Growing High Quality Alfalfa, Grass, & Alfalfa-Grass Mixtures

J.H. Cherney, Cornell University

The Northeast vs. the USA.

>85%

<10%

Alfalfa acres sown with grass

Why so much alfalfa-grass? Sub-optimal soil drainage **Comfort level feeding alfalfa-grass** Research supporting alfalfa-grass (Cornell and UW) There have been improvements in alfalfa, some in grass.



Feeding Trial Conclusions Cows on grass-based diets can produce similarly to cows on alfalfabased diets.

The more forage in a diet, the more important the NDF content of the forage.

Alfalfa-grass mixtures can maximize the forage content of a balanced ration and also have high milk production.



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MEADOW FESCUE

ITS CULTURE AND USES.

H.N. Vinall

Meadow fescue region of USA, 1909



"In the East, meadow fescue has shown itself to be almost as well adapted as orchard grass to the clay soils, and though not quite as productive, it is rather more palatable than the latter."



| Relative Importance of Factors on Alfalfa-Grass Ratio (Before planting) | | |
|--|---------------------|-----------|
| Favors A | Ifalfa Factor Favo | ors Grass |
| Higher | Soil pH (6.5) | Lower |
| More | Soil drainage | Less |
| e.g.(Tir | n) Grass species | e.g.(OG) |
| Lower | Grass seeding rate | Higher |
| Less | Soil compaction | More |
| Later | Spring seeding date | Earlier |
| Earlier | Summer seeding date | Later |

Relative Importance of Factors on

 Kelative importance
 Alter planting

 O/S
 Ifa-Grass Ratio (After planting)

 Fave
 Ifa Factor
 Favors Grass

 None
 Ifa Factor
 Favors Grass

 Ifa Factor
 Favors Grass
 More

K fertin. Month officer More Newer Janino Less Cuts per season Stubble ht. (season) Higr Lower Higher Lower Stubble ht. (fall)

Yield Summary, recent research

In Northeast, alfalfa-grass outyields alfalfa.

DM yield is 0.1 to 0.4 t/a higher for every 10 %unit increase in grass percentage.



Effect of grass% in mixture on grass CP Very high fertility = 0.7%unit drop in CP in grass (with 10%unit increase in grass%) in grass, % High-fertility = 1.0% unit drop • in CP in grass <u>с</u> Ave. fertility = 1.5% unit drop in CP in grass 4() Grass% in mixed stand

Total fiber differences













Reduced lignin alfalfa vs. MF

Hx averaged 14% lower lignin. Compared to HiGest, WL355, WL356HQ, LegenDairyXHD, Pioneer 55H94. MF averaged 17% lower lignin. **Compared to TF, OG, Festulolium.** (All lignin values are weighted for yield)



So what is the downside? Getting and keeping 20-30% grass

Current Recommendation Meadow fescue (1-2 lb/a) High Quality alfalfa (12-14 lb/a)



2019 Alfalfa-Meadow Fescue Research 19 MF varieties in pure stands and sown with alfalfa. SW Revansch

> Tetrax Liherold **Preval Pradel Barvital** Cosmonaut Driftless Hidden Valley Tored

SW Revansch Pardus Barika Barcrypto Laura **SW Minto** Arni Jogeva 47 Harlequin Hyperbola

10% MF (Late Sept. 2018)

End of seeding year

25% MF (Late Sept. 2018)

Range of 0% visible to 25% MF

End of seeding year



Grass quality (A-G stands) is affected by region



Differences among MF varieties





2018: 4 cuts: Effect of weather



Economics of Quality

1%unit NDFD = 0.5 lb milk/cow/day

What is the potential economic advantage of improved grass & alfalfa?

Including MF and Hx in mixtures (NY)



Grass%In mixtures is affected by weather Grass selection requires region-specific guidelines



Hand-held NIRS for on-farm forage analysis. At least 5 companies currently. Visible and Near-Infrared Wavelength Range

Calibration associates wavelengths with quality parameters (DM, NDF, etc.)





Stationary scans vs. Sliding scans

On-board computer vs. vs. sending to cloud for analysis.

Moisture varies day-to-day. Under feeding or Over feeding.

Price vs. Benefits

2019 NAFA grant

Do they work well enough? Moisture and particle size issues.

Pros & Cons of Alfalfa-Grass

Pros Cons **Healthier animals Variable forage quality** Longer stand life Limited weed control Less winterkill Roundup-Ready alfalfa Less traffic damage **Fewer pests & disease Improved soil health** Less erosion

HarvXtra Air Seeding in NY

Establish RR-alfalfa and spray for weeds. Interseed grass into pure alfalfa stand.

Has been done successfully in spring and late summer after spraying Roundup.

Alfalfa-Grass = Milk + Healthy Cows Alfalfa-Grass is not easy to manage

20-30% grass in mixture is ideal

Meadow fescue looks good (Northeast)

Choose late maturing grass varieties.

The End

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