REJUVENATING FORAGES
Following a Difficult Growing Season

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How to Make Lemonade Out of a Lemon

Stress, Upon Stress, Upon Stress, . . . is Not a Good Thing

- Weather
  - Too much or too little precipitation and/or temperature
- Soil pH
- Nutrient deficiencies
- Pathogens
- Insects
- Weeds
- Harvest Timing and Interval
  - An example: Overgrazing

Rest in Peace

Objective of Presentation

To provide producers with management practices that will invigorate forages following stresses caused by Mother Nature or man.

Considerations to Reduce the Effects of Stress

- Soil test and apply needed amendments
- Improve a weak stand by selecting adapted forage species and best varieties, and seeding before dormancy break
- Rotationally stock (graze) the pasture
- Timing of harvest
- Control winter-annual weeds in alfalfa
- Control insects next year

Soil Sampling


Image from Web Soil Survey
Soil sampling - Doing the physical work…

- By soil type
  - Previous crop
  - Typical vs. issue areas (roadside, feeding area, shade tree…)
- Established
  - 4-inch depth
- New seeding
  - To tillage depth
- Proper equipment
- Approximately 15 cores per sample

Where to send the samples?
http://www.agry.purdue.edu/ext/soiltest.html

Soil nutrient analysis – Doing the mental work…

Fertility levels from soil test results that should “raise the eyebrows”

- Soil pH < 6.0  grass only
  < 6.6  legume or grass-legume
- Phosphorus (P) < 30 lbs/acre
- Potassium (K) < 210 lbs/acre
- Magnesium (Mg) < 150 lbs/acre
  Qualitative measure (VL, L, M, H, VH)
  If the level is less than medium, the need is now.

Why soil pH matters

- Nitrogen fixation in legumes

- Forage composition
  The first dollar spent should be to correct soil pH.
Soil Fertility Woes and Oh No’s

- Applying limestone or a fertilizer without a soil test
  \[ \text{N}_2\text{O}_5 \text{K}_2\text{O} \]
- Applying “X” lbs. of triple 12 (12-12-12) instead of being prescriptive based upon a soil test
- Applying limestone today and seeding tomorrow

Fertility Level Impacts Yield and Persistence

Severe stand losses have occurred where P has been applied without K

Fertility Level Impacts Yield - Alfalfa

Fertility Level Impacts Persistence - Alfalfa

Is my forage stand weak?
“Rules of Thumb” Regarding Stand

- 2 legume plants per square foot in a grass-legume pasture
- < 10 percent soil should be seen in a cool-season grass or cool-season grass/legume pasture
- 30 robust alfalfa stems per square foot in a hay field
- Time of year has an influence on number
- Stem mass a major factor in determining yield
Stem mass is a major factor in determining yield.

- Low Fertility
- Adequate Fertility

The value of legumes growing with a cool-season grass

- No nitrogen fertilizer expense
- More forage available during summer
- Higher quality forage
  - More crude protein
  - Less fiber
  - Higher potassium and magnesium

Procedural Order for Pasture Renovation

1) Assess whether there is a need for pasture improvement
2) Soil test and apply amendments
3) Control perennial broadleaf weeds
4) Leave residual growth at less than 4 inches of height
5) Seed selection and purchase
6) Overseed before dormancy break
7) Reduce competition to young seedlings by grazing growth of established forages or by hay harvest

- Broadcasting seed in the late winter can be effective if seed can come in contact with the soil (don’t want too much old residue)
- Legume species to consider
  - Red clover
  - White clover (pasture; low rate to reduce bloat risk)
  - Potato leafhopper resistant alfalfa
  - Birdsfoot trefoil (pasture; no bloat)
- Do not mix red clover seed with alfalfa or birdsfoot trefoil seed
- Red clover will be more aggressive as a seedling and will predominate the stand

- Inoculate legume seed with the rhizobia-specific inoculant to ensure N-fixation
- Do not mix cool-season grasses and legumes in a broadcaster as the spread pattern will be quite different
  - Legumes have greater density than grasses

Legume

Grass & Legume

Legume

Do not try to overseed an existing alfalfa field with alfalfa seed as establishment results can be poor because of allelopathy (autoxicity)

- Red clover is a viable option if trying to extend the useful life of an alfalfa hay field for a couple more years
- If using a no-till drill, make sure that seeding depth is shallow, less than one-quarter inch.
Continuous stocking results in:
- Inefficient pasture use
- Weakened plants - little rest for the forage to recuperate from livestock grazing
- Low yielding forages or weeds

Advancements in fencing and delivering water to paddocks should be considered because of improvements in:
- Forage quality
- Persistence
- And utilization

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Overgrazing Removes Meristematic Tissue
Meristematic tissue (region of cell division, cell content synthesis and tissue initiation) is fundamental to plant growth.

Overgrazing Reduces Vigor

Impact of Overgrazing

Ray Smith, University of Kentucky

Overgrazing Reduces Vigor

From: Forages – An introduction to grassland agriculture, 6th ed.
Timing of Cutting/Grazing (Harvest)

Most stressed or last harvested hay fields and paddocks should be harvested last in the spring.

Control Pests

- If winter-annual weeds are prevalent in an alfalfa hay field, consider applying an herbicide that will be most effective for the targeted weeds.

Most herbicides labeled for this purpose should be applied after the alfalfa is dormant in the fall and before break of dormancy in the spring. Application should not occur on frozen soil.

- Control alfalfa weevil and potato leafhopper if threshold level exceeded next year.

Control Pests

- Common chickweed
- Creosote groundsel

Winter “Drylot”

- Cows on pasture considerations
  - Sacrifice area (fence off an area vs. unlimited access)
  - Attributes of concern:
    - Well drained
    - Water
    - Windbreak
    - Fences
    - Access to improve soil fertility if needed when reseeding
- Next Spring
  - Reseed to:
    - Spring oat/ perennial forage by May 1 if lot is not to be routinely used
    - Summer annual (Sorghum sudangrass, Sudan grass, Pearl millet, Teff, etc.)
  - Control weeds

Considerations to Reduce the Effects of the Stress

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- Improve a weak stand by selecting adapted forage species, best varieties and seed before dormancy break
- Rotationally stock (graze) the pasture
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Top 11 Areas For Consideration:

1. Body condition score cows.
2. Inventory hay and other feed resources.
3. Analyze feeds for nutrient profile.
4. Pregnancy checking, culling and marketing.
5. Divide cow herd into management groups.
6. Utilization of crop residues.
8. Limit feeding of hay.
10. Adjust rations for “cold stress”.
11. Plan for next growing season.

QUESTIONS & DISCUSSION

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