Improving culling decision using lifetime cost-benefit analysis. A dairy management tool to assess herd profitability. D. Warner*1,2, O. W. Dovoedo1,2, L. Falud-Pacheco1,2, H. A. Delgado2, R. Lacroix1, R. I. Cue2, K. M. Wade2, D. Pellerin1, J. Dubuc3, S. Dufour4, and E. Vasseur2, 1Lactua, Dairy Production Centre of Expertise Quebec-Atlantic, Sainte-Anne-de-Belle-eneuve, QC, Canada, 2Department of Animal Science, McGill University, Sainte-Anne-de-Belle-eneuve, QC, Canada, 3Département des sciences animales, Université Laval, Québec, QC, Canada, 4Faculté de médecine vétérinaire, Université de Montréal, Saint-Hyacinthe, QC, Canada.

A cost-benefit analysis can be a valuable tool in dairy management to assess an animal’s lifetime contribution to herd profitability and make timely decisions regarding cow replacement. We developed a user-friendly interactive decision-making support tool to visualize the impact of costs and revenues on herd and cow level. The interactive tool was built with the Shiny add-on package in R. The dashboard consists of side-by-side panels with a built-in drop-down list for costs (feed costs, costs of breeding services, costs of health events, additional costs due to health events and extra breeding services) and revenues (milk value, margin over feed costs, margin over all costs) cumulated on lifetime basis. Herd-level data allow users to compare herd performance to that of the rest of the population. Integrated benchmarking tools facilitate the comparison with specific cohorts, such as region, management system, and calving year. In addition, cow-level data allow monitoring individual cow performance and contribution to herd profitability. A comparison across lactations between the top and bottom 25% herds in terms of cumulative milk yield indicated a 4.5-fold larger cumulative milk value. Nonetheless, we observed 5.4-fold greater cumulative disease costs and 4.2-fold greater cumulative additional costs due to health events and extra breeding services. A lifetime cost-benefit assessment has the potential to inform producers on making informed culling decisions by considering cumulative costs and revenues. Visualizing the magnitude of the impact of cumulative costs, in particular that of health and reproduction costs, on lifetime profitability should stimulate dairy producers to consider cumulative events in their decision-making process in keeping the most profitable cows in their herd, and to keep detailed on-farm records affecting lifetime profit. Our dashboard tool adds to the dairy extension deliverables through a user-friendly interface that allows producers, veterinarians, and advisory services nationwide to make timely decisions to improve herd profitability.

Key Words: fans, microclimate, airspeed

A standardized method for characterizing ventilation in freestall dairy facilities. M. Mondaca*, J. Van Os, and N. B. Cook, University of Wisconsin, Madison, WI.

Two primary considerations for dairy barn ventilation are barn-level air exchange and the cow-level microclimate. Few studies and on-farm assessments address ventilation beyond limited description of fan presence and type of ventilation system. Our aim was to develop a standard method to characterize microenvironments and barn-level ventilation performance (for mechanical systems) to help dairy producers troubleshoot their ventilation systems. Forty-two barns (9, 5, and 28 cross-, tunnel-, and naturally ventilated, respectively) were evaluated in WI, MI, GA, TN, and TX to develop a novel airspeed mapping procedure. For barn-level ventilation performance, we measured barn and inlet dimensions, static pressure differential, temperature (T) and relative humidity (RH) at inlet and outlet, and fan number and models. To characterize microclimates at cow standing and resting heights (1.5 and 0.5 m, respectively), we measured T, RH, and airspeeds for 3 min/location. In mechanically ventilated barns, microclimate measurements to characterize the resting area and feed lane were taken in a representative half of the barn, divided along the direction of air flow; in naturally ventilated barns, these were taken in 1 pen per circulation fan configuration at every other stall for at least 2 fans/row. For each producer, we generated a report including barn description, ventilation performance, graphs of inlet and outlet T and RH over time, pen maps overlaid with microclimate measurements, an interpretive summary, and action items for potential improvements. In general, mechanically ventilated barns were consistent with industry standards, but 80% of barns had inconsistent airflow distribution resulting in some stalls with insufficient airspeeds (<1 m/s) at resting height. In naturally ventilated barns, 54 ± 30% of measured stalls had insufficient airspeeds at resting height, largely due to improper fan angle. 63% of all farms reported yearly fan maintenance. Our ventilation characterization method and novel airspeed maps provided dairy producers with customized feedback to improve their ventilation system performance.

Key Words: fans, microclimate, airspeed

Assessing dairy employees’ health status in South Dakota: Vision care. L. Guifarro*1, P. da Rosa2, and M. Rovai1, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2College of Nursing, South Dakota State University, Brookings, SD.

A dairy farm typically involves many day-to-day activities, use of machinery and equipment, and most importantly milking. Mastitis, a common disease in dairy cows, ultimately affects profitability of the dairy. Mastitis care includes following written protocols, signs detection, and safe medication practices that requires the farmworker to have optimal vision. We are observing elevated rates of vision impairment while providing milking school farm trainings. If not corrected, the vision impairment may interfere with the milking procedures and/or driving machinery. The aim of this study was to detect possible impaired vision issues within dairy farm employees and raise eye health awareness. Dairy farm employees (n = 88 on 4 farms) were tested with the Spot Vision Screener (Welch Allyn Inc., Skaneateles Falls, NY). The screener is a handheld non-invasive device that quickly and easily detects vision issues on people of all ages. The device instantly displays a full detailed report of pupillary diameter, ocular alignment, binocular refraction, and referral recommendation. The referral recommendation is 1) “All measurements in range” or 2) “Complete eye exam recommended.” Participants using eyeglasses or contact lenses were included to ensure their prescriptions were within normal range. Descriptive statistics were calculated using SAS 9.4 by PROC FREQ and MEANS. The average age of those enrolled was 28 ± 1.6 and 34 ± 1.4 years old for female and male, respectively. Eighty percent were male, and 93% were Hispanic. One-fourth needed further eye examination and 40% (n = 35) had never visited an eye care professional either due to cost or language barriers. From the participants that needed an eye exam, 60% were milkers. Ifvision is impaired, the cow’s wellbeing and quality of milk might be at risk due to the milker’s vision challenges. Preliminary evidence using the screener suggests that future vision care programs should be developed...
for farm workers, particularly for the milker subgroup. Study supported by HICAHS (Colorado State University).

**Key Words:** dairy farm, milker, vision problems

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**T67 Assessing dairy employees’ health status in South Dakota: Eating habits and general health care.** L. Guifarro*1, P. da Rosa2, and M. Rovai1, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2College of Nursing, South Dakota State University, Brookings, SD.

Dairy farm workers’ eating habits may be compromised by their daily 12-h working shift. The intensive schedule demands high physical exertion with limited time for healthy choices, which include eating and general health care. The aim of this study was to assess South Dakota dairy farm employees’ general health status including nutrition and health care (number of visits to the physician). A survey written in Spanish was conducted in person (n = 70 workers on 3 farms) assessing various topics and details related to employees’ daily routine tasks, eating habits and general health status. Descriptive analysis was carried out using SPSS 25.0. The mean age was 28 ± 1.7 and 34 ± 1.6 for female and male, respectively. Most were Hispanics (96%) and males (76%). The large majority were Mexican (46%) and Guatemalan (44%) workers. Over half (53%) of workers were overweight or obese (mean BMI = 25.6 ± 4.2). Workers living in the United States 4 years or less had BMI = 25 whereas BMI was higher (>28) as years in the United States increased. One-third reported sleeping between 4 to 6 h/d and 46% reported eating in restaurants at least twice a week. The majority (80%) do not have health insurance, 53% have not seen a dentists in the last 6 mo. Reasons for not receiving medical care included medical cost, lack of information, and language barriers. The only physical activity the workers practice is their job duties. They usually opt for healthier choices when arriving in the United States; however, as years increase, their habits change for either convenient fast food or pre-packaged food. Due to survey results, an educational workshop provided recommendations on improving general health care. The topics included healthier nutrition, awareness of cardiovascular diseases and oral health risk factors relating to eating habits. Personal health care might be influenced by individual values, culture, motivation, and economic opportunities. Strategic workshops designed to promote health education and healthy eating habits for farm workers are needed in their native language. Study supported by HICAHS (Colorado State University).

**Key Words:** dairy farm, farm workers, eating habits

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**T68 Survey about the use of allopathic treatments and sources of information for organic livestock farms in France.** M. De Marchi1, H. Bugaut2, C. L. Manuelian*1, J. Renard2, F. Righi3, and S. Valleix2, 1Department of Agronomy, Food, Natural resources, Animals and Environment (DAFNAE), University of Padova, Legnaro, Italy, 2VetAgro Sup, ABioDoc department, Lempdes, France, 3Department of Veterinary Science, University of Parma, Parma, Italy.

European Union law on organic production is the Regulation (EU)2018/848 of May 30th 2018. There are no official reports published about the use of allopathic treatments and conventional bedding materials in organic livestock in Europe. Thus, an online survey (36 questions, 6 sections) across European countries has been conducted from October 2018 to February 2019. The questionnaire was translated into several languages following Brislin’s model. In France, 1,065 potential organic farmers were contacted by e-mail up to 3 times; 3 farmers’ associations also disseminated the link among their members. Of the 155 responses received, 135 from certified organic producers were available for the analysis. Sex proportion (men:women) was 60:40, mostly between 31 and 50 years old (83/135). In general, the questionnaire was completed by the farm manager (80.2%) and farms were small (≤3 workers; 90.2%). Respondents mainly reared 1 (63.7%) or 2 (22.2%) animal species. Beef (38.5%), dairy cattle (27.4%) and sheep (18.5%) were most frequent. Last year, 82/130 farmers applied 1 (80.5%) or more treatments per animal. The selection between allopathic and alternative treatments depended on the health problem. Between 15.4% (skin problems) and 34.6% (lameness) of the farmers still relied on conventional treatments instead of phytotherapy, homeopathy or probiotics; and between 6.5% (reproductive issues) and 35.3% (mastitis) used those alternatives as well as conventional treatments. Other farmers (66.4%) and veterinarians (46.3%) were the main information sources for the use of those alternatives. Straw is still the most used bedding material (91.1%). This preliminary analysis suggested the need for further research on alternatives to the use of allopathic treatments and straw for bedding in organic livestock, and that farmers are the key factor for the dissemination/implementation of the results. This project received funding from the European Union’s Horizon 2020 research and innovation program under grant agreement No [774340-Organic-PLUS].

**Key Words:** survey, animal health, production and management