B5. Alternative weed control methods and bioherbicides in turf and nursery production

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Background

• Cosmetic Pesticide Ban implemented in April 2009
• Need to find alternatives to conventional herbicides
  – Cultural methods
  – "Low risk" products
Objectives

• Best overseeding practices
  – Species, timing
• Evaluate alternative products
  – Low risks, biologicals
• Alternative grass species
1. Overseeding

- Established turf site
- Adding Kentucky bluegrass to perennial ryegrass
- Treatments
  - Seeding in May-July- Sept vs M-J-J-A-S
  - 5 ratios of PRG to KBG
  - Control plots with no treatments
Seeding ratios

- 100% PRG = 4 kg/100 m²
- 75% PRG : 25% KBG
- 50% PRG : 50% KBG
- 25% PRG : 75% KBG
- 100% KBG = 2 kg/100 m²
KBG density varied on the site…

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KBG coverage

- > 91
- 81-90
- 71-80
- 61-70
- 51-60
- < 50
... and so did dandelion
Results

• Turf and weed populations are not static
• Impact of overseeding takes time
Overseeding PRG reduces KBG by 12%
Overseeding with PRG eventually reduces dandelion cover.
2. Alternative products

• Compare new alternatives to post emergence turf herbicides
  – Fiesta
  – Organosol
  – Corn gluten meal
  – Sarritor
Corn gluten meal

- By-product corn milling
- 10-0-0 fertilizer
- Needs 2 applic.

Broadcasting CGM over turf
Fiesta

• Chelated iron (Fe-HEDTA)
• 2 applications within 1 month
• Grass may turn yellow
Organo-Sol

- Dairy by-product
- Lactic and citric acid
- 5 applications, high rate
Organo-Sol
Sarritor

- *Sclerotinia minor*
- Pellets contain sclerotia
- Needs targeted application
Sarritor flick stick for spot application.
Significant reduction of broadleaf weeds in one season
No difference in broadleaf weed population
How the products rank:

- Fiesta = PAR III > CGM > Sarritor > Organo-sol = untreated
3. Alternative grass species

• **Supina Bluegrass** (*Poa supina*)
  - Used in Germany
  - Highly traffic tolerant
  - Lime green colour
  - Expensive seed

Leinauer (1998)
Summary of Rates and Timings

• Seeding Rate:

<table>
<thead>
<tr>
<th>Seeding Rate</th>
<th>Perennial ryegrass</th>
<th>Supina bluegrass</th>
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<tbody>
<tr>
<td>1</td>
<td>6 kg/100m²</td>
<td>0 kg/100m²</td>
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<td>2</td>
<td>6 kg/100m²</td>
<td>0.5 kg/100m²</td>
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<td>3</td>
<td>6 kg/100m²</td>
<td>1 kg/100m²</td>
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<td>4</td>
<td>6 kg/100m²</td>
<td>2 kg/100m²</td>
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<td>5</td>
<td>6 kg/100m²</td>
<td>4 kg/100m²</td>
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Summary of Rates and Timings

• **Seeding Frequency:**
  - Once
  - Three times per season

• **Control:** no overseeding
Results year 1

• Check plots have 6% weeds,
• overseeding Supina with PRG once reduces weeds by 2 %
• Supina three times results in complete weed suppression
Thank You