



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

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World Dairy Expo
Dairy Forage Seminar
October 4, 2017





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)

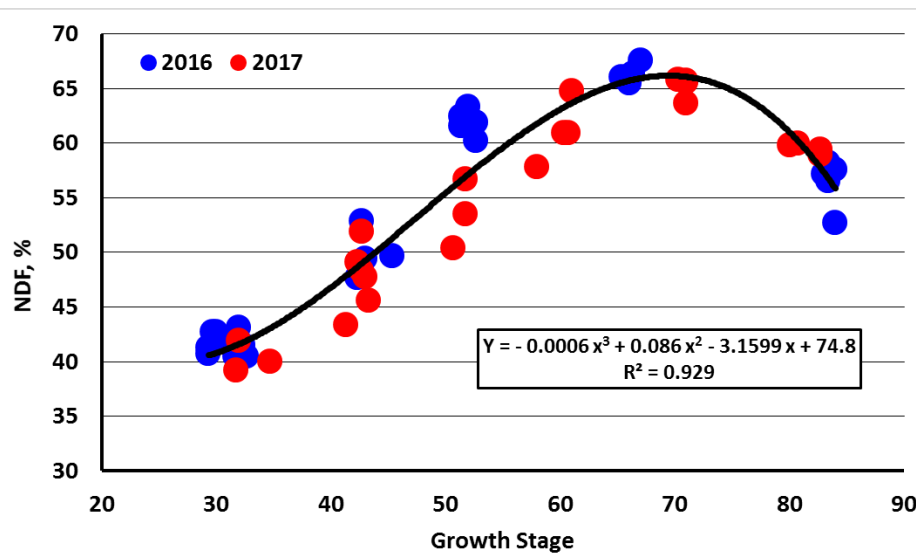
High NDF (>50% NDF)

Moderate energy (55-65% TDN)



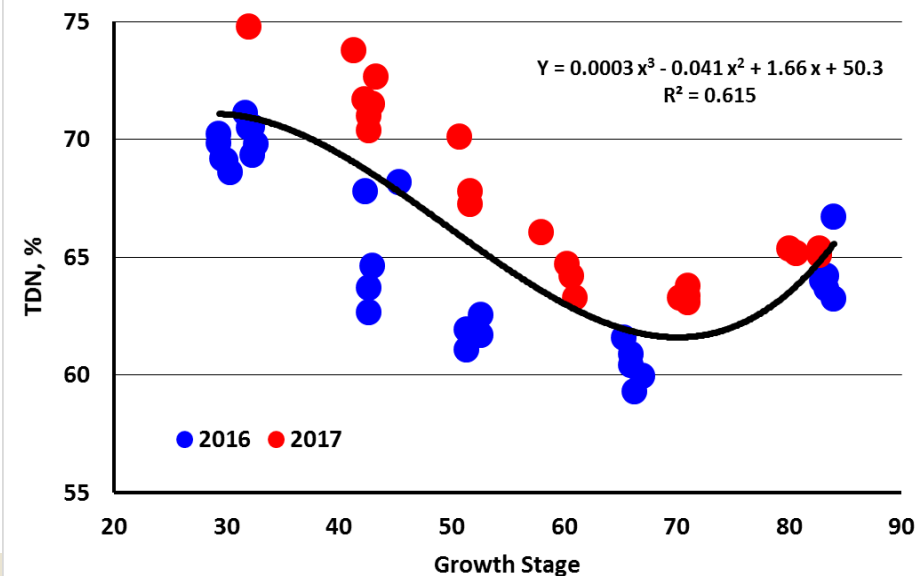
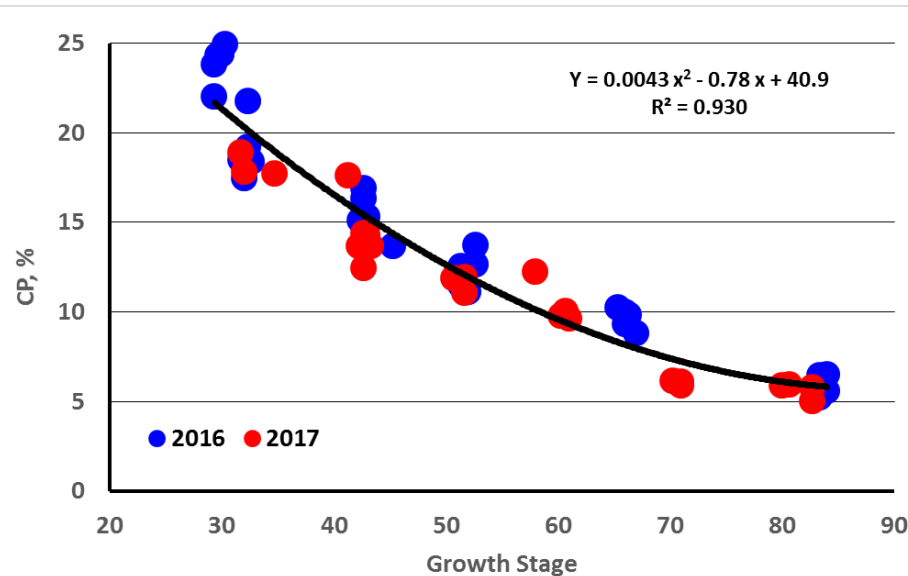


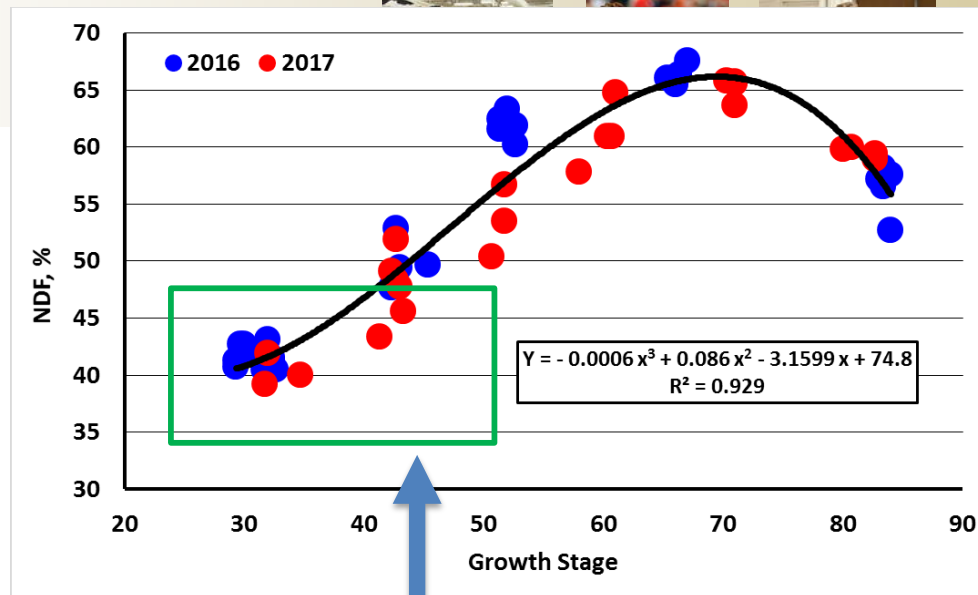
Effects of Growth Stage on Nutritive Value of Triticale



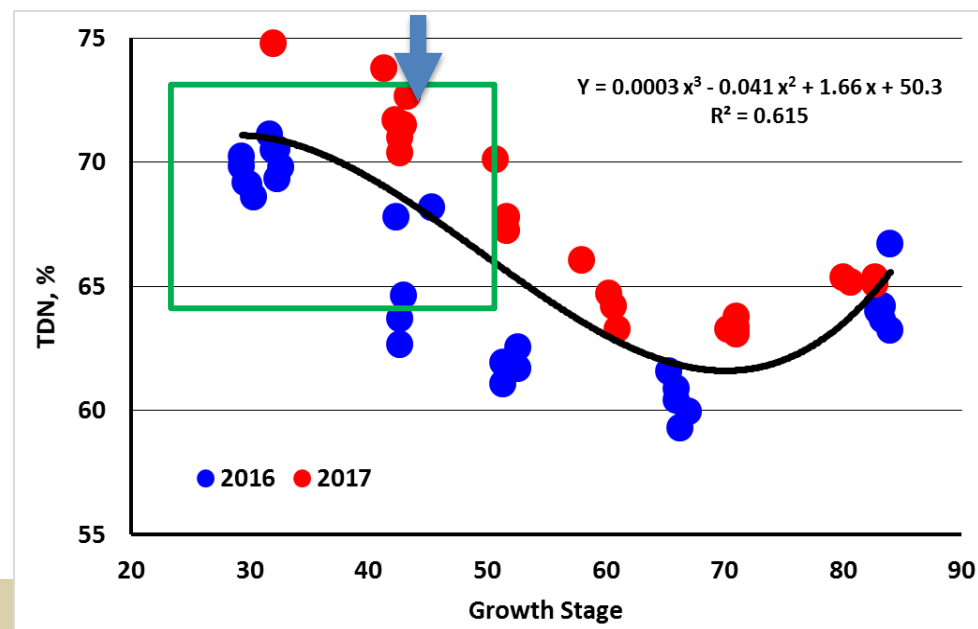
20-29 Tillering
30-39 Elongation
40-49 Boot
50-59 Heading

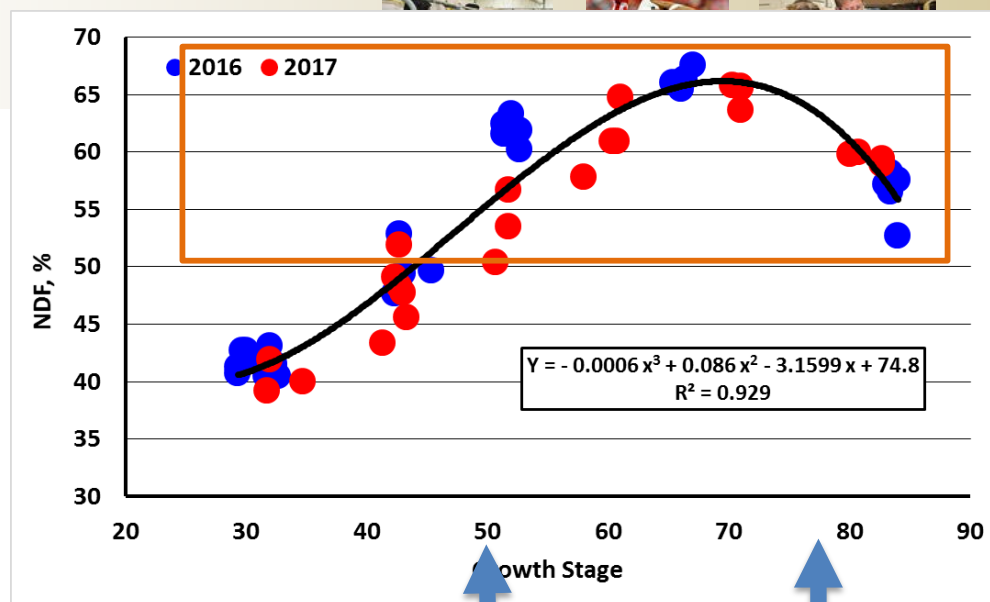
60-69 Flowering
70-79 Milk
80-89 Dough
90-99 Ripe



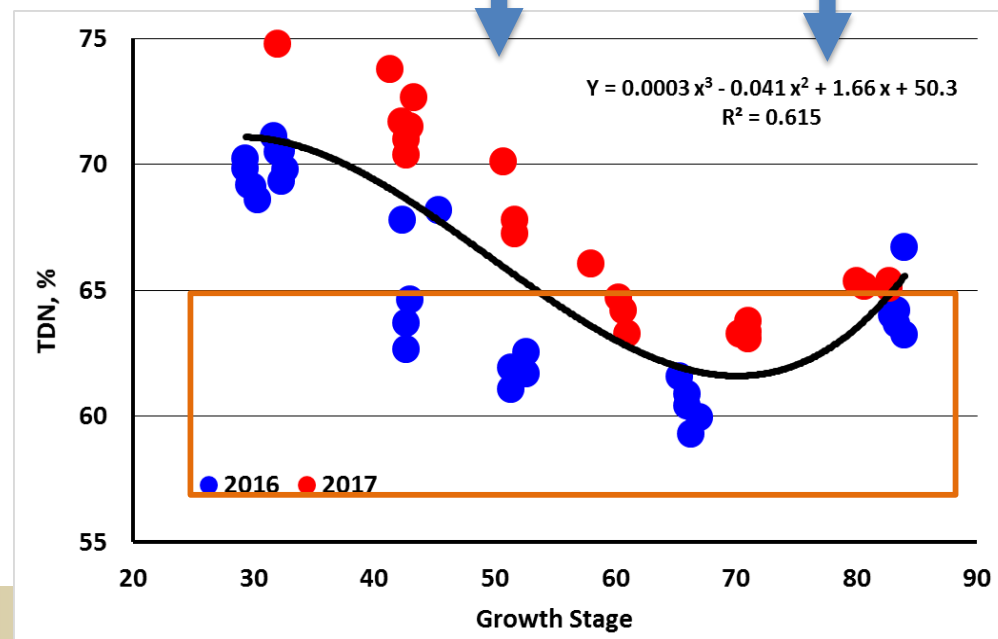


Lactating cows
-Boot stage





Heifers – Heading to soft dough





Points to Consider: Fiber

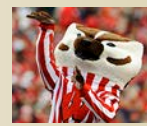
Typically partially replaces alfalfa in diets

- 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

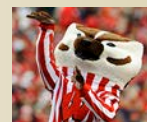
- Can have a hollow stem with later maturities
 - Use shorter particle length and excellent packing
 - Forage should be 30-45% DM
 - Likely can direct harvest at soft dough stage
 - Wilting needed for earlier harvests



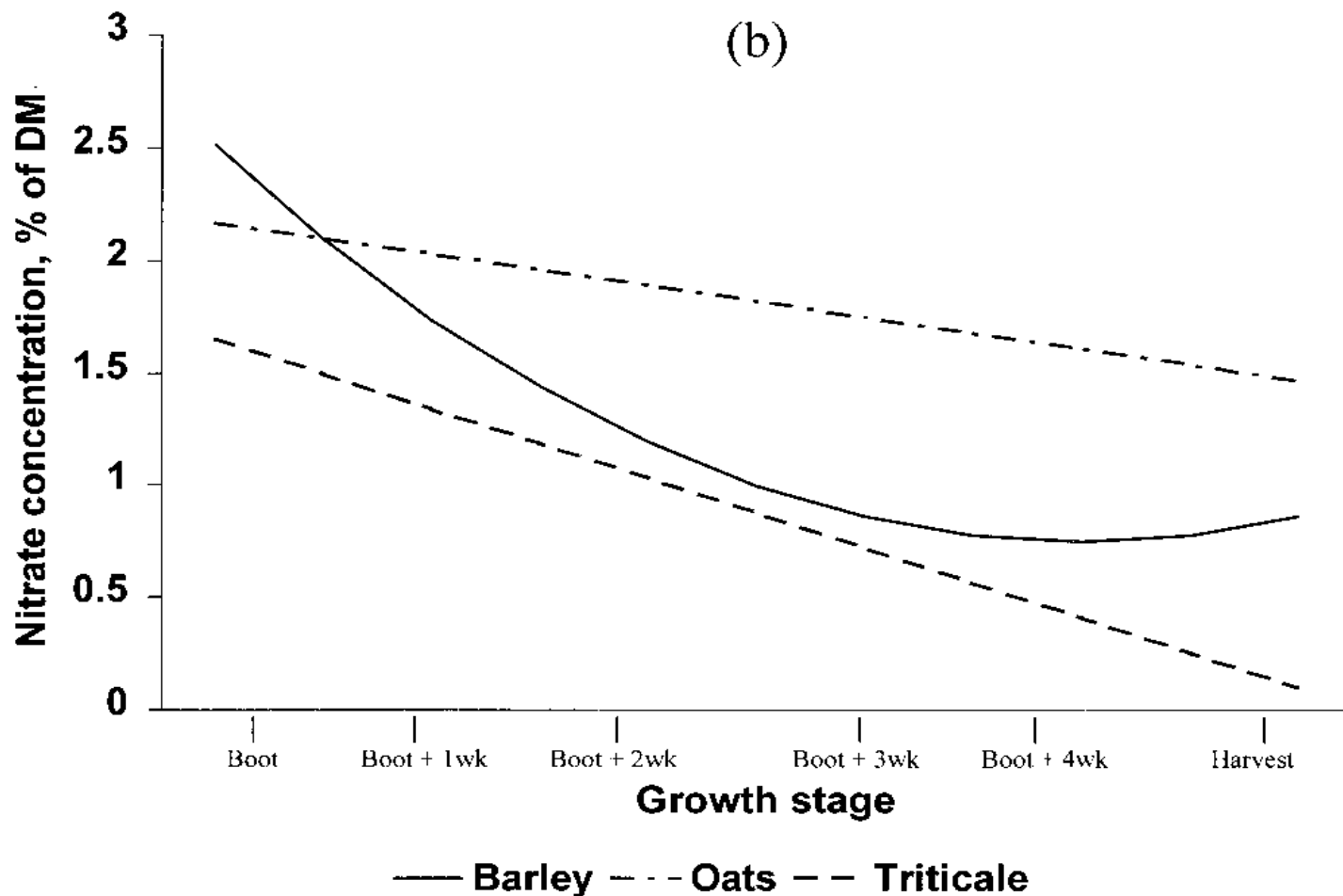


Points to Consider: Potassium

- 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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