sensory quality of this product. The refrigerated shelf-life of HTST pasteurized fluid milk has increased over the last 20 years as improved post-pasteurization milk handling and packaging systems have decreased post-pasteurization contamination. Improvements in raw milk quality have also contributed to increased shelf-life and flavor quality. Enclosed fillers with filtered air environments have allowed the best fluid milk processors to achieve 21 to 28 days of shelf-life. The organisms that typically spoil HTST milk after 17 d are pychrotolerant *Bacillus* spp. and closely related genera. These spores are present at low levels in high quality raw milk supplies, they survive HTST processing, and then grow rapidly after 17 d of refrigerated storage. In the last two years, fluid milk processors have increased HTST temperatures to improve the safety of fluid milk but this has stimulated outgrowth of spore formers and in some cases decreased shelf-life of HTST fluid milk. Alternative approaches, using removal of bacteria and spores are being explored in combination with HTST at minimum temperature and time, are being developed that will allow processors to break the 28 d shelf-life barrier.

Key Words: Fluid Milk, Shelf-Life, HTST

ADSA Southern Branch Symposium: Keeping Dairy Going and Growing

200 Structural shifts in the dairy industry. G. A. Benson*, *North Carolina State University*, *Raleigh*.

Dairy farm and cow numbers are declining, milk per cow is trending up, and milk production is increasing in the West and is flat or decreasing elsewhere. Understanding the factors causing these shifts can lead to more informed business decisions by farmers and allied industries, and is useful to policy makers. Causes include changes in product demand, technology, input availability and cost, and profitability. Government policies affect the general business climate, transportation costs, trade, and agricultural programs. There is little published work that quantifies the relative importance of each one for the dairy industry. Increased specialization has occurred to take advantage of economies of scale and size and capital has been substituted for labor. Technology has created increases in farm level productivity, both per cow and per acre. Trade and dairy policies create US prices that are above world prices and shield US producers from international competition. Productivity gains have outstripped the growth in sales, creating pressure on farm prices and reductions in cow numbers. The combined effect is the observed reductions in the size of the national dairy herd and farm numbers. Consumers are the primary beneficiaries, in the form of lower prices for dairy products. Regional changes are driven by differences in financial performance. Differences in input availability and cost affect production costs. Regional price differences are the result of local supply and demand conditions, transportation costs and, to some extent, federal and state milk pricing rules. Structural change also has occurred at the dairy cooperative, processor and retailer level. In general, the main changes have been a reduction in the number of business entities, increasing size, and greater concentration. Dairy farmers can only react to structural change as they make business plans but policy makers, new technology developers (including research and extension) can influence the direction and speed of change. Specific activities include changing the relative prices of milk in the various regions and initiatives that target specific regional rather than national issues.

Key Words: Structural change, Dairy

201 Problems associated with a dairy expansion effort. J. F. Keown*, *University of Nebraska*, *Lincoln*.

Over the years, many states have initiated projects to expand their dairy operations as a way to increase economic activity, increase employment, utilize the by-products generated by the expanding ethanol industry and revitalize rural portions of their states. To be successful, these activities take a concerted effort from all groups within the state, the Governor's Office, State Legislature, Department of Agriculture, as well as aligned dairy industries. In Nebraska, an effort to get local dairies to expand was not really successful until an effort was made to attract dairies from other parts of the country. The advertisements and promotional brochures produced discussing the Nebraska Advantage showed local producers the benefits that their own state offered the industry. Having other producers visit and discuss the opportunities that were available within the state helped local producers take a second look at the resources available to them for local and regional expansion. There are many obstacles to overcome when attempting to attract producers from other states such as climate, infrastructure, Department of Environmental Regulations for obtaining permits for easements and manure disposal, feed resources and costs, availability of multiple milk markets and local acceptance of large animal operations are all major concerns that must be considered. All of these obstacles have been encountered when working on the Nebraska effort and are common to all areas that are attempting to attract animal operations to their state. Many of these concerns cannot be addressed on a statewide basis but must be addressed individually, as each project is unique. The ability to address these issues and have all elements working in unison will result in successful or unsuccessful expansion efforts.

Key Words: Economic, Ethanol, Expansion

202 Adopting a management focus. R. A. Milligan*[1,2], [1]*Dairy Strategies, LLC.*, *St. Paul, MN*, [2]*Cornell University*, *Ithaca, NY*.

Every business needs a workforce with at least one person filling three roles as workers, managers, leader/chief executive. Over the last several decades an increasing number of dairy farms have develop expertise in the manager role. The challenge to keep the dairy industry going and growing is for each business to develop the expertise to successfully execute the chief executive role. The chief executive (CE) role is very different from the worker and manager roles. The CE is focused on strategy and people. The CE must have a greater external focus to understand what is happening in the global business environment including the quality movement, the markets for the business product, labor markets, and public policies impacting their industry. This information must then be utilized to develop and implement strategies to enable the business to thrive in our ever changing business environment. The chief executive must then assemble, inspire and develop a winning workforce team including:

1. Articulating the dairy businesses inspirational mission/vision/compelling vision.

2. Establishing a culture of quality, high expectations and continuous improvement.

3. Developing the organizational structure of the business.

4. Building the workforce team and developing and coaching leadership team members.

5. Seeking professional development opportunities to enable him or her to excel in this newer and less familiar role.

A great chief executive provides visionary leadership enabling the business (dairy business) to achieve extraordinary excellence over a long period of time. The owner can become a great chief executive for their business by making that role the number one priority. Unfortunately, few of us have the discipline to effectively operate as a CE, especially in a part-time role, without some structures to help. We need help maintaining focus on the important but not urgent tasks. Suggested vehicles to implement this priority include establishing a specific time for CE functions, structured meetings, engagement in activates to network with other CEs, professional improvement plans, and techniques for getting our good ideas on paper.

Key Words: Strategy, Leadership, Future

ADSA-SAD Undergraduate Competition - Dairy Foods

203 Dairy products shown to help reduce blood pressure. L. Gaver* and D. Winston, *Virginia Polytechnic Institute and State University*, *Blacksburg*.

Hypertension is a common disorder in which blood pressure remains abnormally high at a reading of 140 over 90 mm Hg or greater. It can be fatal if not detected and treated. Hypertension affects more than one in three American adults; 28% of adults age 18 and older have pre-hypertension. Statistics on hypertension caused the National Heart and Lung Association to begin the DASH Study, a multi-center, randomized clinical study that emphasized fruits, vegetables and fat-free or low-fat dairy products as the ideal diet for reducing blood pressure. The Dietary Approaches to Stop Hypertension Study was conducted in three phases: screening, run-in and intervention. DASH investigators concluded that a balanced diet rich in dairy products is a nutritional approach that can prevent and treat hypertension. They estimate that the DASH diet could reduce coronary heart disease by 15% and occurrence of stroke by 27%. Calcium and potassium are inversely linked to hypertension. Seventy to seventy-five percent of dietary calcium is from dairy products. The DASH diet reinforces the newly updated 2005 National Dietary Recommendations and is the basis for USDA's MyPyramid. The American Heart Association, as well as national guidelines for treatment of hypertension, support the conclusion that increasing dairy products in one's diet will help reduce blood pressure.

Key Words: DASH diet, Hypertension

204 Influence of low-fat dairy products on colorectal cancers. G. S. Christ*, *The Pennsylvania State University*, *University Park*.

Each year over 50,000 people die in the U.S. from colorectal cancer, the second leading cause of cancer deaths. The American Cancer Society estimates that in 2007 there will be 112,340 newly diagnosed cases of colon cancer and 41,420 cases of rectal cancer. Most people receive their dietary calcium from milk and milk products. It is thought that calcium binds secondary bile acids and free fatty acids in the colon, which may reduce colonic cellular proliferation. Alvarez-Leon et al. (2006) cited an inverse relationship between the intake of dairy products and colorectal cancer. Slattery et al. (2004) showed that increasing daily calcium intake up to 1200 mg from low-fat dairy products reduced the proliferation of colonic epithelial cells and returned them to normal differentiation. Holt et al. (2001) placed 40 people, all with initial signs of colorectal cancer, on one of two high calcium diets. Both diets were shown to reduce colonic epithelial cell proliferation. Kampman et al. (2000) concluded consumption of low-fat dairy products was associated with a significant decreased risk of colon cancer in men and women. These findings support an inverse relationship between high calcium consumption and colorectal cancer incidence. As a result of these studies and others highlighting the important role of dairy products in human nutrition and health, the USDA/HHS Dietary Guidelines for Americans 2005 increased the recommended servings of milk/dairy products from 2 to 3 servings per day.

Key Words: Calcium, Low-Fat, Colorectal Cancer

205 Role of dairy products in combating childhood obesity. J. A. Tekippe*, *Iowa State University*, *Ames*.

Childhood obesity continues as a growing health problem in the United States. Currently, 25% of children ages 8 to 19 in the US are overweight and 11% are obese. Several factors, including limited amounts of exercise or activity and the size of fast food portions, have been identified as contributing to this heath concern. Obese youth are at greater risk of developing type 2 diabetes, asthma, and hypertension prior to reaching adulthood. The diets of many American children contain an excess of calories but too little calcium. Over two thirds of American children are not receiving their calcium requirements. Minimum daily calcium requirement of children ranges from 800 mg during their early years to 1,300 mg during the teen years when most growth and bone building is taking place. Several controlled trials have been conducted to explore the relationship between weight loss and dairy products. Most concluded that overweight children consuming a reduced caloric diet that included recommended servings of dairy lost more weight then those who consumed little or no dairy products. The specific mechanism appears to support a role for calcium in weight loss. Specifically, consumption of a low calcium diet results in an increased production of calcitriol and promotes the entry of calcium into fat cells. The calcium in turn inhibits fat breakdown and promotes fat storage. Reducing the incidence of childhood obesity will require a two-pronged approach involving educational programs targeted at helping youth make healthy eating decisions, and motivating them to be more active or exercise regularly. Healthy eating decisions need to address portion sizes and their choice of foods, specifically those that are lower in calories and higher in needed nutrients such as calcium.

Key Words: Obesity, Weight Loss, Calcium