



Best Practices for managing Awassi Sheep

Lactation Period

4

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Foreword

This booklet is part of a ten-part series of technical Guidelines describing 'Best practices for managing Awassi sheep' – the dominant sheep breed in several countries across the Middle East. The series is targeted at sheep farmers and milk processors, and provides practical, easy-to-follow advice on managing Awassi sheep under dryland conditions.

Efficient husbandry, feeding and milk processing are crucial in management of Awassi sheep in dry areas; but many small-scale producers are unfamiliar with simple productivity-enhancing practices. This series aims to fill this information gap, enabling farmers to increase their income from livestock while using resources more efficiently and sustainably.

The series draws on the practical experience of researchers, as well as the extensive literature, to capture scientific and local knowledge in an easily accessible format in the local language. The bulletins are organized in accordance with sheep management calendar, and describe the management of Awassi ewes during important physiological stages over the year. Supplementary guidelines provide additional information on each stage.

These booklets were produced as part of an IFAD-ICARDA project, Scaling up best practices for managing Awassi dairy sheep to small-scale sheep farmers in West Asia, implemented in Syria and Lebanon in collaboration with IFAD development projects in both countries.

We would like to thank all those involved in the preparation of these guidelines and also for IFAD's financial support to this important project. We expect these booklets will be useful to sheep farmers, milk processors, extension staff, as well students of agricultural development and knowledge transfer.

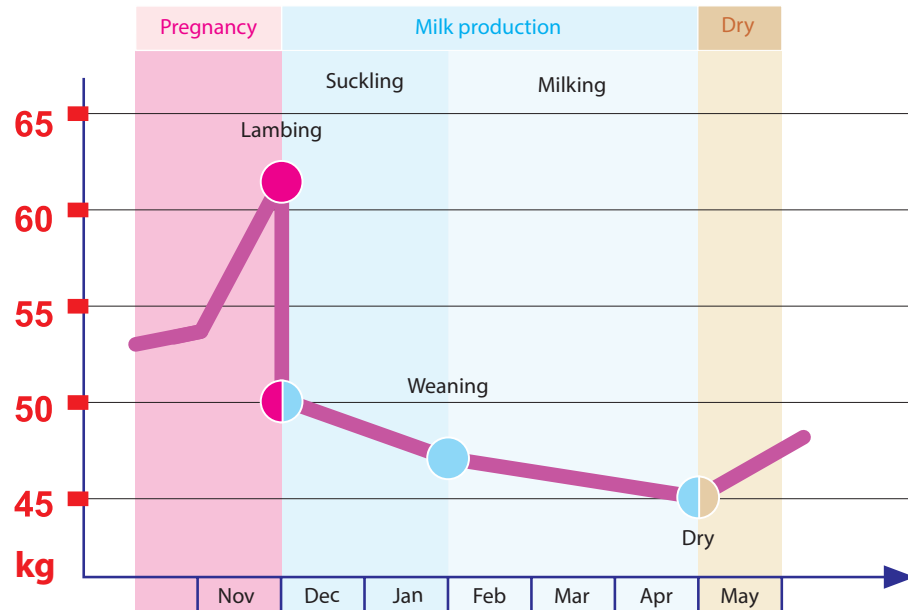


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Ewe's Weight Variation during Lactation Period



Milk production period is divided in two phases: nursing period which end by maintenance (dry) process.

Ewes' nutritional needs increase during this period and ewes' weight decreases due to exhaustion of body's reserves because of milk production.

The figure above shows the weight's changes for an ewe with a weight of 50 kg and nursing one lamb during milk production period.

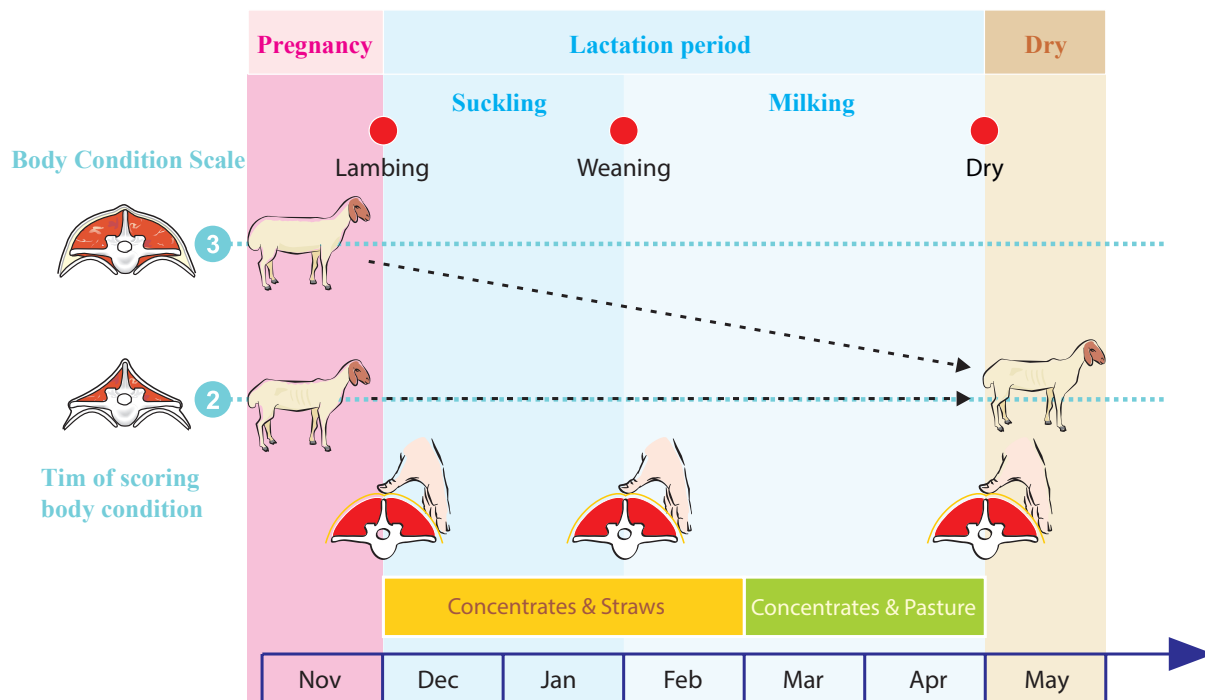
Ewes' Feeding during Nursing Period



Ewes' body condition should be evaluated after lambing and ewes should be divided into groups and each group is fed according to its body condition score. In general, two groups of ewes can be distinguished:

- Ewes that have body reserves (body condition score is 2.5 and more). This group has been fed well in the last pregnancy phase, and consuming these reserves is permitted to reduce feed
- Ewes that do not have body reserves (body condition score of less than 2.5). These ewes need supplemental feeding to avoid the deterioration of the body condition score to less than 2. These ewes should be placed in an independent group, or marked to be separated and offered an extra daily supplemental meal.
- It is preferable to put ewes nursing twins in a separate barn because they generate more milk and more and need more feed. If the number of sheep in the flock is limited, or in case a barn is not available, these ewes can be marked and separated at certain time, to be given an additional meal to maintain their milk production and to limit exhaustion of body reserves to below score 2. Young ewes can be added to this group because they need additional meal being still in the growing stage.





Ewes' Feeding during Nursing Period

Feed components for one tonne of concentrated ration	
Feed stuff	kg
Barley	730
Hulled cotton seed cake	150
Wheat bran	100
Minerals and vitamins	20

Components of salt and vitamin mixture	g/kg
Dicalcium phosphate	600
Salt	300
Minerals and vitamins	100



Due to the degradation of natural pasture, Sheep breeders in Syria depend on cereal straw (barley and wheat) or legume straw (lentil, faba and vetch) to feed their animals. Because ewes are unable to intake all their needs from these straw, supports are being provided through concentrated feed (grains and cakes).

The components of concentrated ration are selected according to locally available feed and their prices. Of the most common materials in Syria are barley grains, wheat bran and cotton seed cake. The ration should contain dicalcium phosphate, table salt and rare salts and vitamins. Ready to use mixtures of salts and vitamins specific to sheep are available on the market. It is preferable to consult a veterinarian when buying them. Following is the composition of a ration for milk production period containing 11 mega joule energy and 15% crud protein.

Daily ration for an ewe weighing 50 kg in the first phase of nursing (1 st & 2 nd month)		
No of lambs	1	2
Milk yield (kg)	1.375	2.000
Barley straw (kg)	1	1
Concentrate (kg)	1.1	1.6

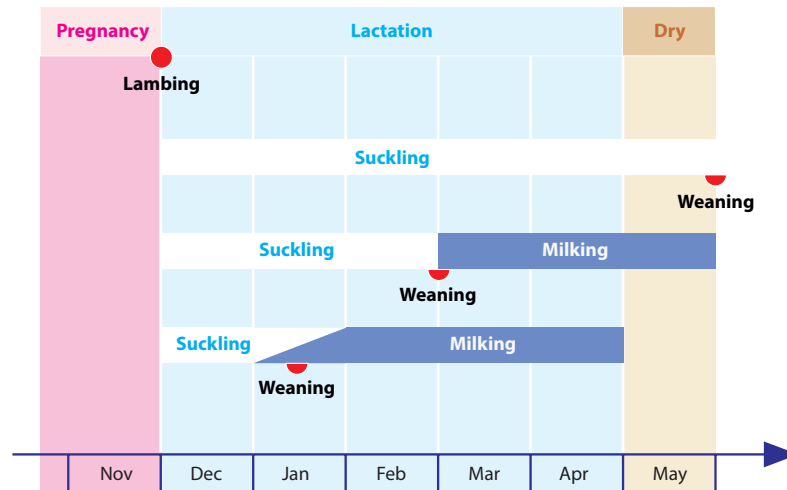


The table shows the needed ration for an ewe weighing 50 kg with an intermediate body condition score of 2.5 during the 1st and 2nd month of milk production period.

When feeding, the following should be observed:

- Introduce the concentrated ration gradually, this needs 5 – 7 days to attain the new ration fully
- Monitor the udder during this period and ensure of its health status. The udder should partly milked, if the lamb is not able to do that by well suckling
- Concentrated ration is offered in two meals, if the nutritional requirements within the flock are not the same, milking ewes need to be separated to be offered an additional meal
- It is preferable to offer straw add libitum, and it is advised to increase the quantity of straw if the quantity provided is completely consumed. Pay attention that straw is free of mold, soils and moisture
- The quantity of concentrates is related to the quality and quantity of straw eaten by ewes
- To obtain good performance, it is recommended to introduce in the ration legume grains that are not considered for human consumption such as broken faba beans, broken lentils, vetch and grass pea, when available
- Mangers should be fixed to avoid waste and to protect lambs and their mother from injury resulting from contention and pushing.

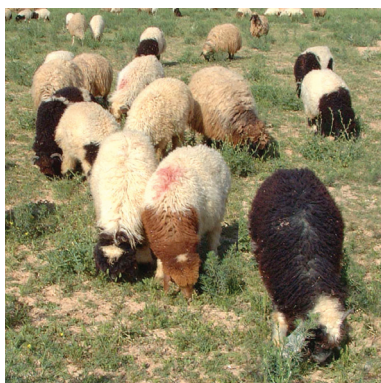
Weaning of lambs



Weaning is the process of separating lambs from their mothers and start feeding them on feed, and start of milk production season. Weaning method varies from one region to another based on financial potentials and feed availability and the possibility of marketing milk and processing its products.

In general, there are three methods for weaning:

- In the first method, lambs are left with their mothers for six months approximately to feed on their mothers' milk and share with them the pasture and feed. These lambs are ready to be marketed at around 50 kg weight and are sold at high price because of the good quality of their meat. This is done in remote areas far from population communities, and where easy transportation are not available.



- In the second method, male lambs are left with their mothers as in the previous method, and female lambs are weaned at 3 months-old, and milking their mothers start and milk is processed to meet the family needs, and excess milk is sold in the form of yoghurt and cheese. In this method, milking burdens on the breeder and his family become less and the breeder obtains return from selling lambs at good price and also his provisions from dairy products. This is done in areas nearby residential communities where labor is lacking.
- In the third method, where there is high demand for milk, the breeder is resorted to lengthen milking period by early weaning following the following steps:
 - Lambs are left to nurse their mothers for a month;
 - Lambs are offered good legume hay and high palatable protein – rich concentrated ration and clean water. Feed are offered so as to be available to lambs but not to ewes;
 - Lambs are separated from their mothers for a limited period that is increased gradually. Mangers are monitored and when it is ensured that the feed are consumed by lambs, milking starts partly once a day. Dependence on milk is reduced with increasing feed consumption;
 - Isolation period is increased with increasing concentrated feed consumption and, when lambs are two month-old, they can be separated completely and milking starts twice a day.
- Lambs after weaning are fed, according to feed sources available. Grazing pastures cultivated with green leguminous forage crops, feed mixtures (vetch / barley), or concentrates can be adopted. In general, it is recommended to sell the lambs that have been weaned quickly, if fattening potential is not available.

Weaning lamb ration



Feed components needed to prepare 100 kg of lamb ration	
Feedstuff	kg
Barley	25
Corn	25
Soybean cake	20
Wheat bran	20
Hay or straw	8
Minerals and vitamins	2

Mineral and vitamin mix	g/kg
Dicalcium phosphate	600
Salt	300
Minerals and vitamins	100

Lambs' ration should be highly palatable and easy to digest. The following feedstuffs can be adopted: corn, barley (It is preferable that they are mashed), wheat bran, soybean cake, legumes hay or barley straw, in addition to a slat and vitamins mixture.

The aim from feeding lambs this ration is to accelerate their weaning, and to obtain an early and long milking season, along with maintaining lambs' growth rate. Feeding should start with a very limited quantity that is gradually increased taking into account feed, mangers and water quality.

Lambs consumption of concentrated ration is monitored and with increased consumption, isolation period of baby lambs from their mothers is increased and thus, obtaining more milk.

Practically, weaning is done in groups and Awassi lambs can be weaned at the age of 60 days (50 – 70 days period is suitable) if milk is a demanded commodity.

Ewes' Nutrition during Milking Period

Exhaustion of ewes' body reserves can be accepted, and the body condition is not reduced below score 2, to ensure ewes' health and its readiness for mating in the coming season.

It is advised that ewes are divided according to milk quantity they produce, where high producing ewes are marked to be given additional meal in order to increase milk production and to limit exhaustion of body reserves.

Drinkable water should be secured at sufficient quantity and suitable temperature to enable ewes to benefit from feed and secrete all its milk potentials.

The quantity of feed need is related to the nature of available pasture. In general, an ewe needs energy at 7.8 mega joule per kilogram of milk and this is equivalent to 750 – 800 g of a balanced ration containing 11 mega joule / kg of dry matter. If pastures are not available or are deteriorating, a concentrated ration containing 11 mega joule energy and 15% crude protein with quantities according to the table below can be adopted:



Ewe nutritional needs during lactation	Month 1	Month 2	Month 3
Milk quantity (kg)	1.000	0.750	0.350
Straw (kg)	1	1	1
Concentrate (kg)	1.000	0.700	0.300



It is preferable to offer straw add libitum, if available and cheap, taking into account the availability of sufficient mangers.

Results showed that offering a protein-rich ration increases milk production, and it is recommended that proteins' level in the concentrate mixture is 14 – 16%. A part of cotton seed cake can be replaced with legume grains (vetch, grass pea, broken faba bean and lentil). It is also recommended that the ratio of cotton seed cake is not higher than 20% of the ration, because it affects milk's taste.

Milking



Ewes' milking can partly starts when lambs take feed, usually at 20 – 30 days old. Ewes are separated from their lambs for several hours and returned after milking. The separation period is increased gradually until it reaches 12 hours a day. Milking is done once a day and when lambs are two month old, they are weaned completely and ewes are milked twice a day.

The number of milking days varies from one season to another, and from one ewe to another and 90 days in average is an acceptable period, if milk is an acceptable commodity. An Awassi ewe produces, in normal conditions, a quantity of milk between 60 – 90 kg. But this quantity may bypass 150 kg for some ewes, if well managed.

To increase milk production, the following should be observed:

- Deal with ewes gently
- Feeding ewes according to their needs, and care to gradually change the ration
- Provision of drinkable water
- Caring of barn in terms of space, cleanliness, dryness and it is free of cold air currents.

Ewes' maintenance (dry) period should be planned. In general, milk production decreases by the end of the season, where milking is reduced to once a day, then milking is done once every two days, then once every three days until milk generation stops. In the case milk generation continues for some ewes, they should be milked to protect the udder from damage

Udder health



To ensure udder health, the following points should be observed:

- Attention to health conditions, hands should be washed prior milking. It is preferred to use disposable gloves to limit diseases' transmission to milkman and to dip the teats in a disinfectant solution directly after milking to eliminate mastitis as much as can.
- Monitor the udder periodically and do milking when there is excess milk left from lamb suckling. Consult with a veterinarian in case of mastitis or if there are signs of raised temperature or swelling
- Maintain the barn clean and ensure that there are no sharp edges that can harm the animals and increase the possibility of infections
- Isolation of mastitis infected ewes in a separate place and milking them after of normal ewes milking is done. Infected ewes are allowed to join the flock after a complete recovery
- Flies and rodents must be controlled
- If a ewe refuse to nurse her baby, or when milking is not possible, the reasons should be inspected and a veterinarian should be consulted to a quickly undertake a suitable procedure.

Flock health during milk production



Diseases will increase during lactation season. Milking might be the cause of some disease transmission, if hygiene procedures are not followed.

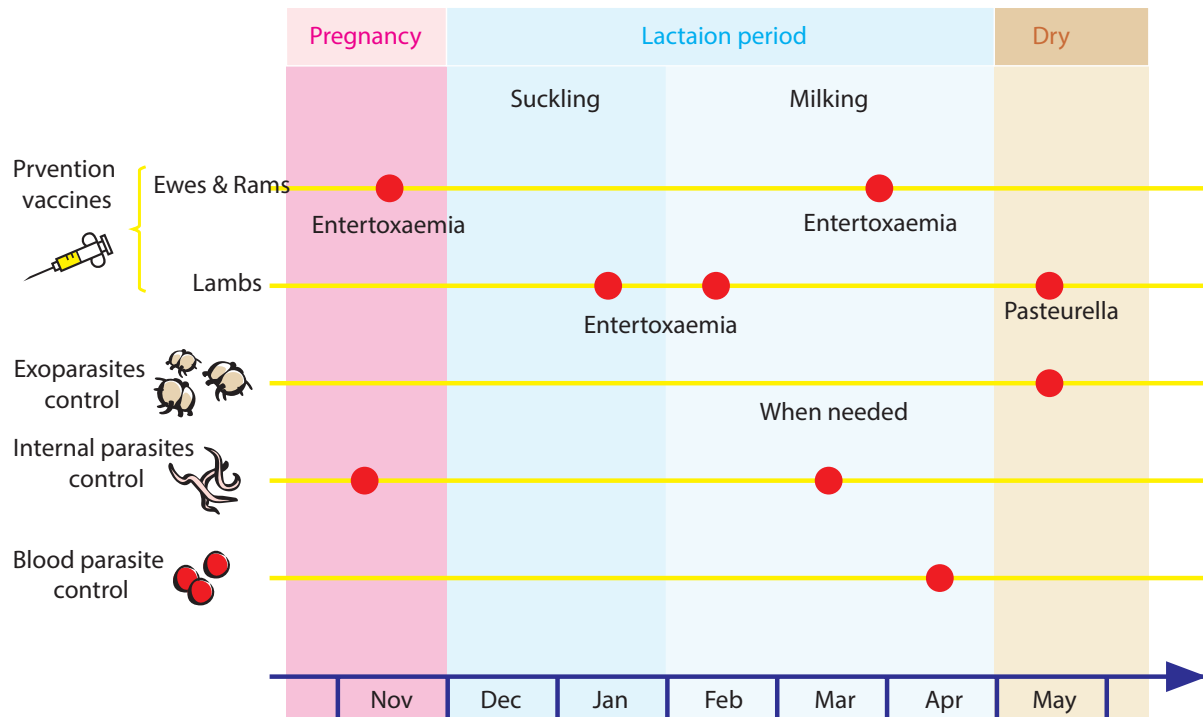
It is preferable to undertake preventive procedures and treatments that can cause animal stress prior or after weaning. In this regard Enterotoxaemia vaccine is given to the lambs two weeks prior to weaning, and the supportive dose of the vaccine two weeks after weaning. As for ewes, the first dose is given two week prior to lambing and the second dose at the end of milking season. Milk withdrawal period recommended by the manufacturing company should be respected to protect human health.

During this period, the following procedures should be followed:

- Monitor lambs' feed intake as this is an indicator of health status, sick lambs do not eat well
- Offer balanced ration (introduced gradually) as nutritional needs increases
- Isolate and treat sick animals directly; symptoms such as coughing, nose secretion and diarrhea can be successfully overcome if detected early and treated quickly but their negligence leads to substantial losses
- Appoint a specific person for milking sick ewes, to avoid infection. Use special tools for sick animals and ensure the disinfection of udder and tools used in milking after milking.

For further information, please refer to the Health Care booklet in this series.

Health care time table



Let us Remember



To achieve good production of milk and rapid lamb growth, the following should be observed:

- Feeding ewes according to their requirement. The body condition score should not be lower than 2 in order to maintain health and ensure mating season at a proper time
- Monitoring of lambs' and avoiding them stresses as much as possible
- Provision of suitable, clean, dry, and well illuminated and aerated barn
- Undertake necessary preventive and curative procedures without delay
- Culling of sick animals that are difficult to cure to maintain the health safety of the flock and the workers.

Best Practices for Managing Awassi Sheep

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- 2 Pregnancy
- 3 Lambing
- 4 Lactation Period
- 5 Milking and Milk Processing
- 6 Sheep Selection
- 7 Health Care Guide
- 8 Feed Reference Guide
- 9 Preparing Urea Treated Straw
- 10 Body Condition Scale
- 11 Lamb Fattening



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