

NEW YORK FORAGE LEGUME AND GRASS VARIETY YIELD TRIALS SUMMARY FOR 2011 – SEASON TOTALS



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<http://plbrgen.cals.cornell.edu/cals/pbg/programs/departamental/forage/foragetest.cfm>

Introduction Forage variety total season yields from New York in the 2011 growing season are in this report. If yields for each harvest are of interest please review the report titled New York Forage Legume and Grass Variety Yield Trials Summary for 2011 – Harvest and Total Season Summary (available at the website listed above).

Forage yield trials are planted and harvested annually at the Cornell University Agricultural Experiment Station in Ithaca and at three other locations in New York State. Funding for these trials is provided by the companies that submit the varieties/ cultivars in the trials, from Cornell University College of Agriculture and Life Sciences, and from Northern New York Agricultural Development Program. Trials of perennial forages are managed for four years; seeding year and three production years.

2011 New York State

Temperature Averages

| Month | | | |
|-----------|-------------|-----------|------|
| | Temperature | Departure | Rank |
| March | 31.0 | -0.9 | 59 |
| April | 45.0 | 0.5 | 81 |
| May | 58.1 | 2.8 | 103 |
| June | 65.4 | 1.0 | 85 |
| July | 71.7 | 2.9 | 110 |
| August | 67.9 | 0.7 | 83 |
| September | 62.8 | 3.2 | 109 |
| October | 49.6 | 1.5 | 76 |

Precipitation Averages

| Month | | | | |
|-----------|---------------|-----------|------------|------|
| | Precipitation | Departure | Pct Normal | Rank |
| March | 4.34 | 1.29 | 142% | 106 |
| April | 6.26 | 2.84 | 183% | 115 |
| May | 5.54 | 1.89 | 151% | 112 |
| June | 3.89 | -0.20 | 95% | 74 |
| July | 2.51 | -1.53 | 62% | 13 |
| August | 7.68 | 3.81 | 198% | 117 |
| September | 6.36 | 2.37 | 159% | 114 |
| October | 4.61 | 0.66 | 116% | 95 |

Rankings are for 117 years between 1895 and 2011. 1=coolest; 117=warmest or 1=driest; 117=wettest.
http://www.nrcc.cornell.edu/page_summaries.html

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Cornell University

Alfalfa yields for 2011 averaged 5.4 tons per acre dry matter (1.0 tons less than in 2010), red clover yields averaged 3.3 tons per acre dry matter (0.4 tons per acre less than in 2010), and perennial forage grass yields averaged 5.6 tons per acre dry matter (0.5 tons per acre less than in 2010).

Cultivar/Variety Selection

Plant breeders continue to develop new and improved cultivars. Cultivars are continually released and were selected for improved agronomic characteristics such as yield, disease and insect resistance, forage quality, etc. Seed cost of improved cultivars can be higher than for other cultivars, but this cost is generally offset when there is improved performance at each harvest over the life of the stand.

In each New York trial, there is a group of top-yielding cultivars. Cultivar performance should be critically evaluated by comparing yield with other cultivars in two or more trials that are in the second or later year of production.

Alfalfa (Tables 1 and 2) cultivars for New York are recommended to have resistance (R) or high resistance (HR) to four diseases (bacterial wilt, Verticillium wilt, anthracnose, Phytophthora root rot) and fall dormancy rating should be 2, 3, or 4. Cultivars with higher fall dormancy ratings will go dormant later in the fall. Cultivars that have fall dormancy ratings higher than 4 may have unacceptable winter-hardiness for New York, particularly in Northern New York. All of the production year alfalfa trials were harvested three or four times between late May and mid-September.

A limited number of potato leafhopper (PLH) resistant alfalfa cultivars are available for producers to plant. These cultivars are tested in trials that are not sprayed with insecticide (page 5).

Red Clover (Table 3) is generally a two-production year crop in New York and is an excellent forage legume for short-rotation fields and for frost-seeding into established stands. The clover root curculio is a destructive pest on clover, eating the roots and destroying the plants in the later production years.

Birdsfoot Trefoil (Table 3) is a legume that tolerates soils that alfalfa will not be productive on. Birdsfoot trefoil should always be planted in combination with other forages like perennial grasses. Also, birdsfoot trefoil does not tolerate low cutting heights, so it is advisable to leave 5+ inches of stubble in the field.

Grass yield (Tables 4, 5, and 6) trials were fertilized with 315 lb/A ammonium sulfate in early April and after first, second, and third harvests. Forage grass trials are harvested four times between May 20th and November 3rd. Bromegrass does not tolerate intensive management thus was harvested three times this growing season. Grass yields by species for production year trials harvested 2011 are listed in summary **Table 4, page 8-9**.

Also listed is a visual estimate of percent stand and heading date. Heading date is the calendar date when about 5 heads per plot were visible. Use percent stand, heading date, and yield to select grass varieties that fit your forage program.

Grass forage quality estimates from 2010 for the trials planted in 2008 and 2009 are presented in **Tables 5 and 6**. Grass forage quality samples are taken at the first growth only, not at the other three harvests. When grass plants produce seed heads, the seed head stems lower forage quality. Samples from each cultivar are taken on two days – two samples at harvest time (May 26 to June 3 in 2011) and two samples at heading date (May 12 to June 7 in 2011). Forage quality estimates from 2011 for trials planted in 2009 and 2010 will be available late winter.

Table 7 is a summary of grasses planted and harvested in 2011.

See [2012 Cornell Guide for Integrated Field Crop Management](#) for more detailed management information (<http://www.fieldcrops.org/Pages/Home.aspx>).

We express appreciation to all of our cooperators in allowing us to plant field plot trials of forages on their farms and to our employees for their hard work in harvesting and maintaining field plots.

ALFALFA CULTIVAR YIELD TRIAL SUMMARY - NEW YORK - 2011**Table 1: NY Alfalfa Cultivar Yield Trial Results - 2011 Forage Yields**

T/A = tons per acre dry matter; 5%LSD = to claim statistically significant yield differences between two cultivars, the yield difference must be equal to or greater than the LSD.
 CV = A statistical representation of the precision of a trial. Lower is better.

Summary of Alfalfa Cultivar Performance 2009 - 2011

| Cultivar | Yielded in the Top 50% of the Trial(s)* | | Total No. of harvests |
|---------------------|--|--------------------|--------------------------|
| | Avg. % of Cks | No. of harvests | |
| 6417 | 110 | 18 | 18 |
| 4A415 | 106 | 3 | 3 |
| 4S417 | 112 | 13 | 17 |
| 55V48 | 115 | 38 | 38 |
| AMERISTAND 407TQ | 112 | 24 | 31 |
| BARALFA X42 | 107 | 3 | 3 |
| CORNERSTONE | 120 | 4 | 7 |
| DG 4210 | 119 | 7 | 7 |
| DKA43-13 | 115 | 12 | 28 |
| EZRA | 110 | 3 | 7 |
| FSG 329 | 111 | 13 | 13 |
| GENOA | 109 | 9 | 9 |
| GUARDSMAN II | 111 | 31 | 34 |
| HYBRIFORCE-2400 | 114 | 20 | 20 |
| HYBRIFORCE-2420/WET | 108 | 13 | 13 |
| L 447 HD | 112 | 18 | 18 |
| LEGENDAIRY 5.0 | 104 | 7 | 7 |
| LS 605 | 111 | 6 | 6 |
| PGI 557 | 120 | 4 | 7 |
| PHIRST EXTRA | 123 | 4 | 4 |
| PILLAR | 120 | 7 | 7 |
| PLUSS II | 116 | 7 | 7 |
| PROLIFIC II | 112 | 13 | 13 |
| REBOUND 5.0 | 111 | 18 | 31 |
| REGEN | 111 | 19 | 38 |
| 6305Q | 114 | 7 | 7 |
| WL343 HQ | 119 | 13 | 23 |
| WL 363HQ | 112 | 23 | 32 |

*Cultivars sorted by total yield over all production years.

*Data from production year trials only, not from trials sown in 2011.

Cks. = Check Cultivars are Oneida VR, Pioneer 5312, Vernal.

| Trial, Seeding Year | Soil series, elevation, # of harvests in 2011 |
|-----------------------|---|
| Ithaca, 2008, Page 3 | Erie channery silt loam, 1000 ft., 3 harvests |
| Chazy, 2008, Page 3 | Raynham variant silt loam, 185 ft., 3 harvests |
| Ithaca, 2009, Page 4 | Madalin silt loam, 990 ft, 3 harvests |
| Cobleskill, 2009 Pg.4 | Barbour Tioga fine sandy loam, 1170 ft., 3 harvests |
| Ithaca, 2010, Page 5 | Williamson silt loam, 1000 ft., 3 harvests |
| Perry, 2010 Page 5 | Lansing gravelly silt loam, 1390 ft. 4 harvests |
| Ithaca, 2011, Page 4 | Erie channery silt loam, 1000 ft., 3 harvests |
| Chazy, 2011, Page 4 | Raynham variant silt loam, 185 ft., 3 harvests |

Many Thanks to our Cooperators:

| | |
|-------------------|--|
| Tim Dodge | Cornell University Farm Manager |
| Thomas Edwards | Cornell Univ. Field Technician |
| Steve Lis | Cornell Univ. Field Technician |
| John Conklin | Cornell Univ. Mechanic |
| Dr. Jerry Cherney | Cornell Univ. Forage Agronomist, Professor |
| Dr. Mike Davis | Cornell Univ. Farm Manager at Chazy |
| Del Meseck | Cornell Univ. Field Assistant at Chazy |
| Dr. Rick Grant | Miner Institute at Chazy, NY, President |
| J. Keith Waldron | NYSES Integrated Pest Management |
| Ken Wise | Area IPM Educator |
| Dr. Doug Goodale | SUNY Cobleskill, Professor |
| Tom Poltynski | SUNY Cobleskill, Farm Coordinator |
| Tim Pajda | SUNY Cobleskill, Farm Manager |
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Ithaca, Tompkins County, Sown May 4, 2008

| Cultivars | 3-Yr | | % of Cks. |
|------------------------------|---------------|-----------------|--------------|
| | 2011 Total | Total Season | |
| - tons per acre dry matter - | | | |
| REGEN | 4.05 | 14.20 | 116 |
| GUARDSMAN II | 3.86 | 13.71 | 112 |
| 55V48 | 3.68 | 13.59 | 111 |
| AMERISTAND 407TQ | 3.83 | 13.56 | 111 |
| L 447 HD | 3.66 | 13.39 | 110 |
| GENOA | 3.66 | 13.39 | 109 |
| 6417 | 3.64 | 13.22 | 108 |
| REBOUND 5.0 | 3.73 | 13.17 | 108 |
| WL 363HQ | 3.61 | 13.15 | 108 |
| DKA43-13 | 3.56 | 12.92 | 106 |
| ESCALADE | 3.45 | 12.92 | 106 |
| MARVEL | 3.64 | 12.91 | 106 |
| SEEDWAY 9558 | 3.42 | 12.83 | 105 |
| 5312 (check) | 3.62 | 12.72 | 104 |
| L 333 HD | 3.55 | 12.71 | 104 |
| ONEIDA VR (check) | 3.45 | 12.32 | 101 |
| VERNAL (check) | 3.07 | 11.63 | 95 |
| | | | Ck. Mean |
| Trial Mean (T/A) | 3.70 | 13.32 | 12.23 |
| 5% LSD | 0.28 | 0.76 | |
| CV(%) | 6.0 | 4.5 | |

Chazy, Clinton County, Sown May 9, 2008

| Cultivars | 3-Yr | | % of Cks. |
|------------------------------|---------------|-----------------|--------------|
| | 2011 Total | Total Season | |
| - tons per acre dry matter - | | | |
| 55V48 | 5.56 | 17.80 | 119 |
| DKA43-13 | 5.50 | 17.77 | 119 |
| WL 343HQ | 5.41 | 17.55 | 117 |
| REBOUND 5.0 | 5.35 | 17.10 | 114 |
| L 447 HD | 5.20 | 17.10 | 114 |
| 6417 | 4.93 | 16.65 | 111 |
| AMERISTAND 407TQ | 4.92 | 16.60 | 111 |
| GUARDSMAN II | 5.08 | 16.60 | 111 |
| WL 363HQ | 5.17 | 16.49 | 110 |
| REGEN | 4.89 | 16.14 | 108 |
| ONEIDA VR (check) | 4.93 | 15.87 | 106 |
| L 333 HD | 4.85 | 15.81 | 106 |
| SEEDWAY 9558 | 4.76 | 15.47 | 103 |
| 5312 (check) | 4.75 | 15.13 | 101 |
| VERNAL (check) | 4.48 | 13.92 | 93 |
| | | | Ck. Mean |
| Trial Mean (T/A) | 4.93 | 16.04 | 14.97 |
| 5% LSD | 0.60 | 1.60 | |
| CV(%) | 8.6 | 7.0 | |

Alfalfa Entered as Experimental in 2008

| Cultivar/ Experimental | Trial Location | Avg. Yield | |
|------------------------|-------------------|---------------|---------------|
| | | % of Ck. Mean | Ck Mean (T/A) |
| PERSIST II* | Ithaca, Chazy | 121, 119 | 12.23, 14.97 |
| 4030* | Ithaca | 120 | 12.23 |
| HYBRIFORCE-2400* | Ithaca | 119 | 12.23 |
| PROLIFIC II* | Ithaca | 117 | 12.23 |
| 4S417* | Ithaca | 116 | 12.23 |
| HYBRIFORCE-2420/WET* | Ithaca | 115 | 12.23 |
| 4A415* | Ithaca | 114 | 12.23 |
| EZRA* | Ithaca, Chazy | 113, 109 | 12.23, 14.97 |
| MILESTONE II* | Ithaca | 112 | 12.23 |
| N-R-GEE* | Ithaca, Chazy | 110, 105 | 12.23, 14.97 |
| A 4330* | Ithaca | 108 | 12.23 |
| A 4440* | Ithaca | 103 | 12.23 |

ALFALFA CULTIVAR YIELD TRIAL SUMMARY - NEW YORK - 2011

ALFALFA CULTIVAR YIELD TRIAL SUMMARY - NEW YORK - 2011**Table 1 (con't): NY Alfalfa Cultivar Yield Trial Results - 2011 Forage Yields**

| Ithaca, Tompkins County, Sown May 7, 2009 | | | | Cobleskill, Schoharie County, Sown July 30, 2009 | | | |
|--|-------------------|---------------------|------------------|---|-------------------|---------------------|------------------|
| Cultivars | 2011 Total | 2-Yr | | Cultivars | 2011 Total | 2-Yr | |
| | | Total Season | % of Cks. | | | Total Season | % of Cks. |
| - tons per acre dry matter - | | | | - tons per acre dry matter - | | | |
| HYBRIFORCE-2400 | 6.11 | 12.97 | 116 | FSG 329 | 6.10 | 14.97 | 110 |
| 4S417 | 6.03 | 12.94 | 116 | REGEN | 6.06 | 14.74 | 108 |
| PROLIFIC II | 5.88 | 12.87 | 115 | HYBRIFORCE-2400 | 6.08 | 14.71 | 108 |
| 55V48 | 6.16 | 12.70 | 114 | 4S417 | 6.03 | 14.68 | 108 |
| AMERISTAND 407TQ | 6.08 | 12.62 | 113 | GUARDSMAN II | 5.97 | 14.64 | 108 |
| HYBRIFORCE-2420/WET | 5.84 | 12.55 | 112 | PROLIFIC II | 6.07 | 14.63 | 108 |
| GUARDSMAN II | 5.82 | 12.53 | 112 | 55V48 | 6.26 | 14.24 | 105 |
| FSG 329 | 5.80 | 12.48 | 112 | WL 363HQ | 6.11 | 14.22 | 105 |
| LS 605 | 5.76 | 12.43 | 111 | LEGENDAIRY 5.0 | 6.19 | 14.21 | 104 |
| REGEN | 5.71 | 12.28 | 110 | HYBRIFORCE-2420/WET | 5.75 | 14.15 | 104 |
| 6422Q | 5.73 | 12.06 | 108 | 5312 (check) | 5.89 | 14.05 | 103 |
| 5312 (check) | 5.47 | 11.99 | 107 | FSG 408DP | 5.84 | 14.00 | 103 |
| REBOUND 5.0 | 5.54 | 11.83 | 106 | ONEIDA VR (check) | 5.77 | 13.99 | 103 |
| AMERISTAND 403T PLUS | 5.52 | 11.79 | 106 | REBOUND 5.0 | 5.94 | 13.93 | 102 |
| FSG 408DP | 5.45 | 11.77 | 105 | 6422Q | 6.19 | 13.89 | 102 |
| L333 HD | 5.32 | 11.65 | 104 | AMERISTAND 407TQ | 5.88 | 13.60 | 100 |
| ONEIDA VR (check) | 5.15 | 11.17 | 100 | POUNCE | 5.45 | 13.59 | 100 |
| VERNAL (check) | 4.46 | 10.36 | 93 | DKA43-13 | 5.95 | 13.50 | 99 |
| | | | Ck. Mean | AMERISTAND 403T PLUS | 5.73 | 13.50 | 99 |
| Trial Mean (T/A) | 5.72 | 12.23 | 11.17 | WL 343HQ | 5.81 | 13.25 | 97 |
| 5% LSD | 0.27 | 0.52 | | FSG 420 LH | 5.57 | 12.97 | 95 |
| CV(%) | 3.8 | 3.4 | | VERNAL (check) | 5.18 | 12.75 | 94 |
| Alfalfa Entered as Experimental in 2009 | | | | Alfalfa Entered as Experimental in 2009 | | | |
| MAGNUM 7* | 6.19 | 13.41 | 120 | Trial Mean (T/A) | 5.91 | 14.01 | Ck. Mean 13.60 |
| SONIC* | 6.17 | 13.26 | 119 | 5% LSD | 0.31 | 0.58 | |
| RENEW* | 6.12 | 13.04 | 117 | CV (%) | 4.5 | 3.6 | |
| KF401B* | 6.12 | 12.86 | 115 | Alfalfa Entered as Experimental in 2009 | | | |
| TJA 904* | 6.01 | 12.83 | 115 | MSSUNSTRA-901* | 6.52 | 15.79 | 116 |
| DS911-M* | 6.03 | 12.82 | 115 | MSSUNSTRA-903* | 6.36 | 15.27 | 112 |
| TJA 903* | 5.94 | 12.74 | 114 | TJA 901* | 6.12 | 14.95 | 110 |
| TJA 901* | 5.89 | 12.71 | 114 | TJA 904* | 6.10 | 14.89 | 109 |
| TJA 902* | 6.02 | 12.65 | 113 | TJA 902* | 6.04 | 14.82 | 109 |
| NSF-7011ML* | 5.94 | 12.61 | 113 | EZRA* | 6.05 | 14.73 | 108 |
| EZRA* | 5.59 | 12.12 | 109 | TJA 903* | 6.06 | 14.50 | 107 |
| 55V12* | 5.67 | 12.07 | 108 | 54Q32* | 5.99 | 14.03 | 103 |
| 54Q32* | 5.69 | 12.04 | 108 | 55V12* | 6.32 | 13.98 | 103 |
| N-R-GEE* | 5.63 | 11.85 | 106 | N-R-GEE* | 5.50 | 13.32 | 98 |

| 2011 Trials - Cultivars Planted | |
|--|------------------------|
| Ithaca NY Trial | Chazy NY Trial |
| Archer III | Archer III |
| DG 4210 | DG 4210 |
| Gunner | Gunner |
| Rebound 6.0 | Rebound 6.0 |
| Prolific II | Prolific II |
| Persist II | Persist II |
| Phirst Extra | Phirst Extra |
| PGI 557 | PGI 557 |
| PGI 215 | PGI 215 |
| WL 354HQ | WL 354HQ |
| 55V50 | 55V50 |
| AmeriStand 407TQ | |
| ReGen | |
| Ezra | |
| N-R-GEE | |
| 2011 Trials - Experimentals Planted | |
| Ithaca NY Trial | Chazy NY Trial |
| FG 45A119 | FG 45A119 |
| Seneca | Seneca |
| CW 0550055 | CW 0550055 |
| DSB01-T | msSunstra-B12 |
| DSB02-T | msSunstra-803 |
| DSB03-T | Ithaca NY Trial |
| DSB04-BR | DSB09-M |
| DSB05-BR | DS704-M |
| DSB06-BR | DSA01-T |
| DSB07-L | |

On-Line Resources for Forage Management and Cultivar Selection:

Find this report and others at:

<http://plbrgen.cals.cornell.edu/cals/pbg/programs/departmental/forage/foragetest.cf>

Forage Crop Management, Dr. Jerry Cherney:

<http://www.forages.org/>

2012 Cornell Guide for Integrated Field Crop Management:

to order hardcopy by phone call: 607-255-7282

to view on-line: <http://ipmguidelines.org/fieldcrops/>

Alfalfa Variety Comparison:

<http://www.uwex.edu/ces/ag/alfalfa/index.cfm>

New York State Integrated Pest Management Program

<http://nysipm.cornell.edu/fieldcrops/default.asp>

North American Alfalfa Improvement Conference:

<http://www.naaic.org/>

National Alfalfa and Forage Alliance

<http://www.alfalfa.org/>

ALFALFA CULTIVAR YIELD TRIAL SUMMARY - NEW YORK - 2011**Table 1 (cont'): NY Alfalfa Cultivar Yield Trial Results - 2011 Forage Yields**

| Ithaca, Tompkins County, Sown May , 2010 2011 | | | Perry, Wyoming County, Sown April, 2010 2011 | | |
|---|-------|-----------|---|-------|-----------|
| Cultivars | Total | % of Cks. | Cultivars | Total | % of Cks. |
| | T/A | | | T/A | |
| PILLAR | 6.79 | 112 | 55V48 | 6.05 | 129 |
| DKA43-13 | 6.74 | 111 | DG 4210 | 5.96 | 127 |
| DG 4210 | 6.67 | 110 | PILLAR | 5.95 | 127 |
| EZRA | 6.66 | 110 | WL363 HQ | 5.87 | 125 |
| 55V48 | 6.62 | 109 | PLUSS II | 5.81 | 124 |
| REGEN | 6.57 | 108 | PHIRST EXTRA | 5.75 | 123 |
| PLUSS II | 6.55 | 108 | HYBRIFORCE-2400 | 5.72 | 122 |
| WL363 HQ | 6.53 | 108 | WL343 HQ | 5.70 | 121 |
| HYBRIFORCE-2400 | 6.52 | 108 | 6305Q | 5.68 | 121 |
| 6305Q | 6.49 | 107 | CORNERSTONE | 5.65 | 120 |
| BARALFA X42 | 6.46 | 107 | PGI 557 | 5.65 | 120 |
| 4A415 | 6.41 | 106 | 4S417 | 5.64 | 120 |
| GUARDSMAN II | 6.40 | 106 | DG 3210 | 5.63 | 120 |
| WL343 HQ | 6.35 | 105 | EZRA | 5.41 | 115 |
| 5312 (check) | 6.31 | 104 | REGEN | 5.36 | 114 |
| PGI 557 | 6.20 | 102 | 5312 (check) | 5.17 | 110 |
| 53H92 | 6.18 | 102 | RUGGED | 5.05 | 108 |
| DG 3210 | 6.15 | 102 | ONEIDA VR (check) | 4.75 | 101 |
| LANCER | 6.15 | 101 | VERNAL (check) | 4.13 | 88 |
| RUGGED | 6.10 | 101 | | | Ck. Mean |
| CORNERSTONE | 6.08 | 100 | Trial Mean (T/A) | 5.54 | 4.69 |
| WL353 LH | 6.05 | 100 | 5% LSD | 0.24 | |
| VERNAL (check) | 6.01 | 99 | CV (%) | 3.8 | |
| ONEIDA VR (check) | 5.86 | 97 | | | |
| | | Ck. Mean | | | |
| Trial Mean (T/A) | 6.41 | 6.06 | | | |
| 5% LSD | 0.35 | | | | |
| CV (%) | 4.4 | | | | |
| Alfalfa Entered as Experimental in 2010 (Perry) | | | | | |
| 4030* | 6.14 | 131 | CW 053015* | 5.65 | 120 |
| MSSUNSTRA-A10* | 6.10 | 130 | N-R-GEE* | 5.47 | 117 |
| PROFUSION-HX | 5.89 | 126 | HYBRIFORCE-2420* | 5.33 | 114 |
| 375HY/BR* | 5.72 | 122 | PGI 215* | 5.24 | 112 |
| 4010BR* | 5.71 | 122 | | | |
| Alfalfa Entered as Experimental in 2010 (Ithaca) | | | | | |
| DSA08-M* | 7.02 | 116 | CW 053015* | 6.47 | 107 |
| DSA01-T* | 6.96 | 115 | RED FALCON BR* | 6.45 | 106 |
| DSA03-T* | 6.92 | 114 | DSA09-L* | 6.38 | 105 |
| 4030* | 6.70 | 111 | HYBRIFORCE-2420* | 6.32 | 104 |
| DSA07-BR* | 6.66 | 110 | N-R-GEE* | 6.28 | 104 |
| DSA06-BR* | 6.63 | 109 | DSA02-T* | 6.26 | 103 |
| DSA05-BR* | 6.62 | 109 | 4010BR* | 6.17 | 102 |
| DSA04-M* | 6.59 | 109 | PGI 215* | 6.12 | 101 |

2011 Alfalfa Trials to Test Insect Resistant Cultivars; Trials in Ithaca NY

Trials harvested 3 times per production year; 2009 trial on Langford channery silt loam, 2010 and 2011 trials on Williamson silt loam.

Oneida VR, 5312, and Vernal are alfalfa cultivars susceptible to potato leafhopper. These cultivars are the check cultivars in each trial.

*PLH (Potato leafhopper) Damage Score - 1=minor to no damage; 5=severe damage

| Sown May 12, 2009 | 2011 | | 2-Yr | | 3-Yr Avg. PLH Damage |
|-----------------------------|-----------------|--------------|-----------------|--------------|----------------------------|
| | Total Season | % of Cks. | Total Season | % of Cks. | |
| Cultivar | T/A | | T/A | | |
| 53H92 | 4.65 | 109 | 9.80 | 105 | 1.6 |
| 5312 (PLH susceptible) | 4.57 | 107 | 9.68 | 104 | 4.0 |
| VERNAL (PLH susceptible) | 4.19 | 98 | 9.25 | 99 | 4.2 |
| POUNCE | 4.04 | 94 | 9.16 | 99 | 3.4 |
| ONEIDA VR (PLH susceptible) | 4.08 | 95 | 8.97 | 96 | 4.7 |
| 6475H | 4.35 | 102 | 8.96 | 96 | 1.0 |
| FSG 420 LH | 4.28 | 100 | 8.91 | 96 | 1.2 |
| | | Ck. Mean | | Ck. Mean | |
| Trial Mean (T/A) | 4.33 | 4.28 | 9.49 | 9.3 | |
| 5% LSD | 0.30 | | 0.58 | | |
| CV(%) | 5.9 | | 5.3 | | |

PLH populations were at severe levels in 2011.

| Sown May 11, 2011 | 2011 | | PLH Damage |
|-----------------------------|-----------------|--------------|---------------|
| | Total Season | % of Cks. | |
| Cultivar | T/A | | |
| 55H94 | 0.75 | 164 | 2.8 |
| 5312 (PLH susceptible) | 0.52 | 113 | 4.8 |
| WL 353LH | 0.48 | 105 | 4.6 |
| VERNAL (PLH susceptible) | 0.44 | 97 | 4.8 |
| ONEIDA VR (PLH susceptible) | 0.41 | 90 | 4.8 |
| | | Ck. Mean | |
| Trial Mean (T/A) | 0.58 | 0.46 | 3.9 |
| 5% LSD | 0.12 | | 0.4 |
| CV(%) | 15.7 | | 7.4 |

| Sown May 4, 2010 | 2011 - No Insecticide | | 2011 PLH Damage |
|-----------------------------|-----------------------|----------------|--------------------|
| | Total Season | % of Checks | |
| Cultivar | T/A | | |
| 53H92 | 7.06 | 103 | 1.0 |
| 5312 (PLH susceptible) | 7.04 | 102 | 2.8 |
| LANCER | 6.96 | 101 | 1.8 |
| VERNAL (PLH susceptible) | 6.94 | 101 | 3.2 |
| WL353 LH | 6.64 | 97 | 1.3 |
| ONEIDA VR (PLH susceptible) | 6.64 | 97 | 3.3 |
| 6475H | 6.53 | 95 | 1.0 |
| | | Ck. Mean | |
| Trial Mean (T/A) | 6.81 | 6.87 | |
| 5% LSD | 0.44 | | |
| CV(%) | 5.5 | | |

Harvests Dates in 2011 were: 6/15, 7/20, 9/19.

*2008 trial data were not reportable due to excessive soil variability.

| Sown May 4, 2010 | 2011 + Insecticide | |
|-----------------------------|--------------------|----------------|
| | Total Season | % of Checks |
| Cultivar | T/A | |
| 53H92 | 6.18 | 102 |
| 5312 (PLH susceptible) | 6.31 | 104 |
| LANCER | 6.15 | 101 |
| VERNAL (PLH susceptible) | 6.01 | 99 |
| WL353 LH | 6.05 | 100 |
| ONEIDA VR (PLH susceptible) | 5.86 | 97 |
| | | Ck. Mean |
| Trial Mean (T/A) | 6.41 | 6.06 |
| 5% LSD | 0.35 | |
| CV(%) | 4.4 | |

Harvests Dates in 2011 were: 6/10, 7/15, 8/26.

Table 2: Alfalfa Cultivar Features

For more information log on to the Web:

<http://plbrgen.cals.cornell.edu/cals/pbg/programs/departmental/forage/foragetest.cfm>

Cultivars listed are currently tested in Cornell Alfalfa Trials. Yield data for cultivars in new trial seedings will be available next year.

| Alfalfa Cultivar | Marketing Company | FD | Disease Resistance Ratings* | | | | | Marketing Co. Phone Number | Web or E-mail Address |
|----------------------|--|----|-----------------------------|----|----|----|-----|----------------------------|--|
| | | | BW | VW | FW | AN | PRR | | |
| AMERISTAND 403T PLUS | America's Alfalfa | 4 | HR | HR | HR | HR | HR | 1-800-873-2532 | http://www.americasalfalfa.com/ |
| AMERISTAND 407TQ | America's Alfalfa | 4 | HR | HR | HR | HR | HR | | |
| ARCHER III | America's Alfalfa | 5 | HR | HR | HR | HR | HR | | |
| RADIANCE HD | AMPAC Seed Company | 4 | HR | R | HR | HR | HR | 1-800-547-3230 | www.ampacseed.com |
| BARALFA X42 | Barenbrug USA | 4 | HR | HR | HR | HR | HR | 1-800-547-4101 | www.barusa.com |
| RED FALCON BR | Blue River Hybrids | 4 | HR | HR | HR | HR | HR | 1-800-370-7979 | www.blueriverorgseed.com/ |
| KF401B | Byron Seed | 4 | HR | HR | HR | HR | HR | 1-765-569-3555 | |
| CORNERSTONE | Chemgro Seeds | 4 | HR | HR | HR | HR | HR | 1-800-346-4769 | www.chemgro.com |
| MILESTONE II | Chemgro Seeds | 3 | HR | HR | HR | HR | HR | | |
| GUNNER | CROPLAN GENETICS | 5 | HR | HR | HR | HR | HR | 1-651-765-5710 | www.croplan-genetics.com |
| LEGENDAIRY 5.0 | CROPLAN GENETICS | 3 | HR | HR | HR | HR | HR | | |
| REBOUND 5.0 | CROPLAN GENETICS | 4 | HR | HR | HR | HR | HR | | |
| REBOUND 6.0 | CROPLAN GENETICS | 4 | HR | HR | HR | HR | HR | | |
| HYBRIFORCE-2400 | Dairyland Seed Co. | 4 | HR | HR | HR | HR | HR | 1-800-236-0163 | http://www.dairylandseed.com |
| HYBRIFORCE-2420/WET | Dairyland Seed Co. | 4 | HR | HR | HR | HR | HR | | |
| MAGNUM 7 | Dairyland Seed Co. | 4 | HR | HR | HR | HR | HR | | |
| POUNCE | Doebler's | 3 | HR | HR | HR | HR | HR | 1-800-853-2676 | www.doebler.com |
| PERSIST II | Doebler's | 4 | HR | HR | HR | HR | HR | | |
| PILLAR | Doebler's | 4 | HR | HR | HR | HR | HR | | |
| PHIRST EXTRA | Doebler's | 4 | HR | HR | HR | HR | HR | | |
| PLUSS II | Doebler's | 4 | HR | HR | HR | HR | HR | | |
| PROLIFIC II | Doebler's | 4 | HR | HR | HR | HR | HR | | |
| ESCALADE | GROWMARK FS | 5 | HR | R | R | R | HR | 1-800-338-4769 | www.fsseed.com |
| LANCER | GROWMARK FS | 4 | HR | HR | HR | HR | HR | | |
| MARVEL | GROWMARK FS | 4 | HR | HR | HR | HR | HR | | |
| 6417 | Garst Seed Co. | 4 | HR | HR | HR | HR | HR | 1-888-464-2778 | www.garstseed.com |
| PROFUSION-HX | King's AgriSeeds | 4 | HR | HR | HR | HR | HR | 1-717-687-6224 | http://www.kingsagriseeds.com/ |
| L 333HD | Legacy Seeds | 3 | HR | HR | HR | HR | HR | 1-866-791-6390 | www.legacyseeds.com |
| L 447HD | Legacy Seeds | 4 | HR | R | HR | HR | HR | | |
| DKA43-13 | Monsanto | 4 | HR | HR | HR | HR | HR | 1-800-335-2676 | www.monsanto.com |
| 4A415 | Mycogen Seeds | 4 | HR | HR | HR | HR | HR | 1-800-MYCOGEN | www.dowagro.com/mycogen |
| 4S417 | Mycogen Seeds | 4 | HR | HR | HR | HR | HR | | |
| NSF-7011ML | NuSource Forage | 4 | HR | HR | HR | HR | HR | 1-800-545-8873 | www.twincityseed.com |
| SONIC | NuTech Seed | 4 | HR | HR | HR | HR | HR | 1-800-942-6748 | www.nutechseed.com |
| GENOA | Snygenta | 4 | HR | HR | HR | HR | HR | 1-800-445-0956 | www.nk-us.com |
| 6305Q | Snygenta | 3 | HR | HR | HR | HR | HR | | |
| 6422Q | Syngenta | 4 | HR | HR | HR | HR | HR | | |
| 6475H | Syngenta | 4 | HR | HR | HR | HR | HR | | |
| NSF-7011ML | Twin Cities Seed Company | 4 | HR | HR | HR | HR | HR | 1-800-545-8873 | www.twincityseed.com |
| 53H92 | Pioneer Hi-Bred | 3 | HR | HR | HR | HR | HR | 1-800-247-6803 | www.pioneer.com |
| 55H94 | Pioneer Hi-Bred | 5 | HR | HR | HR | HR | HR | | |
| 54Q32 | Pioneer Hi-Bred | 4 | HR | HR | HR | HR | HR | | |
| 55V12 | Pioneer Hi-Bred | 5 | R | HR | HR | HR | HR | | |
| 55V48 | Pioneer Hi-Bred | 5 | HR | R | HR | HR | HR | | |
| 55V50 | Pioneer Hi-Bred | 5 | HR | HR | R | HR | HR | | |
| 4030 | Preferred Seed Co. | 4 | HR | HR | HR | HR | HR | 1-716-895-7333 | www.preferredseed.com |
| A4330 | Producer's Choice | 4 | HR | HR | HR | HR | HR | 1-877-560-5181 | www.producerschoiceseed.com |
| A4440 | Producer's Choice | 4 | HR | HR | HR | HR | HR | | |
| PGI 215 | Producer's Choice | 2 | HR | HR | HR | HR | HR | | |
| PGI 557 | Producer's Choice | 5 | HR | HR | HR | HR | HR | | |
| RUGGED | Producer's Choice | 3 | HR | HR | HR | HR | HR | | |
| EZRA | Seedway/FSG | 3 | R | R | HR | HR | R | 1-800-836-3710 | www.seedway.com |
| GUARDSMAN II | Seedway/FSG | 4 | HR | HR | HR | HR | HR | | |
| N-R-GEE | Seedway/FSG | 4 | HR | HR | HR | R | R | | |
| REGEN | Seedway/FSG | 3 | R | HR | HR | HR | R | | |
| SEEDWAY 9558 | Seedway/FSG | 3 | HR | HR | HR | HR | R | | |
| FSG 329 | Seedway/FSG | 3 | HR | HR | HR | HR | HR | | |
| FSG 408 DP | Seedway/FSG | 4 | HR | R | HR | HR | HR | | |
| FSG 420 LH | Seedway/FSG | 4 | HR | HR | HR | HR | HR | | |
| DG3210 | Crop Production Services | 3 | HR | HR | HR | HR | HR | 1-585-586-1330 | www.cropproductionservices.com |
| DG4210 | Crop Production Services | 4 | HR | HR | HR | HR | HR | | |
| WL 343HQ | Crop Production Services, HYTEST, AgriCulver | 4 | HR | HR | HR | HR | HR | | |
| WL 353LH | W-L Research | 4 | HR | HR | HR | HR | HR | 1-717-917-1609 | www.wlresearch.com |
| WL 354HQ | W-L Research | 4 | HR | HR | HR | HR | HR | | |
| WL 363HQ | Crop Production Services, HYTEST, AgriCulver | 5 | HR | HR | HR | HR | HR | | |
| 5312 | check | 3 | HR | HR | HR | HR | HR | | |
| ONEIDA VR | check | 3 | R | HR | HR | MR | MR | | |
| VERNAL | check | 2 | R | - | MR | - | - | | |

*Disease ratings were provided by source companies, and from standard national tests.

Disease ratings code: HR = High resistance (50% or more of the plants resistant), R= Resistance (31-50% resistant), MR = Moderate resistance

FD = fall dormancy. Fall Dormancy ratings of 2,3 or 4 are recommended for New York State.

Cultivars rated R or HR to BW, VW, and Prr should have sufficient disease resistances to perform well in New York State.

*BW - bacterial wilt, VW-Verticillium wilt, FW-Fusarium wilt, An-Anthraxnose, Prr-Phytophthora root rot

RED CLOVER AND BIRDSFOOT TREFOIL CULTIVAR YIELD TRIAL SUMMARY - NEW YORK - 2011**Table 3: Red Clover and Birdsfoot Trefoil Cultivar Yield Trials- 2011 Ithaca, Tompkins Co.**

T/A = tons per acre dry matter; 5%LSD = to claim statistically significant yield differences between two cultivars, the yield difference must be equal to or greater than the LSD.

| Sown May 7, 2008 | | 2011 | | 2010 | | 2009 | | 3-Yr. | |
|-----------------------|---------------------|--------|----------|--------|----------|--------|----------|-------|----------|
| Red Clover | | Total | % of | Total | % of | Total | % of | Total | % of |
| Cultivar/Experimental | Marketing Company | Season | Cks. | Season | Cks. | Season | Cks. | Total | Cks. |
| | | T/A | | T/A | | T/A | | T/A | |
| Emerald | Cal/West Seeds | 1.61 | 175 | 3.62 | 129 | 7.09 | 108 | 12.32 | 120 |
| FP 345 | Allied Seed, L.L.C. | 1.36 | 148 | 3.65 | 129 | 6.99 | 107 | 12.00 | 117 |
| CW202 | Cal/West Seeds | 1.46 | 159 | 3.59 | 127 | 6.86 | 105 | 11.91 | 116 |
| RC0006 (expt) | Allied Seed, L.L.C. | 1.18 | 128 | 3.25 | 115 | 6.81 | 104 | 11.24 | 109 |
| Marathon (check) | WI Check | 1.08 | 118 | 2.99 | 106 | 6.60 | 101 | 10.67 | 104 |
| Arlington (check) | WI Check | 0.76 | 83 | 2.65 | 94 | 6.49 | 99 | 9.90 | 96 |
| | | | Ck. Mean | | Ck. Mean | | Ck. Mean | | Ck. Mean |
| 5% LSD | | 0.28 | 0.92 | 0.42 | 2.82 | 0.58 | 6.54 | 1.27 | 10.29 |

| Sown May 12, 2009 | | 2011 | | | 2010 | | 2-Yr. | |
|-----------------------|------------------------|--------|----------|---------|--------|----------|-------|----------|
| Red Clover | | Total | % of | % Stand | Total | % of | Total | % of |
| Cultivar/Experimental | Marketing Company | Season | Cks. | 22-Jul | Season | Cks. | Total | Cks. |
| | | T/A | | | T/A | | T/A | |
| LS 9703 | Lewis Seed | 3.08 | 141 | 55 | 6.17 | 103 | 9.25 | 113 |
| StarFire II | AgriCulver/ AMPAC Seed | 2.94 | 134 | 55 | 6.12 | 102 | 9.06 | 111 |
| C328 | WI experimental | 2.39 | 109 | 52 | 6.18 | 103 | 8.56 | 105 |
| Marathon | WI check | 2.13 | 97 | 30 | 6.25 | 104 | 8.38 | 102 |
| Arlington | WI check | 2.24 | 102 | 23 | 5.76 | 96 | 8.00 | 98 |
| | | | Ck. Mean | | | Ck. Mean | | Ck. Mean |
| 5% LSD | | 0.39 | 2.19 | 14 | 0.41 | 6.01 | 0.67 | 8.19 |

| Sown May 11, 2010 | | 2011 | | |
|-----------------------|---------------------|--------|----------|---------|
| Red Clover | | Total | % of | % Stand |
| Cultivar/Experimental | Marketing Company | Season | Cks. | 24-Oct |
| | | T/A | | |
| CW 30091 | Cal/West Seeds | 4.79 | 111 | 81 |
| Arlington | WI check | 4.32 | 100 | 67 |
| Cinnamon Plus | Allied Seed, L.L.C. | 4.32 | 100 | 78 |
| Marathon | WI check | 4.31 | 100 | 75 |
| Freedom!MR | Barenbrug USA | 4.19 | 97 | 79 |
| | | | Ck. Mean | |
| 5% LSD | | 0.25 | 4.32 | 6 |

| Sown May 13, 2011 | | 2011 | | |
|-----------------------|---------------------|--------|------|---------|
| Red Clover | | Total | % of | % Stand |
| Cultivar/Experimental | Marketing Company | Season | Cks. | 24-Oct |
| | | T/A | | |
| RC0005 | Seedway | | | |
| Cinnamon Plus | Allied Seed, L.L.C. | | | |
| Freedom!MR | Barenbrug USA | | | |

****Production Year Data Available in 2012****

| Sown May 12, 2009 | | 2011 | | | 2010 | | 2-Yr. | |
|-----------------------|-------------------------|--------|--------|---------|--------|--------|-------|--------|
| Birdsfoot Trefoil | | Total | % of | % Stand | Total | % of | Total | % of |
| Cultivar/Experimental | Marketing Company | Season | Norcen | 24-Oct | Season | Norcen | Total | Norcen |
| | | T/A | | | T/A | | T/A | |
| Pardee | Seedway/FSG/GROWMARK FS | 4.37 | 118 | 50 | 4.55 | 143 | 8.92 | 129 |
| Bruce | Semican | 4.25 | 114 | 48 | 4.55 | 143 | 8.80 | 128 |
| AC Langile | Public Check | 4.17 | 112 | 38 | 3.81 | 120 | 7.98 | 116 |
| WITT | Public Check | 3.84 | 103 | 42 | 3.91 | 123 | 7.74 | 112 |
| Norcen | Public Check | 3.72 | 100 | 40 | 3.17 | 100 | 6.89 | 100 |
| | | | | | | | | |
| LSD(.05) | | 0.19 | | 14 | 0.31 | | 0.45 | |

| Sown May 11, 2011 | | 2011 | | |
|-----------------------|-------------------------|--------|--------|---------|
| Birdsfoot Trefoil | | Total | % of | % Stand |
| Cultivar/Experimental | Marketing Company | Season | Norcen | 24-Oct |
| | | T/A | | |
| Bruce | Semican | | | |
| Pardee | Seedway/FSG/GROWMARK FS | | | |
| Norcen | Public Check | | | |

****Production Year Data Available in 2012****

| Marketing Company* | Phone |
|-------------------------|----------------|
| AgriCulver | 1-800-836-3701 |
| Allied Seed, L.L.C. | 1-208-250-6321 |
| AMPAC Seed | 1-541-928-1651 |
| Cal/West | 1-800-297-3332 |
| Dairyland Seed Company | 1-800-236-0163 |
| Grassland Oregon | 1-503-566-9900 |
| Growmark FS | 1-800-338-4769 |
| Lewis Seed | 1-541-491-3700 |
| Preferred Seed | 1-716-895-7333 |
| Seed Research of Oregon | 1-800-253-5766 |
| Seedway/FSG | 1-800-836-3710 |
| Semican | 1-866-736-4226 |

Web address

| |
|--|
| www.alliedseed.com |
| www.ampacseed.com |
| www.calwestseeds.com |
| www.dairylandseed.com |
| www.fsseed.com |
| www.lewisseed.com |
| www.preferredseed.com |
| www.sroseed.com |
| www.seedway.com |
| www.semican.ca |

PERENNIAL FORAGE GRASS CULTIVAR YIELD TRIAL SUMMARY - NEW YORK - 2011

Table 4: 2011 Perennial Forage Grass Yield Summary

Ithaca, Tompkins Co., Sown 2008, 2009, 2010

T/A = tons per acre dry matter

Marketing contacts listed on page 9

5%LSD = claim statistically significant yield differences between two varieties, the yield difference must be equal to or greater than the LSD.

Heading date is date when 5 heads in a 3.5 x 16 foot plot were visible.

Trials were harvested four times per year, unless otherwise noted.

Soils: 2008 and 2009 plantings Williamson silt loam, 2010 Erie-Ellery channery silt loam.

| Marketer | 2011 | | | 2010 | | | 2009 | | | 3 or 2-Yr. Total | |
|-----------------------|-------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------------------|-------|
| | Total Season | Nov. % Stand | Heading Date | Total Season | Nov. % Stand | Heading Date | Total Season | Oct. % Stand | Heading Date | | |
| Timothy | | | | | | | | | | | |
| Sown August 7, 2009 | | | | | | | | | | | |
| Richmond | check | 5.19 | 75 | 27-May | 7.01 | 80 | 24-May | | | 12.20 | |
| Climax | check | 4.82 | 79 | 2-Jun | 5.93 | 80 | 1-Jun | | | 10.75 | |
| Tuukka | AMPAC | 4.66 | 74 | 7-Jun | 5.98 | 83 | 3-Jun | | | 10.64 | |
| | LSD(.05) | 0.36 | 6 | | 0.47 | 5 | | | | | |
| Timothy | | | | | | | | | | | |
| Sown May 11, 2010 | | | | | | | | | | | |
| Richmond | check | 6.37 | 81 | 27-May | | | | | | | |
| Climax | check | 5.53 | 74 | 2-Jun | | | | | | | |
| Dainiai | Allied Seed, L.L.C. | 4.53 | 65 | 7-Jun | | | | | | | |
| | LSD(.05) | 0.29 | 5 | | | | | | | | |
| Orchardgrass | | | | | | | | | | | |
| Sown August 7, 2009 | | | | | | | | | | | |
| IS-OG 52 | DLF International Seeds | 6.17 | 69 | 17-May | 9.09 | 76 | 10-May | 1.6 | | 15.26 | |
| Potomac | check | 5.79 | 73 | 13-May | 8.78 | 80 | 4-May | 2.1 | | 14.57 | |
| Profit-coated | AMPAC | 5.80 | 71 | 17-May | 8.55 | 74 | 10-May | 1.6 | | 14.35 | |
| RAD-LCF21 | Lewis Seed | 5.55 | 59 | 20-May | 7.56 | 76 | 19-May | 1.0 | | 13.12 | |
| Profit | AMPAC | 5.46 | 70 | 17-May | 7.62 | 76 | 10-May | 1.4 | | 13.08 | |
| Tekapo-coated | AMPAC | 5.01 | 73 | 17-May | 7.94 | 81 | 6-May | 1.0 | | 12.95 | |
| Tekapo | AMPAC | 4.72 | 68 | 17-May | 7.12 | 80 | 6-May | 1.3 | | 11.85 | |
| Dividend VL | Allied Seed, L.L.C. | 5.31 | 79 | 24-May | 6.50 | 81 | 21-May | 2.8 | | 11.81 | |
| AMP-1MB | AMPAC | 4.06 | 50 | 17-May | 6.17 | 74 | 6-May | 2.6 | | 10.24 | |
| | LSD(.05) | 0.52 | 5 | | 0.75 | 5 | | 0.5 | | | |
| Orchardgrass | | | | | | | | | | | |
| Sown May 11, 2010 | | | | | | | | | | | |
| Dg12R01 | Barenbrug | 7.10 | 80 | 20-May | | | | | | | |
| Anksta | Allied Seed, L.L.C. | 6.90 | 81 | 13-May | | | | | | | |
| Dg83R01 | Barenbrug | 6.90 | 76 | 27-May | | | | | | | |
| IS-OG 53 | DLF Trifolium | 6.76 | 78 | 20-May | | | | | | | |
| Persist | Smith Seeds | 6.59 | 81 | 17-May | | | | | | | |
| Potomac | check | 6.57 | 74 | 17-May | | | | | | | |
| | LSD(.05) | 0.45 | 9 | | | | | | | | |
| Tall Fescue | | | | | | | | | | | |
| Sown April 25, 2008 | | | | | | | | | | | |
| KY 31- | check | 5.67 | 69 | 20-May | 7.86 | 71 | 19-May | 8.28 | 80 | 24-May | 21.80 |
| KY 31+ | check | 5.62 | 69 | 24-May | 7.61 | 71 | 21-May | 8.18 | 83 | 21-May | 21.41 |
| BAR FA BE9301A | Barenbrug USA | 5.33 | 61 | 24-May | 7.47 | 63 | 21-May | 7.67 | 70 | 21-May | 20.46 |
| Bariane | Barenbrug USA | 5.17 | 65 | 27-May | 6.78 | 69 | 23-May | 7.30 | 80 | 27-May | 19.25 |
| | LSD(.05) | 0.19 | 4 | | 0.46 | 6 | | 0.42 | 4 | | |
| Tall Fescue | | | | | | | | | | | |
| Sown May 6, 2009 | | | | | | | | | | | |
| Goliath | AMPAC | 7.32 | 76 | 22-May | 7.32 | 79 | 17-May | | | 14.64 | |
| Goliath-coated | AMPAC | 7.02 | 79 | 20-May | 7.23 | 79 | 17-May | | | 14.25 | |
| IS-FTF 48 | DLF International Seeds | 7.32 | 73 | 24-May | 7.00 | 71 | 21-May | | | 14.33 | |
| KY 31 E- | check | 7.04 | 75 | 22-May | 7.19 | 78 | 19-May | | | 14.23 | |
| KY 31 E+ | check | 6.78 | 74 | 24-May | 6.99 | 75 | 21-May | | | 13.77 | |
| Bronson | AMPAC | 6.86 | 76 | 20-May | 6.89 | 79 | 17-May | | | 13.75 | |
| Pradel (Meadow Fes.) | check | 5.27 | 65 | 22-May | 5.63 | 73 | 19-May | | | 10.90 | |
| AMP-1MF (Meadow Fes.) | AMPAC | 5.02 | 68 | 20-May | 5.39 | 73 | 19-May | | | 10.41 | |
| | LSD(.05) | 0.53 | 4 | | 0.64 | 4 | | | | | |
| Tall Fescue | | | | | | | | | | | |
| Sown May 11, 2010 | | | | | | | | | | | |
| KY 31 E- | check | 7.66 | 81 | 24-May | | | | | | | |
| KY 31 E+ | check | 7.52 | 78 | 20-May | | | | | | | |
| Cajun II | Smith Seeds | 7.28 | 81 | 24-May | | | | | | | |
| BarElite | Barenbrug | 7.13 | 75 | 24-May | | | | | | | |
| | LSD(.05) | 0.27 | 5 | | | | | | | | |

Leaf Tip
Disease
1=min., 3=max.

PERENNIAL FORAGE GRASS CULTIVAR YIELD TRIAL SUMMARY - NEW YORK - 2011

PERENNIAL FORAGE GRASS CULTIVAR YIELD TRIAL SUMMARY - NEW YORK - 2011

Table 4 (con't): 2011 Perennial Forage Grass Yield Summary

Ithaca, Tompkins Co., Sown 2008, 2009, 2010

T/A = tons per acre dry matter

Marketing contacts listed below

5%LSD = claim statistically significant yield differences between two varieties, the yield difference must be equal to or greater than the LSD.**Heading date** is date when 5 heads in a 3.5 x 16 foot plot were visible.

Trials were harvested four times per year, unless otherwise noted.

Soils: 2008 and 2009 plantings Williamson silt loam, 2010 Erie-Ellery channery silt loam.

| Marketer | 2011 | | | 2010 | | | 2009 | | | 3 or 2-Yr. Total | | |
|--|-------------------------|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------------------|--------|-------|
| | Total Season | Oct. % Stand | Heading Date | Total Season | Oct. % Stand | Heading Date | Total Season | Oct. % Stand | Heading Date | | | |
| Bromegrass | | | | | | | | | | | | |
| Sown April 25, 2008 | | | | | | | | | | | | |
| Peak | Seedway/FSG/Growmark FS | 4.65 | 74 | 20-May | 5.47 | 79 | 19-May | 5.87 | 80 | 16-May | 15.99 | |
| York | AMPAC | 4.85 | 69 | 20-May | 5.01 | 78 | 19-May | 5.93 | 74 | 18-May | 15.79 | |
| GRL | Barenbrug USA | 4.21 | 75 | 20-May | 4.58 | 79 | 19-May | 5.88 | 76 | 18-May | 14.67 | |
| | LSD(.05) | 0.40 | 5 | | 0.59 | 8 | | 0.50 | 8 | | | |
| Bromegrass | | | | | | | | | | | | |
| Sown May 11, 2010 | | | | | | | | | | | | |
| Hakari | Barenbrug | 6.76 | 81 | 2-Jun | | | | | | | | |
| Peak | Seedway/FSG/Growmark FS | 6.67 | 84 | 20-May | | | | | | | | |
| BAR Bif1GRL | Barenbrug | 6.62 | 84 | 20-May | | | | | | | | |
| BAR BcF1FRRL | Barenbrug | 6.14 | 81 | 13-May | | | | | | | | |
| AC Knowles | Barenbrug | 5.61 | 74 | 17-May | | | | | | | | |
| | LSD(.05) | 0.55 | 8 | | | | | | | | | |
| Perennial Ryegrass | | | | | | | | | | | | |
| Sown April 25, 2008 | | | | | | | | | | | | |
| Lato (Kentucky bluegrass) | Seedway/FSG | 4.31 | 76 | 17-May | 5.24 | 76 | 6-May | 2.0 | 6.52 | 79 | 11-May | 16.08 |
| Bardeby (Kentucky bluegr.) | Barenbrug USA | 4.56 | 85 | 12-May | 5.79 | 85 | 6-May | 2.8 | 5.73 | 85 | 7-May | 16.07 |
| Troy (Kentucky bluegrass) | check | 4.34 | 83 | 12-May | 5.48 | 83 | 4-May | 2.8 | 5.98 | 83 | 7-May | 15.80 |
| KenBlue (Kentucky bluegr.) | check | 4.24 | 84 | 12-May | 5.24 | 85 | 4-May | 3.0 | 5.50 | 85 | 7-May | 14.98 |
| Cancan | DLF International Seeds | 4.13 | 60 | 7-Jun | 4.67 | 60 | 3-Jun | 1.6 | 5.59 | 80 | 12-Jun | 14.38 |
| PSG 47 MOL | PICKSEED | 4.00 | 59 | 27-May | 4.61 | 69 | 23-May | 1.4 | 5.73 | 80 | 24-May | 14.35 |
| Calibra | check | 3.78 | 59 | 27-May | 4.42 | 66 | 24-May | 1.5 | 5.85 | 80 | 24-May | 14.04 |
| Foxtrot | DLF International Seeds | 4.04 | 61 | 7-Jun | 4.61 | 69 | 3-Jun | 1.6 | 5.03 | 81 | 2-Jun | 13.68 |
| Pastour | DLF International Seeds | 3.80 | 58 | 2-Jun | 4.73 | 68 | 1-Jun | 1.4 | 4.95 | 81 | 2-Jun | 13.47 |
| PSG AM 108 | PICKSEED | 3.48 | 63 | 24-May | 4.63 | 69 | 21-May | 1.5 | 5.11 | 79 | 24-May | 13.22 |
| Linn | check | 3.40 | 68 | 20-May | 4.48 | 76 | 16-May | 1.9 | 4.96 | 84 | 18-May | 12.85 |
| PSG 06 B Lh | PICKSEED | 3.99 | 51 | 27-May | 4.56 | 68 | 23-May | 1.0 | 4.13 | 80 | 24-May | 12.68 |
| | LSD(.05) | 0.43 | 6 | | 0.49 | 5 | | 0.4 | 0.61 | 5 | | |
| Tetraploid perennial ryegrass PSG 06 B Lh, PSG 47 MOL, PSG AM 108, Calibra; Diploid perennial ryegrass -Cancan, Foxtrot, Pastour, Linn | | | | | | | | | | | | |
| Perennial Ryegrass | | | | | | | | | | | | |
| Sown May 6, 2009 | | | | | | | | | | | | |
| AMP-EDR1 (festulolium) | AMPAC | 5.42 | 59 | 24-May | 7.13 | 69 | 19-May | | | | | 12.54 |
| AMP-MDR2 | AMPAC | 5.24 | 69 | 27-May | 6.78 | 70 | 21-May | | | | | 12.02 |
| Spring Green (festulolium) | check | 5.08 | 66 | 27-May | 6.77 | 74 | 17-May | | | | | 11.85 |
| Duo (festulolium) | AMPAC | 5.04 | 66 | 24-May | 5.99 | 69 | 19-May | | | | | 11.03 |
| Power | AMPAC | 4.52 | 61 | 27-May | 6.29 | 73 | 21-May | | | | | 10.81 |
| Calibra | check | 4.48 | 68 | 27-May | 5.99 | 73 | 24-May | | | | | 10.47 |
| Tonga | AMPAC | 4.48 | 60 | 22-May | 5.95 | 73 | 17-May | | | | | 10.43 |
| Impresario | DLF International Seeds | 4.44 | 63 | 24-May | 5.82 | 73 | 19-May | | | | | 10.27 |
| Linn | check | 4.22 | 70 | 19-May | 5.68 | 81 | 17-May | | | | | 9.90 |
| Orantas | DLF International Seeds | 4.04 | 71 | 27-May | 5.11 | 78 | 23-May | | | | | 9.16 |
| | LSD(.05) | 0.36 | 6 | | 0.43 | 5 | | | | | | |
| Tetraploid perennial ryegrass Power, Impresario, Tonga, AMP MDR2, Calibra; Diploid perennial ryegrass -Orantas, Linn | | | | | | | | | | | | |
| Perennial Ryegrass | | | | | | | | | | | | |
| Sown May 11, 2010 | | | | | | | | | | | | |
| Kentaur | DLF Trifolium | 6.04 | 70 | 31-May | | | | | | | | |
| Elena DS | Allied Seed, L.L.C. | 6.00 | 65 | 27-May | | | | | | | | |
| Verseka | Allied Seed, L.L.C. | 5.73 | 68 | 27-May | | | | | | | | |
| Calibra | check | 5.60 | 71 | 27-May | | | | | | | | |
| Polim | DLF Trifolium | 5.01 | 68 | 2-Jun | | | | | | | | |
| Linn | check | 4.80 | 80 | 20-May | | | | | | | | |
| | LSD(.05) | 0.33 | 6 | | | | | | | | | |
| Tetraploid perennial ryegrass Kentaur, Elena DS, Verseka, Polim, Calibra; Diploid perennial ryegrass -Linn | | | | | | | | | | | | |
| Marketing Company | | | | | | | | | | | | |
| Marketing Company | Phone Number | Web or E-mail Address | | | | | | | | | | |
| AgriCulver | 1-800-836-3701 | | | | | | | | | | | |
| Allied Seed, L.L.C. | 1-208-250-6321 | www.alliedseed.com | | | | | | | | | | |
| AMPAC Seed Company | 1-800-547-3230 | www.ampacseed.com | | | | | | | | | | |
| Barenbrug USA | 1-800-547-4101 | www.barus.com | | | | | | | | | | |
| Burlingham Seeds | 1-503-623-2306 | www.burlinghamseeds.com | | | | | | | | | | |
| DLF International Seeds | 1-541-369-2251 | www.dlfis.com | | | | | | | | | | |
| Grassland Oregon | 1-503-566-9900 | | | | | | | | | | | |
| Growmark FS | 1-800-338-4769 | www.fsseed.com | | | | | | | | | | |
| Land O' Lakes | 1-800-328-9680 | www.landolakesinc.com | | | | | | | | | | |
| Lewis Seed Co. | 1-541-491-3700 | www.lewisseed.com/ | | | | | | | | | | |
| Pennington Seed | 1-800-285-SEED | www.penningtonseed.com | | | | | | | | | | |
| PICKSEED | 1-705-878-9240 | http://www.pickseed.com/ECanada/index.html | | | | | | | | | | |
| ProSeeds Marketing | 1-541-928-9999 | www.proseeds.net | | | | | | | | | | |
| Seed Research of Oregon | 1-800-253-5766 | www.sroseed.com | | | | | | | | | | |
| Seedway/FSG | 1-800-836-3710 | www.seedway.com | | | | | | | | | | |
| Smith Seeds | | www.smithseed.com/contact.shtml | | | | | | | | | | |

PERENNIAL FORAGE GRASS CULTIVAR YIELD TRIAL SUMMARY - NEW YORK - 2011

CORRECTED NDFD 1-18-2012

Perennial Forage Grass Varieties - 2010 Forage Quality, Maturity and Yield at Spring Growth Boot Stage (See Table 5 below)

For the first two production years of each grass trial sown, samples for forage quality analyses were taken from each grass variety. Two samples were taken at boot stage or when seed heads were first visible. The data from these samples can be used to compare forage quality of varieties at approximately the same stage of maturity, however on different days.

Grasses increase in fiber concentration (%NDF) and decrease in fiber digestibility (%NDFd) by advancing calendar date and by increasing temperatures. Harvest grass at boot stage for optimum forage quality. Choose grass varieties first by species based in species agronomic characteristics, then by date of boot stage based on planned date of harvest, then by yield and forage quality (low fiber, high fiber digestibility). Predictions of milk per acre, milk per ton, and relative feed quality were found to be very highly correlated with %NDF and yield, thus are no longer reported.

The samples taken in 2011 will be analyzed and reported on in 2012.

Table 5: Spring Forage Quality Data for Grass Varieties

| Trial Sown 2008 Boot Stage in 2010 | | | | Trial Sown 2009 Boot Stage in 2010 | | | |
|--|-----------------------|----------|-----------|---------------------------------------|-----------------------|----------|-----------|
| | Date at Boot Stage | % NDF | % NDFD | | Date at Boot Stage | % NDF | % NDFD |
| Perennial Ryegrass and Kentucky Bluegrass | | | | Perennial Ryegrass | | | |
| KenBlue(Kentucky bluegr.) | 4-May | 52 | 75 | Tonga | 17-May | 36 | 76 |
| Troy(Kentucky bluegr.) | 4-May | 53 | 73 | Spring Green | 17-May | 41 | 79 |
| Lato(Kentucky bluegr.) | 6-May | 49 | 76 | Linn | 17-May | 43 | 73 |
| Barderby(Kentucky bluegr.) | 6-May | 56 | 69 | Duo | 19-May | 44 | 77 |
| Linn | 16-May | 41 | 75 | AMP-EDR1 | 19-May | 48 | 77 |
| PSG AM 108 | 21-May | 35 | 79 | Impressario | 19-May | 41 | 78 |
| PSG 06 B Lh | 23-May | 45 | 71 | AMP-MDR2 | 21-May | 46 | 78 |
| PSG 47 MOL | 23-May | 44 | 75 | Power | 21-May | 44 | 78 |
| Calibra | 24-May | 40 | 78 | Orantas | 23-May | 46 | 77 |
| Pastour | 1-Jun | 51 | 73 | Calibra | 24-May | 42 | 77 |
| Cancan | 3-Jun | 52 | 74 | | | | |
| Foxtrot | 3-Jun | 53 | 74 | | | | |
| Tall Fescue | | | | Tall and Meadow Fescue | | | |
| KY 31- | 19-May | 47 | 74 | Goliath-coated | 17-May | 51 | 67 |
| KY 31+ | 21-May | 50 | 73 | Goliath | 17-May | 50 | 66 |
| BAR FA BE9301A | 21-May | 50 | 71 | Bronson | 17-May | 51 | 67 |
| Bariane | 23-May | 53 | 72 | AMP-1MF (Meadow Fes.) | 19-May | 53 | 73 |
| | | | | KY 31 E- | 19-May | 53 | 68 |
| | | | | Pradel (Meadow Fes.) | 19-May | 54 | 72 |
| | | | | IS-FTF 48 | 21-May | 55 | 64 |
| | | | | KY 31 E+ | 21-May | 53 | 67 |
| Bromegrass | | | | Orchardgrass | | | |
| GRL | 19-May | 61 | 73 | Potomac | 4-May | 58 | 76 |
| York | 19-May | 58 | 78 | AMP-1MB | 6-May | 56 | 78 |
| Peak | 19-May | 57 | 75 | Tekapo-coated | 6-May | 56 | 76 |
| | | | | Tekapo | 6-May | 54 | 78 |
| | | | | Profit | 10-May | 57 | 74 |
| | | | | Profit-coated | 10-May | 57 | 74 |
| | | | | IS-OG 52 | 10-May | 58 | 76 |
| | | | | RAD-LCF21 | 19-May | 59 | 70 |
| | | | | Dividend VL | 21-May | 53 | 75 |
| | | | | | | | |
| | | | | Timothy | | | |
| | | | | Richmond | 24-May | 59 | 70 |
| | | | | Climax | 1-Jun | 68 | 63 |
| | | | | Tuukka | 3-Jun | 67 | 67 |
| Trial Sown 2009 Boot Stage in 2010 | | | | | | | |
| | Date at Boot Stage | % NDF | % NDFD | | | | |
| Annual Ryegrass | | | | | | | |
| Fantastic | 17-May | 37 | 75 | | | | |
| AMP-1IR | 17-May | 40 | 75 | | | | |
| Bruiser | 17-May | 38 | 74 | | | | |
| Feast II | 21-May | 44 | 76 | | | | |
| A 108 | 21-May | 39 | 76 | | | | |
| MX 108 | 21-May | 44 | 73 | | | | |
| 06 B Lh | 21-May | 46 | 72 | | | | |
| PSG 29 BF 06 | 21-May | 47 | 74 | | | | |

CORRECTED NDFD 1-18-2012

Perennial Forage Grass Varieties - 2010 Forage Quality, Maturity and Yield at Spring Growth at Harvest 1 (See Table 6 below)

Two samples were taken from each variety just prior to first harvest. The data from these samples can be used to compare forage quality of varieties on the same day, but at different stages of maturity. Varieties are sorted from earliest heading date to latest heading date within each trial.

Grass varieties that are harvested prior to boot stage such that the seed heads are not harvested in the first cutting, will have seed head emergence at the second harvest. Varieties with seed heads at second harvest can be expected to have lower forage quality at second harvest compared to a variety that does not have seed head emergence at that harvest. Samples were not taken for analyses at the second harvest.

Table 6: 2010 Spring, First Harvest Forage Quality Data for Grass Varieties

| | Trial Sown 2008 | | | | | | Trial Sown 2009 | | | | |
|--|--------------------------------|-----------|---------------------------------|--|--|-------------------------------|--------------------------------|-----------------------|-----------|---------------------------------|--|
| | First Harvest in 2010 - May 24 | | | % Seed Heads at Harvest 2 | 2010 Aftermath Forage Yield (t/a) | | First Harvest in 2010 - May 25 | | | % Seed Heads at Harvest 2 | 2010 Aftermath Forage Yield (t/a) |
| | Yield (t/a) Harvest 1 | % NDF | % NDFD | | | | Yield (t/a) Harvest 1 | % NDF | % NDFD | | |
| Perennial Ryegrass and Kentucky Bluegrass | | | | | | Perennial Ryegrass | | | | | |
| KenBlue (Kentucky bluegr) | 2.02 | 60 | 63 | 1 | 3.22 | Tonga | 2.82 | 50 | 71 | 9 | 3.12 |
| Troy (Kentucky bluegrass) | 2.23 | 61 | 63 | 1 | 3.26 | Spring Green | 3.20 | 55 | 72 | 73 | 3.57 |
| Lato (Kentucky bluegrass) | 2.16 | 57 | 66 | 1 | 3.08 | Linn | 2.92 | 56 | 68 | 4 | 2.76 |
| Barderbey (Kentucky blueg) | 1.97 | 64 | 64 | 1 | 3.82 | Duo | 2.77 | 50 | 75 | 85 | 3.22 |
| Linn | 2.17 | 48 | 73 | 5 | 2.32 | AMP-EDR1 | 3.27 | 57 | 70 | 85 | 3.85 |
| PSG AM 108 | 1.84 | 42 | 80 | 33 | 2.80 | Impressario | 2.53 | 47 | 75 | 6 | 3.29 |
| PSG 06 B Lh | 2.52 | 47 | 75 | 80 | 2.03 | AMP-MDR2 | 3.13 | 50 | 76 | 73 | 3.65 |
| PSG 47 MOL | 2.15 | 43 | 79 | 70 | 2.46 | Power | 2.49 | 47 | 77 | 6 | 3.80 |
| Calibra | 1.61 | 40 | 78 | 55 | 2.81 | Orantas | 1.77 | 49 | 78 | 8 | 3.34 |
| Pastour | 1.21 | 46 | 83 | 60 | 3.52 | Calibra | 2.50 | 43 | 78 | 5 | 3.48 |
| Cancan | 1.07 | 42 | 83 | 63 | 3.59 | Tall and Meadow Fescue | | | | | |
| Foxtrot | 1.30 | 42 | 82 | 61 | 3.31 | Goliath-coated | 2.21 | 59 | 64 | 1 | 5.01 |
| Tall Fescue | | | | | | Goliath | 2.07 | 58 | 64 | 1 | 5.25 |
| KY 31- | 2.53 | 51 | 70 | 1 | 5.32 | Bronson | 2.13 | 58 | 64 | 1 | 4.75 |
| KY 31+ | 2.24 | 51 | 71 | 1 | 5.37 | AMP-1MF (Meadow Fes.) | 2.26 | 59 | 72 | 1 | 3.13 |
| BAR FA BE9301A | 2.20 | 51 | 70 | 1 | 5.27 | KY 31 E- | 2.09 | 57 | 67 | 1 | 5.10 |
| Bariane | 2.11 | 49 | 72 | 1 | 4.67 | Pradel (Meadow Fes.) | 2.26 | 57 | 74 | 1 | 3.37 |
| Bromegrass | | | | | | IS-FTF 48 | 1.88 | 58 | 64 | 1 | 5.12 |
| Harvest 1 on May 28th | | | | | | KY 31 E+ | 2.04 | 56 | 68 | 1 | 4.95 |
| GRL | 3.05 | 69 | 64 | 1 | 1.54 | Orchardgrass | | | | | |
| York | 3.01 | 67 | 68 | 1 | 2.00 | Harvest 1 on May 28th | | | | | |
| Peak | 3.70 | 68 | 67 | 1 | 1.78 | Potomac | 3.67 | 65 | 67 | 1 | 5.10 |
| Annual Ryegrass | | | | | | AMP-1MB | 3.80 | 67 | 76 | 1 | 2.38 |
| Trial Sown 2009 | | | | | | Tekapo-coated | 3.40 | 63 | 68 | 1 | 4.54 |
| First Harvest in 2010 - May 25 | | | % Seed Heads at Harvest 2 | 2010 Aftermath Forage Yield (t/a) | Trial Sown 2009 | | | | | | |
| Yield (t/a) Harvest 1 | % NDF | % NDFD | | | Yield (t/a) Harvest 1 | % NDF | % NDFD | Harvest 1 on May 28th | | | |
| Fantastic | 2.35 | 53 | 68 | 95 | 2.41 | Tekapo | 2.85 | 64 | 68 | 1 | 4.27 |
| AMP-11R | 3.70 | 52 | 69 | 95 | 4.89 | Profit | 3.49 | 65 | 69 | 1 | 4.13 |
| Bruiser | 2.85 | 54 | 65 | 95 | 2.61 | Profit-coated | 3.94 | 66 | 69 | 1 | 4.61 |
| Feast II | 2.71 | 48 | 73 | 95 | 4.59 | IS-OG 52 | 4.33 | 67 | 69 | 1 | 4.76 |
| A 108 | 2.80 | 44 | 77 | 5 | 2.89 | RAD-LCF21 | 3.28 | 66 | 78 | 1 | 4.28 |
| MX 108 | 3.48 | 51 | 68 | 95 | 4.23 | Dividend VL | 3.09 | 56 | 76 | 1 | 3.41 |
| 06 B Lh | 3.85 | 52 | 71 | 95 | 4.78 | Timothy | | | | | |
| PSG 29 BF 06 | 3.54 | 51 | 71 | 95 | 4.67 | Harvest 1 on May 28th | | | | | |
| | | | | | | Richmond | 4.22 | 59 | 70 | 1 | 2.79 |
| | | | | | | Climax | 3.57 | 59 | 75 | 1 | 2.36 |
| | | | | | | Tuukka | 3.81 | 56 | 77 | 1 | 2.17 |

Table 7: Annual Ryegrass Trials, and Perennial Cool Season Grass Trials Sown in 2011.

| Variety | Marketing Company | 2011 | | | 2010 | | 2 or 3-Yr. Total | Variety | Marketing Company | 2011 | | Stand 22-Nov |
|---------------------------|-------------------------|--------------|----------------|--------------|--------------|-------|------------------|---------|-------------------|-------|--|--------------|
| | | Total Season | % Stand 22-Nov | Heading Date | Total Season | Total | | | | 3-Nov | | |
| Annual Ryegrass | | | | | | | | | | | | |
| Sown May 6, 2009 | | | | | | | | | | | | |
| AMP-11R | AMPAC | 4.84 | 53 | 24-May | 8.59 | 17.98 | | | | | | |
| 06 B Lh | PICKSEED | 4.96 | 55 | 24-May | 8.63 | 17.50 | | | | | | |
| PSG 29 BF 06 | PICKSEED | 5.08 | 48 | 24-May | 8.21 | 17.46 | | | | | | |
| Feast II | AgriCulver / AMPAC | 3.87 | 45 | 27-May | 7.33 | 16.93 | | | | | | |
| Feast II | check | 3.65 | 43 | 27-May | 7.30 | 16.44 | | | | | | |
| MX 108 | PICKSEED | 4.41 | 40 | 27-May | 7.71 | 15.67 | | | | | | |
| Bruiser | AgriCulver / AMPAC | 3.80 | 2 | 22-May | 5.46 | 14.52 | | | | | | |
| Fantastic | AgriCulver / AMPAC | 3.75 | 2 | 19-May | 4.75 | 13.62 | | | | | | |
| A 108 | PICKSEED | 3.48 | 71 | 27-May | 5.69 | 12.40 | | | | | | |
| LSD(.05) | | 0.44 | 10 | | 0.61 | | | | | | | |
| Annual Ryegrass | | | | | | | | | | | | |
| Sown May 11, 2010 | | | | | | | | | | | | |
| Max | PICKSEED | 6.59 | 70 | 27-May | 1.99 | 8.58 | | | | | | |
| Feast II | check | 5.31 | 68 | 27-May | 3.18 | 8.50 | | | | | | |
| PS07-2 AR | PICKSEED | 6.46 | 78 | 24-May | 1.98 | 8.44 | | | | | | |
| PS-Lm-09-2 | PICKSEED | 6.00 | 75 | 24-May | 2.29 | 8.29 | | | | | | |
| AE 110 | PICKSEED | 5.15 | 60 | 20-May | 2.48 | 7.63 | | | | | | |
| Ed (2n) | Smith Seeds | 4.10 | 23 | 20-May | 3.20 | 7.29 | | | | | | |
| Thunder | Burlingham Seeds | 4.09 | 43 | 17-May | 2.76 | 6.85 | | | | | | |
| Big Boss (4n) | Smith Seeds | 3.45 | 18 | 24-May | 3.20 | 6.65 | | | | | | |
| LSD(.05) | | 0.43 | 11 | | 0.46 | | | | | | | |
| Annual Ryegrass | | | | | | | | | | | | |
| Sown May 11, 2011 | | | | | | | | | | | | |
| PPG-LWT104 | Mountain View Seed | 2.57 | 78 | | | | | | | | | |
| Feast II | Check | 2.34 | 83 | | | | | | | | | |
| PPG-LWD101 | Mountain View Seed | 2.26 | 85 | | | | | | | | | |
| PS-Lm-09-2 | PICKSEED USA, Inc | 2.07 | 83 | | | | | | | | | |
| PS-AR-09-1 | PICKSEED USA, Inc | 2.06 | 88 | | | | | | | | | |
| MX 108 | Check | 1.95 | 80 | | | | | | | | | |
| AE 110 | Check | 1.87 | 76 | | | | | | | | | |
| Maximo | PICKSEED USA, Inc | 1.80 | 85 | | | | | | | | | |
| LSD(.05) | | 0.46 | 6 | | | | | | | | | |
| Orchardgrass | | | | | | | | | | | | |
| Sown May 11, 2011 | | | | | | | | | | | | |
| IS-OG 53 | DLF International Seeds | 1.05 | 90 | | | | | | | | | |
| Extend | Seedway | 0.91 | 90 | | | | | | | | | |
| Olympia | Pennington Seed | 0.91 | 90 | | | | | | | | | |
| Potomac | check | 0.84 | 90 | | | | | | | | | |
| LSD(.05) | | 0.13 | | | | | | | | | | |
| Tall Fescue | | | | | | | | | | | | |
| Sown May 11, 2011 | | | | | | | | | | | | |
| Tower 647 | DLF International Seeds | 1.35 | 90 | | | | | | | | | |
| KY 31 E- | check | 1.14 | 90 | | | | | | | | | |
| KY 31 E+ | check | 1.02 | 90 | | | | | | | | | |
| Enhance | Seedway | 0.90 | 91 | | | | | | | | | |
| LSD(.05) | | 0.14 | | | | | | | | | | |
| Bromegrass | | | | | | | | | | | | |
| Sown May 11, 2011 | | | | | | | | | | | | |
| Barpal 16 | Barenbrug | 1.21 | 90 | | | | | | | | | |
| Hakari | Barenbrug | 0.78 | 91 | | | | | | | | | |
| Peak | Seedway/ FSG | 0.48 | 83 | | | | | | | | | |
| LSD(.05) | | 0.16 | 3 | | | | | | | | | |
| Perennial Ryegrass | | | | | | | | | | | | |
| Sown May 11, 2011 | | | | | | | | | | | | |
| Gain | Seedway | 1.27 | 85 | | | | | | | | | |
| Spring Green | check | 0.54 | 90 | | | | | | | | | |
| Tivoli | DLF International Seeds | 0.53 | 90 | | | | | | | | | |
| PPG-FPRT103 | Mountain View Seed | 0.52 | 90 | | | | | | | | | |
| PPG-LHT103 | Mountain View Seed | 0.50 | 90 | | | | | | | | | |
| Boost | Seedway | 0.42 | 89 | | | | | | | | | |
| Linn | check | 0.39 | 93 | | | | | | | | | |
| LSD(.05) | | 0.15 | 3 | | | | | | | | | |
| Timothy | | | | | | | | | | | | |
| Sown May 11, 2011 | | | | | | | | | | | | |
| Climax | check | Not | 90 | | | | | | | | | |
| Richmond | check | Available | 88 | | | | | | | | | |
| Crest | Seedway / FSG | | 93 | | | | | | | | | |
| Summit | Seedway / FSG | | 90 | | | | | | | | | |
| LSD(.05) | | | 5 | | | | | | | | | |

2011 Weather Data for Ithaca New York and for New York State

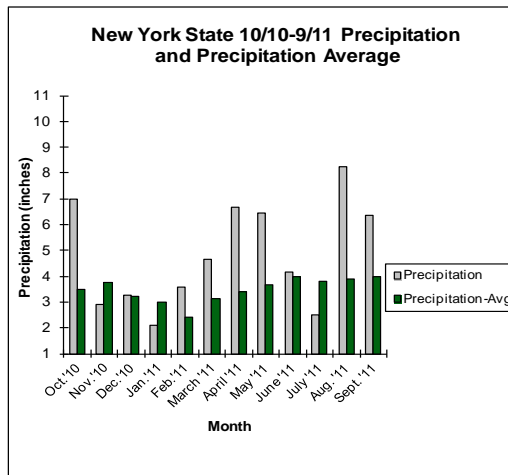
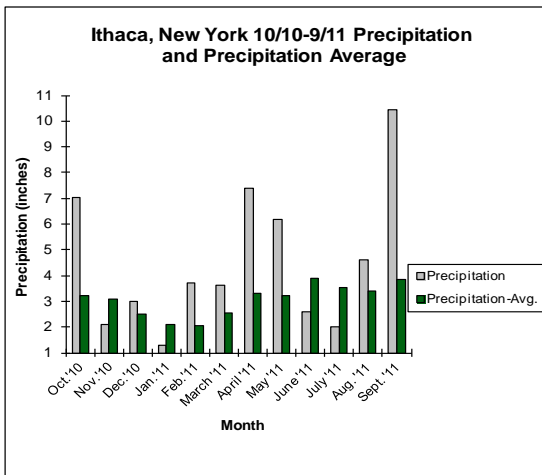
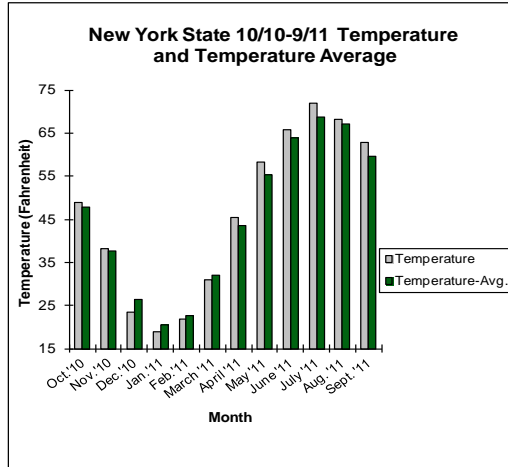
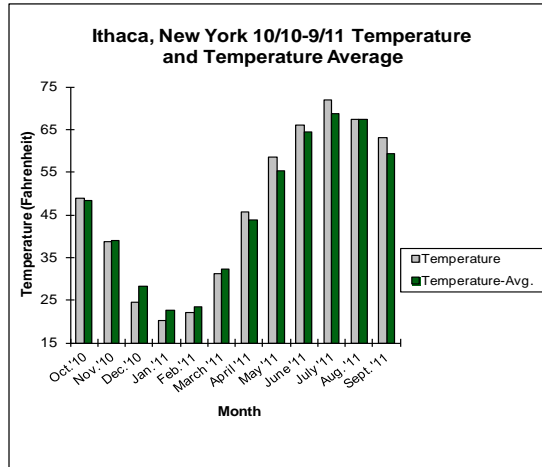


Figure 1: Ithaca, New York 10/10-9/11 temperature and precipitation. Weather data from the Northeast Regional Climate Center at Cornell U. www.nrcc.cornell.edu/page_summaries.html

Figure 2: New York State 10/10-9/11 temperature and precipitation. Weather data from the Northeast Regional Climate Center at Cornell U. www.nrcc.cornell.edu/page_summaries.html

Table 8: Index of Forage Varieties in 2011 Summary Report and Page Number where information is located.

| Alfalfa | Pg. No. | Alfalfa | Pg. No. | Tall Fescue | Pg. No. |
|----------------------|---------|--------------------------|----------------|-----------------------------|------------|
| 6417 | 3,6 | Persist II | 3,4,6 | AMP-1MF (Meadow Fes.) | 8,10,11 |
| 375HY/BR* | 5 | PGI 215 | 4,5,6 | BAR FA BE9301A | 8,10,11 |
| 4010BR* | 5 | PGI 557 | 3,4,5,6 | BarElite | 8 |
| 4030* | 3,5,6 | PHIRST EXTRA | 3,4,5,6 | Bariane | 8,10,11 |
| 4A415 | 3,5,6 | PILLAR | 3,5,6 | Bronson | 8,10,11 |
| 4S417 | 3,4,5,6 | PLUS II | 3,5,6 | Cajun II | 8 |
| 5312 | 3,4,5,6 | POUNCE | 4,5,6 | Enhance | 12 |
| 53H92 | 5,6 | PROFUSION-HX | 5,6 | Goliath | 8,10,11 |
| 54Q32 | 4,6 | PROLIFIC II | 3,4,6 | Goliath-coated | 8,10,11 |
| 55H94 | 5,6 | RADIANCE HD | 6 | IS-FTF 48 | 8,10,11 |
| 55V12 | 4,6 | REBOUND 5.0 | 3,4,6 | KY 31- | 8,10,11,12 |
| 55V48 | 3,4,5,6 | Rebound 6.0 | 4,6 | KY 31 E+ | 8,10,11,12 |
| 55V50 | 4,6 | RED FALCON BR | 5,6 | Pradel (Meadow Fes.) | 8,10,11 |
| 6305Q | 3,5,6 | REGEN | 3,4,5,6 | Tower 647 | 12 |
| 6422Q | 4,6 | RENEW* | 4 | | |
| 6475H | 5,6 | RUGGED | 5,6 | Bromegrass | |
| A 4330* | 3,6 | SEEDWAY 9558 | 3,6 | AC Knowles | 9 |
| A 4440* | 3,6 | SENECA | 4 | BAR BcF1FRRL | 9 |
| AMERISTAND 403T PLUS | 4,6 | SONIC | 4,6 | BAR BiF1GRL | 9 |
| AMERISTAND 407TQ | 3,4,6 | TJA 901* | 4 | Barpal 16 | 12 |
| ARCHER III | 4,6 | TJA 902* | 4 | GRL | 9,10,11 |
| BARALFA X42 | 3,5,6 | TJA 903* | 4 | Hakari | 9,12 |
| CORNERSTONE | 3,5,6 | TJA 904* | 4 | Peak | 9,10,11,12 |
| CW 053015* | 5 | VERNAL | 3,4,5,6 | York | 9,10,11 |
| CW 0550055 | 4 | WL 343HQ | 3,4,5,6 | | |
| DG 3210 | 5,6 | WL 353LH | 5,6 | Perennial Ryegrass | |
| DG 4210 | 3,4,5,6 | WL 354HQ | 4,6 | AMP-EDR1 | 9,10,11 |
| DKA43-13 | 3,4,5,6 | WL 363HQ | 3,4,5,6 | AMP-MDR2 | 9,10,11 |
| DS704-M | 4 | | | Barderby (Kentucky bluegr.) | 9,10,11 |
| DS911-M* | 4 | Red Clover | Pg. No. | Boost | 12 |
| DSA01-T | 4 | Arlington | 7 | Calibra | 9,10,11 |
| DSA01-T* | 5 | C328 | 7 | Cancan | 9,10,11 |
| DSA02-T* | 5 | Cinnamon Plus | 7 | Duo | 9,10,11 |
| DSA03-T* | 5 | CW 30091 | 7 | Elena DS | 9 |
| DSA04-M* | 5 | CW202 | 7 | Foxtrot | 9,10,11 |
| DSA05-BR* | 5 | Emerald | 7 | Gain | 12 |
| DSA06-BR* | 5 | FP 345 | 7 | Impressario | 9,10,11 |
| DSA07-BR* | 5 | Freedom!MR | 7 | KenBlue (Kentucky bluegr.) | 9,10,11 |
| DSA08-M* | 5 | LS 9703 | 7 | Kentaur | 9 |
| DSA09-L* | 5 | Marathon | 7 | Lato (Kentucky bluegrass) | 9,10,11 |
| DSB01-T | 4 | RC0005 | 7 | Linn | 9,10,11,12 |
| DSB02-T | 4 | RC0006 (expt) | 7 | Orantas | 9,10,11 |
| DSB03-T | 4 | StarFire II | 7 | Pastour | 9,10,11 |
| DSB04-BR | 4 | | | Polim | 9 |
| DSB05-BR | 4 | Birdsfoot Trefoil | | Power | 9,10,11 |
| DSB06-BR | 4 | AC Langile | 7 | PPG-FPRT103 | 12 |
| DSB07-L | 4 | Bruce | 7 | PPG-LHT103 | 12 |
| DSB09-M | 4 | Norcen | 7 | PSG 06 B Lh | 9,10,11 |
| ESCALADE | 3,6 | Pardee | 7 | PSG 47 MOL | 9,10,11 |
| EZRA | 3,4,5,6 | WITT | 7 | PSG AM 108 | 9,10,11 |
| FG 45A119 | 4 | | | Spring Green | 9,10,11,12 |
| FSG 329 | 3,4,6 | Timothy | | Tivoli | 12 |
| FSG 408 DP | 4,6 | Climax | 8,10,11,12 | Tonga | 9,10,11 |
| FSG 420 LH | 4,5,6 | Crest | 12 | Troy (Kentucky bluegrass) | 9,10,11 |
| GENOA | 3,6 | Dainiai | 8 | Verseka | 9 |
| GUARDSMAN II | 3,4,5,6 | Richmond | 8,10,11,12 | | |
| Gunner | 4,6 | Summit | 12 | Annual Ryegrass | |
| HYBRIFORCE-2400 | 3,4,5,6 | Tuukka | 8,10,11 | 06 B Lh | 10,11,12 |
| HYBRIFORCE-2420/WET | 3,4,6 | | | A 108 | 10,11,12 |
| KF401B | 4,6 | Orchardgrass | | AE 110 | 12 |
| L 333 HD | 3,4,6 | AMP-1MB | 8,10,11 | AMP-1IR | 10,11,12 |
| L 447 HD | 3,6 | Anksta | 8 | Big Boss (4n) | 12 |
| LANCER | 5,6 | Dg12R01 | 8 | Bruiser | 10,11,12 |
| LEGENDAIRY 5.0 | 3,4,6 | Dg83R01 | 8 | Ed (2n) | 12 |
| LS 605 | 3,4 | Dividend VL | 8,10,11 | Fantastic | 10,11,12 |
| MAGNUM 7* | 4,6 | Extend | 12 | Feast II | 10,11,12 |
| MARVEL | 3,6 | IS-OG 52 | 8,10,11 | Max | 12 |
| MILESTONE II* | 3,6 | IS-OG 53 | 8,12 | Maximo | 12 |
| msSunstra-803 | 4 | Olympia | 12 | MX 108 | 10,11,12 |
| MSSUNSTRA-901* | 4 | Persist | 8 | PPG-LWD101 | 12 |
| MSSUNSTRA-903* | 4 | Potomac | 8,10,11,12 | PPG-LWT104 | 12 |
| MSSUNSTRA-A10* | 5 | Profit | 8,10,11 | PS07-2 AR | 12 |
| msSunstra-B12 | 4 | Profit-coated | 8,10,11 | PS-AR-09-1 | 12 |
| N-R-GEE | 3,4,5,6 | RAD-LCF21 | 8,10,11 | PSG 29 BF 06 | 10,11,12 |
| NSF-7011ML | 4,6 | Tekapo | 8,10,11 | PS-Lm-09-2 | 12 |
| ONEIDA VR | 3,4,5,6 | Tekapo-coated | 8,10,11 | Thunder | 12 |