WISCONSIN ALFALFA YIELD AND PERSISTENCE (WAYP) PROGRAM
2014 SUMMARY REPORT

Program Objectives:

1. To verify the yield and quality of alfalfa harvested from production fields over the life of the stand beginning with the first production year (year after seeding).
2. To quantify decreases in stand productivity of alfalfa fields as they age.

2014 Overview:

This summary now includes eight years of project data. Once again, UW-Extension agents were asked to identify forage producers who would be willing to weigh and sample forage from a 2013-seeded field and continue to do so for the life of the stand. With so many fields lost to winterkill in 2013, it was important that a number of new fields be added in 2014. A total of 15 fields from 11 different farms were enrolled in the program in 2014; the highest number of new fields in a single year to date. The current summary includes data for the second and third production years from fields entered into the program in 2012 (2011 seedings) through 2014 (2013 seedings). There are no fourth-year stands remaining in the project, though there have been several in previous years. As is always the case in these types of studies, there is some attrition of fields over time. This is either because the farmer decided to terminate the field because of declining productivity or critical yield or forage quality data for a cutting or multiple cuttings could not be obtained. This year there were 4 fields dropped from the project that participated in 2013. Two were terminated because of normal stand decline and two were lost because there was no longer a coordinator to collect data. Production data was collected for 24 fields in 2014 with a total of nearly 6400 dry matter tons of forage harvested, weighed, and sampled. A summary of all project fields (current and past) is presented in Table 1.

2014 Weather

For the second consecutive year the growing season began with cool, wet weather. Both planting and crop development were delayed. Alfalfa harvest finally began the end of May and continued through mid-June. Heavy rains fell at the beginning of June in much of the state. Wet conditions also delayed the second cutting, often causing forage quality to be lower than desired for feeding dairy cows. Growing degree units remained below normal for much of the summer, though fields eventually dried for a timely third and (in some cases) fourth cutting. Many of the northeast Wisconsin project fields had fourth cut harvested in mid-September. Overall, the growing season could be characterized as being cool and wet.

2013 Weather

The growing season began with the realization for many farmers that there was going to be significant alfalfa winter injury and kill, especially on older stands. The spring was extremely cool with persistent rain events. This delayed plant development of existing alfalfa and planting of new seedings. Crop growth lagged behind normal for most of the summer as temperatures struggled to stay near historical averages, but there were plenty of extremes. Daily high temperatures in July ranged from the 60's to the 90's. September provided above average temperatures. In the end, growing degree units were slightly below normal and precipitation was slightly above normal.

2012 Weather

The year was one of the earliest and driest growing seasons on record for much of the state. Extreme drought conditions persisted in the southern half of the state from mid-May through late-July. September was also extremely dry, which impacted fall forage production in many areas. Growing degree units were also well above the 30-year average with a number of days exceeding the 90 degree mark. While some areas in southern Wisconsin suffered with drought, other areas in the north received adequate rainfall and recorded record high crop yields.

2011 Weather

April through June was extremely cool resulting in slow early season alfalfa growth. Growing degree units (GDU's) were below the 30-year normal for the entire growing season, but much of the reason was because of exceptionally cool conditions in May and September. July was above average for GDU's. Precipitation was below average for much of southern Wisconsin, while northern Wisconsin had above average precipitation.

Table 1. Field background information

Field #	1st Production Year	County	Seeding Mo/Yr.	Seeding Rate (lb/ac)	Field Size (ac)	Notes
107	2007	Outagamie	05/06	15	103.7	dropped in 2010
207	2007	Outagamie	04/06	16	79.3	dropped in 2010
307	2007	Outagamie	04/06	16	37.0	no '08 1st-cut data
407	2007	Outagamie	04/06	16	156.7	dropped in 2010
507	2007	St. Croix	08/06	NA	51.0	dropped in 2010
607	2007	Waupaca	04/06	15	24.1	dropped in 2008
707	2007	Fond du Lac	04/06	17	15.7	dropped in 2008
807	2007	Fond du Lac	04/06	17	39.7	dropped in 2011
108	2008	Chippewa	04/07	15	18.8	dropped in 2010
208	2008	Marathon	04/07	15	5.2	dropped in 2012
308	2008	Winnebago	05/07	15	115	dropped in 2012
408	2008	Winnebago	08/07	15	36.0	dropped in 2012
508	2008	Winnebago	05/07	15	22.0	dropped in 2012
608	2008	Outagamie	05/07	20	83.7	dropped in 2012
708	2008	Outagamie	04/07	16	147.8	dropped in 2012
808	2008	Outagamie	04/07	16	53.0	dropped in 2012
908	2008	Outagamie	05/07	15	50.3	dropped in 2012
1008	2008	Outagamie	08/07	15	194.8	dropped in 2009
109	2009	St. Croix	08/08	NA	41	dropped in 2012
209	2009	Winnebago	04/08	15	67	dropped in 2013
309	2009	Winnebago	08/08	15	78	dropped in 2012
409	2009	Brown	08/08	18	75	dropped in 2012
509	2009	Chippewa	04/08	15	16.2	dropped in 2010
609	2009	Calumet	04/08	12	15	dropped in 2012
709	2009	Outagamie	05/08	20	74.8	dropped in 2011
809	2009	Outagamie	05/08	20	63	dropped in 2011
110	2010	Outagamie	05/09	16	48	dropped in 2011
210	2010	Outagamie	05/09	16	110.2	dropped in 2013
310	2010	Outagamie	05/09	16	61.7	dropped in 2013
410	2010	Outagamie	05/09	16	111	dropped in 2013
510	2010	Fond du Lac	04/09	17	50.3	dropped in 2013
610	2010	Fond du Lac	04/09	17	19.3	dropped in 2013
111	2011	Fond du Lac	04/10	17	10	dropped in 2014
211	2011	Brown	04/10	17	35.7	dropped in 2013
311	2011	Outagamie	05/10	20/+4 TF	75.8	dropped in 2012
411	2011	Outagamie	05/10	20/+4 TF	72	dropped in 2012
112	2012	St. Croix	08/11	16	73.9	dropped in 2013
212	2012	Kewaunee	05/11	17	73.5	
312	2012	Outagamie	05/11	16	143.6	
412	2012	Outagamie	05/11	16	75	
512	2012	Outagamie	05/11	16	189	
612	2012	Outagamie	05/11	16	45.9	
712	2012	Outagamie	05/11	16	38.7	dropped in 2014
812	2012	Dodge	05/11	16	59.6	dropped in 2014
113	2013	Columbia	08/12	15	44.6	
213	2013	Outagamie	04/12	16	150.7	
313	2013	Outagamie	04/12	16	54	
413	2013	Outagamie	04/12	16	79.3	
513	2013	Brown	08/12	28	156	dropped in 2014
114	2014	Fond du Lac	04/13	19	32.8	
214	2014	Fond du Lac	07/13	17	35.7	
314	2014	Fond du Lac	05/13	15	9.4	
414	2014	Fond du Lac	05/13	18	20.3	
514	2014	Kewaunee	05/13	21	32	
614	2014	Door	05/13	18	60.8	

Table 1. Field background information (**continued**)

Field #	1st Production Year	County	Seeding Mo/Yr.	Seeding Rate (lb/ac)	Field Size (ac)	Notes
714	2014	Columbia	04/13	14	9.4	
814	2014	Pierce	09/13	15	16.3	
914	2014	Marathon	07/13	12	14.2	
1014	2014	Marathon	06/13	15	32.5	
1114	2014	Outagamie	05/13	16	104.3	
1214	2014	Outagamie	05/13	16	156.8	
1314	2014	Outagamie	06/13	16	69	
1414	2014	Outagamie	05/13	20/+3.5 TF	38.9	
1514	2014	Outagamie	06/13	20/+3.5 TF	76.7	

Data Collection:
Project fields were identified and an accurate measure of field size was determined (if not previously known). Forage yield from an entire project field was weighed (usually this was done with an on-farm drive-over scale). Both empty and full weights for all trucks/wagons used were recorded. Beginning in 2008, two forage samples from each harvest were taken and submitted to the Marshfield Soil and Forage Analysis Laboratory (only one sample was submitted per harvest in 2007) for NIR analysis. Data from the two forage samples was averaged and recorded into a spreadsheet by the local coordinator. The data was then shared with the producer following each harvest. At the end of the season, all data was collected and summarized for this report.

Harvest Schedules:
Mean cutting dates by year are presented in Table 2 and cutting dates for all project fields harvested in 2014 are presented in Table 3. Average first-cut date has ranged from May 16 in 2012 to June 10 in 2013. Regardless of first-cut date, the average fourth-cut date is generally close to September 1, though 2012 was much earlier and the most recent two years have been at least a week later. The large majority of fields in this study were cut four times. Across years and sites, 12 fields were cut three times, 115 fields were cut four times (generally prior to or soon after September 1), and 20 fields were cut five times (generally four times before September 1 with a final cut in October).

Table 2. Mean cutting dates by year

Year	1st Cut Date	2nd Cut Date	3rd Cut Date	4th Cut* Date	5th Cut Date
2007	22-May	24-June	25-July	30-Aug	21-Oct
2008	3-Jun	3-Jul	3-Aug	29-Aug	29-Oct
2009	31-May	1-Jul	4-Aug	5-Sep	
2010	22-May	28-Jun	2-Aug	29-Aug	12-Oct
2011	31-May	1-Jul	31-Jul	31-Aug	
2012	16-May	14-Jun	14-Jul	10-Aug	21-Sep**
2013	10-Jun	11-Jul	6-Aug	7-Sep	
2014	4-Jun	9-Jul	7-Aug	13-Sep	

*average excludes data where a 4th-cut was taken in October
** average includes 2 fields with 5th-cuts taken in late-August and 2 taken in early September

The 2014 growing season was marked by late average harvest dates for all cuttings (Table 2). The average third (August 7th) and fourth (September 13) cutting dates were the latest of any project year to date. As might be expected, cutting dates varied among fields in 2014 (Table 3). Only 6 of the 24 fields had a first-cut harvest date before June 1st. The latest first-cut date was June 13th. Fourth cut date spanned from September 1st to 22nd. Many fields in northeast Wisconsin were cut for the last time in mid-September. None of the project fields were cut more than four times, while two of the 24 project fields were cut three times in 2014 (Table 3).

Table 3. Summary of 2014 Cutting Dates

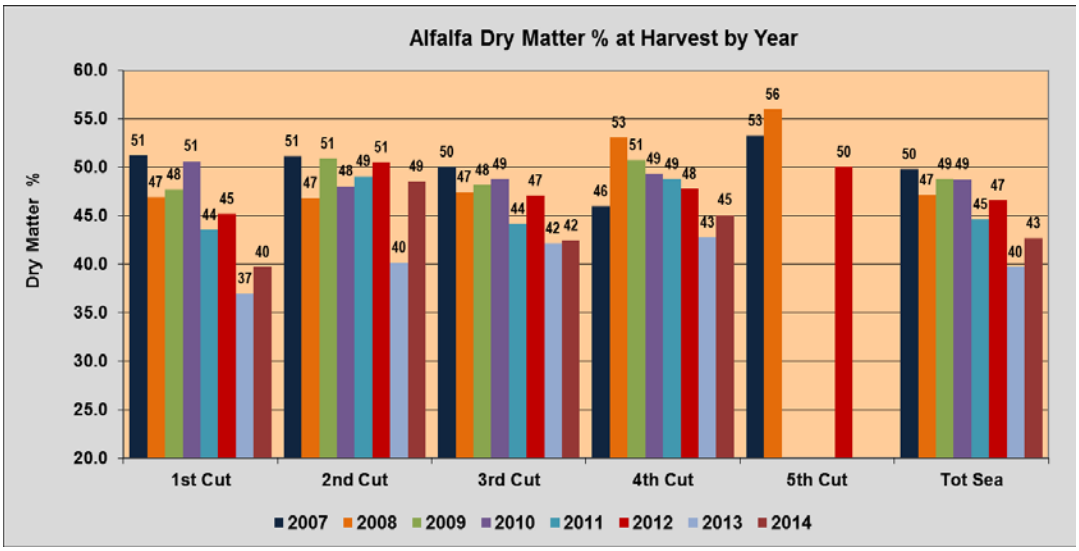
Field ID#	County	1st Cut Date	2nd Cut Date	3rd Cut Date	4th Cut Date	5th Cut Date
212	Kewaunee	1-Jun	3-Jul	29-Jul	5-Sep	
312	Outagamie	6-Jun	9-Jul	6-Aug	18-Sep	
412	Outagamie	6-Jun	9-Jul	7-Aug	18-Sep	
512	Outagamie	6-Jun	8-Jul	6-Aug	17-Sep	
612	Outagamie	6-Jun	8-Jul	6-Aug	17-Sep	
113	Columbia	28-May	7-Jul	6-Aug	8-Sep	
213	Outagamie	6-Jun	8-Jul	6-Aug	17-Sep	
313	Outagamie	7-Jun	8-Jul	6-Aug	18-Sep	
413	Outagamie	6-Jun	9-Jul	6-Aug	18-Sep	
114	Fond du Lac	27-May	3-Jul	31-Jul	5-Sep	
214	Fond du Lac	28-May	10-Jul	7-Aug	4-Sep	
314	Fond du Lac	5-Jun	9-Jul	6-Aug	6-Sep	
414	Fond du Lac	29-May	9-Jul	4-Aug	1-Sep	
514	Kewaunee	8-Jun	16-Jul	14-Aug	22-Sep	
614	Door	5-Jun	2-Jul	11-Aug	20-Sep	
714	Columbia	10-Jun	9-Jul	7-Aug	8-Sep	
814	Pierce	30-May	8-Jul	29-Jul	6-Sep	
914	Marathon	13-Jun	21-Jul	26-Aug		
1014	Marathon	10-Jun	15-Jul	26-Aug		
1114	Outagamie	7-Jun	9-Jul	7-Aug	18-Sep	
1214	Outagamie	7-Jun	9-Jul	6-Aug	18-Sep	
1314	Outagamie	7-Jun	8-Jul	6-Aug	17-Sep	
1414	Outagamie	30-May	11-Jul	8-Aug	18-Sep	
1514	Outagamie	12-Jun	10-Jul	8-Aug	18-Sep	
MEAN		**4-Jun**	**9-Jul**	**7-Aug**	**13-Sep**	
EARLIEST		**27-May**	**2-Jul**	**29-Jul**	**1-Sep**	
LATEST		**13-Jun**	**21-Jul**	**26-Aug**	**22-Sep**	

Forage Dry Matter at Harvest:
Alfalfa was harvested as haylage for all but 14 individual cuttings over the eight years. Harvest dry matter data from the dry hay harvests was not included in the forage dry matter data means. Although project participants are not asked about storage structure, there is good reason to believe most of the farms are storing this forage in bunker or pile silos.

Throughout the duration of this project dry matter percentage of harvested forage has ranged from 40 to 50 percent (Figure 1); though individual cuttings and total-season field means sometimes exceeded 50 percent. It's been questioned if this is too dry for obtaining optimum storage porosity in a bunker or pile. The trend has been toward lower dry matter percentages in recent years. For 2014 the average dry matter across all cuttings was 43 percent; however, there were two fields where the total-season dry matter exceeded 50 percent. It's unclear if this was purposeful or if it is simply attributable to environmental conditions. Nine fields finished the season with total-season dry matter means of under 40 percent.

Forage Dry Matter Yield:
Average yield by cutting and for the season in each project year are presented in Figure 2. The highest average dry matter yield per acre of 5.0 tons was in 2007 and 2010. A record low total-season dry matter yield average was set in 2013 at 3.7 tons per acre.

In 2014 the average yield across all fields was 4.4 tons per acre. The only record set in 2014 was a tie for the highest average fourth-cut yield at 0.9 tons per acre. Detailed yield data for each field by year are presented in Appendix A. Once again there was extreme variation between fields in 2014. Yields ranged from a high of 6.3 to a low of 3.1 tons per acre. Three fields exceeded 6.0 tons per acre—the highest number of fields to reach this level in a single year since the project's inception. In contrast, there were 11 fields that did not reach 4.0 tons per acre (Figure 3 and Appendix A).



Total Season Range for individual fields:

2007 (n=8):
41.6% - 54.2% DM
2008 (n=16):
37.0% - 54.4% DM
2009 (n=23):
37.9% - 59.2% DM
2010 (n=23):
37.4% - 54.9% DM
2011 (n=21):
35.3% - 52.1% DM
2012 (n=16):
40.2% - 51.1% DM
2013 (n=13):
33.4% - 43.3% DM
2014 (n=24):
33.9% - 56.2% DM

Figure 1. Average dry matter of harvested forage by cutting and as a weighted average for the total season (2007-2014).

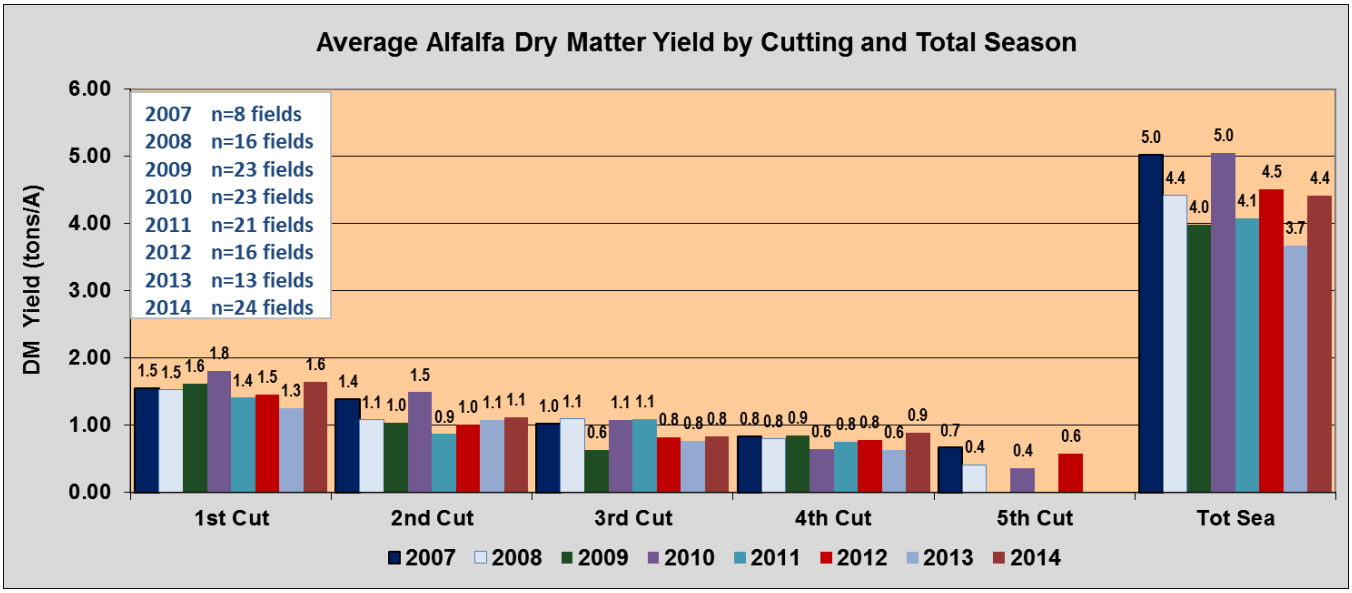


Figure 2. Average dry matter yield by cutting and for the total season. Data segregated by calendar year. (2007-14)

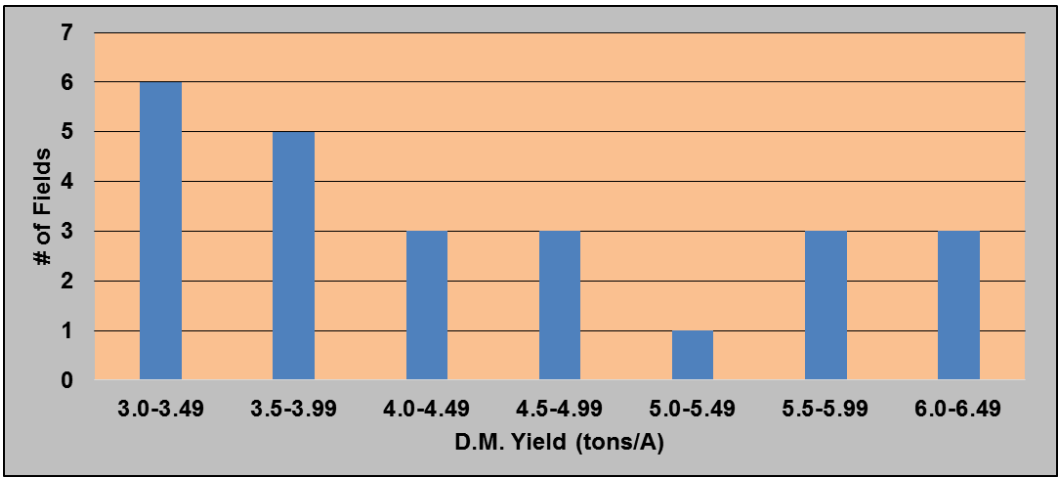


Figure 3. Number of 2014 fields at various total season dry matter yield levels (n=24)

Alfalfa Persistence:

In-season: An analysis was done to determine the percent of total season yield for each cutting (Table 4). Data was summarized for 3-, 4-, and 5-cut systems for all project years. Five-cut fields were also included in the 4-cut summary with the final fall harvest not included in the total season yield. It's significant to note the wide variation in percent yield for an individual cutting. In some cases this is the result of environmental conditions (e.g. drought) previous to the harvest while in other situations it's simply a function of cutting date (Tables 2 and 3).

Between years: Persistence is influenced over time by the age of the stand, cutting schedule, and environment. For this project, persistence is being measured as a percent of 1st production year dry matter yield. Persistence data in Table 5 consists of 2006 through 2013-seeded fields and is averaged over all cutting schedules. Although ranges indicate a wide variation, average forage yield in the 2nd and 3rd production year have been comparable to the 1st production year. The yield for 4th-year stands drops to 78 percent of the 1st-production year. Time will tell if these trends continue, but to date it appears that keeping stands for at least three production years seems to be the prudent decision.

Table 4. Average percent of total season yield by cutting for 3, 4 and 5 cut harvest systems* (2007-14)

3-cut system (n=12 site years)

	1st cut	2nd cut	3rd cut
Mean	43	31	26
Low	26	23	16
High	59	43	50

4-cut system (n=115 site years)

	1st cut	2nd cut	3rd cut	4th cut
Mean	36	25	21	18
Low	20	14	5	9
High	58	37	33	30

5-cut system (4+1 fall) (n=20 site years)

	1st cut	2nd cut	3rd cut	4th cut	5th cut
Mean	31	23	18	16	12
Low	21	14	10	9	6
High	41	39	26	24	18

* high and low figures are for individual cuttings and will not add to 100%

Table 5. Percent of 1st production year yield by cutting and total season for 2nd and 3rd production year stands.

2nd Production Year Stands (n=40 site years)

	1st cut	2nd cut	3rd cut	4th cut	Tot Sea
Mean	117	109	111	101	102
Low	55	41	23	46	69
High	275	291	491	180	236

3rd Production Year Stands (n=30 site years)

	1st cut	2nd cut	3rd cut	4th cut	Tot Sea
Mean	109	110	97	100	98
Low	57	43	32	23	63
High	250	299	264	169	183

4th Production Year Stands (n=11 site years)

	1st cut	2nd cut	3rd cut	4th cut	Tot Sea
Mean	85	86	93	70	78
Low	38	47	54	23	59
High	138	147	141	114	115

Forage Quality:
Forage quality, although extremely important, is not the primary focus of this project. However, it is impossible to evaluate changes in management to maximize yield and persistence without considering the impact on forage quality. Harvested forage quality in 2014 varied widely from cutting to cutting (Figures 3 through 8). Total season mean RFQ was 162; nine points higher than 2013, but less than five other previous project years (Figure 7). Second-cut RFQ was the lowest of any 2014 harvest with a weighted average of 148. Other notable forage quality results from 2014 included:

- Tie for lowest mean crude protein percent for both first and fourth cutting. Second lowest overall average crude protein percent (Figure 3).
- Highest average NDF percent for first and fourth cutting of any project year. This was nearly the case for the total season mean as well (Figure 4).
- Extremely high NDFD percent for third cutting compared to previous years (Figures 5 and 6). Perhaps this was the result of cool temperatures coupled with a relatively short cutting interval. Last year was notable because of the extremely low NDFD percent for first cutting relative to other harvests.
- With the high NDFD percent for third cutting, there was a corresponding record high Milk/Ton value for the same cutting (Figure 8).

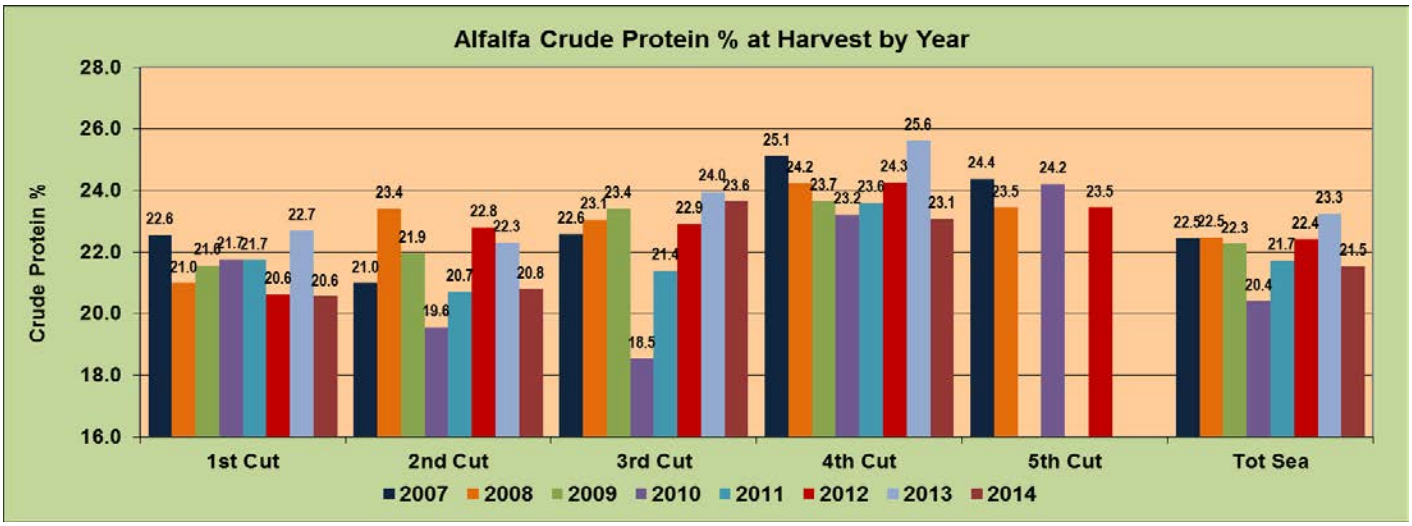


Figure 3. Average crude protein percent by cutting and weighted average for the total season (2007-2014).

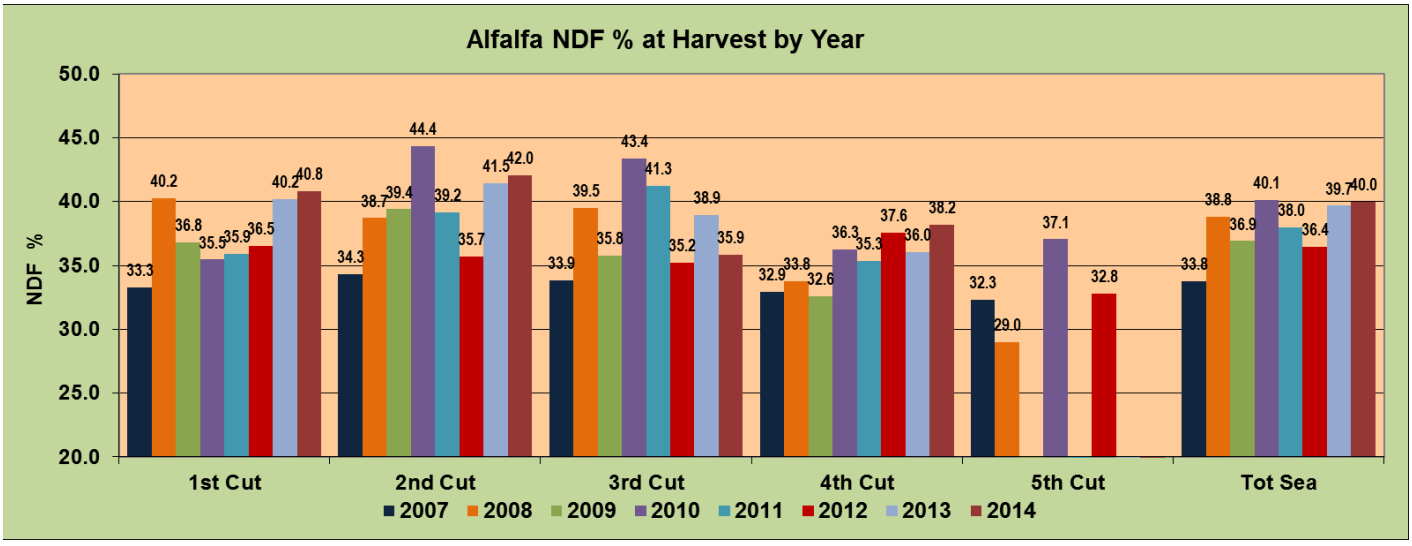


Figure 4. Average NDF percent by cutting and weighted average for the total season (2007-2014).

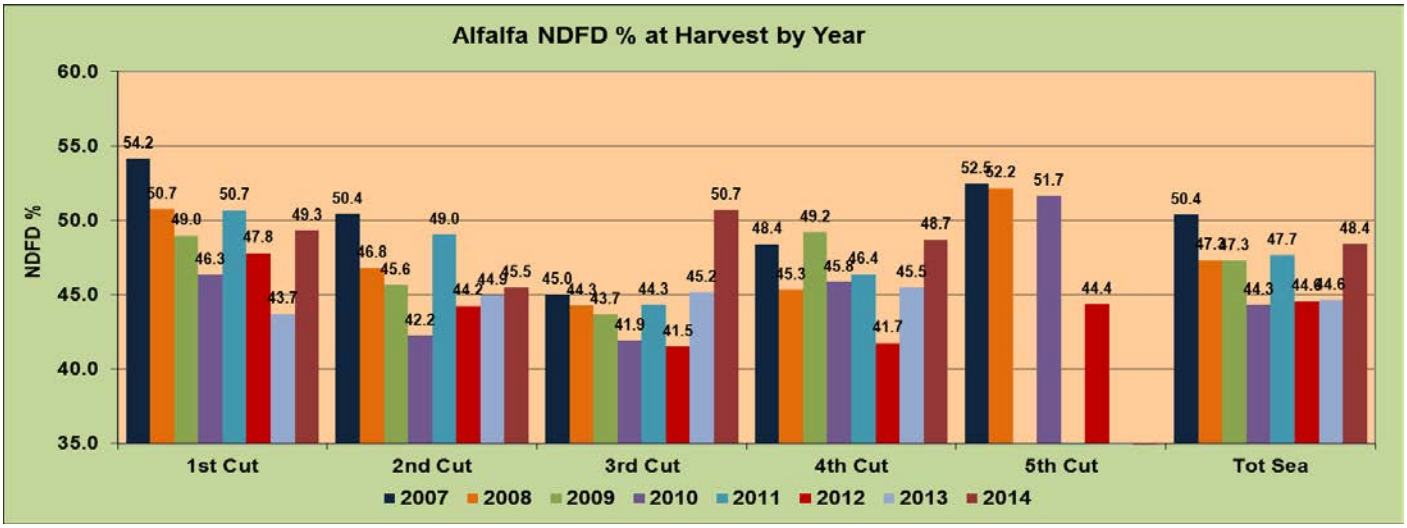


Figure 5. Average NDFD percent by cutting and weighted average for the total season (2007-2014).

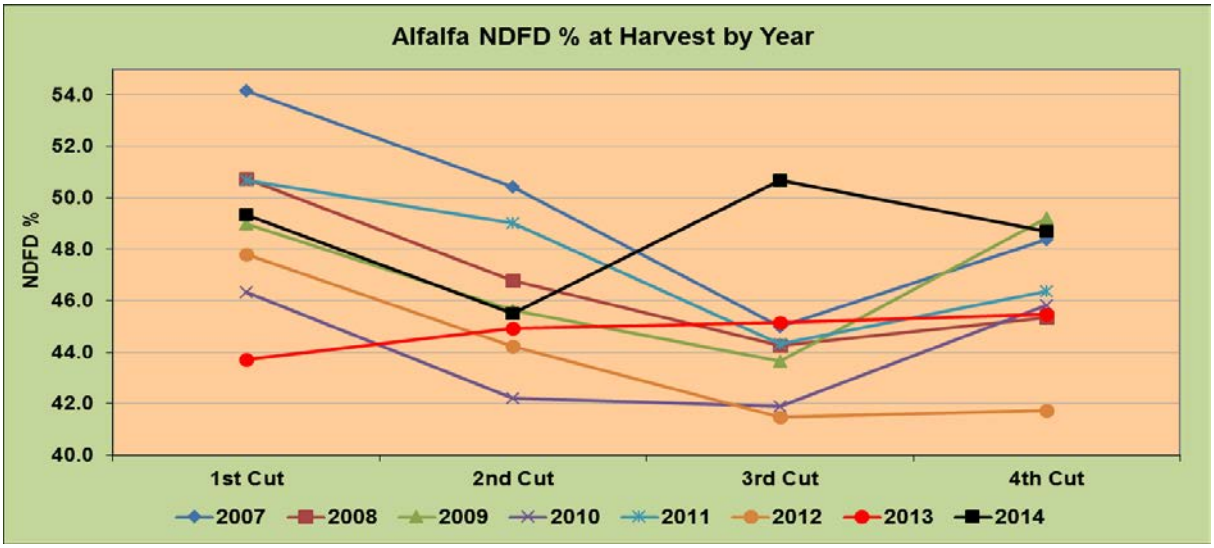


Figure 6. Average NDFD percent by cutting (2007-2014).

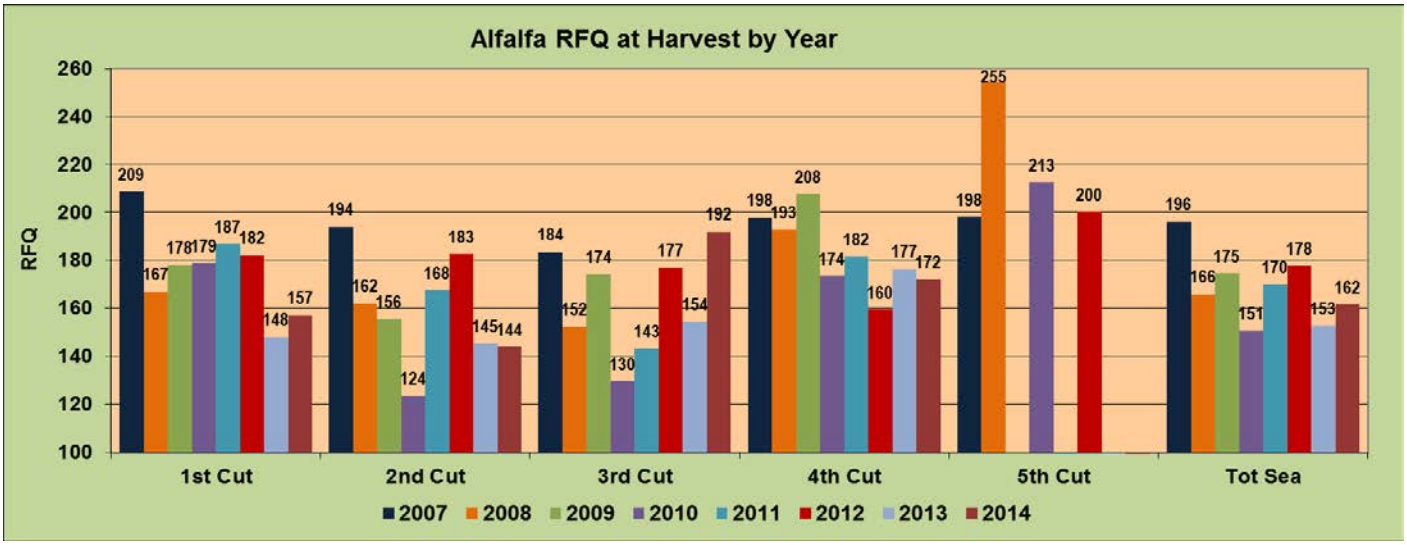


Figure 7. Average Relative Forage Quality (RFQ) by cutting and weighted average for the total season (2007-2014).

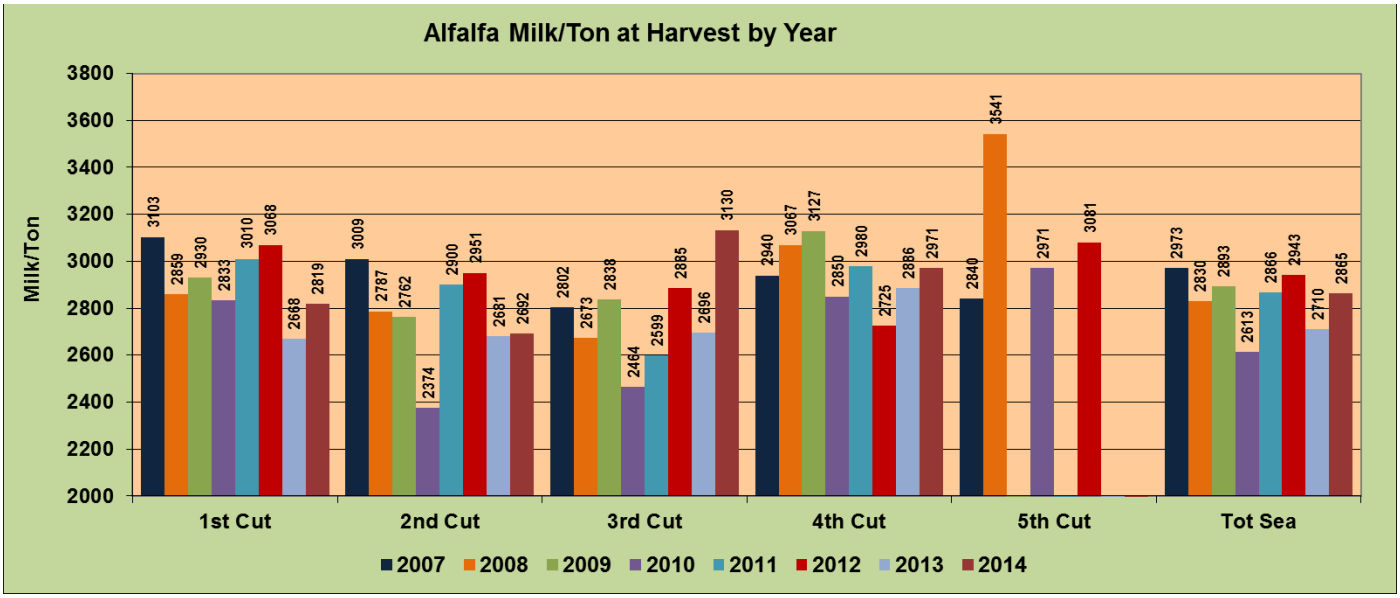


Figure 8. Average Milk per Ton by cutting and weighted average for the total season (2007-2014).

Summary:
The Wisconsin Alfalfa Yield and Persistence Program is designed to provide forage growers and agricultural professionals a unique look at what is happening at the farm level. As more fields are entered and years pass, the reliability of information continues to increase. Environmental conditions have had a profound influence on both yield and no two years being exactly alike.

Acknowledgements:
First and foremost, UW-Extension Team Forage wishes to thank the producers who took the extra time and effort to obtain weights and forage samples for the project fields at each cutting.

Past and Present UW coordinators for this project:

Aerica Bjurstrom, Kewaunee County
Mike Bertram, Columbia County
Greg Blonde, Waupaca County
Jason Cavadini, Marathon County
Jerry Clark, Chippewa County
Mark Hagedorn, Brown County
Kevin Jarek, Outagamie County
David Laatsch, Dodge County
Bryce Larson, Calumet County
Mike Rankin, Fond du Lac County
Nick Schneider, Winnebago County
Ryan Sterry, St. Croix County
Amy Vandebrake, Pierce County

Funding for this project has been provided by UW Extension Team Forage and the Midwest Forage Association (MFA).

This report written and data compiled by Mike Rankin, Crops and Soils Agent, Fond du Lac Co. Questions may be directed to: michael.rankin@uwex.edu

Appendix A. Dry matter yield by field, harvest year, cutting, and for the total season.

Field ID#	Harvest Year	1st Cut DM Yld	2nd Cut DM Yld	3rd Cut DM Yld	4th Cut DM Yld	5th Cut DM Yld	Tot Sea DM Yld
107	2007	1.57	1.53	0.95	0.59	0.34	4.98
207	2007	1.52	1.33	1.00	0.70	0.73	5.27
307	2007	1.54	1.51	1.30	0.90	0.88	6.12
407	2007	1.41	1.57	1.11	0.80	0.71	5.59
507	2007	1.00	1.02	0.37			2.39
607	2007	1.79	1.77	1.20	1.14		5.90
707	2007	1.75	1.23	0.81	0.63		4.41
807	2007	1.79	1.19	1.42	1.10		5.51
Mean	**2007**	**1.55**	**1.39**	**1.02**	**0.84**	**0.67**	**5.02**
Low	**2007**	**1.00**	**1.02**	**0.37**	**0.59**	**0.34**	**2.39**
High	**2007**	**1.79**	**1.77**	**1.42**	**1.14**	**0.88**	**6.12**
107	2008	1.28	1.11	1.07	0.43		3.89
207	2008	1.34	1.08	1.14	0.68		4.23
307	2008	NA	0.86	0.91	0.78		---
407	2008	NA	1.14	1.09	0.68		---
507	2008	1.95	1.08	0.76			3.79
807	2008	2.23	1.73	1.31	0.82		6.08
108	2008	1.38	0.74	1.15			3.27
208	2008	2.08	1.54	0.84			4.46
308	2008	1.46	0.83	1.27	0.93	0.45	4.95
408	2008	0.86	0.49	0.85	0.50		2.70
508	2008	2.01	0.72	1.20	0.98	0.37	5.29
608	2008	1.39	1.78	1.54	0.92		5.63
708	2008	1.28	1.05	1.18	0.89		4.40
808	2008	1.81	1.20	1.27	0.79		5.07
908	2008	0.73	0.94	0.89	1.12		3.68
1008	2008	NA	1.06	0.97	0.83		---
Mean	**2008**	**1.52**	**1.08**	**1.09**	**0.80**	**0.41**	**4.42**
Low	**2008**	**0.73**	**0.49**	**0.76**	**0.43**	**0.37**	**2.70**
High	**2008**	**2.23**	**1.78**	**1.54**	**1.12**	**0.45**	**6.08**
107	2009	0.95	1.06	0.30	0.99		3.31
207	2009	1.28	1.23	0.53	1.00		4.04
307	2009	1.02	1.23	0.69	0.93		3.87
407	2009	1.59	1.02	0.53	0.85		3.99
507	2009	1.38	0.90	0.49	0.76		3.53
807	2009	1.56	0.99	0.98	0.62		4.15
108	2009	1.52	0.83	0.80			3.15
208	2009	1.77	1.18	1.33			4.28
308	2009	1.24	0.94	0.56	1.15		3.89
408	2009	1.80	0.80	0.20	0.64		3.43
508	2009	1.74	1.00	0.59	0.98		4.32
608	2009	2.19	1.23	0.88	0.78		5.07
708	2009	1.40	1.34	0.63	0.98		4.35
808	2009	2.07	1.16	0.59	0.55		4.37
908	2009	1.88	0.99	0.30	0.95		4.13
109	2009	0.57	0.55	1.09			2.21
209	2009	1.92	1.60	0.69	1.06		5.27
309	2009	1.14	0.84	0.43	1.05		3.46
409	2009	1.45	1.24	0.35	0.32		3.37
509	2009	2.05	0.88	0.57			3.49
609	2009	2.36	0.58	0.20	0.95		4.10

Field ID#	Harvest Year	1st Cut DM Yld	2nd Cut DM Yld	3rd Cut DM Yld	4th Cut DM Yld	5th Cut DM Yld	Tot Sea DM Yld
709	2009	2.27	1.25	0.82	0.92		5.26
809	2009	2.08	1.03	0.85	0.72		4.68
Mean	**2009**	**1.62**	**1.04**	**0.63**	**0.85**		**3.99**
Low	**2009**	**0.57**	**0.55**	**0.20**	**0.32**		**2.21**
High	**2009**	**2.36**	**1.60**	**1.33**	**1.15**		**5.27**
307	2010	1.16	1.24	1.24	0.52		4.17
807	2010	1.38	1.32	1.22	0.81		4.74
208	2010	1.99	1.65	1.26	0.62		5.52
308	2010	1.65	1.66	0.85	0.41		4.57
408	2010	1.85	1.46	0.76	0.51		4.58
508	2010	1.88	1.81	0.69	0.48		4.86
608	2010	2.09	1.79	1.46	0.82		6.16
708	2010	1.45	1.33	1.39	0.67		4.84
808	2010	1.66	1.77	1.57	0.90		5.91
908	2010	1.83	0.84	1.27	0.51		4.45
109	2010	1.57	1.42	0.90	1.33		5.23
209	2010	1.91	1.80	1.09	0.91		5.71
309	2010	2.16	1.85	0.91	0.70		5.61
409	2010	1.43	0.96	0.55	0.39		3.33
609	2010	2.34	1.78	1.05	1.00		6.17
709	2010	2.32	0.94	1.08	0.57		4.90
809	2010	1.86	1.67	1.07	0.47		5.07
110	2010	1.46	1.65	1.40	0.54		5.05
210	2010	2.07	1.76	0.94	0.51		5.28
310	2010	1.59	1.21	0.97	0.57		4.33
410	2010	2.00	1.26	0.94	0.41		4.61
510	2010	1.87	1.69	1.05	0.62	0.39	5.62
610	2010	2.08	1.40	1.09	0.46	0.34	5.37
Mean	**2010**	**1.81**	**1.49**	**1.08**	**0.64**	**0.37**	**5.05**
Low	**2010**	**1.16**	**0.84**	**0.55**	**0.39**	**0.34**	**3.33**
High	**2010**	**2.34**	**1.85**	**1.57**	**1.33**	**0.39**	**6.17**
208	2011	0.78	0.90	1.05	0.45		3.18
308	2011	1.31	1.12	0.85	0.79		4.06
408	2011	1.19	0.72	0.67	0.51		3.09
508	2011	1.25	0.85	0.65	0.69		3.44
608	2011	1.10	0.83	1.16	0.45		3.54
708	2011	1.50	0.75	1.37	0.78		4.41
808	2011	1.07	0.65	1.15	0.90		3.77
908	2011	0.92	0.52	0.87	0.49		2.80
109	2011	1.29	0.97	1.03	0.76		4.05
209	2011	1.59	1.02	0.92	0.92		4.45
309	2011	1.53	1.15	1.14	0.95		4.77
409	2011	1.27	0.81	0.47	0.48		3.03
609	2011	1.76	0.90	1.68	0.78		5.12
210	2011	1.13	0.72	1.04	0.80		3.69
310	2011	1.25	0.63	0.97	0.78		3.63
410	2011	1.33	0.60	1.08	0.57		3.58
510	2011	1.47	1.08	1.07	0.73		4.35
610	2011	1.41	0.92	0.88	0.83		4.04
111	2011	2.45	1.29	1.32	1.19		6.26
211	2011	1.39	0.85	1.20	1.10		4.55
311	2011	2.30	0.94	1.66	1.00		5.90
411	2011	1.70	NA	1.68	0.64		NA

Field ID#	Harvest Year	1st Cut DM Yld	2nd Cut DM Yld	3rd Cut DM Yld	4th Cut DM Yld	5th Cut DM Yld	Tot Sea DM Yld
Mean	**2011**	**1.41**	**0.87**	**1.09**	**0.75**		**4.08**
Low	**2011**	**0.78**	**0.52**	**0.47**	**0.45**		**2.80**
High	**2011**	**2.45**	**1.29**	**1.68**	**1.19**		**6.26**
209	2012	1.47	1.01	0.97	0.40		3.85
210	2012	1.46	0.75	0.43	0.80	0.76	4.20
310	2012	1.22	0.67	0.45	0.69	0.45	3.48
410	2012	1.14	0.62	0.38	0.66	0.56	3.36
510	2012	1.20	1.13	0.74	0.63	0.73	4.44
610	2012	2.33	1.18	1.12	0.66		5.30
111	2012	2.03	1.79	1.55	1.18		6.55
211	2012	1.11	1.10	0.78	0.79	0.48	4.26
112	2012	1.46	0.85	1.11	0.85	0.63	4.90
212	2012	1.74	1.21	1.32	1.27		5.55
312	2012	1.65	0.78	0.59	0.70	0.68	4.40
412	2012	2.06	0.81	0.64	0.86	0.64	5.00
Mean	**2012**	**1.46**	**1.01**	**0.82**	**0.78**	**0.58**	**4.51**
Low	**2012**	**0.84**	**0.62**	**0.38**	**0.40**	**0.34**	**3.36**
High	**2012**	**2.33**	**1.88**	**1.55**	**1.27**	**0.76**	**6.55**
111	2013	1.70	0.85	0.87	0.94		4.35
212	2013	1.89	1.47	1.06	0.99		5.40
312	2013	1.20	1.02	0.65	0.48		3.35
412	2013	1.26	1.16	0.74	0.63		3.79
512	2013	1.30	1.11	0.80	0.65		3.87
612	2013	0.86	0.86	0.63	0.43		2.78
712	2013	0.83	1.03	0.65	0.44		2.95
812	2013	1.94	1.26	1.03	0.84		5.07
113	2013	2.27	1.80	1.19			5.26
213	2013	0.82	1.08	0.62	0.76		3.28
313	2013	0.82	0.83	0.51	0.60		2.76
413	2013	0.92	1.11	0.72	0.50		3.25
513	2013	0.47	0.40	0.44	0.30		1.62
Mean	2013	**1.25**	**1.08**	**0.76**	**0.63**		**3.67**
Low	2013	**0.47**	**0.40**	**0.44**	**0.30**		**1.62**
High	2013	**2.27**	**1.80**	**1.19**	**0.99**		**5.40**
212	2014	1.76	1.53	0.77	0.88		4.93
312	2014	1.69	0.97	0.70	0.80		4.16
412	2014	1.56	0.89	0.75	0.70		3.90
512	2014	1.48	0.59	0.76	0.65		3.48
612	2014	1.41	0.66	0.54	0.59		3.20
113	2014	1.80	1.70	1.24	1.03		5.79
213	2014	1.39	0.51	0.64	1.05		3.58
313	2014	1.09	0.53	0.66	0.84		3.13
413	2014	1.87	0.68	0.67	0.90		4.12
114	2014	1.93	1.88	1.24	1.25		6.28
214	2014	1.49	1.77	1.36	0.88		5.50
314	2014	1.88	1.14	1.02	0.73		4.77
414	2014	1.74	1.99	1.19	1.09		6.02
514	2014	1.77	0.89	0.55	0.75		3.95
614	2014	2.13	0.88	0.35	0.73		4.09
714	2014	2.96	1.24	1.02	0.91		6.12
814	2014	1.42	1.22	0.42	0.70		3.75
914	2014	1.18	1.20	0.93			3.31
1014	2014	2.04	1.58	1.20			4.82
1114	2014	1.42	0.73	0.76	0.74		3.65

Field ID#	Harvest Year	1st Cut DM Yld	2nd Cut DM Yld	3rd Cut DM Yld	4th Cut DM Yld	5th Cut DM Yld	Tot Sea DM Yld
1214	2014	1.23	0.54	0.95	0.70		3.42
1314	2014	1.20	0.49	0.88	0.83		3.39
1414	2014	1.28	1.93	0.72	1.31		5.23
1514	2014	1.87	1.24	0.81	1.58		5.50
Mean	2014	1.65	1.12	0.84	0.89		4.42
Low	2014	1.09	0.49	0.35	0.59		3.13
High	2014	2.96	1.99	1.36	1.58		6.28