**NE1441 meeting minutes**

**8/31/17**

**Attendees**

Bridgett McIntosh, Amy Burk, Aubrey Jaqueth, Carissa Wickens, Donna Foulk, Heather Stofanak, Krishona Martinson, Laura Kenny, Mike Westendorf, Robert Causey, Mark Rieger, Jennifer Weinert

**Introduction**

* Everyone needs to send Mike your state reports and publications from the previous year that are related to the grant.
* Also will need to have a rewrite for the next five years by the end of 2018. Will also need someone to take charge. Mike will be retiring in the next 5 years.

**Amy Burk and Aubrey Jaqueth (U of MD)**

* Rotational grazing on hiatus due to lack of collaborators and interest from stakeholders
* Aubrey’s research from her final year of her PhD
  + Novel trufgrass for the fat pony
  + Paper in “The Horse” and in process of writing the manuscript
  + Used 3 cool season, 1 warm season each year for 3 years
  + Tested wear tolerance and sugar content
  + Preliminary results showed tall fescue and zoysia grass most tolerant
  + Palatability trial not determined yet, but lots of crab and goose grass grew due to lots of rain this year
  + Have to be careful of herbicide usage, some for turf but not pasture
  + No negative health impacts on horses
  + Zoysia and creeping bentgrass very hard to establish and use
* Amy’s other student’s study
  + Were not able to test the grass using ponies, but looking at using mini’s
  + Renovating the turf creeping bentgrass and try again next year
  + Creeping bentgrass was not eaten
  + Now looking at horses grazing with grazing muzzles on individual and herd grazing behaviors
  + Starting this fall and next spring

**Mark Rieger (Administrative Advisor from UDEL)**

* Small grants to get started
  + Planning grants – Northeast Experiment Station Directors
    - Put money in a pot and entertain proposals to get people together to fun projects and get larger resources
    - NERA and NEED and joint proposal
    - Research and extension
    - We had submitted one and didn’t get funded to get the group together to rewrite another grant to make online resources for Environmental BMPs
  + Think about in the future to apply for an award for multistate groups
    - Find out about them by contacting Mark Rieger for more information

**Carissa Wickens (U of FL)**

* New masters student will look at on farm manure management BMPs both composting and stockpiling
  + 2 years of funding from Spring Watershed
  + Applied on farm and education
  + Horse owner to horse owner demonstrations really go a long way – network learning
  + 3 farms – TB training center (large farm), multi property community (equine community) ranchettes (4-6 horses), Small farm with an unmanaged pile
  + Making their own lycmeters looking at ground and runoff water
* Hired a new agronomy specialist plus new PhD student
  + Grass and legume mix pasture systems horse performance, forage yield, quality and N inputs
  + Need to look at other forage varieties due to health concerns with native grasses in FL
* Extension programming
  + Lots of BMP programming, small farms really need it!
  + Education is key!

**Krishona Martinson (UMN)**

* Horses grazing Teff, Alfalfa and Perennial Ryegrass
  + Teff doesn’t get planted until first week of June in MN so no spring samples
  + Alfalfa doesn’t make it into Nov. so no late fall samples
  + Look at Glucose and Insulin response
    - Seasons = spring, summer, fall and late fall
    - Fast and did sugar challenge prior to grazing, no IR horses
    - Grazed from 8-4 pm
    - Blood samples at 2, 4, 6, 8 hr times
    - Teff is lower in NSC (about 8%), even cool season grasses are about 12% so not overly high
    - Glucose responses not different
    - Insulin responses are lower for fasting, higher for cool season (got higher towards fall)
    - No values were higher than 80 uIU/mL
    - Teff horses had lower Insulin peaks
* USDA NIFA and other grants for alfalfa so good funding source for alfalfa grazing
  + Want multi-state collaboration
* Ongoing projects
  + Storage quality of round bales
  + Multi species grazing in winter-hardy perennial ryegrass
  + Horse preference of different colored oats (yellow vs white)
  + Efficacy of goldfish on maintaining water quality in equine stock tanks
* Future projects
  + Hay feeding height on dental wear patterns and chiropractic health in the adult horse (fall 2017)
  + Low-lignin alfalfa digestibility (fall 2017)
* On line certificate courses
  + Pasture management
  + Horse hay
  + Basic equine nutrition
  + $75 each for 6 week semi self-paced on line course on Moodle
* Looked at online vs in class courses
  + Learning gains in both
  + Satisfaction high in both
  + Based on these results on line are as successful as in class courses
  + Published in Natural Sciences Education journal

**Laura Kenny (PSU)**

* Flagship course is Environmental Stewardship short course
  + 15 hours of education with hands on experience
  + 4 week nights or 2 full days
  + Over 1000 people have attended this course
  + Large knowledge increases and intent to make changes
  + Topics covered include forage biology and grazing management, forage species, pasture evaluation, weed management, toxic plants, soils and fertility, manure risks and benefits, BMPs
* Horses 101 educational horse course for NRCS and department personnel
* Horse health series tick-borne diseases, equine metabolic syndrome
* Pasture walks in SE PA, focusing on hands on activities, soil testing, pasture evaluation, forage and weed ID, BMPs
* Pasture talks lecture topics
* Environmentally friendly farm program
  + Farm self-assessment checklist
  + Verified by farm visit
  + Assistance provided to write plans, etc.
  + Engage with Coop Extension, etc.

**Bridgett McIntosh (VT)**

* Conservation BMP Model Farm continuous vs rotational grazing (7 acres with 4 horses)
  + People do not want to adopt these practices
  + Not big differences between nutrient levels of grasses
  + WSC is slightly higher in ROT fields
* Seasonal effects of grazing on metabolic and digestive responses in horses
  + Weekly samples for 1 year AM and PM (8 am and 4 pm)
  + 12 horses = 6 had laminitis in the past, 6 normal
  + Monthly botanical composition
  + Blood samples every Wed.
  + BCS, CNS, BW, signs of laminitis, glucose insulin, lactate, TNFa, LPS
  + Fecal: VFAs, Lactate, pH, Microbial characterization
  + NSC by week increased but glucose by week is no change, insulin follows NSC
* Effects of diet and timing on intake
  + Housed on dry lot with ad libitum hay
  + Treatments = pelleted feed, extruded feed and hay only
  + Used horse nappies, 3 25 d periods, microbiome samples as well as total collections, blood sampling to see if AM and PM meals differ
* Nutritional Management of Performance horses
  + Survey of performance horse nutritional management in show hunter and jumpers
  + 122 horses, surveyed at shows in NO VA
  + Most fed concentrates, on pasture about 9 hours per day when home
  + Most people were concerned about obesity (large warmblood population)
  + Advice from trainer and veterinarian
* Body condition index score vs BCS
  + Cannot compare scores, very different especially in long horses
  + Totally different numbers
  + Works better for short coupled horses
* Feed digestibility and timing of feeding
  + Using DigestaWell® Buffer in fat horses
  + Implications for using buffers in grazing horses?
* Native warm season grasses
  + Big bluestem, little bluestem, eastern gama grass hay
  + Highly productive and typically lower in NSC
  + Enhance ecosystem
  + Did not establish at MARE Center, so will have to buy hay
  + Are they safe and digestible?
  + Can they be grazed?
* Extension programs
  + Healthy Land for Healthy Horses
    - About $20K from state funding, free program
    - 6 weeks, 50 people
    - At MARE Center and local farms
    - Lectures videoed to make it an online course
  + Spotlight on Stewardship
    - Targeted this year toward real estate agents and new buyers
    - Agent, buyer and seller speaking along with Bridgett
    - Want to offer CE credits in the future

**Donna Foulk (PSU)**

* Parasite resistance project (SARE Grant)
  + Changing minds one at a time
    - Manure removal and management
    - Pasture management
    - Horse density
    - Stability of horse population
    - Deworming program
    - Personal opinions
    - Horse age and health
    - Egg shedding
  + Misconceptions of all worms are bad and all horses need to be dewormed
  + Focus on small strongyles
  + Huge change in parasite population with new dewormers
    - Large strongyles are rare
    - Small strangles are most common
  + Some horses have natural immunity to parasites
  + Once you have resistance to a dewormer it stays that way, not about will it but when
  + Benzimidazoles wide spread resistance
  + Pyrantel developing resistance
  + Ivermectin no resistance yet
  + Freezing has little effect on parasites
  + Hot summers and manure protects pastures
  + Parasites are higher in the rough areas of pastures but larvae can move to the lawns where horses graze
  + Removing manure from pastures on a regular basis can reduce and even eliminate parasite from pastures
  + Use products that work, deworm at proper time of year and based on individual horse need
  + Goal of project was to get people to make a change in deworming procedure
    - Comprehensive short course offered statewide, attended by 287 farm managers
    - Engaged farm managers in a project to monitor farm strongyle egg production and evaluate product efficacy
    - Supplied microscopes and supplies to host manure parties
    - Paracount – EPG fecal kit
    - Gave people dewormers to use and then retest egg counts
    - 74 farms with 711 horses, data collected from 53 farms
    - Highly effective program, 97% of the farms remained throughout the project
    - Ivermectin is the only dewormer that had no resistance on any farms
    - Farm owners very excited about this program and their commitment

**Carey Williams and Jennifer Weinert (Rutgers)**

* “An Evening of Wine and Equine: Environmental Stewardship on New Jersey Horse Farms”
  + 2016 - 6 programs throughout the state
  + 2017 – 4 programs throughout the state
  + Hosted by area ‘showcase’ farm
  + In combination with NRCS
  + Had extra $$ in EQUIP program for horse farms
  + Partnered with local wineries to do tasting or donate wine
  + Short informal lectures followed by BMP or pasture tours
  + 20 – 50 people attended each
* Ryders Lane BMP Demonstration Horse Farm
  + Many extension tours and hosted pasture walks
  + Rotational vs. Continuous grazing research; Kenny 2016 thesis research
  + Burk and Williams 2017, ESS abstract and upcoming paper looking at sugars in the grasses with Rotational vs continuous grazing.
  + ESC and WSC lower in continuous fields but not enough to make a difference with horse glucose and insulin response
* Weinert doctoral research 2017-?
  + Compare the effect of intense grazing in continuous and rotational grazing systems on pasture condition in a subsequent growing season following winter exclusion
    - 2 – 1.6 hectare pastures, Grazed Intensively for 2 full years prior to study
    - One Continuous Pasture, One Rotational Pasture
    - Horses Removed from fields in November 2016; No grazing in 2017
    - Pasture Measures collected from April – Aug. 2017, Nutrient analysis, yield, mass, sward components, persistence
    - Pastures managed with minimal mowing to control weeds and remove seed heads
    - Initial Measurements (4-11-2017): % Grass [G] (Planted Forage Varieties) = 38% (ROT) vs. 22% (CONT); % Bare Ground [BG] = 12% (ROT) vs. 26% (CONT); % Live Cover [LC] = 79% (ROT) vs. 56% (CONT)
    - Differences in % G, BG and LC persisted through May, but largely disappeared by June; Decrease in % G in ROT pastures mainly accounted for by an increase in Grass Weeds [GW]
    - Large increase in % Weeds [W] in June/July in CONT field
    - Differences in % G reappeared in July (ROT higher than CONT) and persisted through August; Due to decrease in GW
    - Sward height consistently higher in ROT vs CONT, herbage mass also higher throughout
  + Development of grazing strategies that are not only economically and environmentally sound, but also provide solutions for horses prone to metabolic dysfunction.
    - 3 Rotational Grazing Systems
    - *System 1:* Cool-Season Control; *Systems 2 & 3*: Integrated Systems
    - Incorporation of Warm-Season Test Forages = “Wrangler” Bermudagrass & “Red River” Crabgrass
    - Objective 1 – Warm Season Grasses. To determine if incorporation of warm season grasses will increase forage availability during the summer months and provide lower NSC to grazing horses.
    - Objective 2 – Grazing Preference. To determine of pasture forage carbohydrate fractions (NSC and NDF) positively or negatively influence grazing duration (i.e. time spent with head down) in healthy adult horses.
    - Objective 3 – Glucose/Insulin. To determine if horse plasma glucose and insulin are correlated with forage carbohydrate fractions and vary with forage type.
    - Objective 4 – Gut Microbiome. To determine if the pasture forage type and carbohydrate profile affect the abundance and diversity of fecal microbiota.
    - Project is funded by NE SARE (Grad student grant), Rutgers NJAES, Rutgers Equine Science Center and seed was donated by DLF Pickseed

**Robert Causey (UME)**

* Chopped forage trial
  + Double saliva production, chew 4 times longer
  + Working with Lucerne Farms, Totally Timothy
  + 6 horses in latin square with three rates, high, medium and zero chaff
  + Count number of chews in first 5 min
  + Total time to finish
  + Using a chifney bit to attach cotton swabs to determine salivation
* Poultry litter treatment in stalls
  + Superior to lime in ammonia abatement
  + Used in poultry houses
  + 1 cup is 1.4 lbs
  + Good safety record
  + Reduce flies
  + Will measure aroma, NH3 and basic microbiology
* Antibiotics and antibiotic resistant bacteria
  + With vegetables grown with equine compost and do equine antibiotics impact them.
* UME Farm pasture renovation
  + Using rotational grazing with small sections and small numbers of horses in each

**Mike Westendorf (Rutgers)**

* Bedding trial looking at high (8”) vs. low (4”) bedding
  + Bedding use, waste disposal, animal and stall cleanliness, cost of bedding, particle production, compost characteristics
  + Particle production overall had no difference between treatments
  + More bedding being added to the stall with the high treatment however, the amount removed was the same
  + Animal and stall cleanliness scores were similar for both groups
  + Also will look at composting quality of each treatment

**Ethan Schoolman (Rutgers)**

* Survey looking at environmental BMP adoption on farms
* Can be adopted for other states
* Everyone interested talk to Mike and we can work it out

**Wrap up**

* Send Mike any impact statements and any publications
* Need to do a rewrite by the end of next year
* Break into project groups: pasture, parasites, manure, etc.
* Apply for the Multi-state awards, get information from
* Donna was asked by NESARE to put another proposal together to expand her Parasite grant to other states. We have a year to get in the proposal so let us know who is interested
* Next year: U Maine? End of August? Time of year hard?
  + Tentatively saving August 20-21 in Orono, Maine start Monday after lunch run all day on Tues.
  + Everyone would fly into Bangor