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DAIRY SCIENCE
University of Wisconsin-Madison

Cereal-grain forages: Points to consider when adding them to dairy cattle diets

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Cereal grain forages

- Increasing acreage in cereal grain cover crops in recent years (SARE, 2017)
- Many species used:
 - Rye, Oat, Wheat, Triticale, Barley
- Runoff, soil health, FORAGE
- Provides a late fall harvest (Oct/Nov) and/or spring harvest (May/June) 1-4 tons DM/acre
- Allows for double cropping



As cereal grain
mature:

- Forage yields increase

but...

- **Forage Quality** decreases, sometimes quickly



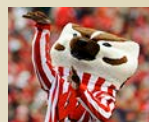


When to harvest cereal grain forages?

This depends on ...

- What animals you intend to feed the forage?
- Timing of next crop planting?
- Weather?





Cereal Grain Forage Quality

- Lactating cows/young heifers (<12 months):

High CP (15-20% CP)

Moderate NDF (40-50% NDF) with
High NDF digestibility

High energy (>65% TDN)



- Heifers(>12 months/Dry cows):

Moderate CP (12-15% CP)

High NDF (>50% NDF)

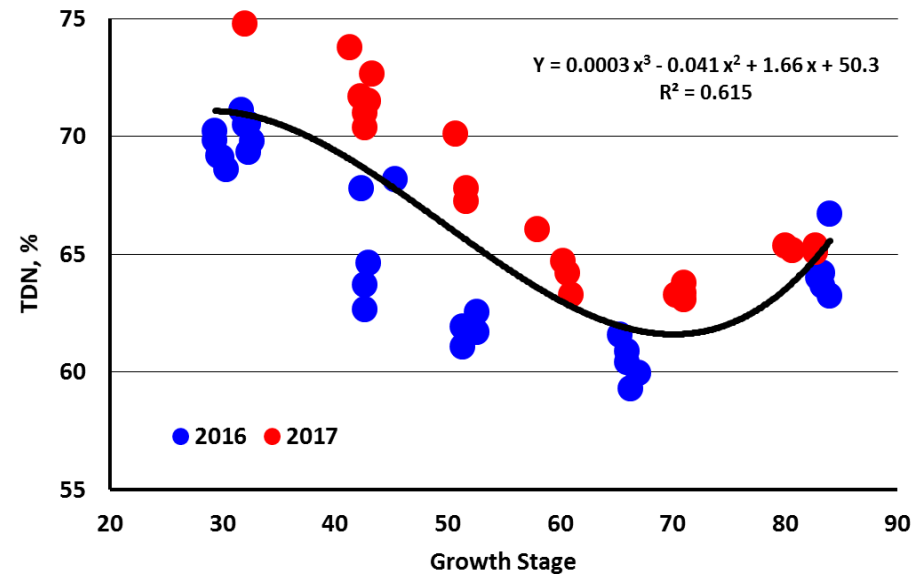
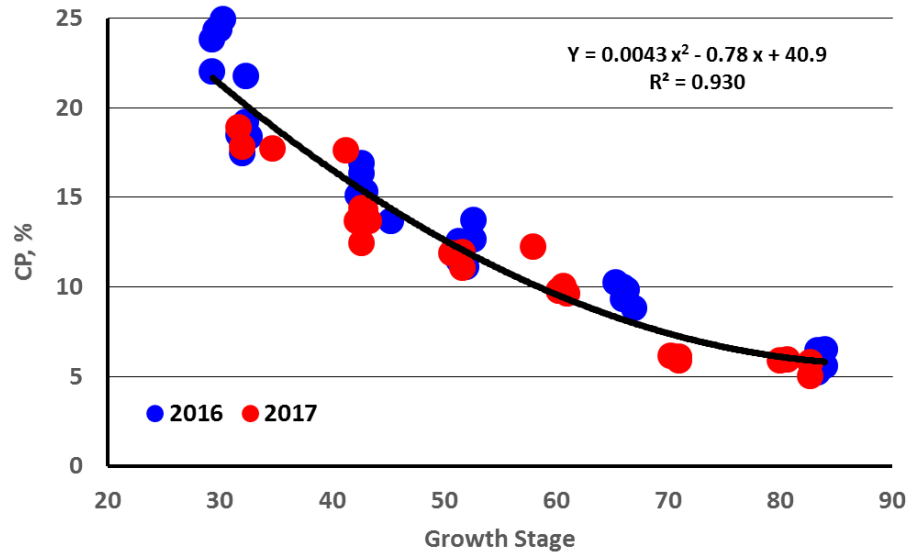
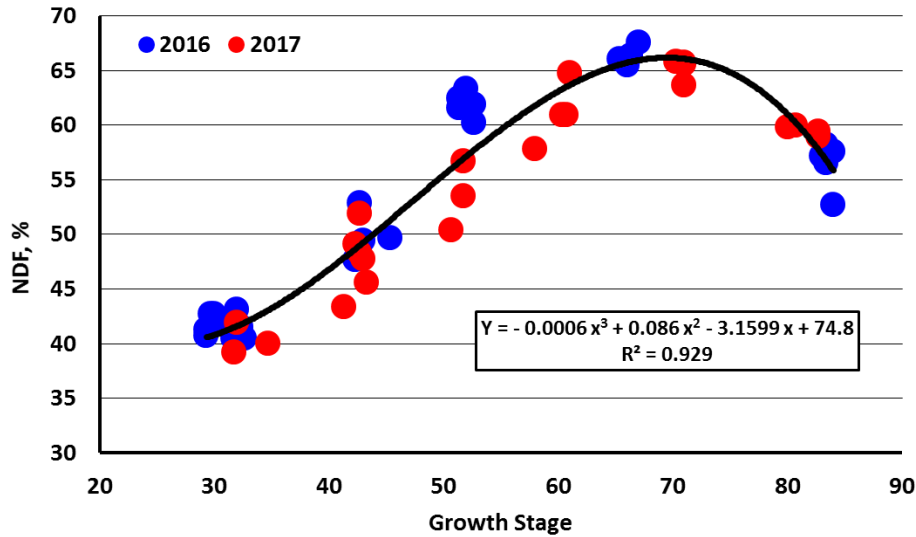
Moderate energy (55-65% TDN)

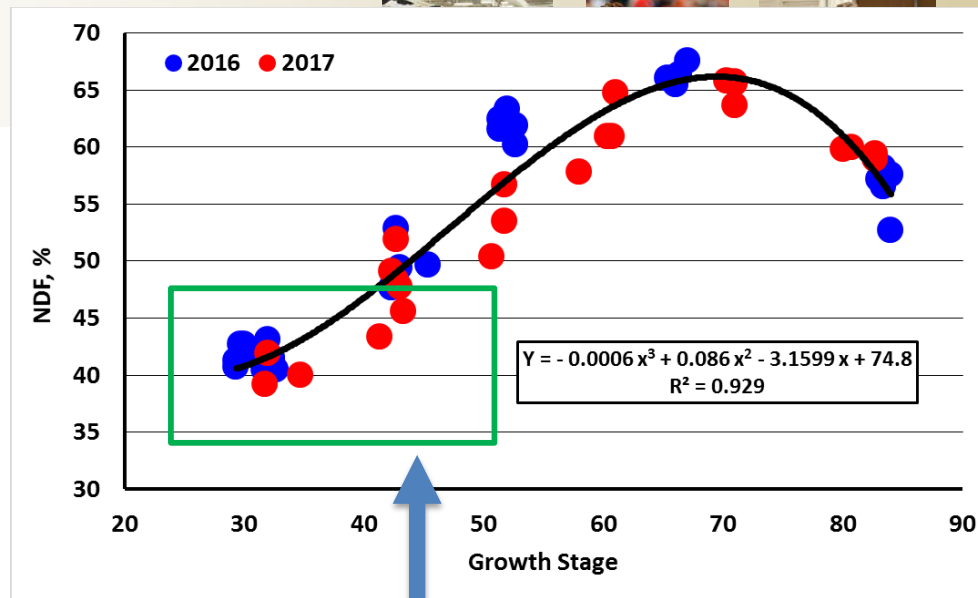




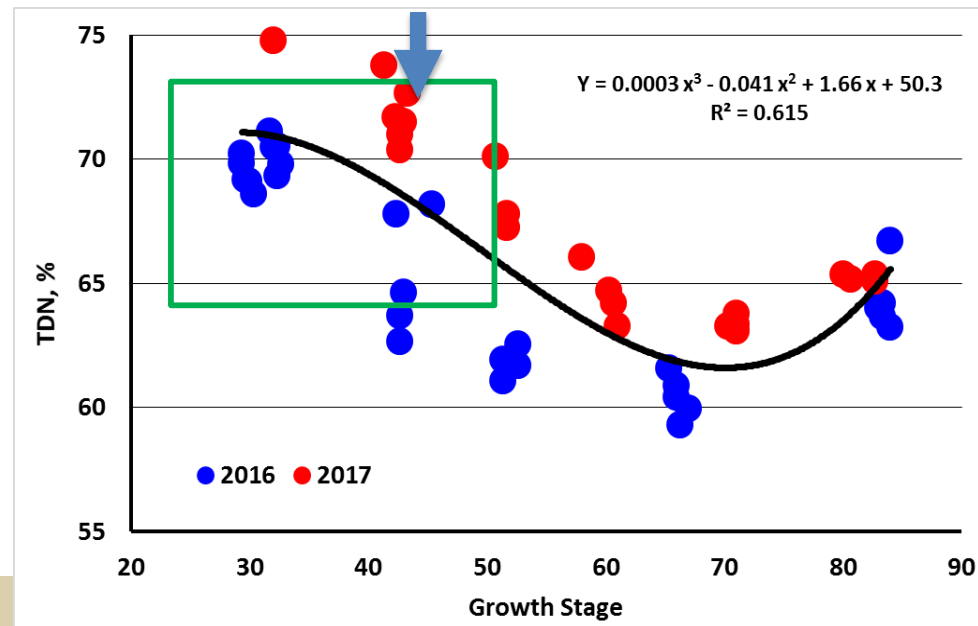
Effects of Growth Stage on Nutritive Value of Triticale

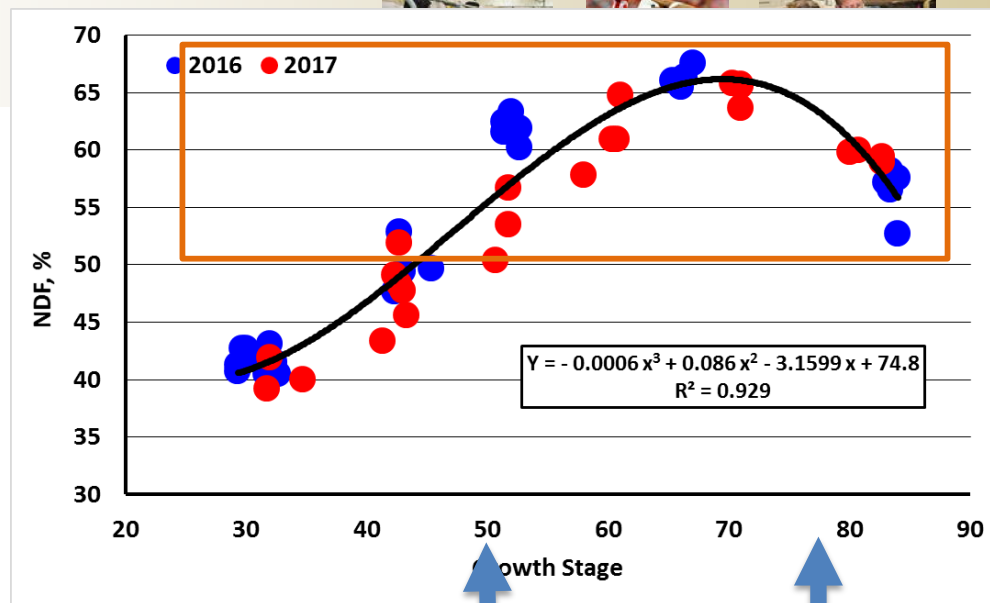
- | | |
|-------------------------|------------------------|
| 20-29 Tillering | 60-69 Flowering |
| 30-39 Elongation | 70-79 Milk |
| 40-49 Boot | 80-89 Dough |
| 50-59 Heading | 90-99 Ripe |



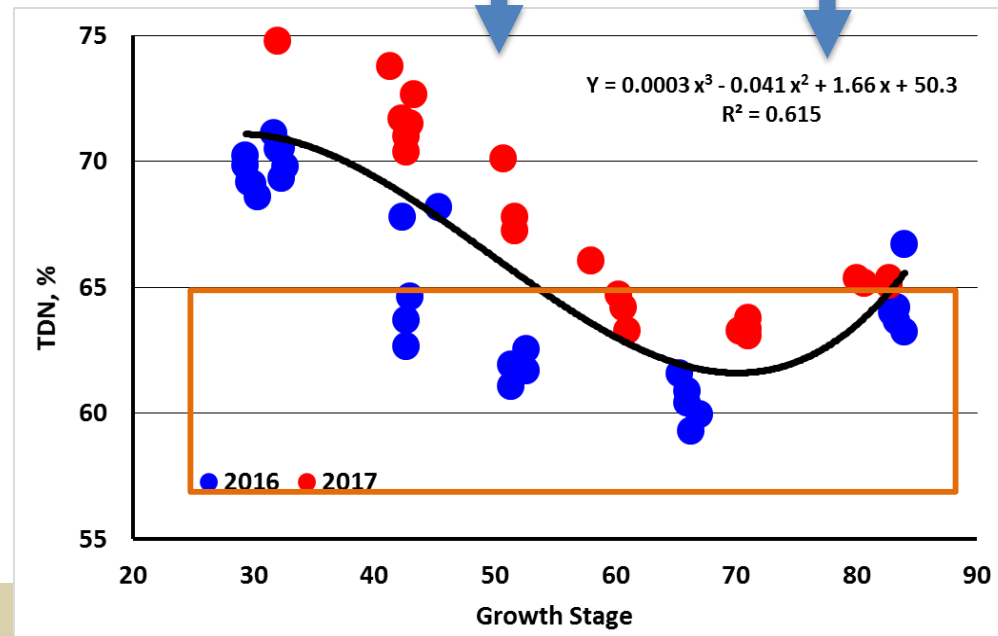


Lactating cows
-Boot stage





Heifers – Heading to soft dough





Points to Consider: Fiber

Typically partially replaces alfalfa in diets

- Grass fiber more digestible but stays in rumen longer than alfalfa
 - Can increase rumen fill
 - Possibly lower intakes
 - Adjustments to diet fiber to maintain intakes and production needed



Points to Consider: Fiber

- Early harvest can allow for high milk production
 - Flag leaf to boot stage
 - Low lignin (1-3%) and high fiber digestibility (60-70%)



Points to Consider: Harvesting/Storage

- Can have a hollow stem with later maturities
 - Use shorter particle length and excellent packing
 - Forage should be 30-45% DM
 - Likely can direct harvest at soft dough stage
 - Wilting needed for earlier harvests



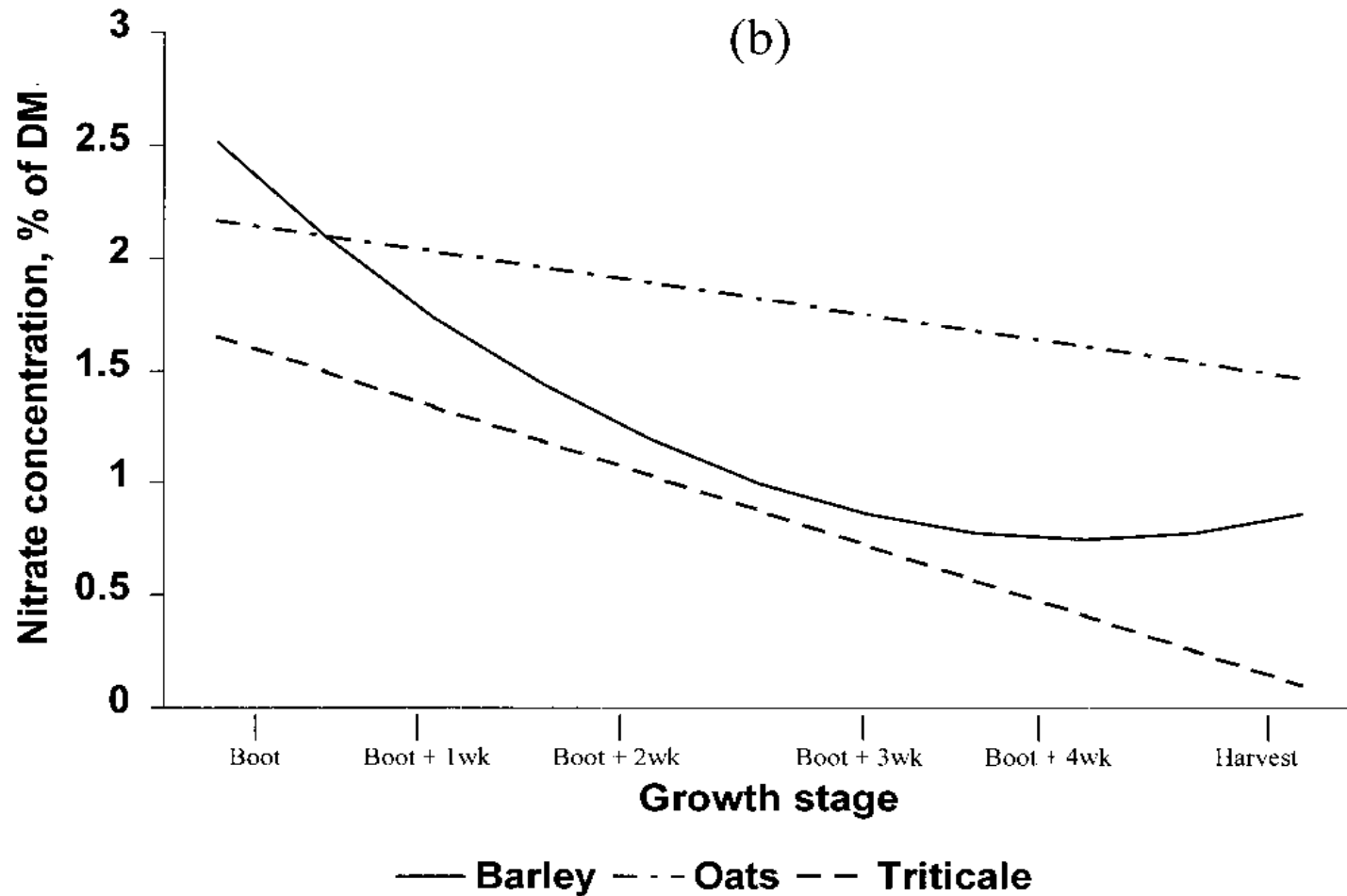


Points to Consider: Potassium

- Cereal forage can have high potassium
 - 1 to 4% DM
 - Manure fertilization increases potassium
 - Avoid feeding high potassium forages to dry cows; especially close-up cows
 - High K levels can reduce Mg absorption
 - Feed higher Mg mineral



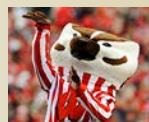
Points to Consider: Nitrates





Nitrate in Cereal Forages

- Toxic to animals, especially if only forage fed
- Higher with heavy manure or N fertilizer applications
- Builds up during cool, cloudy conditions
- Ensiling reduces levels; no reduction for hay
- Testing at harvest and feeding suggested
 - Dilution can lower risk



Point to Consider: Next Crop?



- Planting of next crop may dictate harvest time:
 - Corn silage
 - Earlier harvest(mid/late May)
 - Summer annuals (sorghums, millet, etc)
 - Possibly later harvest as summer annuals planted early June



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Questions?

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