GRASSLAND WEED MANAGEMENT AND FOCUS ON CONTROL OF COMMON RUSH WITHOUT USING CHEMICALS

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May 2016
Reversion of ‘improved’ marginal grassland – it’s a natural process!

- Over time, quality and productivity deteriorates
  - Drainage less effective
  - Increase in soil acidity
  - Nutrient levels fall
  - Productive sward less competitive (more weeds – e.g. common rush an indicator?)
- Less grass, less clover, lower silage yield, supports fewer LSU, slower stock growth rates
- Expensive to improve – economically viable return?
Grassland weed associations

- Wet soils
- Dry soils
- Low fertility
- High fertility
- Poor competition from grass sward
- Disturbed soil/following reseeding
Grassland weed associations (examples)

- Wet soils* (Common Rush, Creeping Buttercup, Bog Asphodel, Sphagnum Moss)
- Dry soils (Bracken)
- Low fertility (Silverweed, Yellow Rattle, Common Orchid)
- High fertility (Docks & Nettles)
- Disturbed soil/following reseeding (Chickweed, Red Dead Nettle)
- Poor competition from grass sward (Any of the above)
Maintaining/improving productivity

• What are your land management objectives?

Before improvement consider:
1. Is permission required?
2. Habitat management under agri-environment schemes
3. Cost/benefit of improvement
4. Practicality of improvement
5. Living with less productive fields/part fields
Land improvement strategy – marginal/crofting

Management Strategies

- Productive inbye
- Enclosed Improvements
- Natural disadvantage: wet or over 70% rush cover
Short term vs. long term control
Mechanical topping

4 stages

1. Graze hard to leave target weed standing above grass
2. Apply nutrients (if available/appropriate)
3. Top weeds at height above grass ‘crowns’
4. Use livestock grazing to manage the regrowth
Drainage

Soil Fertility & pH

Competition from sward

Drainage
Role of good grazing management in weed control

• Avoid excess winter grazing
• Reduce risk of poaching (cross compliance issue in 2015)
• Reduce risk of winter kill in sward
• Graze hard in the late spring/summer (prevent dominant weed growth)*
• Cattle are better – less selective grazers and trampling (browsers are best!)
• Use topping for management in summer
Common Rush - Context

• Problem of permanent pasture & rough grazings - Greater problem in:
  – Poorly drained soils
  – High rainfall areas
  – Uncompetitive swards

• Dense, deep rooting clumps reduce grazing value of productive sward

• Huge volume of seeds produced – some lying dormant in the soil for decades

• Farm specific management strategy – driven by objectives
<table>
<thead>
<tr>
<th>Option</th>
<th>Benefits</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baling and removing</td>
<td>Clean cut close to ground</td>
<td>Need stone free and level surface</td>
</tr>
<tr>
<td></td>
<td>No trash on surface</td>
<td>Too much soil damage in wet conditions</td>
</tr>
<tr>
<td></td>
<td>Use as bedding material?</td>
<td></td>
</tr>
<tr>
<td>Chemical destruction</td>
<td>N/A</td>
<td>Prohibited in organic system</td>
</tr>
<tr>
<td>Topping &amp; left in-situ</td>
<td>Low cost</td>
<td>Mulch remains</td>
</tr>
<tr>
<td></td>
<td>Equipment available to most farmers</td>
<td>Probably too much for rotary topper.</td>
</tr>
<tr>
<td></td>
<td>Window of opportunity in conjunction with frost?</td>
<td>Limited by stones, drains, uneven terrain</td>
</tr>
<tr>
<td>Burning</td>
<td>No trash remains</td>
<td>Habitat/wildlife damage</td>
</tr>
<tr>
<td></td>
<td>Reduced rush seed viability</td>
<td>Safety issues</td>
</tr>
<tr>
<td></td>
<td>Fertile ash</td>
<td></td>
</tr>
<tr>
<td>Ploughing in</td>
<td></td>
<td>Too much trash to plough</td>
</tr>
</tbody>
</table>
Improving grass productivity

• Liming and fertilising alone

• Surface seeding
  – Direct drilling
  – Slot seeding
  – Tined harrow seeding
  – Broadcasting

• Reseeding – ultimate control strategy?
  – Deep Ploughing
  – Light surface cultivation and firming
  – Sowing competitive seed mixture
  – Rolling to consolidate
Example Upland Seed Mixture

<table>
<thead>
<tr>
<th>Type</th>
<th>%</th>
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<tbody>
<tr>
<td>Hybrid Ryegrass</td>
<td>6.67</td>
</tr>
<tr>
<td>Early Perennial Ryegrass</td>
<td>10.00</td>
</tr>
<tr>
<td>Intermediate Perennial Ryegrass</td>
<td>13.33</td>
</tr>
<tr>
<td>Late Perennial Ryegrass AberBite (T)</td>
<td>41.33</td>
</tr>
<tr>
<td>Timothy</td>
<td>13.33</td>
</tr>
<tr>
<td>S S Meadow Grass</td>
<td>2.67</td>
</tr>
<tr>
<td>Creeping Red Fescue</td>
<td>6.67</td>
</tr>
<tr>
<td>White Clover</td>
<td>6.00</td>
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</tbody>
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Assess soil structure to identify any problems
Drainage

• Some soil types more susceptible to problems
  – High content of clay
  – High peat content
  – Very deep or very shallow soils

• Damage to field drainage systems
  – Outfalls
  – Open drains
  – Clay and plastic systems

• Damage to soil structure
  – Poaching by livestock
  – Machinery & cultivation
Soil fertility

Address underlying problems:

1. Soil acidity (pH)
2. Soil nutrient status (P, K, Mg)

Starts with soil analysis!
Soil fertility

• Grass needs to be favoured by soil and growing conditions
  – pH 6.0 or higher on a mineral soil
  – Free draining soil
  – P & K & Mg – target index Moderate or above

• Liming and nutrient application needs to promote grass growth
  – Types of liming material
  – Muck & slurry
  – ‘fertilisers’
Nutrient availability in the soil

The Influence of Soil pH on Nutrient Availability

<table>
<thead>
<tr>
<th>RANGE OF ACIDITY</th>
<th>RANGE OF ALKALINITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>NITROGEN</td>
<td>PHOSPHORUS</td>
</tr>
<tr>
<td>POTASSIUM</td>
<td>SULFUR</td>
</tr>
<tr>
<td>CALCIUM</td>
<td>MAGNESIUM</td>
</tr>
<tr>
<td>IRON</td>
<td>MANGANESE</td>
</tr>
<tr>
<td>BORON</td>
<td>COPPER &amp; ZINC</td>
</tr>
<tr>
<td>MOLYBDENUM</td>
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