Comparing pre-weaning grass utilisation and herbage intake of elite New Zealand and Irish ewes

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Efficiency of production?
Efficiency of production?

Cost to produce 1 t DM of perennial ryegrass = €76

(Finneran et al., 2012)
Objective

To investigate the effect of country of origin on elite genetics of ewes

- maternal ability,
- grass utilisation,
- herbage intake, and
- milk production in the pre-weaning period
Study Design

INZAC Flock

Elite NZ genetics (60)

Elite Irish genetics (60)

SU (30)

TX (30)

SU (30)

TX (30)
Irish sheep breeding programme

Breeding Objectives

Terminal

Replacement

1 Star ★ ★ ★ ★ ★

V’s ★ ★ ★ ★ ★ ★

5 Star ★ ★ ★ ★ ★ ★ ★ ★ ★
Benchmarking our progress...

Replacement Index €/lamb

Year of birth

Current  NZ rate of gain

Large potential
Grassland

Two independent farmlets:

- NZ
- Elite Irish

- Stocking rate: 12 ewes / ha
- 132 kg N/ha per year
- Rotational grazing system
- Target PGSH = 4.0 cm
Animal Phenotypes

Lambing

Weight
BCS
NLB

Milk yield - WSW

Weaning

Weight
BCS
NLW
Results
Table 1. Effect of ewe genetic origin on pre-weaning sward characteristics.

<table>
<thead>
<tr>
<th>Pre-weaning Sward Characteristic</th>
<th>New Zealand</th>
<th>Irish</th>
<th>SEM</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herbage mass above target PGSH (kg DM ha(^{-1}))</td>
<td>1309</td>
<td>1236</td>
<td>62.69</td>
<td>NS</td>
</tr>
<tr>
<td>Pre-grazing herbage height (cm)</td>
<td>8.70</td>
<td>8.24</td>
<td>0.241</td>
<td>NS</td>
</tr>
<tr>
<td>Post-grazing herbage height (cm)</td>
<td>3.96</td>
<td>3.99</td>
<td>0.04</td>
<td>NS</td>
</tr>
<tr>
<td>Prop. Utilised to target PGSH</td>
<td>0.99</td>
<td>0.98</td>
<td>1.41</td>
<td>NS</td>
</tr>
<tr>
<td>Prop. Utilised to 3.5cm</td>
<td>0.89</td>
<td>0.88</td>
<td>1.02</td>
<td>NS</td>
</tr>
<tr>
<td>Herbage Intake (Kg DM ewe(^{-1}) day(^{-1}))</td>
<td>2.85</td>
<td>2.77</td>
<td>0.138</td>
<td>NS</td>
</tr>
</tbody>
</table>
Effect of ewe genetic origin on live-weight

Effect of ewe genetic origin on BCS

P=NS

P<0.05
Effect of ewe genetic origin on milk yield

Ewe milk yield, l

Milk yield

P = NS
Summary

• Regardless of origin, genetically elite ewes
  ➢ Achieved target grass utilisation levels
  ➢ Maintained live-weight
  ➢ Similar levels of milk production

Results demonstrate the suitability of high genetic merit ewes to a grass based production system.
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