Alfalfa Planting and Production Management

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Strengths of Alfalfa

- High yield potential
- Excellent feed value
- Long-lived
- Produces nitrogen (N)
- Flexible use

Planting New Fields of Alfalfa

Good Sites

- Fertile
- Well drained
- Deep
- Good moisture

Avoid

- Poor drainage
- High water table
- Saline or salty
- Shallow

Variety Selection

SOIL FERTILITY

Persistence of the stand, weed control and production depend on P and K.

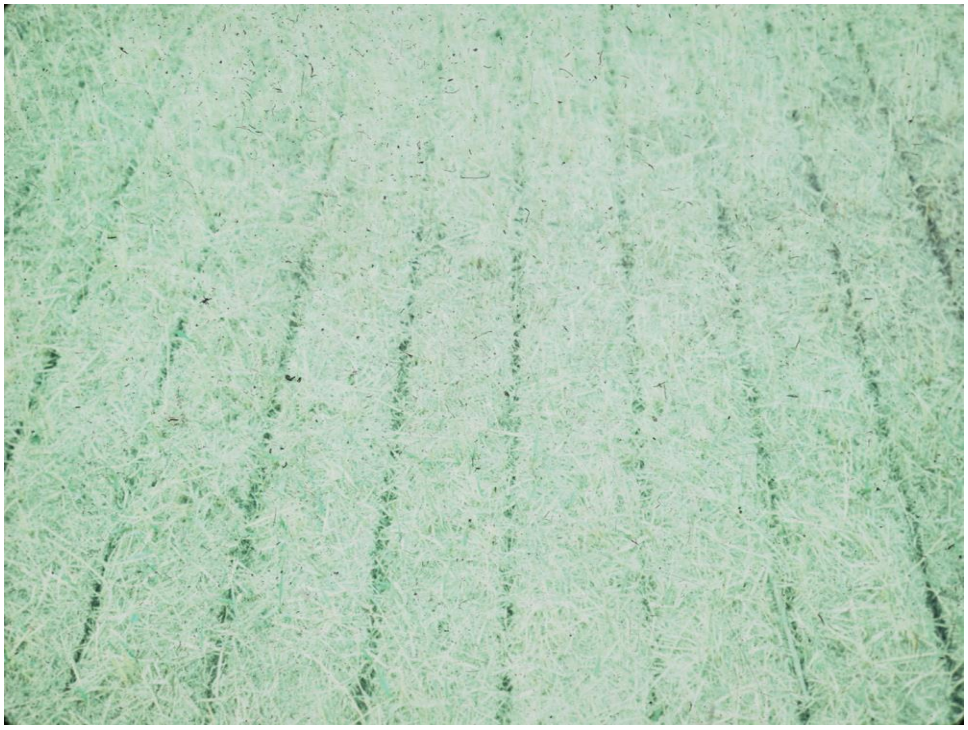
INNOCULATION

- Use Proper Innoculant
- Store in Cool, Dry Location
- Mix with Seed and Plant Soon
- Nitrogen Fixation

DATE OF SEEDING

- April
- August

THE SEEDBED

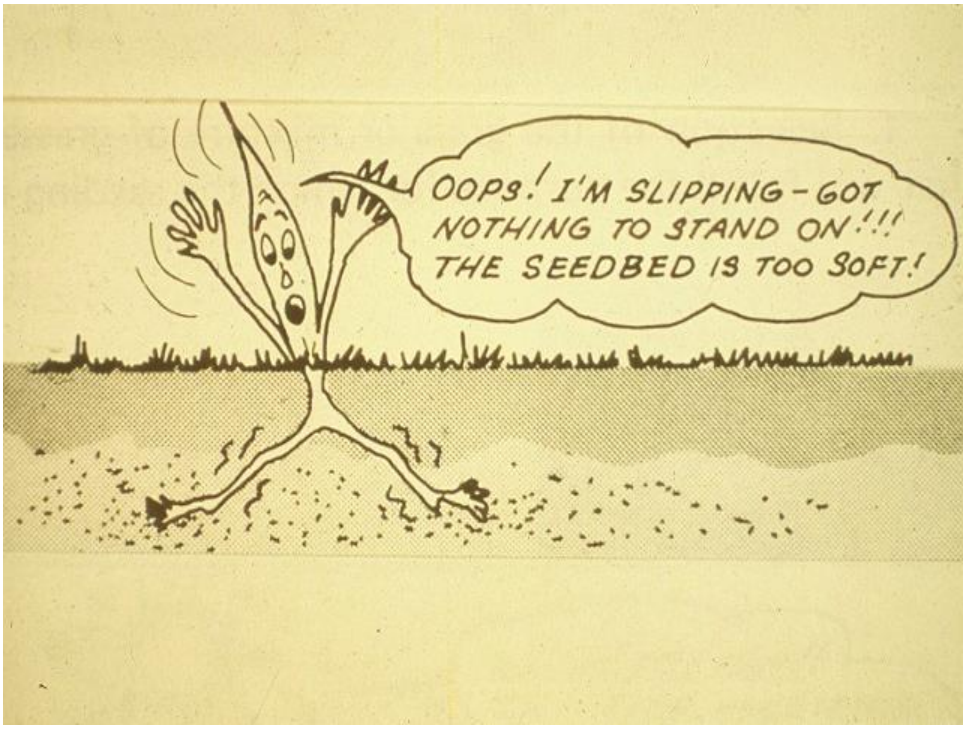


SEEDBED CHARACTERISTICS

- FIRM WITH LOOSE SOIL FOR COVERAGE
- FREE FROM "COMPETITORS"
- MOISTURE IN UPPER 3 FEET
- FERTILITY

SEEDBED CHARACTERISTICS

FIRM



Lose more plants in the first 24 hours than in the next 24 months

Effect of planting depth on alfalfa stand establishment

Soil type	Depth of planting (in)			
	0.5	1.0	1.5	2.0
	- - - - - % Establishment - - - -			
Sand	71	73	55	40
Clay	52	48	28	13

Weeds

MOWING

Effective –

Broadleaf annuals and some perennials

sunflowers, velvetleaf, ironweed

Ineffective –

Grasses, winter annuals, other perennials

foxtail, cheatgrass, sandbur,

curly dock, mustards, thistles

Cover Crops

Alfalfa yields using herbicides or oats to control weeds

Treatment	Seeding Year	1st Cut Next Year
	- - - - - - tons/acre - - - - - -	
Check	**.90**	**2.11**
Poast	**1.55**	**2.51**
Poast + Oats	**1.31**	**2.15**
Oats as hay	**.93**	**1.99**
Oats as grain	**.64**	**1.69**
Buctril	**1.44**	**2.42**
Poast + Buctril	**1.73**	**2.14**

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HERBICIDES-

- PREPLANT
- POSTEMERGENCE

Seedling Options

- Eptam
- Balan
- Trust

- Poast
- Select
- Pursuit
- Raptor
- Butyrac
- Buctril
- Roundup


Alfalfa
Your High Value Crop

Primary objectives

- Yield
- Quality
- Persistence

Season-long impact of harvest timing

	Bloom Stage at Harvest			
	Pre-bud	Bud	1/10th	Full
# of cuts	5	5	4.3	3.7
Tonnage[1]	3.8	4.1	4.3	4.4
Protein %	22.0	21.3	20.5	18.4
Protein yield	1670	1750	1760	1620
DMD[2] %	68.1	67.2	65.0	61.8
DMD[2] yield	5180	5510	5590	5440

[1] Dry weight basis

[2] Dry matter digestibility


Harvesting Forages
for High Feed
Quality


The 3 Factors That Most
Affect Forage Quality Are:

Maturity

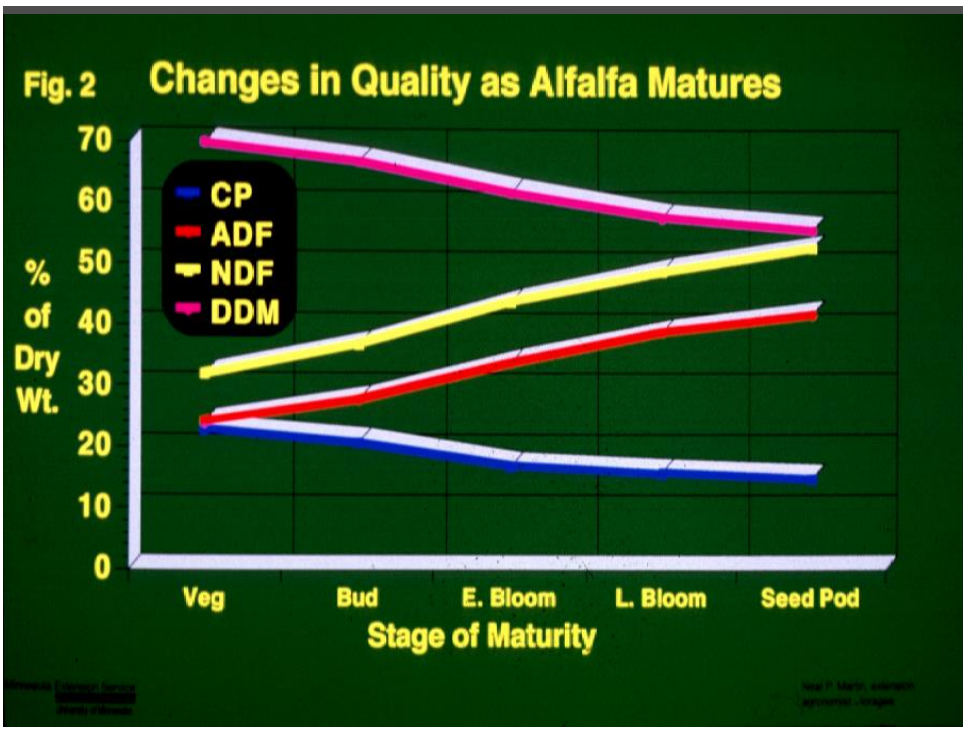
Fig. 2
Changes in Quality as Alfalfa Matures
70
60
50
40
30
20
10
0
% of Dry Wt.
CP
ADF
NDF
DDM
Veg
Bud
E. Bloom
L. Bloom
Seed Pod
Stage of Maturity

Alfalfa Maturity Affects Milk Production

	% Concentrate	Alfalfa maturity (bloom)			
		Pre	Early	Mid	Full
4% Fat Corrected Milk, lb/day	20	80	68	57	52
	37	83	69	62	55
	54	87	77	66	65
	71	86	77	65	70

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Extra concentrate CANNOT fully replace the loss in feed value (or milk production) when alfalfa quality declines.

Harvest Losses

Storage Losses

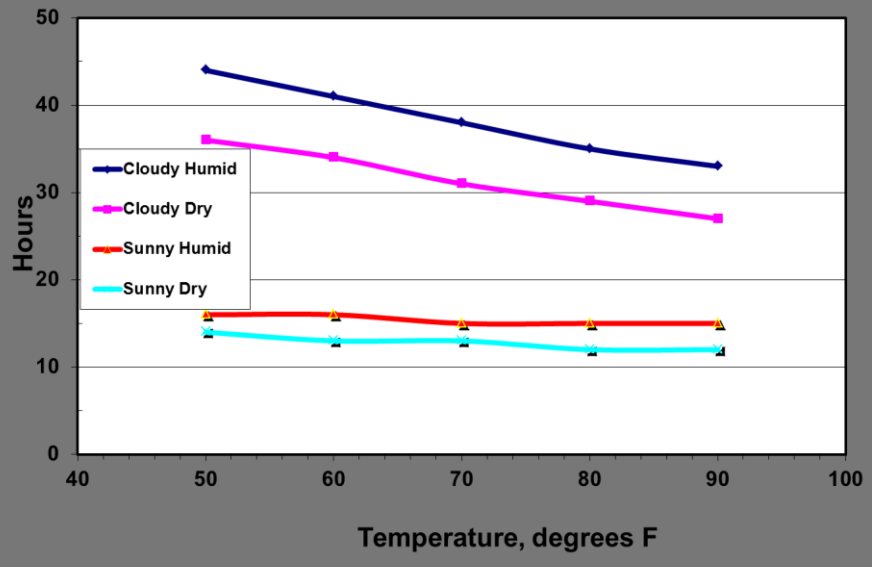
Losses in Making Hay & Silage

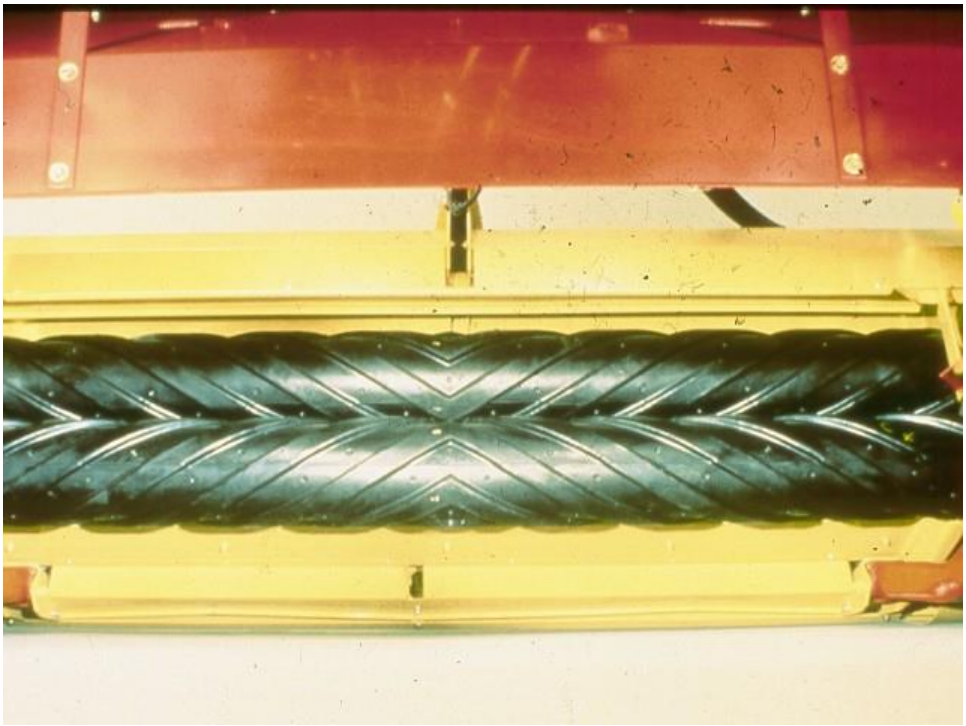
- Metabolic: plant respiration; reduce by faster dry down
- Weather: leaching, leaf shatter, respiration; reduce by shorter exposure
- Mechanical: machine operation, leaf loss; reduce by proper moisture and proper machine operation
- Storage: microbes cause mold and heat, heat lowers protein & energy digestibility, mold reduces palatability & intake; reduce by proper moisture

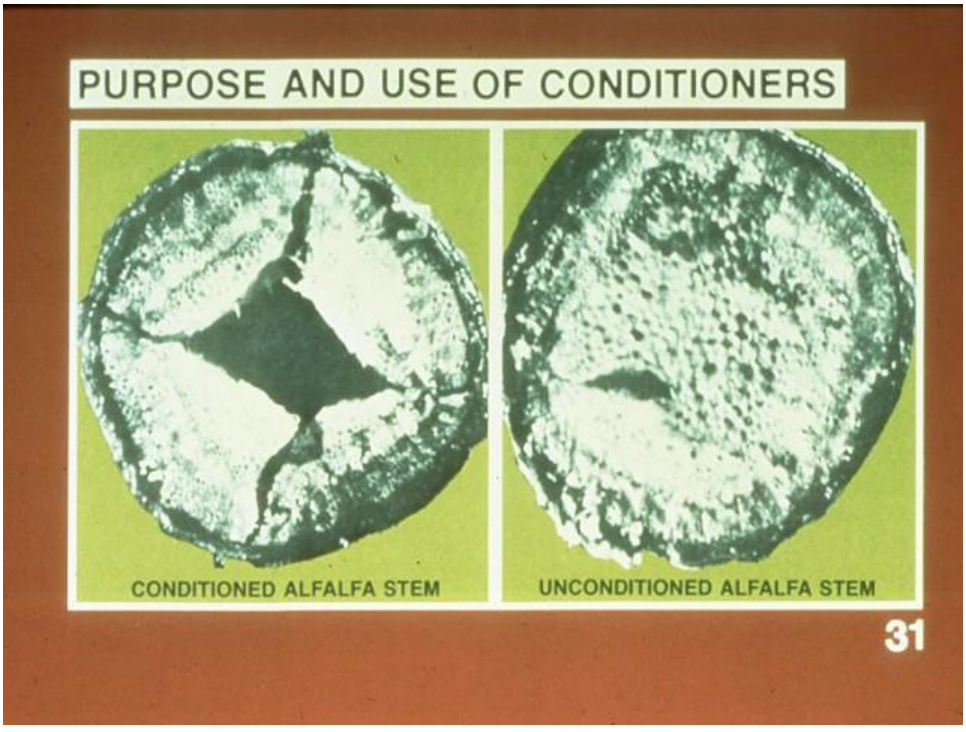
Mechanical losses

	% of nutrients lost	
Operation	Average	Range
Mowing	2	1 - 4
Conditioning	5	2 - 10
Raking	8	3 - 20
Tedding	7	3 - 25
Baling		
square	7	3 - 8
round	9	4 - 18
Total	24	12 - 50

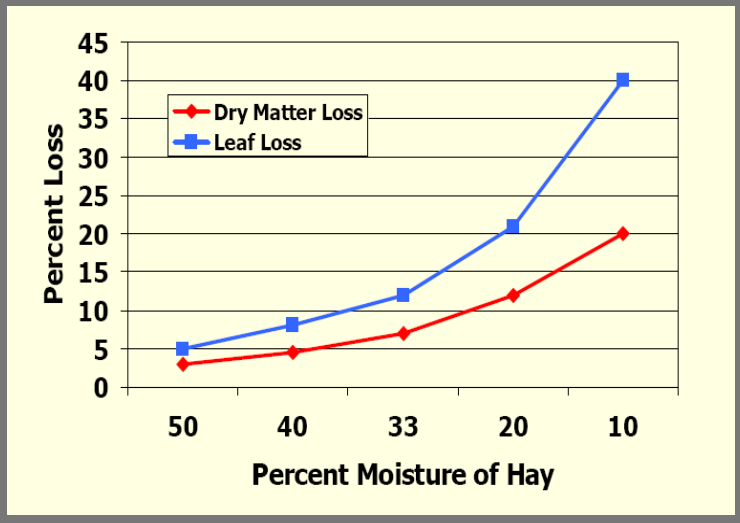
Hours to dry alfalfa from 80% to 20% moisture






PURPOSE AND USE OF CONDITIONERS
CONDITIONED ALFALFA STEM
UNCONDITIONED ALFALFA STEM
31

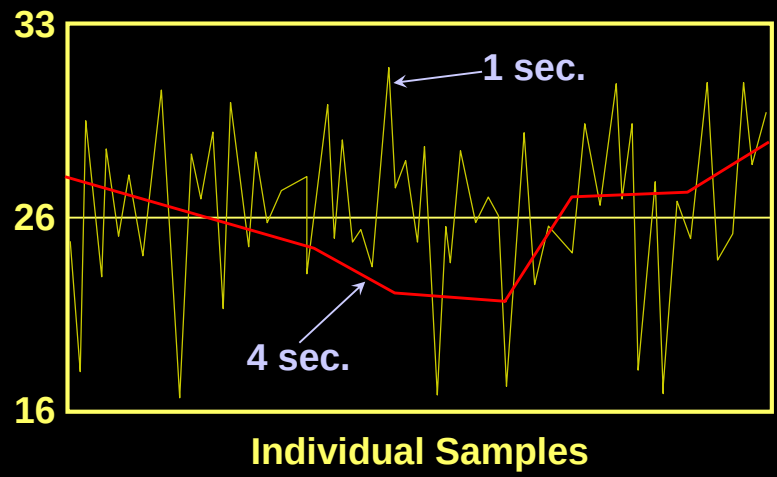
Alfalfa losses due to moisture content when raked



Tedding

* BEWARE OF LEAF LOSS
* shortly after cutting
* uniformity

Windrow Moisture Variability

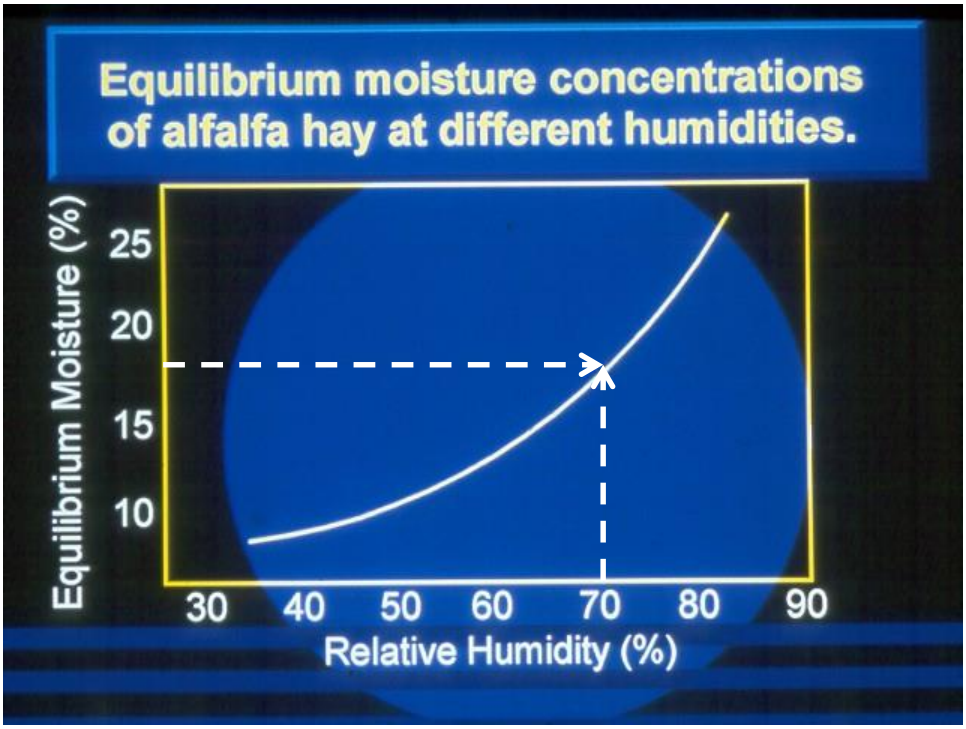



NEW HOLLAND
848


FREEMAN

Moisture for Baling

Small	Medium	Large
<20%	<16%	<14%



Inoculants

- Not consistently effective for protecting 'tough' hay
- Most useful when baling hay that might store safely without help – insurance

Preservatives

* Inhibit or kill bacteria, mold, and yeast
* Discoloration
* Reduce but will not eliminate heat damage

Dew Moisture vs Stem Moisture

Specialized Preservative Rates

Bale type	Moisture type	Moisture conc. <20	20-24	24-30
Small square & large round	Dew	2	6	12
	Stem	4	8	16
Large square	Dew	4	8	16
	Stem	6	12 (?)	NO

The only preservatives or inoculants that permit consistent, reliable and safe baling of high moisture hay (over 20%) when applied uniformly at correct rates are the organic acids.

Storage


X

STORING BIG BALES

* Cure before storing
* Air circulation
* Humidity and temperature
* Weather damaged
* Drying fans


Thank you

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