

Sheep Industry Breeding Objectives 2016/17

SIL TECHNICAL NOTE

Relates to: SIL indexes, relative economic weights

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Breeding Objectives Review

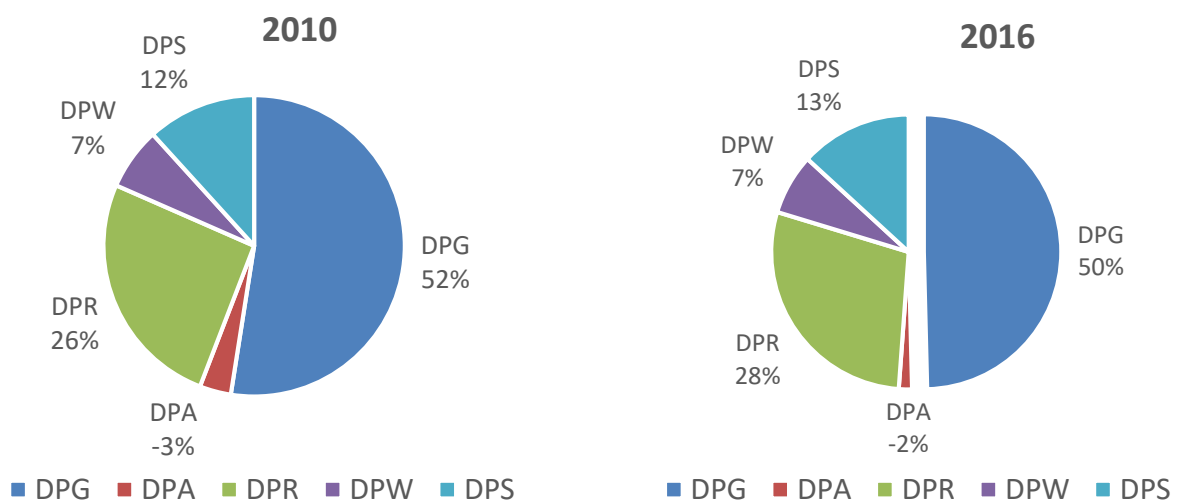
It is important to update an industry breeding objective reasonably regularly, to ensure that it aligns with contemporary and projected future market conditions. The previous review of the New Zealand sheep breeding objectives was conducted in 2010. The 2016/17 review reflects changes in sheep production practises, current and projected product prices and production costs.

The analysis suggests that the value of genetic improvement in nominal terms has increased by 20-30% between 2010 and 2016 updates, depending on index. This is driven largely by increases in lamb price and farm costs (the value of feed has increased). This reflects the greater value that higher merit rams deliver to their clients.

The 2016 updated breeding objectives have resulted in only small adjustments between traits for both Maternal and Terminal breeds. The correlation between the 2016 and 2010 indexes is very high (over 99%) for most traits, meaning only minor changes for most individuals compared to the previous indexes. The breeding objective has proven to be very robust and the review has resulted in only minor adjustments in the relative balance between traits.

Responses to Selection based on Index Selection – Maternal Worth

For young rams available for selection as stud sires, there are only minor changes in the response to selection across the five core NZMW traits relative to the 2010 index.

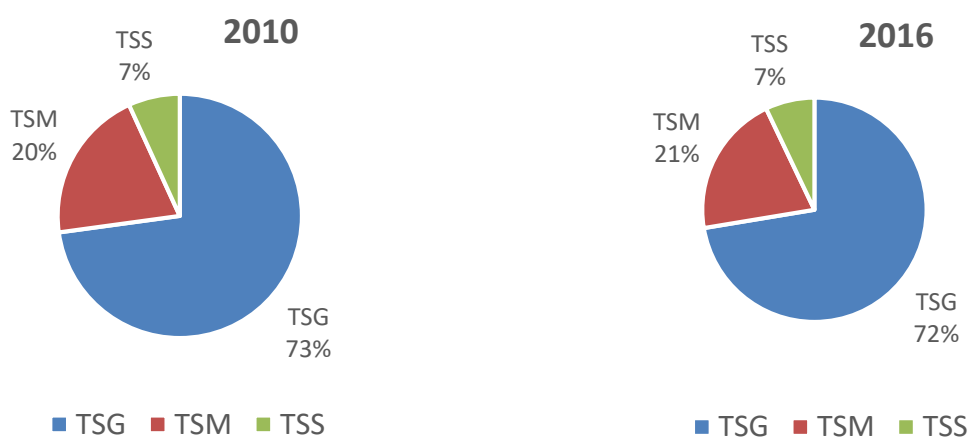


The key messages are that:

- Lamb prices have increased since 2010, so the benefits of genetic improvement are higher (more variation in index values), and the new index weightings are a way of communicating this to ram buyers. The value of genetic improvement increased by 20-30% between 2010 and 2016, depending on the index.
- The relative value of selecting for faster growing (and subsequently bigger sheep) has reduced, in part because of an increase in the value of feed at time when it was in the past considered free. This same increase in feed value directly increases the cost of heavier ewes.
- While the economic analysis suggests that there is greater value in increasing number of lambs born (based on the average number of lambs born), the realised impact of this is likely to be somewhat negated by implementation of a non-linear function for number of lambs born.
- Wool and lamb survival are more valuable because of increased lamb value and wool prices, while the benefits of genetic selection for facial eczema tolerance, resistance to internal parasites and hogget lambing are also higher.
- The previous price ratio between shoulder, loin and hindquarter of 1:2 and 1:3 have been adjusted to reflect current actual payments (1:1.33 and 1:1.88) increasing the value of the shoulder and hindquarter relative to the loin.
- Capped reproduction – The NZMW index and MW+ indexes, from the NZGE include capped reproduction, this reflects the decreasing value of extra multiple lambs as the number approaches the equivalent of 2.13 lambs per commercial ewe. Above the threshold, the reward for reproduction is capped at a constant value. See Technical Note - Capped Reproduction for more detail.

Responses to Selection based on Index Selection – Terminal Worth

For young rams available for selection as stud sires, there are only minor changes in the response to selection across the three core NZTW traits relative to the 2010 index.



The key messages are that:

- There has been very little change in relative emphasis within the selection indexes used by New Zealand sheep breeders, particularly in terminal sire indexes, reflecting the stability of economic models used to define breeding objectives.

- Changes to economic weights in the NZTW index have resulted in only very small changes in relative emphasis on growth (TSG), and survival (TSS).
- There are small adjustments in meat yield (TSM) due to reduction in the penalty on fat relative to lean traits.
- Changes in the relative values of the shoulder, loin and hindquarter to reflect current payment ratios of 1:1.33 and 1:1.88 rather than the previous 1:2 and 1:3 ratio will result in some small changes for those individuals that have information for lean muscle distribution, for example Innervision CT or Viascan.

Overall

Most individual economic weightings have increased reflecting changes in product prices and costs relative to 2012. There are only minor adjustments to the relative emphasis between traits for both Maternal and Terminal sires. This means that although values have a greater range of values, the responses of individual traits to selection using the Maternal Worth and Terminal Worth indexes are very similar to the responses achieved under selection using the 2012 indexes.