



Effect of Booroola gene on meat production efficiency in Texel sheep

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Project Aim

Further improvement of efficiency of lamb meat production of Texel breed (T) through introgression of Booroola Merino (BM) *Fec^B* gene in Texel sheep population.

Breeding strategy

- Step 1. Texel dams crossbred with heterozygous F_1 (BM x T) sires.
- Step 2. Female *Fec^B* progeny systematically back crossed with purebred Texel sires and
- Step 3. Higher than R_2 generation male *Fec^B* carriers were used as sires too



Research focus

- On reproduction traits:
 - Ovulation rate
 - Litter size
 - Lamb mortality
- And on meat production traits:
 - Growth rate
 - Carcass traits

Results Reproduction

- *Fec^B* effect
 - Ovulation rate at 8 month +1.5
 - Litter size at 2 years of age +1.3 (base 1.7)
- Chance on lamb mortality (incl. stillbirth)
 - Direct effect - 6 % (base 15%)
 - Indirect effect
 - in parity 1 - 8 % (base 29%)
 - in parity 2 + 8 % (base 10%)
 - in parity 3 + 2 % (base 14 %)



Results meat production traits

- Significant correlated or pleiotropic effect of *Fec^B*
 - Lamb carrier effect:
 - Overall fatness + 11 %
 - Dressing percentage + 1.15 %
 - Longissimus dorsi (LD) muscle depth + .3 to + .8 mm
 - Cross-sectional area LD + .98 cm
 - Dam carrier effect
 - Feed efficiency - 5 to - 10%
 - Longissimus dorsi muscle depth - 1.4 to - 2.3 mm



Conclusions

- One copy of the *Fec^B* gene delivers one extra lamb for slaughter.
- For optimal use of *Fec^B*, non-carrier terminal sires should be used on heterozygous dams.
- Additional profit of *Fec^B* gene is about € 50 per ewe present.