Reducing ripgut brome seed production and carcass damage

**Background**
- Ripgut Brome (Bromus diandrus) is an annual grass weed of dry, north-facing slopes on high country properties in the South Island.
- Large, sharp seeds (1.5-2.5 cm long) may contaminate wool and carcasses of Merinos, especially lambs.
- Seeds contamination may lead to carcasses being down-grading at the meat-processor.

**Objectives**
To test whether (i) herbicide application and (ii) shearing at weaning are useful strategies to reduce ripgut brome contamination of wool and carcasses.

**Methods**
1. **Herbicide study**
   - Effect of different rates and timing of herbicide application on ripgut brome tested on farm in South Canterbury.
   - Measurements made of plant cover and seed production

   **Rates and timing of herbicide application**
<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Tradename</th>
<th>Rate (g a.i./ha)</th>
<th>Date applied</th>
<th>To reduce:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glyphosate</td>
<td>Paragon</td>
<td>370 g a.i./ha</td>
<td>19 May</td>
<td>Seedling establishment</td>
</tr>
<tr>
<td></td>
<td>Granoxone</td>
<td>660 g a.i./ha</td>
<td>19 May</td>
<td>Seedling establishment</td>
</tr>
<tr>
<td>Glyphosate</td>
<td>Haloxfop</td>
<td>370 g a.i./ha</td>
<td>4 Oct</td>
<td>Mature plant survival</td>
</tr>
<tr>
<td>Glyphosate (spray topping)</td>
<td></td>
<td>60 g a.i./ha</td>
<td>4 Oct</td>
<td>Mature plant survival</td>
</tr>
<tr>
<td>Untreated</td>
<td></td>
<td>112 g a.i./ha</td>
<td>9 Nov</td>
<td>Seed production</td>
</tr>
</tbody>
</table>

2. **Shearing at weaning**
   - Merino lambs shorn or not shorn at weaning on two farms in Central Otago and two in Marlborough (50 lambs per group per farm).
   - Records made of (i) the number of carcasses placed on the detain rail for seed contamination at the meat processor and (ii) number of seeds per carcass.

**Results**
1. **Herbicide results**
   - Spray-topping at 112 g a.i./ha didn’t affect annual grass cover or bare ground.
   - Other herbicides reduced grass cover but increased bare ground.
   - All herbicides reduced seed production in comparison to untreated plots.
   - Brome species seedling density was reduced the year after spraying in the glyphosate-spring, spray-topping and haloxfop treatments.

2. **Shearing results**
   - A lower percentage of carcasses were placed on the detain rail due to seed contamination in shorn (39%) than unshorn (41%) sheep.
   - For carcasses placed on the detain rail, there was no difference between shorn (4.6) and unshorn (6.6) sheep in the number of seeds/carcass.

**Conclusions**
- Spray-topping applied over several consecutive years may be a useful strategy to reduce ripgut brome presence in localised areas.
- Shearing lambs at weaning shows some promise in reducing seed contamination in seedy years but is unlikely to lead to complete exclusion of seeds.

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