

A comparison of meat yield characteristics in Border Leicester Romney cross progeny

Carried out by members of the New Zealand Border Leicester Breed Committee

There has been a perception amongst some in the New Zealand sheep industry that the Border Leicester sheep breed is not a strong meat yielding animal, particularly from sheep breeders favouring the more recently introduced meat breeds of sheep. However, that perception is not backed by evidence, and in fact meat yield data from Border Leicester lambs processed at New Zealand meat processors is ranking well compared to other breeds in kill sheet information gathered by individual farmers at slaughter. Border Leicester stud breeders have focused breeding programmes on genetic selection for meat quality characteristics, including meat yield, as well as the general production traits that produce easy care sheep, using animal genetics recording plans such as Animal Plan. They know instinctively that these genetic meat traits are dispersing into commercial Border Leicester flocks in New Zealand, and therefore have made a difference to meat yield, as individual farmers are now testifying.

The Border Leicester Breed Committee therefore set up a comparison of its top ram lambs specifically to gain hard data on yield genetics, to quantify the positive effect breeding programmes are having on improving meat yield.

Stud breeders from the Border Leicester Breed Committee carried out a comparison of meat yield characteristics in ram lambs slaughtered in 2006-07. Eight ram lambs were loaned from four different Border Leicester studs, run together on one property for 20 days and used over commercial Romney ewes, with the resulting male progeny then analysed and compared for meat yield.

Objective

The purpose of the comparison was to objectively distinguish and accurately record the range of yield information between different rams run in the same environment. This will give the group valuable facts to use when referring to the yield potential of Border Leicester's. This data could then also be used to compare Border Leicester breed meat yield information with that of other breeds.

Method

Eight rams were transported to and run on "Douglassie", the property of commercial sheep farmer Bruce McDonald of Peel Forest, Geraldine in South Canterbury in March 2007. It is a mixed sheep, cattle and deer farm of flat, light to medium land, which was not irrigated at the time of the study. Bruce was chosen as he is recognised as a top Romney producer in the South Canterbury region, and was known to Border Leicester Committee members.

Selection process: The eight rams hoggets supplied by the stud breeders were scanned and selected on the basis of general carcass confirmation. The rams known elite meat producers.

The Border Leicester stud breeders were:

Mark Copland	McCombie Stud	Ashburton
IR Caird	Alyth Stud	Pareroa West, Timaru
Estate of DM & A Letham	Tahuna Stud	Ashburton
RJ, OJ and DJ Scott	Wavering Downs Stud	Southburn, Timaru

The Romney ewes were part of Bruce McDonald's commercial Romney flock; 360 were two-tooths and the remainder were mixed age ewes.

Management regime: The ewes were single sire mated in eight different paddocks. Each ram was put over 60 Romney ewes from the McDonald's commercial flock from March 20, for 20 days. The 480 ewes were tagged to the individual sire, scanned, and run in a separate mob from the main flock over the winter of 2006.

They were then separated into eight separate paddocks according to tag, just prior to lambing, for ease of identifying off-spring. Lambing began on August 20; no problems were experienced and the progeny were tagged at birth according to their sire. Trial lambs were treated with B12 selenium, along with the rest of the commercial flock lambs, at weaning.

The 238 ram lambs were separated from the flock at weaning and finished on rape crops.

The 274 ewe lambs were retained by the farmer, put into the commercial Romney flock, to be sold as two-tooths at the Temuka ewe fair in February 2008.

The 2006-07 spring and summer period was favourable to pasture and lamb growth, resulting in a heavy crop of lambs for the season – up to 22-23 kg.

Slaughter and carcass measurement: A total of 238 ram lambs were transported to Alliance's Smithfield meat processing plant near Timaru, in three separate drafts; a commercial decision by Bruce to achieve goal carcass weights.

- 38 were processed on November 25, 2006
- 158 were processed on January 20, 2007
- 42 were processed on February 27, 2007

From the total of 238 lambs killed, six were rejected at slaughter and three were untagged; therefore 229 progeny from the study were further processed and analysed.

A breakdown of lambs numbers processed from each of the eight rams was:

Ram 1 (Black)	31
Ram 2 (Yellow)	36
Ram 3 (Blue)	30
Ram 4 (Orange)	33
Ram 5 (Green)	25
Ram 6 (Tan brown)	14
Ram 7 (Grey)	29
Ram 8 (Red)	31
TOTAL	229

Video Image Analysis (VIA) technology at Alliance provided whole carcass yield measurements. The carcasses were graded on their fat content, and hot weight measures were given. Measurements on fat GR, leg yield, loin yield and shoulder yield were made, and a total yield measurement provided.

Results

Carcass evaluation

Carcass analysis was provided on 229 lambs processed by Alliance, through the VIAscan sheet data.

1. Hot weight:

The average total hot weight for the study was 21.09, with weights ranging between 16.8 kgs to 27.1 kgs.

Average hot-weight of each draft	Date
18.76 kg	24.11.06
21.33 kg	20.01.07
22.3 kg	27.02.07
= 21.03	

2. Grading

Almost half of the lambs (48 percent) were graded Y1 (low fat content), and a further 40 percent (94) were in the P grades (medium fat content). Only five percent were graded F (excessive fat content).

Grading	Lamb numbers
Y1	113
P1	18
P2	76
T	13
F	12

3. V-GR

The average GR measurement for the comparison was 7.54, with the range of measurements between 1.0 to 17.1

Average V-GR of each draft	Date
6.77	24.11.06
6.56	20.01.07
9.3	27.02.07
= 7.54	

4. Yield

Total yield

Over three quarters of the lambs slaughtered, a total of 176, measured total yield of 52 percent or above.

The average total yield measurement for the study was 52.97, with yield measurements ranging from 47.44. to 58.71.

Average total yield of each draft	Date
52.16	24.11.06
53.39	20.01.07
53.36	27.02.07
=52.97	

Leg Yield

The average leg yield measurement for the study was 20.65, with a range of measurements from 18.51 to 23.39.

Average leg yield of each draft	Date
20.3	24.11.06
20.84	20.01.07
20.82	27.02.07
= 20.65	

Loin Yield

The average loin yield measurement for the study was 14.51, with measurements ranging from 11.10 to 16.16.

Average loin yield of each draft	Date
14.01	24.11.06
14.71	20.01.07
14.81	27.02.07
=14.51	

Shoulder Yield

The average shoulder yield measurement for the study was 17.72. Shoulder yield measurements ranged from 16.12 to 19.90.

Average shoulder yield of each draft	Date
17.58	24.11.06
17.84	20.01.07
17.74	27.02.07
=17.72	

Breed comparison.

The Alliance average hotweight at slaughter for the 2006/07 season was 17 kilograms. The average total yield of lambs killed at Alliance over 2006/07 was 52 to 53 percent. The range of yield from all breeds of lambs slaughtered at Alliance over 2006/07 was 47 to 58 percent.

Summary

Meat yield from Border Leicester's compares favourably with other sheep breeds.

Yield results were consistent across the progeny produced from the eight ram lambs.

Of the total 229 lambs slaughtered, 176 measured total yield of 52 percent or above, indicating an average or above average meat yield.

Alliance's average total yield is 52-53 percent across all lambs slaughtered. The Border Leicester's average 52.97 percent, which positions them as a typical yielding New Zealand lamb.

Objective measurements such as this provide quality information on meat genetics to allow sheep farmers to make accurate decisions on breeding.

Border Leicester's rate well as a dual purpose animal, and are well positioned to attract premiums, including total yield payment premiums from meat processors when they are offered to farmers.

Commercial farmers taking advantage of the high fertility characteristics and good maternal traits of the Border Leicester breed can therefore be reassured they are not compromising meat qualities when using Border Leicester's in a terminal sire meat system. Breeders and farmers utilising the hybrid vigour from cross-breeding will produce extra lambs, with typical dual purpose sheep yields.