

Should Yield or Quality be the 'Rule' at Alfalfa Harvest Time?



**U.S. Dairy Forage
Research Center**

Greener Horizons for
Crops, Cows, and Communities



**Geoff Brink
Research Agronomist**

Harvest management has come a long way...

Time	Farmer's 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

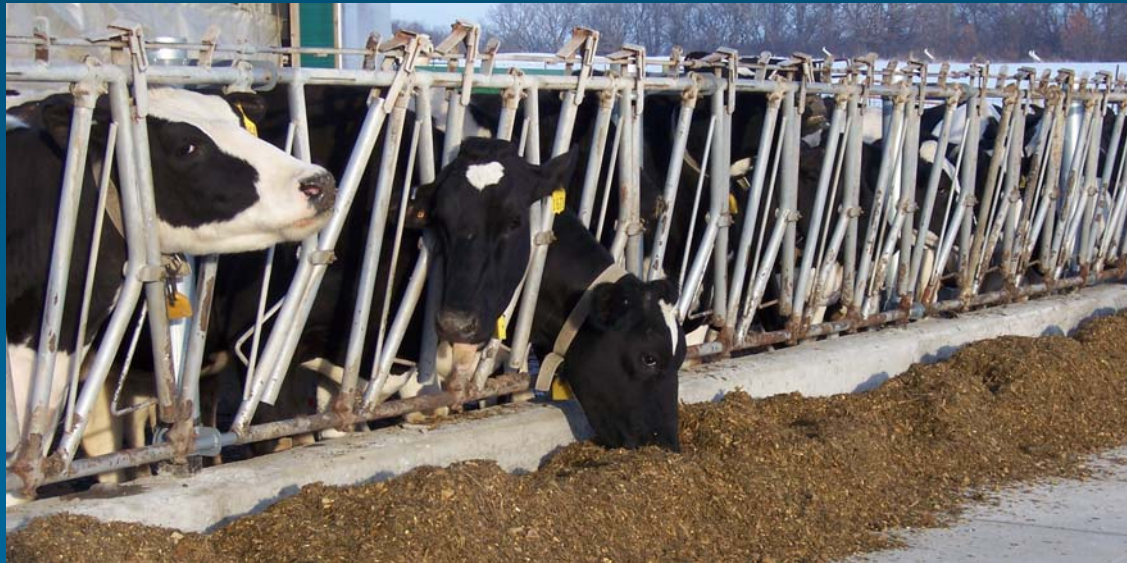
Sheaffer, 1990



Smith, 1960

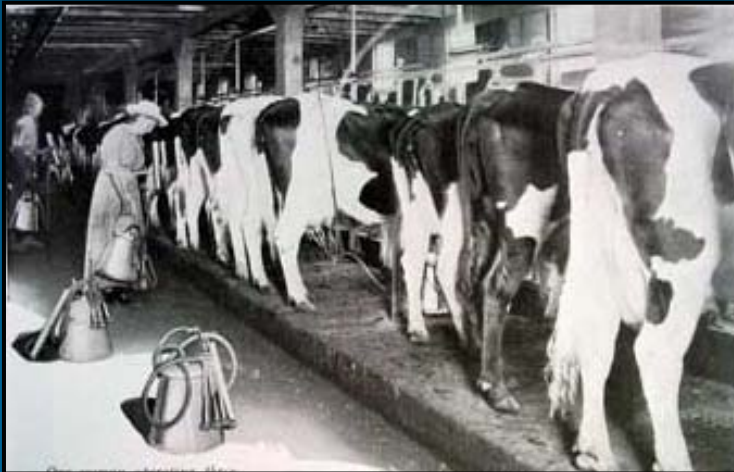
Should I harvest for yield or quality?

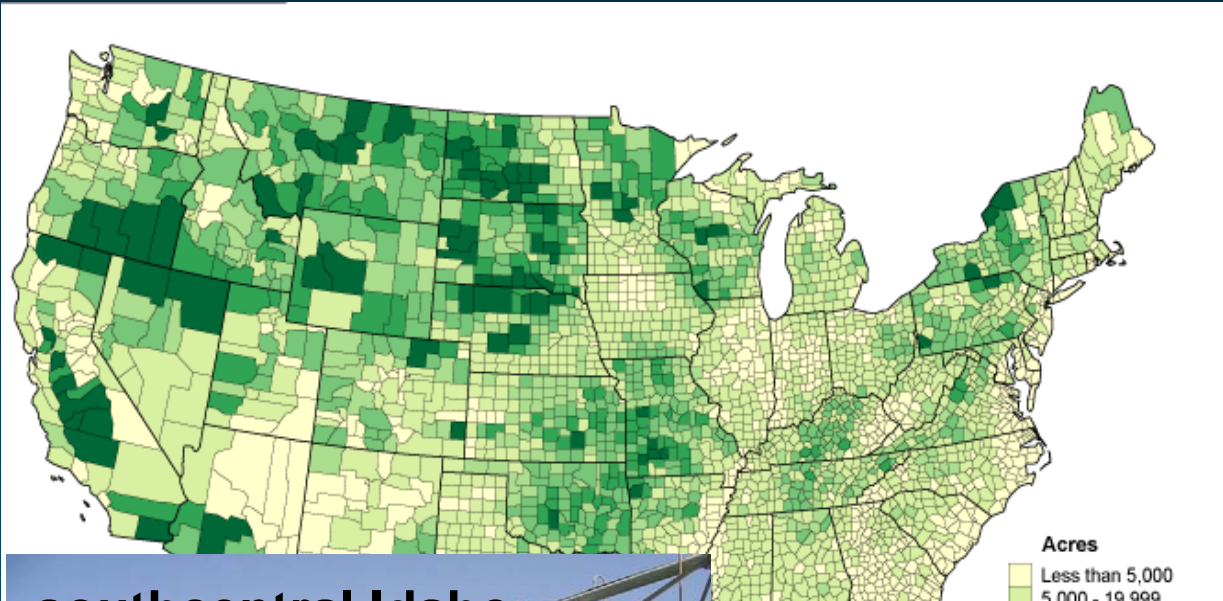
- Alfalfa should be harvested at the quality that meets the dietary needs of the animals that will consume it, and is balanced with respect to other components of the diet.



What is the trade-off between yield and quality during the growing season?

When does harvest management have the greatest impact on potential milk production?





3 varieties:

Affinity (ABI)

Standfast (CalWest)

WL-346 (WL Research)

southcentral Idaho

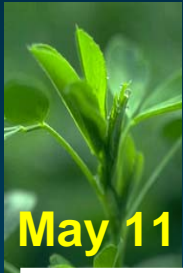


central Pennsylvania



southcentral Wisconsin





Spring

May 11

May 16

May 21

May 26

May 31



Early summer

Jun 18

Jun 23

Jun 28

Jul 3

Jul 8



Late summer

Aug 4

Aug 9

Aug 14

Aug 19

Aug 24



Fall

Sep 12

Sep 17

Sep 22

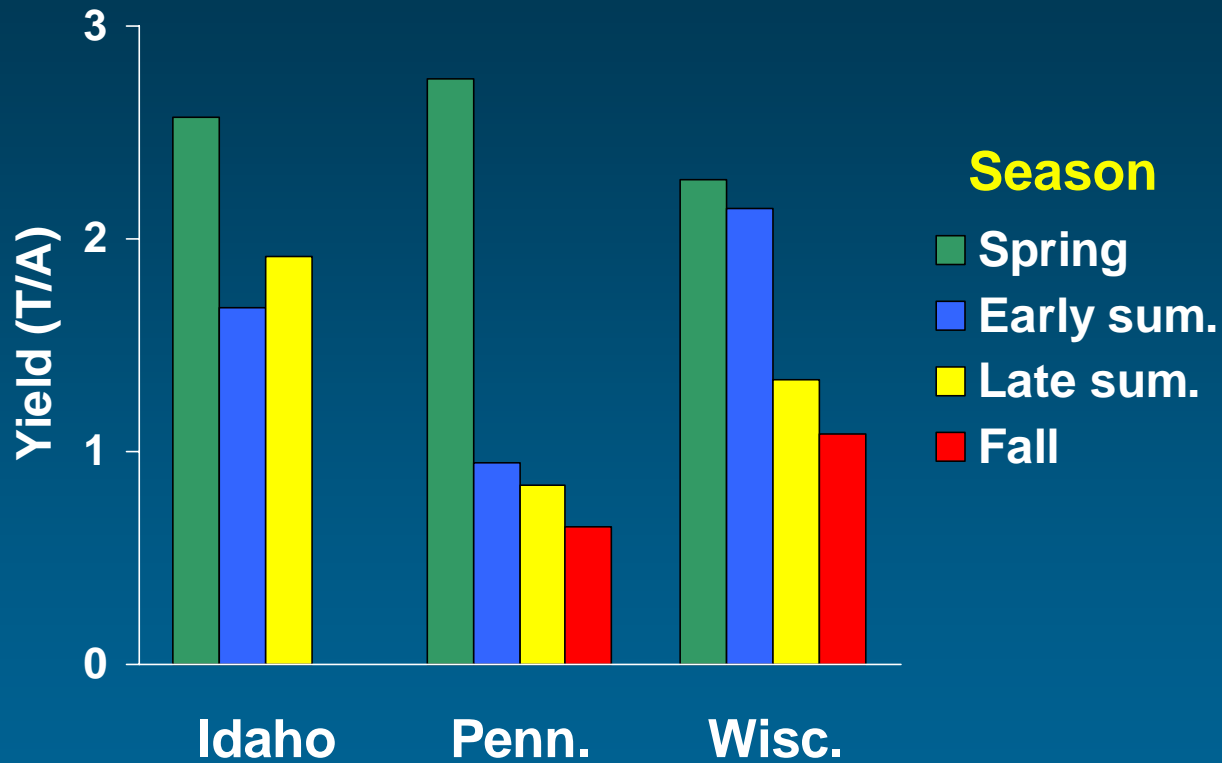
Sep 27

Oct 2

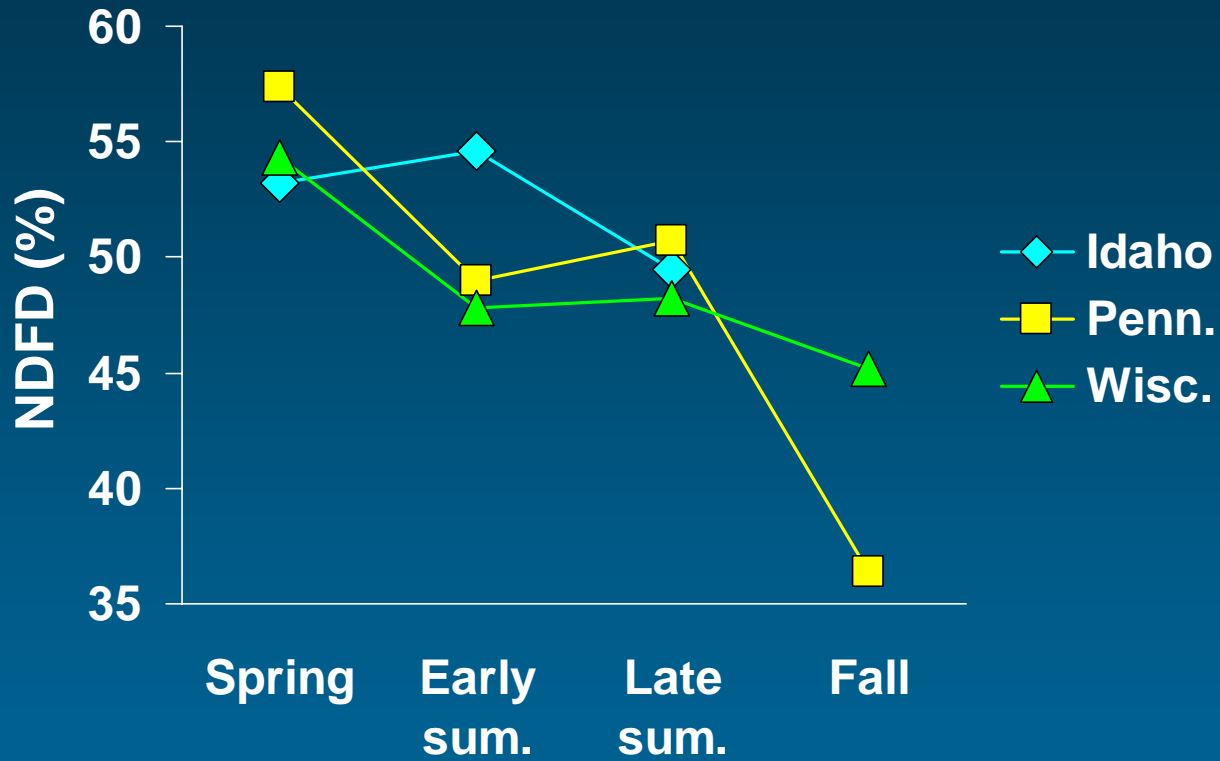
Results



Mean yield for each season



Mean digestibility for each season



Rate of DM production after vegetative stage

Harvest period	lb forage grown per day		
	ID	PA	WI
Spring	120	290	130
Early summer	180	60	250
Late summer	180	100	90
Fall	-	40	-20

Rate of NDFD decline after vegetative stage

Harvest period	% NDFD change per day		
	ID	PA	WI
Spring	- 0.3	- 0.2	- 0.4
Early summer	- 0.6	- 0.7	- 0.6
Late summer	- 0.5	- 0.2	- 0.1
Fall	-	- 0.4	- 0.4

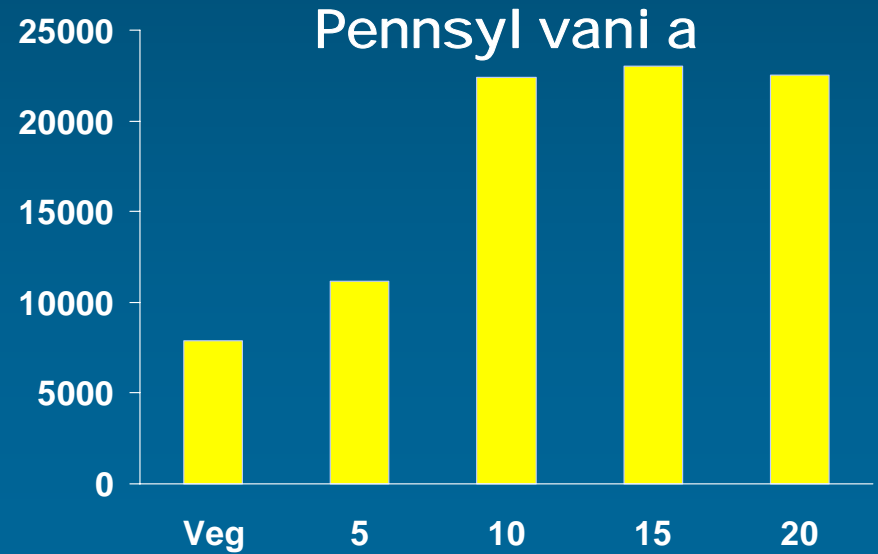
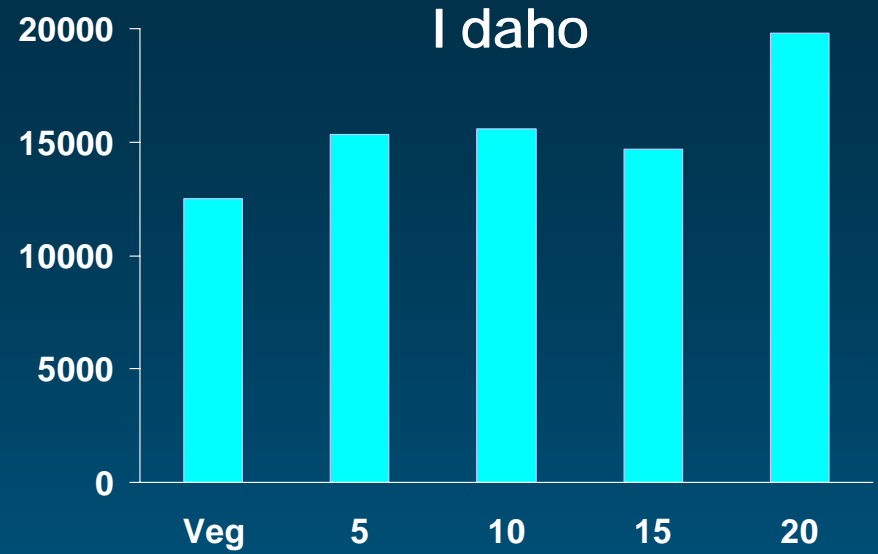


Milk2000

Index that combines forage yield and quality into a single term to estimate milk production.

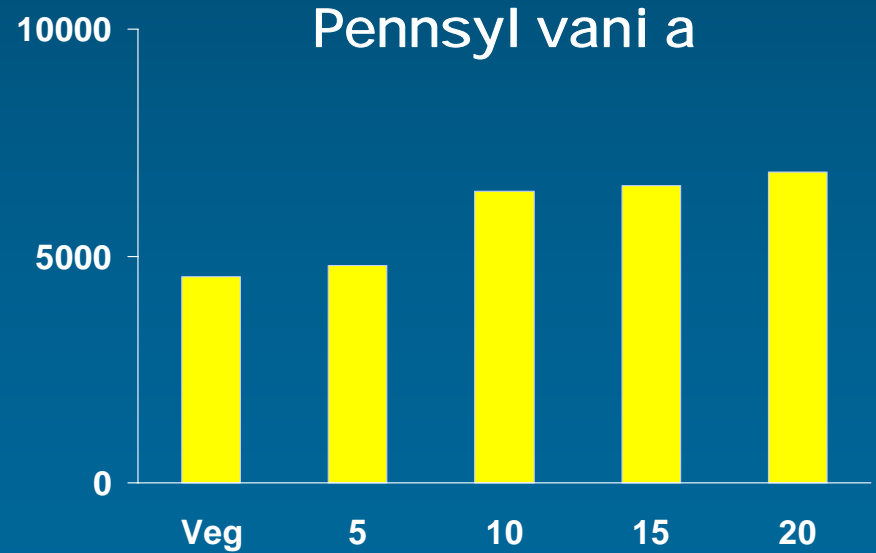
Spring harvest

lb milk/acre vs. alfalfa maturity



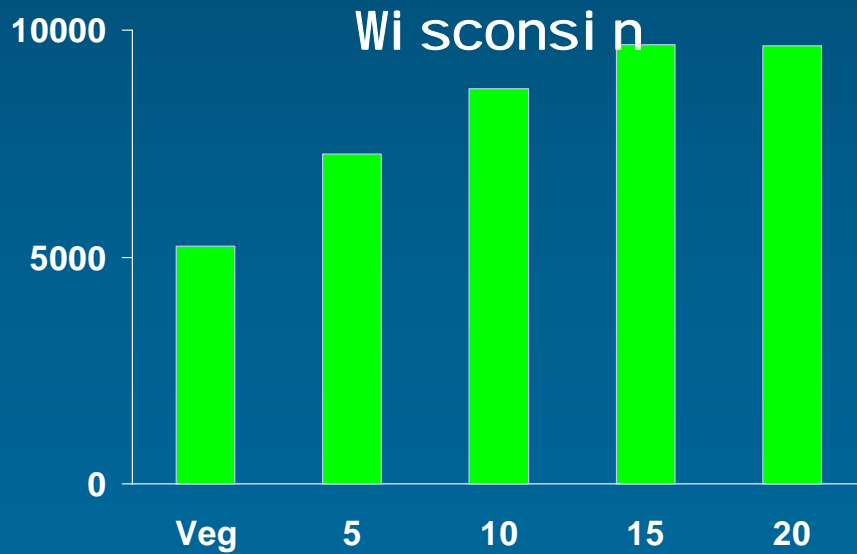
Early summer harvest

Ib milk/acre vs. alfalfa maturity



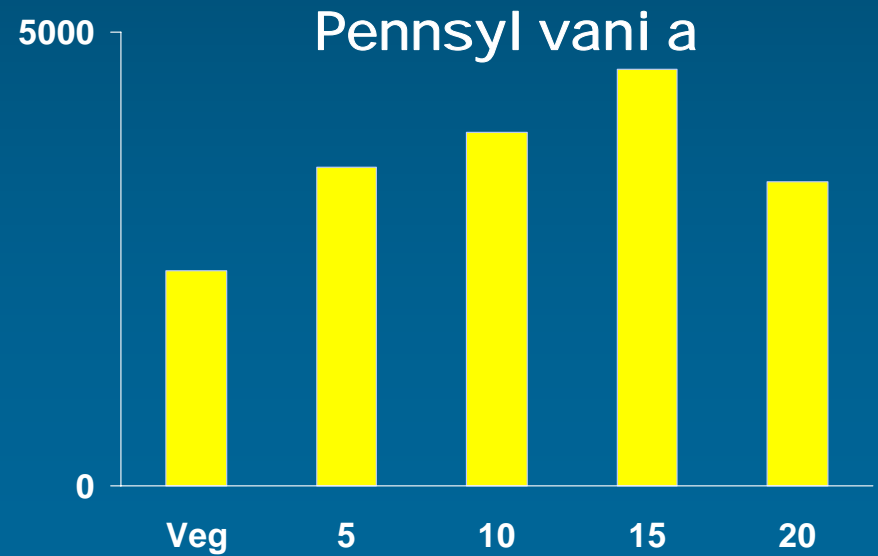
Late summer harvest

Ib milk/acre vs. alfalfa maturity



Fall harvest

lb milk/acre vs. alfalfa maturity



Summary

- 1) Forage yield and quality are usually highest in the spring.
- 2) Under conventional management (no irrigation), forage yield increases and forage quality declines most rapidly as alfalfa matures during the spring and early summer.

Summary

- 3) Harvesting within 10 days after vegetative stage in the spring and early summer provides optimum milk production and dairy quality hay.
- 4) Harvest in late summer can be delayed because digestibility declines more slowly than in the spring and early summer.

Questions or comments?

