Navigating Decisions on Grass/Alfalfa Strategies

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1970’s Cornell University study found
• alfalfa will stay at a higher population in wet areas
• if it is with a perennial grass companion

Dr. Jerry Cherney, Cornell University

%Forage in Ration that is Grass

Rate of digestion was higher for alfalfa (0.076/hour) than fescue (0.045/hour). Extent of fescue digestion was considerably higher than that of alfalfa.

Digestibility of NDF is over 10 percentage units higher for grass silage over legume silage, at either 30 or 48 hours.

Meadow Fescue from USDA
9.7% higher NDFd
17% lower lignin
Meadow fescue more winter hardy than tall fescue.

Forage Quality Impact of Adding Grass to Alfalfa Stands

Economics of Quality

1% unit NDFD = 0.5 lb milk/cow/day
What is the potential economic advantage of improved grass & alfalfa?
Grass and Fiber Digestibility of Mixtures

Mixture NDFD, %

Grass %

Meadow Fescue
Other grasses
(Based on average alfalfa NDFD)

1% unit difference in mixture NDFD

MF was 10% higher in NDFD

Grass and Fiber Digestibility of Mixtures

Dr. Cherney, Cornell

HarvXtra Alfalfa
Other Alfalfas
(Based on average grass NDFD)

Assume 1% unit change is significant.
(HarvXtra was 5% higher NDFD)

(HarvXtra-type Alfalfa is reduced lignin)

1% unit difference in mixture NDFD

Impact of Variety/Species selection on Fiber Digestibility of Mixtures

If 1% unit NDFD in a mixture is significant

Grass species selection matters

Alfalfa and Fiber Digestibility of Mixtures

Dr. Cherney, Cornell

Alfalfa variety selection matters

Grass species selection matters

Grass NDFD is much higher than alfalfa NDFD.

As low as 5% (any) grass will increase NDFD of an alfalfa-grass mixture 1% unit.

What about delaying harvest (HarvXtra e.g.)?

Grass dilutes out HarvXtra advantage

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How long can you delay harvest in alfalfa-grass mixtures?

Grass % in a mixture

Days HarvXtra harvest can be delayed

Based on 2017 & 2018 NY trials

Including MF and Hx in mixtures (NY)

Assume Grass% = 30%

Grass fertilized with 100 lbs N/a, Ithaca, NY

Grass with Alfalfa

Expands the Harvest Window
for Very High-Quality Forage

What happens with CP in pure stands?

7 alfalfa and 7 grass varieties sampled.
Grass fertilized with 100 lbs N/a, Ithaca, NY

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Whole Farm Approach to High Quality Forage with Grass

"As grass increases in stand the management of the stand often slack off resulting in mediocre forage."

Dr. Cherney

When Is All Grass Field Ready?

- The day after you harvest triticale winter forage
- When alfalfa is 12 inches tall
- When the dandelions turn white in the field

Geographical Impact on Harvest Window

- South facing slope ready before North facing
- Well drained ready before poorer drained
- Grass ready before Alfalfa

Cutting Bar Height is Critical for keeping or removing grass.

Minimum Tillage Haylage

Why Cut Close

Higher Yield
Clean field (gets down material)
Pride (good mowing job)

This Comes at a Price
Tilted Knives and Mowing Close

- **9% vs 11% Ash**
  - You lose 1.9 lbs of milk compared to the same forage without that much ash
  - In 305 days with 1000 cows is 5795 cwt (at $20/cwt = $86,920)
  - It can be made up by more grain, at a price and by money leaving your farm unnecessarily.

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**This does NOT work with grasses**

<table>
<thead>
<tr>
<th>Species</th>
<th>Change per inch of stubble height</th>
<th>% N/acre</th>
<th>Cut 1 in.</th>
<th>Cut 2 in.</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orchardgrass</td>
<td>0.37 - 0.26 0.34 - 0.20</td>
<td>1.9</td>
<td>1.8</td>
<td>1.4</td>
<td>2.2</td>
</tr>
<tr>
<td>Reed canary</td>
<td>0.55 - 0.57 0.66 - 0.68</td>
<td>1.7</td>
<td>1.8</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Tall fescue</td>
<td>0.37 - 0.39 0.49 - 0.23</td>
<td>1.8</td>
<td>1.8</td>
<td>1.7</td>
<td>1.8</td>
</tr>
</tbody>
</table>

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**Major Impact on Stand Life/Profit**

**Figure 2. Effect of stubble height on NDF of harvested alfalfa.**

- **On-Ok**
- **On-100K**
- **60-Ok**
- **60-100K**

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**Miner Institute**

- Greenhouse experiment at 2 inch cut height
- Reeds Canarygrass: Completely killed
- Orchardgrass: Drastically reduced rate of regrowth
- 4 inch cut height
- Both grew fine
- Reeds Canarygrass was 16 inches in 21 days

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**Grass Fields Should be Mostly Green When Cutting is Removed**
Where do You Start, 
What reaches the Mouth of the Cow

At Field Time of Harvest

Harvest Losses

Storage Losses

Feed-out Losses

Hooray!, I think he is finally going to be quiet

Questions?

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