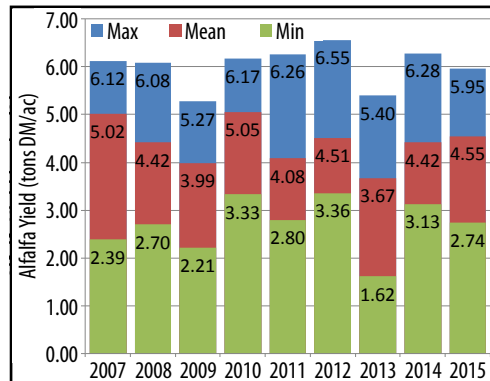


## WISCONSIN - Alfalfa Yield & Persistence Program Update

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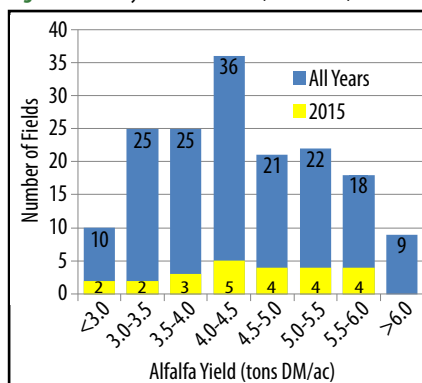
UWEX Team Forage initiated the Wisconsin Alfalfa Yield and Persistence (WAYP) Program in 2007 with two objectives. First, verify alfalfa yield and quality harvested from production fields over the life of the stand beginning with the first production year (year after seeding). Second, quantify changes in stand productivity as fields age. Over nine years, production data has been collected/summarized from 74 fields in 15 counties. This represents 171 site years, 4,700 acres, and nearly 44,000 tons of alfalfa dry matter (DM). All loads harvested on each field were weighed and two samples collected from each cutting to determine DM and quality. No special management was required. MFA has funded this study as an MFRP project since 2009.

Figure 1. WAYP alfalfa yield by year (2007-2015).



2007, nine fields yielded over 6 tons (benchmark for top yields); 10 fields were under 3 (tended to be older or weather stressed stands). Overall average annual yield for all fields was 4.38 tons.

Figure 2. WAYP yield distribution (2007-2015).



persistence without considering the impact on forage quality. Quality parameters averaged over all fields and cuttings in 2015 were: CP - 21.3%, NDF - 40.6%, NDFD - 48.5%, RFQ - 163, Milk/ton - 2876.

**Summary.** The WAYP Program is designed to provide forage farmers 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 yield with no two years being exactly alike. This project would not be possible without the cooperation of farmers and UWEX coordinators to collect data. Financial support from MFA is greatly appreciated to cover forage analysis costs.

This project will continue with new fields being added in 2016. Farmers interested in participating can contact their UWEX Agent or Mike Bertram at mbertram@wisc.edu.

Table 1. WAYP average cutting dates.

	1 <sup>st</sup> Cut	2 <sup>nd</sup> Cut	3 <sup>rd</sup> Cut	4 <sup>th</sup> Cut
2015	3-Jun	2-Jul	3-Aug	27-Aug
Prev. years	29-May	30-Jun	31-Jul	30-Aug

**Cutting date** was determined by each farmer, with the average date shown in Table 1. In 2015, 24 fields were measured (10 - 1<sup>st</sup> year production, 12 - 2<sup>nd</sup>, 1 - 3<sup>rd</sup>, 1 - 4<sup>th</sup>). Early season cutting dates were slightly later than previous years, mainly due to late May wet weather and a cool early summer. However, 4<sup>th</sup> cut was earlier than normal due to a warm late summer.

**Alfalfa DM % at harvest** ranged 40-50%, though individual cuttings and total-season field averages sometimes exceeded 50%. Trend has been toward decreased DM % in recent years. For 2015, average DM across all cuttings was 42%; individual cuttings: 43% - 1<sup>st</sup>, 42% - 2<sup>nd</sup>, 45% - 3<sup>rd</sup>, and 39% - 4<sup>th</sup>.

**Alfalfa DM yield**, in 2015, averaged 4.55 tons/ac (Figure 1) – third greatest yield; increase over 2013-2014 cool, wet years. Best yield was 5.95 tons; least was 2.74. Yields appeared to fit the trend from previous years (Figure 2). Since

**Alfalfa persistence** is calculated as distribution of yield in-season and change between years (Table 2). In each system, greatest yield was 1<sup>st</sup> cut; subsequent cuts yielded less. Note the wide range in percent yield for each cutting. This resulted from environmental conditions previous to harvest or a function of cutting date.

Yield was influenced by the age of the stand, cutting schedule, and environment. Persistence was measured as a percent of 1<sup>st</sup> production year DM yield (Table 3). Although ranges had wide variation, average yields in the 2<sup>nd</sup> and 3<sup>rd</sup> production year have been comparable to the 1<sup>st</sup> production year. The yield for 4<sup>th</sup> production year stands dropped to 74% of the 1<sup>st</sup> production year. Time will tell if trends continue, but to date it appears keeping stands for at least three years seems to be prudent.

**Alfalfa quality**, although extremely important, is not the primary focus of the project. However, it is impossible to evaluate changes in management to maximize yield and

Table 2. WAYP % of total season yield (2007-15).

	1 <sup>st</sup> Cut	2 <sup>nd</sup> Cut	3 <sup>rd</sup> Cut	4 <sup>th</sup> Cut	5 <sup>th</sup> Cut
3-cut system	44	29	26		
4-cut system	36	25	21	18	
5-cut system	31	23	18	16	12

Table 3. WAYP % of 1<sup>st</sup> production year yield (2007-2015).

	1 <sup>st</sup> Cut	2 <sup>nd</sup> Cut	3 <sup>rd</sup> Cut	4 <sup>th</sup> Cut	Season
2 <sup>nd</sup> Year	116	107	122	96	103
3 <sup>rd</sup> Year	108	109	98	100	98
4 <sup>th</sup> Year	85	86	93	70	74

View a full report at: [fyi.uwex.edu/forage/files/2015/10/2015-WAYP-Summary.pdf](http://fyi.uwex.edu/forage/files/2015/10/2015-WAYP-Summary.pdf).