NE1441 Minutes

8/20/18

Attendance (live\_: Krishona Martinson, Paul Siciliano, Amy Burk, Carey Williams, Mike Westendorf, Robert Causey, Colt Knight, Alex Garcia

Attendance (web): Laura Kenny, Aubrey Jaqueth, Jennifer Weinert, Carissa Wickens, Donna Foulk, Cassie Uricchio

**STATE REPORTS**

**Univ. of Maryland**

Aubrey Jaqueth = Turfgrass as alternative ground over for dry lots, safer grass for grazing

* Increase space and return horses to natural grazing behavior
* Balance horse health and environmental health
* Cool and warm season grasses both at VA Tech and UMD
  + Control, low and high traffic
    - Compaction with penetrometer
    - Plant persistence using veg cover
    - Yield with square grid
* Compaction increased as traffic increased
* Plant persistence and biomass decreased as traffic increased
* Tall Fescue and Zoysiagrass is the best performer
* At VA Tech: grazing trials with horses
  + - One horse per grazing grid
    - Plant removed to determine palatability using ¼ m by ¼ m square
    - Plant persistence and nutrient comp also
    - Over two years
* No significance with cool season, everything grazed similarly
* Warm season, Bermudagrass were least preferred and none were < 12% NSC
* What about endophyte? Yes, some had very low levels, but negligible, still not recommended for pregnant animals
* Tried to span the entire grazing season
* Each plot was 10 x 20’ grazed for 8 hours
* Warm season grass establishment, good soil prep, tilled, rocks and thatch pulled, rolled soil flat, seed placed on top of the soil, hand irrigated, used broadleaf herbicide, use tarps over the crabgrass to not allow the herbicide on it

Amy Burk = sabbatical in the fall to focus more on YouTube channel videos

* Composting in MD, movement to increase composting and anaerobic digester use
* Study using grazing muzzles on grazing behavior
  + Objective was to look at different behaviors and length of time using muzzles
    - One study for 9 weeks using muzzles on behaviors on individual animals
    - 3x3 Latin square with 6 horses (miniature)
    - 0 hours, 10 hours, 24 hours
    - Tough 1 grazing muzzle
    - BCS, BW, Cresty neck score, behavior early and late for 2 hours each videos just finished, no stats yet)
    - Muzzle acceptance score, voluntary exercise, stress levels (HR variability), salivary cortisol
    - Forage characteristics
    - GPS monitoring also
* 24 hour muzzles lost most weight over first 2 weeks, but gained weight in the last week
* If only on for 10 hours they did not lose weight
* No cortisol or HR variability differences regardless of muzzle time
* GPS is not as good as estimating movement, pedometers are better measure

**Univ. of Florida**

* Carissa Wickens = Perennial peanut work with new Ph.D. student
* Now looking at Nitrogen work
* Grazing study with Peanut into Bermudagrass
* Also survey project across FL looking at forage management practices
* Snapshot of how forage is utilized and types of forages
* BMP work still very important and there is still a lot to do with outreach
  + Trying to set up more demonstration sites
  + Host workshops

**Penn State (See Attached Reports)**

Laura Kenny and Donna Foulk (Danielle Smarsh, new to group) = Parasite resistance SARE Grant

* Another big problem is Anaplasmosis (Lot of tick borne diseases)
* Also looking more into mycotoxins
* New hired veterinary entomologist
* Environmental stewardship programs
* Agency collaborations – NRCS training programs as well as Soil Conservation Districts
* Reaching out to the Amish Community

**Rutgers**

Carey Williams and Jennifer Weinert = more here…

**UMASS**

Cassie Uricchio=Parasite resistance in horses at UMASS

* Did have some resistance and plan on doing more outreach
* Stockpile experiment – in a potato field

**UMN**

Krishona Martinson = Fly study

* Insecticides Permethrin, Pyrethrin, legging, bands and citronella
  + Citronella, leggings and bands work best, in combination might be best
* Grazing Teff study
  + 6 mares, 4-8 hours
  + Grazed alfalfa, Teff and cool season grasses
  + Found that Teff the lowest NSC, alfalfa in the middle
  + Average and peak insulin levels are also lower in late fall than cool season grasses
  + Teff grazed until October
* Oat color study
  + White and Yellow, white oats are used more in the US for horses
  + Survey and horse preference
  + Horse owners did not care about oat color
  + Horses preferred yellow oats better

**UMN continued**

* Winter hardy perennial ryegrass
  + Hard to over winter in MN
  + Tested 3 ryegrass varieties and 3 other grasses
  + The new variety is more nutrient density and falls in the middle of preference
* Round bale wrap type
  + Twine, mess and B-wrap
  + Weigh and core every 3 months
  + B-wrap does maintain dryness in the outer 6”
  + Water soluble nutrient content also is maintained
  + Doing some preference testing in beef cattle
* Goldfish and take water quality
  + Using metal and black plastic tanks
  + Fish had NO effect for algae growth
  + Black water tanks have greater algae growth
  + Alfalfa digestibility
    - Apparent digestibility, mean retention time, fecal partial size
    - 5 days of collection in unbedded stalls
    - Using Cobalt and Yb (Yuterblum) markers collected every 2 hours for 72 hours
  + Grazing cover crops
  + Evaluate preference of cover crops radishes, turnips and clover
  + Will graze after 60 days of growth
  + Measure for growth and composition
* Handheld NIR units
  + Just starting to look for units and companies with forage equations

**Univ. Maine**

Colt Knight = GPS collars on cattle to determine grazing behavior

* Now manufactures GPS collars
* Placed on neck collars good for cattle and horses
* $250 each for profit collars, discount for university
* Intervals from 1 sec to 10 min.

Alex Garcia = Antibiotic resistant bacteria in stall waste

* Moving toward post antibiotic era
* Over two million people become ill to resistant bacteria or $2 billion in costs
* Manure contains bacteria, should be composted
* Composting does also abate pathogens
* Project goals: prevalence of antibiotic resistant coliforms
  + Impact of composting on resistant bacteria
  + Field study to compost with and without antibiotic resistant bacteria
  + Surveillance study to sample at different facilities and survey antibiotic use

**NC State**

Paul Siciliano = regulate pasture intake to promote horse health and prevent obesity as well as prevent over grazing

* Restricting grazing time to 8 hours decreases BW and BCS (fasted reminder of day)
  + Wanted 80% DE requirements
  + Only enough forage during that time (restrict time and space)

**NC State - continued**

* Restricting grazing time accelerates intake
  + 3 hrs. and 6 hours of grazing has a significantly increased rate from 24 hours of grazing
  + Is this interrupting the microbiome?
* Restricting grazing time influences fecal VFAs and pH
  + Especially when NSC is high
  + Fecal pH was lower (7.12 vs 7.36 and 7.69) with night turnout (9 pm to 7am) compared to day or 24 hr. turnout
  + Fecal VFAs also are significantly different with night turnout (Valerate also, comes from lactate)
* Restricted grazing with microbiome parameters, collected once every 7 days
  + Does not influence alpha-diversity of fecal microbiota
  + Diversity did decrease from hay diet to pasture
  + Does appear to influence beta-diversity, different when on restricted pasture
  + Bacteroidetes is lower with restricted grazing (only 2 species in the phyla)
  + Fibrobacters is higher after 14 days in restricted grazing
  + No difference with Firmicutes
* What does it all mean? What is normal? What are the core microbiota?

**PROJECT REWRITE**

* Short literature review
* Long section is methods section-what are we doing
* Issues and Justification is due in Sept. Rest due in Dec.

**Issues and Justifications**

Justification: (Written in NIMSS)

1. Pasture Management (Paul, Krishona, Amy, Carey, Bridgett)
   * Using warm season grasses or cover crops in pastures to extend the grazing season
     + Stockpiling (annuals, cover crops, etc.)

* Parasite resistance and management
* Soil quality and nutrient recycling
* Natural weed control
* Outreach

1. Manure disposal/composting (Carissa, Mike, Masoud)
   * Fly control\
   * Ammonia emissions
   * Bedding type and use
   * Chemical and antibiotic use
   * Presence of antibiotic resistant bacteria
2. Carcass disposal/composting (Robert, Alex)
   * Barbiturates in carcasses
3. Pasture and manure management BMP adoption and outreach (Laura, Danielle, Mike, Krishona)
   * Economic analysis
   * Nationwide survey