

Targhee

NSIP Notebook

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The 2004 Targhee National Genetic Evaluation

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Introduction

Genetic analysis of the 2003 Targhee lamb crop is now complete, and results are available for distribution to participating NSIP Targhee breeders. Genetic evaluation reports will be similar to those distributed last year. However, this year's Notebook also includes results of the first NSIP data audit, which is designed to help breeders assess their performance recording procedures.

The Data

Data for the 2003 lamb crop included records on 1,614 breeding ewes from 15 flocks: 12 from Montana and one each from Michigan, Minnesota, and Oregon. Records were received for 2,598 live lambs produced by 62 Targhee rams. Following editing, valid records were received for 956 60-day weaning and/or preweaning weights, 1,920 120-d weaning weights, 409 yearling gains, 635 fleece weights, 510 fiber diameter (fleece grade) measurements, 705 staple lengths, and 1,528 litter sizes.

The entire NSIP Targhee across-flock database now contains records from 41 flocks with 13,525 60-day weaning and preweaning weights, 25,616 120-day weaning weights, 7,555 yearling gain records, 13,795 fleece weights, 10,085 fiber diameter measurements, 8,210 staple lengths, and 23,896 litter sizes. EPDs were calculated for a total of 42,223 animals, including 11,414 breeding ewes and 902 sires.

Means for reported traits are shown below. Weaning and preweaning weights (both 60- and 120-day) were adjusted to a single birth and rearing, adult dam, and ewe lamb basis. Yearling gains were not adjusted, but male and female lambs were placed in separate contemporary groups. Yearling fleece weights and staple lengths were adjusted to an age of 365 days. Fleece weights and staple lengths for older animals were adjusted to an adult animal and 365-day shearing interval basis. Fleece grades for yearlings did not receive any adjustments. Fleece grades for older animals were adjusted to an adult animal basis. For fleece traits, yearling and older animals, and males and females were placed in separate contemporary groups. Litter sizes were adjusted to an adult ewe basis.

Trait	Mean
60-day adjusted weaning/preweaning weight	55.2 lb
120-day adjusted weaning weight	87.9 lb
yearling gain (120 to 365 days)	.27 lb/day
fleece weight	8.6 lb
fiber diameter	22.1 microns
staple length	3.35 in
litter size	1.73 lambs

Data on the 2003 Targhee lambs were received at the genetic evaluation center on May 2, 2004. EPDs were returned on May 25, for a turnaround time of 23 days.

EPD Reports

This year's EPD report has essentially the same format as last year's report. Animals in the spreadsheet are listed in the following order: breeding ewes, yearling ewes, breeding rams, and yearling rams. The listing should contain all breeding animals listed on the preprinted data entry spreadsheet, any breeding animals that were added to inventory, and all surviving lambs from the current lamb crop. Animals that were culled or died will be identified; EPDs will be provided for these animals, but they will not appear on next year's spreadsheet.

The 2004 Targhee Sire Summary

The 2004 NSIP Targhee Sire Summary is also now available for distribution to breeders and other interested parties. In order to be eligible for the Sire Summary, a ram must have prediction errors that do not exceed 0.9 for weaning weight, 1.1 for maternal milk, 3.1 for yearling weight, 0.2 for fleece weight, 0.3 for fiber diameter, or 0.085 for staple length. This year's sire summary contained EPDs for 267 rams. From these, only the 111 rams born after January 1, 1995 were listed in the main sire summary.

Submitting Data for Next Year

There will be no major changes in submitting data for next year. Each NSIP Targhee breeder will again receive a preprinted data entry spreadsheet for reporting data. All active animals from the flock, including breeding ewes, ewe lambs, breeding rams, and ram lambs should appear on that spreadsheet. Use of the preprinted spreadsheet to report data is again mandatory. Errors in animal identification (birth dates, tags, registration numbers, parents) can be corrected as needed and newly registered animals can have their registration numbers added. Newly purchased animals can be added at the bottom of the spreadsheet with identification information and performance records.

The 2004 NSIP Data Audit

This year, NSIP is conducting a data audit on records submitted by each breed. This exercise is designed to assist breeders to identify areas of weakness in data recording. We hope this summary will be helpful as you work to improve data recording procedures.

Ewe inventory and breeding information. For the 2003 lamb crop, 2,566 ewes appeared on the data entry spreadsheet. Of these, 920 (36%) were identified as having been removed from the flock through sale or death. Of the remaining 1,646 ewes, 1,434 (87%) had services sires and lambing dates listed on the spreadsheet, 203 (21%) had no breeding or lambing information reported, and 9 had a service sire but no lambing information. The 203 ewes with no service sire information may not have been exposed to a ram for 2003, or they may have been placed with rams but did not conceive. While ewe fertility currently is not included in the genetic evaluation, we encourage breeders to consider reporting all matings, regardless of whether or not the ewes eventually lamb. By doing this, a simple sort and scan of the spreadsheet can highlight fertility problems associated with individual service sires or ewes groups. Reporting of all matings also provides opportunity for later analyses of breeding performance in the flock, if issues involving fertility should arise. NSIP recommends that all matings be recorded on the data entry spreadsheet.

Sixty five ewes were listed as mated to rams of a breed other than Targhee to produce crossbred lambs. Records for number of lambs born for Targhee ewes producing crossbred lambs are included in the EPD calculations, but weight records from crossbred lambs are not used in producing Targhee EPDs. Thus it is important that matings to rams of a breed other than Targhee be noted on the data entry spreadsheet.

Lamb weight and survival records. For 2003, birth information was reported for 2,598 lambs. Ideally, lambs that did not survive to weaning would have been identified, and remaining lambs would have had weaning weights recorded at some point between 30 and 150 days of age. This is the age window that is required to allow calculation of either 60- or 120-day adjusted weaning weights. Records of animals weaned at less than 30 days or more than 150 days of age are not used in the genetic analysis.

For 2003, the 2,598 lambs born fell into the following categories:

<u>Category</u>	<u>Number</u>
Recorded as having died before weaning	306
Valid 60-day adjusted weaning weight only	96
Valid 120-day adjusted weaning weight only	1,145
Valid weights at both 60 and 120 days	925
Weighed outside the age windows (<30 days or >150 days)	9
Postweaning weight but no weaning weight	4
<u>Missing: no weaning weight, no record of having died</u>	<u>113</u>

This summary shows that 95% of the lambs born were properly accounted for, with either valid weights at 60 and/or 120 days or records showing that the lambs did not survive to weaning. Of these, only 9 lambs were weighted outside the acceptable age window of 30 to 150 days. While we always strive to improve data reporting procedures, this year's record of only 5% of the lambs unaccounted for represents an excellent job of flock recording.

Fleece records. Two issues were investigated with regard to reporting of fleece data. The first was the proportion of adult breeding ewes on inventory that had fleece records reported at some time in their lives. This proportion was relatively high: 2,185 of the 2,566 ewes inventoried (85%) had fleece records on file. Of these 2,185 ewes, 1,444 (66%) had valid yearling records and an additional 560 (26%) had valid data recorded only on adult fleeces. However, reported fleece information could not be used on 181 ewes (8%), usually because of failure to report the previous shearing date for adult fleece records. Note that adult fleece records are adjusted to a 365-day shearing interval before analysis, so both current and previous shearing dates must be reported.

On this year's spreadsheet, fleece data were reported for 925 animals. These included 803 valid yearling records and 111 valid records on adult fleeces. Only 11 records (1%) could not be used because of missing shearing ages or dates. Thus current fleece recording procedures appear to be very acceptable.

Current NSIP procedures use only one fleece record per animal in the genetic evaluation. The yearling fleece is preferred, but a single adult fleece record is also acceptable. Several breeders regularly submit additional fleece information on adult animals. This additional data is currently not used in the genetic analysis. When we receive data on more than one fleece from the same animal, only the record obtained at the youngest age is utilized. Note also that the first fleece is utilized regardless of the type of data reported. Thus if only fleece weight is reported on the first fleece, but staple length and fiber diameter are reported on later fleeces, only the fleece weight record will be used. The decision about what sort of fleece data to report (fleece weight, fiber diameter, staple length) should be made by individual breeders in consultation with the data coordinator and after consideration of the traits that are important to you in your breeding program. Regardless of the traits you choose to measure, we recommend that all important fleece data be recorded at the first (preferably yearling) shearing. There is good evidence that differences among animals in fleece characteristics observed as yearlings will be maintained as the animals get older.

Genetic Trends in the Targhee Breed

Patterns of change in EPDs since establishment of NSIP in 1986 are shown in Figure 1. These results document the traits that have received emphasis in participating Targhee flocks. Each point represents the average EPD of all animals born in each year since 1986. Consistent and significant increases have been observed for weaning weight, yearling weight, maternal milk, and percent lamb crop, although the rate of increase in maternal milk and percentage lamb crop may have slowed somewhat in recent years, probably as a result of concern about the optimal level of milk production and prolificacy in the breed. Fleece weights have increased while fiber diameter EPDs have consistently declined, demonstrating the potential of EPDs to allow simultaneous improvement in these antagonistically correlated traits. The observed patterns of change in EPDs are consistent with the primary role of the Targhee as a dual-purpose breed, attempting to make balanced improvement in a number of economically important traits.

Changes in EPDs in Figure 1 are not particularly large, approaching 0.1% per year for weaning weight, yearling weight, and fiber diameter. Changes in EPDs for number born and fleece weight also reached 0.1% per year in the latter half of the period. These values could be increased by more intense selection. However, the observed trends in EPDs are generally similar to those reported for beef cattle and represent gradual and consistent changes in the breed as a whole. By comparison, the average annual increases in EPDs for weaning weight and yearling weight for the five largest U.S. beef breeds range from about 0.1 to 0.3% per year.

Figure 1. Genetic Trends in Targhee EPDs

