

can prevent diseases and infections, such as coccidiosis, that would normally be treated with stronger antibiotics commonly used in human treatment. Therefore, ionophores may reduce the threat of antibiotic resistance. Ionophores are approved for use in young stock, and are currently under review for approved use in lactating cattle.

Key Words: Ionophores

970 Centralized pregnancy detection: A new option for fertility evaluation. A. Barten* and L. Fox, *Washington State University, Pullman.*

Pregnancy Specific Protein B (PSPB) can be used as a centralized pregnancy detection aid. During the third week after conception, binucleate giant cells, in the ruminant placenta produce a glycoprotein called Pregnancy Specific Protein B. This protein can be detected with an enzyme-linked immunosorbent assay (ELISA) at day 30 of gestation in multiparous cows and at day 28 of gestation in primiparous heifers. The test is 92.5% accurate for identifying pregnant cows and over 99% accurate for identifying nonpregnant cows. A blood sample is collected from

each cow and delivered to a centralized laboratory, (usually at a veterinary clinic), where the test is completed. The laboratory then prepares a report for the herd manager or veterinarian. Results are available electronically to the herd manager and/or veterinarian within 27 hours after the sample was taken. The centralized pregnancy evaluation concept provides the following advantages over traditional on-site palpation for pregnancy: 1) A high degree of quality control for assay accuracy as opposed to potentially low quality control for on-farm testing; 2) Data from multiple herds can be easily summarized; 3) Increased ability of the veterinarian and management team to compare herds with regard to application of successful programs; 4) More quality time available for the veterinarian and management team to evaluate and make improvements; 5) Reduced probability of embryonic death due to palpation and erroneous hormone use and 6) Elimination of error prone steps with data recording and transfer. PSPB can be used as a tool to improve reproductive efficiency by minimizing days open, reducing the calving interval and maintaining adequate days in milk. This approach is currently in use in the states of Washington and Idaho and will provide new options for evaluating pregnancy status in dairy cattle.

Key Words: Pregnancy Specific Protein B, Testing

Dairy Foods Undergraduate Paper Presentations

971 An industry approach to increasing the consumption of dairy products. B. Lyons*, *Louisiana State University, Baton Rouge.*

According to USDA, consumption of soft drinks has steadily increased over the past 40 years while milk consumption has decreased. The incidence of bone fractures has increased by 42%, especially among children and young adults, over the past 30 years. Researchers are concerned that many children and teenagers are not getting proper amounts of calcium in their diets. In time, the trend of less milk and more soda could lead to increased occurrences of osteoporosis. These data show that consumption of dairy foods is important to our nutritional well-being. The Food Guide Pyramid recommends consumption of 2-3 servings of dairy products/d. Milk and dairy products offer a range of well-known health benefits, the best known being calcium for proper bone health. In 1984, the Dairy Check-Off Program was implemented to provide funding for marketing, research, and educational programs. Through this program, the industry is working to increase dairy product demand and strengthen dairies image. Since the program began, dairy consumption per capita has increased 11%. Researchers across the country are finding new ways to make dairy products more appealing to young consumers through checkoff funds. Education is important to keep the importance of nutrition at the top of everyone's priorities and with the help of the Dairy checkoff, the dairy industry is able to offer nutritional information to consumers of all ages. The checkoff funds 3-A-Day of Dairy, a nutrition-based marketing and education campaign to promote healthy diets and increase demand for dairy products. The Got Milk? ads are still a big hit with consumers, and checkoff funds are continually used to feature new celebrities for promotion. Fast food restaurants are beginning to offer milk with children's meals, and this is receiving positive responses from parents. With the consumption of dairy products continuing to decline, the dairy industry must persist in efforts to promote their products. The research, marketing, and educational programs funded by the checkoff are steps in the right direction for increasing consumer awareness of the importance of dairy products for health and well-being.

Key Words: Dairy Products, Consumption, Industry Programs

972 Probiotics in dairy products- Beyond nutrition. S. Phetsomphou*, *North Carolina A&T State University, Raleigh.*

Microbial cultures have been used for thousands of years in food and food fermentations. Since the past century, there is strong evidence that the microbial cultures have the ability to prevent and cure a variety of human diseases. Probiotics are one group of these microbial cultures that are becoming increasingly popular in the United States and Europe. Although there are many different types of probiotics, the most common are *Lactobacillus bulgaricus*, *L. acidophilus*, *L. reuteri* and bifidobacteria. Dairy products such as fluid milk and yogurt are the popular food products that contain probiotic cultures. Probiotics are defined as viable microbial cultures that have positive impact on human health. A number of studies have found probiotic consumption to be useful in

the treatment of many types of diarrhea, including antibiotic-associated diarrhea in adults and young children. Several studies have shown that certain strains of probiotics, such as *L. bulgaricus* and bifidobacteria, can alleviate symptoms of lactose intolerance by providing bacterial lactase to the intestine and stomach. Probiotic consumption may also be a means for primary prevention of allergy in susceptible individuals. Studies have shown that regular consumption of probiotic could have a positive impact on cancer prevention. Animal and in vitro studies indicated that probiotic bacteria may reduce colon cancer risk by reducing the incidence and number of tumors. Functional foods including dairy food products have been known as a mean for disease prevention and the quest for optimal health at all ages. Therefore, probiotics cultures could play a big role in the human diet beyond nutritional aspects.

Key Words: Probiotics, Bifidobacteria, Dairy Products

973 On-farm milk processing. A. R Nelkie*, *North Carolina State University, Raleigh.*

On-farm milk processing plants are becoming increasingly popular as an enterprise option for dairy producers as they try to add value to their commodity of raw fluid milk. Lemajru Dairy Farm, a 100% registered, 100 cow milking herd located near West Branch, MI is being used as the experimental farm in this research model to determine if an on-farm milk processing plant is profitable. The cost of the equipment, the construction of the plant, the increased labor in the form of new employees, and the cost of operating it will be calculated. Figurative prices fabricated from local grocery stores and current on-farm processing plant are used to calculate the profit. Last year's gross income for the farm sale of raw fluid milk was around \$300,000. To build an on-farm processing plant, the income will have to cover the \$300,000 plus enough to pay for employees, loans and the cost of extra utilities needed to operate the machinery. The farm is capable of producing approximately 5000 gallons of milk each week. An estimated cost for the building and purchasing of equipment is around \$700,000 upwards to \$800,000. The endeavor has the ability to produce \$750,000 per year, making this an equitable project if family help can be obtained to work the plant thus keeping start up costs down.

974 Farmstead cheese production. K. E. Harwick*, *Pennsylvania State University, University Park.*

The farmer's share of the consumer food dollar has dropped from 46% in 1913 to 20% in 2000. A natural result has been to increase farm size, but not all producers can or want to expand. Alternatively some dairy producers have opted to produce and market value-added products such as cheese. These products produce a higher return, can open new markets, and provide brand recognition while adding variety to a farms normal operation. Consumers are willing to pay more for a value-added product, allowing for a higher quality of farm life. When deciding

whether farmstead cheese production is a good alternative to marketing wholesale milk, there are several key areas to address. Produce a high quality product, and test-market the product with family and friends before continuing. Develop a business and market research plan, be sure funding is adequate, and research food safety laws and other relevant regulations. Farmstead cheese production can be the solution to the financial constraints many small dairy producers are facing. By producing a value-added item that consumers are willing to buy at a premium, a smaller dairy can remain profitable.

Key Words: Cheese, Value-Added

975 Eliminating the calcium crisis. J. D. Woodcock*, *University of Kentucky, Lexington.*

Only 13.5 percent of girls and 36.3 percent of boys age 12 to 19 in the United States get the recommended daily amount of calcium, placing them at serious risk for osteoporosis and other bone diseases, according to statistics from the U.S. Department of Agriculture. Because nearly 90 percent of adult bone mass is established by the end of this age range, the nation's youth stand in the midst of a calcium crisis. Not only will increasing dairy intake reduce the risk for osteoporosis, but it will combat against other serious diseases and illnesses as well. One way the dairy industry is taking preventative measures is by developing new products and flavors. Flavors like chocolate, vanilla, strawberry, as well as new flavors like mocha cappuccino, orange vanilla, peaches and cream, and caramel shake have been developed and are found to be more palatable to today's youth. Researchers have also learned that by splitting the lactose enzyme, the resulting glucose and galactose can

be used to sweeten dairy products. Applying the lactase enzyme to the product will eliminate any lactose intolerance issues. Between the years of 1985 and 1997, school districts nationwide, decreased the amount of milk they bought by nearly 30 percent. It is time the school districts were held accountable for this decrease and put dairy vending machines in the hallways of the nation's schools and eliminate the national calcium crisis.

Key Words: Calcium, Crisis, Increasing Intake

976 Low-fat dairy products: Meeting the needs of a health conscious generation. L. Daubert*, *Virginia Polytechnic Institute and State University, Blacksburg.*

Consumption of low-fat dairy products has shown significant health benefits to consumers. When consumed in moderation and in conjunction with a regular exercise program, low-fat dairy products have been shown to reduce the occurrence of cancer, increase metabolism, build and maintain muscle, maintain a normal blood pressure, and decrease body fat. Conjugated Linoleic Acid, a component of milk, has been shown to both increase metabolism and to be anticarcinogenic. Other milk components including protein, calcium, phosphorus, riboflavin, and Vitamins A and D are essential for maintaining good health. Low-fat dairy products are a new trend in the health industry; as additional research becomes available about the benefits to a healthy diet, the market is predicted to increase for these specialty products.

Key Words: Low-Fat Dairy Products