



# FACTSHEET

## Hair Sheep Management: *a feeding guide for breeding ewes*

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Breeding ewes are the source of most if not all of the saleable meat produced on the sheep farm through the production of healthy lambs. Lambs are destined to be slaughtered, transferred to the replacement flock or sold live as valuable germplasm. The nutrition of the breeding ewe plays a critical role in ensuring she produces healthy, strong and vigorous growing lambs. Feed is usually the single largest recurring expenditure on livestock farms, reflecting sometimes up to 75% of the operating expenditure. This cost can be minimised through the judicious use of forages of high nutritional quality supplemented by minimal amounts of concentrate feed. These forages can be grasses, legumes and/or other fodder crops, conserved products such as hay or silage and other crops such as cereals or cassava. Livestock production from forages is a function of the voluntary feed intake of the animal, the nutritive value and digestibility of the forage and the efficiency of utilisation of the digested material.



Feed offered to sheep must be palatable since sheep may sometimes starve rather than eat unpalatable feed. Soyabean meal, coconut meal, groundnut meal and cottonseed meal are prone to rancidity and if not stored properly may cause decreased palatability.

In order to satisfactorily feed the ewe, the nutrient and energy requirements for maintenance, growth (if she is young), reproduction and lactation must be met. These requirements can be found in publications such as Nutrient Requirements of Sheep (National Research Council. Subcommittee on Sheep Nutrition 1985). When developing diets for tropical hair sheep the nutrient concentration or density of the diet should be slightly above (about 2%) those expressed in this publication as the studies from which those calculations were made were conducted under environmental conditions very different from that of the tropics. In the tropics, the animal will eat less in order to reduce heat production. Therefore, the nutrient concentration in the diet must be proportionally higher in order to meet the requirements of the animal. Of course, as with all livestock species, an abundant supply of clean, fresh water must always be available to the ewes, especially during lactation. For the purposes of this publication the breeding ewe is defined as an adult female sheep, having attained the mature body weight and age ascribed to that particular breed that has been entered into the breeding flock.

Commercial concentrate feed (14% crude protein) prepared for tropical sheep can be used to supplement *ad libitum* feeding of high quality forages at the following levels:

-  2 weeks before breeding: 0.23 - 0.45 kg per head per day depending on body condition (Table 1). Ewes should not be overfed because fat ewes have difficulty conceiving. Ewes should achieve a body condition score at mating of about 3-3.5. Although subjective, condition scoring is a simple, relatively accurate, quick method of assessing the condition of sheep and by extension the nutritional status of the flock. It is done by placing the hand over the backbone in the area just behind the ribcage. Scoring is done on a scale of 1 to 5, where 1 is an emaciated ewe (extremely thin), and 5 is very fat. Ewes can be grouped according to fullness of muscling and amount of fat cover. Adjustments in the feeding programme can be made accordingly.
  
-  Exercise and good quality forage are essential during pregnancy. The ewe may be fed between 0.23-0.45 kg concentrate feed per day.
  
-  Early lactation: 1.36 kg per ewe per day up to one week after lambing gradually reduced to 0.68-0.91 kg per ewe per day at 5-6 weeks after lambing. This should be further reduced to reach a level of not more than 0.45 kg at weaning (50-60 days).

**Table 1.** A guide for feeding breeding ewes

Time	Quantity (kg/hd/day) *
2 Weeks before breeding	0.23 - 0.45
During Pregnancy	
First trimester (6-7 weeks)	About 5-10% above the maintenance **
Second trimester	20-30% above the maintenance level
last trimester (last 6 weeks prior prior to lambing)	35-40% above the maintenance level
Early laction: up to 1 week after lambing	1.36
5-6 weeks after lambing	0.68-0.91
At weaning (50-60 days)	Not more than 0.45

\* 14 percent crude protein ration with good quality forage being offered *ad lib*

\*\* The maintenance level in animals refers to that level of feeding required by the animal to maintain its body weight only

It must be appreciated that feeding levels will depend, among other things, on the nutrient content of the feed offered. The following are some issues to be considered when feeding breeding ewes:

## Flushing

Temperate ewes are usually flushed in preparation for mating by feeding at a relatively higher level in terms of feed quality for about 4 weeks prior to mating. This should improve the body condition and increase the ovulation rate. Recent research suggests that flushing of hair sheep ewes under tropical conditions does not appear to enhance the ovulation rate (Godfrey *et al.* 2003). This may be due to the fact that tropical hair sheep are year round breeders and under a semi-intensive to intensive system they must be provided with a relatively higher level of nutrition at most times of the year when compared to temperate breeds of sheep. The principle of flushing therefore, may not be applicable under these circumstances. Additionally, the Barbados Black Belly breed is inherently prolific and therefore the need for flushing does not arise.

## Feeding During Pregnancy

During the first trimester (6-7 weeks) of pregnancy the level of feed being offered should be only slightly above the maintenance level (about 5-10%). This should be increased gradually to about 20-30% higher than the maintenance level during the second trimester. More than 70% of fetal development takes place during the last trimester (6 weeks before expected lambing date) of pregnancy further increasing the nutrient requirement of the ewe especially for protein and energy. Ultrasound technology may be used to determine the number of foetuses the ewe is carrying. This should be done within the first 45-70 days of pregnancy. If done during late pregnancy the foetuses may hide each other resulting in an incorrect determination. The ewe's requirement for nutrients and energy increases with the number of foetuses she is carrying. Although nutrient requirement increases as pregnancy progresses, dry matter intake may be reduced due to the pressure exerted on the rumen thereby decreasing its volumetric capacity. To minimise weight loss during this period, the nutrient density of the diet must be increased.

The brain of the ewe can only utilise glucose as an energy source. If the glucogenic acid requirement is not met the ewe may suffer from pregnancy toxæmia. Never offer the ewe a diet high in molasses, fats or oils during the last trimester of pregnancy as this will result in high levels of ketone bodies in the blood causing pregnancy toxæmia (ketosis) and probable death of the ewe. The metabolisation of fats, which occur if dietary nutrients do not meet the ewe's requirements, can also give rise to high levels of ketone bodies in the blood. In addition to this, a ewe in poor condition at kidding will have decreased milk production that will negatively affect the growth and development of lambs.

## Copper Deficiency

One mineral deficiency commonly affecting the neonate through deficiencies in the ewe is that of copper.

The level of copper in forages grown in the Caribbean is usually low to deficient partially due to the majority of our soils being rich in iron, which impedes the metabolism of copper.

At high levels in forages, molybdenum and sulphur negatively affect the absorption of copper in the digestive tract of the ruminant animal. Copper supplementation should be in the cupric form and can be done orally via drenches or salt licks. Copper can also be top dressed on pastures where sheep are grazed bearing in mind that the level of copper in the diet should not exceed 5-8 mg per kg dry matter when molybdenum levels are not high. Levels higher than 9 mg per kg dry matter will cause copper toxicity. The level of copper in the blood serum of the flock should not be allowed to drop below 0.7 mg/l. The best tissue that can be used to determine copper deficiency in ewes is that obtained from the liver. The level of copper in the liver should not be below 25 mg per kg dry matter. At levels below this you can expect lambs to be born with “sway back” due to a poorly developed central nervous system. The lamb may be unable to stand or walk and paralysis may also occur. “Sway back” cannot be treated in the lamb. The only way to prevent it from occurring in lambs is by ensuring that the ewe is not suffering from copper deficiency. Another sign of copper deficiency in the ewe is the loss of hair crimp. This condition causes the hair of the ewe to appear straight.

## Feeding During Lactation

The milk producing capacity of the ewe is limited. During early lactation her appetite will not be sufficient to meet her energy and nutritional demands when fed the same diet as during gestation, especially if the ewe has given birth to twins or triplets. The animal may lose weight as a result of “feeding off its back” i.e. utilising body reserves to meet energy and nutritional demands. This is naturally expected. However, the ewes should not be allowed to lose so much weight that it is difficult for them to regain it during the maintenance period. To minimise this weight loss you must provide feed and forage that is of the highest nutritional quality.

## References

Godfrey R W, Weis A J and Dodson R E. 2003. Effect of flushing hair sheep ewes during the dry and wet seasons in the U.S. Virgin Islands. *Journal of Animal and Veterinary Advances* 2: 184-190.

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