# PREDICTIONS OF GROWTH RATE BY LAMBPLAN SUPPORTED BY PROJECT *HILOW*

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LAMBPLAN is the genetic information and improvement system used by Australian sheep breeders and lamb producers. Sire estimated breeding values (EBVs) are based on the performance of progeny and relatives using BLUP procedures (Gilmour and Banks 1992). Project HiLow was a trial established by the WA Branch of the Poll Dorset Association to evaluate the growth rate and returns from progeny sired by rams with high and low LAMBPLAN EBVs for growth.

Four hundred ewes were mated in 1999, 200 to low growth rams and 200 to high growth rams at 2 sites, one at Cunderdin and one at Pingelly. Rams were selected to maintain similar EBVs for yearling fat and eye muscle depth while providing a difference in EBVs for yearling weight (Cunderdin, high 7.25 *v* low 0.17 kg; Pingelly, high 4.78 *v* low 0.43 kg). After mating the ewes at each site were run together until the week before lambing when they were run in separate paddocks of similar history and feed value until marking. At marking, the lambs were individually tagged and ewes and lambs were run as one mob. Lambs were weighed monthly and consigned to slaughter at a minimum live weight of 38 kg. Lambs that did not make slaughter weights during the sucker lamb season were valued at $15/head as stores. Prices were those paid for the lambs in the 1999 season.

**Table 1. Growth rate and returns from progeny of rams with high and low LAMBPLAN EBVs for growth**

| | Cunderdin | | | Pingelly | | |
|---|---|---|---|---|---|---|
| | **High** | **Low** | **Difference** | **High** | **Low** | **Difference** |
| Marking weight (kg) | 10.5 | 9.2 | +1.3* | 13.5 | 13.7 | -0.2 |
| Growth rate from marking to slaughter/weaning (g/day) | 195 | 188 | +6.8 | 207 | 193 | +13.6* |
| Number lambs slaughtered | 93 | 65 | +28 | 131 | 119 | +12 |
| Number store lambs | 51 | 85 | -34 | 19 | 29 | -10 |
| Final live weight (kg) | 39.6 | 39.8 | -0.2 | 40.3 | 40.0 | +0.3 |
| Carcase weight (kg) | 17.6 | 18.1 | -0.5* | 18.6 | 18.3 | +0.3 |
| Fat score (1 to 5) | 2.2 | 2.6 | -0.4* | 2.6 | 2.5 | +0.1 |
| Dressing percentage (%) | 44.4 | 45.5 | -1.1* | 46.2 | 45.8 | +0.4 |
| Value ($/head) | 23.64 | 24.43 | -0.79 | 25.03 | 24.59 | +0.44 |
| Income suckers ($) | 2198 | 1588 | +610 | 3279 | 2926 | +353 |
| Income stores ($) | 765 | 1275 | -510 | 285 | 435 | -150 |
| Total income ($) | 2963 | 2862 | +101 | 3564 | 3361 | +203 |

* Indicates a significant difference between the high and low groups ($P < 0.05$)

Progeny from the high-growth rams grew faster than progeny from the low growth sires by 13.6 g/day at Pingelly and 6.8 g/day at Cunderdin. The lambs did not express their genetic potential for faster growth until the spring flush of feed became available and the lambs were no longer limited by nutrition or as reliant on their mothers milk supply. The difference in growth rate at Pingelly (13.6 g/day) was very close to the difference in growth rate predicted by the differences in LAMBPLAN EBVs of 12.9 g/day for growth in the two sires groups. Lambs for slaughter from the high group were turned off earlier than the turnoff of lambs from the low group. The overall turnoff of lambs for slaughter during the sucker lamb season was 19% higher at Cunderdin and 6% higher at Pingelly for lambs from the high group than lambs from the low group. The average value per head of lambs slaughtered was not significantly different between the high and low groups as prices did not change significantly during the selling season and lambs were drafted for slaughter based on live weight. Nevertheless, the overall returns to the producer were greater from the high growth sires than the low growth sires by $101 at Cunderdin and $203 at Pingelly. This difference was mostly due to the higher number of lambs from the high group achieving slaughter weight and price rather than a store price.

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