

# NEW YORK FORAGE LEGUME AND GRASS VARIETY YIELD TRIALS SUMMARY FOR 2018 – SEASON TOTALS

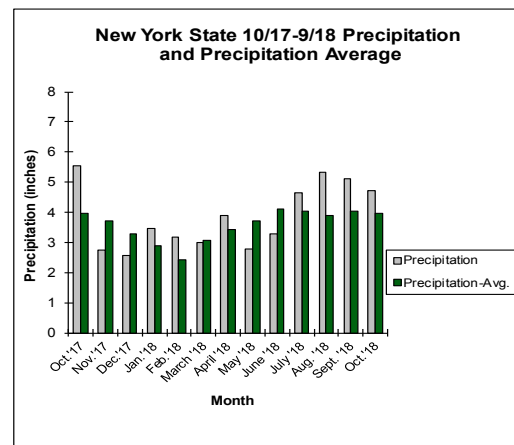
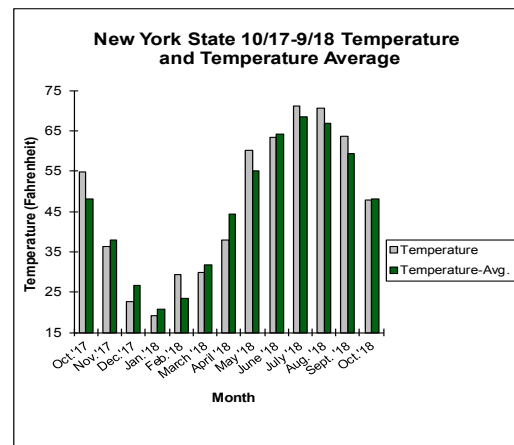


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<http://plbrgen.cals.cornell.edu/research-extension/forage-project/ny-forage-yield-results>. Photo: First Production Year Alfalfa Trial at Cornell Agricultural Experiment Station near Ithaca NY.

**Introduction** Forage variety total season yields from New York in the 2018 growing season are in this report. Forage yield trials are planted and harvested annually at the Cornell University Agricultural Experiment Station in Ithaca and at other locations in New York State. Funding for these trials is provided by the companies that submitted the varieties/cultivars in the trials, from Cornell University Agricultural Experiment Station, and from Northern New York Agricultural Development Program. Trials of perennial forages are managed for four years; seeding year and three production years. Alfalfa yields for 2018 averaged 6.3 tons per acre dry matter (0.6 tons more than in 2017), red clover yields averaged 5.1 tons per acre dry matter (0.7 tons per acre more than in 2017), and perennial forage grass yields averaged 5.8 tons per acre dry matter (1.2 tons per acre less than in 2017).

**Cultivar/Variety Selection**

Plant breeders continue to develop new and improved varieties with better agronomic characteristics such as yield, disease and insect resistance, forage quality, etc. Seed cost of improved varieties can be higher than for other varieties, 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 varieties. Variety performance should be critically evaluated by comparing yield with other varieties in two or more trials that are in the second or later year of production.



New York State 10/17 to 9/18 temperature and precipitation. Weather data from the Northeast Regional Climate Center at Cornell U. <http://www.nrcc.cornell.edu/regional/tables/tables.html>.

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**Weather and the 2017-2018 Season.** October 2017 and February 2018 had temperatures and precipitation that were above normal (average +6.4 degrees F and 136% of normal precipitation). November, December and January were colder than normal (average -2.4 degrees F) and had 90% of normal precipitation. After a cold March and April, May was above normal in temperature and below normal in precipitation. Starting in July and continuing through October, each month had above normal temperature and precipitation.

**Alfalfa (Tables 1 and 2, pages 3-7)** varieties for New York usually need 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. Varieties with higher fall dormancy ratings will produce more forage in the fall. Varieties that have fall dormancy ratings higher than 4 may have unacceptable winter-hardiness for New York, particularly in Northern New York.

In 2018, an alfalfa trial was planted at Cobleskill in Eastern NY, and alfalfa and other forage trials were planted at Ithaca in Southern Tier NY. These trials established very well and have excellent stands for harvest from 2019 to 2021. All of the production year alfalfa trials were harvested three times between early June and mid-September. Late harvest dates this year were due to extremely rainy weather and poor drying conditions. Also, the alfalfa trials lodged in late spring, thus prior to first harvest, the rows between plots had to be hand-separated, adding significant time to complete first harvest.

Round-up Ready alfalfa varieties are tested for yield in separate trials at Ithaca and in one trial at Cobleskill (page 5). A limited number of potato leafhopper (PLH) resistant alfalfa varieties are tested in trials that are not sprayed with insecticide (page 6).

**Red Clover and Birdsfoot Trefoil (Table 3, page 8)** 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 is a legume that tolerates soils that alfalfa will not be productive on. Birdsfoot trefoil should always be

planted in combination with other forages. Also, birdsfoot trefoil does not tolerate low cutting heights, so it is advisable to leave 5+ inches of stubble in the field. Birdsfoot trefoil variety trials were not harvested in 2018.

**Grass yield (Tables 4, 5, and 6, pages 9-13)** trials were fertilized with 315 lb/A ammonium sulfate in early April and after first and second harvests. Forage grass trials were harvested four times between May 24<sup>th</sup> and November 11<sup>th</sup>. In 2018, rain events were frequent, and grass growth was lush and difficult to harvest. Grass yields by species for production year trials harvested 2018 are listed in summary **Table 4, pages 9-10**.

Also listed is a visual estimate of percent stand and heading date. Heading date is the calendar date when about 5 + seed heads at the boot stage were visible for each variety in one trial replicate. Use percent stand, heading date, and yield to select grass varieties that fit your forage program.

Grass forage quality estimates from 2017 for the trials planted in 2015 and 2016 are presented in **Tables 5 and 6, pages 11-12**. Grass forage quality samples are taken at the first growth only (May/June), not at the other two or three harvests. When grass plants produce seed heads, the seed head stems lower forage quality. Samples from each variety are taken on two days – replicate samples at harvest time and replicate samples at heading date. Forage quality estimates from 2018 for trials planted in 2016 and 2017 will be available late winter.

**Table 7** (page 13) is a summary of grasses planted and harvested in 2018, and annual grass trial results. The first growth was cut off in August and then the trials were harvested for yield measurements in October. Sorghum sudangrass trial results are also on page 13.

See [2019 Cornell Guide for Integrated Field Crop Management](http://fieldcrops.cals.cornell.edu/) for more detailed management information (<http://fieldcrops.cals.cornell.edu/>).

We express appreciation to all of our cooperators for allowing us to plant and harvest forage plot trials on their farms and to all of the people who work to harvest the trials (names on pg. 13). Also, thanks to the seed companies and forage breeding companies that test their forages in New York.

## ALFALFA CULTIVAR YIELD TRIAL SUMMARY - NEW YORK - 2018

**Table 1: NY Alfalfa Cultivar Yield Trial Results - 2018 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. Check cultivars are planted in every alfalfa trial except for Roundup Ready Trials. Checks are Pioneer 5312, Oneida VR, Vernal.

Cultivars (listed alphabetically)	Summary of Conventional Alfalfa Cultivar Performance 2016 - 2018 Yielded in the		
	Top 50% in the Trial(s)* Avg. % of Cks	No. of harvests	Total No. of harvests
54Q14	117	3	6
55Q27	112	28	28
55V50	111	34	34
55VR06	106	7	7
AFX 429	111	3	3
EZRA	107	19	22
FSG 415 BR	111	12	15
FSG 426	112	9	9
HYBRIFORCE-3400	115	9	9
HYBRIFORCE-4400	113	3	3
<b>KINGBIRD</b>	<b>99</b>	<b>6</b>	<b>6</b>
LIGHTNING BOLT	105	6	12
LUKAL	112	3	6
LUZELLE	107	6	6
MAGNUM 8	108	3	3
N-R-GEE	105	7	16
ONEIDA VR	101	6	34
PERSIST III	106	19	28
PLUS III	110	15	28
REBOUND 6XT	108	6	12
<b>RED FALCON</b>	<b>107</b>	<b>6</b>	<b>6</b>
REGEN	109	3	6
<b>ROBIN</b>	<b>102</b>	<b>6</b>	<b>6</b>
Seedway 9558 SBR	109	9	16
SW 315LH	107	6	34
SW3407	116	3	3
SW4107	113	9	9
SW5210	113	9	9
SW5213	108	6	6

\*Cultivars sorted by total yield over all production years.

\*Data from Conventional Alfalfa Trials, not from no-insecticide or Roundup Ready trials.

\*Data from production year trials only, not from trials sown in 2018.

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

Alfalfa Entered as Experimental in Ithaca in 2015			
Cultivar/ Experimental	2018 Total (T/A)	3-Yr Total Season (T/A)	3 Yr % of Cks.
AFXH144108*	7.03	21.05	122
AFX144117*	7.03	20.29	118
HYBRIFORCE-3400-OB1*	7.07	20.25	117
AFX134080*	6.77	20.07	116
AFX143009*	7.00	19.94	116
MAGNUM 8*	6.95	19.93	116
RENEW +*	6.90	19.76	115
HYBRIFORCE-3400-OB2*	6.55	19.73	114
AFX134029*	7.02	19.60	114
AFX134082*	6.63	19.54	113
AFX133032*	6.61	19.04	110
4H400*	6.49	18.65	108

Ithaca, Tompkins County, Sown May 2015			
Cultivars	2018 Total	3-Yr	
		Total Season	% of Cks.
- tons per acre dry matter -			
55V50	7.32	20.53	119
55Q27	6.91	19.85	115
HYBRIFORCE-3400	6.68	19.78	115
FSG 415BR	6.90	19.75	114
FSG 426	6.81	19.25	112
PLUS III	6.96	19.21	111
EZRA	6.74	19.20	111
Seedway 9558 SBR	6.40	18.78	109
DKA41-18RR	6.64	18.64	108
PERSIST III	6.34	18.61	108
N-R-GEE	6.25	18.22	106
55H94	6.18	17.93	104
ONEIDA VR	6.11	17.87	104
VERNAL	5.59	17.08	99
5312	5.72	16.81	97
SW 315LH	5.28	16.78	97
<i>Mean</i>	6.51	18.91	Ck. Mean
<i>5% LSD</i>	0.40	0.97	17.25
<i>CV (%)</i>	4.9	4.1	

Chazy, Clinton County, Sown May 2015			
Cultivars	2018 Total	3-Yr	
		Total Season	% of Cks.
- tons per acre dry matter -			
55Q27	7.07	18.35	116
55V50	6.81	17.47	111
PERSIST III	6.47	17.19	109
55VR06	6.51	16.70	106
EZRA	6.27	16.63	105
N-R-GEE	6.44	16.61	105
PLUS III	6.73	16.57	105
SW 315LH	5.87	16.08	102
5312	6.13	15.96	101
ONEIDA VR	6.25	15.81	100
VERNAL	5.87	15.57	99
Seedway 9558 SBR	5.73	15.18	96
<i>Mean</i>	6.28	16.33	Ck. Mean
<i>5% LSD</i>	0.49	0.97	15.78
<i>CV (%)</i>	6.0	4.6	

Trial, Seeding Year	Soil series, elevation, # of harvests in 2018
Ithaca, 2015, Page 3	Williamson silt loam, 1000 ft., 3 harvests
Chazy, 2015, Page 3	Raynham variant silt loam, 185 ft., 3 harvests
Ithaca, 2016, Page 4	Erie Chippewa channery silt loam, 1054 ft. 3 har.
Cobleskill, 2016, Page 4	Barbour Tioga fine sandy loam, 1170 ft.3 harvests
Ithaca, 2017, Page 4	Bath and Valois, 1047 ft, 3 harvests
Geneva, 2017, Page 4	Honeoye and Lima loam, 486 feet, 3 harvests
Ithaca, 2018	Erie Chippewa channery silt loam, 1054 ft. 3 har.
Cobleskill, 2018	Barbour Tioga fine sandy loam, 1170 ft.2 harvests

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Table 1 (con't): NY Alfalfa Cultivar Yield Trial Results - 2018 Forage Yields

Ithaca, Tompkins County			
Sown May 2016			
Cultivars	2018 Total	2-Yr	
		Total Season	% of Cks.
- tons per acre dry matter -			
SW 315LH	6.32	13.79	107
RED FALCON	6.80	13.77	107
PERSIST III	6.50	13.44	105
55V50	6.69	13.21	103
ROBIN	6.56	13.18	102
55Q27	6.79	13.08	102
ONEIDA VR	6.47	12.98	101
KINGBIRD	6.26	12.76	99
VERNAL	6.17	12.73	99
55H94	6.13	12.62	98
PLUSS III	6.44	12.31	96
REBOUND 6XT	6.57	12.22	95
LIGHTNING BOLT	6.29	12.12	94
DKA41-18RR	6.14	12.01	93
59W205	6.27	11.62	90
<i>Mean</i>	6.49	12.87	<i>Ck. Mean</i>
<i>5% LSD</i>	0.43	0.71	12.86
<i>CV (%)</i>	5.3	4.4	

Cobleskill, Schoharie County			
Sown May 2016			
Cultivars	2018 Total	2-Yr	
		Total Season	% of Cks.
- tons per acre dry matter -			
SW4107	6.64	13.04	114
55Q27	6.57	13.00	114
SW5210	6.52	12.76	112
55V50	6.32	12.74	111
PLUSS III	6.43	12.43	109
SW5213	6.27	12.40	108
REBOUND 6XT	6.27	12.34	108
PERSIST III	6.02	12.05	105
LIGHTNING BOLT	6.03	12.05	105
SW 315LH	5.61	11.86	104
ONEIDA VR	5.85	11.51	101
VERNAL	5.80	11.36	99
<i>Mean</i>	6.23	12.4	<i>Ck. Mean</i>
<i>5% LSD</i>	0.43	0.6	11.44
<i>CV (%)</i>	5.4	3.8	
<b>Cobleskill 2016 Experimentals</b>			
AFX144174*	6.50	13.45	118
AFX144178*	6.10	12.65	111

Ithaca, Tompkins County		
Sown May 2017		
Cultivars	2018 Total	2018 % of Cks.
tons per acre		
54Q14	6.72	117
55V50	6.68	116
SW3407	6.63	116
SW5210	6.53	114
HYBRIFORCE-4400	6.46	113
SW4107	6.43	112
LUKAL	6.42	112
LUZELLE	6.37	111
AFX 429	6.36	111
FSG 415 BR	6.24	109
EZRA	6.14	107
GALAXY	6.13	107
REGEN	6.11	106
ONEIDA VR	6.02	105
430RRLH	5.91	103
SW 315LH	5.65	98
VERNAL	5.46	95
		Ck. Mean
<i>Mean</i>	6.23	5.74
<i>5% LSD</i>	0.27	
<i>CV (%)</i>	3.5	

Geneva, Ontario County		
Sown May 2017		
Cultivars	2018 Total	2018 % of Cks.
tons per acre		
REGEN	6.85	109
55V50	6.83	109
MAGNUM 8	6.78	108
FSG 415 BR	6.77	108
LUZELLE	6.47	103
EZRA	6.46	103
ONEIDA VR	6.39	102
SW 315LH	6.20	99
VERNAL	6.17	98
LUKAL	6.10	97
54Q14	5.94	95
GALAXY	5.66	90
		Ck. Mean
<i>Mean</i>	6.38	6.28
<i>5% LSD</i>	0.71	
<i>CV (%)</i>	8.70	
<b>Ithaca 2017 Experimentals</b>		
CW 104014*	6.00	105
CWA113005*	5.90	103

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Table 1 (con't): NY Alfalfa Cultivar Yield Trial Results - 2018 Forage Yields

Ithaca, Tompkins County (continued from page 4)			
Sown May 2016 Experimental Pop.	2018 Total	2-Yr Total	2-Yr % of Cks.
	- tons per acre -		
msSunstra-143146*	7.12	14.12	110
HYBRIFORCE-3430*	6.77	13.84	108
msSunstra-144108*	6.80	13.76	107
HYBRIFORCE-4400*	6.73	13.49	105
SW5210*	6.91	13.43	104
SW1412Y*	6.65	13.01	101
			Ck Mean
			12.86

Ithaca, Tompkins County (continued from page 4)			
Sown May 2016 Experimental Pop.	2018 Total	2-Yr Total	2-Yr % of Cks.
	- tons per acre -		
SW4209*	6.58	12.85	100
msSunstra-144123*	6.45	12.82	100
msSunstra-144109*	6.34	12.71	99
HS MULTI*	5.82	11.71	91
HF MULTI*	5.86	11.41	89
			Ck Mean
			12.86

### ROUNDUP READY ALFALFA TRIALS; Sown Ithaca NY 2015 to 2018, and Cobleskill 2016

#### Sown May 2015

Released And Experimental Varieties	2018 Total	3-Yr Total
	- tons per acre dry matter -	
55VR06	7.06	20.51
DKA44-16RR	6.50	20.02
DKA41-18RR	6.47	19.57
DKA40-51RR	6.49	19.34
FSG 430 RR LH	6.17	19.08
<i>Mean</i>	6.54	19.70
5% LSD	0.61	1.88
CV (%)	6.90	7.10

#### Sown May 2016

Released And Experimental Varieties	2018 Total	2-Yr Total
	- tons per acre dry matter -	
RR AphaTron 2XT	5.99	11.18
55VR08	6.06	11.06
DKA41-18RR	5.69	10.99
DKA40-51RR	5.79	10.66
DKA44-16RR	5.60	10.44
<i>Mean</i>	5.83	10.87
5% LSD	0.34	0.52
CV (%)	4.3	3.5

#### Sown May 2017

Released And Experimental Varieties	Ithaca 2018 Total
	T/A
55VR08	7.29
6424R	7.03
54HVX42	6.83
FS430RRLH	6.72
DKA41-18RR	6.64
<i>Mean</i>	6.90
5% LSD	0.32
CV (%)	3.5

#### Sown May 2016

Released And Experimental Varieties	Cobleskill 2018 Total	2-Yr Total
	T/A	
55VR08	6.38	12.85
DKA40-51RR	6.17	12.25
DKA41-18RR	5.98	12.11
DKA44-16RR	5.88	11.93
<i>Mean</i>	6.10	12.28
5% LSD	0.45	1.02
CV (%)	5.4	6.1

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Table 1 (con't): NY Alfalfa Cultivar Yield Trial Results - 2018 Forage Yields

### 2018 Alfalfa Trials to Test Insect Resistant Cultivars; Trials in Ithaca NY\*

Trials harvested 3 times per production year; 2016 trial on Erie Chippewa channery silt loam; 2015 and 2017 trials on Williamson silt loam;

2018 trial on Langford channery silt loam.

**PLH populations were at low to moderate levels in 2018.**

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

\* Entered as Experimental Population

Oneida VR, 5312, N-R-Gee, and Vernal are alfalfa cultivars susceptible to potato leafhopper.

#### Sown May 2015

Released And Experimental Varieties	2018 Total	3-Yr Total	PLH Damage Score 19-Jul-18
-- tons per acre dry matter --			
55H94	6.96	20.78	1.0
WL 358LH	6.73	20.28	1.2
430RRLH	6.81	20.01	1.0
SIMITAR*	6.30	19.72	1.0
N-R-GEE	6.59	19.49	1.8
ONEIDA VR	6.55	19.44	2.2
SW 315LH	5.96	19.25	1.1
VERNAL	6.30	18.93	2.4
			Damage
<i>Trial Mean</i>	6.39	19.47	Score:
<i>LSD(0.05)</i>	0.49	1.02	1=none
<i>CV(%)</i>	6.0	4.1	5=severe

#### Sown May 2016

Released And Experimental Varieties	2018 Total	2-Yr Total	PLH Damage Score 26-Jul-18
-- tons per acre dry matter --			
SW 315LH	5.58	11.51	1.3
55H94	5.76	11.39	1.2
VERNAL	5.69	11.24	3.7
N-R-GEE	6.06	10.90	2.6
SIMITAR*	5.26	9.69	1.5
			Damage
<i>Mean</i>	5.60	11.11	Score:
<i>LSD(.05)</i>	0.28	0.54	1=none
<i>CV(%)</i>	3.9	3.8	5=severe

#### Sown May 2017

Released And Experimental Varieties	2018 Total t/a	PLH Damage Score 18-Jul-18
55H94	7.21	1.0
SCIMITAR	7.09	1.0
N-R-GEE	6.87	2.0
VERNAL	6.76	2.2
430RRLH	6.65	1.0
SW 315LH	6.62	1.0
		Damage
<i>Mean</i>		Score:
<i>5% LSD</i>		1=none
<i>CV (%)</i>		5=severe

#### Sown May 2018

Released And Experimental Varieties	
421LH	NO
N-R-GEE	HARVESTS
ONEIDA VR	2018
SCIMITAR	
SW 315LH	
VERNAL	

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Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the National Institute of Food and Agriculture (NIFA) or the United States Department of Agriculture(USDA)

## ALFALFA CULTIVAR YIELD TRIAL SUMMARY - NEW YORK - 2018

**Table 2: Alfalfa Cultivar Features**

For more information log on to the Web:

<http://plbrgen.cals.cornell.edu/research-extension/forage-project/ny-forage-yield-results>

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*					PRR	Marketing Co. Phone Number	Web or E-mail Address
			BW	VW	FW	AN	PRR			
LUKAL	Albert Lea							800-352-5247	<a href="http://www.alseed.com">www.alseed.com</a>	
LUZELLE	Albert Lea									
AFX 429	Alforex	4	HR	HR	HR	HR	HR	877-560-5181	<a href="http://www.alforexseeds.com">www.alforexseeds.com</a>	
59W205	BrettYoung	5	R	HR	HR	HR	HR	800-665-5015	<a href="http://www.brettyoung.ca/">www.brettyoung.ca/</a>	
KINGBIRD	Blue River Organic Seed	5	HR	HR	HR	HR	HR	800-370-7979	<a href="http://www.blueriverorgseed.com">www.blueriverorgseed.com</a>	
RED FALCON	Blue River Organic Seed	4	HR	HR	HR	HR	HR			
ROBIN	Blue River Organic Seed	5	HR	HR	HR	HR	HR			
TOUCHSTONE EQ	Chemgro	4	HR	HR	HR	HR	HR	800-346-4769	<a href="http://www.chemgro.com">www.chemgro.com</a>	
RR APHATRON 2XT	CROPLAN	4	HR	HR	HR	HR	HR	651-765-5710	<a href="http://www.croplan.com">www.croplan.com</a>	
REBOUND 6XT	CROPLAN	4	HR	HR	HR	HR	HR			
HYBRIFORCE-3400	Dairyland Seed Co.	4	HR	HR	HR	HR	HR	800-236-0163	<a href="http://www.dairylandseed.com">www.dairylandseed.com</a>	
HYBRIFORCE-3430	Dairyland Seed Co.	4	HR	HR	HR	HR	HR			
HYBRIFORCE-4400	Dairyland Seed Co.	4	HR	HR	HR	HR	HR			
MAGNUM 8	Dairyland Seed Co.	4	HR	HR	HR	HR	HR			
DKA40-51RR	Dekalb	4	HR	HR	HR	HR	HR	800-335-2676	<a href="http://www.monsanto.com">www.monsanto.com</a>	
DKA41-18RR	Dekalb	4	HR	HR	HR	HR	HR			
DKA44-16RR	Dekalb	4	HR	HR	HR	HR	HR			
PERSIST III	Doebler's	4	HR	HR	HR	HR	HR	800-853-2676	<a href="http://www.doeblers.com">www.doeblers.com</a>	
PLUSS III	Doebler's	4	HR	HR	HR	HR	HR			
SCIMITAR	GROWMARK FS	4	HR	HR	HR	HR	HR	800-338-4769	<a href="http://www.fsseed.com">www.fsseed.com</a>	
L 455HD	Legacy Seeds	4	HR	HR	HR	HR	HR	866-791-6390	<a href="http://www.legacyseeds.com">www.legacyseeds.com</a>	
4H400	Mycogen Seeds	4	HR	HR	HR	HR	HR	800-MYCOGEN	<a href="http://www.mycogen.com">www.mycogen.com</a>	
6424R	Nexgrow	4	HR	HR	HR	HR	HR	800-568-5424	<a href="http://www.plantnexgrow.com">www.plantnexgrow.com</a>	
54HVX42	Pioneer Hi-Bred	4	HR	HR	HR	HR	R	800-247-6803	<a href="http://www.pioneer.com">www.pioneer.com</a>	
54Q14	Pioneer Hi-Bred	4	HR	HR	HR	HR	HR			
55H94	Pioneer Hi-Bred	5	HR	HR	HR	HR	HR			
55Q27	Pioneer Hi-Bred	5	HR	HR	HR	HR	HR			
55V50	Pioneer Hi-Bred	5	HR	HR	R	HR	HR			
55VR06	Pioneer Hi-Bred	5	HR	HR	R	HR	HR			
55VR08	Pioneer Hi-Bred	5	R	HR	HR	HR	HR			
GA-409	Preferred Alfalfa Genetics	4	HR	HR	HR	HR	HR	515-733-2203		
LIGHTNING BOLT	Preferred Seed Co.	4	HR	HR	HR	HR	HR	716-895-7333	<a href="http://www.preferredseed.com">www.preferredseed.com</a>	
EZRA	Seedway	3	R	R	HR	HR	R	800-836-3710	<a href="http://www.seedway.com">www.seedway.com</a>	
N-R-GEE	Seedway	4	HR	HR	HR	R	R			
REGEN	Seedway	3	R	HR	HR	HR	R			
Seedway 9558 SBR	Seedway	4	R	R	R	HR	MR			
SW 315LH	Seedway	3	R	HR	MR	HR	R			
FSG 415BR	Seedway	4	HR	HR	HR	HR	HR			
FSG 421LH	Seedway	4	HR	HR	HR	HR	HR			
FSG 426	Seedway	4	HR	HR	HR	HR	HR			
430RRLH	Seedway/ GROWMARK FS	4	HR	HR	HR	HR	HR	800-338-4769	<a href="http://www.fsseed.com">www.fsseed.com</a>	
SW3407	S&W Seed Co.	3	HR	HR	HR	HR	HR	559-884-2535	<a href="http://www.swseedco.com">www.swseedco.com</a>	
SW4107	S&W Seed Co.	4	HR	HR	HR	HR	HR			
SW5210	S&W Seed Co.	5	HR	HR	HR	HR	HR			
WL 358LH	Seedway; Crop Prod. Services; W-L	4	HR	HR	HR	HR	HR	717-917-1609	<a href="http://www.wlresearch.com">www.wlresearch.com</a>	

\*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 Trials- 2018 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.

**RED CLOVER**

Checks are Marathon and Cinnamon Plus

Sown May 2016		2018			2017		2-Yr.	
RED CLOVER		Total	% of	% Stand	Total	% of	Total	% of Cks
Cultivar/Experimental	Marketing Company	Season	Cks.	9/21/2018	Season	Cks.		
		T/A			T/A		T/A	
RC 0702	DLF Pickseed USA Inc.	4.68	116	50	7.04	102	11.72	107
Cinnamon Plus	check/Allied Seed, L.L.C.	4.11	101	34	7.10	103	11.21	102
TP 12	DLF Pickseed USA Inc.	4.04	100	26	7.15	104	11.19	102
Bearcat	Brett Young	4.20	104	46	6.87	100	11.07	101
EVOLVE	DLF Pickseed USA Inc.	4.07	100	40	6.81	99	10.88	99
Marathon	check	3.98	98	38	6.68	97	10.66	97
BAR TP10	Barenbrug	3.99	99	38	6.38	93	10.38	95
Aberclarret	Brett Young	3.56	88	48	6.07	88	9.63	88
			Ck. Mean			Ck. Mean		Ck. Mean
	Trial Mean	4.08	4.05	40	6.76	6.89	10.84	10.94
	5% LSD	0.34		8	0.29		0.40	

Sown May 2017		2018		
RED CLOVER		Total	% of	% Stand
Cultivar/Experimental	Marketing Company	Season	Cks.	21-Sep
		T/A		
Cinnamon Plus	check/Allied Seed, L.L.C.	6.22	101	74
FSG402	Seedway	6.20	100	76
FF9615	La Crosse Seed	6.18	100	80
Marathon	check	6.11	99	78
UNO	Mountain View Seeds	5.71	93	74
			Ck. Mean	
	Trial Mean	6.16	6.17	
	5% LSD	0.39		

Overall means are for 14 trial entries.

Sown May 2018		NO Harvest in 2018
RED CLOVER		
Cultivar/Experimental	Marketing Company	
Freedom!	Barenbrug	
Freedom! MR	Barenbrug	
Blaze	Mountain View Seeds	
Marathon	check	
Cinnamon Plus	check/Allied Seed, L.L.C.	

Marketing Company*	Phone	Web address
Allied Seed, L.L.C.	1-208-250-6321	<a href="http://www.alliedseed.com">www.alliedseed.com</a>
Barenbrug	1-800-547-4101	<a href="http://www.barusa.com">www.barusa.com</a>
Brett Young	1-800-665-5015	<a href="http://www.brettyoung.ca">www.brettyoung.ca</a>
DLF Pickseed USA Inc.	1-800-445-2251	<a href="http://www.dlfis.com/">www.dlfis.com/</a>
Grassland Oregon	1-503-566-9900	<a href="http://www.grasslandoregon.com">www.grasslandoregon.com</a>
LaCrosse Seed	1-800-328-1909	<a href="http://www.lacrosseseed.com">www.lacrosseseed.com</a>
Mountain View Seeds	1-503-588-7333	<a href="http://www.mtviewseeds.com/">www.mtviewseeds.com/</a>
Preferred Seed	1-716-895-7333	<a href="http://www.preferredseed.com">www.preferredseed.com</a>
Pure Seed	1-503-651-2130	<a href="http://www.pureseed.com">www.pureseed.com</a>
Seedway	1-800-836-3710	<a href="http://www.seedway.com">www.seedway.com</a>



**PERENNIAL FORAGE GRASS CULTIVAR YIELD TRIAL SUMMARY - NEW YORK - 2018****Table 4: 2018 Perennial Forage Grass Yield Summary**

Ithaca, Tompkins Co., Sown 2015, 2016, 2017

T/A = tons per acre dry matter

Marketing contacts listed on page 10

5%LSD = claim statistically significant yield differences between two cultivars, 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.

Soils: 2015 plantings Hudson and Collamer silt loams, 2016 plantings Erie-Eilery Channery silt loam, 2017 plantings Langford channery silt loam.

Species/ Cultivar	Marketer	2018		2017			2016		3 or 2-Yr. Total T/A
		Total Season T/A	Heading Date	Total Season T/A	Oct. % Stand	Heading Date	Total Season T/A	Heading Date	
<b>Timothy</b>									
<b>Sown May 1, 2015</b>									
GO-120X	Grassland Oregon	NO	3-Jun	7.24	73	31-May	3.88	2-Jun	10.97
Clair	check	HARVEST IN	3-Jun	7.01	73	28-May	3.94	29-May	10.80
Switch	check	2018	3-Jun	7.00	67	31-May	3.68	31-May	10.50
Climax	check		9-Jun	6.87	67	3-Jun	3.63	2-Jun	10.32
	LSD(.05)			1.34	17		0.23		1.53
<b>Timothy</b>									
<b>Sown May 11, 2016</b>									
Dawn	Hood River Seed	1.67	30-May	8.39	78	26-May			10.07
Summergraze	BrettYoung	1.61	9-Jun	7.59	70	31-May			9.20
Climax	check	1.49	9-Jun	7.51	75	3-Jun			9.01
Varis	Mountain View Seed	1.56	3-Jun	7.10	73	31-May			8.66
	LSD(.05)	0.09		0.39	6				0.40
<b>Timothy</b>									
<b>Sown May 18, 2017</b>									
KY-Early	Smith Seed	5.67	30-May						
Carson	Mountain View Seeds	5.26	3-Jun						
Rakel	Brett Young	4.90	9-Jun						
Climax	check	4.76	8-Jun						
TRYGGVE	Preferred Seed	4.46	9-Jun						
	LSD(.05)	0.27							
<b>Orchardgrass</b>									
<b>Sown May 1, 2015</b>									
Penn Late	check	5.94	16-May	8.57	74	14-May	4.94	16-May	19.46
Orca	DLF Pickseed USA Inc.	6.05	20-May	8.03	79	15-May	5.12	17-May	19.20
Potomac	check	5.88	16-May	8.27	70	12-May	4.99	16-May	19.13
Extend	Seedway	5.84	20-May	8.13	75	14-May	4.93	16-May	18.90
Checkmate	DLF Pickseed USA Inc.	5.57	20-May	7.69	74	17-May	4.89	20-May	18.15
Bounty II	Seedway	5.66	20-May	7.34	83	15-May	4.99	20-May	17.98
BAR DGL 13047	Barenbrug	4.82	23-May	7.36	65	19-May	4.47	20-May	16.65
	LSD(.05)	0.51		0.89	11		0.43		1.54
<b>Orchardgrass</b>									
<b>Sown May 11, 2016</b>									
ENDURANCE	DLF Pickseed USA Inc.	5.73	20-May	8.33	73	14-May			14.06
OLATHE	DLF Pickseed USA Inc.	6.08	20-May	7.90	70	15-May			13.98
Rushmore II	Mountain View Seed	5.77	20-May	7.90	75	14-May			13.67
ECHELON	DLF Pickseed USA Inc.	5.30	26-May	8.17	69	19-May			13.47
INAVAL	DLF Pickseed USA Inc.	5.23	23-May	8.20	70	17-May			13.43
Potomac	check	5.61	17-May	7.71	75	12-May			13.31
Pennlate	check	5.59	17-May	7.39	68	12-May			12.99
OG 62	DLF Pickseed USA Inc.	5.20	20-May	7.72	65	14-May			12.92
Trail Burst	BrettYoung	4.77	20-May	8.12	75	15-May			12.89
BAR DG82R01	Barenbrug	4.63	20-May	7.60	70	17-May			12.24
PPG-OG-114	Smith Seed Services	4.38	28-May	7.64	70	19-May			12.02
Treposno	Hood River Seed	4.68	20-May	7.00	65	17-May			11.68
Lyra	Hood River Seed	4.13	23-May	6.62	65	18-May			10.75
	LSD(.05)	0.52		0.89	7				1.27
<b>Orchardgrass</b>									
<b>Sown May 18, 2017</b>									
Potomac	check	5.87	20-May						
OG 79	DLF Pickseed	5.78	25-May						
Pennlate	check	5.69	20-May						
OG 80	DLF Pickseed	5.68	30-May						
Lukir	Albert Lea Seed	5.26	25-May						
Captur	DLF Pickseed	4.90	25-May						
Lucharm	Albert Lea Seed	4.86	30-May						
<b>Bromegrass</b>									
<b>Sown May 1, 2015</b>									
Newell	USDA-ARS	3.70	24-May	7.34	80	21-May	3.96	25-May	15.01
GO-12SBF	Grassland Oregon	4.14	20-May	7.20	75	19-May	3.29	20-May	14.63
York	AMPAC	4.02	23-May	7.09	70	19-May	3.45	20-May	14.55
Peak	Allied	3.67	23-May	6.57	73	19-May	3.27	20-May	13.51
	LSD(.05)	0.35		0.48	9		0.36		0.79
<b>Bromegrass</b>									
<b>Sown May 11, 2016</b>									
GO12 SBF1	Grassland Oregon			6.74	85	17-May			
Newell	USDA-ARS			6.50	85	21-May			
Arid	Mountain View Seeds			6.29	75	19-May			
Peak	Allied Seed, L.L.C.			6.19	89	19-May			
	LSD(.05)			0.48	9				
<b>Meadow Fescue</b>									
<b>Sown May 1, 2015</b>									
Liherold	check	4.40	23-May	7.02	73	19-May	5.16	20-May	16.57
Pradel	Barenbrug	4.23	25-May	7.10	65	19-May	4.86	25-May	16.18
BAR PPF32	Barenbrug	4.01	28-May	6.95	60	21-May	4.68	25-May	15.65
	LSD(.05)	0.29		0.44	6		0.36		0.92
<b>Meadow Fescue</b>									
<b>Sown May 11, 2016</b>									
Pradel	check	3.78	26-May	7.23	83	21-May			11.01
Raskila	Hood River Seed	3.57	28-May	7.33	80	21-May			10.89
Pardus	Hood River Seed	3.39	26-May	7.24	90	20-May			10.63
	LSD(.05)	0.45		0.29	5				0.64
<b>Meadow Fescue</b>									
<b>Sown May 18, 2017</b>									
BAR FP 16058	Barenbrug	5.33	30-May						
PRADEL	Barenbrug	5.27	27-May						
SW Minto	Albert Lea Seed	5.05	27-May						
Tored	Brett Young	4.91	27-May						
Tetrax	check	4.49	27-May						
	LSD(.05)	0.29							

**PERENNIAL FORAGE GRASS CULTIVAR YIELD TRIAL SUMMARY - NEW YORK - 2018**

**PERENNIAL FORAGE GRASS CULTIVAR YIELD TRIAL SUMMARY - NEW YORK - 2018**

Table 4: 2018 Perennial Forage Grass Yield Summary

Ithaca, Tompkins Co., Sown 2015, 2016, 2017

T/A = tons per acre dry matter

Marketing contacts listed on page 10

5%LSD = claim statistically significant yield differences between two cultivars, 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 three or four times per year.

Soils: 2015 plantings Hudson and Collamer silt loams, 2016 plantings Erie-Ellery Channery silt loam, 2017 plantings Langford channery silt loam.

Marketer	2018		2017			2016		3 or 2-Yr. Total	
	Total Season	Heading Date	Total Season	Nov. % Stand	Heading Date	Total Season	Heading Date		
<b>Tall Fescue</b>									
Sown May 1, 2015									
KY31 +	check	6.72	23-May	9.13	70	19-May	6.00	22-May	21.86
KYFA1103	KY	6.93	23-May	9.01	78	19-May	5.71	20-May	21.65
BAR FA 13131	Barenbrug	6.36	23-May	8.83	75	19-May	5.80	22-May	20.99
KYFA930VAR584C2	KY	6.49	23-May	8.34	65	19-May	5.92	20-May	20.74
KY 31-	check	6.39	23-May	8.64	73	19-May	5.61	20-May	20.64
KYFA9821/AR584C1	KY	6.51	23-May	8.15	64	19-May	5.90	20-May	20.56
Bardoux	Barenbrug	5.93	28-May	8.35	63	21-May	5.76	25-May	20.04
Bardelice	Barenbrug	6.01	30-May	8.06	63	22-May	5.41	27-May	19.48
Bariane	Barenbrug	5.57	30-May	7.94	63	26-May	5.27	29-May	18.78
	LSD(.05)	0.36		0.41	9		0.47		0.97
<b>Tall Fescue</b>									
Sown May 11, 2016									
FTF 73	DLF Pickseed USA Inc.	5.88	28-May	8.61	73	20-May			14.49
KY 31-	Check	6.07	26-May	8.32	75	17-May			14.39
FTF 70	DLF Pickseed USA Inc.	6.33	28-May	7.95	70	20-May			14.29
Payload	Brett Young	6.31	26-May	7.85	75	15-May			14.16
Teton II	Mountain View Seed	6.50	20-May	7.55	75	12-May			14.05
TOWER	DLF Pickseed USA Inc.	5.91	28-May	7.84	68	20-May			13.75
Ontaria	Hood River Seed	5.05	28-May	7.11	68	20-May			12.17
	LSD(.05)	0.33		0.50	7				0.63
<b>Tall Fescue</b>									
Sown May 18, 2017									
HHG32	Healthy Herdd	7.69	25-May						
FTF 89	DLF Pickseed USA Inc.	7.29	25-May						
FTF 84	DLF Pickseed USA Inc.	6.86	25-May						
Dominate	Seedway	6.83	23-May						
Pastoral	Mountain View Seeds	6.80	17-May						
Florine	Albert Lea Seed	6.57	27-May						
PPG-FTF-112	MVS	6.43	27-May						
Softane	DLF Pickseed USA Inc.	6.23	27-May						
Swaj	Brett Young	5.77	30-May						
KY 31+	Check	5.52	27-May						
	LSD(.05)	0.39							
<b>Perennial Ryegrass and Festulolium</b>									
Sown May 1, 2015									
Barvitra	Barenbrug	4.92	23-May	7.12	63	19-May	6.55	25-May	18.59
Remington	Barenbrug	5.40	30-May	6.97	78	31-May	5.42	29-May	17.79
Spring Green (Fest.)	check	5.03	26-May	6.40	63	21-May	5.84	25-May	17.26
PPG-Fest 102 (Fest.)	Mountain View Seeds	4.96	23-May	6.26	58	19-May	5.98	20-May	17.20
LPTNEAROM	Barenbrug	4.69	30-May	6.53	74	31-May	4.54	29-May	15.77
Calibra	check	4.27	26-May	5.94	58	22-May	4.65	27-May	14.86
GO-AXT	Grassland Oregon	4.33	26-May	5.48	70	24-May	4.43	27-May	14.24
Linn	check	4.06	20-May	5.47	73	14-May	4.51	17-May	14.04
	LSD(.05)	0.47		0.53	6		0.55		1.16
<b>Perennial Ryegrass and Festulolium</b>									
Sown May 11, 2016									
<b>Festulolium</b>									
MAHULENA	DLF Pickseed USA Inc.	6.21	20-May	8.05	80	12-May			14.26
FOJTAN	DLF Pickseed USA Inc.	6.12	26-May	7.80	83	17-May			13.92
Spring Green	Check	3.45	28-May	8.11	68	20-May			11.56
PPG-FEST102	Mountain View Seed	3.31	30-May	7.75	68	20-May			11.06
	LSD(.05)	0.5		0.40	7				0.56
<b>Perennial Ryegrass</b>									
BISON 2	DLF Pickseed USA Inc.	4.37	28-May	7.32	65	21-May			11.69
MAXIMO	DLF Pickseed USA Inc.	4.60	26-May	7.02	58	21-May			11.62
Barvitra	Barenbrug	4.19	28-May	7.10	63	20-May			11.28
GARBOR	DLF Pickseed USA Inc.	3.73	30-May	5.90	73	22-May			9.62
BAR LP 15261	Barenbrug	3.56	3-Jun	6.05	81	3-Jun			9.61
DEXTER 1	DLF Pickseed USA Inc.	3.32	30-May	5.56	74	21-May			8.88
Calibra	Check	3.47	3-Jun	5.02	75	22-May			8.49
Melpetra	Hood River Seed	3.33	19-Jun	4.81	71	8-Jun			8.13
Linn	Check	2.94	20-May	4.69	75	15-May			7.63
	LSD(.05)	0.21		0.44	5				0.50
<b>Perennial Ryegrass</b>									
Sown May 18, 2017									
FPF2	DLF Pickseed	6.98	21-May						
Federo	Albert Lea Seed	5.76	27-May						
REMINGTON	Barenbrug	5.35	3-Jun						
RAD-MFP141	Allied Seed, LLC	5.26	30-May						
Spring Green	check	5.23	27-May						
BAR LP 16237	Barenbrug	5.16	3-Jun						
Elena	Seedway	4.92	30-May						
Calibra	Check	4.89	30-May						
Linn	Check	4.71	21-May						
BAR LP 16238	Barenbrug	4.54	27-May						
Tomaso	Albert Lea Seed	4.01	3-Jun						
	LSD(.05)	0.35							
<b>Kentucky Bluegrass</b>									
Sown May 1, 2015									
GO-13NF	Grassland Oregon	5.47	16-May	6.48	83	5-May	4.77	pre-May 13	16.71
Ginger	Allied	5.12	11-May	6.40	90	1-May	5.15	pre-May 13	16.67
GO-13F	Grassland Oregon	4.71	16-May	6.08	88	5-May	4.95	pre-May 13	15.75
	LSD(.05)	0.37		0.29	6		0.21		0.40

**PERENNIAL FORAGE GRASS CULTIVAR YIELD TRIAL SUMMARY - NEW YORK - 2018**

**Perennial Forage Grass Varieties - 2017 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 2018 will be analyzed and reported on in 2019.

**Table 5: Spring Forage Quality Data for Grass Varieties**

	Trial Sown 2015 Boot Stage in 2017				Trial Sown 2016 Boot Stage in 2017		
	Date at Boot Stage	% NDF	% NDFD		Date at Boot Stage	% NDF	% NDFD
<b>Perennial Ryegrass</b>				<b>Perennial Ryegrass</b>			
Linn	14-May	42	75	Linn	15-May	44	76
Barvitra	19-May	46	73	Barvitra	20-May	47	69
PPG-Fest 102	19-May	45	78	BISON 2	21-May	47	72
Spring Green	21-May	47	77	DEXTER 1	21-May	46	74
Calibra	22-May	44	77	MAXIMO	21-May	46	69
GO-AXT	24-May	42	78	Calibra	22-May	50	74
LPTNEAROM	31-May	53	72	GARBOR	22-May	44	76
Remington	31-May	53	73	BAR LP 15261	3-Jun	55	70
<b>Tall Fescue</b>				Melpetra	8-Jun	54	71
BAR FA 13131	19-May	56	70	<b>Festulolium</b>			
KY 31-	19-May	54	68	MAHULENA	12-May	47	68
KY31 +	19-May	52	67	FOJTAN	17-May	51	70
KYFA1103	19-May	55	70	PPG-FEST102	20-May	47	74
KYFA930VAR584C2	19-May	53	73	Spring Green	20-May	48	74
KYFA9821/AR584C1	19-May	53	70	<b>Tall Fescue</b>			
Bardoux	21-May	56	70	Teton II	12-May	47	69
Bardelice	22-May	56	68	Payload	15-May	48	70
Bariane	26-May	57	65	KY 31-	17-May	52	69
<b>Meadow Fescue</b>				FTF 70	20-May	57	66
Liherold	19-May	55	77	FTF 73	20-May	56	68
Pradel	19-May	53	79	Ontaria	20-May	55	69
BAR FPF32	21-May	54	79	TOWER	20-May	58	67
<b>Orchardgrass</b>				<b>Meadow Fescue</b>			
Potomac	12-May	53	74	Pardus	20-May	54	76
Extend	14-May	56	75	Pradel	21-May	52	77
Penn Late	14-May	56	74	Raskila	21-May	46	81
Bounty II	15-May	55	75	<b>Orchardgrass</b>			
Orca	15-May	57	76	Pennlate	12-May	54	75
Checkmate	17-May	57	73	Potomac	12-May	51	76
BAR DGL 13047	19-May	61	74	ENDURANCE	14-May	55	76
<b>Timothy</b>				OG 62	14-May	54	76
Clair	28-May	66	67	Rushmore II	14-May	57	73
GO-120X	31-May	67	66	OLATHE	15-May	54	75
Switch	31-May	65	63	Trail Burst	15-May	56	75
Climax	3-Jun	67	64	BAR DG82R01	17-May	59	73
<b>Bromegrass</b>				INAVALE	17-May	57	76
GO-12SBF	19-May	64	73	Treposno	17-May	60	73
Peak	19-May	60	75	Lyra	18-May	63	72
York	19-May	62	74	ECHELON	19-May	62	74
Newell	21-May	64	74	PPG-OG-114	19-May	62	74
<b>Kentucky Bluegrass</b>				<b>Timothy</b>			
Ginger	1-May	55	76	Dawn	26-May	65	65
GO-13F	5-May	49	76	Climax	31-May	66	66
GO-13NF	5-May	51	78	Summergraze	31-May	67	65
				Varis	3-Jun	70	63
				<b>Bromegrass</b>			
				GO12 SBF1	17-May	59	76
				Arid	19-May	64	69
				Peak	19-May	63	71
				Newell	21-May	65	71

**Perennial Forage Grass Varieties - 2017 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.

Samples from 2018 will analyzed and forage quality reported in 2019.

**Table 6: 2017 Spring, First Harvest Forage Quality Data for Grass Varieties**

	<b>Trial Sown 2015</b>						<b>Trial Sown 2016</b>				
	First Harvest in 2017-June 1			% Seed	2017		First Harvest in 2017-June 1			% Seed	2017
	Yield (t/a)	%	%	Heads at	Aftermath		Yield (t/a)	%	%	Heads at	Aftermath
Harvest 1	NDF	NDFD	Harvest 2	Forage	Harvest 1	NDF	NDFD	Harvest 2	Forage		
				Yield (t/a)					Yield (t/a)		
<b>Perennial Ryegrass</b>						<b>Perennial Ryegrass</b>					
Linn	3.45	60	61	8	2.03	Linn	3.21	61	62	3	1.48
Barvitra	3.87	56	59	90	3.25	Barvitra	4.09	58	61	90	3.01
PPG-Fest 102 (Fest.)	3.46	56	64	90	2.79	BISON 2	4.38	58	64	90	2.94
Spring Green (Fest.)	3.30	58	66	88	3.10	DEXTER 1	3.56	55	67	2	2.00
Calibra	3.42	52	68	9	2.52	MAXIMO	4.24	58	61	90	2.78
GO-AXT	2.88	53	68	8	2.60	Calibra	3.37	52	71	1	1.64
LPTNEAROM	3.37	53	69	78	3.17	GARBOR	3.66	53	71	1	2.23
Remington	3.42	54	68	78	3.55	BAR LP 15261	4.08	57	72	6	1.97
<b>Tall Fescue</b>						Melpetra	2.70	50	76	1	2.10
BAR FA 13131	4.27	61	63	0	4.56	<b>Festulolium</b>					
KY 31-	3.90	60	60	0	4.75	MAHULENA	4.44	62	58	0	3.62
KY31 +	4.16	58	60	0	4.97	FOJTAN	4.43	63	62	0	3.38
KYFA1103	4.29	61	60	0	4.72	PPG-FEST102	5.65	60	67	90	2.10
KYFA930VAR584C2	3.80	61	61	0	4.54	Spring Green	5.73	61	67	90	2.38
KYFA9821/AR584C1	3.77	62	59	0	4.38	<b>Tall Fescue</b>					
Bardoux	3.44	60	64	0	4.91	Teton II	3.88	63	57	0	3.67
Bardelice	3.75	62	61	0	4.32	Payload	4.06	60	58	0	3.80
Bariane	3.62	60	62	0	4.33	KY 31-	4.59	61	58	0	3.73
<b>Orchardgrass</b>						FTF 70	4.36	65	58	0	3.60
Potomac	3.70	69	62	0	4.56	FTF 73	4.85	64	57	0	3.76
Extend	3.59	69	64	0	4.54	Ontaria	3.88	63	58	0	3.23
Penn Late	4.13	69	62	0	4.45	TOWER	4.24	63	57	0	3.61
Bounty II	3.01	71	62	0	4.32	<b>Orchardgrass</b>					
Orca	3.48	71	64	0	4.55	Pennlate	3.77	70	60	0	3.63
Checkmate	3.60	69	63	0	4.09	Potomac	4.01	69	60	0	3.69
BAR DGL 13047	3.33	70	67	0	4.03	ENDURANCE	4.39	70	62	0	3.95
<b>Timothy</b>						OG 62	4.06	69	63	0	3.66
Clair	3.85	66	66	67	3.15	Rushmore II	4.12	71	61	0	3.78
GO-120X	4.14	68	65	50	3.10	OLATHE	3.99	68	63	0	3.91
Switch	3.85	67	61	30	3.15	Trail Burst	4.54	71	61	0	3.59
Climax	3.97	66	65	43	2.90	BAR DG82R01	4.15	72	61	0	3.45
<b>Meadow Fescue</b>						INAVALE	4.36	69	63	0	3.84
Liherold	3.58	67	65	0	3.44	Treposno	3.68	70	61	0	3.33
Pradel	3.54	62	70	0	3.56	Lyra	3.58	71	61	0	3.04
BAR FPF32	3.44	65	69	0	3.51	ECHELON	4.21	68	65	0	3.95
<b>Bromegrass</b>						PPG-OG-114	3.90	69	65	0	3.74
GO-12SBF	4.23	73	59	0	2.96	<b>Timothy</b>					
Peak	3.84	72	59	0	2.73	Dawn	4.55	70	60	90	3.85
York	4.16	69	63	0	2.93	Climax	4.48	68	64	50	3.04
Newell	4.74	71	62	0	2.61	Summergraze	4.37	68	65	25	3.22
<b>Kentucky Bluegrass</b>						Varis	4.14	68	63	33	2.96
Ginger	3.53	64	54	0	2.87	<b>Meadow Fescue</b>					
GO-13F	3.23	67	55	0	2.84	Pardus	4.62	64	66	0	2.62
GO-13NF	3.58	68	56	0	2.90	Pradel	4.22	65	61	0	3.02
						Raskila	4.65	62	66	0	2.68
						<b>Bromegrass</b>					
						GO12 SBF1	4.30	72	61	0	2.45
						Arid	4.28	72	61	0	2.01
						Peak	4.03	74	58	0	2.16
						Newell	4.41	73	62	0	2.09

Table 7: Perennial Cool Season Grass Trials Sown on May 18, 2018.

2018 Perennial Grass Trials, cut off Aug. 9 and harvested Oct. 26.

Variety	Marketing Co.	Yield	Variety	Marketing Co.	Yield
<b>Orchardgrass</b>			<b>Tall Fescue</b>		
Potomac	check	1.44	7FACF82	Barenbrug	1.80
OG 88	DLF Pickseed	1.33	BAR FAF 17135	Barenbrug	1.70
Pennlate	check	1.31	BarElite	Barenbrug	1.69
Bounty II	Allied/Seedway	1.29	BAR FAF 17137	Barenbrug	1.67
Blizzard	Allied/Seedway	1.19	FTF 95	DLF Pickseed	1.64
OG 80	DLF Pickseed	1.19	FTF 96	DLF Pickseed	1.61
Swante	Smith Seed	1.14	KY 31+	check	1.59
	LSD(.05)	0.20	STF50	Smith Seed	1.58
			Bariane	Barenbrug	1.43
				LSD(.05)	0.13
<b>Meadow Fescue</b>			<b>Per. Ryegrass</b>		
BAR FP 17079	Barenbrug	1.26	ROM99	Barenbrug	1.10
Pradel	Barenbrug	1.23	Remington	Barenbrug	1.03
BAR FPF 32	Barenbrug	1.13	BAR LP 17253	Barenbrug	0.87
SW Minto	Albert Lea Seed - che	1.09	Elena	Seedway	0.66
	LSD(.05)	0.27	Calibra	check	0.65
			PST-07S-95 (Tirem)	Pure Seed	0.65
			PST-2TETS	Pure Seed	0.56
			Linn	check	0.51
				LSD(.05)	0.12
<b>Festulolium</b>					
Fojtan	DLF Pickseed	1.52			
FPF 2	DLF Pickseed	1.51			
Hipast	DLF Pickseed	1.36			
Spring Green	check	0.57			
	LSD(.05)	0.11			

Variety	Marketing Company	Yield 2018	Yield 2017
<b>Annual Grasses Sown May 18, 2017</b>			
Meroa	Smith Seed	5.96	4.61
BAR LM16371	Barenbrug	5.53	4.58
BAREXTRA	Barenbrug	5.03	4.94
SIRG-16MA	Smith Seed	5.69	4.17
BAR LM16370	Barenbrug	5.58	5.14
Feast II	check	5.07	5.10
Gulf	check	3.82	5.17
	LSD(.05)	0.29	0.62

Variety	Marketing Company	Yield 2018
<b>Annual Grasses Sown May 18, 2018</b>		
Frostproof	Smith Seed	3.17
Feast II	check	2.73
TRUE	Pure Seed	2.54
KS17-DS	Pacific Bridge Intl Trading	2.29
KS1&-F1RZ	Pacific Bridge Intl Trading	2.25
Meroa	check	2.22
KS17-EX	Pacific Bridge Intl Trading	1.97
	LSD(.05)	0.23

Company - Grasses	Phone	Web address
Advanta Seeds	800-333-9048	<a href="http://www.advantaus.com">www.advantaus.com</a>
Albert Lea Seeds	800-352-5247	<a href="http://www.alseed.com">www.alseed.com</a>
Allied Seed, L.L.C.	208-250-6321	<a href="http://www.alliedseed.com">www.alliedseed.com</a>
AMPAC Seed Co.	541-928-1651	<a href="http://www.ampacseed.com/">www.ampacseed.com/</a>
Barenbrug USA	800-547-4101	<a href="http://www.barusa.com">www.barusa.com</a>
Brett Young	800-665-5015	<a href="http://www.brettyoung.ca">www.brettyoung.ca</a>
DLF Pickseed USA Inc.	800-445-2251	<a href="http://www.dfis.com/">www.dfis.com/</a>
Grassland Oregon	503-566-9900	<a href="http://www.grasslandoregon.com">www.grasslandoregon.com</a>
Healthy Herd Genetics	315-280-0038	
Hood River	855-406-2696	<a href="http://www.hoodriverseed.com">www.hoodriverseed.com</a>
King's AgriSeeds	717-687-6224	<a href="http://www.kingsagriseeds.com">www.kingsagriseeds.com</a>
LaCrosse Seed	800-328-1909	<a href="http://www.lacrosseseed.com">www.lacrosseseed.com</a>
Mountain View Seeds	503-588-7333	<a href="http://www.mviewseeds.com/">www.mviewseeds.com/</a>
Preferred Seed	716-895-7333	<a href="http://www.preferredseed.com">www.preferredseed.com</a>
Pure Seed	503-651-2130	<a href="http://www.pureseed.com">www.pureseed.com</a>
Seedway	800-836-3710	<a href="http://www.seedway.com">www.seedway.com</a>
Semican	866-736-4226	<a href="http://www.semican.ca">www.semican.ca</a>
Smith Seed	888-550-2930	<a href="http://www.smithseed.com">www.smithseed.com</a>

<b>2018 Sorghum Sudangrass</b>			2018
<b>Sown May 18, 2018</b>			<b>Total</b>
Variety	Marketer		<b>Season</b>
KingFisher Sugar-Pro 55 SS	King's AgriSeeds		7.21
GreenGrazer V	Allied Seed - check		6.86
AS9301	Advanta Seeds		5.81
AS9302	Advanta Seeds		5.63
ADV S6504	Advanta Seeds		5.61
Prime 360 Forage Millet	King's AgriSeeds		3.47
Prime 180 Forage Millet	King's AgriSeeds		3.34
		Trial Mean	5.42
		LSD(.05)	1.01
		CV(%)	12.6

**Cornell University Forage Project - 2018 Cooperators and Cornell Student Research Assistants and Seasonal Employees.****Many Thanks to our Summer & Seasonal Employees for help with Trial Harvests and Sampling.**

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Crop	Pages	Crop	Pages	Crop	Pages	Crop	Pages
<b>Alfalfa</b>		<b>Alfalfa</b>		<b>Orchardgrass</b>		<b>Tall Fescue</b>	
5312	3	REBOUND 6XT	3, 4, 7	BAR DG82R01	9, 11, 12	7FACF82	13
421LH	6, 7	<b>RED FALCON</b>	<b>3, 4, 7</b>	BAR DGL 13047	9, 11, 12	BAR FA 13131	10, 11, 12
430RRLH	4, 6, 7	REGEN	3, 4, 7	Blizzard	13	BAR FAF 17135	13
4H400	3, 7	RENEW +*	3	Bounty II	9, 11, 12, 13	BAR FAF 17137	13
54HVX42	5, 7	<b>ROBIN</b>	<b>3, 4, 7</b>	Captur	9	Bardelice	10, 11, 12
54Q14	3, 4, 7	RR APHATRON 2XT	5, 7	Checkmate	9, 11, 12	Bardoux	10, 11, 12
55H94	3, 4, 6, 7	SCIMITAR	6, 7	ECHELON	9, 11, 12	BarElite	13
55Q27	3, 4, 7	Seedway 9558 SBR	3, 7	ENDURANCE	9, 11, 12	Bariane	10, 11, 12, 13
55V50	3, 4, 7	SW 315LH	3, 4, 6, 7	Extend	9, 11, 12	Dominate	10
55VR06	3, 5, 7	SW1412Y*	5	INAVALE	9, 11, 12	Florine	10
55VR08	5, 7	SW3407	3, 4, 7	Lucharm	9	FTF 70	10, 11, 12
59W205	4, 7	SW4107	3, 4, 7	Lukir	9	FTF 73	10, 11, 12
6424R	5, 7	SW4209*	5	Lyra	9, 11, 12	FTF 84	10
AFX 429	3, 4, 7	SW5210	3, 4, 5, 7	OG 62	9, 11, 12	FTF 89	10
AFX133032*	3	SW5213	3, 4	OG 79	9	FTF 95	13
AFX134029*	3	TOUCHSTONE EQ	7	OG 80	9, 13	FTF 96	13
AFX134080*	3	VERNAL	3, 4, 6	OG 88	13	HHG32	10
AFX134082*	3	WL 358LH	6, 7	OLATHE	9, 11, 12	KY 31-	10, 11, 12
AFX143009*	3			Orca	9, 11, 12	KY31 +	10, 11, 12, 13
AFX144117*	3	<b>Red Clover</b>		Pennlate	9, 11, 12, 13	KYFA1103	10, 11, 12
AFXH144108*	3	RC 0702	8	Potomac	9, 11, 12, 13	KYFA930VAR584C2	10, 11, 12
DKA40-51RR	5, 7	Aberclarret	8	PPG-OG-114	9, 11, 12	KYFA9821/AR584C1	10, 11, 12
DKA41-18RR	3, 4, 5, 7	BAR TP10	8	Rushmore II	9, 11, 12	Ontaria	10, 11, 12
DKA44-16RR	5, 7	Bearcat	8	Swante	13	Pastoral	10
EZRA	3, 4, 7	Blaze	8	Trail Burst	9, 11, 12	Payload	10, 11, 12
FS430RRLH	5	Cinnamon Plus	8	Treposno	9, 11, 12	PPG-FTF-112	10
FSG 415 BR	3, 4, 7	EVOLVE	8			Softane	10
FSG 426	3, 7	FF9615	8	<b>Bromegrass</b>		STF50	13
GA-409	7	Freedom!	8	Arid	9, 11, 12	Swaj	10
GALAXY	4	Freedom! MR	8	GO12 SBF1	9, 11, 12	Teton II	10, 11, 12
HF MULTI*	5	FSG402	8	Newell	9, 11, 12	TOWER	10, 11, 12
HS MULTI*	5	Marathon	8	Peak	9, 11, 12		
HYBRIFORCE-3400	3, 7	TP 12	8	York	9, 11, 12	<b>Perennial Ryegrass</b>	
HYBRIFORCE-3400-OB1*	3	UNO	8			BAR LP 15261	10, 11, 12
HYBRIFORCE-3400-OB2*	3			<b>Meadow Fescue</b>		BAR LP 16237	10
HYBRIFORCE-3430	5, 7	<b>Timothy</b>		Liherold	9, 11, 12	BAR LP 16238	10
HYBRIFORCE-4400	3, 4, 5, 7	GO-120X	9, 11, 12	BAR FP 16058	9	BAR LP 17253	13
<b>KINGBIRD</b>	<b>3, 4, 7</b>	Carson	9	BAR FP 17079	13	Barvitra	10, 11, 12
L 455HD	7	Clair	9, 11, 12	BAR PPF32	9, 11, 12, 13	BISON 2	10, 11, 12
LIGHTNING BOLT	3, 4, 7	Climax	9, 11, 12	Pardus	9, 11, 12	Calibra	10, 11, 12, 13
LUKAL	3, 4, 7	Dawn	9, 11, 12	Pradel	9, 11, 12, 13	DEXTER 1	10, 11, 12
LUZELLE	3, 4, 7	KY-Early	9	Raskila	9, 11, 12	Elena	10, 13
MAGNUM 8	3, 4, 7	Rakel	9	SW Minto	9, 13	Federo	10
msSunstra-143146*	5	Summergraze	9, 11, 12	Tetrax	9	FPF2	10
msSunstra-144108*	5	Switch	9, 11, 12	Tored	9	GARBOR	10, 11, 12
msSunstra-144109*	5	TRYGGVE	9			GO-AXT	10, 11, 12
msSunstra-144123*	5	Varis	9, 11, 12	<b>Annual Grasses</b>		Linn	10, 11, 12, 13
N-R-GEE	3, 6, 7			BAR LM16370	13	LPTNEAROM	10, 11, 12
ONEIDA VR	3, 4, 6	<b>Festulolium</b>		BAR LM16371	13	MAXIMO	10, 11, 12
PERSIST III	3, 4, 7	FOJTAN	10, 11, 12, 13	BAREXTRA	13	Melpetra	10, 11, 12
PLUSS III	3, 4, 7	FPF 2	13	Feast II	13	PST-2TETS	13
		Hipast	13	Frostproof	13	RAD-MFP141	10
<b>Sorghum Sudangrass</b>		MAHULENA	10, 11, 12	Gulf	13	Remington	10, 11, 12, 13
ADV S6504	13	PPG-Fest 102	10, 11, 12	KS!&-F1RZ	13	ROM99	13
AS9301	13	Spring Green	10, 11, 12, 13	KS17-DS	13	Tomaso	10
AS9302	13			KS17-EX	13		
GreenGrazer V	13			Meroa	13	<b>Kentucky Bluegrass</b>	
KingFisher Sugar-Pro 55 SS	13			SIRG-16MA	13	GO-13NF	10
Prime 180 Forage Millet	13			TRUE	13	Ginger	10
Prime 360 Forage Millet	13					GO-13F	10
						Tirem	13