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Raising Replacement Ewes for Dairy Sheep Production

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Introduction

Dairy products from sheep have become popular in the U.S. In 2008 the U.S. imported over 16 million pounds of sheep milk cheeses (Milani, 2011), yet only 5.5 million pounds of sheep milk was produced in the U.S. The amount of imported sheep milk cheeses would suggest that the sheep dairy industry should be growing, but this is not the case. Producer growth has been constant, but dramatic growth has not been seen due to dairy production limitations (Berger, 2005). Lack of knowledge and money for capital investments have affected producer growth, plus lower milk production in domestic breeds of sheep make it economically difficult for producers. Recently more dairy sheep breeds, with higher production, have been brought to the U.S. This effort to increase sheep milk yield has made management practices even more critical. Improved raising of replacement ewes is one way to help increase production.

Replacement Rate

Replacement rate is the percentage of animals that must be raised to replace animals that have reached the end of their productive life (Pulina, 2004). The replacement rate is calculated by dividing the replacement number by the total number of adult ewes. For example, if a flock consists of 200 adults and 50 young sheep (replacements), the annual replacement rate would be 25% (50/200). Stated another way, 25% of your adult ewes are being replaced each year. Replacement rates will vary depending on breed and management system. The average number of births a ewe has in her productive life span should be inversely related to the replacement rate. To maintain an economically viable dairy sheep flock, it is essential that the replacement rate should be based off how many ewe lambs are born over a productive life span, as well as how many ewes are culled per year, and what age they are culled. Any ewe lambs in excess of those needed as replacements should be sold.

Nutrition

One of the most critical aspect of raising replacement ewes is nutrition. Nutrition can influence such things as: future milk production, reproductive fertility, and overall body growth and development. For replacement ewes it is essential that diets contain sufficient fiber (30-32% NDF). Fiber aids in the development of the digestive system and, most importantly, the rumen (Pulina, 2004). Many types of rumen flora that are essential to digestive health are correlated with fiber in the diet.

Fiber can have detrimental effects if fed at too high of concentration. As fiber levels increase, energy levels decrease (Pulina, 2004). Subsequently, growth rate is reduced, and overall development slows. This can have adverse effects on reproductive fertility as well as body underdevelopment. Excess energy, such as high concentrates in the ration, can also cause problems. This can lead to excess body fat that can lead to a negative impact on reproductive fertility. Diets for replacements should also contain the correct amount of crude protein (18-20%) because of the need to increase muscle growth, rather than fat deposition. Young animals need more protein due to extra growth requirements, and this is especially true if the forage is of poor quality. A protein supplement will be needed since they are not getting enough from forages.

Grouping of replacement ewes should be considered to help meet the nutritional requirements of these animals.

Pulina (2004) suggested dividing ewes into three groups as follows:

A. 2 to 4 months of age: feed good quality hay and concentrates
B. 3 to 10 months of age: feed pasture grasses and concentrates
C. 10 months of age to parturition: feed hay, pasture grass, and concentrates

Pulina also suggested that Group A should have 60-65% of the diet as concentrates, Group B should have 45-50%, and Group C should have 20-25%. Other literature disagrees with the high amounts of concentrations given to the Group A period. Many studies claim that from 2-4 months old is the most critical period for mammary development (Berger, 2005). These studies have shown that the early onset of puberty will bring about earlier reproductive fertility, but at the same time they show that it will also bring forth a decrease in mammary development. A relatively lower growth rate during the 2-4 month of age period increased the parenchyma growth and the milk production in first lactation. The disagreement may be due to changes in our knowledge of how to get maximum growth without causing problems to the mammary gland (i.e., increased growth due to protein, rather than fat). One study did report that Lacaune ewe-lambs increased milk yield in the first lactation by 10% when concentrates were restricted. (Berger, 2005). Additional information in this area would be useful.

Reproduction

Reproductive fertility is critical in any replacement program. Many producers want ewes to be productive as quickly as possible. Estrus usually begins at 6-8 months of age in ewes (Pulina, 2004). Breeding this early can lead to a very early parturition, which may not be optimal for long term productivity. Ewes should be bred when they reach 60-70% of their adult body weight. This is a better rule-of-thumb than age because breeding should be based on size, not age. This means you need to know the mature weight for your breed of sheep. The ewe should be growing at a rate so that she can produce an offspring by the time she is one year of age. Breeding earlier than this can lead to lower milk production in the first lactation, greater problems with dystocia, and stunted growth. Delayed parturition can also cause problems because this results in a lower, and more expensive, replacement rate, as well as a lower number of lambs born over the lifetime of a ewe. In addition, there is increased time and money put into an animal that is not producing. The most important management decision for reproduction will be how to achieve growth rates that reach the target breeding weight by the optimal age, without excessive fat deposition.

Conclusions

Producers who are seeking more milk production yield, along with more economic value from their replacements can do these three different ways: a) manage replacement rate; b) improve nutrition; and c) optimize reproduction. Producers will see more milk production and longevity by tapping into the full genetic potential in their ewes. Knowing how many animals need to be replaced each year will help to ensure that flock size is maintained or grows. Using proper nutrition will aide in more milk production, especially in first lactation, and aid in proper development. Proper timing of breeding, plus correct nutrition at each period of growth will allow for optimal age at lambing as well as better reproductive fertility. Managing replacement ewes can be a benefit to the producer by controlling productivity and profitability.

References

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