



ALFALFA YIELD AND PERSISTENCE MONITORING PROGRAM 2007 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.

2007 Overview:

This was the first year of the project. In the spring, UW-Extension agents were asked to identify forage producers who would be willing to weigh and sample forage from a 2006-seeded field and continue to do so over the life of the stand. In total, six producers with nine fields were identified (note: one field was eliminated from the data summary because of variation in harvested area from one cutting to the next). All participants had on-farm scales. A summary of producer location and field information is as follows:

Field #	County	Seeding Mo/Yr.	Seeding Rate (lb/ac)	Field Size (ac)
107	Outagamie	05/06	15	103.7
207	Outagamie	04/06	16	79.3
307	Outagamie	04/06	16	37.0
407	Outagamie	04/06	16	156.7
507	St. Croix	08/06	NA	51.0
607	Waupaca	04/06	15	24.1
707	Fond du Lac	04/06	17	15.7
807	Fond du Lac	04/06	17	39.7

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. Four of the sites were sprayed for potato leafhoppers at least once (no pest management information was available for the Outagamie Co. fields).

Harvest Schedules:

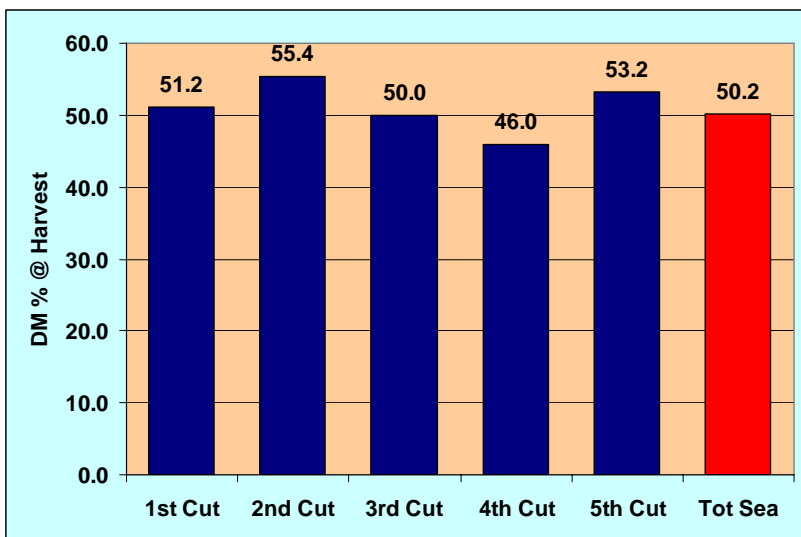
Cutting dates varied among sites, especially for the initial spring cutting date. Four of the fields were cut five times during the growing season (4 before Sept. 1st + 1 late fall cut in October), three of the fields were cut four times before Sept. 1st, and one field was cut three times, with the final cut on July 17th. The latter was the

western Wisconsin site where drought conditions were severe and the producer decided that there was no need for a late fall cutting. A summary of cutting dates is presented in Table 2.

Field ID#	1st Cut Date	2nd Cut Date	3rd Cut Date	4th Cut Date	5th Cut Date
107	22-May	23-Jun	24-Jul	31-Aug	21-Oct
207	22-May	23-Jun	25-Jul	31-Aug	21-Oct
307	22-May	23-Jun	25-Jul	31-Aug	22-Oct
407	23-May	24-Jun	26-Jul	31-Aug	22-Oct
507	16-May	19-Jun	17-Jul		
607	18-May	30-Jun	30-Jul	31-Aug	
707	26-May	29-Jun	31-Jul	30-Aug	
807	29-May	25-Jun	29-Jul	30-Aug	
Mean	22-May	24-Jun	25-Jul	30-Aug	21-Oct
Earliest	16-May	19-Jun	17-Jul	30-Aug	21-Oct
Latest	29-May	30-Jun	31-Jul	31-Aug	22-Oct

Forage Dry Matter at Harvest:

All cuttings were harvested as high moisture haylage except for the second cutting of the 507 field. This cutting was not included in the summary graph (Fig. 1).



Range for all cuts:
Wettest: 33.9% DM
Driest: 67.6% DM

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

Forage Dry Matter Yield:

Total season dry matter (DM) yields ranged from 2.39 to 6.12 tons per acre. Yield variability was primarily a function of precipitation and cutting schedule. Average DM yield by cutting and for the total season is presented in Figure 2. Detailed yield results by field and cutting are presented in Table 3.

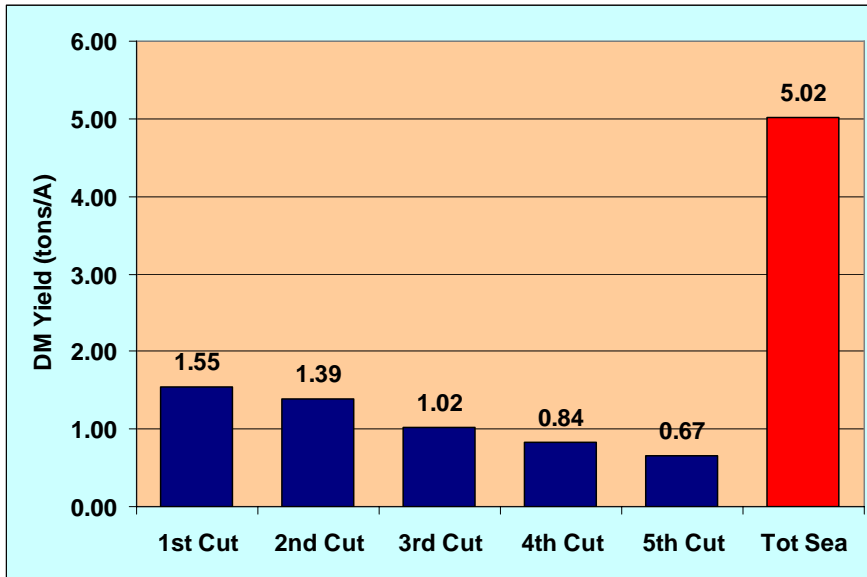


Figure 2. Average dry matter yield by cutting and for the total season.

Table 3. Dry matter yield by cutting and for the total season

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

An analysis was also done to determine the percent of total season yield for each cutting (Table 4). Data was summarized for both the 4- and 5-cut systems. Because cutting dates closely followed for both of these systems, data from fields cut five times were also included in the 4-cut summary with the final fall cutting not included in the total season yield.

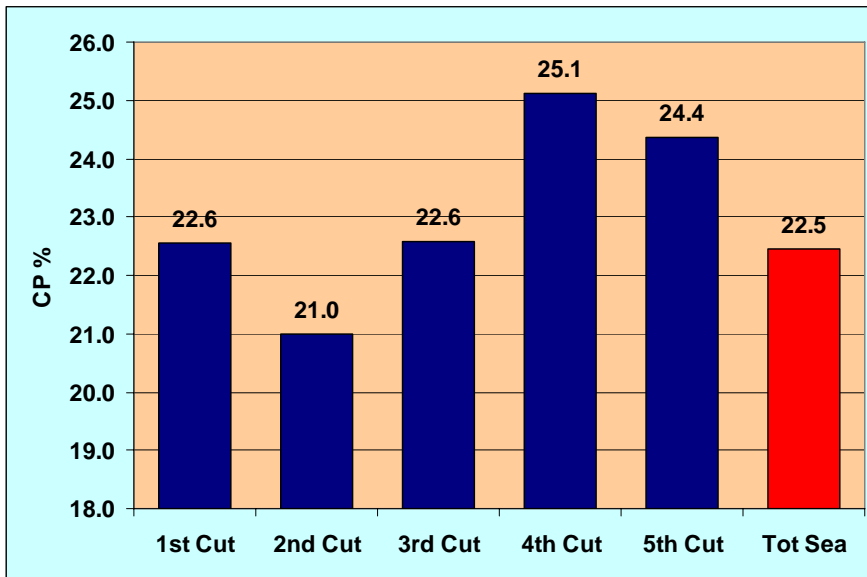
Table 4. Average percent of total season yield by cutting for 4 and 5 cut harvest systems*

4-cut system by Sept. 1 st (N=7 fields)					5-cut system (4+1 fall) (N=4 fields)					
	1st cut	2nd cut	3rd cut	4th cut		1st cut	2nd cut	3rd cut	4th cut	5th cut
Mean	33	29	22	16	Mean	28	27	20	14	12
High	40	33	26	20	High	31	31	21	15	14
Low	29	22	18	13	Low	25	25	19	12	7

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

Forage Quality:

Overall, harvested forage quality was exceptional in 2007. The ability to get forage harvested in a timely manner did not seem to be a problem. This is to be expected in dry years. Of particular interest is the consistent concentration of NDF, but the variation in NDFD as harvest moved into the hot and dry summer months. The following graphs tell the 2007 forage quality story.



CP% range by cutting:

	High	Low
1st cut	24.6	20.5
2nd cut	22.4	18.7
3rd cut	25.2	19.8
4th cut	27.0	23.7
5th cut	25.1	23.3
Total Season	23.5	21.0

Figure 3. Average crude protein percent by cutting and weighted average for the total season (8 fields, 2007).

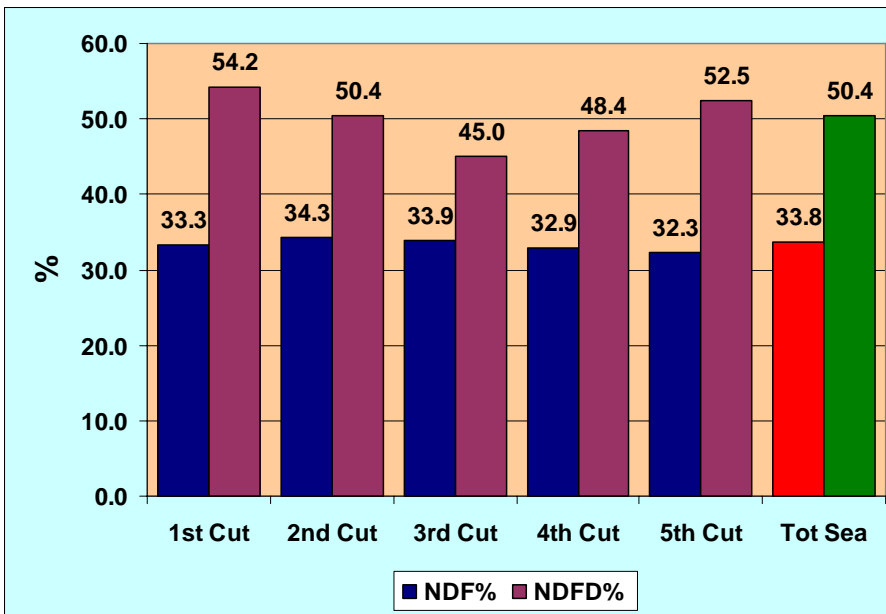


Figure 4. Average NDF and NDFD percent by cutting and weighted average for the total season (8 fields, 2007).

NDF and NDFD range by cutting:

	NDF		NDFD	
	High	Low	High	Low
1st cut	41.4	29.6	56.4	50.7
2nd cut	37.4	30.2	53.8	47.8
3rd cut	37.3	29.7	50.8	40.4
4th cut	37.4	29.5	56.0	42.8
5th cut	34.0	31.3	55.9	48.2
Tot Sea	36.3	31.6	51.9	48.4

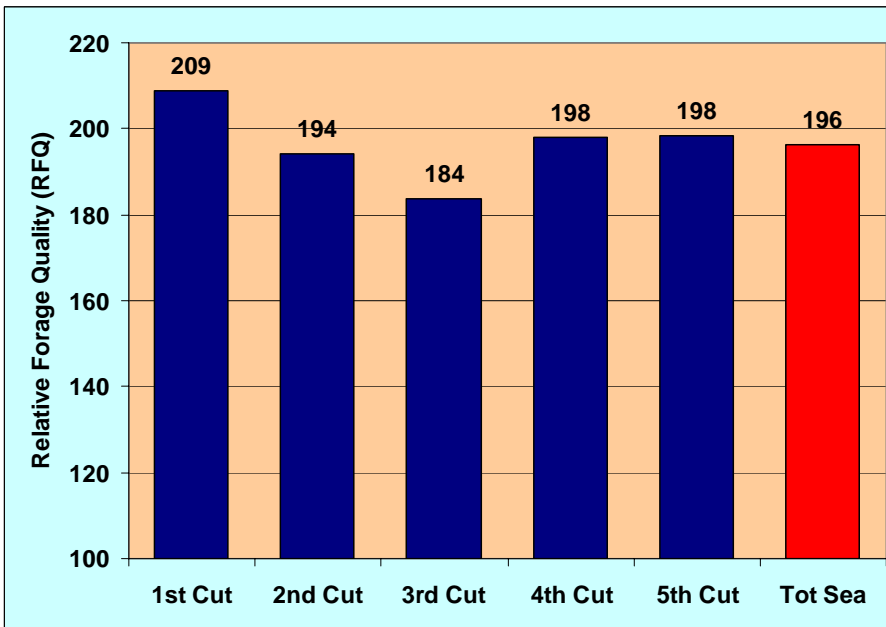
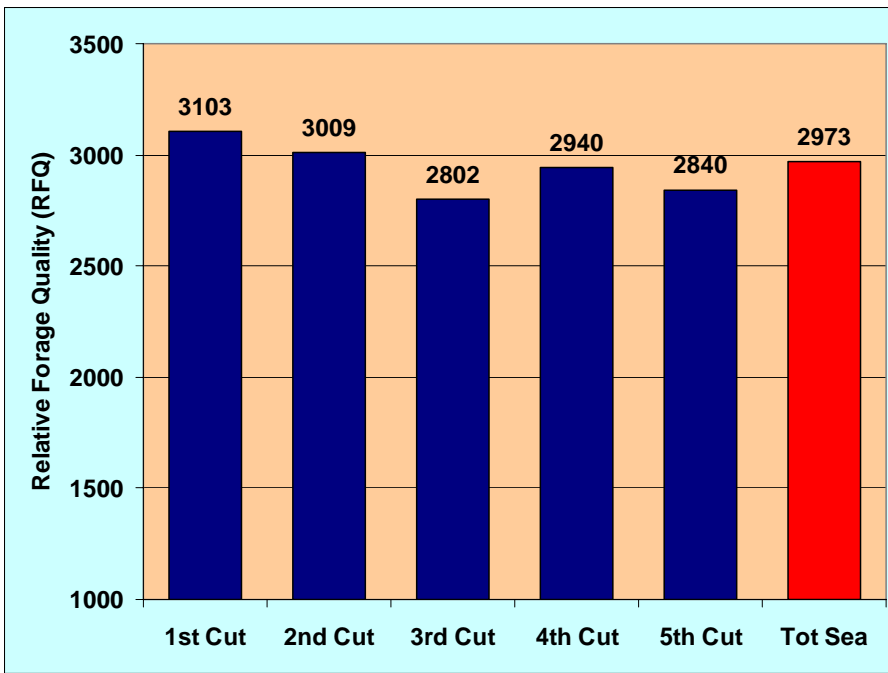


Figure 5. Average Relative Forage Quality (RFQ) by cutting and weighted average for the total season (8 fields, 2007).

RFQ range by cutting:

	High	Low
1st cut	243	142
2nd cut	231	166
3rd cut	223	146
4th cut	222	167
5th cut	214	191
Total Season	214	179



Milk per Ton range by cutting:

	High	Low
1st cut	3422	2593
2nd cut	3267	2778
3rd cut	3164	2392
4th cut	3231	2693
5th cut	3004	2685
Total Season	3092	2878

Figure 6. Average Milk per Ton by cutting and weighted average for the total season (8 fields, 2007) .

Summary:

The Alfalfa Yield and Persistence Monitoring Program is designed to provide forage growers and agricultural professionals a unique look at what is happening at the farm level. It’s just a start as future years with these same fields and new ones will give us a better idea of year to year performance variation and stand persistence. Each year provides a unique set of circumstances and 2007 was no different, but it’s really too early to surmise “How different?”

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.

UW Extension County coordinators for 2007 included:

- Greg Blonde, Waupaca County
- Kevin Jarek, Outagamie County
- Lee Milligan, St. Croix County
- Mike Rankin, Fond du Lac County

Funding for this project provided by UW Extension Team Forage

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