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Is the length of productive life a concern in the U.S. Katahdin ewes?

Ewe productive longevity, which is the number of days between a ewe's first and last lambing, positively impacts flock profitability in at least three ways. It reduces annual ewe replacement costs. It increases ewe output by increasing the proportion of mature ewes in the flock. And lastly, ewes that live longer usually have fewer reproductive and health issues, which are major reasons for early culling.

As part of Sheep GEMS, we are investigating ewe longevity using information on ewes in flocks enrolled in the National Sheep Improvement Program (NSIP). Our aim is to develop breeding strategies to improve ewe longevity genetically. As a first step, we evaluated lambing records on 10,474 Katahdin ewes born between 1992 and 2021 in 58 NSIP flocks located across the U.S. Thirty-three percent of ewes were culled before their second lambing. Moreover, 50% of ewes with two or more lambing records had less than 3 years of productive life. These results suggest an opportunity, even a need, to improve ewe longevity by genetic selection.

We also learned that Katahdin ewes born from twin and triplet births had longer lives than ewes born from a single birth. Furthermore, ewes that weaned lambs of heavier weights, between 44 and 55 lb., remained in flocks longer than ewes that weaned lighter lambs. These results suggest that NSIP flock owners select Katahdin ewes for both increased litter size and for better maternal ability.

It also became evident that there is a need to record the dates and reasons for culling ewes in NSIP. We often classify culling into two categories. Involuntary culling, which is when ewes leave a flock due to illness or death. And voluntary culling, which is when we decide to cull a ewe due to low genetic merit or productivity, or due to older age. Involuntary culling represents ewe wastage. Voluntary culling, on the other hand, is key to any genetic improvement program. Simply said, it entails replacing mature ewes with poorer genetic merit with ewe lambs with higher genetic merit.

Based on a survey conducted by the USDA in 2022, 26% of the ewes culled in commercial flocks was due to internal parasites or lambing issues. However, we expect involuntary culling to be lower in seedstocks flocks, where the primary objective is to maximize the annual rate of genetic gain. For instance, seedstock producers may cull a ewe with a poor estimated breeding value for fecal egg count (FEC), even when the ewe does not have a high FEC record, as their objective is to improve their flock genetically for increased parasite resistance. In this case, we have a voluntary culling. On the other hand, commercial producers usually do not have estimated breeding values for ewe selection, but they may cull their ewes based on high FEC records. In this case, we have an involuntary culling decision.

In short, we need to consider the length of ewes' productive lives in our breeding programs, especially if we cull a substantial proportion of ewes in a flock due to involuntary reasons. To be most effective, producers need to record the date and reason for culling. By incorporating such information into the NSIP recording system, we can be more accurate in our assessment of ewe longevity and, thereby, achieve quicker improvement.

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