



# Forecasting Forage Quality of Standing Alfalfa

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## Evolution of Alfalfa Harvest Goals

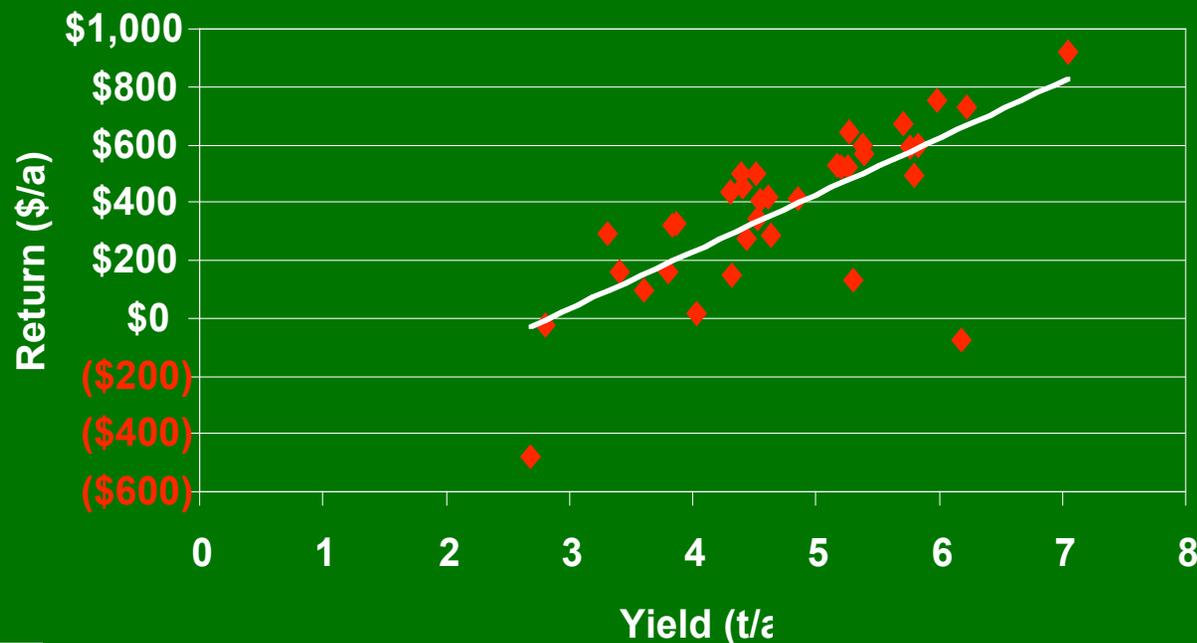
Time	Goal	No. harvests	Growth stage
1920-1950	Persistence, yield	1 – 2	Full flower
1950-1960	Nutrient yield, persistence	3	First flower
1970's	Nutrient yield	4	First flower
1980's	Nutrient conc.	4	Bud

*Sheaffer, Univ. of Minnesota, 1990.*

# Harvest for yield or quality?

Greater yield  
returns more  
profit,

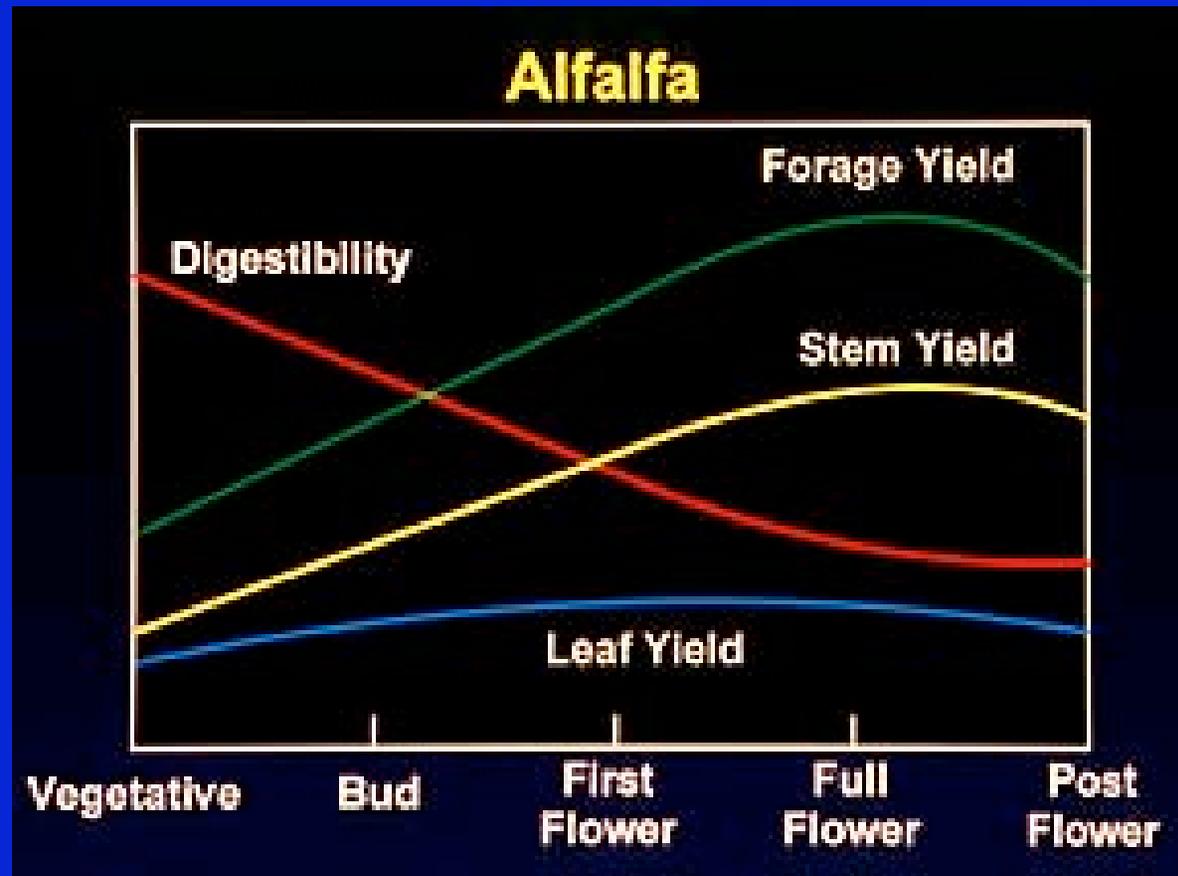
Figure 1. Effect of Yield on Return Per Acre



UWEX

Dan Undersander-Agronomy

**BUT yield and quality are opposed.**



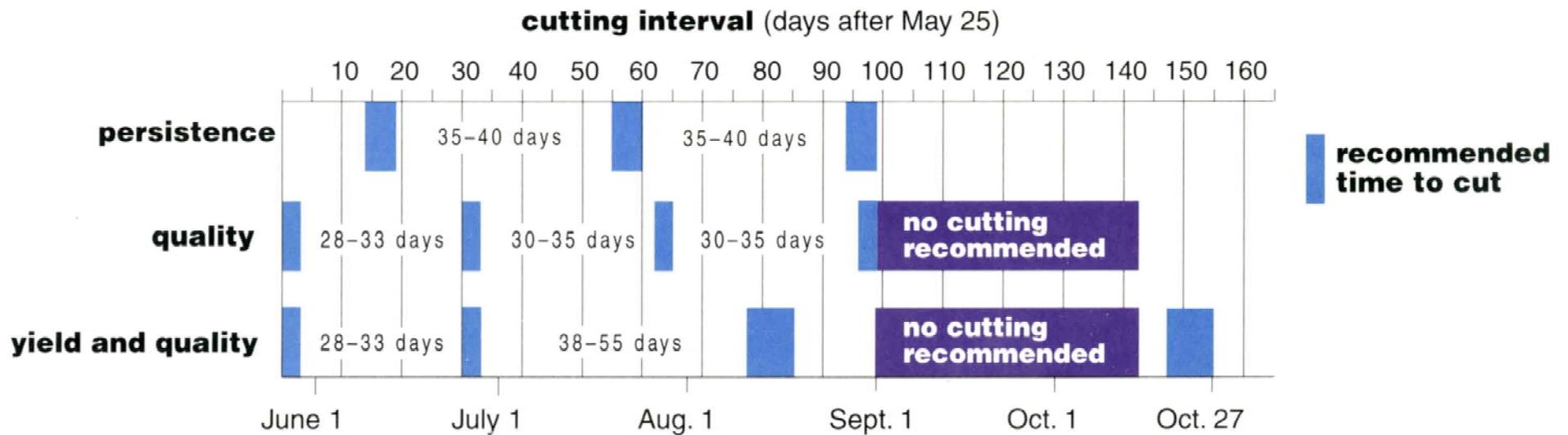
*North American Alfalfa Improvement Conf. website*

## Harvest for yield or quality?

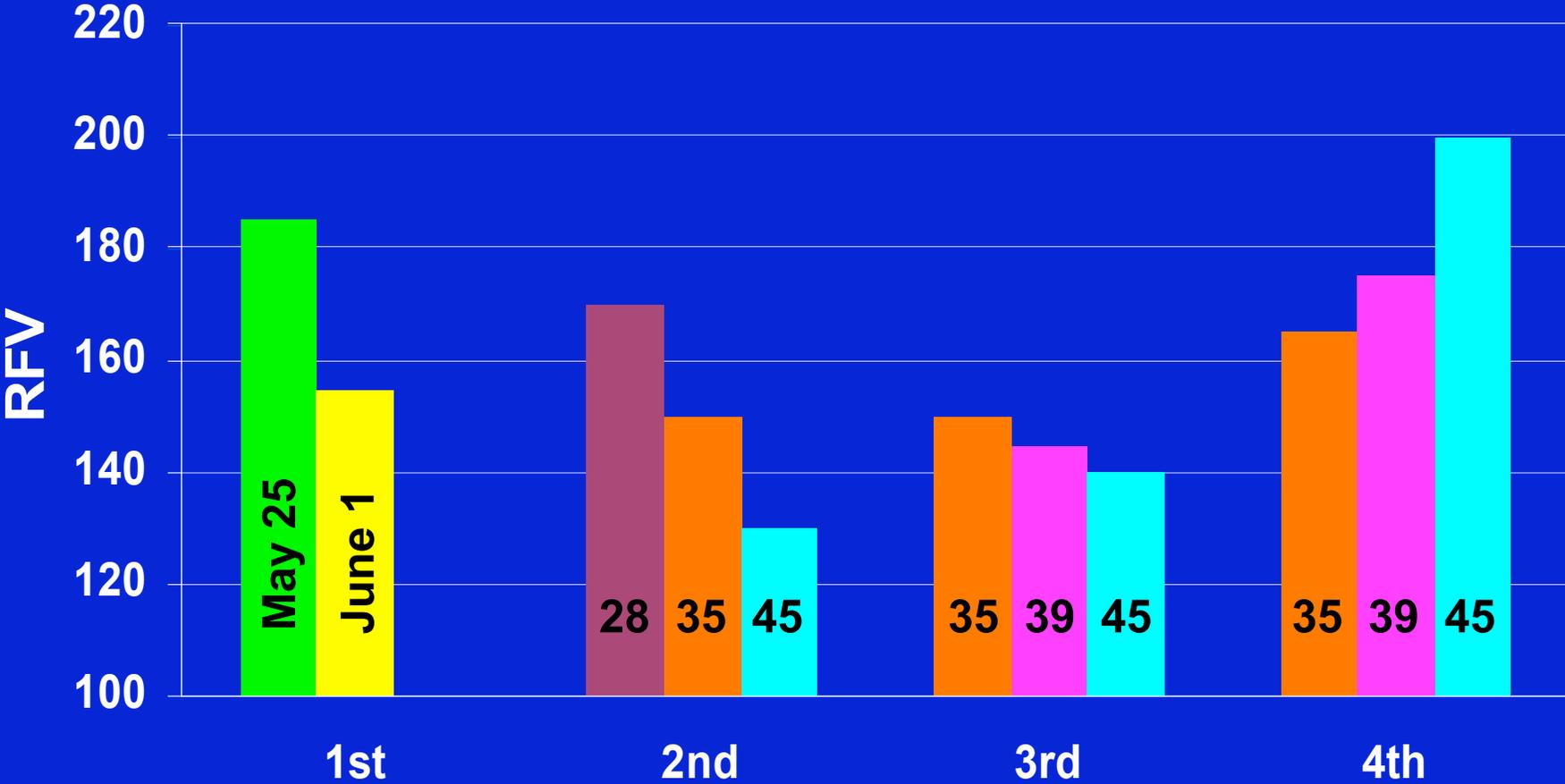
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- Alfalfa should be harvested at the quality that meets the dietary needs of the animals that will consume it and is balanced with respect to other components of the diet.

# Management goals dictate cutting date and interval.



# The influence of date of first cutting and day interval between cuts on relative feed value at St. Paul, MN.



A photograph of a rural landscape during harvest. In the foreground, a yellow combine harvester is moving through a field of golden-brown grain, leaving a trail of cut stalks. In the middle ground, a green tractor is pulling a plow, creating straight furrows in the soil. The background features a line of trees and several farm buildings, including a large white barn. The sky is filled with soft, white clouds, suggesting a late afternoon or early morning setting.

**What is the trade-off between yield and quality at each harvest?**

# Multi-environment yield-quality study

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- **Objective:** determine the rate of change in alfalfa forage quality relative to yield with increasing maturity at each harvest.
- **Locations:**
  - Wisconsin
  - Pennsylvania
  - Idaho
- **Varieties:**
  - Affinity+Z (ABI)
  - Standfast (Cal/West)
  - WL-346 (WL Research)

**1<sup>st</sup> harvest (spring)**

0 d

5 d

10 d

15 d

20 d

**2<sup>nd</sup> harvest  
(early summer)**



**3<sup>rd</sup> harvest  
(mid-summer)**

**4<sup>th</sup> harvest  
(late summer, early fall)**



**1<sup>st</sup> harvest  
(spring)**



**2<sup>nd</sup> harvest (early summer)**

**0 d      5 d      10 d      15 d      20 d**



**3<sup>rd</sup> harvest  
(mid-summer)**



**4<sup>th</sup> harvest  
(late summer, early fall)**



## Predicting decline in alfalfa quality?

- Alfalfa quality will be influenced by annual environmental conditions; initial quality and rate of decline with time will vary from year to year, but we hope to discover some consistent trends.
- Monitor your alfalfa.

