

Animal Health Symposium: Maintaining animal health in organic dairy herds

731 Understanding animal welfare on organic dairy farms.

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In response to an increasing demand for organic products, the number of certified organic dairy farms in the United States has increased dramatically over the last decade. The consumers and concerned citizens who are driving this demand report a desire to support agricultural systems that are perceived to be more sustainable, more natural, and have higher standards of animal welfare. Despite the perception that organic farms maintain high levels of animal welfare, the relationship between the 2 is not straightforward. The objective here is to review the current literature on the welfare of dairy animals in organic systems compared with conventional. The 2 systems clearly place different value on animal welfare concerns; conventional farms place greater emphasis on biological functioning and health, whereas organic farms place higher value on the animals' ability to perform natural behaviors and live in a natural environment. In the United States, organic farms are required to provide animals with year-round access to the outdoors, including at least 120 d of access to pasture during the grazing season. Moreover, synthetic chemicals are restricted, including antimicrobials commonly used to treat ill animals on conventional farms. A reliance on naturopathic remedies leads to challenges when it comes to improving welfare for the individual animal, as organic producers have fewer treatment options and must make difficult decisions when dealing with ill animals. There is also concern regarding the efficacy of these naturopathic treatments, and little research to support their usage. Despite efforts to create preventative disease control strategies, the limited research available indicates that there is little difference in disease prevalence between organic and conventional systems. There are clear gaps in the literature evaluating the welfare of animals on organic dairy farms. Continued efforts are still needed to identify effective ways of preventing disease, and to develop effective naturopathic therapies to help reduce the number of ill animals and the duration of time that each animal is ill. A better understanding of how some organic farms are currently able to maintain low disease incidence could also provide valuable insight into ways forward.

Key Words: well-being, organic, dairy

732 Nutrition and performance of lactating dairy cows in organic dairy herds.

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The number of US organic dairy cows increased from 2,265 in 1992 to 254,771 in 2011. Despite this rapid growth, organic herds are smaller than conventional herds, and produce approximately 30% less milk/cow (McBride and Greene, 2009). These discrepancies are explained by geographical location as well as management and nutrition. First, about 86% of organic dairies are located in the Northeast and Upper Midwest, which are characterized by herd sizes smaller than those from the West (McBride and Greene, 2009). Second, organic dairies must comply with the National Organic Program Pasture Rules, which mandate ruminants to consume at least 30% of their total DMI from pasture for a minimum of 120 d during the grazing season. Even though 95% of organic dairies use rotational grazing, they feed approximately 45% less grain than conventional dairies (Stiglbauer et al., 2013). Moreover, only 49% of WI organic dairies use corn silage (Hardie et al., 2014), and this figure is likely lower in other regions (e.g., Northeast). Thus, higher reliance

on pasture and less grain and corn silage feeding limit metabolizable energy intake likely explaining the lower milk production in organic than conventional farms. Reduced milk production in organic dairies may be also associated with the low number of nonpasture feeds incorporated into lactation rations as well as the predominant use of component feeding in detriment of TMR. There is a growing interest among organic dairy farmers to feed lactating cows exclusively forage-based diets. In fact, organic milk processors (e.g., Organic Valley) are currently paying premiums for farmers shipping "grass-fed milk" in specific states (e.g., NY, PA, CA). In addition to reduced animal performance, the short- and long-term implications of no grain supplementation on animal health, BCS, and reproduction need to be addressed. Research should further address the effects on animal performance and health of feedstuffs commonly fed in organic dairies such as kelp meal, liquid molasses, and barley fodder, as well as the incorporation of alternative forage crops (e.g., small grains, millet, brassicas) as grazing options.

Key Words: organic dairy, nutrition, performance

733 Managing transition cows and reproduction in certified organic dairy herds.

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It is common to observe large between-herd variation in transition management practices and reproductive performance of dairy cows under certified organic management. Metabolic and infectious diseases increase the risk of voluntary and involuntary culling within 60 d in milk (DIM) and are a major animal welfare issue for the dairy industry in both organic and conventional herds. Reproductive performance of lactating dairy cows directly influences the annual frequency of calving; thus, the number of replacement heifers and milk yield (due to extended low productivity and dry period). Recent studies involving 4,111 pre- and postpartum cows from organic herds showed that cows experiencing hypocalcemia (HYPO) at calving had greater proportion ($P < 0.05$) of metritis and culling rate within 60 DIM compared with non-HYPO cows. Furthermore, uterine diseases (primarily metritis and purulent vaginal discharge [PVD]) significantly increased ($P < 0.05$) the risk of cysts at 26 ± 3 DIM, reduced cyclicity (progesterone concentration ≥ 1 ng/mL) at 40 ± 3 DIM as well as the hazard of pregnancy up to 300 DIM, and increased the risk for pregnancy loss. Regardless of parity, uterine diseases (RP, metritis and PVD) had an additive effect on milk loss and quality for at least one of the first 4 DHIA test-days ($P < 0.05$), but was not different at later tests. Many factors such as feed management (i.e., diets, dry matter intake and water quality) and comfort (e.g., resting time) of transition cows determine the energy (e.g., BHBA, NEFA) and calcium balance. These factors also determine the status of the immune system of the animal; thus, the prevalence of infectious diseases in postpartum cows (e.g., metritis). Implementing a proactive transition cow program that focuses on preventing metabolic diseases by managing the leading risk factors (e.g., diets, resting time of cows per day, dry matter intake) will significantly reduce calving-related losses and improve uterine environment and ovarian structures (cyclicity); thus, improving the overall performance of lactating dairy cows and profitability of the herd, regardless of size.

Key Words: organic, dairy, reproduction

734 Mastitis and milk quality in organic dairy herds. Pamela Ruegg*, *University of Wisconsin, Madison, WI.*

The purpose of this paper is to review research about mastitis and milk quality on organic dairy herds. Mastitis is consistently the most commonly reported disease on both ORG and conventional (CON) dairy farms. In the US, concern about udder health of cows on ORG herds is often related to the blanket prohibition of antimicrobial usage. Cows on ORG herds that develop mastitis are usually treated with a variety of alternative compounds such as whey-based products, herbals, and essential oils. Although none of these products have any proven efficacy, ORG dairy farmers are able to successfully manage mastitis. Several studies have compared bulk tank SCC and rate of clinical mastitis between herds managed using ORG or CON systems. Although most studies have shown no difference in bulk tank SCC between management systems, some studies have reported higher bulk tank SCC for ORG as compared with CON herds. ORG herds are typically smaller than CON herds and studies that have accounted for herd-size have not reported significant differences in bulk tank SCC or other measures of milk quality. Management practices used to achieve low bulk tank SCC have slightly varied. In one study a greater proportion of lactating cows in ORG herds had milk withheld from sale as compared with cows in CON herds. In contrast to bulk tank SCC, fewer cases of clinical mastitis are generally reported in cows on ORG as compared with CON farms. A recent study reported 0.21 versus 0.31 cases of clinical mastitis per 305-cow-days for cows in ORG versus CON herds. Within the framework provided by NOP regulations, the size and intensity of management of ORG dairy herds varies considerably. Milking practices used on ORG farms are very similar to practices used on similarly sized CON farms. Several management practices such as use of milking gloves and a quarantine unit to isolate infected cows have been shown to result in improved udder health and milk quality for ORG herds. The use of external consultants has also been associated with improved milk quality. In summary, both ORG and CON herds that use well-known mastitis prevention practices and consult with qualified advisors can minimize mastitis and produce high quality milk.

Key Words: organic, milk quality, mastitis

735 Panel discussion: Best management practices to maintain animal health in organic dairy herds. J. S. Velez*¹, P. Clutts², G. Jodarski³, and G. M. Schuenemann⁴, ¹*Aurora Organic Farms, Boulder, CO*, ²*Pleasantview Farm, Circleville, OH*, ³*CROOP Cooperative/Organic Valley, La Farge, WI*, ⁴*The Ohio State University, Columbus, OH.*

The organic dairy industry in the US has been growing steadily since 1990, and organic farmers have struggled to produce enough supply to meet the growing domestic demand. The whole certified organic process relies on several preventive management practices (e.g., transition cow program, vaccination, water quality, nutrition, reproduction) that ultimately will allow the animal to produce nutritious high quality milk. The basic physiological functions to prevent metabolic disorders in transition cows are dry matter intake and maintenance of calcium and energy balance (ketosis). These factors also determine the status of the immune system of the animal; thus, the prevalence of infectious diseases (e.g., metritis and mastitis), the risk of culling within 60 DIM, and performance of lactating dairy cows. Reproductive failure and mastitis are the top 2 reasons for early removal of lactating cows from dairy herds. This causes severe economic losses to organic dairy producers because of decreased milk yield and quality as well as increased replacement costs. Designing and implementing a proactive transition management program (i.e., protocols) that focuses on monitoring the leading risk factors (e.g., diets and feed management, water quality, comfort of pre- and postpartum cows [e.g., resting time], calving management, and personnel training) will significantly reduce calving-related diseases and the risk of culling while optimizing performance of lactating dairy cows. Therefore, best transition cow management practices during the weeks before and after calving are key determinants to avoid a drop in dry matter intake, hypocalcemia, and ketosis; and the subsequent negative effect on the immune system of animals in organic dairy herds.

Key Words: organic, dairy cattle, health