**NE1941 – annual meeting**

**Rutgers EcoComplex – August 19-21, 2019**

Attendance: Robin Brumfeld (Rutgers), Mike Westendorf (Rutgers), Mark Reiger (UDEL), Masoud Hashimi (UMASS), Jennifer Weinert (Rutgers), Krishona Martinson (UMN), Danielle Smarsh (PSU), Laura Kenny (PSU), Amy Burk (UMD), Carey Williams (Rutgers), Mieke Holder (UKY - on line, both days), Carissa Wickens (UFL – on line, Tues.)

**Monday, Aug. 19**

Laura Kenny and Danielle Smarsh (Penn State)

* Penn State Extension Equine Team, hiring one other person in Western PA, starting in Fall
* “Care of the Horse, the Environment and the industry through research and education”
* Equine Environmental Stewardship Short Course – flagship course, out of classroom, 4 nights, 2 full days, over 1000 people have attended, positive evaluation and lots of change, will be following up
  + Forage biology and grazing management, soils, manure, weeds, water quality, etc.
* “Train the Trainer” – PSU and NRCS, education conservation staff management of horse farms, etc., on farm classes, webinars…
* “Horses 101”- similar to the above for people getting Nutrient Management certifications
* Horse Health – survey of horse owners as to what they wanted…anything horse health related, events on weekends in winter, meeting in Jan. at State College
* Horse Hay workshop – educators with hay producers and horse hay owners
* Parasite project – Started by Donna Foulk, still doing fecal testing, might restart workshops
  + Project has been published (need link?)
* On-farm programs – pasture walks at 5 different farms, soil testing, plant and weed ID, pasture evaluation, etc.
* Farm visits – pasture consults, weed control, toxic weed ID, soil and hay sampling
* Environmentally Friendly Farm Program – program currently on hold, need a checklist, need more staff, talking with other agencies, maybe make it multi-state??
* Potential Manure Projects – working group meeting in Jan., educators, conservation staff. Challenges, utilizing it, solving problems, etc. Put together short term and long-term plans, AgMap (agmap.psu.edu)
* Lunch and Learn Webinars – 20 to 60 people on a huge range of topics, over lunch hour
* Large Events – Horse World Expo, Ag Progress Days, Penn State Quarter Horse Sale, Penn State Extension Conference

Amy Burk (Maryland)

* Turfgrass Cultivars – diet horse pasture, 8 cool-season varieties, 6 warm-season varieties, looked at ware, Regenerate and Maestro Tall fescue most tolerant cool-seasons, but both have endophyte, creeping bentgrass lowest NSC, but lowest persistence.
  + Warm-season compadre and Zenith zoyiagrass, most wear tolerant, moderate yield, average NSC, Red River crabgrass and common bermudagrass were least tolerant
  + Palatability of Turfgrasses, no difference in cool-season, common bermudagrass and crabgrass most preferred (however least tolerant)
* Grazing muzzles on stress and welfare of horses – no muzzle, 10 hrs/d and 24 hrs/d; 10 hrs/d did not control weight gain, voluntary exercise during the day did not change, 24 hrs/d group had lower HR and higher HRV, were they less stressed?
* Maryland Horse Forum – Environmental Stewardship Discussion, BMP into public equestrian facilities, zoning laws restricting the number of horses per acre, land use for equestrian purposes always viewed as AG!

Krishona Martinson (Minnesota)

* Bale wrap trial – B-wrap, net wrap, twine on both alfalfa and low lignin alfalfa; stored for 1 year, every 3 months bale weight and hay core, for 1 year; B-wrap did not increase in moisture other were 25-30% moisture; low lignin only stays low for first 6 months, thereafter no difference; No loss of dry matter over with B-wrap, after 90 days it pays to put it in B-wrap; fed to cattle to do a preference trial, used 18 cow/calf pairs, Mold/Yeast contents was higher in Twine and Net wrap, higher than what could be fed to horses, B-wrap had very low mold and yeast. First 24 hours preferred the B-wrap bales.
* Cover crop grazing – horses will not eat the cover crops
* Hand held NIR unit – working on taking samples and comparing to wet chemistry
* Equine Carcass Composting – Rapid Ag Response Fund grant, working with Mark Hutchinson from Maine, 4 chemically euthanized horses, compost 6 months, want to education horse owners and professionals on process and benefits, analyzing for chemical composition of compost.
* Extension programs – on line certificate courses, regional horse owner field days, e-newsletter, webinars, website, FB page (3 million), YouTube channel, Mobil Aps, Infographics, UMN Horse Conference

Masoud Hashimi (UMASS)

* Cassie is no longer part of the Department, she was forced into the Veterinary Program so only Masoud running extension programs, also graduate program director and teaching classes, cannot do everything he wants to do.
* Does a few workshops, pasture walks, arranged different legumes and grasses used for forage ID education, weed ID and poisonous plant talk
* Research topics includes stockpiling, not popular in MASS, species selection, tall fescue traditionally, also looking into orchard grass, monoculture and mixed, also looking into fertility and nitrogen rate and timing along with yield
* Other experiment is planting winter rye and winter oat to extend the grazing season through the summer slump and hope to graze further in the fall.
* Working on turning horse manure into biochar, key is to burn it with minimal oxygen, used for a soil amendment
* Also looking at grazing and harvesting cover crops
* Teaching pasture management online

Mike Westendorf (Rutgers)

* Survey to equine producers as to why or why not they use or not use any BMPs, added a mortality composting questions, working with a social scientist (Ethan Schoolman)
* On line composting school, good responses, hope to market it better, videos in the past will hope to be repackaged, put on credit card USB drive with materials
* Brochure produced for NRCS on BMPs
* Use of horse manure for energy source (CIG grant), pelletized or digested, problems were that wood shavings will not digest very well

Carey Williams and Jennifer Weinert (Rutgers)

* Most of what we are doing is incorporating novel warm season grasses into cool season grazing, but that will be presented tomorrow.
* Other projects implementing a chew-sensor technology as a grazing tool – RumiWatch system (Itin + Hoch, GmbH), used a lot in cattle, has a pressure sensor and accelerometer, equine version is EquiWatch, validated with forage vs. concentrate, agreement with chewing was 99%, not validated with grazing, therefore we validated it with chewing activity and applying it to grazing, very high correlation coefficient with grazing time, also a high agreement with a combination of ingestive bites and mastication chews
  + Pilot project using the EquiWatch halters looking at ad libitum hay vs. pasture grazing, showed longer grazing time with pasture and a strong pattern with grazing being higher at the mid-afternoon time, is there a biological drive for grazing behavior?
* Future research is going to look at preference of horses to different grasses
* Also looked at glucose and insulin response to horses on warm and cool season grasses – warm season grasses will have lower NSC because they do not store fructan, glucose area under the curve was lower when grazing warm season grass particularly with the crabgrass, glucose did correlate positively with Non-structural carbs, insulin didn’t differ with forage variety.

**Tuesday, Aug. 20**

Robert Causey (Univ. Maine)

* Antibiotic resistant bacteria in horse manure – submitted to NESARE, but not funded, didn’t think it was a problem. Needed survey work first. Would an ‘antibiotic free’ compost be of value to the end user? Can you show that the bacteria are eliminated from runoff by composting?
* How big of a problem is antibiotic resistant bacteria in horse manure – submitted to NESARE, but not funded as well. How do you quantify it? Go to dairy system and compare organic vs. conventional dairy systems and compare to horse farms and compare to see where we stand. Start with survey work of dairy’s and quantify level of antibiotic use and identify risk factors for resistance. Take field samples from feces (ground), use surveys.

Mieke Holder (Univ. Kentucky)

* Program Introduction: 100% research, environmental impact of livestock (all species, but does focus on grazing animals specifically horse), setting up and running an in vitro laboratory in South Africa as well as overseeing the Quality Control division of the mixing plant
* Presence of heavy metals in animal feeds: What does it mean for the horse that outlives most other livestock species, and the environment
* Exploring the use of hair analysis – very unpopular yet it appears to be a better indicator of heavy metal presence than blood (ESS 2017; 2019)
* Excessive levels of dietary mineral supplementation (beyond nitrogen and phosphorus): Trace minerals and water quality
* Air quality – in vitro methods to look at greenhouse gas production as well as biogas potential
* We have been working on methods to evaluate fecal mineral mobility as a measure of environmental impact. Hopefully we will have this published soon!
* As you may have gathered from ESS abstracts: hair analysis is extremely tedious if you are going to wash the hair properly and express on DM basis, but you can detect heavy metals in hair that you can’t in blood. Hopefully will have a couple of papers published on that soon as well.
* Working on some biogas applications, but only on laboratory scale

Carissa Wickens (Univ. Florida)

* Composting at Equine Stock Facilities – 3 farm sites (2 small, one large), building manure storage on farms, placed lysimeters to test water quality on runoff (built 49 of them for $150, materials from Home Depot, but labor intensive because no automatic sampling), characterize nutrient profile and potential for leachate, almost no nutrient runoff on structures with covers and impervious surfaces.
* Currently looking at grass legume mix pasture for horses (on beef research unit) – Just started in July, perennial peanut (few different varieties) already established, fixes nitrogen and grows closely to the ground, bahaigrass (fertilized and not), forage yield and quality, botanical composition, horse performance (digestibility of each, blood samples for glucose and insulin, body weight, BCS, body fat), N inputs, environmental impact (reducing off farm nitrogen), weekly measures, temporary fencing to allow similar herbage allowance, horses do not seem to like the perennial peanut, they graze around it.
* Extension projects – BMP website

Robin Brumfeld – (Rutgers)

* Looking at maybe doing an Equine Regional Annie’s project – Risk Management grants funded Annie’s project, similar to business planning workshop, input an environmental component, NJ, DE, MD, PA, maybe MN through the fee-based courses?

Paul Siciliano (NCSU, sent report

* Looking at extending the grazing season using annuals - crabgrass for summer; also looking at how it might stockpile for some fall grazing; planting a couple varieties of forage oats for fall/winter grazing; plan to run weanlings and yearlings on the oats. Also planning some work on shade and water placement effect on uniformity of grazing. I think that fits w/ some of what we talked about in regard to the new project.

New Project Outline

* Good fit with what everyone is doing
* We know where we all fit

Impact Statements for Group:

* Alternative Forages – Amy, Krishona, Carey, Jen
* Evaluations from Workshops/short courses – Danielle, Laura
* Mortality Compositing – Mike, Robert, Krishona
* Certification and Educational Programs – Mike, Amy, Laura, Danielle

NRCS program Tues. 1:00 to 4:00