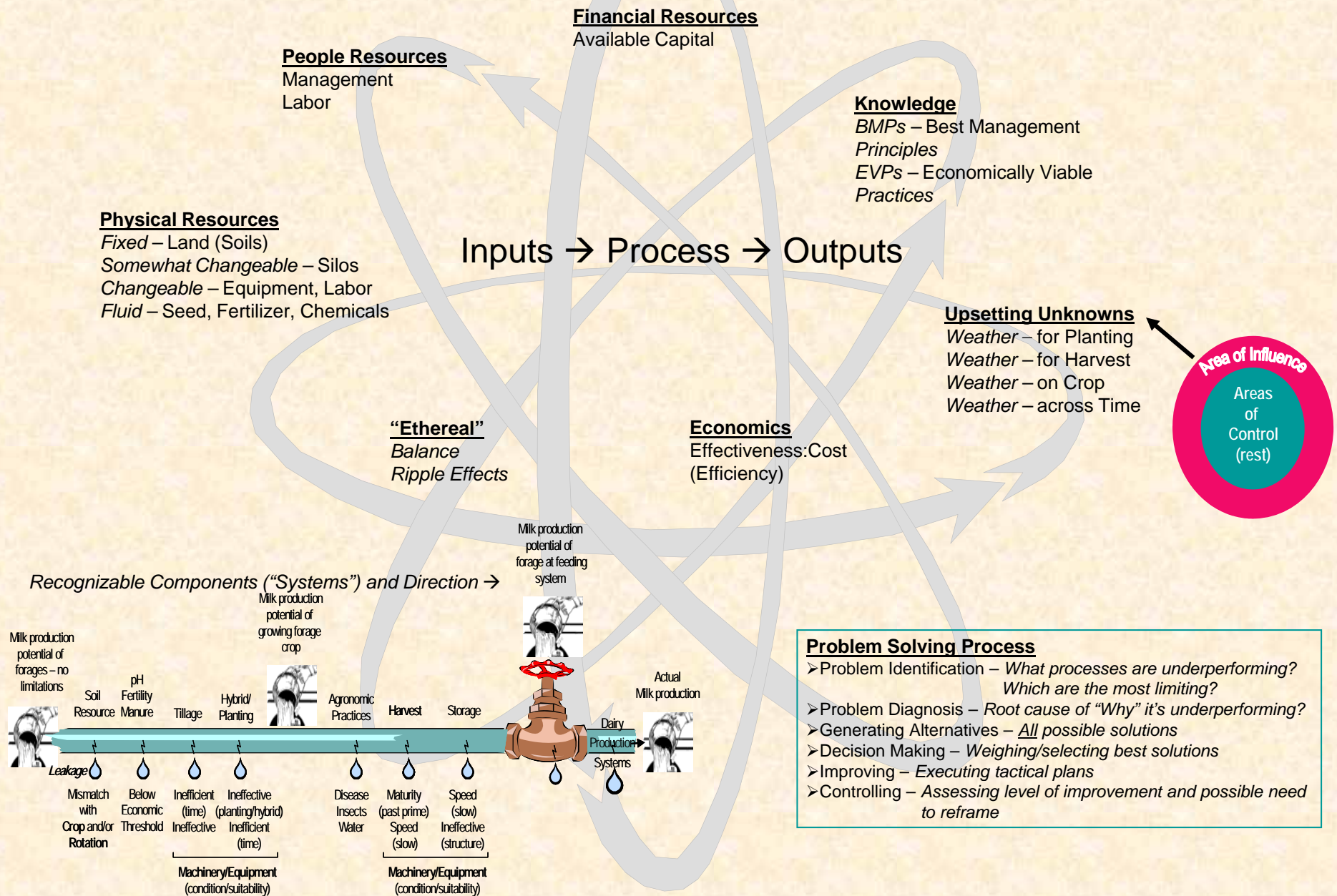


# Welcome!

2006 Winter Dairy Management Series

“Enhance Dairy Profitability:  
Achieve Balance Between Crops and Cows”

# Why Try to Simplify that that ain't? The Soils → Feed Dynamic



## **Agenda**

### ✧ **Forage Management System -- *Paving* the Road to Profitability (+Case Farm)**

*Jason Karszes and Cathy Wickswat*

### ✧ **What Does Your Forage Customer Want? (+Case Farm)**

*Larry Chase and Dave Balbian*

### ✧ **Agronomy 101 Refresher (+Case Farm)**

*Ev Thomas and Karl Czymmek*

### ✧ **Innovations in Effective Harvest Management (+Case Farm)**

*Tom Kilcer*

### ✧ **Conserving all the Goodness and Hard Work – Storage Management (+Case Farm)**

*Bill Stone, John Conway and Jerry Bertoldo*

### ✧ **Forage Management System -- *Building* the Road to Profitability**

*Jason Karszes and Cathy Wickswat*

Many people across the NYS Dairy Industry had  
a hand in pulling this together...



\$\$\$ Agricultural Finance and Management at Cornell \$\$\$  
Department of Applied Economics and Management



... the most important of whom are our Case Farms  
who you soon will meet. They generously opened  
their farms' data for our better understanding



## Plato Brook Farms, LLC

Driving the Dairy industry @

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kentmiller@platobrookfarms.com





# Forage Management System Paving the Road to Profitability



Jason Karszes & Cathy Wickswat

Jason Karszes  
Farm Management Specialist  
PRO-DAIRY  
Cornell University

Cathy Wickswat  
Farm Mgt. & Dairy Educator  
Cornell Cooperative Extension  
Of Rensselaer County



# Dairy Business Management

- ⌘ What factor has the greatest influence on purchased feed costs?
- ⌘ What factor has a large impact on cow health and management?
- ⌘ What factor influences milk production?
- ⌘ What factor directly impacts 13 major expense categories?



# Dairy Business Management

- ⌘ The forage management system is a critical component of dairy businesses
- ⌘ The system is fully intertwined in the operating costs, investment levels, and productivity of the business





# Dairy Business Management

- ⌘ Well managed, is a competitive advantage for many businesses
- ⌘ Can also be a disadvantage
- ⌘ How can we look at all the management areas within the business so it will be more of an advantage instead of a disadvantage?



# Forage Management System

⌘ Many different areas of the business associated with forage management

- ☑ Soil types
- ☑ Crop rotations
- ☑ Planting systems
- ☑ Harvesting methods
- ☑ Storage systems
- ☑ Feeding strategies



# Forage Management System

- ⌘ While can look at each one independently, this may lead to the forage system being a disadvantage.
- ⌘ Decisions made in one area impact all of the other areas.
- ⌘ Thinking about as a system, and how to get the most out of the system, allows the farm to maximize profitability of the business, the “road to profitability”



# Goals of the Forage Management System

- ⌘ Maximize profitable milk production by utilizing the highest quantity and quality of forage that can be produced cost efficiently given the resource restrictions of the business.



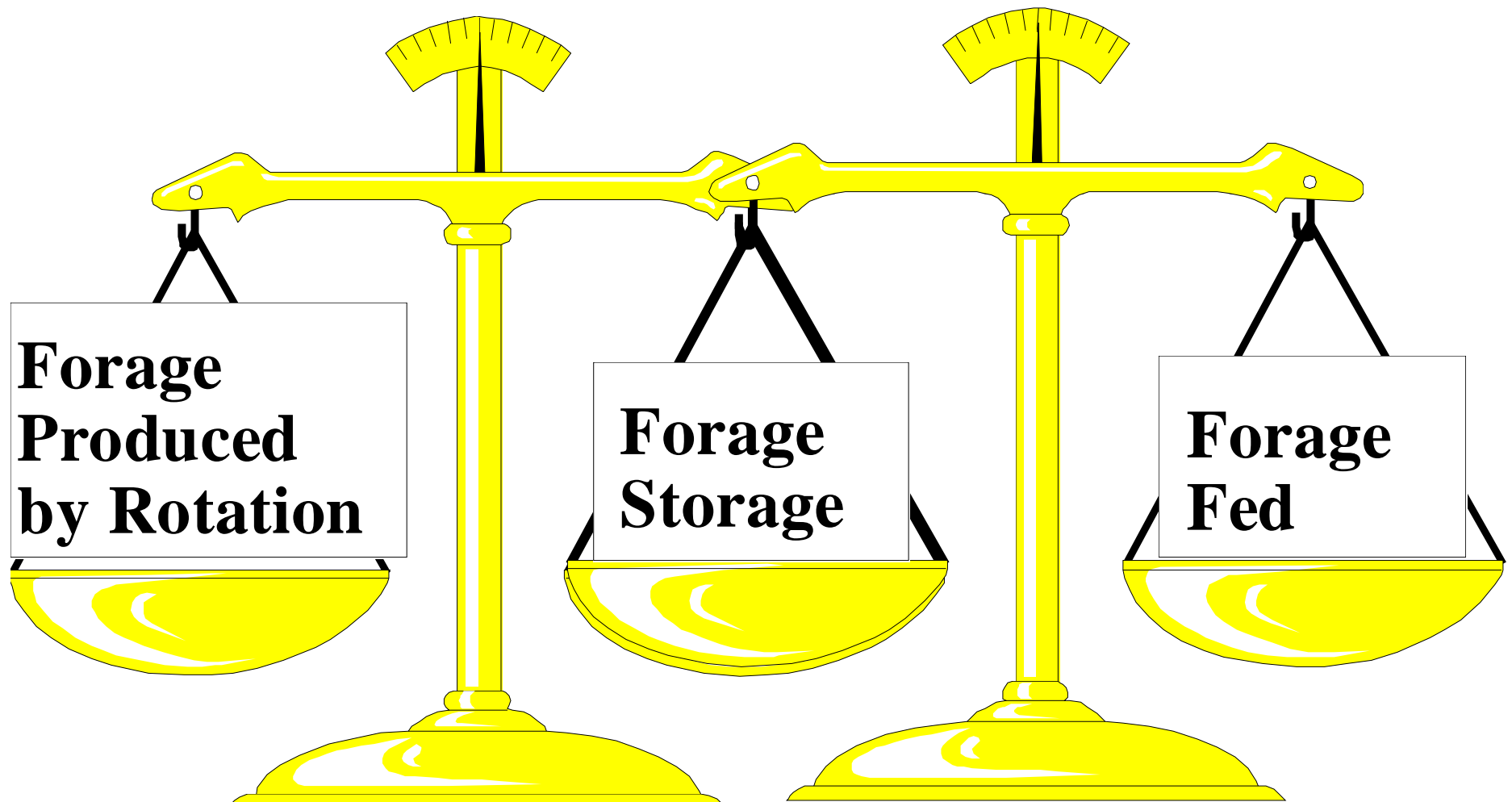
# Question?

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⌘ The dairy cattle nutritionist tells you that you would make more milk if you had alfalfa haylage in your ration. What may this lead to?



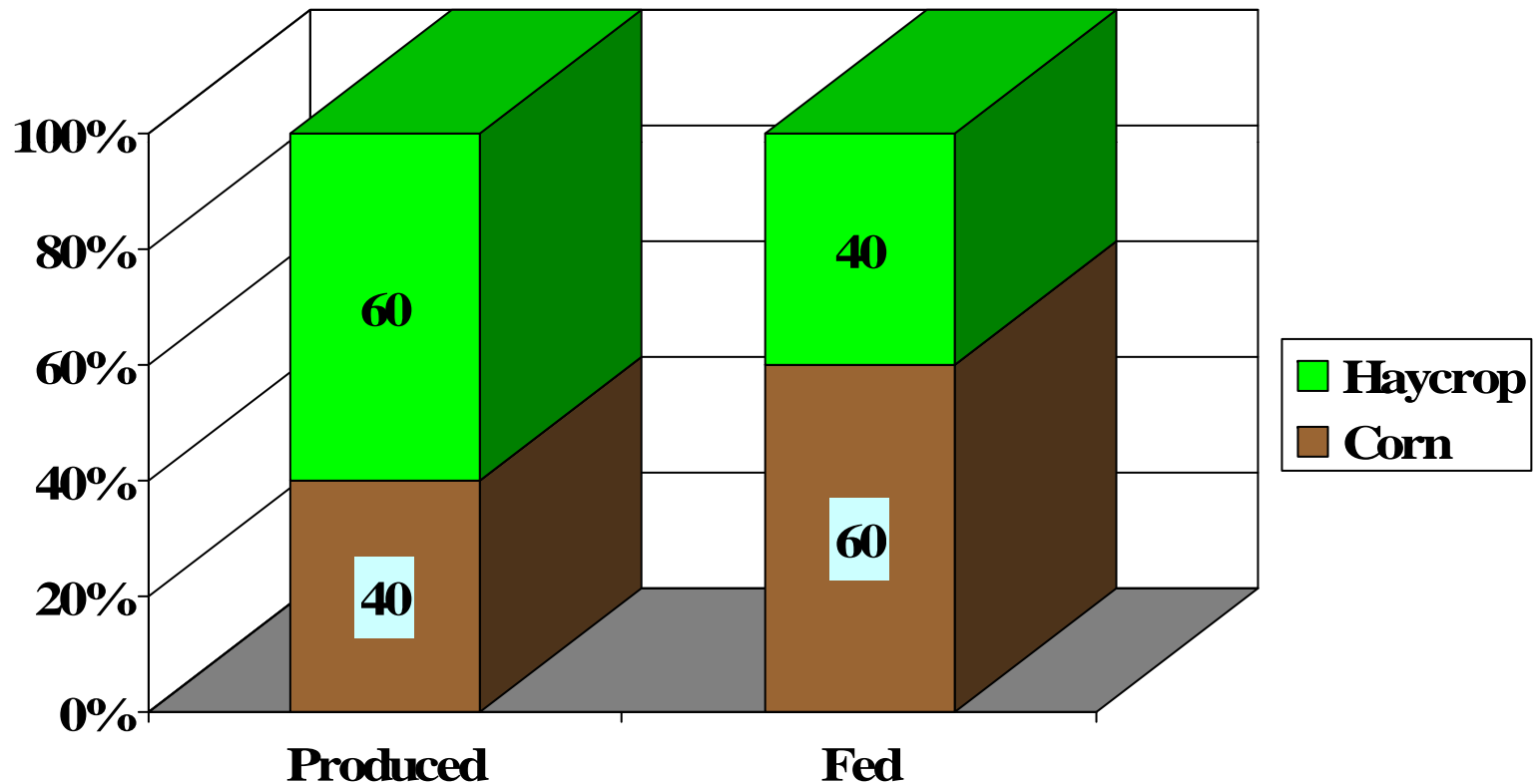
# Systems Approach to Quality Forage







# May Not Talk to the Crop Program





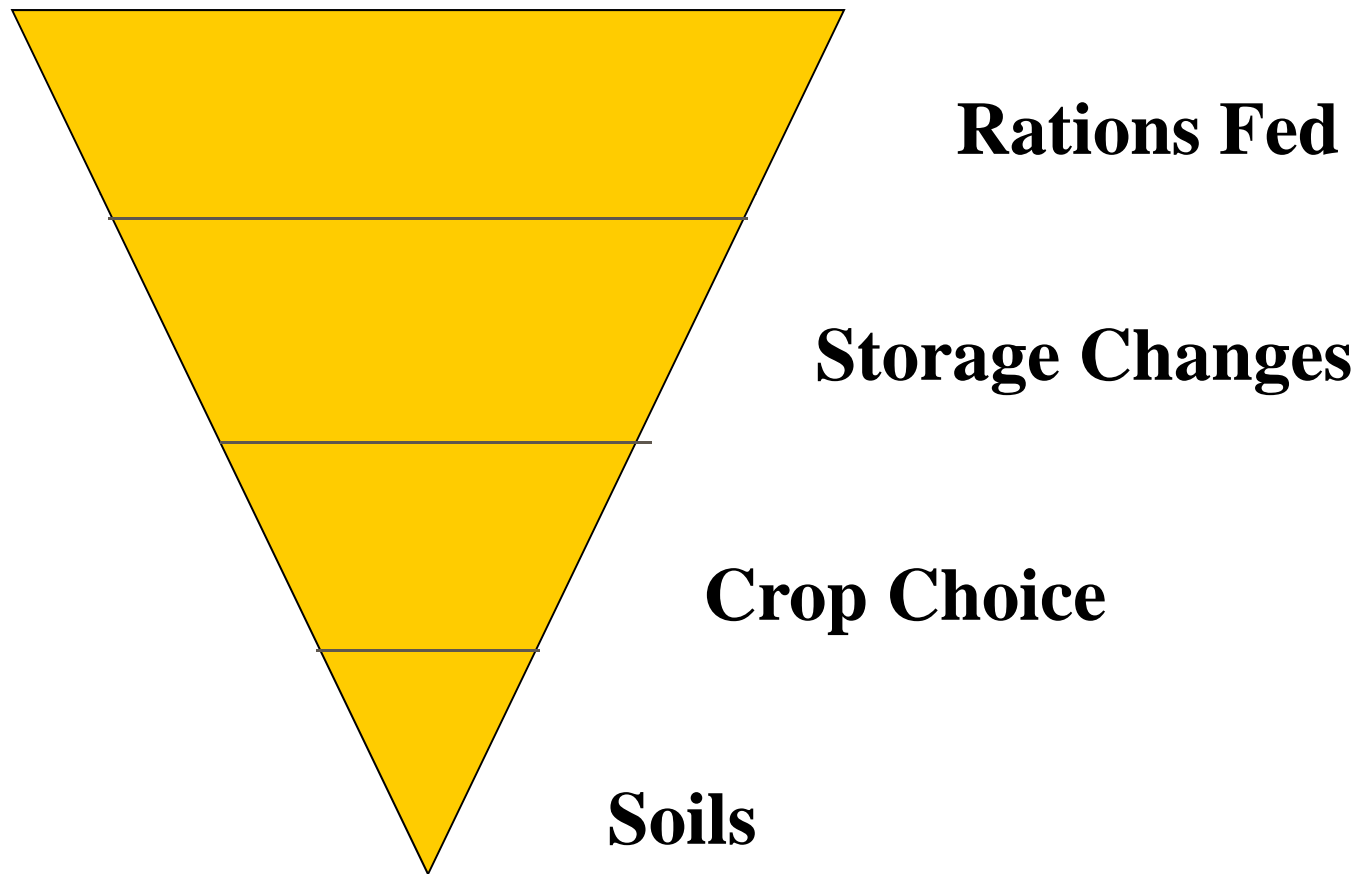
# Potential Impacts on System

- ⌘ Change in rotations
- ⌘ Change in quantities
- ⌘ Change in land that may be needed
- ⌘ Change in costs
- ⌘ Change in feeding approaches

Will the switch to alfalfa be more profitable?



# Degree of Change Available





# Key Factors

---

- ⌘ Highest quantity
  - ⌘ Highest quality
  - ⌘ For land resources
  - ⌘ At reasonable cost
- 
- ⌘ If forage becomes too expensive, than it no longer will be profitable. There is no blank check to get the best forage



# Key Factors

---

- ⌘ However, many things can be done to improve quantity, quality, storage, and use of forages that may not add any costs, or may actually reduce costs
- ⌘ Matching all areas of the forage management system, starting with what works well with the land resource, becomes key to the success of the system



# Value of Forage

⌘ With forage being the major feed source for our dairy cattle, changing the quality and the quantity available can have a large impact on farm profitability





# Value of Forage – An Example

## ⌘ Base scenario

- ☑ Utilizing average corn silage and haylage at a restricted feeding rate
- ☑ Calculate net milk income over purchased grain and concentrate per cow
  - ☒ Component production
  - ☒ Cost of purchased inputs
  - ☒ Amount of purchased inputs utilized



# Base Forage Quality

|              | Legume Haylage | Corn Silage |
|--------------|----------------|-------------|
| % Dry Matter | 35             | 33          |
| NDF          | 46             | 49          |
| CP           | 17             | 9.5         |
| Lignin       | 20             | 11          |
| Sol-P        | 50             | 58          |
| NPN          | 95             | 100         |
| NDFIP        | 24             | 16          |
| ADFIP        | 16             | 7           |



## Base Senario - NMIOPGC

|   |        |       |
|---|--------|-------|
| Milk per cow per day                                  | 75     |       |
| % Butterfat   | 3.8    |       |
| % Protein   | 3.1    |       |
| % OS  | 5.69   |       |
| Forage Fed, Dry Matter                                |        | 25lbs |
| Net Milk Income over Purchased Grain and Concentrates | \$7.65 |       |



## Base Scenario – Push for Most Milk

- ⌘ Same quality of forage, now pushing the concentrates at maximum rate
- ⌘ Forage Fed, Dry Matter 24lbs
- ⌘ NMIOPGC now \$8.04
- ⌘ Change = \$.39 per cow per day
- ⌘ Percent change = 4.8%
- ⌘ Pushing the nutritional limit



# Higher Forage Quality

|        | Legume Haylage | Corn Silage |
|--------|----------------|-------------|
| NDF    | 37             | 41          |
| CP     | 20             | 8           |
| Lignin | 17             | 7           |
| Sol-P  | 60             | 50          |
| NPN    | 70             | 100         |
| NDFIP  | 18             | 16.4        |
| ADFIP  | 12             | 7.88        |



## High Quality, Limited tons

- ⌘ High quality forages, but limited tons available
- ⌘ Forage Fed, Dry Matter 31.5lbs
- ⌘ NMIOPGC now \$8.46
- ⌘ Change = \$.81 per cow per day
- ⌘ Percent change = 10.5%





# High Quality, Sufficient Tons

---

- ⌘ High quality forages fed to highest rates and increasing concentrates
- ⌘ Forage Fed, Dry Matter 35lbs
- ⌘ NMIOPGC now \$8.58
- ⌘ Change = \$.93 per cow per day
- ⌘ Percent change = 12.2%



# Summary Table

|                                       | NMIOFG      | Dollar | Percent | Annual Difference            |
|---------------------------------------|-------------|--------|---------|------------------------------|
|                                       | Per cow/day | Change | Change  | Per 100 cows<br>85% in Milk* |
| Average Forage, Limited Quantity      | 7.65        | ---    | ---     | ---                          |
| Average Forage, Unlimited             | 8.04        | 0.39   | 5.10%   | \$12,100                     |
| High Quality Forage, Limited Quantity | 8.46        | 0.81   | 10.07%  | \$25,130                     |
| High Quality Forage, Unlimited        | 8.58        | 0.93   | 10.99%  | \$28,853                     |

\*Only calculating change associated with forage quality impact on lactating animal's purchased feed costs with no estimation of impact on dry cows or replacement animals. This is not all profit as increased forage feeding may have higher costs associated with it.



## Other Benefits of a Quality Forage Management System

- ⌘ Better cow health
- ⌘ Flexibility in handling weather variation
- ⌘ Improved sustainability of crop production
- ⌘ Better utilization of manure nutrients



# Improving Profits Through the Forage System

- ⌘ Looking at the different scenarios highlight the potential to change earnings on a dairy farm
- ⌘ However, there may be costs associated with changing the forage production system



# Improving Profits Through the Forage System

- ⌘ These costs will impact the change in earnings
- ⌘ Management goals are to determine which costs can be incurred that will generate positive results, vs. ones that may cost more than what is gained



# Question?



⌘ The crop consultant says that the farm has been losing too much feed in the storage system and that this needs to be addressed. What things are impacted by this?





# Potential Impacts on System

⌘ Change in forage feeding system.

☑ Quantity

☑ Quality

⌘ Change in number of acres needed.

⌘ Change in storage system.



# Forage Management System

- ⌘ The focus of this program is on the pieces of the system
- ⌘ As you listen to the different presentations, think about what could be done differently within your business
- ⌘ Ask questions, as that is an important part of the meeting



# Introduction to Case Farm



# What Does Your Forage Customer Want?

---

- L. E. Chase and D. R. Balbian
  - Cornell University
- CCE-Central NY Dairy & Field Crops Team





# What Do Forages Provide?

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# **Why Do Cows Need Fiber?**

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# Forages

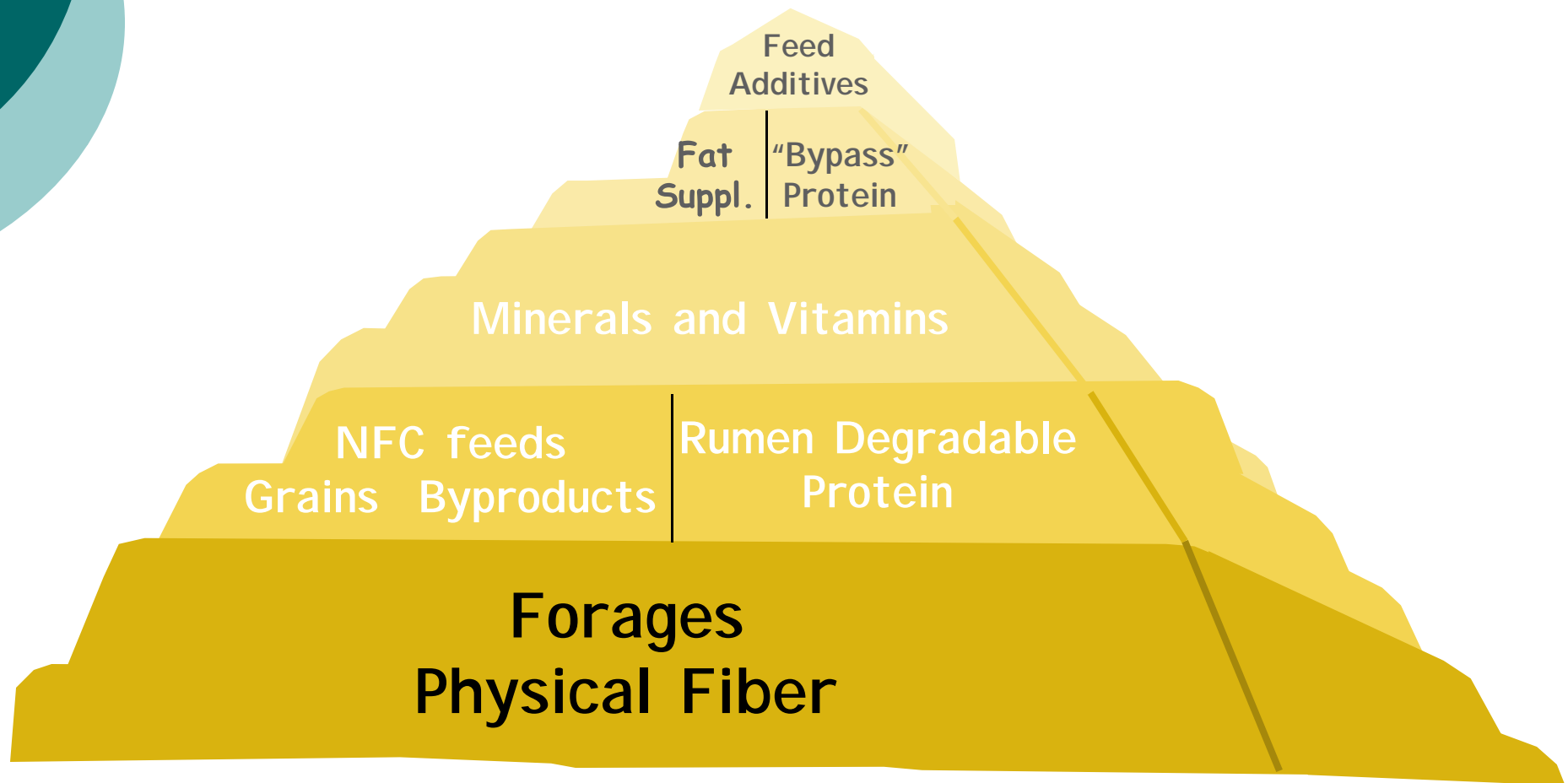
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- **Foundation upon which nutritionally sound and economical dairy rations are built**
- **High quality forage = less grain & better income over feed cost**
- **Forage quality impacts intake, milk production and animal health**
- **Are the primary source of “effective” fiber**

# The Feed Pyramid

(Rick Lundquist, 1995)

Use the Feed Pyramid to think about how rations should be formulated and cows fed. A basic ration with high quality forages (bottom three sections of pyramid) should support up to 75 lbs (or more) of milk per day. Fats, bypass proteins and feed additives are needed by higher producing cows and should top off the base ration





# What Does Your Forage Customer Want?

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- 



# What Does Your Forage Customer Want?

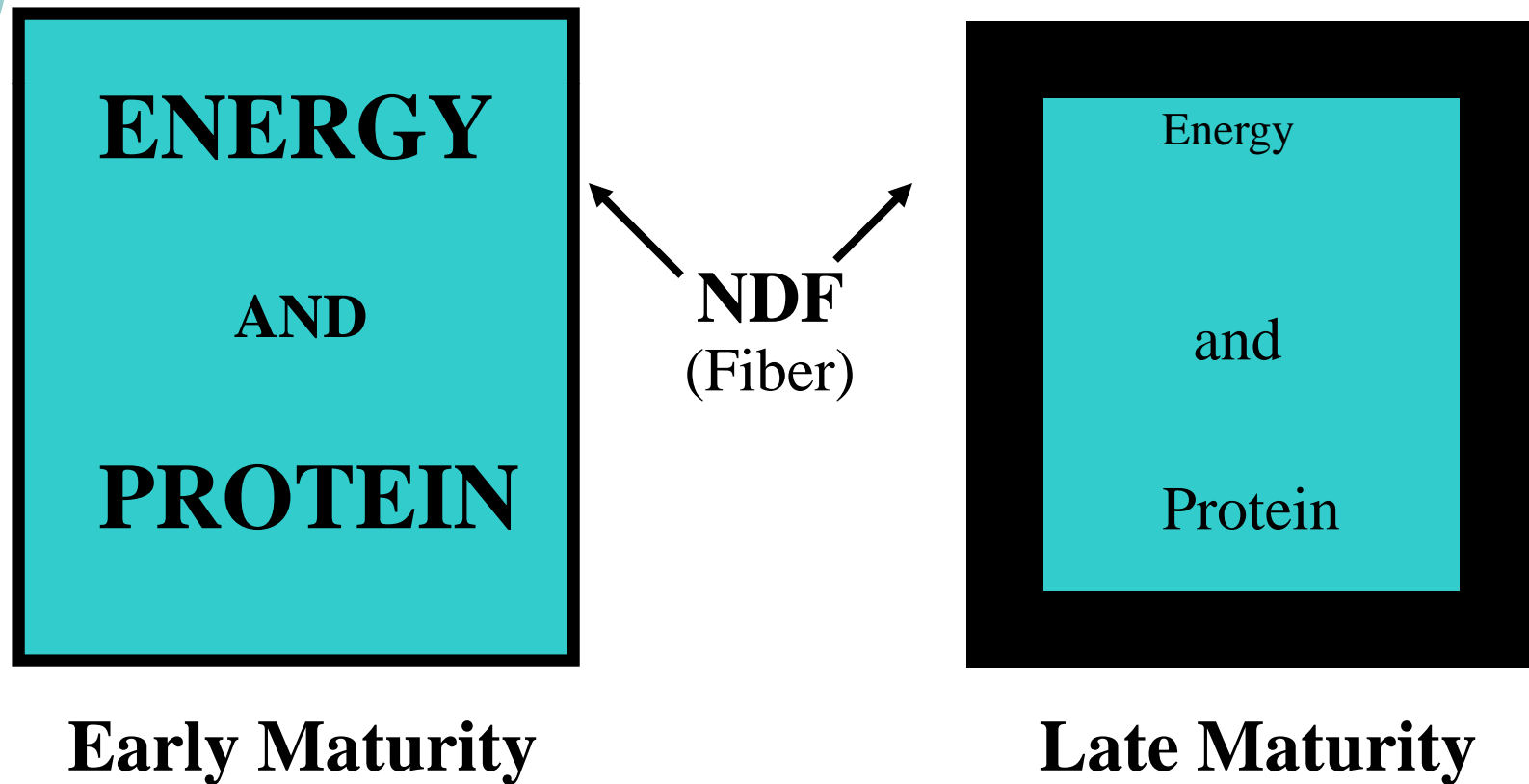
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- A consistent supply of
  - High quality
  - High digestibility
  - “Effective” physical fiber
  - Palatable
  - Well-fermented silage



# Effect of Maturity on Forage Quality

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## **Dave Smithgall - 2005**

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- **“Your nutritionist is only as good as your forage”**
- **Dairy producer**
- **Western New York**
- **900 cows**

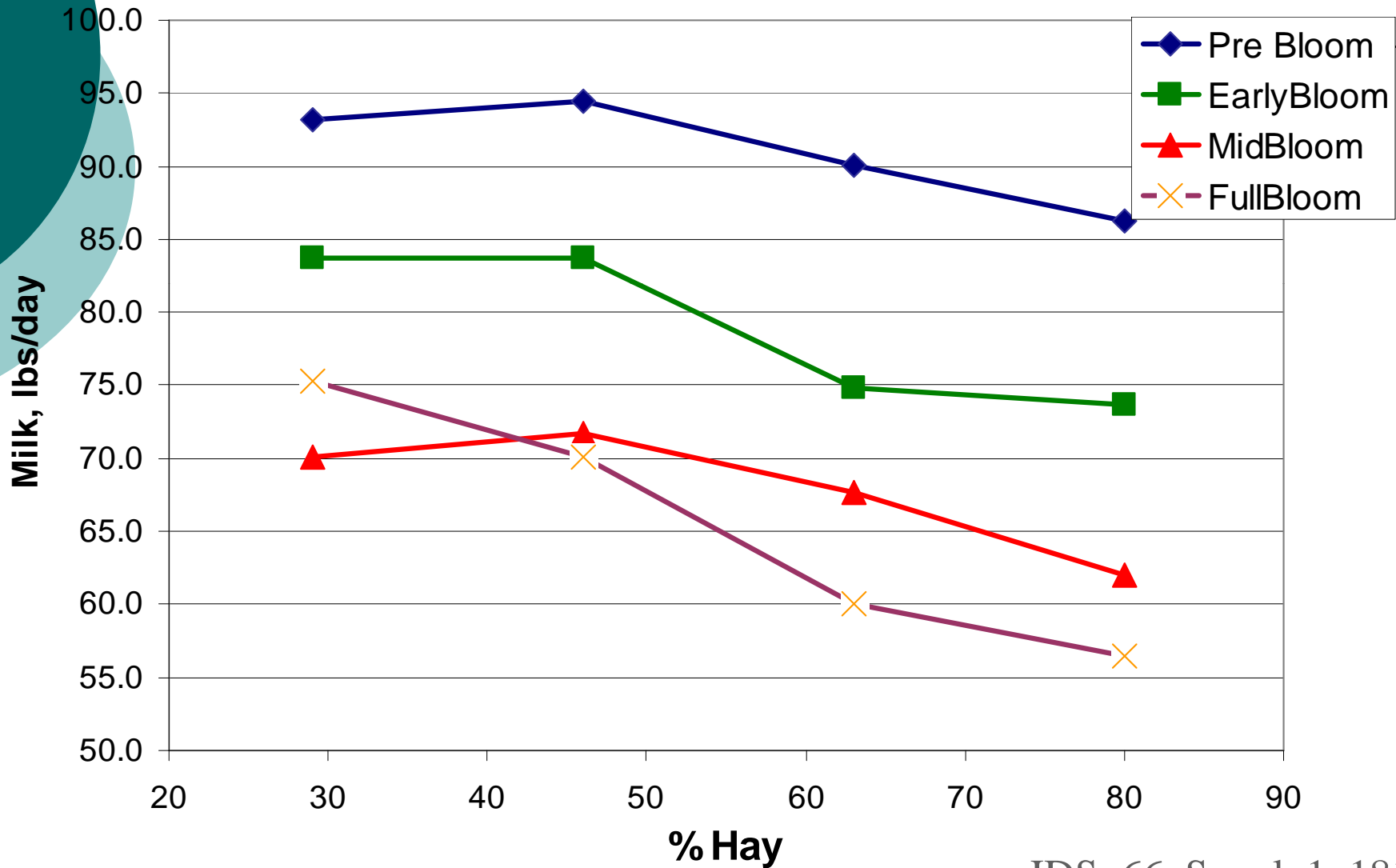


# How Important is Forage Quality?

---

- **Kawas et. al., Univ. of Wisconsin**
- **Used alfalfa hay**
- **4 stages of maturity**
- **4 ratios of forage to grain**
- **Short-term trial**

## Milk Production as Affected by Hay Quality



JDS: 66, Suppl. 1, 181



## Alfalfa Maturity - Conclusions

---

- Feeding increased grain could not overcome the effects of lower forage quality
- Milk decreased about 1 lb./day for each day increase in maturity after prebloom
- Milk decreased by 1 lb./day for each 1% increase in alfalfa NDF content



# How Important is Forage Digestibility?

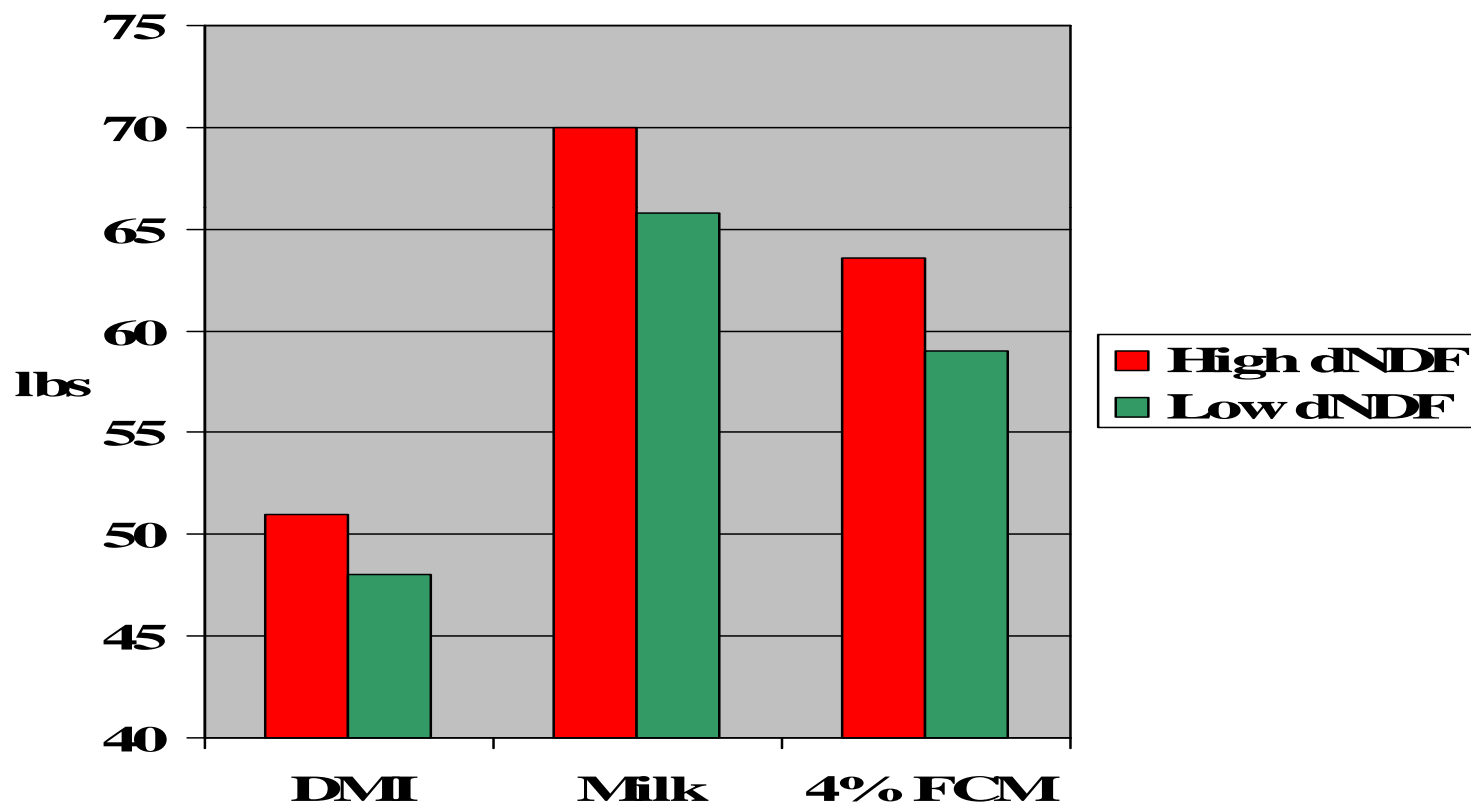
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- Data from 23 research trials
- Alfalfa hay, alfalfa silage, corn silage, timothy silage, wheat silage
- Reported NDF dig. (in situ or in vitro)
- High NDF dig. = 62.9%
- Low NDF dig. = 54.5%

**Oba & Allen – Michigan State - 1999**



# DMI & Milk Production



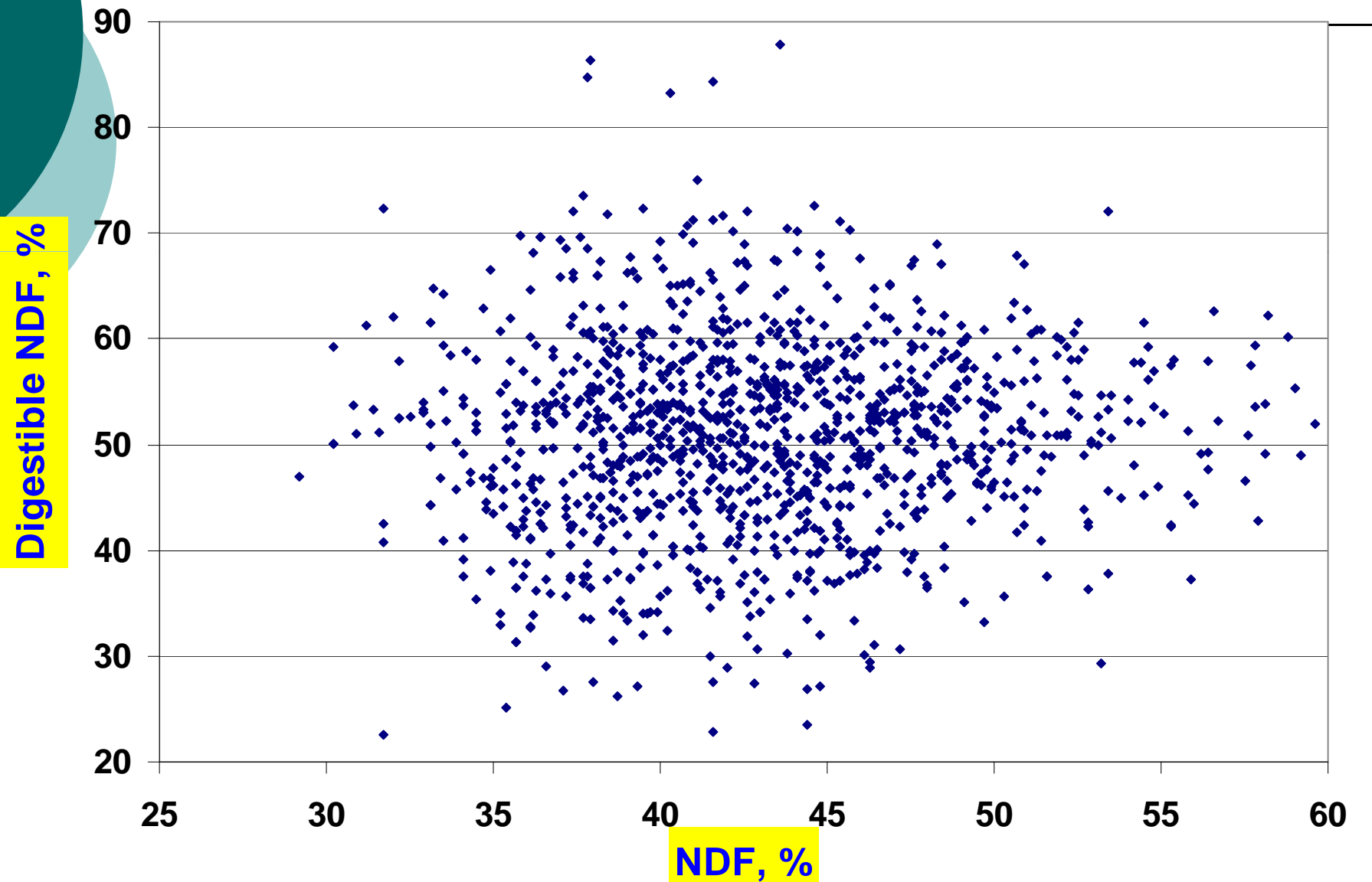


## Summary -

---

- 1 unit of increased NDF digestibility ( i.e. 45 to 46%) =
- + 0.37 lbs. DMI
- + 0.51 lbs. milk
- + 0.55 lbs. 4% FCM
- This may not be a linear response across all levels of NDF digestibility

## The relationship between corn silage NDF and digestible NDF



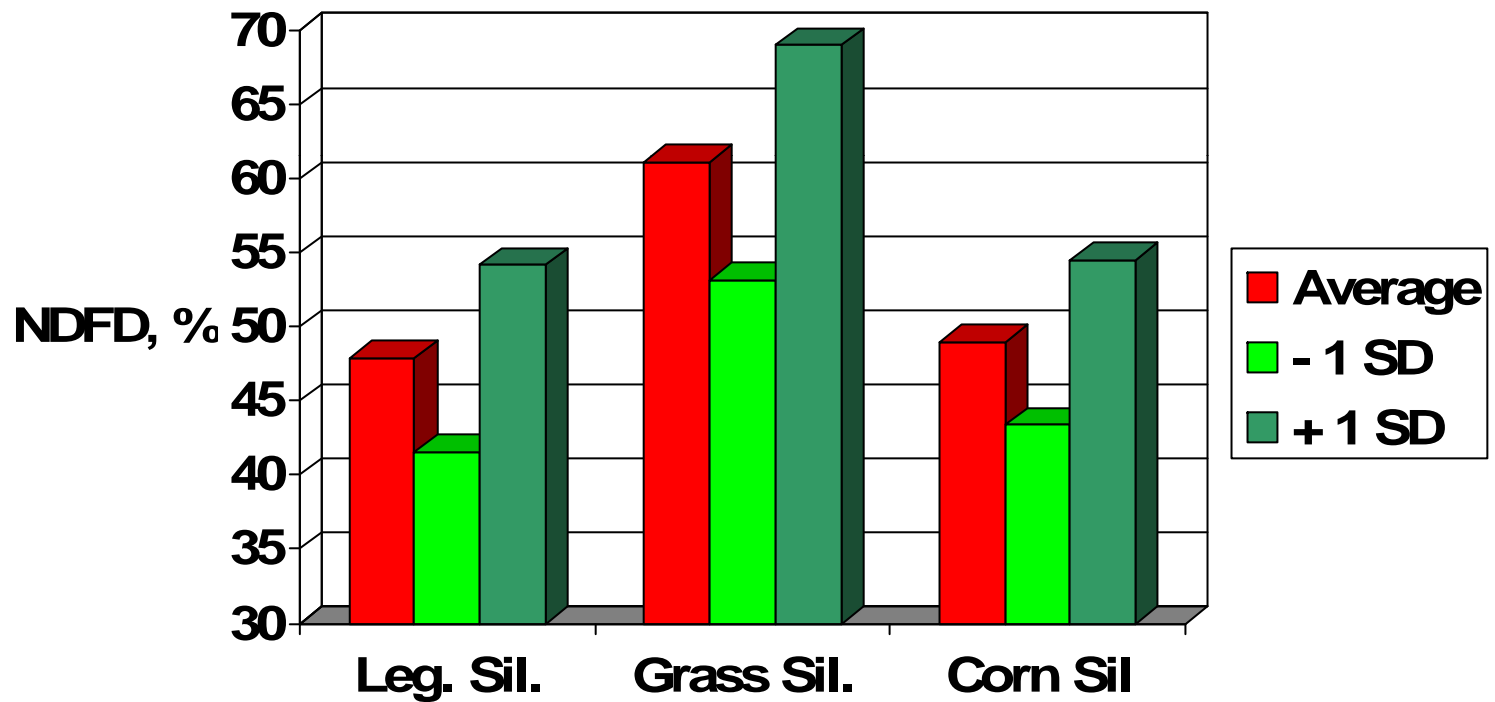


# How Much Does Forage Digestibility Vary?

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- In vitro data from Dairy One
- Samples from 5/04 through 4/05
- 30 hour incubation time
- Graph has average plus or minus 1 standard deviation
- This represents about 2/3 of the total samples

# In Vitro 30-Hour NDFD Data





# Forage Quality Goals

---

| Forage         | NDF,    | NDFD, % | Starch,<br>% |
|----------------|---------|---------|--------------|
| Alfalfa        | 39 – 44 | 48      | -            |
| Grass          | 50 – 55 | 61      | -            |
| Corn<br>silage | 40 – 45 | 49      | 30 - 35      |



# Forage Particle Size Guidelines

---

| <b>% of Sample</b> | <b>Forages</b> | <b>TMR's</b>   |
|--------------------|----------------|----------------|
| <b>Top screen</b>  | <b>15 – 25</b> | <b>8 – 14</b>  |
| <b>Pan (fines)</b> | <b>&lt; 50</b> | <b>&lt; 50</b> |



# How Much Forage Can we Feed?

---

- Depends on
  - Quality (NDF level)
  - Digestibility
  - Particle size
  - Inventory (how much is available)
  - Feedbunk management
- Animal body weight, milk production





# Field Observations

---

- In the last 5-10 years, the quantity of forage fed in many New York dairy herds has increased
- Why?
  - Improved forage quality
  - Greater quantities of forage available? (more tons/acre)
  - Better hybrids and varieties
  - Herd health and acidosis problems?
  - New forage tests (digestibility, fermentation profiles, starch)



# High Forage Feeding Herds - Survey

---

- Information provided by feed professionals working with the herd
- *Information is for 1 point in time for these herds!!*
- All are Holstein herds
- None of these are pasture herds (difficult to obtain forage DMI data)
- Data is from 16 herds



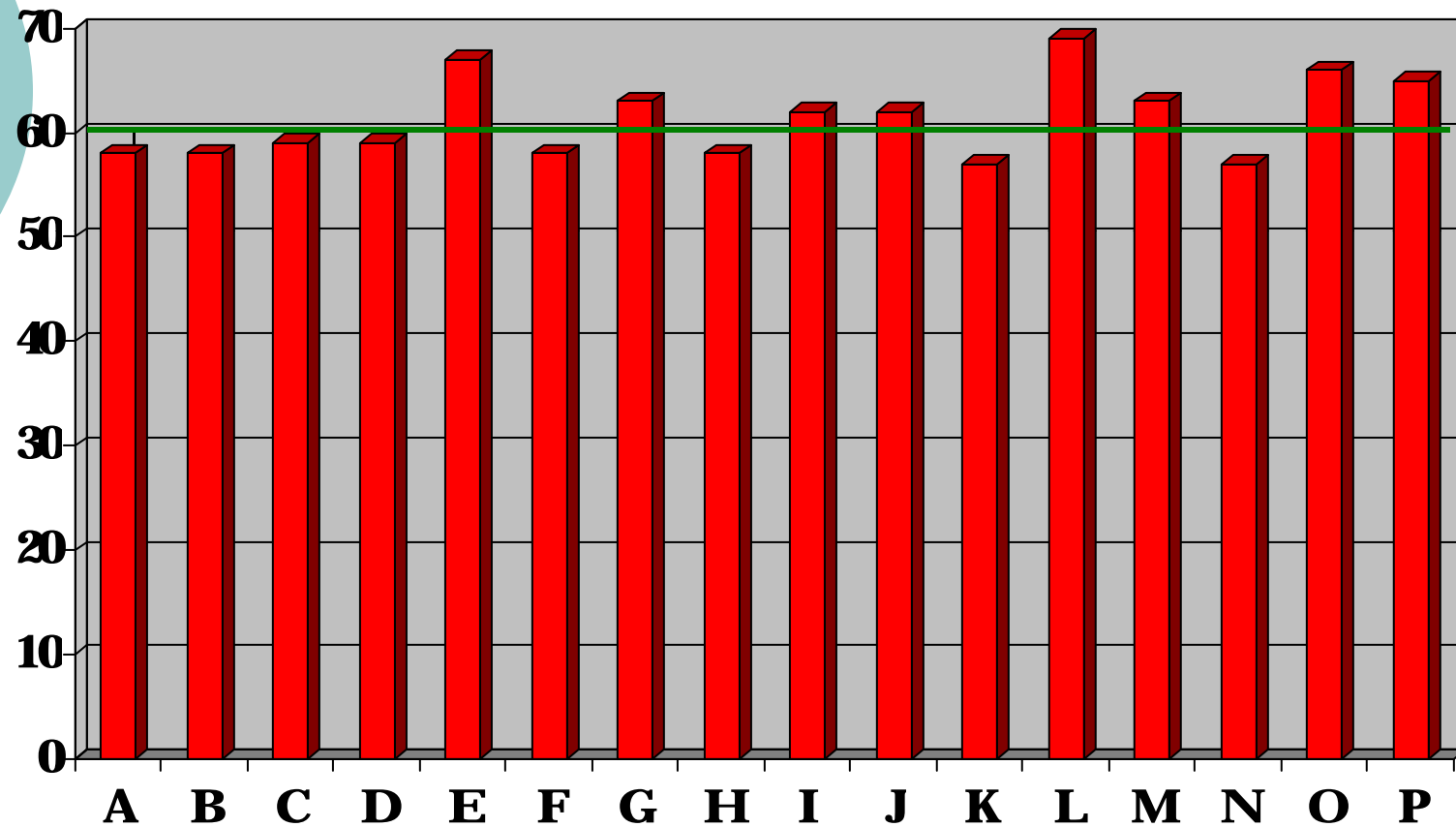
## Survey Data - 2

---

- Herd size - 56 to 550 cows
- 11 herds milk 2x, 5 herds milk 3x
- Daily milk ranges from 68 to 100+ lbs. of milk/cow/day
- Milk fat ranges from 3.4 to 4.1
- Milk true protein ranges from 2.9 to 3.3
- Herd health data was not collected

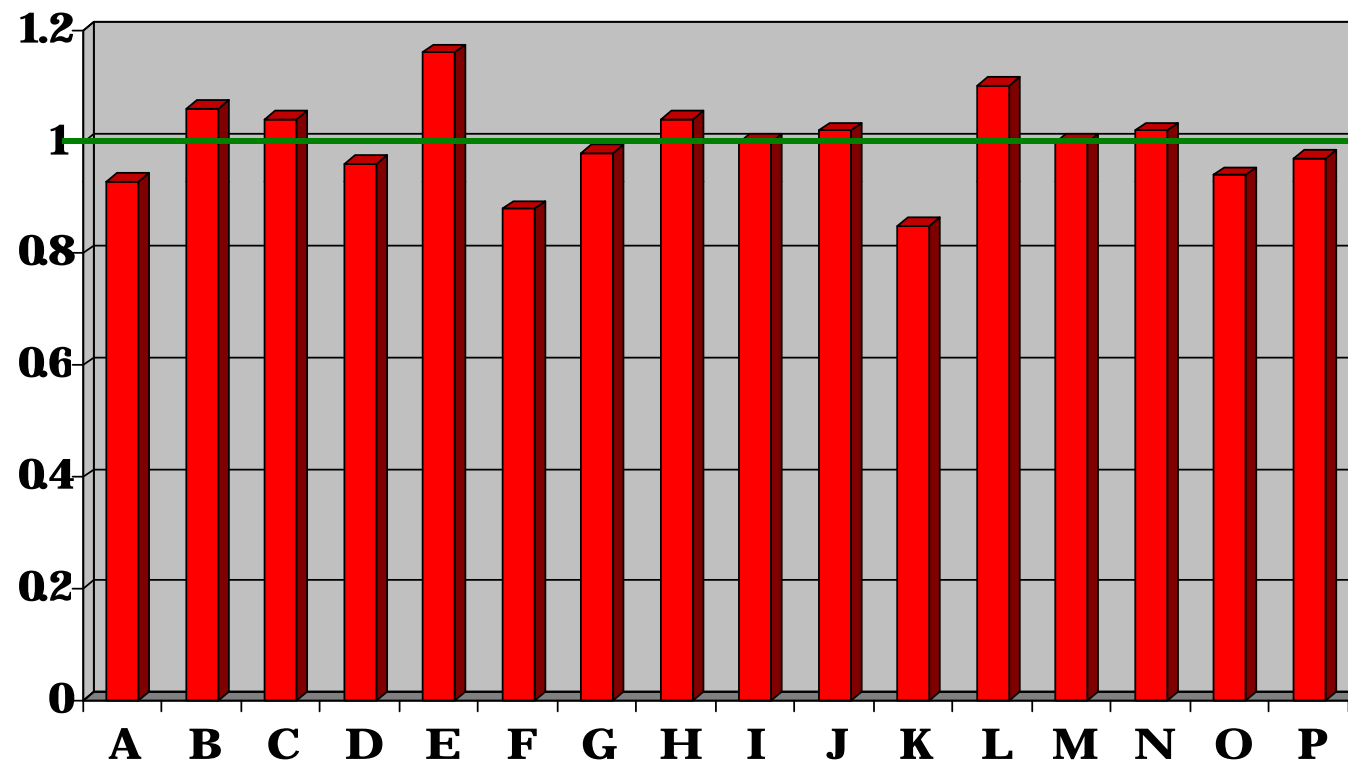
# Forage, % of Ration DM

---



# F-NDF Intake, % of BW

---





# Key Point!!

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- What's needed to make high forage diets work:
  - Adequate quantity of forage
  - Consistent, high quality forage
- High forage diets **don't work** with inconsistent forage quality



# Dairy Producer Comments

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- **Better milk components**
- **Less acidosis and foot health problems**
- **Lower culling rate**
- **Lower veterinary bills**
- **Increased number of lactations/cow**



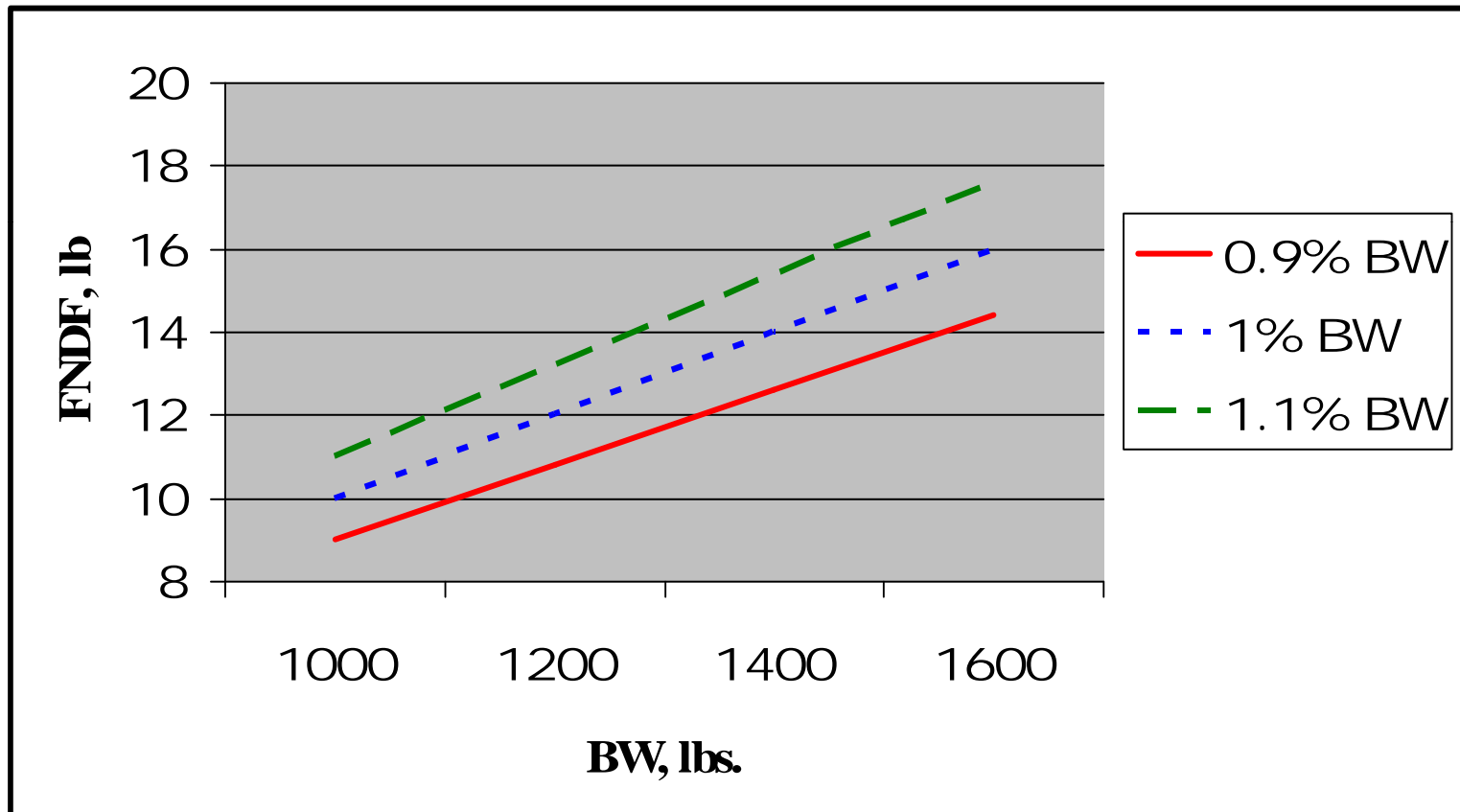
# Why Use FNDF to Set Ration Forage Levels?

---

- Cows have a limited capacity for ingestion, chewing and rumination of forages.
- Cows will spend about 8-10 hours/day for chewing & rumination activity
- Cows chew more as FNDF increases
- Rate of passage is slower for higher NDF forages

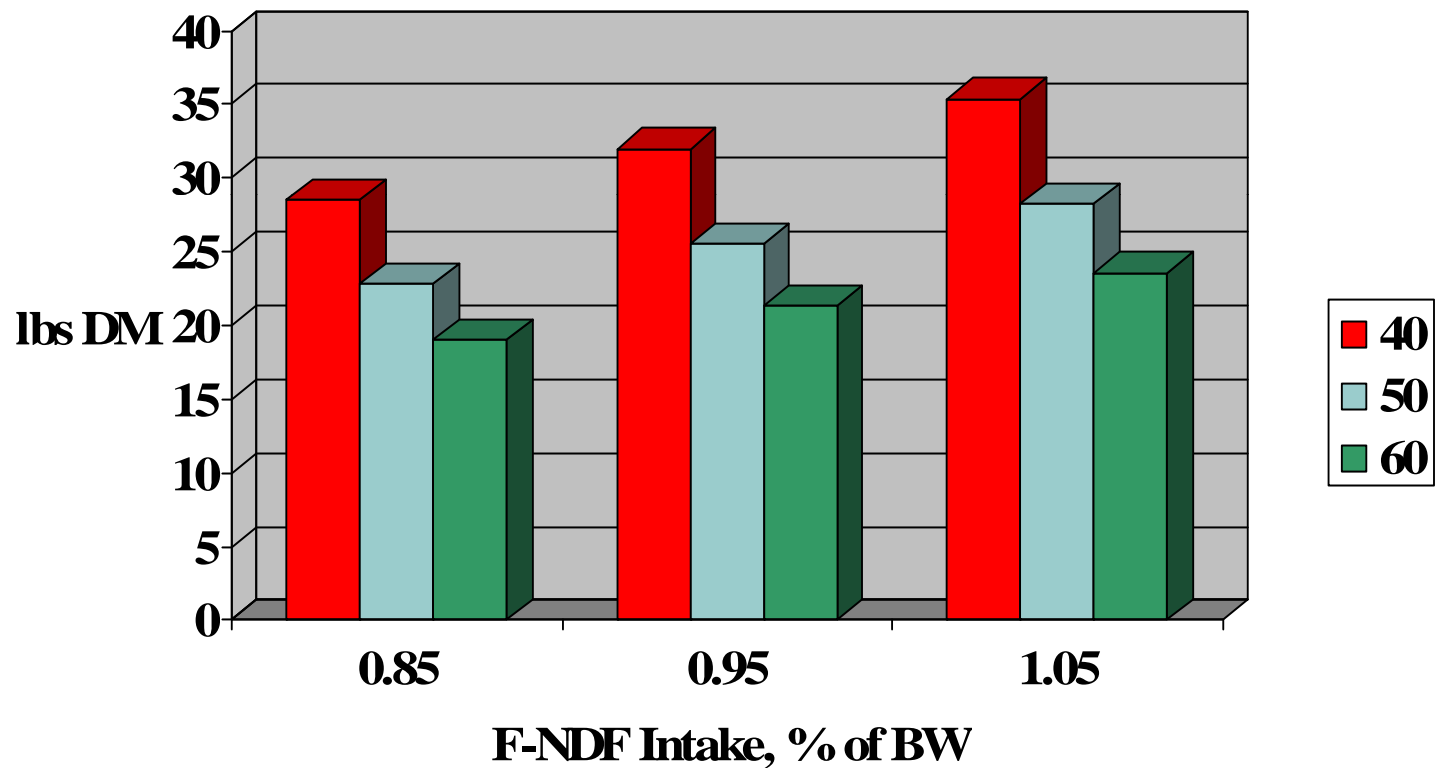


# Figure 1. Pounds of Forage NDF Needed Per Day



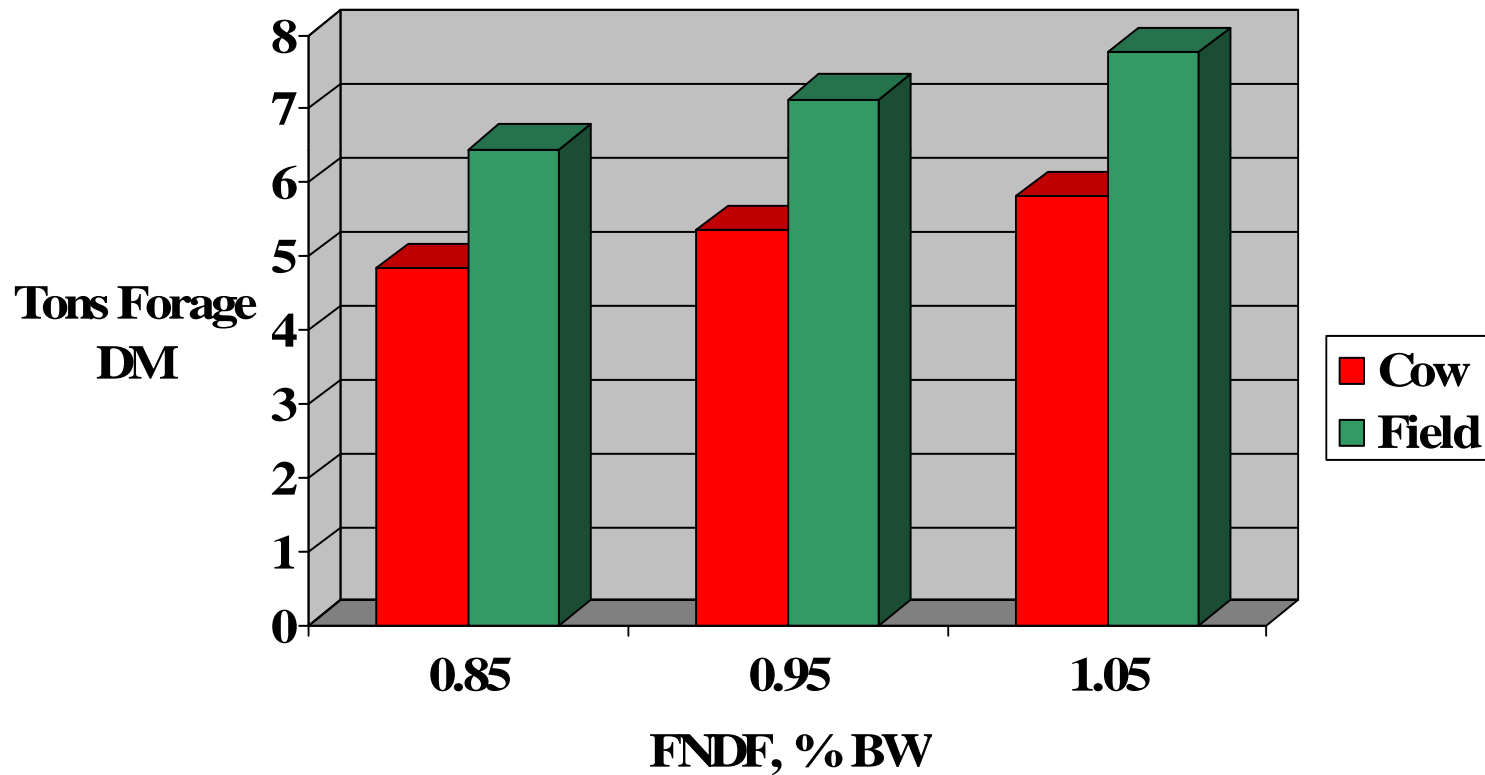
# How Many lbs. of Forage DM to Feed?

---



# Yearly Tons of Forage Needed/Cow

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## Summary

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- Many dairy herds have the potential to improve herd health and profitability by feeding higher levels of forage
- Some farms produce (or buy) high quality forage but don't feed it to advantage
- Forage inventory will limit the quantity of forage fed on many farms



**MILK. FRESH  
SQUEEZED DAILY.**



## Case Farm *Continued...*

---

# Agronomy 101 Refresher or “How to grow corn like this”:



Ev Thomas, Miner Institute  
Karl Czymmek, PRO-DAIRY and Bill  
Cox, Department of Crop and Soil  
Sciences, Cornell University

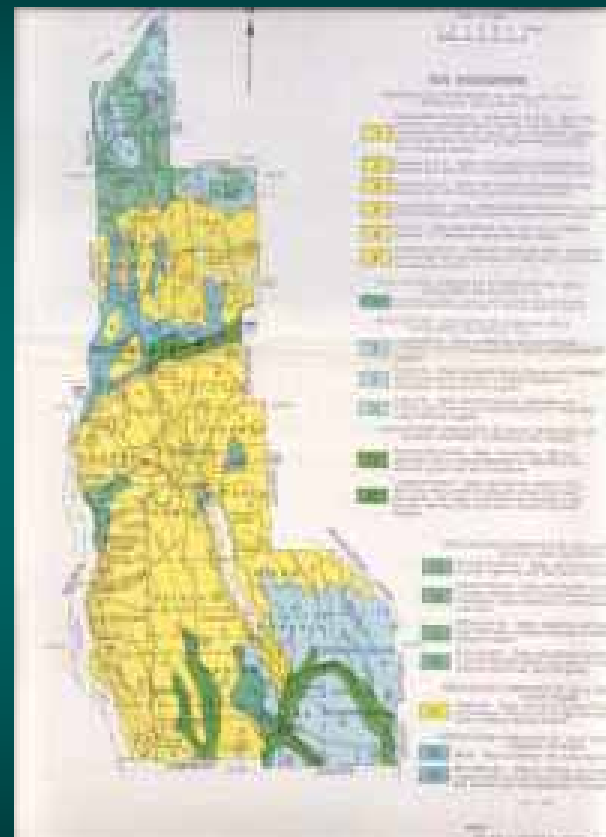
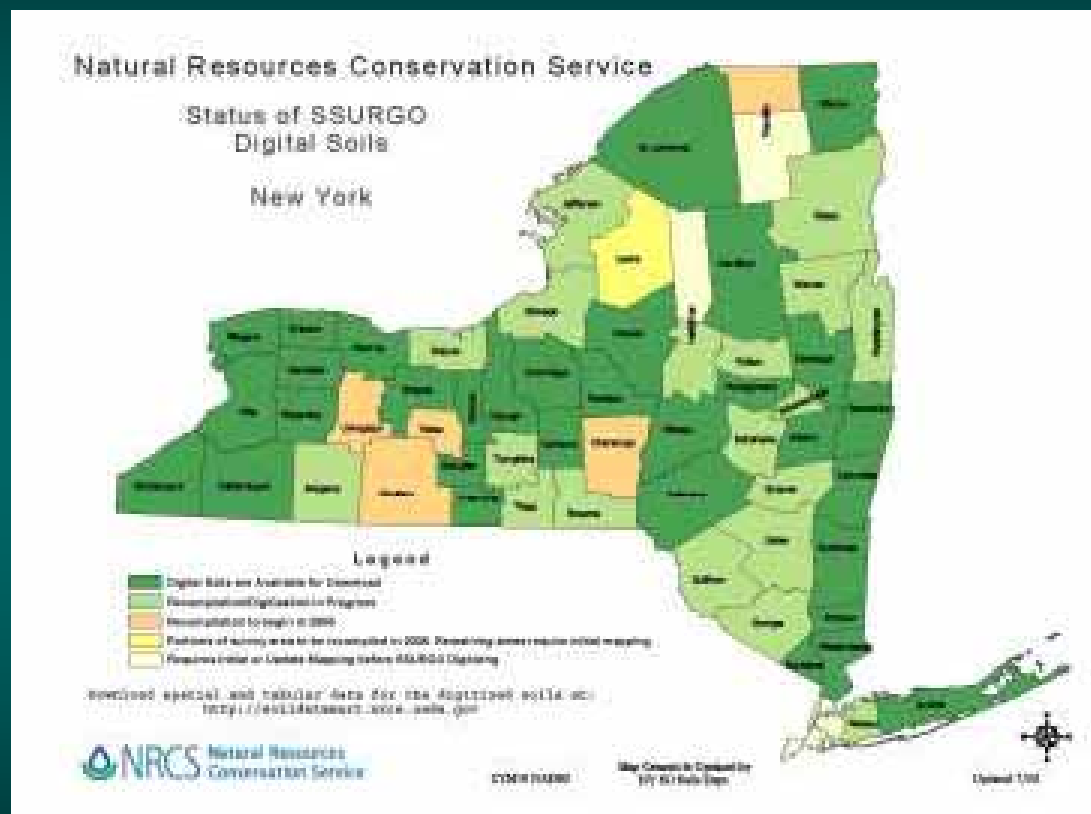
# General Outline

- Basic agronomy
  - soil survey
  - yield potential
  - drainage
  - pH
  - soil testing
  - P fertilization
  - N fertilization
  - Zone-till/no-till??
- Corn silage
  - hybrid selection
  - using hybrid trial info
  - harvest management
- Alfalfa
  - variety selection
  - alfalfa vs. alfalfa-grass





# Soil Survey



## APPENDIX

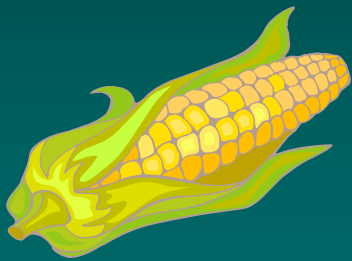
**TABLE 1: SOIL MANAGEMENT GROUP (SMG), HYDROLOGIC GROUP (HG), INORGANIC NITROGEN UPTAKE EFFICIENCIES (N-EFF IN %), SOIL N SUPPLY (N-SUP, IN LBS N/ACRE) AND CORN YIELD POTENTIAL (YP IN BUSHEL/ACRE) FOR UNDRAINED (UD) AND ARTIFICIALLY DRAINED (DR) NEW YORK STATE SOILS.**

| Soil Name     | SMG | HG  | N_Eff     | N_Eff     | N_Sup           | N_Sup           | YP           | YP           |
|---------------|-----|-----|-----------|-----------|-----------------|-----------------|--------------|--------------|
|               |     |     | UD<br>(%) | DR<br>(%) | UD<br>(lbs N/a) | DR<br>(lbs N/a) | UD<br>(bu/a) | DR<br>(bu/a) |
| ACTON         | 4   | C   | 65        | 70        | 65              | 65              | 120          | 125          |
| ADAMS         | 5   | A   | 70        | 70        | 40              | 40              | 95           | 95           |
| ADIRONDACK    | 4   | D   | 75        | 75        | 70              | 70              | 75           | 75           |
| ADJIDAUMO     | 1   | D   | 55        | 60        | 65              | 75              | 75           | 105          |
| ADRIAN        | 6   | A/D | 55        | 65        | 90              | 120             | 60           | 120          |
| AGAWAM        | 4   | B   | 75        | 75        | 65              | 65              | 140          | 140          |
| ALBIA         | 3   | C   | 60        | 65        | 60              | 70              | 100          | 120          |
| ALBRIGHTS     | 2   | C   | 70        | 70        | 75              | 75              | 110          | 120          |
| ALDEN         | 3   | D   | 50        | 60        | 65              | 80              | 65           | 90           |
| ALLAGASH      | 5   | B   | 75        | 75        | 65              | 65              | 105          | 105          |
| ALLARD        | 3   | B   | 75        | 75        | 70              | 70              | 135          | 135          |
| ALLENDAL      | 3   | D   | 55        | 60        | 60              | 70              | 80           | 100          |
| ALLIS         | 3   | D   | 60        | 65        | 65              | 75              | 80           | 100          |
| ALLUVIAL LAND | 3   | C   | 60        | 65        | 70              | 75              | 75           | 100          |
| ALMOND        | 3   | C   | 60        | 65        | 65              | 75              | 90           | 95           |
| ALPS          | 3   | C   | 70        | 70        | 75              | 75              | 110          | 115          |

# Corn Yield Potential

---

Expected 10 year average yield  
under good management



|             |    | Undrained<br>bu/acre | Drained<br>bu/acre |
|-------------|----|----------------------|--------------------|
| Hamlin      |    | 155                  | 155                |
| Muskellunge |    | 75                   | 90                 |
| Volusia     | 95 | 105                  |                    |
| Fremont     |    | 100                  | 110                |
| Howard      |    | 135                  | 135                |

---

6 bushels of grain (15% moisture) equals about 1 ton silage (35% dry matter)

# Alfalfa Yield Potential

---

Expected 10 year average DM yield  
under good management:



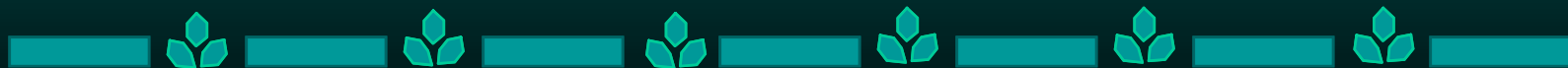
|             | Undrained<br>tons/acre | Drained<br>tons/acre |
|-------------|------------------------|----------------------|
| Hamlin      | 6.5                    | 6.5                  |
| Muskellunge | 3.5                    | 4.5                  |
| Volusia     | 3.5                    | 4.5                  |
| Fremont     | 3.0                    | 4.5                  |
| Howard      | 5.5                    | 5.5                  |

---

1 ton dry matter hay is equivalent to about 3 tons hay crop silage (35% dry matter)

# Grass

- 3 or 4 cut system
- 5-6 tons/acre possible
- 200-250 #/acre N
  - 100# at green up
  - 50# after each cut
- Lower lime requirement than alfalfa



# N from soil organic matter

---



Soil N: from soils database.

|         | Undrained<br>lbs/acre | Drained<br>lbs/acre |
|---------|-----------------------|---------------------|
| Honeoye | 75                    | 75                  |
| Palmyra | 70                    | 70                  |
| Volusia | 60                    | 70                  |
| Wayland | 60                    | 75                  |
| Howard  | 70                    | 70                  |

# Nitrogen Tips

- Know what manure rates are needed.
- Add fertilizer N only when needed.
- Spring incorporate immediately to save ammonia.
- Minimize manure on 1<sup>st</sup> year corn.
- 100-140# N works for corn in many situations because soils provide 60-70# N.
- High yielding soils don't necessarily need more N fertilizer. (Based on new research data.)





Q ketterings

# Soil testing

Know nutrient and pH status

Target manure nutrients

Target fertilizer nutrients

CAFO minimum: 1x/3years,  
but more often with heavy  
manure or fertilizer applications,  
or unusually high crop yields.



# Lime Recommendations

| Soil pH  |          |             |
|----------|----------|-------------|
|          | Normal   | Recommended |
| Alfalfa  | 6.5-7.5  | 6.6-7.0     |
| Soybeans | 6.5- 7.5 | 6.6-7.0     |
| Wheat    | 6.3-7.0  | 6.3-6.5     |
| Barley   | 6.3-7.0  | 6.3-6.5     |
| Clover   | 5.8-7.0  | 5.8-6.2     |
| Corn     | 5.8-7.0  | 5.8-6.2     |
| Grasses  | 5.8- 7.0 | 5.8-6.2     |
| Oats     | 5.8-7.0  | 5.8-6.2     |

- ✓ Target pH to highest lime need in rotation
- ✓ Low pH is a waste of money even in high fertility conditions.
- ✓ Maintaining pH is necessary for good nutrient management AND is part of a CNMP.



## P Recommendations for Corn

| lbs P <sub>2</sub> O <sub>5</sub> /acre |             |           |
|---|-------------|-----------|
| Soil Test P                             | With Manure | No Manure |
| Very Low                                | 20-30       | 60-70*    |
| Low                                     | 20-30       | 50-60*    |
| Medium                                  | 20-30       | 25-50*    |
| High                                    | 0           | 0-25      |
| Very High                               | 0           | 0         |

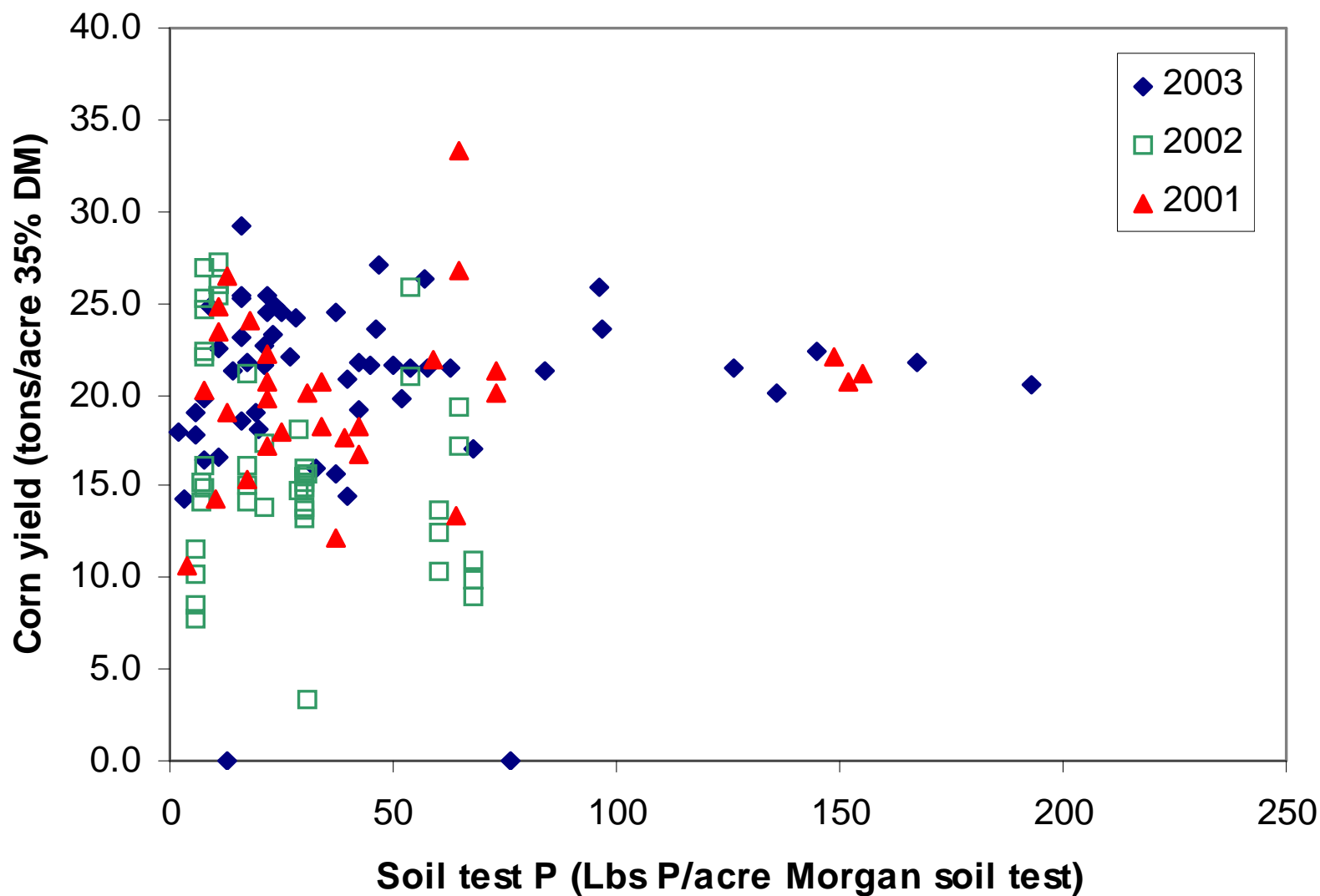
\*Put at least 25 lbs P<sub>2</sub>O<sub>5</sub>/acre in the starter fertilizer band; balance either in the band or broadcast.

# Silage Quality Parameters

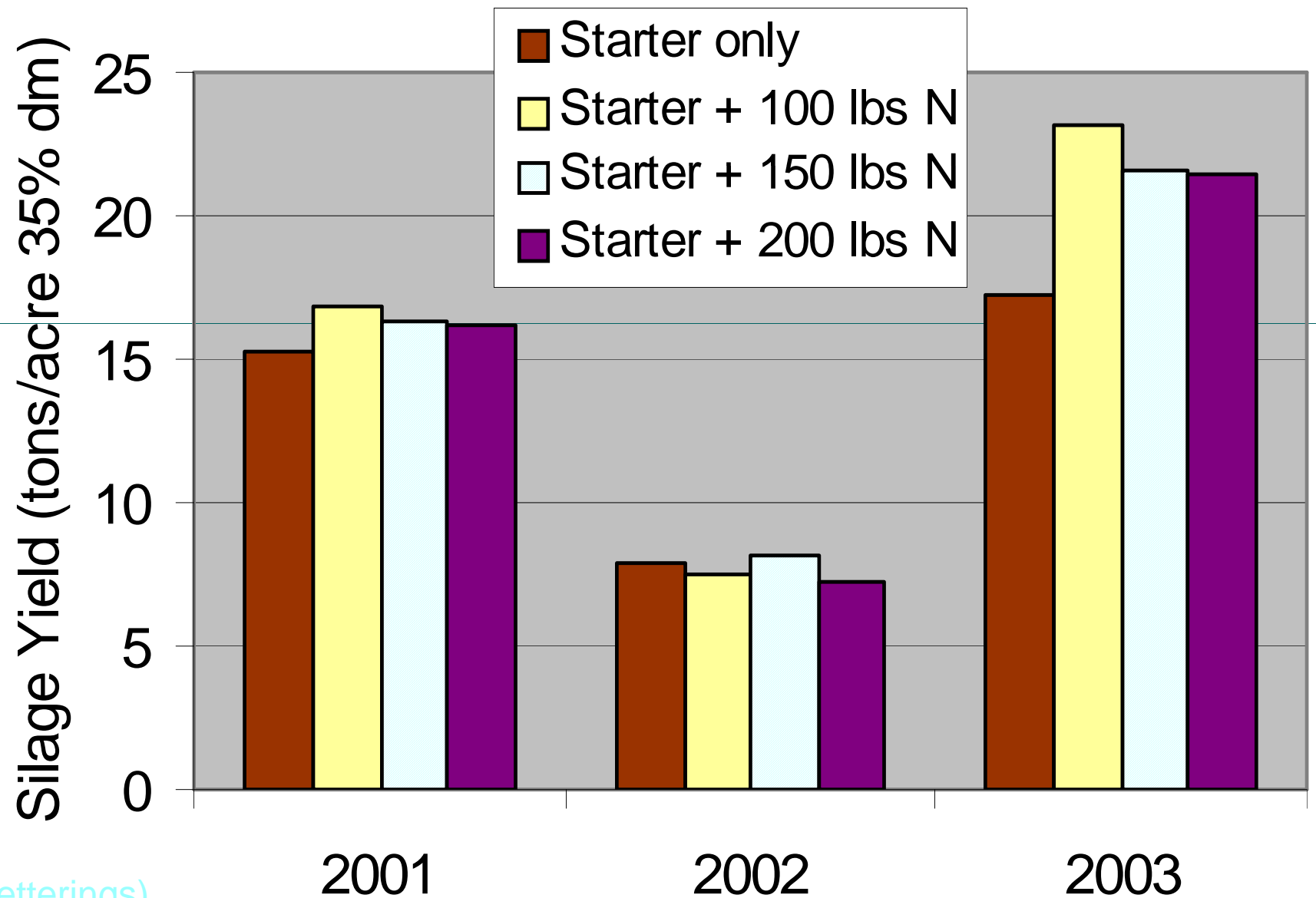
|                               | No starter                | N<br>(+K)<br>only | N (+K) +<br>10-25 lbs<br>P <sub>2</sub> O <sub>5</sub> /acre | N (+K) +<br>>25 lbs<br>P <sub>2</sub> O <sub>5</sub> /acre | P value |
|-------------------------------|---------------------------|-------------------|--|--|---------|
|                               | -----% of dry matter----- |                   |  |  |         |
| Moisture content at harvest   | 59.9                      | 59.5              | 59.5   | 58.8   | n.s.    |
| Neutral detergent fiber (NDF) | 42.1                      | 42.6              | 42.7   | 41.6   | n.s.    |
|                               | -----% of NDF-----        |                   |  |  |         |
| Digestibility of NDF (48 h)   | 62.3                      | 60.8              | 61.7   | 61.6   | n.s.    |
|                               | -----lbs-----             |                   |  |  |         |
| Milk per ton of silage        | 3734                      | 3652              | 3683   | 3712   | n.s.    |
|                               | -----% of dry matter----- |                   |  |  |         |
| Crude protein                 | 7.6                       | 7.5               | 7.7  | 7.6  | n.s.    |
| P                             | 0.23                      | 0.23              | 0.23   | 0.23   | n.s.    |
| K                             | 1.09                      | 1.09              | 1.10   | 1.11   | n.s.    |
| Ca                            | 0.17                      | 0.18              | 0.18   | 0.18   | n.s.    |
| Mg                            | 0.14                      | 0.14              | 0.14   | 0.14   | n.s.    |

(Q Ketterings)

# Soil Test P and Silage Yield



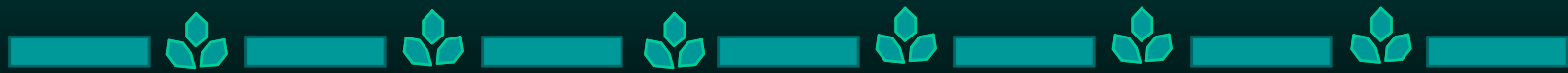
(Q Ketterings)



(Q Ketterings)

# Corn Hybrids for Silage

- Corn is actually two crops: A high quality grain and a modest quality tropical grass.
- The quality of the grain portion isn't greatly influenced by weather, since it's only about 5% NDF.
- However, the quality of the grass portion (stover) is very much at the mercy of the weather.



# Corn Hybrids for Silage

- Opinions on this differ, but most agronomists think that quality corn silage starts with a good ear—this is your insurance policy against a hot, wet growing season. Hot and wet = poor forage digestibility.
- Other choices: Leafy/non leafy, BMR, etc., Look at yield and quality, relying on Cornell University corn silage hybrid trial results whenever possible.



# Seed Company Trials

- The results of seed company trials are most useful in comparing that company's lineup of hybrids.
- Beware of big differences in plant population between hybrids. Some poorly done trials have over 5000 plants per acre difference between hybrids, making yield and quality data unreliable.
- Don't base hybrid purchase decisions on a single, non-replicated strip trial.





# Corn Silage Harvest Management

- **Processing**—yes/no, chop length, processor setting.
- **Chop height**—6”, 12”, 18”, 24”, 30” (!)
- **Maturity**—30% DM? 35% DM?
- Often not a simple decision: One factor can influence another.



# Processed Corn Silage

(+)

- Works with all hybrids.
- Especially good for over-mature corn.
- More milk in most situations.

(-)

- Cost of processor (or custom processing).
- Increased power requirement.
- Increased effluent with immature corn.



# High Chop Corn Silage

(+)

- Chop height decisions delayed until harvest.
- No additional cost.
- Works with most hybrids.
- Wisconsin research shows +2 lbs milk per cow.

(-)

- Reduced yield.
- Surprisingly small improvement in digestibility.
- Maybe reduced butterfat if effective fiber is limiting.



**Chop height: 17"**

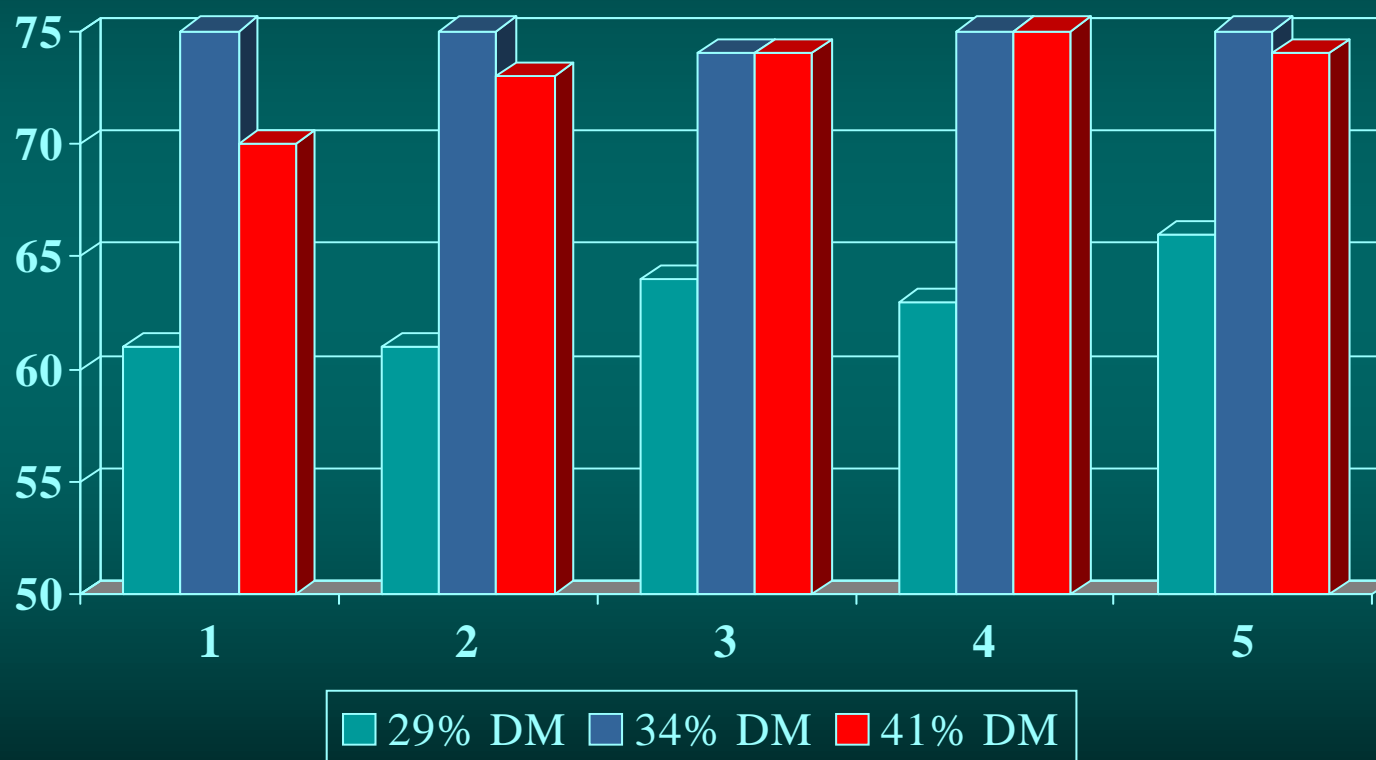


# Corn silage maturity

- Unprocessed corn silage at 32% DM will make more milk than processed corn at 25% DM.
- An average hybrid will make more milk at 32% DM than most “high digestibility” hybrids at 25% DM.
- 6” chop height corn at 32% DM will make more milk than any chop height at 25% DM.



# Effect of Maturity on Corn Silage Digestibility




# Put your money where your mouth is

- Miner Institute herd currently averaging 92 lbs/cow, over 50% first calf heifers. DHI herd average 27,160-1015-821.
- Our goal is 6 lbs of components/cow/day—currently 6.3 lbs. (Time to set a new goal!)
- Ration is corn silage-based, about 55-45 forage:grain ratio.
- Corn silage currently being fed: 32.5%DM.



## Current rations at Miner Institute

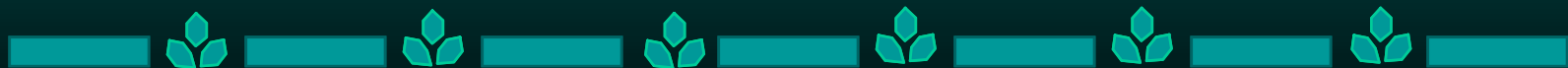
| Group           | Ration % forage | Forage %<br>Corn Silage |
|-----------------|-----------------|-------------------------|
| High (100 #)    | 55              | 67                      |
| Fresh (80#)     | 58              | 67                      |
| Hi heifer (90#) | 54              | 70                      |
| Mid/low (65#)   | 63              | 71                      |
| Close-up dry    | 62              | 68                      |
| Far-off dry     | 89              | 49                      |





# Alfalfa Variety Selection

- It usually pays to buy leafhopper resistant varieties, especially since many of the newer ones combine high yield, disease resistance, and similar price to non-resistant varieties. Always consider the risk:reward ratio.
- Winterhardiness and fall dormancy are not the same; some FD 4 varieties are more winterhardy than some FD 3 ones. FD 3 and 4 are best for most NY situations.



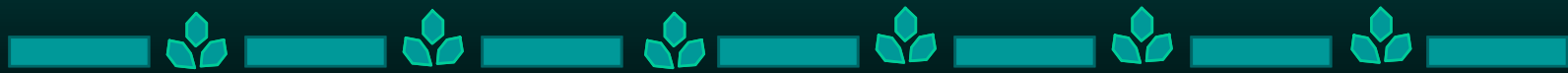
# Alfalfa Variety Selection

- Hybrid alfalfa usually ranks in the top third in variety trials. More companies are now selling hybrid alfalfa. LHR? Unfortunately, no, and no plans to include this trait anytime soon.
- Some “high quality” varieties really do have higher than average forage quality.
- Traffic resistant varieties: Only modest differences vs. normal varieties. Avoid FD 5 if you topdress manure?



# Alfalfa vs. Alfalfa-grass

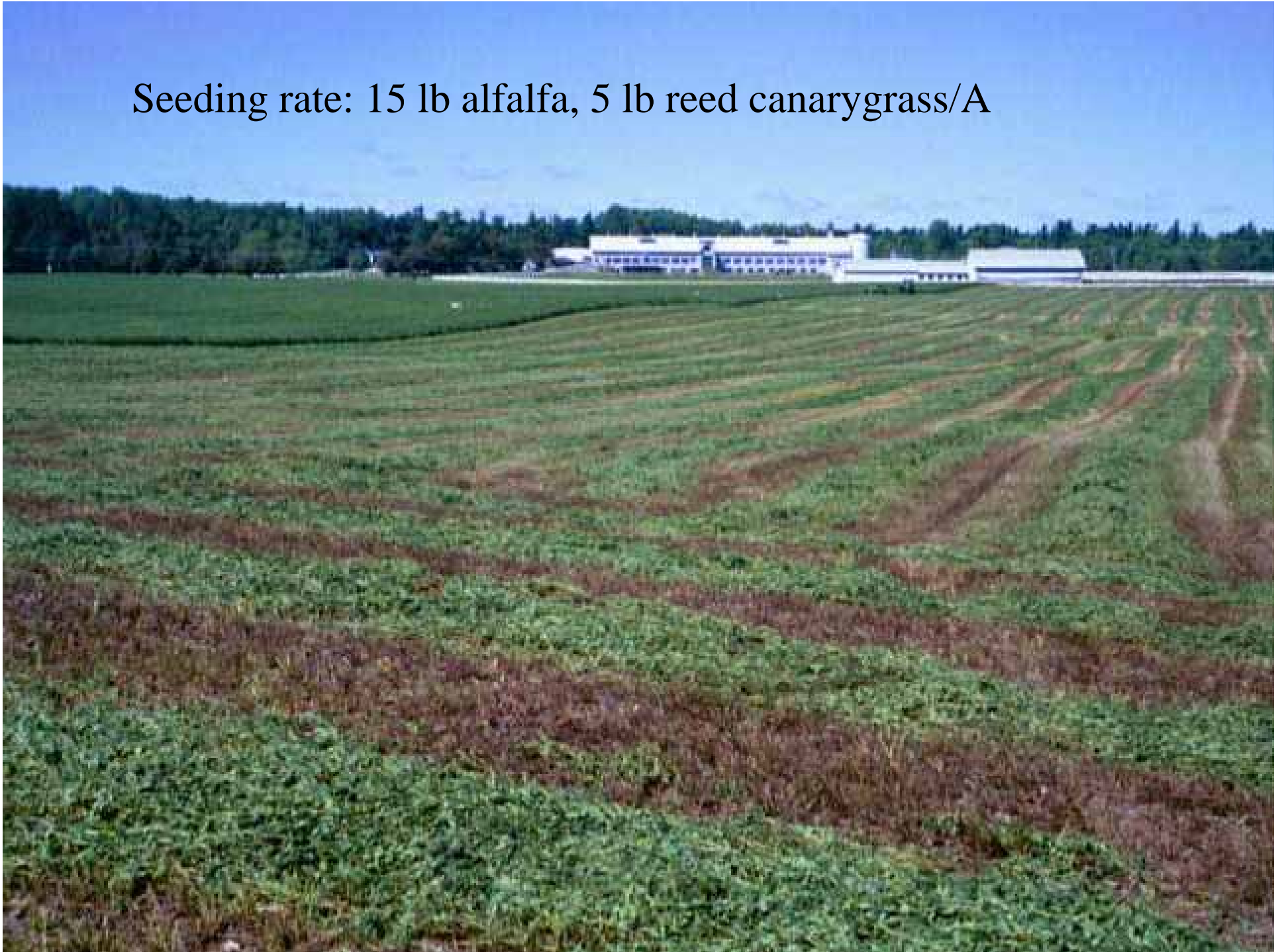
- About 90% of NY alfalfa fields will perform better if seeded to alfalfa-grass.
- Which grass? Depends on drainage, harvest management, intended length of stand.
- Intensive alfalfa harvest management: Orchardgrass ☹, reed canarygrass, maybe tall fescue?



5<sup>th</sup> year alfalfa-orchardgrass 1 week after 4<sup>th</sup> cut.  
Seeding rate: 15 lb alfalfa, 1 lb orchardgrass/A



Seeding rate: 15 lb alfalfa, 5 lb reed canarygrass/A



A close-up photograph of a lush green field. The vegetation is a dense mix of alfalfa and reed canarygrass. The alfalfa leaves are broad and deeply lobed, while the reed canarygrass has long, narrow, blade-like leaves. The overall color is a vibrant green, with some darker patches where the plants are more densely packed. A black text box is overlaid in the center of the image.

Most of the field: 75% alfalfa, 25% reed canarygrass.





Gravel ridge: ~100% alfalfa



Low area: 100% reed canarygrass



# Questions?



# Case Farm *Continued*...

