**Considerations for OREI survey**

* General
  + Housing style
    - pasture
  + Number of cows
    - Milking
    - Dry
    - Youngstock
    - Heifers
  + Cow identification?
  + Manure management
  + Milk production
    - ?Rolling herd average?
      * how much milk, milk fat and milk protein were produced by the average cow in a herd for the previous year
      * The rolling herd average for milk production represents the average amount of milk produced by the average cow in the herd for the last 365 days
    - Per cow?
  + Age of cows
    - Average?
    - Median?
    - Mode?
  + Number of cows, average milk production could be found through DHIA to compare to producer answer, give indication of reliability?
* Mastitis
  + Incidence
    - How identify
      * Number of people on farm identifying
    - Clinical vs. subclinical
    - Culture?
    - Which lactation occurring in
    - First-time vs. chronics
    - How classify mastitis event
    - Duration of event
      * How long milk withheld
    - [Record keeping]
  + Treatment
    - Written SOP?
    - Type of treatment
      * Banamine, aspirin
      * Oral herbal remedies
        + Super boosters
        + Phytobiotic (Get Well)
      * Calcium
      * IV fluids
      * Vitamin C
      * Intramammary remedies
        + Phytomast
    - Duration of treatment
    - Efficacy
    - Cost?
  + Outcome
    - Resolved?
    - Left herd?
  + Bulk tank SCC
  + Known chronic cows
    - Identified pathogen?
    - How handled?
* Housing/Bedding
  + “type”
    - Freestall
      * Mats?
      * Organic material used?
    - Tie stall
      * Mats?
      * Organic material used?
      * Trainers
    - Bedded pack
      * Composted bedded pack?
      * Aerated or static
      * Material used
        + Straw
        + Wood shavings

Vs. sawdust

Smaller particle size more absorbent, breaks down quicker, but small particle size also associated with rapid growth of bacteria

“Particle size may also influence the population density of pathogens in bedding (1). Pathogen numbers often increase with decreasing particle size. Bedding materials such as very fine saw dust from furniture construction may be nearly sterile prior to use but the small particle size supports very rapid growth of bacteria requiring more intensive bedding maintenance. Materials of fine particle size are more likely to cover teat skin leading to high population of bacteria on the teats and greater opportunities for intramammary infection (1). Wood products such as shavings, which have a much larger particle size, support slower growth of bacteria.”

Smith KL and Hogan JS. 2000. Bedding’s Contribution to Mastitis in Dairy Cows. Dairy Housing and Equipment Systems, Managing and Planning for Profitability. NRAES 129.

* + - Combination
    - How often changed out
* Diet
  + TMR vs. component fed
  + Grain?
  + All forage?
    - Fermented or not
  + Water
    - Tubs vs. individual water bowls
    - Water source
      * Well
      * Municipal
      * Surface
    - Test water at all?
      * Nitrates
      * Bacteria
      * Arsenic, iron, calcium
  + Feed supplemental minerals?
* Milking procedures
  + How many times a day
    - Seasonality?
  + Teat dip?
    - Pre, post
    - What kind
    - How stored
    - How applied
  + Fore-stripping?
    - Onto ground?
    - Strip cup?
  + Wiping?
    - Cloth towels
      * How are towels cleaned
    - Paper towels
    - One per teat, one per cow?
  + Gloves?
  + Oxytocin?
  + End of milking
    - Squawking?
    - Close observation?
    - ATO’s?
* Dry-off
  + Length of dry period
  + Procedure for drying off
  + Product used?
    - Organic stuff
* Miscellaneous
  + Fly control measures
    - Inside barn
    - On pasture
  + At calving
    - When is calf removed?
      * Allowed to nurse
      * Immediately
      * Days
    - Colostrum collection
    - Where does calving occur
      * Pen
      * Pasture
      * Tie-stall
  + Vaccination protocols
    - J-5 type product
  + Teat end scoring?
  + Age of primary housing facility
    - Cicconi-Hogan et al. 2013b, Rickert et al. 2013

Actual survey

* Page 5, question 9
  + Bedding cleaning
    - Gutter vs. no gutter, just back alley
* Page 9, question 10.h
  + Bedding conditioner?

**Pasture requirements**

* Containment guidelines
  + Continuous confinement for any animal over 6 mo. indoors prohibited
  + Exceptions for temporary confinement:
    - Inclement weather
    - Stage of production (lactation not a stage)
    - Health and safety of animal jeopardized
    - Risk to soil or water quality
    - Preventative healthcare procedures
    - Treatment of illness or injury
    - Breeding
    - 4-H project
  + One week at dry-off, three weeks prior to calving, one week post calving
  + Milking is ok
  + At least 30% DMI from pasture
  + If bedding qualifies as roughage (straw, hay) must be certified organic!
  + Continuous total confinement in a yard/feeding pad/feedlot prohibited
    - Any yard not large enough where all cows can feed simultaneously without crowding is prohibited
  + Must provide DAILY outdoor access during non-grazing season, even if only an hour turn-out during winter months
  + Temporary confinement during extreme weather conditions okay, but ENTIRE winter season cannot be considered inclement weather as a reason for keeping animals confined
* Pasture
  + Must be on pasture throughout entire grazing season for the geographical region, which shall not be less than 120 days per calendar year
  + Temporary confinement due to weather, season, and/or climate
  + Must still have total 120 grazing days!

**2.5.2019 Red line of Grant proposal**

**Objective 1 – Assess bedding management practices, mastitis management, animal**

**health and milk quality on northeastern organic dairy farms by enrolling** 40 organic dairies to collect data from interviews, on-farm observations, and samples for analysis. This will strongly focus on farms that use a bedded pack system for winter housing.

**Objective 2 – Improve our understanding of mastitis epidemiology, bedding microbiology**

**and characteristics, and bedding management practices.** The goal is to characterize how bedding strategiesidentified in Obj. 1 affect the prevalence of mastitis, milk quality, the characteristics of bedding,and structure and transmission of the bedding and udder microbiome.

**Objective 3 – Exploring microbial community function of the intramammary gland and how it**

**impacts susceptibility to mastitis.** We will conduct two complementary experiments

designed to (1) seek evidence for inhibition of pathogens by the mammary microbiota and (2)

suggest possible taxa and mechanisms by which inhibition could occur.

Bedding management

strategies

Housing

Type

Tie stall

Free stall

Bedded pack

Static

Aerated

Mastitis

Incidence

Treatment

Milk quality

SCC

Bacteriology

Animal health

Lameness

hygeiene

Predictor variables

Udder hygiene

BTM quality

Bedding strategies

Outcome

Incidence, prevalence of SCC, clinical mastitis

**Notes removed from survey:**

**Mastitis incidence**

* Estimate incidence during the year? No. cows/year? NAHMS does percent of cows per year having mastitis event. How break out chronic vs. new cases? Ask per week, per month, per year? Can we go back through your records to see how mastitis cases were treated? Maybe Nov. to today, or past 4 months, or from what date they moved onto the pack?
* All irrelevant if using herds on DHIA

How will this device be used?

Having an Ipad while performing 40 on-farm interviews with dairy producers will allow us to use KoBoToolbox software during the interview, which is a free open-source tool for mobile data collection

Why is it necessary for grant related work?

Using KoBo during our interviews will not only streamline the process of recording farmers’ answers during the survey, but can automatically code their responses at the time the survey is administered. This decreases the margin for error in data input, as well as greatly reduces the amount of time spent coding responses. Additionally, KoBo allows the user to capture an audio clip of a respondent’s answer to an open-ended question, which will help ensure that an answer to a question is recorded in the most accurate way possible.