An Agronomic Look at Low Lignin Crops.

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Company Introduction

- 6 Full time Agronomists, 4 Associate Agronomists
- Work in approx. 18 counties
- 350 Farm Clientele
- 250,000 Acres
- Consult mainly in Eastern WI
- Write NMP’s, CNMP’s, Crop Scout, GPS Soil Sample, Nutrient and Pesticide Recommendations, Precision Ag Dept.
Outline

- BMR Corn
  - Seed Selection
  - Planting Considerations
  - In Season Management
  - Harvest Management
  - Yield Comparisons
  - Odds n Ends
- Low Lignin Alfalfa
  - Seed Selection
  - Planting
  - In Season
  - Harvest Issues
  - Quality Comparisons

Management Strategies for BMR Corn

- Seed Selection
- Planting Considerations
- In Season Management
- Harvest Management
- Yield Comparisons
- Odds n Ends

BMR Corn- Seed Selection

- Two Companies Sell BMR
- Maturity
- Traits
- Agronomic Characteristics
- Comparison with Conventional Silage (Non BMR)
BMR Com- Seed Selection

- Companies
- Seed industry more about relationships than any other part of agronomy
- Mycogen- Old hat to the BMR market
- Pioneer- New kid on the block
- Other companies that have limited selection of BMR

BMR Com- Seed Selection

- Maturity
- Select a variety that fits your farm management
  - Day length
  - BMR only farm, Mix
  - Chopping order
- Limited selection (number of varieties)
- Mycogen- 90 day- 116 day
  - About 3 varieties every 5 days of maturity group
- Pioneer- 102-114
  - 5 varieties total

BMR Com- Seed Selection

- Traits
- Pioneer: AMX and XR(HXX)
  - AMX: 2 Above YGCB, HX1, 1 Below HXRW, RR, LL
  - XR(HXX): 1 Above HX1, 1 Below HXRW, RR, LL
- Mycogen: SS, HXX, RR, Conventional, Some RA
  - SS: 2 Above YGCB, HX1, 2 Below YGCB, HXRW, RR, LL
  - RA: Refuge in a bag
- Herculex does have some activity on Western Bean Cutworm- Sandy Soils
BMR Corn - Seed Selection

- Agronomic Characteristics
  - Emergence
  - No-till, Corn on Corn, Early planting
  - Early Vigor
  - Disease resistance, Cold wet soil
  - Drought Tolerance
  - Root Strength
  - Sclerotolerance
  - Plant Height
  - Take with a grain of salt.

Comparison with Conventional Silage (Non BMR)

- BMR varieties tend to hold moisture longer than Conventional ones
- How to compare with those conventional hybrids:
  - Good rule of thumb: BMR varieties are 5 days maturity more than Conventional ones – I.E.- 100 day BMR = 95 day conventional

BMR Corn - Planting Decisions

- Planting Populations
- Tillage Type
- Field Selection
- Crop Rotation
- Straight or Comingle
BMR Corn - Planting Decisions

- **Planting Populations**
  - Keep population consistent: No real benefit to VRT planting
  - Cannot handle high populations
    - Compared to conventional 36,000-40,000
  - Low populations give up too much yield
  - Target approx. 30,000-32,000 seeds/acre

- **Tillage Type**
  - Conventional Tillage is best case scenario
  - Can make No-Till work
  - Watch Emergence and Early vigor Characteristics
  - May consider planting later when No-Till planting

- **Field Selection**
  - Drainage
  - Field Tile
  - Soil Type
    - Well Drained Silt loam
  - Fertility
    - Fields Close to farm - Higher fertility?
    - Manured
    - Potash
    - Push the N
    - Sidedress N
BMR Corn - Planting Decisions

- Crop Rotations Considerations
- 1st year corn the best
- Crop scout for disease and insects if Corn on Corn
- After alfalfa watch for Black Cutworm - Insect traits have poor activity
- Good weed control very important

BMR Corn - Planting Decisions

- Co Mingle - Planting ½ and ½ BMR and Conventional in same field
  - Extra yield
  - Good quality
  - BMR competitive advantage
  - Bunker space
  - 2 and 2
  - Make sure to match up BMR maturity with conventional maturity

BMR Corn - In Season Management

- Side dress nitrogen
  - Type doesn’t matter, rate does
- Fungicide V5-V7, VT
  - V5-V7 is convenient if 2 pass herbicide application is made with Roundup
  - VT applications more important than V5-V7, if only one application is done
  - Coverage, coverage, coverage - Ground rig better than plane
BMR Corn - In Season Management

- Fungicide application at VT
  - Most applications done by plane. Speed, lower crop damage, easier
  - Several different products: Priaxor, Stratego Yld, Headline AMP
  - Ballpark cost of plane and fungicide is $36/a
- If spoken for early in the season (Feb, March) usually farmer gets a rebate from chem company
- Keep any and all stresses out of crop
  - Seems obvious but more important than conventional corn
  - Weed control

BMR Corn - Harvest Management

- BMR corn will hold on to moisture longer than conventional corn
- Can use this corn to lengthen harvest window
- If corn gets test moisture on both hybrids
- Standability can be an issue, but very flexible
BMR Corn - Yield Comparison

- BMR corn will yield less than Conventional Corn - Approximately 10%
- 1st year corn fields on Alfalfa - Can yield upward of 28 ton as fed
- Co Mингled varieties will yield more than straight BMR
- Have seen 2 ton DM increase
- Weighed Fungicide trials - BMR vs. Untreated - 2-3 ton as fed basis increase in yield
- Not so much yield gain, but how much can you lose due to disease pressure
- NCLB - Northern Corn Leaf Blight
- Fast dry down

Odds and Ends

- Mycogen (BM3) claims 8%-15% NDFD advantage over Pioneer (BM1)
- Have had nutritionist tell me both ways
- Mycogen coming out with new BMR hybrid focusing on better Starch digestibility
- NEW Consultants Silage plots - Replicated, multi locations
- BMR vs. Conventional
  - NDFD 2016: 8.5 pt adv BMR, 2017: 9.3 pt adv BMR
  - DM 2016: 0.94 tons adv Conv., 2017: 1.2 tons adv Conv.

- Mycogen vs. Pioneer
  - NDFD: 3.3 pts adv Mycogen
  - DM: 0.4 ton adv Pioneer
  - Starch: 3.4 pts adv Pioneer
  - Have noticed in the field Pioneer having better agronomics and higher yields, with Mycogen seeming to have better digestibility.
Management Strategies for Low Lignin Alfalfa

- Low Lignin Alfalfa
  - Seed Selection
  - Planting, In Season
  - Harvest Issues
  - Quality Comparisons

Low Lignin Alfalfa - Seed Selection

- HarvXtra
  - True Low Lignin Trait
- Hi-Grod
  - Conventional Plant breeding
- Coated vs. Un-Coated
  - Forage Genetics: 34% Coating: Fungicide, MicroNutrient, Growth Regulator, Rhizobium
  - Non-Coated (IE Pioneer)
- Is it all marketing???????? New Seedling stands very similar

Low Lignin Alfalfa - Seed Selection

- Same characteristics as Conventional Alfalfa
  - Fall Dormancy
  - Winterhardiness
  - Phytophthora and Aphanomyces ratings
  - Roundup Ready comes along with the ride
- Coated - Sticker Shock
  - Rough cost per bag $500
  - Off that $200- $300 is tech fee
  - Cash Discount and bundling programs can bring that down
Low Lignin Alfalfa - Seed Selection

- How do we integrate it into our rotation?
- Probably a 2-4 year process
- Do we separate Conventional alfalfa feed pile from LL
- Winter kill can accelerate the incorporation into rotation

Low Lignin Alfalfa - In Season Management

- Again similar to Conventional or Roundup Ready alfalfa
- Spray for weeds, with RR Technology need to kill out nulls in seeding year
- Push the Potash and Sulfur
- Scout and Spray for Weevils and Leafhoppers
- Fungicide Considerations
  - Stand termination- Roundup Ready, need same type of Growth Regulator herbicide to terminate stand
  - Stolor/Bonvel, 2,4-D
  - Don’t forget the Roundup too, Dandelions and grass in field

Low Lignin Alfalfa - Harvest Issues

- 4 strategies a grower can take with LL alfalfa
  1. Higher quality feed with keeping same cutting interval as conventional (28 days)
  2. Push for higher yield without losing quality: longer cutting interval (35 days)
  3. Reduce cut get same quality and yield as normal cutting interval
  4. Hold quality when we get stuck in rain event or rainy period
- Custom harvested or Farm Harvested??????
Low Lignin Alfalfa - Quality Comparisons

- Forage Genetics (Croplan)
- 12-20% lower AD Lignin as compared to conventional at same stage of maturity
  - Then can choose between
  - 14-18% Higher NDFD (normal cutting schedule)
  - 20% higher yield (Delayed harvest)
  - Listed in Seed Guide

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Low Lignin Alfalfa - Quality Comparisons

- On Farm forage testing
- Farm A
  - Mid July
  - 1st Cut New Seeding LL: 146 RFV
  - 2nd Cut Conventional: 138 RFV
  - Mid August
  - 2nd Cut New Seeding LL: 167 RFV
  - 3rd Cut Conventional: 151 RFV

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Low Lignin Alfalfa - Quality Comparisons

- Farm B
  - Mid July
  - 1st Cut New Seeding LL: 166 RFV
    - Range of 3 fields: 153-182
  - 2nd Cut Conventional: 184 RFV
    - Range of 4 fields: 182-184
WHY IS ALL THIS SO IMPORTANT?

Questions?

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