Switchgrass Establishment & Harvesting Demonstrations
Objectives

• Provide information to help develop the most economically and environmentally sound energy production in Wisconsin

  – Test management practices for establishment and growth of switchgrass for use as a biofuel

  – Quantify what yields are achievable using best agronomic practices

  – Measure how management practices associated with such management will affect key ecosystem services such as carbon sequestration, soil stability, and nutrient loss
2008 Treatments

1. Switchgrass 8 lbs PLS + **Glyphosate** + **2,4-D**

2. Switchgrass 8 lbs PLS + **Glyphosate**

3. Switchgrass 8 lbs PLS + **Glyphosate** + **oats**

4. Switchgrass 8 lbs PLS + **Journey**

5. Diverse mix + **Journey**
   1. switchgrass (1 lb a⁻¹)
   2. side oats grama (1.5 lb a⁻¹)
   3. indiangrass (2 lb a⁻¹)
   4. big bluestem (2 lb a⁻¹)
   5. little bluestem (2.5 lb a⁻¹)
   6. IL bundle flower (4 oz a⁻¹)
   7. yellow coneflower (2 oz a⁻¹)
   8. partridge pea (8 oz a⁻¹)
   9. Canada milk vetch (8 oz a⁻¹)
Switchgrass cover, Sept. 2008

![Graph showing the percentage of switchgrass cover for different treatments: Diverse + Journey, Glyphosate, Glyphosate + 2,4-D, Glyphosate + oats, and Journey. The Journey treatment has the highest switchgrass cover, followed by Glyphosate + 2,4-D. Other treatments have lower coverages.](image-url)
Yield in establishment year

Averaged across sites

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Tons/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverse + Journey</td>
<td>0.56</td>
</tr>
<tr>
<td>Glyph.</td>
<td>0.57</td>
</tr>
<tr>
<td>Glyph. + 2,4-D</td>
<td>0.41</td>
</tr>
<tr>
<td>Glyph. + oats</td>
<td>0.47</td>
</tr>
<tr>
<td>Journey</td>
<td>0.73</td>
</tr>
</tbody>
</table>
Conclusions

• 8 lbs/ac of Switch seed appears to be sufficient
• Journey at 11 ounces per ac. provided the best weed control and yield
• No-tilled fields experienced substantially less weed pressure than tilled fields
• Even when using the best agronomic practices yields in year 1 did not justify harvest costs
Biomass Inventory & Analysis Project

- Pure switchgrass & mixed warm season grass fields sampled
- Average Yield – 4.56 tons/ac
- Lowest 2.9  Highest 6.42 tons/ac
- Switchgrass aver. =5.54 tons/ac
- Mixed WSG = 3.90 tons/ac
- 24’ Switch buffer strip=7.59 tons/ac
- CRP seeding vs. biomass seeding
- Burning improved yields
- Higher SW seeding rate & increased mngt = higher yields
Comparison of Warm Season Grass Yields

- Switchgrass
- Diverse Mix WSG
- Switchgrass buffer
Biomass For Restoration Activities
Biomass For Restoration Activities
Completed Restoration
Questions?

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