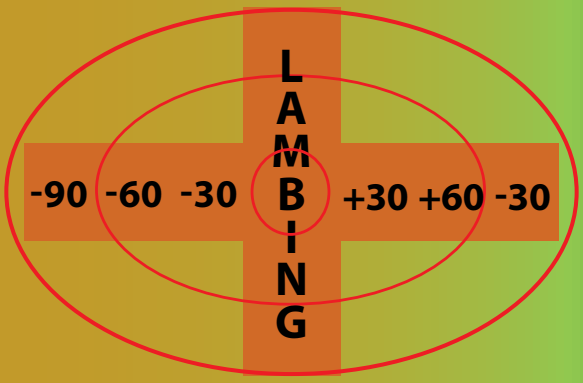
- ☑ Provide post-mating supplementation to ewes in order to maintain body condition.
- ☑ Book veterinarian visit for sonar scanning.
- ☑ Inspect and prepare handling facilities for smooth operation during sonar scanning.
- ☑ Organise to have enough help available on the day when sonar scanning will be done.
- ☑ Ewes sorted into management groups after sonar scanning.

The checklist can be drawn up to ensure that all the basic management actions are carried out. This is a very basic list that can be expanded, depending on various production circumstances.

Lambing at the start of the wet sea

This module summarises the targeted
planned and carried out by the livestock
lambing season to minimise lamb deaths and

Lambing at the start of the wet season



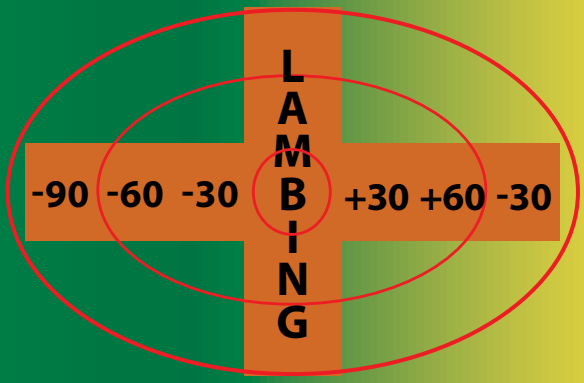
The biggest challenges facing lambs born at the start of the wet season are infectious diseases and internal parasites, particularly roundworms. These can negatively impact their growth potential up to weaning.
Adequate nutrition during and after lambing is usually available and not an issue.

Specific **critical control points (CCP)** have been identi
and weaning) before, during and after the lambing
actions that need to be taken so as to ensure the

son or the start of the dry season

management actions that must be
handler before, during and after the
optimise lamb growth before and after weaning.

Lambing at the start of the dry season

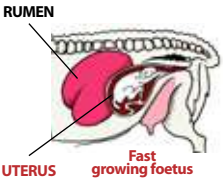


The biggest challenge for lambs born at the start of the dry season is the availability of adequate high-quality nutrition during their fast growth period before weaning. Internal parasites and other infectious diseases are less of a challenge at this time of the year.

fied for each stage (pre-lambing, lambing, lactation
season. Each CCP includes specific management
best outcome in the survival and growth of lambs.

Lambing

5 Pre-lambing management



Critical control points in the management of the pre-lambing period of the production cycle.

The nutritional needs of the ewes increase rapidly in the last six weeks before lambing. This is because of the fast growth of the unborn lamb/s inside the womb and therefore the limited space available for the large stomach (rumen) to be filled with food.

Grouping of ewes	Ewes should have already been scanned for pregnancy as from 42 days after the end of the breeding period. This examination is used to divide ewes into groups according to the number of lambs that they carry (single /twins/ triplets). Nutritional management cannot be effective without this information.
Supplementation	Supplement, where necessary, to obtain an average body condition score (BCS) of 3 at the start of lambing. Supplement bypass protein, high-quality roughage or pastures for **optimal foetal growth and udder development**. Too little nutrition will cause undersized lambs (less than 4.5kg) and increased lamb deaths. Do not change the food ration or availability in the last three weeks before lambing.
Vaccination	**Multiclostridial vaccination** four to eight weeks prior to lambing to provide passive immunity to lambs and protect ewes during the lambing process.
Deworm	Do worm egg counts to determine roundworm and liver fluke infestations. Treat if needed four to eight weeks before lambing to reduce contamination of the grazing.
Crutching or shearing	Crutch or shear four to eight weeks before lambing as shorter wool will prevent soiling during lambing and blowfly strikes. No shearing from three weeks before the start of lambing (wool sheep only).
Select and prepare lambing area	Selection based on the size of the camps, the availability of shelter and the quality and quantity of available pasture.

Pre-lambing checklist ☑

- ☑ Ewes grouped according to pregnancy status.
- ☑ Condition score four to eight weeks before the start of lambing.
- ☑ Supplementation provided according to needs and body condition score.
- ☑ Ewes vaccinated with a multiclostridial vaccine.
- ☑ Worm egg counts done to establish the need for deworming.
- ☑ Deworming done, if needed.
- ☑ Shearing or crutching done in the case of woollen sheep.
- ☑ Lambing camps selected and prepared.

This checklist can be drawn up to ensure that all the basic management actions were carried out. This is a basic list that can be expanded upon with the advice of the flock veterinarian to cater for various production circumstances.

One of the new developments in intensified small stock farming is the provision of lambing pens where the lambing process can be better observed and which ensures improved bonding between ewe and lamb during the first few days of life.

6 Lambing management

Critical control points in the management of the lambing period in the production cycle.

Be ready for the first births from 142 days after the start of the previous breeding season. The only way to manage this critical period effectively is to limit the breeding season so that ewes lamb down within a restricted period of four to six weeks.

Most lamb deaths occur within the first 24 hours after birth and lamb deaths are the major cause of production losses in small stock farming.

Management of pregnant ewes close to lambing	Put ewes about to lamb in lambing camps or pens. As the lambing season progresses, try to separate ewes with lambs from pregnant ewes that still need to lamb.
Close observation during lambing	Watch ewes closely. When ewes go into labour, allow 30 minutes to one hour for normal delivery. Provide assistance if more than an hour has passed without delivery, if there is an abnormal presentation, or the water bag has burst and no lamb appears. Wash the external genitalia of the ewe thoroughly before entering the ewe. Hands and arms must then be washed with a disinfectant soap and then lubricated with a water-based lubricating gel. If you cannot readily get into the uterus and feel the lamb, stop and call your veterinarian. Umbilical cords should be disinfected with a solution of iodine to prevent navel ill.
Colostrum intake	The lamb is born without any immunity against diseases. The only immunity it will receive to protect it during the first two to three months of life will be obtained from the colostrum (first milk). If the lamb has not nursed within six hours after birth or if it is weak, use a feeding bottle or stomach tube and feed it 50 ml of colostrum.
Daily observation	Do not cause unnecessary stress to ewes busy lambing or just after lambing. Observe animals in daylight and avoid disturbing them during the late afternoon, night and early morning.

Lambing checklist

- ☑ Be ready and equipped to assist ewes that struggle to lamb.
- ☑ Check that lambs drink colostrum within three to six hours after birth.
- ☑ Be ready and equipped to supply lambs that didn't suckle within the first three to six hours with colostrum.
- ☑ **Disinfect navel** at birth if the lamb is born in a contaminated area.
- ☑ Ensure the specific daily observation of lambs and ewes for the first signs of disease.

This checklist can be drawn up to ensure that all the basic management actions are carried out. This is a very basic list that can be expanded according to different production circumstances.

Being able to identify ewes very close to lambing, giving assistance with difficult births, providing colostrum with a stomach tube to lambs and resuscitating weak lambs are trained skills that the livestock handler must be taught by an experienced farmer or the flock veterinarian.

Equipment/remedies needed

- Disinfectant for treatment of navel
- Disinfectant soap
- Lubricating gel
- Stomach tube
- Bottle with teats
- Glucose solution

This is a basic list of the equipment needed that can be expanded upon according to the different production circumstances and the intensity of the production unit.

7 Lactation management

Critical control points in the management of the lactation period in the production cycle.

The most important factor in the growth of lambs is the level of milk production by the ewes. Milk production is stimulated by the availability of good grazing and the supplementation of bypass protein to the ewe.

Group ewes	Group in multiple and single-lamb groups to be supplemented according to need.
Dock tails	Dock lambs at less than two weeks of age, if at all possible (sheep only).
Castrate male lambs	Castration may be done at this point. Lambs should be castrated before they are one month of age.
Remove ewes	Remove ewes that lost their lambs to save on the amount of supplementary feed needed by the lambing flock.
Monitor milk production (udders)	Observe and examine, if needed, the udders of all lactating ewes for any defects (mastitis) and milk production. Enough water should be readily available as a lactating ewe may consume up to 9ℓ of water a day. Keep ewes on high-level nutrition during lactation for maximum milk production.
Monitor parasites	**Ewes** – Do faecal egg counts two weeks after the end of the lambing period. **Lambs** – First treatment for roundworm and tapeworm 30 days after the lambing season.
Vaccinate	**Lambs** – First vaccination against pulpy kidney should be done from two months of age when the protection provided by the colostrum is declining. **Ewes** – Annual vaccination of non-pregnant ewes against bluetongue (sheep only).

Lactation checklist

- ☑ Dock tails using the correct method (sheep only).
- ☑ Castrate male lambs.
- ☑ Specifically observe the udders of ewes for milk production.
- ☑ Deworm lambs.
- ☑ Deworm ewes, if needed.
- ☑ Vaccinate lambs against pulpy kidney.
- ☑ Vaccinate ewes against bluetongue (sheep only).
- ☑ Feed supplement for ewes.

It is essential to dock tails at a young age. A gas-heated docking iron cuts, sterilises and cauterises the tail stump simultaneously and is the most efficient method of tail docking. This should be regarded as the preferred method for tail docking. The tail stump must be left long enough so to cover the ewe's external genitalia and the ram's anus. Treat docking wounds.

Ram lambs can be **castrated** simultaneously with tail docking – a competent person must do this when the lambs are between one and six weeks of age. Lambs should be protected against tetanus through colostral immunity if elastrator bands are used for castration.

8 Weaning management

Critical control points in the management of the weaning period in the production cycle.

Because of the short lactation period of small stock, it is essential to maintain the optimal growth of lambs up to and after weaning. To ensure this, creep feeding has become a standard management tool in small stock farming.

Lamb management	Lambs' rations should not be changed for two weeks before or after weaning. Creep feed, with a 16% to 18% crude protein content, can be provided to lambs. Creep feeding has a dual effect: increased weaning weights and lamb survival. Post-weaning survival rates are largely dependent on the growth rate in the pre-weaning period, as well as the final weaning weight. The faster growing and heavier weaners will have better survival rates.
Vaccination	Lambs must be given a booster vaccination against pulpy kidney at weaning. This vaccination can be in the form of a broad-spectrum vaccine that includes other clostridial diseases and vaccination against pneumonia.
Parasite management	Depending on when lambing takes place, internal parasite infestations must be monitored, especially during the wet season. Follow-up treatments against roundworms and tapeworms are usually needed before and at weaning.
Evaluate ewes at weaning	If ewes are on a high level of supplementation, this can be reduced 14 days prior to weaning in order to reduce milk flow. Udder examination at the time of weaning is informative to identify ewes that did not lamb, ewes that have lost their lambs and ewes that have lambs with them at weaning. Use this data and the examination of the ewes' teeth to identify ewes for culling.

Weaning checklist

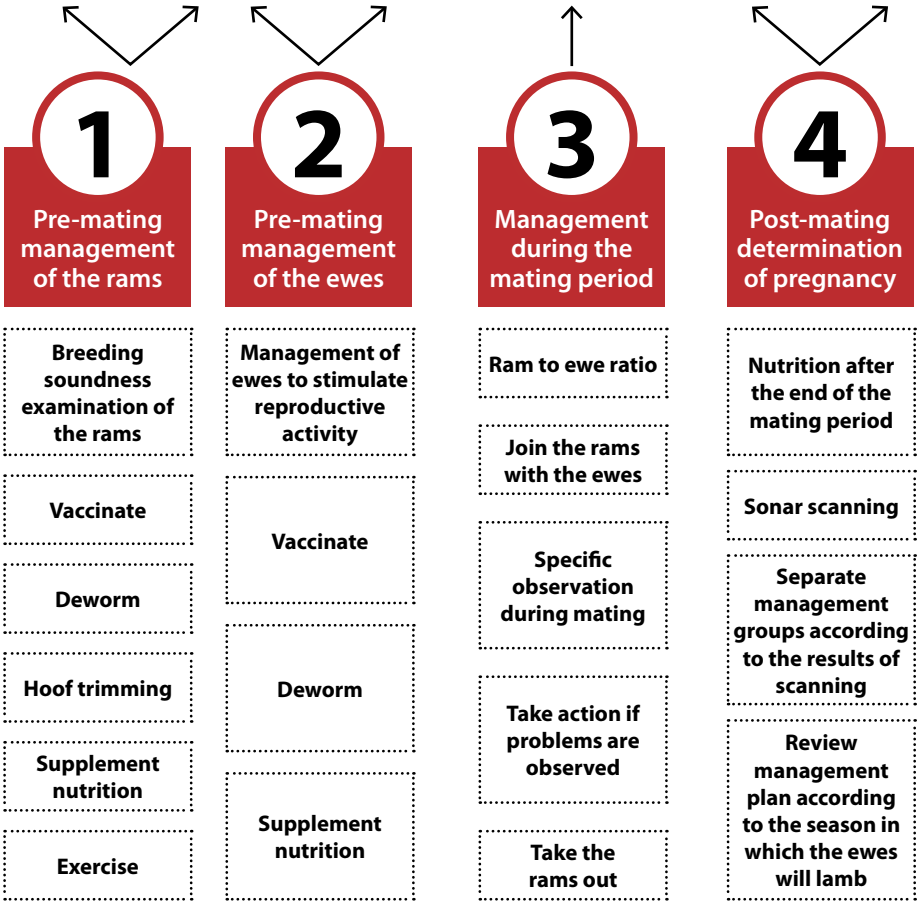
- ☑ Provide creep feeding to lambs.
- ☑ Booster vaccination of lambs against pulpy kidney.
- ☑ Monitor internal parasite infestations in lambs.
- ☑ Treat lambs against internal parasites, as needed.
- ☑ Evaluate ewes at weaning to determine cull animals.

This checklist is drawn up to ensure that all the basic management actions are carried out. This is a very basic list that can be expanded upon, depending on different production circumstances.

A basic small stock

Fill in months of the year, starting with the month you are planning to start the mating season. Then fill in the rest of the months – April, in this example.

January	February	March	April	May	June
			MATE		



herd health plan

If there is no set mating season, you can fill in the months of the year starting with the month in which most lambs are born – September, in this example.

July	August	September	October	November	December
		LAMB			WEAN

5 Pre-lambing management

- Grouping of ewes
- Supplement nutrition
- Vaccinate
- Deworm
- Crutching or shearing
- Select and prepare lambing area

6 Lambing management

- Management of pregnant ewes close to lambing
- Close observation during lambing
- Colostrum intake
- Daily observation

7 Lactation management

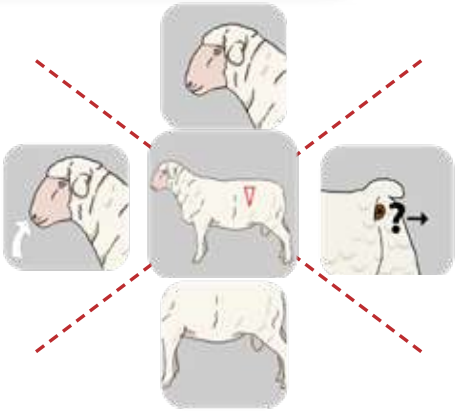
- Dock tails
- Castrate male lambs
- Remove ewes
- Monitor milk production (udders)
- Monitor parasites
- Vaccinate

8 Weaning management

- Lamb management
- Vaccination
- Parasite management
- Evaluate ewes at weaning

Daily observation during lambing

There should be a special focus on <u>observation</u> by the livestock handler before, during and after lambing.



The daily observation card (DOC) provides the structure and logical approach to daily observation.

The focus just shifts to observing the lambs as they are the vulnerable group.

The purpose of practising daily observation is to familiarise the livestock handler with and understand the signs of health in the lambing season.

He/she needs to observe:

- Signs that show an ewe is close to lambing
- The normal lambing process
- Normal behaviour when a lamb suckles and there is enough milk available
- Normal interval for lambs to suckle
- Normal behaviour when a lamb wakes up and stands after sleeping
- Normal consistency of the dung of very young lambs and during their growth period

Only when livestock handlers are very familiar with the signs of health will they be able to identify the first signs of disease as soon as they become visible. Most

Signs of disease the livestock handler must be on the lookout for:

Ewes

- Severe swelling or discoloration of the udder.
- Severe swelling of vulva after giving birth.
- Abnormal excretions from the vulva.
- Change in behaviour – listless or lying down for long periods.
- Losing body condition very rapidly.
- Signs of blowfly infestation.

Lambs

- Weakness during the first 24 hours after birth.
- Change in behaviour when suckling.
- Loss of body condition.
- Change in behaviour when standing up.
- Any sign of stiffness.
- Change in the consistency or colour of the dung.

Closer examination during lambing

There should also be a special focus on <u>closer examination</u> by the livestock handler before, during and after lambing.

Small stock that show signs of disease during daily observation need to be examined using the structured approach developed, including:

Examining the inside eyelid and head.

Taking the temperature and examining the back of the small stock.

Examining the lymph nodes and the rest of the body.

Because of the number of lambs that are stillborn or that die shortly after birth, there are also specialised inspections or post-mortem examinations that can be done on dead lambs. These recordings can be used to establish the time of death and the possible cause of death.

Inspection of dead lambs

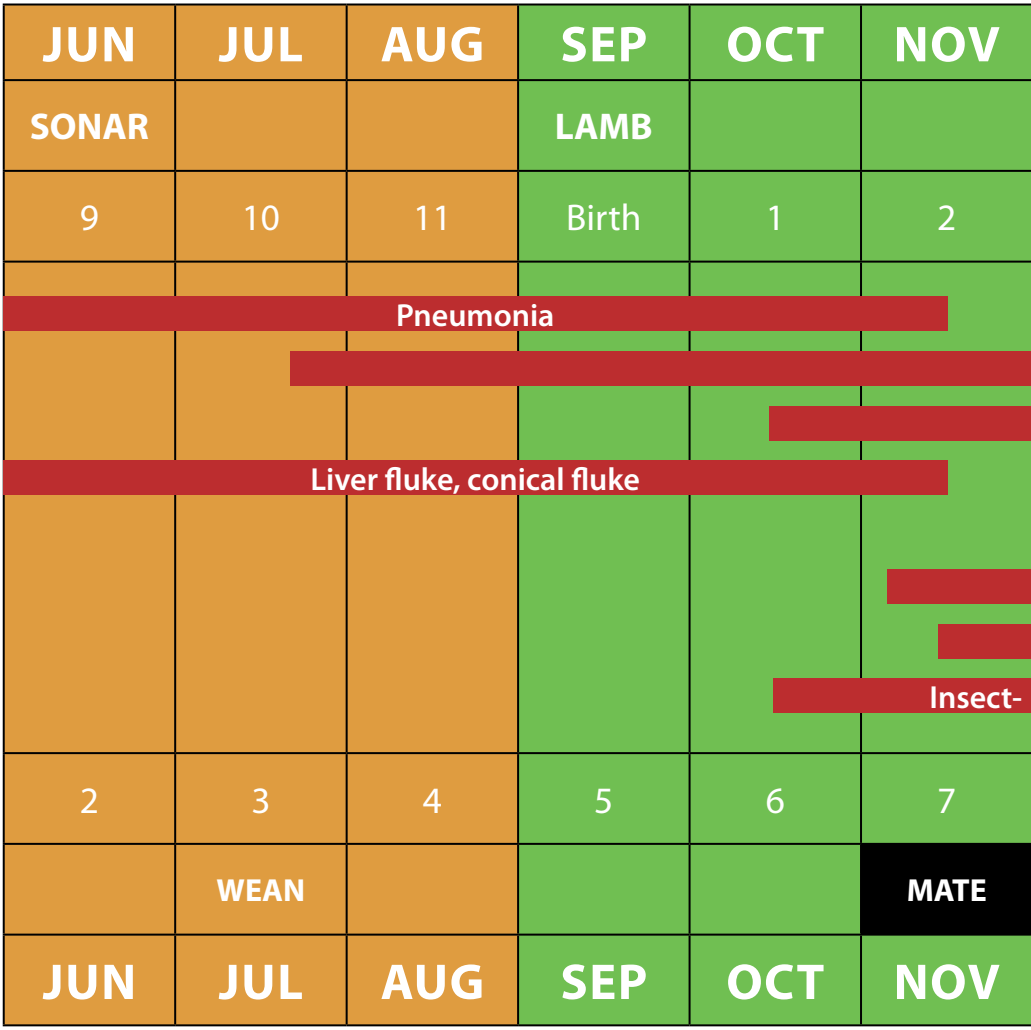
Yellow staining of skin/coat	Lamb was not cleaned by mother after birth (mismothering or lamb was dead at birth).
Soft pads still on feet	Lamb didn't get up to walk after birth before it died.
Swollen tongue, head and neck	Difficult birth.

Post-mortem examination of dead lambs

Yellow/white fat around kidneys	Fat reserves not depleted. Death not due to starvation.
Reddish fat around kidneys	Fat reserves were used up. Starvation / mismothering.
Piece of lung sinks in water	Lamb has never breathed – dead before birth.
Piece of lung floats on water	Lamb has breathed after birth and before death.
Milk stomach empty	Lamb has never suckled any milk before death.
Milk stomach have clotted milk in	Lamb has suckled before dying.

Any post-mortem examination that involves cutting open the carcass of a dead lamb is a specialised skill that needs to be taught by the flock veterinarian. The use of gloves, other suitable protective clothing and the right equipment is needed for this procedure.

Production cycle of animals



Production cycle of animals

All production management and disease control actions revolve around taking specific pre-planned management steps at specific times during the year.

that lamb during the spring

DEC	JAN	FEB	MAR	APR	MAY
WEAN					
3	4	5	6	7	8
			Pneumonia		
Pulpy kidney					
Roundworms (Wireworm)					
Liver fluke, conical fluke					
	Nasal worm				
Blowflies					
Large-mouthed ticks (bont-legged and bont ticks)					
transmitted diseases – Bluetongue, Rift Valley fever					
8	9	10	11	Birth	1
	SONAR			LAMB	
DEC	JAN	FEB	MAR	APR	MAY

that lamb during the autumn

The mating season forms the basis around which a production management plan is developed because it is the only decision that the small stock farmer can control.

Example of a seasonal internal and external parasite control programme that can be developed for a specific farm (district).

Worm control	Jun	Jul	Aug	Sep	Oct	Nov
Lambs				**LAMB**	**Deworm:** Tapeworms Roundworms	**Deworm:** Tapeworms Roundworms
Ewes			**Deworm:** Roundworms Nasal worm Liver fluke			**Deworm:** Roundworms
Rams			**Deworm:** Roundworms Nasal worm Liver fluke			**Deworm:** Roundworms
Tick control				Observe for the presence of any multi-host ticks to start treatment if needed.		

Regular parasite control is part of daily good management by the livestock handler and parasite infestations must not lead to clinical disease emergencies.

Afrivet products registered for the control of external parasites

Afrivet product	Active ingredients	Sheep scab	Biting lice	Sucking lice	Blow fly	Ticks	Flies
Deltapor 5 G4252 (Act 36/1947)	Deltamethrien 0,5 % m/v Piperonyl butoxide 2,5 % m/v					√	√
Deltapor 10 Plus G4255 (Act 36/1947)	Deltamethrin 1 % m/v Piperonyl butoxide 3 % m/v					√	√
Eraditick Plus G4251 (Act 36/1947)	Amitraz 1,5 % m/v Deltamethrin 0,50 % m/v Piperonyl butoxide 3 % m/v		√	√		√	√
Eraditick 125 G3585 (Act 36/1947)	Amitraz 12,5% m/v	√	√	√		√	
Eraditick Grease G3667 (Act 36/1947)	Deltamethrin 0,1% m/m Piperonyl butoxide 0,05% m/m					√	

Programme can vary according to the type of animals (sheep or goats) and the seasonality and type of parasites occurring.

<table>
<tr><th>Dec</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Worm control</th></tr>
<tr><td>Deworm:
Roundworms</td><td>Deworm:
Roundworms</td><td></td><td>Deworm:
Roundworms
Nasal worm
Liver fluke</td><td></td><td></td><td>Lambs</td></tr>
<tr><td></td><td>Deworm:
Roundworms
Nasal worm
Liver fluke</td><td></td><td>Deworm:
Roundworms
Nasal worm
Liver fluke</td><td rowspan="2">BREED</td><td></td><td>Ewes</td></tr>
<tr><td></td><td>Deworm:
Roundworms
Nasal worm
Liver fluke</td><td></td><td>Deworm:
Roundworms
Nasal worm
Liver fluke</td><td></td><td>Rams</td></tr>
<tr><td colspan="3">Weekly observation and treatment of multi-host ticks.</td><td colspan="3">Observe for the presence of any multi-host ticks to continue treatment if needed.</td><td>Tick control</td></tr>
</table>

Weekly inspection of small stock for parasites is a specific adaptation of daily observation and examination. Full information about parasite control and parasite control products are available from Afrivet.

Afrivet products registered for the control of internal parasites

Product	Active ingredients	Wire-worm	Round-worms	Tape-worm	Nasal worm	Liver fluke	Conical fluke
Eradiworm 25 G4249 (Act 36/1947	Levamisole HCl 2,5 % m/v	√	√				
Eradiworm plus G4265 (Act 36/1947)	Levamisole HCl 3% m/v Rafoxanide 3% m/v	√	√		√	√	
Ecofluke G3383 (Act 36/1947)	Triclabendazole 10% m/v					√	
Ecolint Super G3065 (Act 36/1947)	Resorantel 25% m/v			√			√
Eradiworm + Tape G4244 Act 36/1947	Levamisole HCl 37,5 mg/ml, Praziquantel 18,8 mg/ml	√	√	√ (Milk Tapeworm)			

It is important to differentiate between sheep and goats. One needs to understand these differences when observing, examining, and treating animals. Take care when vaccinating goats as they can react badly to certain vaccines and to ivermectin based products. Make sure the product is specifically registered for use on goats.

Afrivet
Animal health is in our DNA

FOR ANIMAL USE ONLY

BE PART OF THE

WIREVAX REVOLUTION

Reg.No. G4200 (Act 36/1947)

1ST VACCINE AGAINST WIREWORM IN SOUTH AFRICA

1 ml

Available pack sizes

250 ml

FOR MORE INFORMATION: 0860 833 2787 or 012 817 9060

Wirevax: Reg. No. G4200 (Act 36/1947) **Contains:** Haemonchus contortus antigen 5 µg/ml **Manufacturer:** Wormvax Australia Pty Ltd at the Albany Laboratory of the Dept of Agriculture and Food, Western Australia **Registration holder:** Afrivet Business Management (Pty) Ltd Co/Mpy. Reg. No. 2000/011263/07, PO Box 2009, Faerie Glen, 0043, RSA Web: www.afrivet.co.za

Download our app for more information

Available on the App Store

ANDROID APP ON Google Play