129  The role of flavored milk in school nutrition.  B. Bowman*, D. Winston, and K. Daniels, Virginia Tech, Blacksburg, VA.

American school children face a health crisis as obesity and its accompanying complications rise; nutrition policies are changing to address the situation. Calorie reductions in school lunches are promising; however, recommendations to decrease calories could reduce consumption of nutrient-dense foods, such as milk. Three studies were evaluated: the role of flavored milk in student milk consumption (Yon and Johnson, 2014); student acceptance of reduced calorie flavored milk (Quann and Adams, 2013); and the influence of sugar-sweetened beverages (SSBs) as competition for flavored milk (Lasater et al., 2011). When flavored milk was no longer offered, school milk sales declined 26.0%, and the amount of milk discarded increased by 11.4%. Thus, overall school milk consumption decreased 37.4%. When calories were reduced in flavored milk, participation in the National School Lunch Program (NSLP) declined 2.6% but then stabilized after 4–6 mo, indicating student acceptance. Between 1989 and 2008, calories from sugar-sweetened beverages increased from 130 kcal/day to 209 kcal/day, while calories from milk consumption decreased from 218 to 170 kcal/day, indicating there is competition for fluid milk consumption.

Key Words: flavored milk, school milk consumption

130  Exploring the market for goat milk products.  L. Scott*, Clemson University, Clemson, SC.

The goat milk product market is growing in some parts of the world but others remain at a standstill due to unfamiliarity with goat products. The market potential of goat milk products is high but only as people become more educated and acquire the taste for these products. A systematic literature research was conducted to further investigate this topic. Databases used included Google Scholar, Science Direct, and Pubmed. Keywords included goat milk, benefits, and market. There are many benefits in consuming goat milk, yogurt, or specialty cheeses. Many reports show that these products have a tendency to reduce allergies and asthma in people in all stages of life: sick, elderly, or young. Babies and toddlers have the potential to gain the most benefit from goat milk when compared with cow and human milk. Goat milk soaps have been known to reduce sunburns significantly. Research shows many differences in goat milk composition in terms of vitamins, minerals, amino acids, and fatty acids but this information can only be viewed through trends due to the lack of research and consistency between breeding goat breeds and herds among farms. Another market that has been weakly explored is goat milk acceptance. Between 1989 and 2008, calories from sugar-sweetened beverages increased from 130 kcal/day to 209 kcal/day, while calories from milk consumption decreased from 218 to 170 kcal/day, indicating there is competition for fluid milk consumption.

Key Words: goat milk, benefits, market

131  The health benefits of donkey milk.  N. P. Uzeze* and C. C. Williams, Louisiana State University, Baton Rouge, LA.

Milk is regarded as nature’s perfect food. However, for children with allergies to proteins present in dairy cow’s milk, who make up around 3% of the population, consuming this indispensable drink is impossible. To continue reaping the benefits of milk consumption, substitutions must be found. One such substitution is donkey milk, which is naturally hypoallergenic. When considering various milks’ compositions, those of human and donkey milk are very similar in amount of total protein, casein, and lactose, with stark differences from that of cow’s milk. In addition, the proteins present in donkey milk are most similar to those found in human breast milk, which makes them much easier to digest. Recent studies have indicated that in children with a cow’s milk protein allergy (CMPA), donkey milk has a high rate of tolerability. Donkey milk also has a light, sweet taste that makes it much more acceptable than milk replacers for children with allergies. The health benefits of donkey milk do not stop with cases of allergies; donkey milk has been regarded as a way to preserve youth since the days of Cleopatra, and its uses in cosmetology still exist today. With the unsaturated fats and several vitamins present, donkey milk is applied to the skin for its anti-aging properties. It also contains more anti-inflammatory omega-3 fatty acids than cow’s milk, has also been shown to enhance immunity, and may help prevent atherosclerosis. Donkey milk is a versatile and healthy product that offers many benefits for human consumption.

Key Words: donkey milk, health benefits

132  Health benefits of whole milk in comparison with other milk fat options.  S. E. Mac*, C. M. Truman, and J. M. Bewley, University of Kentucky, Lexington, KY.

Whole milk is not considered to be a healthy option due to the stigma and misconceptions consumers have. Through the media, whole milk has been associated with health issues including diabetes, heart disease, and obesity. Impressions of negative health risks result in consumers purchasing other milk-fat alternatives such as reduced fat (2%) milk, low-fat (1% fat) milk, and skim milk. As research progresses, evidence of health benefits with drinking whole milk increase. Milk protein is associated with decreasing systolic blood pressure by 3.7 mmHg (He et al., 2011). Protein content does not vary widely among milk fat options. Calcium and vitamin D have been linked to osteoarthritis relief and reduced risk of colon cancer (Lee et al., 2009 and Lu et al., 2014). Drinking 7 or more glasses of milk is correlated with osteoarthritis relief (Lu et al., 2014). Milk has been found to reduce the risk of colon cancer by 22% (Lee et al., 2009). After milk is fortified, the calcium and vitamin D levels in whole milk, reduced fat milk, low-fat milk, and skim milk are relatively the same. The primary component varying among fluid milk options is milk fat. Results found that dairy products containing higher fat reduced the risk of obesity by 8% (Rautiainen et al., 2016). Those who consumed any dairy in their diets had a lower risk of colon cancer than those without dairy in their diets. Whole milk contains the highest fat content, 3.25%, in comparison to the other types of dairy milk resulting in stronger obesity prevention, although any milk consumption provides more colon cancer than no milk consumption. Whole milk contains all of the essential nutrients associated with the health benefits of lower blood pressure, osteoarthritis relief, colon cancer prevention, and prevention of obesity.

Key Words: whole milk, health benefits of whole milk
133  **Whey management options in Greek yogurt production.**  
Z. Curtis* and D. Olver,  *Pennsylvania State University, University Park, PA.*

Greek yogurt sales have exploded over the past decade. These products are typically higher in protein and are thicker than regular yogurts because they are more heavily strained to remove liquid whey and lactose. However, the byproduct left behind from Greek yogurt production poses a challenge to manufacturers who must dispose of increasing amounts of acid whey. Acid whey, named from the high concentration of lactic acid present in the liquid, is too acidic to be released into waterways without treatment. Although originally regarded as a waste product, recent advances in filtration techniques and biodigester utilization have led to several options for the management of acid whey. Reverse osmosis and ultrafiltration allow Greek yogurt producers to separate whey into acids, sugars, and minerals and then divert the remaining water to treatment plants. Acid whey is a good source of sodium, potassium, calcium, and phosphorus. Lactose in the acid whey can be converted by enzymes into galacto-oligosaccharides, soluble fibers often included in cereals and snack foods to enhance digestive health. Additionally, acid whey is a viable source of fuel to create methane in a biodigester system. The large quantities of acid whey generated in Greek yogurt production make it imperative that treatment options be further developed and harnessed to allow for the sustainability of this industry.

**Key Words:** Greek yogurt, acid whey

134  **The potential impact of a novel canned latte on the North American dairy products market.**  
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More than 80% of the US adult population enjoys coffee in the morning or a variation of it. From iced coffee to frappuccinos to lattes, there’s something for everyone. LaColombe revolutionized the typical café when they started putting their lattes on draft. Serving lattes out of a tap has been a huge hit with customers who are intrigued by the unique process. Pasteurized milk is combined with cold-pressed expresso and emitted from a tap, which creates a consistency less like a coffee drink and more akin to a frothy beer. The company then took their novel creation one step further by being the first company in North America to sell their draft lattes in a can. Unlike competitors who sell similar products, LaColombe invented a way to create the froth that lattes are known for when the can is opened, something that has never been done before. This patented technique infuses nitrous oxide into the bottom of the can via a grommet during the production process before selling. Then, when the customer pops the top on the can, the valve stretches, allowing a pin to enter and add the nitrous oxide. This new process features the only FDA approved valve that has been found suitable to interact with food. This valve keeps the latte from being exposed to air until the moment it is opened, which triggers the nitrous oxide influx, and thus creates the froth. Besides this, the can also has a unique plastic attachment to the top of the can, which protects the lip of the can and the consumer’s mouth from coming into contact with a contaminated surface. Upon entry onto the market, this product has seen great success due to the increasing demand for coffee, the decreasing demand for other caffeinated alternatives, and the fact that lattes are the #1 ordered coffee beverage in cafes. Not only this, but it will allow another product onto the market that utilizes fluid milk, the consumption of which has been steadily declining. This patented new technique will revolutionize the coffee industry and allow the dairy industry yet another unique product onto the market with the hopes of increasing dairy consumption in the North America.

**Key Words:** novel food technology, canned latte, dairy product consumption