INTERPRETIVE SUMMARIES, DECEMBER 2013

A new magnetic resonance imaging approach for discriminating Sardinian sheep milk cheese made from heat-treated or raw milk. *By Mulas et al., page 7393.* Magnetic resonance imaging (MRI) analysis on ewe milk cheese gives evidence of the heat treatment to which the milk has been subjected. Because the water state in cheese is significantly influenced by cheese structure (i.e., by water chemical and physical environment), the magnetic properties of water protons provide detailed indications on cheese at the molecular level. Heat treatments induce microstructural rearrangements in milk components and the structure of the cheese network changes as well. The MRI properties of water protons reflect these changes. We demonstrated our hypothesis on Fiore Sardo cheese but the findings are generally valid.
http://dx.doi.org/10.3168/jds.2013-6607.

Effect of pH on technological parameters and physicochemical and texture characteristics of the pasta filata cheese Telita. *By Maldonado et al., page 7414.* Telita cheese is very popular in Venezuela. Its manufacturing consists of the preacidification of milk to obtain a stretchable curd that is subjected to heat. We evaluated the effect of stretching pH on technological parameters and physicochemical and texture characteristics of Telita cheese. We observed an inverse relationship between pH and acidity and a direct relationship between melting and stretching temperature. The yield was highest as the pH increased. Variation in texture existed among cheeses with different stretching pH. Overall, cheeses with stretching pH of 5.4 and 5.5 showed a balanced texture with a high retention of solid components.
http://dx.doi.org/10.3168/jds.2013-6887.

Monitoring the ripening process of Cheddar cheese based on hydrophilic component profiling using gas chromatography-mass spectrometry. *By Ochi et al., page 7427.* Three types of Cheddar cheeses, with different salt contents and lactic acid bacteria starters, were manufactured. Metabolomic analysis using gas chromatography-mass spectrometry targeting hydrophilic low-molecular-weight compounds combined with multivariate analysis was used to investigate the ripening process and revealed the effect of ingredients and ripening conditions on the cheese metabolic profile.
http://dx.doi.org/10.3168/jds.2013-6897.

Sensory properties and drivers of liking for Greek yogurts. *By Desai et al., page 7454.* The sensory properties and drivers of liking of Greek yogurts were determined. Consumers preferred Greek yogurts with a firm, dense texture, moderate sweet aromatic, milkfat, and dairy sour flavors, and moderate sour taste. Consumers were aware of the increased protein content of Greek yogurts but generally were unaware of differences between strained versus fortified Greek yogurts. These results suggest that successful Greek yogurts can be manufactured using addition of dried dairy ingredients or by traditional straining and centrifugation.
http://dx.doi.org/10.3168/jds.2013-6973.

Effects of *Lactobacillus kefiranofaciens* M1 isolated from kefir grains on enterohemorrhagic *Escherichia coli* infection using mouse and intestinal cell models. *By Chen et al., page 7467.* Kefir is an alcoholic fermented milk beverage with many health benefits. However, probiotic bacteria strains responsible for the effects are largely unknown. In this study, we found that administration of a potential probiotic *Lactobacillus kefiranofaciens* M1 isolated from kefir grains was able to reduce the severity of enterohemorrhagic *Escherichia coli* infection in a mouse model. Possible mechanisms included the enhancement of mucosal immunity and improvements in intestinal barrier functionality. Thus, *Lb. kefiranofaciens* M1 might be useful as an alternative way of preventing enteric pathogen infections.
http://dx.doi.org/10.3168/jds.2013-7015.

Effects of mineral content of bovine drinking water: Does mineral content affect milk quality? *By Mann et al., page 7478.* Water is an important nutrient for dairy cattle; however, influences of water chemistry on milk synthesis are not well described. High mineral concentrations (>0.3 mg/kg of Fe and other metals) in bovine drinking water result from natural sources in ground water, runoff from contaminating sources, drought, or water storage systems. This study evaluated the effects of added iron in bovine drinking water on processed milk quality. Iron solutions infused in the abomasum of dairy cattle did not show an effect on oxidative stability. However, differences in milk flavor from indirect (infusion) addition of iron-contaminated water were detected.
http://dx.doi.org/10.3168/jds.2013-7083.

High-pressure processing decelerates lipolysis and formation of volatile compounds in ovine milk blue-veined cheese. *By Calzada et al., page 7500.* Blue-veined cheese was pressurized at 400 or 600 MPa on d 21, 42, or 63 of ripening to control excessive lipolysis and formation of volatile compounds that could cause over-ripening and off-flavors during the refrigerated storage of ripe cheese before consumption. The cheese pressurized at 600 MPa on d 21 showed the lowest concentration of free fatty acids on d 360 (as low

as those of control cheese on d 90) and the lowest levels of most volatile compounds on d 180 and 360. No flavor defects were recorded in pressurized or control cheeses.
http://dx.doi.org/10.3168/jds.2013-7221.

Bovine lactoferricin B induces apoptosis of human gastric cancer cell line AGS by inhibition of autophagy at a late stage. *By Pan et al., page 7511.* Development of an effective therapeutic method for gastric cancer without side effects is urgently needed. We prepared a series of peptide fragments derived from bovine lactoferrin and evaluated their anticancer potency toward the gastric cancer cell line AGS. A 25-amino acid peptide of lactoferricin B (LFcinB25)-induced apoptosis by inhibition of autophagy at the final stage. These findings provided support for future application of LFcinB25 as a potential therapeutic agent for gastric cancer.
http://dx.doi.org/10.3168/jds.2013-7285.

Short communication: **Feeding linseed oil to dairy goats with competent reticular groove reflex greatly increases n-3 fatty acids in milk fat.** *By Martínez Marín et al., page 7532.* Lactating goats, trained to maintain their inborn reticular groove reflex, received a daily dose of linseed oil either with their solid feed or emulsified in skimmed milk and bottle-fed. The bottle-fed goats showed high levels of α-linolenic acid and very low levels of rumen biohydrogenation isomers in milk fat; levels of short- and medium-chain saturated fatty acids were similar to or lower than those of goats fed linseed oil mixed in the solid feed. Successful research to translate this animal model into practical farm conditions could enable farmers to produce milk naturally enriched in beneficial fatty acids.
http://dx.doi.org/10.3168/jds.2013-7041.

Characterization of clinical mastitis occurring in cows on 50 large dairy herds in Wisconsin. *By Oliveira et al., page 7538.* Mastitis is one of the most important diseases occurring in dairy cows. This study characterized the occurrence of clinical mastitis in cows on 50 large dairy herds in Wisconsin. Of 741 clinical mastitis cases, environmental pathogens were the most frequent pathogens isolated, and 27.3% of cases had no pathogens recovered. Bacteriological cure, recurrence of clinical mastitis, and risk of culling differed among pathogens. Of 583 cases with severity reported, the distribution of clinical mastitis cases with mild, moderate, and severe signs was 47.8, 36.9, and 15.3%, respectively. The results of this study can help veterinarians and dairy producers better understand the epidemiology of clinical mastitis occurring on modern commercial dairy farms.
http://dx.doi.org/10.3168/jds.2012-6078.

Randomized clinical trial of tetracycline hydrochloride bandage and paste treatments for resolution of lesions and pain associated with digital dermatitis in dairy cattle. *By Higginson Cutler et al., page 7550.* A randomized clinical trial was conducted to assess healing and recurrence of digital dermatitis lesions treated with tetracycline hydrochloride in either a paste formula or bandage compared with a negative control. Pain at the lesion site was assessed through use of pressure algometry. No difference in healing was observed between paste and bandage treatments, demonstrating that the paste is effective and eliminates the need for bandage removal. Cows with active lesions responded to a range of pressure, and cows would tolerate more pressure with an algometer as lesions healed. Digital dermatitis has been shown to be painful when active; therefore, pain management should be considered.
http://dx.doi.org/10.3168/jds.2012-6384.

Dynamic changes in antibody levels as an early warning of *Salmonella* Dublin in bovine dairy herds. *By Stockmarr et al., page 7558.* The bacterium *Salmonella* Dublin causes illness, production losses, and death in cattle worldwide. Rapid detection of emerging infections is vital for control measures to minimize disease spread and adverse effects. Since 2001, all Danish dairy herds have been tested for *Salmonella* Dublin every 3 mo, using measurements of antibodies in bulk tank milk to assign an infection category. We present a statistical method that may form a significant contribution to early warning systems for *Salmonella* Dublin. Implementation and communication of alarm herd status may allow farmers to counter a disease outbreak 3 mo earlier than under the current practice.
http://dx.doi.org/10.3168/jds.2012-6478.

Long-acting insulins alter milk composition and metabolism of lactating dairy cows. *By Winkelman and Overton, page 7565.* Two forms of long-acting insulin commonly used in treatment of human diabetes were administered over a period of 10 d to elevate insulin activity in lactating dairy cows in order to study the effects of insulin on milk composition. Milk protein and fat synthesis tended to be increased in cows treated with long-acting insulins; some responses were slightly more pronounced in one of the forms studied, likely related to its temporal pattern of activity. Long-acting insulins can be used experimentally without exogenous glucose administration. Furthermore, strategies to enhance insulin concentrations or the responses of mammary protein synthesis to insulin warrant investigation.
http://dx.doi.org/10.3168/jds.2012-6498.

Risk factors associated with bulk tank standard plate count, bulk tank coliform count, and the