Effect of wheel traffic on alfalfa

Dr. Dan Undersander
University of Wisconsin
Effect of Wheel Traffic on Alfalfa
Three studies conducted

- 1999 study
  - 21 vs 35 days, 19 entries, traffic at 0, 5 days
- 2001 Multi State Trial
  - 30 days, 20 entries, traffic at 0, 2, 5 days
- Variety trial
  - 30 days, 15 entries, traffic at 5 days
Yield of Alfalfa Varieties with and without wheel traffic, 3-yr total
## % REDUCTION IN 2002 DUE TO TRAFFIC

<table>
<thead>
<tr>
<th>STATE</th>
<th>SEED YEAR</th>
<th>VARIETY AVG. 2 DAY</th>
<th>VARIETY AVG. 5 DAY</th>
<th>RANGE of % AMONG VARIETIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA</td>
<td>2000</td>
<td>30</td>
<td></td>
<td>18 to 41</td>
</tr>
<tr>
<td></td>
<td>2001</td>
<td>22</td>
<td></td>
<td>14 to 34</td>
</tr>
<tr>
<td>WI</td>
<td>2000</td>
<td>9</td>
<td></td>
<td>0 to 19</td>
</tr>
<tr>
<td></td>
<td>2001</td>
<td>2</td>
<td>9</td>
<td>0 to 15 2 to 22</td>
</tr>
<tr>
<td>MN</td>
<td>2001</td>
<td>11</td>
<td>29</td>
<td>0 to 21 12 to 52</td>
</tr>
<tr>
<td>NY</td>
<td>2001</td>
<td>3</td>
<td>25</td>
<td>0 to 7 14 to 41</td>
</tr>
<tr>
<td>NE</td>
<td>2001</td>
<td>0</td>
<td>0</td>
<td>0 to 13 0 to 14</td>
</tr>
<tr>
<td>OK</td>
<td>2002</td>
<td>9</td>
<td></td>
<td>4 to 12</td>
</tr>
</tbody>
</table>
Effect of Traffic Timing on Alfalfa Yield, Arlington, WI 2002

Total Yield (t/a)

<table>
<thead>
<tr>
<th></th>
<th>No Traffic</th>
<th>2 DAY</th>
<th>5 DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Yield</strong></td>
<td>6.6</td>
<td>6.6</td>
<td>6.0</td>
</tr>
</tbody>
</table>

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Stems per 2 Feet of Row

- 'May 27:
  - No Traffic: 120
  - 2 DAY: 110
  - 5 DAY: 100

- 'Sept 12:
  - No Traffic: 70
  - 2 DAY: 60
  - 5 DAY: 50

Legend:
- No Traffic
- 2 DAY
- 5 DAY
Alfalfa Yield Reduction in 2002 Variety Trials due to Wheel Traffic

Variety
Managing to Reduce Wheel Traffic Loss

- Do driving on field soon after harvest
  - Manage to dry forage quickly
  - Harvest for haylage or baleage
  - Use preservative and harvest wet hay
- Use of duals not recommended
- Apply manure quickly after cutting
Summary

- Wheel traffic can significantly reduce yield.
- Wheel traffic damage appears to be mainly due to plant damage.
- Traffic longer after cutting does more damage.
- Genetic differences exist for traffic tolerance.