



3: How to Use Performance Records to Select Terminal Sires

Take Home Messages

- Performance records are a valuable tool for selecting superior terminal sires.
- Understanding and using performance records will take some effort.
- Focusing on the traits most needed in your market lambs will result in faster improvement.
- Structural soundness and good ram management are required to capitalize on superior genetics.

If you don't understand performance records or breeder data, you need to. Building better lambs is not guess work. There is variation in what and how information is presented in breed improvement programs (and of course in breeders' records). However, most evaluation programs publish basic EPDs for the economically important traits. An EPD (Estimated Progeny Difference) is an estimate of the genetic value an animal will pass on to its progeny. Sheep with the best EPDs for a trait have the highest probability of producing lambs excelling in that particular trait. EPDs are expressed in the same units in which the trait is measured. For example, an EPD for 100 day gain would be expressed in units of weight (kg or lb.). An EPD for depth of back fat would be expressed in millimetres. EPDs should come with an estimate of their "accuracy," an indication of how much information was available to evaluate a particular animal for the trait. EPDs are more accurate for a particular sire when he has a large number of offspring recorded in the program. There is a need for genetic performance databases, which accumulate data from many breeders and evaluate the performance of animals with common ancestry, to generate reliable EPDs.

The performance traits most useful for terminal sire selection are:

1. **Rate of gain** (growth rate, average daily gain)
 - a. 50-day gain – direct. This is the ram's own ability to grow from 0 to 50 days of age. The higher the EPD the better. It is important to note that this is a more useful measure for terminal sire selection than "50 day gain- maternal" which is a measure of the amount of milk available and the mothering ability of the ewe, which are important when selecting females for replacements.
 - b. 100-day gain. This is the ram's own ability to grow from 50 to 100 days. The higher or larger the EPD the better.
2. **Carcass quality**
 - a. Loin eye depth or area. On potential stud animals, loin eye is measured with ultrasound technology, usually when the ram is close to market weight. A ram with a larger EPD is more likely to sire lambs with better lean meat yield overall.
 - b. Back fat depth. This is also measured with ultrasound technology. In this case a negative EPD is usually preferred in order to minimize excess external carcass fat.

How do you decide which trait or traits to use in making your selection? If your lambs are noticeably weak in one of trait, e.g., slow growth, then focus on that one trait when selecting the next sire of your market lambs, just as you did when selecting the breed. Generally speaking, selection for one trait at a time will result in faster progress than selection for multiple traits at once. But what if you want to see improvement in several traits at once? Growth and terminal sire indexes are available in breed improvement programs in some areas e.g., GenOvis and Sheep Flock Improvement Program (SFIP). Such an index balances the emphasis on several traits at once to allow improvement to be made in more than just one trait. The index is expressed as a “percent,” reflecting the relative degree or amount of improvement that can be expected. A growth index combines the EPDs for growth rate, while a terminal index combines EPDs for growth rate, lean meat yield and fat depth into a single index. Selecting a terminal sire on the basis of his terminal index should result in lambs that grow faster and have greater lean yield.

Which sire would you select to build better lambs in your flock?

Ram ID	Progeny Count	Maternal EPD	Growth EPD	Terminal EPD
A	40	4.23	3.96	4.92
B	50	2.22	4.05	5.56

Note: data from Top 2009 Suffolk Rams report (Sheep Flock Improvement Program, OMAFRA)

Both rams have a similar number of progeny in the data base (40 vs 50), so the accuracy of their EPDs should be similar. Ram A has a superior Maternal EPD (4.23 vs 2.22), but remember, this is not important since you are purchasing a ram to produce market lambs, not replacement ewe lambs. Ram B has a superior Growth EPD and a superior Terminal EPD (both growth and carcass traits used in the calculation) and would be the better choice.



Ram lambs with good growth and performance records are a good choice for siring market lambs, but they do need special attention. They should be well grown, in good body condition and used in breeding areas where they are monitored daily.



Weighing lambs regularly not only assists marketing at the right weight, it also helps evaluate how much the terminal sire has added to the growth rate of his offspring.

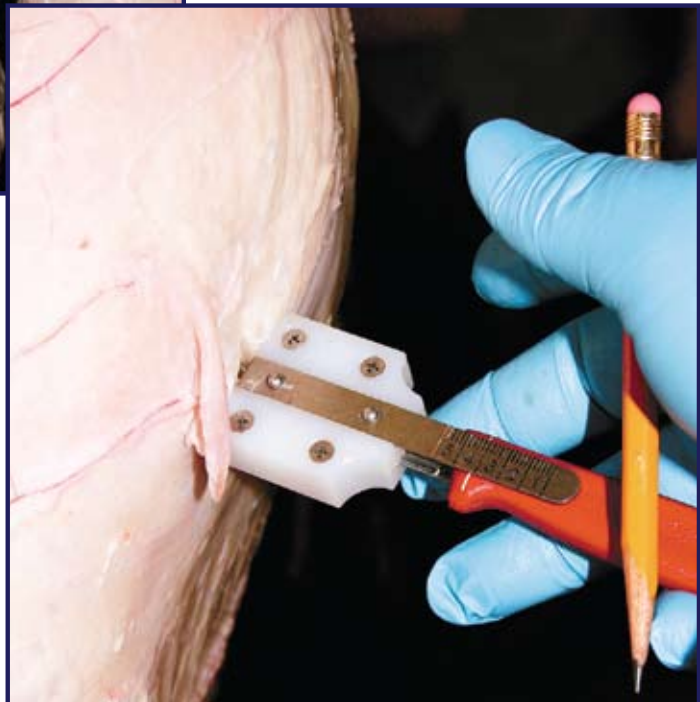


Sunterra Meats as a project stakeholder

The Lakeland Carcass Sire project was initiated to look into ways lamb producers could increase carcass consistency. A pricing grid, to encourage the production of premium quality lambs, came into effect at Sunterra Meats in October 2004. Producers found it challenging to hit the weight, fat and conformation score targets. Better information on terminal sires was needed.

Having a processor as a project stakeholder working directly with industry was important in addressing industry issues: production of better market lambs, using terminal sires, and improving carcass quality and consistency. The collaboration of the entire lamb supply chain is key to building better lambs.

Randy Smith, Sunterra Meats demonstrates the location the location where GR (grade rule) measurements are taken.



A grade rule (GR) measurement is taken to measure the amount of fat on the lamb carcass.

Performance records are an essential tool for selecting a top notch terminal sire. However, genetic improvement in the flock will only be achieved if the ram is physically sound and properly managed. For additional information, refer to the fact sheets entitled *Building Better Lambs 2: Selecting Terminal Sire*, and *Building Better Lambs 4: Managing Rams for Superior Performance* in the Building Better Lambs series.

Additional Reading

Several fact sheets from the Ontario Ministry of Agriculture, Food and Rural Affairs provide more detail on understanding and using performance records.

1. *Using Performance Records for Sheep Selection* (<http://www.omafra.gov.on.ca/english/livestock/sheep/facts/00-083.htm>)
2. *Selecting the Right Ram with EPDs* (<http://www.omafra.gov.on.ca/english/livestock/sheep/facts/select.htm>)
3. *Sheep Flock Improvement Program EPDs* (<http://www.omafra.gov.on.ca/english/livestock/sheep/facts/sfipepds.htm>)

The Lakeland Carcass Sire (LCS) project, conducted at Lakeland College, Vermilion, Alberta, was designed to compare the growth and carcass characteristics of lambs sired by the five terminal sire breeds commonly used in Western Canada.

Building Better Lambs 1: Using Terminal Sires

Building Better Lambs 2: Selecting Terminal Sires

Building Better Lambs 4: Managing Sires for Superior Performance

Useful Websites

Canadian Sheep Breeders Association <http://www.sheepbreeders.ca/info.html>

Genovis www.genovis.ca

Lakeland Carcass Sire Project [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/sg10536](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/sg10536)

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