2010 Forage Variety Yield Summary

Cornell University

Department of Plant Breeding & Genetics

J. Hansen, 1-2011
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Cornell University Dept. of Plant Breeding and Genetics

http://plbrgen.cals.cornell.edu/cals/pbg/

programs/departmental/forage/foragetest.cfm

J. Hansen, 1-2011
NY forage

Forages.org home
The Forage Species Selection Tool
www.forages.org/

Forage yield trial results for NY
Cornell Published results of forage trials
http://plbrgen.cals.cornell.edu/cals/pbg/programs/departmental/forage/foragetest.cfm
Average Yield of A to Z Forages in Cornell Forage Trials

Yield – tons per acre dry matter

- **Alfalfa**
  - 5-Year Average: 5.9
  - 2006: 4.0
  - 2007: 5.6
  - 2008: 5.5
  - 2009: 5.5
  - 2010: 4.5

- **Birdsfoot Trefoil**
  - 5-Year Average: 3.5
  - 2006: 2.5
  - 2007: 3.0
  - 2008: 3.4
  - 2009: 3.5
  - 2010: 3.0

- **Bromegrass**
  - 5-Year Average: 5.5
  - 2006: 4.0
  - 2007: 5.0
  - 2008: 5.5
  - 2009: 5.0
  - 2010: 4.0

**Legend**
- Orange: 5-Year Average
- Blue: 2010
- Purple: 2009
- Green: 2008
- Red: 2007
- Black: 2006
Average Yield of A to Z Forages in Cornell Forage Trials

Yield – tons per acre dry matter

- Orchardgrass
- Perennial Ryegrass
- Red Clover
- Reed Canarygrass

Yield values:
- Orchardgrass: 5.7 tons
- Perennial Ryegrass: 4.4 tons
- Red Clover: 4.1 tons
- Reed Canarygrass: 0.2468 tons

Legend:
- 5-Year Average
- 2010
- 2009
- 2008
- 2007
- 2006
Average Yield of A to Z Forages in Cornell Forage Trials

Yield – tons per acre dry matter

<table>
<thead>
<tr>
<th>Year</th>
<th>Tall Fescue</th>
<th>Timothy</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>5.4</td>
<td>5.4</td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-Year Average</td>
<td>6.7</td>
<td>5.4</td>
</tr>
<tr>
<td>Trial, Seeding Year</td>
<td>Soil series, elevation, # of harvests in 2010</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Ithaca, 2007, Page 3</td>
<td>Williamson silt loam, 1000 ft., 3 harvests</td>
<td></td>
</tr>
<tr>
<td>Warsaw, 2007, Page 3</td>
<td>Bath-Valois gravelly loam, 1700 ft., 4 harvests</td>
<td></td>
</tr>
<tr>
<td>Ithaca, 2008, Page 4</td>
<td>Erie channery silt loam, 1000 ft., 3 harvests</td>
<td></td>
</tr>
<tr>
<td>Chazy, 2008, Page 4</td>
<td>Raynham variant silt loam, 185 ft., 3 harvests</td>
<td></td>
</tr>
<tr>
<td>Ithaca, 2009, Page 4</td>
<td>Madalin silt loam, 990 ft, 3 harvests</td>
<td></td>
</tr>
<tr>
<td>Cobleskill, 2009 Pg 4</td>
<td>Barbour Tioga fine sandy loam, 1170 ft., 4 harvests</td>
<td></td>
</tr>
<tr>
<td>Ithaca, 2010, Page 5</td>
<td>Williamson silt loam, 1000 ft., 2 harvests</td>
<td></td>
</tr>
<tr>
<td>Perry, 2010 Page 5</td>
<td>Lansing gravelly silt loam, 1390 ft. 2 harvests</td>
<td></td>
</tr>
</tbody>
</table>
## Ithaca, Tompkins County, Sown May 4, 2007

<table>
<thead>
<tr>
<th>Cultivars</th>
<th>2010 Total</th>
<th>Total</th>
<th>Season</th>
<th>% of Cks.</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGEN</td>
<td>5.42</td>
<td>18.81</td>
<td>109</td>
<td></td>
</tr>
<tr>
<td>A 5225</td>
<td>5.40</td>
<td>18.43</td>
<td>107</td>
<td></td>
</tr>
<tr>
<td>55V48</td>
<td>5.22</td>
<td>18.33</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>GUARDSMAN II</td>
<td>5.03</td>
<td>18.17</td>
<td>105</td>
<td></td>
</tr>
<tr>
<td>KEYSTONE</td>
<td>5.31</td>
<td>17.99</td>
<td>104</td>
<td></td>
</tr>
</tbody>
</table>

- tons per acre dry matter -
### YIELD - Percent of Checks

**Example Calculation**

<table>
<thead>
<tr>
<th>Variety</th>
<th>Yield (t/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ReGen</td>
<td>7.53</td>
</tr>
<tr>
<td>Oneida VR</td>
<td>7.02</td>
</tr>
<tr>
<td>5312</td>
<td>7.27</td>
</tr>
<tr>
<td>Vernal</td>
<td>6.39</td>
</tr>
</tbody>
</table>

ReGen yielded 109% of the check mean:

\[
109 = \left( \frac{7.53}{(7.02 + 7.27 + 6.39)} / 3 \right) * 100
\]

Compare to checks: pioneer 5312, Vernal and Oneida VR
### Summary of Alfalfa Cultivar Performance 2008 - 2010

Yielded in the Top 50% of the Trial(s)*

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Avg. % of Cks</th>
<th>No. of harvests</th>
<th>Total No. of harvests</th>
</tr>
</thead>
<tbody>
<tr>
<td>4S417</td>
<td>110</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>55V48</td>
<td>112</td>
<td>34</td>
<td>38</td>
</tr>
<tr>
<td>LANDER</td>
<td>104</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>RADIANCE HD</td>
<td>109</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>DKA43-13</td>
<td>120</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>POUNCE</td>
<td>102</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>KEYSTONE</td>
<td>109</td>
<td>19</td>
<td>19</td>
</tr>
</tbody>
</table>
### 2010 Alfalfa Trial Entries
#### By Seed Source

<table>
<thead>
<tr>
<th>Seed Source</th>
<th>No. of Trial Entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 lb bag commercial seed – sampled at Cornell</td>
<td>5</td>
</tr>
<tr>
<td>50 lb bag commercial seed – sampled at Wisconsin and sent to Cornell</td>
<td>21</td>
</tr>
<tr>
<td>Company sent seed sample to Cornell – Experimentals (some are hybrid alfalfa)</td>
<td>15</td>
</tr>
</tbody>
</table>
Where to get Forage Cultivar Info.?  
Trials in New York State

- Cornell Univ. Forage Breeding Web Site:  
  http://plbrgen.cals.cornell.edu/cals/pbg/programs/departmental/forage/foragetest.cfm

- Cornell Guide for Integrated Field Crop Management  
  http://www.fieldcrops.org

- Alfalfa Variety Comparison Site  
  http://www.uwex.edu/ces/ag/alfalfa/index.cfm

Info available at these websites and resources. Contact CCE educator or go to these websites.  
Country folks 1st week in Dec. Print very small - hard to read — survey crowd for their response -  
did you see it?

;
Potato Leafhopper in Alfalfa

© Pennsylvania Tree Pest Guide
Glandular Trichomes

Standard Cultivar  PLH Resistant
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5312</td>
<td>26</td>
<td>39</td>
</tr>
<tr>
<td>Oneida VR</td>
<td>34</td>
<td>39</td>
</tr>
<tr>
<td>Vernal</td>
<td>37</td>
<td>32</td>
</tr>
<tr>
<td>54H91</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>WL 346 LH</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>WL 345 LH</td>
<td></td>
<td>22</td>
</tr>
<tr>
<td>WL 347 LH</td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>6325</td>
<td></td>
<td>27</td>
</tr>
<tr>
<td>5% LSD</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Entry</td>
<td>3-Yr Total</td>
<td>% of Cks</td>
</tr>
<tr>
<td>-------------</td>
<td>------------</td>
<td>----------</td>
</tr>
<tr>
<td>FSG 400LH</td>
<td>17.47</td>
<td>105</td>
</tr>
<tr>
<td>53H92</td>
<td>16.48</td>
<td>99</td>
</tr>
<tr>
<td>EverGreen3</td>
<td>16.34</td>
<td>98</td>
</tr>
<tr>
<td>4P424</td>
<td>15.54</td>
<td>93</td>
</tr>
<tr>
<td>Check Mean</td>
<td>16.66</td>
<td>100</td>
</tr>
</tbody>
</table>

PLH damage is rated on a 1 to 5 scale where 1 is not apparent damage and 5 is severe damage.
Two Alfalfa Trials - Side by Side in the Same Field - Two Harvests in 2010

<table>
<thead>
<tr>
<th>Resistant Cultivar</th>
<th>Yield</th>
<th>% of Ck. Mean*</th>
<th>PLH Damage**</th>
<th>31-Jul</th>
</tr>
</thead>
<tbody>
<tr>
<td>53H92</td>
<td>3.93</td>
<td>105</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>Exp. L</td>
<td>3.77</td>
<td>101</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>WL 353LH</td>
<td>3.46</td>
<td>93</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>Syngenta 6475H</td>
<td>3.26</td>
<td>87</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>Ck. Mean</td>
<td>3.73 t/a</td>
<td>4.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Average Top Three 3.72

* Ck. Mean - Average of three alfalfa cultivars that are susceptible to PLH damage - Oneida VR, Pioneer 5312, Vernal

**PLH Damage is a score from 1 to 5 where 1 is no apparent damage from PLH and 5 is severe damage from PLH and plants are stunted and yellow.
PLH Resistant Alfalfa Cultivars

- Are tested in separate trials that are not sprayed with insecticides.
- PLH Resistant Alfalfa Cultivars are generally not planted in trials of Conventional Alfalfa Cultivars

Companies want to have PLH varieties tested as they are intended to be used – ie no insecticide. The newer PLH varieties are much improved in forage yield compared to the one that were first available in the late 1990's. The new PLH varieties may still need to be sprayed in the seeding year in a year of heavy PLH pressure.
PLH Resistant Alfalfa Cultivars

- Have Less PLH Damage
- Excellent Tool Under No Insecticide Management
- Not using Insecticides could allow populations of beneficial insects to build up
- Some PLH still feed on resistant alfalfa cultivars - not immune
- Young seedlings still can sustain significant PLH damage
- Number of PLH-resistant cultivars is low
Is the variety persistent? Take a look at the yields in the second production year.
Pardee is an early maturing variety with good disease resistance and persistence. Plant with a companion grass (one that is not too aggressive).
Perennial Cool Season Grasses
Dr. J. Cherney-www.forages.org

Overall Recommendation for Stored Feed for Milking Cows

1. Reed canarygrass or Orchardgrass
2. Tall Fescue
3. Timothy
4. Smooth Bromegrass
Perennial Cool Season Grasses
Dr. J. Cherney-www.forages.org

◆ Overall Recommendation for Grazing

1. Tall Fescue
2. Orchardgrass
3. Timothy
4. Smooth Bromegrass or Reed canarygrass

Heading date for grasses in 2007 ranged from May 14 (orchard grass) to June 8 (timothy). If cut an early variety too late, will have poor quality because the stem/seed head are high in fiber. If cut a late variety too early, then have low yield, may have poor persistence, and seed heads will be in second crop and could lower forage quality of the second crop. So match the heading date (date when 5 heads are visible in a 3.5 foot by 16 foot area = boot stage) with management.
Overall Recommendation for Dry Cow Forage

1. Timothy
2. Smooth bromegrass
3. Reed canarygrass
4. Tall Fescue
5. Orchardgrass

Heading date for grasses in 2007 ranged from May 14 (orchard grass) to June 8 (timothy). If cut an early variety too late, will have poor quality because the stem/seed head are high in fiber. If cut a late variety too early, then have low yield, may have poor persistence, and seed heads will be in second crop and could lower forage quality of the second crop. So match the heading date (date when 5 heads are visible in a 3.5 foot by 16 foot area = boot stage) with management.
Tall Fescue –
plant low endophyte varieties

Reed Canarygrass –
plant low alkaloid varieties

Heading date for grasses in 2007 ranged from May 14 (orchard grass) to June 8 (timothy). If cut an early variety too late, will have poor quality because the stem/seed head are high in fiber. If cut a late variety too early, then have low yield, may have poor persistence, and seed heads will be in second crop and could lower forage quality of the second crop. So match the heading date (date when 5 heads are visible in a 3.5 foot by 16 foot area = boot stage) with management.
Grass Trials – Data Provided
Pages 8-12

- Heading Date
- % Ground Cover
- Yield (4 or 5 cuts per year, 3 production years)
- Forage Quality on First Harvest Forage
  - At Harvest time (third week in May)
  - At Boot Stage
2010 Forage Project

Dr. Don Viands
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Dr. Julie Hansen
Dr. Hilary Mayton
Jamie Crawford
Bob Dubber
Jason Schillor
Ryan Crawford
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2010 Temp. Employees

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