WISCONSIN ALFALFA YIELD AND PERSISTENCE (WAYP) PROGRAM
2011 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.

2011 Overview:

The year 2011 marked the fifth year of this project. Once again, UW-Extension agents were asked to identify forage producers who would be willing to weigh and sample forage from a 2010-seeded field and continue to do so for the life of the stand. Four such fields were identified on three separate farms, but data from one of the fields was incomplete. Also included in this summary are the data for the second, third, and fourth production years from fields entered into the program in 2007 (2006 seedings) through 2010 (2009 seedings). As is always the case in these types of studies, there is some attrition of fields over time. This is usually the result of not being able to obtain critical yield or forage quality data for a cutting or multiple cuttings. This year there were two 2008-seeded fields and one 2009-seeded field dropped from the project simply because of a decline in productivity. In total, production data was collected for 22 fields in 2011. Over 4900 tons of forage was harvested from the project fields in 2011. A summary of all fields is presented in Table 1.

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.

2010 Weather
The 2010 growing season was one of the best in recent memory with a relatively warm and dry spring allowing for early alfalfa growth. Growing degree units were above average across the state. Above average rainfall in June and July made for difficult and sometimes delayed harvests for the second and/or third cuttings, decreasing the overall quality of the harvested crop. Nevertheless, alfalfa yields were the highest measured since 2007.

2009 Weather
Cool and dry were predominant weather patterns across most of the state in 2009. In fact, it was a record cool growing season in many regions. Extended stretches of dry weather made it easy to schedule alfalfa harvest but yield potential was reduced in many areas, especially for cuttings taken in late-July and early-August. A wet and cool October did not lend itself to any late-fall harvests.

2008 Weather
May was extremely dry across much of the state. Heavy and frequent rains during early June were the predominant weather anomalies in 2008. In some cases this caused a delay in first-cut harvest date and in one case resulted in the forage being chopped back onto the field. Dry weather returned later in the summer. Overall, the growing season was below normal for growing degree units.

2007 Weather
Weather conditions varied across locations. A frost in early April delayed initial spring growth at several locations. All sites experienced some degree of dry conditions during the growing season. Drought was especially severe in western Wisconsin.

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	
308	2008	Winnebago	05/07	15	115	
408	2008	Winnebago	08/07	15	36.0	
508	2008	Winnebago	05/07	15	22.0	
608	2008	Outagamie	05/07	20	83.7	
708	2008	Outagamie	04/07	16	147.8	
808	2008	Outagamie	04/07	16	53.0	
908	2008	Outagamie	05/07	15	50.3	
1008	2008	Outagamie	08/07	15	194.8	dropped in 2009
109	2009	St. Croix	08/08	NA	41	
209	2009	Winnebago	04/08	15	67	
309	2009	Winnebago	08/08	15	78	
409	2009	Brown	08/08	18	75	
509	2009	Chippewa	04/08	15	16.2	dropped in 2010
609	2009	Calumet	04/08	12	15	
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	
310	2010	Outagamie	05/09	16	61.7	
410	2010	Outagamie	05/09	16	111	
510	2010	Fond du Lac	04/09	17	50.3	
610	2010	Fond du Lac	04/09	17	19.3	
111	2011	Fond du Lac	04/10	17	10	
211	2011	Brown	04/10	17	35.7	
311	2011	Outagamie	05/10	20/+4 TF	75.8	
411	2011	Outagamie	05/10	20/+4 TF	72	no '11 2nd-cut data

Data Collection
Project fields were identified and an accurate measure of field size was determined (if not previously calculated). 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 by the local coordinator. Information was inputted into a spreadsheet and shared with the producer following each harvest. At the end of the season, all data was collected and summarized for this report.

Harvest Schedules:

Across Years:
Mean cutting dates by year are presented in Table 2. Average first-cut date ranged from May 22 in 2007 and 2010 to June 3 in 2008. Regardless of first-cut date, the average fourth-cut date is generally close to September 1. The large majority of fields in this study were cut four times. Across years and sites, 10 fields were cut three times, 71 fields were cut four times (generally prior to or soon after September 1), and 8 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	

*average excludes data where a 4^{th}-cut was taken in October

2011
Cutting dates for all project fields harvested in 2011 are presented in Table 3. All fields were cut four times with one taking the fourth cut in October (not included in mean 4^{th} cut date). The average first-cut date of May 31 and 2^{nd} cut date of July 1 was the same as 2009, which was a year with similarly cool early season growing conditions. A warm July pushed the average 3^{rd} cut date up to July 31, the earliest it's ever been except for 2007. As has been the case nearly every year, average 4^{th} cut date fell near September 1.

Forage Dry Matter at Harvest:

Alfalfa was harvested as haylage for all but ten individual cuttings over the five years. Harvest dry matter data from the ten dry hay harvests was not included in the forage dry matter data summary. Average harvested forage dry matter content in 2011 was 45%, the lowest average in the five years of the project (Figure 1). Whether this was an intentional attempt to harvest wetter forage or simply a matter of circumstance remains to be seen. Unlike previous years, about half of the fields had average total season dry matter percentages at 45 or less. In 2011, the average dry matter for 1^{st} cut was 43.5%, perhaps a reflection of good harvest conditions during late May and early June.

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. Until 2011, dry matter percentage had consistently been near 50 percent throughout the project. This is well above that recommended by ag engineers to obtain optimum fermentation and silage porosity.

Table 3. Summary of 2011 Cutting Dates

Field ID#	1st Cut Date	2nd Cut Date	3rd Cut Date	4th Cut Date	5th Cut Date
208	8-Jun	18-Jul	17-Aug	21-Oct	
308	30-May	28-Jun	27-Jul	27-Aug	
408	30-May	27-Jun	25-Jul	27-Aug	
508	30-May	28-Jun	28-Jul	27-Aug	
608	1-Jun	29-Jun	4-Aug	28-Aug	
708	3-Jun	30-Jun	4-Aug	6-Sep	
808	2-Jun	1-Jul	3-Aug	6-Sep	
908	3-Jun	2-Jul	3-Aug	7-Sep	
109	25-May	29-Jun	20-Jul	18-Aug	
209	30-May	28-Jun	28-Jul	28-Aug	
309	30-May	28-Jun	28-Jul	27-Aug	
409	2-Jun	8-Jul	5-Aug	9-Sep	
609	31-May	3-Jul	6-Aug	13-Sep	
210	2-Jun	30-Jun	2-Aug	6-Sep	
310	3-Jun	30-Jun	2-Aug	6-Sep	
410	2-Jun	1-Jul	4-Aug	6-Sep	
510	30-May	2-Jul	29-Jul	30-Aug	
610	31-May	2-Jul	28-Jul	27-Aug	
111	31-May	29-Jun	25-Jul	25-Aug	
211	31-May	27-Jun	24-Jul	21-Aug	
311	3-Jun	30-Jun	5-Aug	7-Sep	
411	3-Jun	2-Jul	5-Aug	7-Sep	
Mean	**31-May**	**1-Jul**	**31-Jul**	**31-Aug***	
Earliest	**25-May**	**27-Jun**	**20-Jul**	**18-Aug**	
Latest	**8-Jun**	**18-Jul**	**17-Aug**	**21-Oct**	

*average excludes data where a 4th-cut was taken in October

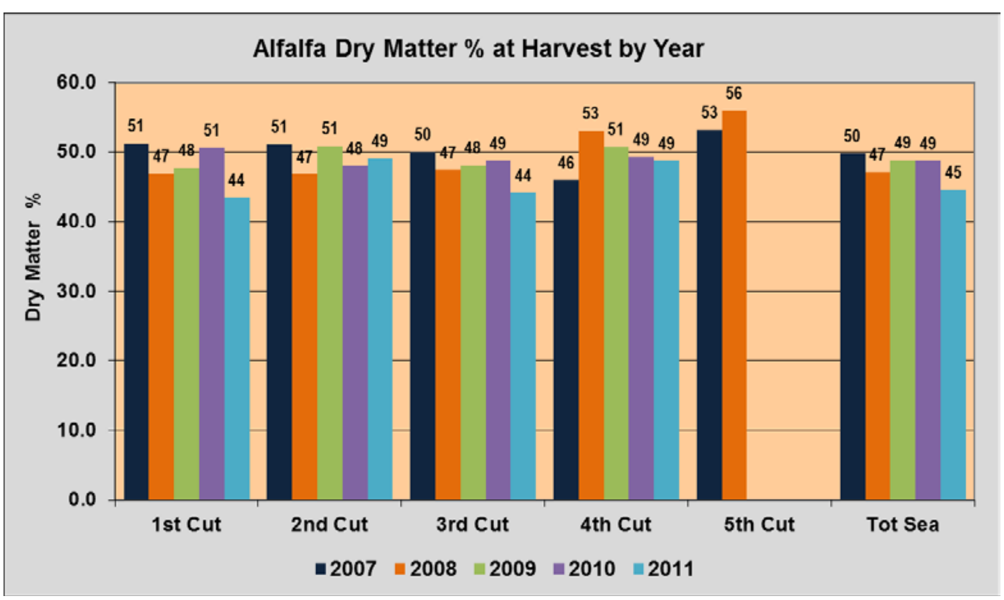


Figure 1. Average dry matter of harvested forage by cutting and as a weighted average for the total season (2007-2010).

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

Forage Dry Matter Yield:

Average yield by cutting and for the season in each project year are presented in Figure 2. Cool temperatures and slow early season growth resulted in both the lowest first- and second-cut yield levels (1.4 and 0.9 tons d.m./A, respectively) of any previous project year. Third- (1.1 tons d.m./A) and fourth-cut (0.8 tons d.m./A) were similar to previous years. The mean average total season yield of 4.08 tons d.m./A was only higher than that of 2009, but by a small margin (Tables 4, 5, 6, 7, and 8). The highest yield for a project field was achieved in 2011 at 6.26 tons per acre.

It seems each year there are one or two cuttings impacted by relatively short term extreme weather conditions (dry, cool, etc.) that significantly lowers both the yield for that cutting and the total season. In all but one year, the lowest yielding field was below 3.0 tons per acre for the season. Conversely, in all but one year the highest yielding field was over 6.0 tons per acre.

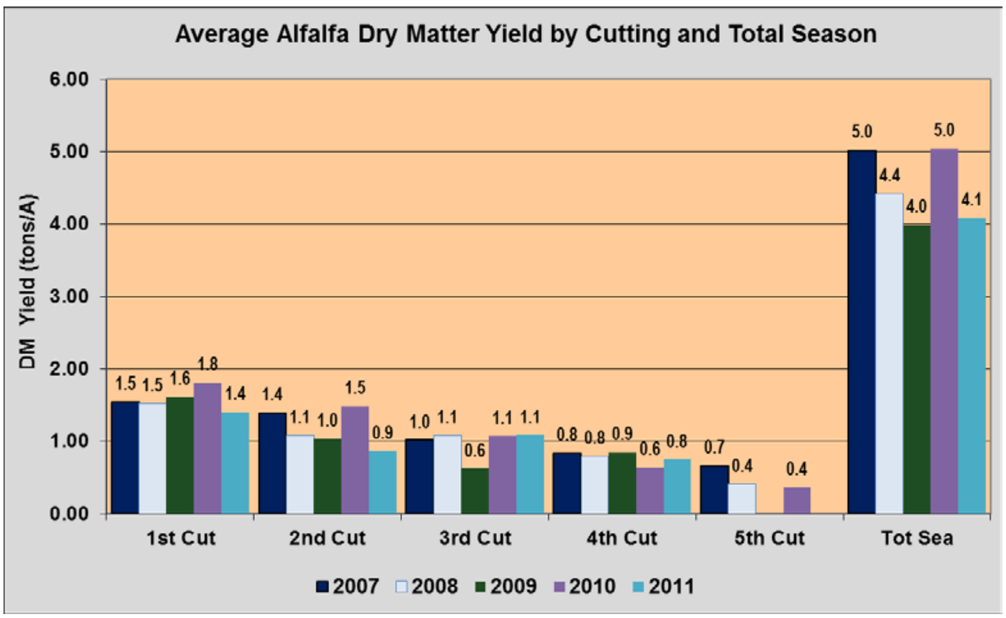


Figure 2. Average dry matter yield by cutting and for the total season. Data is segregated by calendar year. (2007-11)

Table 4. Dry matter yield by cutting and for the total season in 2007

Field ID#	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	1.57	1.53	0.95	0.59	0.34	4.98
207	1.52	1.33	1.00	0.70	0.73	5.27
307	1.54	1.51	1.30	0.90	0.88	6.12
407	1.41	1.57	1.11	0.80	0.71	5.59
507	1.00	1.02	0.37			2.39
607	1.79	1.77	1.20	1.14		5.90
707	1.75	1.23	0.81	0.63		4.41
807	1.79	1.19	1.42	1.10		5.51
Mean	**1.55**	**1.39**	**1.02**	**0.84**	**0.67**	**5.02**
Low	**1.00**	**1.02**	**0.37**	**0.59**	**0.34**	**2.39**
High	**1.79**	**1.77**	**1.42**	**1.14**	**0.88**	**6.12**

Table 5. Dry matter yield by cutting and for the total season in 2008

Field ID#	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	1.28	1.11	1.07	0.43		3.89
207	1.34	1.08	1.14	0.68		4.23
307	NA	0.86	0.91	0.78		---
407	NA	1.14	1.09	0.68		---
507	1.95	1.08	0.76			3.79
807	2.23	1.73	1.31	0.82		6.08
108	1.38	0.74	1.15			3.27
208	2.08	1.54	0.84			4.46
308	1.46	0.83	1.27	0.93	0.45	4.95
408	0.86	0.49	0.85	0.50		2.70
508	2.01	0.72	1.20	0.98	0.37	5.29
608	1.39	1.78	1.54	0.92		5.63
708	1.28	1.05	1.18	0.89		4.40
808	1.81	1.20	1.27	0.79		5.07
908	0.73	0.94	0.89	1.12		3.68
1008	NA	1.06	0.97	0.83		---
Mean	**1.52**	**1.08**	**1.09**	**0.80**	**0.41**	**4.42**
Low	**0.73**	**0.49**	**0.76**	**0.43**	**0.37**	**2.70**
High	**2.23**	**1.78**	**1.54**	**1.12**	**0.45**	**6.08**

Table 6. Dry matter yield by cutting and for the total season in 2009

Field ID#	1st Cut DM Yld	2nd Cut DM Yld	3rd Cut DM Yld	4th Cut DM Yld	Tot Sea DM Yld
107	0.95	1.06	0.30	0.99	3.31
207	1.28	1.23	0.53	1.00	4.04
307	1.02	1.23	0.69	0.93	3.87
407	1.59	1.02	0.53	0.85	3.99
507	1.38	0.90	0.49	0.76	3.53
807	1.56	0.99	0.98	0.62	4.15
108	1.52	0.83	0.80		3.15
208	1.77	1.18	1.33		4.28
308	1.24	0.94	0.56	1.15	3.89
408	1.80	0.80	0.20	0.64	3.43
508	1.74	1.00	0.59	0.98	4.32
608	2.19	1.23	0.88	0.78	5.07
708	1.40	1.34	0.63	0.98	4.35
808	2.07	1.16	0.59	0.55	4.37
908	1.88	0.99	0.30	0.95	4.13
109	0.57	0.55	1.09		2.21
209	1.92	1.60	0.69	1.06	5.27
309	1.14	0.84	0.43	1.05	3.46
409	1.45	1.24	0.35	0.32	3.37
509	2.05	0.88	0.57		3.49
609	2.36	0.58	0.20	0.95	4.10
709	2.27	1.25	0.82	0.92	5.26
809	2.08	1.03	0.85	0.72	4.68
Mean	**1.62**	**1.04**	**0.63**	**0.85**	**3.99**
Low	**0.57**	**0.55**	**0.20**	**0.32**	**2.21**
High	**2.36**	**1.60**	**1.33**	**1.15**	**5.27**

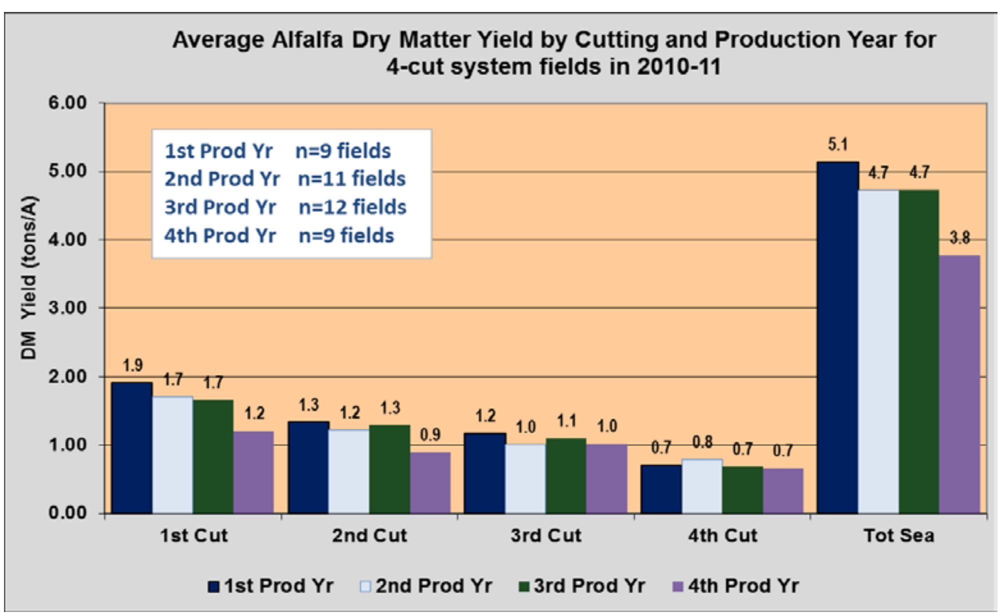
Table 7. Dry matter yield by cutting and for the total season in 2010

Field ID#	1st Cut DM Yld	2nd Cut DM Yld	3rd Cut DM Yld	4th Cut DM Yld	5th Cut DM Yld	Tot Sea DM Yld
307	1.16	1.24	1.24	0.52		4.17
807	1.38	1.32	1.22	0.81		4.74
208	1.99	1.65	1.26	0.62		5.52
308	1.65	1.66	0.85	0.41		4.57
408	1.85	1.46	0.76	0.51		4.58
508	1.88	1.81	0.69	0.48		4.86
608	2.09	1.79	1.46	0.82		6.16
708	1.45	1.33	1.39	0.67		4.84
808	1.66	1.77	1.57	0.90		5.91
908	1.83	0.84	1.27	0.51		4.45
109	1.57	1.42	0.90	1.33		5.23
209	1.91	1.80	1.09	0.91		5.71
309	2.16	1.85	0.91	0.70		5.61
409	1.43	0.96	0.55	0.39		3.33
609	2.34	1.78	1.05	1.00		6.17
709	2.32	0.94	1.08	0.57		4.90
809	1.86	1.67	1.07	0.47		5.07
110	1.46	1.65	1.40	0.54		5.05
210	2.07	1.76	0.94	0.51		5.28
310	1.59	1.21	0.97	0.57		4.33
410	2.00	1.26	0.94	0.41		4.61
510	1.87	1.69	1.05	0.62	0.39	5.62
610	2.08	1.40	1.09	0.46	0.34	5.37
Mean	**1.81**	**1.49**	**1.08**	**0.64**	**0.37**	**5.05**
Low	**1.16**	**0.84**	**0.55**	**0.39**	**0.34**	**3.33**
High	**2.34**	**1.85**	**1.57**	**1.33**	**0.39**	**6.17**

Table 8. Dry matter yield by cutting and for the total season in 2011					
Field ID#	**1st Cut DM Yld**	**2nd Cut DM Yld**	**3rd Cut DM Yld**	**4th Cut DM Yld**	**Tot Sea DM Yld**
208	0.78	0.90	1.05	0.45	3.18
308	1.31	1.12	0.85	0.79	4.06
408	1.19	0.72	0.67	0.51	3.09
508	1.25	0.85	0.65	0.69	3.44
608	1.10	0.83	1.16	0.45	3.54
708	1.50	0.75	1.37	0.78	4.41
808	1.07	0.65	1.15	0.90	3.77
908	0.92	0.52	0.87	0.49	2.80
109	1.29	0.97	1.03	0.76	4.05
209	1.59	1.02	0.92	0.92	4.45
309	1.53	1.15	1.14	0.95	4.77
409	1.27	0.81	0.47	0.48	3.03
609	1.76	0.90	1.68	0.78	5.12
210	1.13	0.72	1.04	0.80	3.69
310	1.25	0.63	0.97	0.78	3.63
410	1.33	0.60	1.08	0.57	3.58
510	1.47	1.08	1.07	0.73	4.35
610	1.41	0.92	0.88	0.83	4.04
111	2.45	1.29	1.32	1.19	6.26
211	1.39	0.85	1.20	1.10	4.55
311	2.30	0.94	1.66	1.00	5.90
411	1.70	NA	1.68	0.64	NA
Mean	**1.41**	**0.87**	**1.09**	**0.75**	**4.08**
Low	**0.78**	**0.52**	**0.47**	**0.45**	**2.80**
High	**2.45**	**1.29**	**1.68**	**1.19**	**6.26**

A comparison of 1st, 2nd, 3rd, and 4th production year fields cut four times in 2010 or 2011 shows the highest average yield occurred with the 1st production year fields (5.1 tons d.m./A), followed by the 2nd and 3rd production year fields (4.7 tons d.m./A) (Figure 3). Not surprisingly, fourth production year fields had the lowest average yield (3.8 tons d.m./A). Average first-cut yield was significantly lower for the 4th production year fields. As is always the case, there is extreme yield variability between fields that can be attributed to cutting schedule and environment (Tables 7 and 8).

Figure 3. Average dry matter yield by cutting and total season for fields cut four times during either 2010 or 2011. Data is segregated by stand production year.



Cutting schedule x yield

It's often interesting to look at cutting schedule as a function of yield. The average yield of alfalfa harvested for fields cut 3, 4, or 5 times per year is presented in Figure 4. Not surprisingly, more harvests per year translated to higher total season yields. It should be noted that this is a simple average that did not take into account the previous year cutting schedule. Further, these comparisons are made across a range of environments and locations.

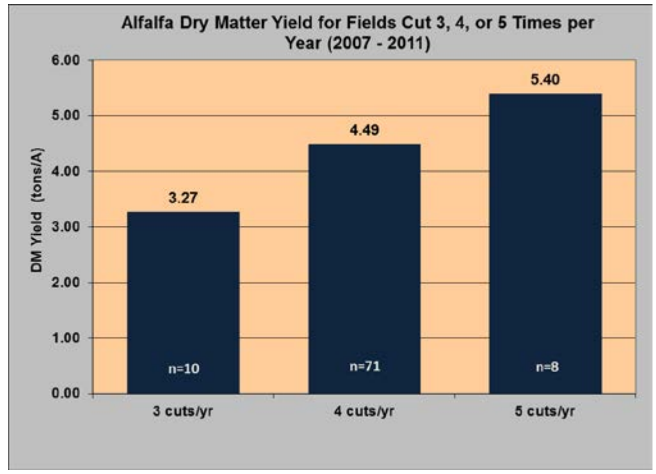


Figure 4. Alfalfa dry matter yield for fields cut 3, 4, or 5 times per year (2007-2011).

Just how profitable is it to take a 5th cutting in October? During 2007-2011, there were eight project fields where this cutting strategy was used. The yield range was from 0.34 to 0.88 tons/A. Given the potential for reduced yield in the subsequent growing season and the cost of harvesting such a small amount of forage per acre, is such a practice viable in Wisconsin? Perhaps the "need for feed" might justify the practice in some years, but long term it's likely not a sustainable or profitable management practice on a routine basis.

Alfalfa Persistence:

In-season

An analysis was done to determine the percent of total season yield for each cutting (Table 9). 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).

Table 9. Average percent of total season yield by cutting for 3, 4 and 5 cut harvest systems* (2007-11)

3-cut system (N=9 site years)

	1st cut	2nd cut	3rd cut
Mean	43	30	26
Low	26	23	16
High	59	43	50

4-cut system (N=78 site years)

	1st cut	2nd cut	3rd cut	4th cut
Mean	36	26	21	17
Low	20	14	5	9
High	58	37	33	30

5-cut system (4+1 fall) (N=8 site years)

	1st cut	2nd cut	3rd cut	4th cut	5th cut
Mean	31	24	21	14	10
Low	25	14	19	9	6
High	39	31	26	19	14

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

Between years

Being five years into the project, it's difficult to draw any firm conclusions on stand persistence across 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 10 consists of 2006 through 2009-seeded fields and is averaged over all cutting schedules. Although ranges indicate a wide variation, forage yield in the 2nd and 3rd production year have been slightly higher than the 1st production year. The yield for 4th-year stands dropped off to 78 percent of their 1st-year production. Time will tell if these trends continues, but to date it appears that keeping stands for at least three production years seems to be the prudent decision.

Table 10. Percent of 1st production year yield by cutting and total season for 2nd and 3rd production year stands.

2nd Production Year Stands (N=27 site years)

	1st cut	2nd cut	3rd cut	4th cut	Tot Sea
Mean	120	111	115	102	105
Low	55	41	23	61	70
High	275	291	491	180	236

3rd Production Year Stands (N=19 site years)

	1st cut	2nd cut	3rd cut	4th cut	Tot Sea
Mean	120	126	139	92	106
Low	61	64	32	23	63
High	250	299	786	169	183

4th Production Year Stands (N=10 site years)

	1st cut	2nd cut	3rd cut	4th cut	Tot Sea
Mean	86	88	89	74	78
Low	38	47	54	23	59
High	138	147	125	114	115

Forage Quality:

Harvested forage quality in 2011 was higher than 2010. Total season mean RFQ was 170. Third-cut was the lowest forage quality of the season (143 RFQ). 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. Figures 5 through 9 summarize the forage quality obtained in the project for 2007-2011.

RFV vs. RFQ

This was the second year of the project where forage RFQ (determined by NIR) was compared against a calculated RFV for each cutting. This relationship differed significantly for 1st-cut in 2011 compared to 2010 (Figure 10). Where a data point is above the 1:1 red line, RFQ is greater than RFV. Where the data point falls below the 1:1 line, RFV is greater than RFQ. For all 1st-cut 2011 samples, RFQ was equal to or greater than RFV, even at relatively lower values. Likely this is because of the cool conditions present during April and May. The more typical relationship is the one seen in 2010 where RFV is greater than RFQ at lower forage quality. The RFV vs. RFQ comparison for 2nd through 4th cuts in 2011 are presented in Figures 11, 12, and 13. Although there is a strong relationship between RFV and RFQ, predictability of one from the other is not perfect and may, in some cases, result in a far from accurate estimate. RFQ appears to be strongly impacted by environmental conditions (e.g. temperature) and perhaps plant genetics.

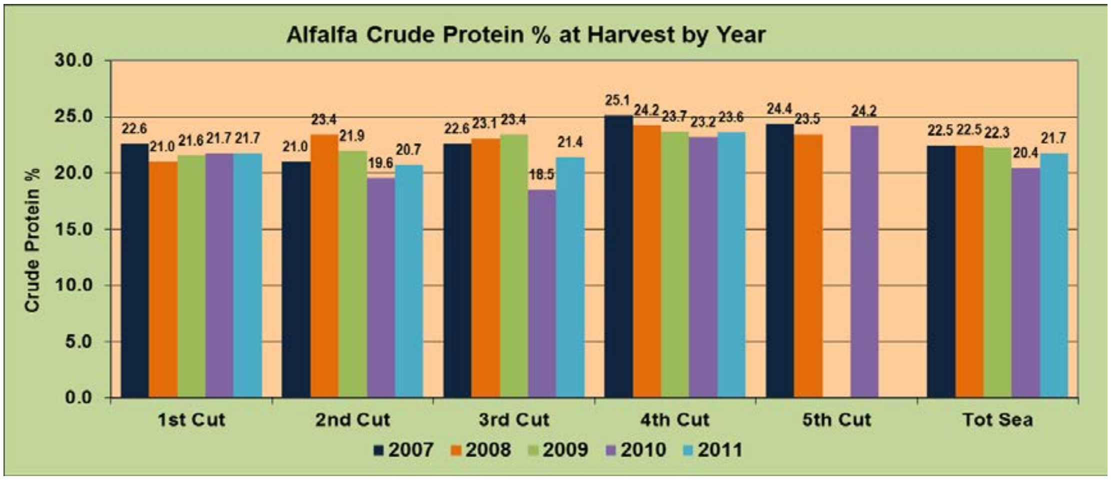


Figure 5. Average crude protein percent by cutting and weighted average for the total season (2007-2011).

CP% Ranges (2011):

	High	Low
1st cut	24.4	17.1
2nd cut	23.7	17.4
3rd cut	23.9	18.2
4th cut	25.9	21.5
5th cut	NA	NA
Total	23.9	19.3

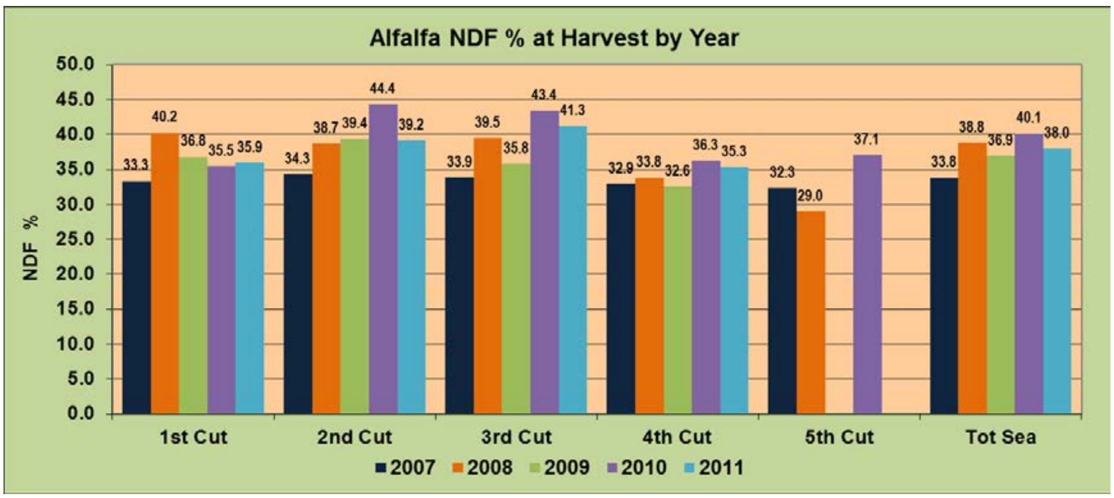


Figure 6. Average NDF percent by cutting and weighted average for the total season (2007-2011).

NDF% Ranges (2011):

	High	Low
1st cut	46.7	31.7
2nd cut	57.1	31.8
3rd cut	48.3	34.5
4th cut	40.5	28.2
5th cut	NA	NA
Total	45.7	33.5

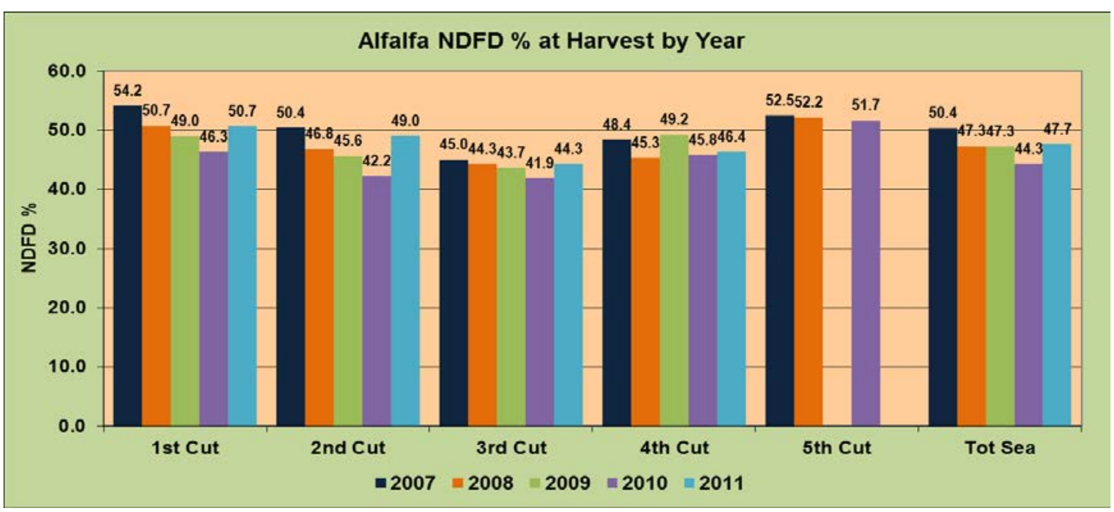
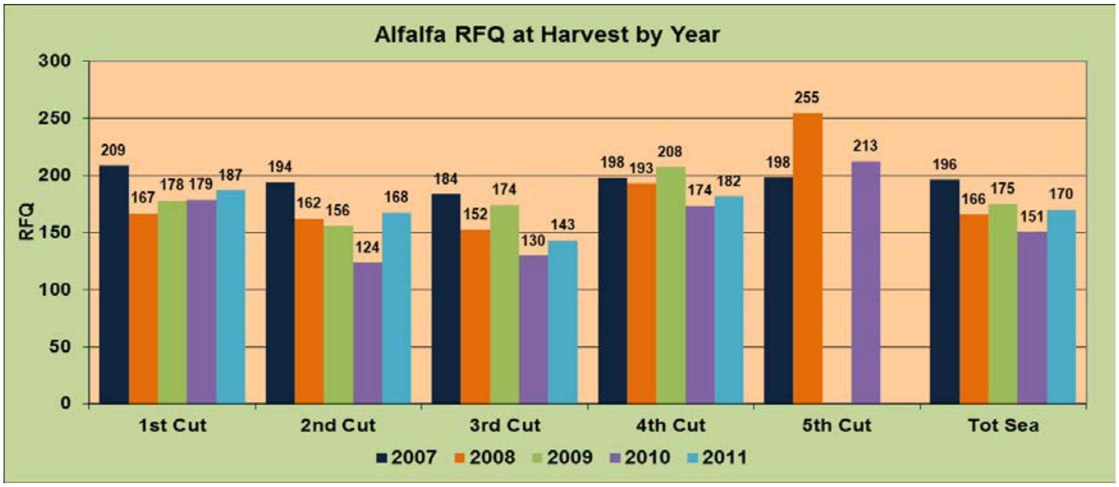


Figure 7. Average NDFD percent by cutting and weighted average for the total season (2007-2011).

NDFD% Ranges (2011):

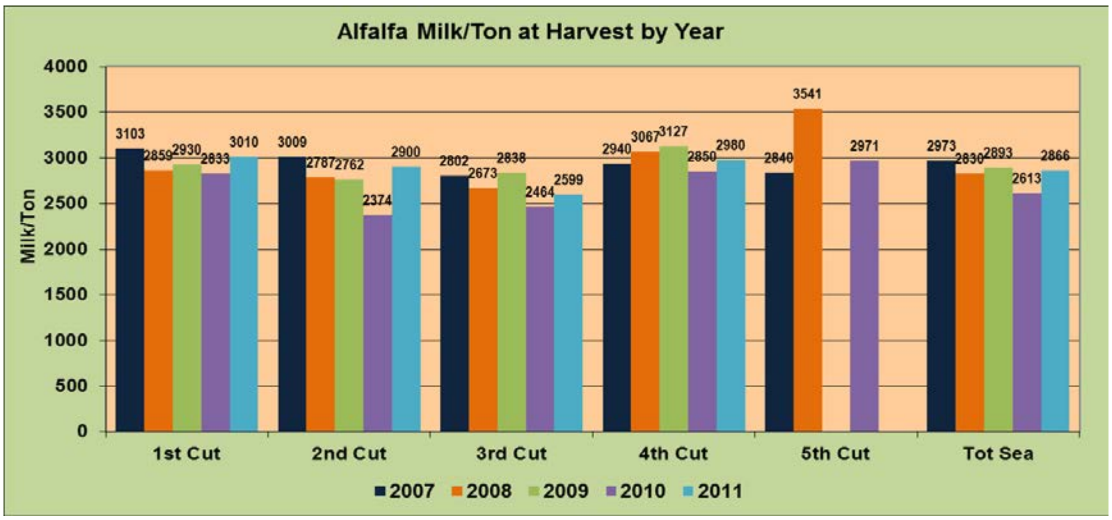
	High	Low
1st cut	58.6	44.0
2nd cut	63.4	41.4
3rd cut	55.4	36.5
4th cut	58.8	39.4
5th cut	NA	NA
Total	58.0	44.0



RFQ Ranges (2011):

	High	Low
1st cut	216	140
2nd cut	218	94
3rd cut	191	99
4th cut	271	148
5th cut	NA	NA
Total	204	130

Figure 8. Average Relative Forage Quality (RFQ) by cutting and weighted average for the total season (2007-2011).



Milk/Ton Ranges (2011):

	High	Low
1st cut	3196	2573
2nd cut	3301	2208
3rd cut	3063	2011
4th cut	3557	2605
5th cut	NA	NA
Total	3115	2527

Figure 9. Average Milk per Ton by cutting and weighted average for the total season (2007-2011).

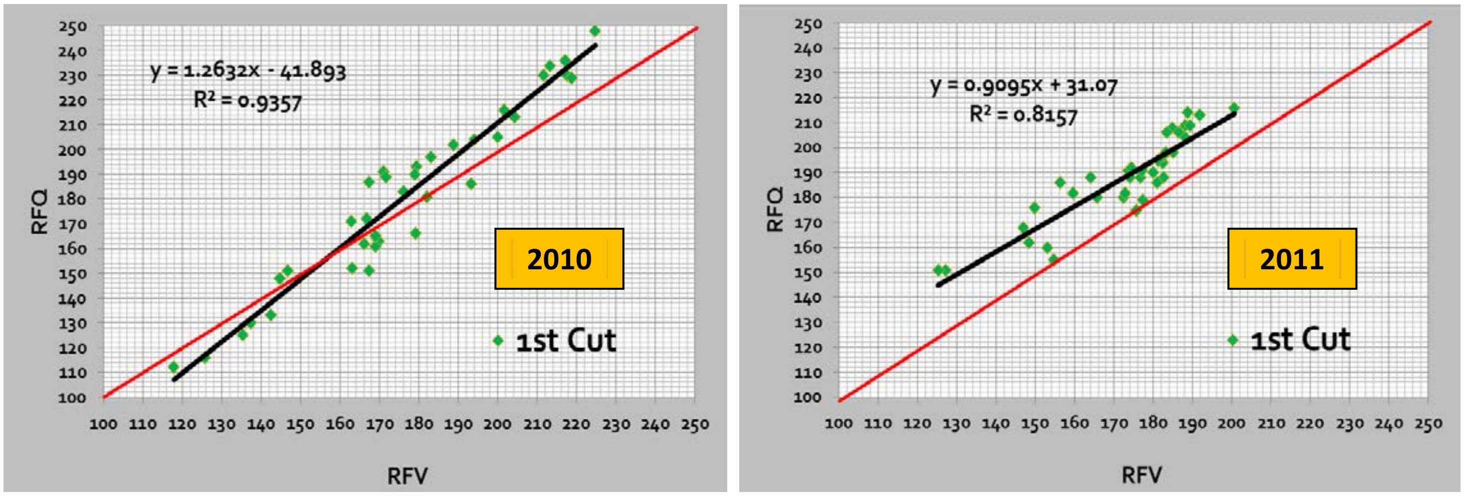


Figure 10. A comparison of RFV vs. RFQ for first-cut alfalfa in 2010 and 2011.

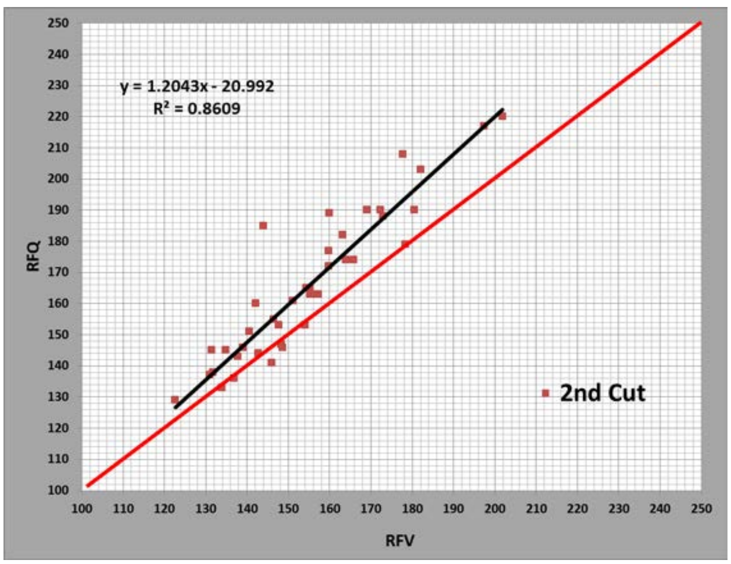


Figure 11. A comparison of RFV vs. RFQ for 2nd cut (2011)

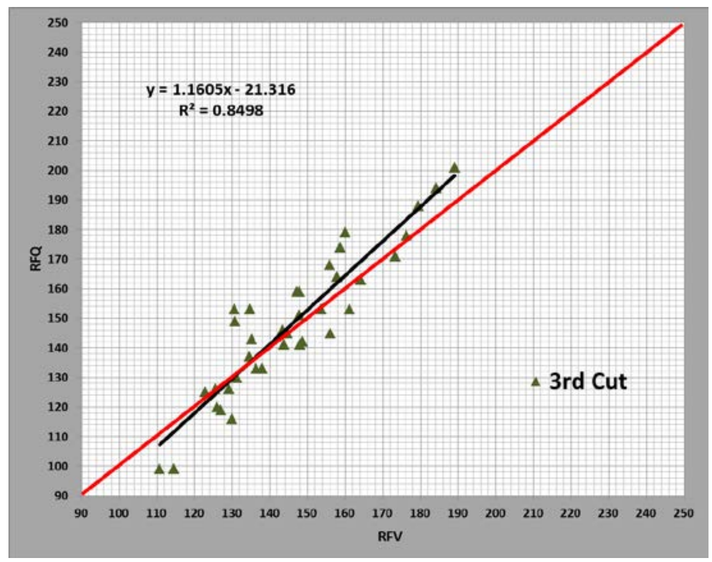


Figure 12. A comparison of RFV vs. RFQ for 3rd cut (2011)

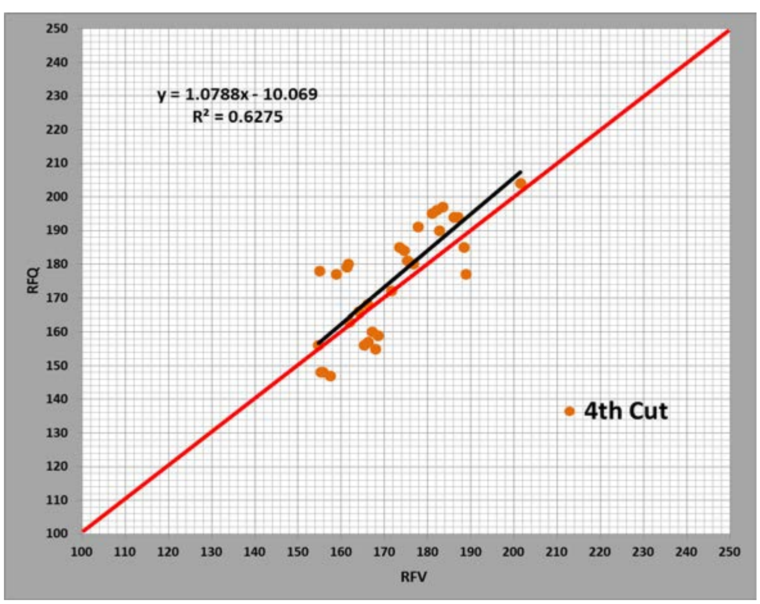


Figure 13. A comparison of RFV vs. RFQ for 4th cut (2011)

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 will increase. It's important to keep in mind that only five years of data have been collected. Environmental conditions have a profound influence on both yield and quality and during the course of the past five years there have been no two exactly alike. Nevertheless, the information presented here can be contrasted and there certainly is enough information to begin to formulate possible trends and topics for discussion.

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