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SYMPOSIA AND ORAL SESSIONS
ADSA Multidisciplinary and International Leadership Keynote (MILK)
Symposium: How Dairy Exporters Can Provide Food Security

301 Making safe, affordable, abundant food a global reality. T. A. Armstrong,* *Elanco Animal Health, Greenfield, IN.*

A growing wave of food insecurity threatens more than 1 billion people globally. Food costs are near record highs. The number of hungry is increasing and could grow staggeringly as the population reaches 9 billion by 2050. Will we allow this to continue, or will we tackle it with solutions that exist today? Technology solutions can help meet food needs, but consumers do not want technology used in food production. Right? To better understand consumer opinions on technology, Elanco commissioned a research review of 28 studies accounting for more than 97,000 consumers in 26 countries. It found that 1) 95% are food buyers. They are either neutral or supportive of using modern technology to grow food. In general, they make purchases based on taste, cost, and nutrition and 2) 4% are lifestyle buyers. They are looking for gourmet, organic, locally grown, or other types of products. Price is not a factor. Food buyers and lifestyle buyers are not mutually exclusive. That leaves a small fringe group with a loud voice that wants to impose their opinions on others. They want to protect consumers from modern food production threats. It is time to stop being swayed by the fringe and shift the dialog toward a more important question: how can we sustainably feed a growing world? The 2 most important ingredients to safe, affordable, abundant food are technology and choice. Technology enables three basic rights: 1) Food, a basic human right. Every child has the right to be fed. Technology affords a more abundant, more affordable food supply; 2) Choice, a consumer right. Whether it is the Chinese consumer who wants to add animal protein to the diet, or the American consumer who wants locally grown, consumers have the right to a broad variety of food choices. Technology helps allow these choices; and 3) Sustainability, which is environmentally right. We will not be able to feed future generations if we neglect our resources. Technology allows more efficient production, which has made it possible for farmers to feed more people while consuming fewer resources and generating less animal waste. With food supplies tight and prices increasing, we have a unique window of opportunity to act. Together, we can make a difference.

Key Words: technology, food

302 How dairy foods aid in food security. V. Lagrange,* *US Dairy Export Council.*

In the past, the WHO-recommended management of severe acute malnutrition required the administration of highly specialized milk-based liquids (F-100) in a hospital environment. Over the past decade, ready-to-use therapeutic foods (RUTF) have been developed as an alternative to treat severe acute malnutrition. These lipid-based products, that can be used as part of community-based treatments, have revolutionized the effectiveness and coverage of programs addressing malnutrition. Recent clinical trials demonstrate the effectiveness of RUTFs on health outcomes for other vulnerable groups, such as HIV AID patients treated with anti-retro viral therapy. RUTF are typically made with skim or whole milk powder, and the intense use of milk can represent up to 50% of the cost of the rations. Alternative formulations containing whey proteins are being tested for the formulation of ready-to-eat supplementary foods (RUSF). In such a trial, the research team developed a recipe meeting the WHO specifications for RUTF

in which milk powder is totally replaced by whey protein concentrate 34% as main source of protein. Based on organoleptic and tolerance acceptability, as well as weight gain (primary outcome), the whey-containing RUSF products were found as effective as traditional RUTF formula. Animal studies are under way to measure the effectiveness of whey permeate in formula used during re-nutrition, and document the application of both lactose and phosphorus found in this ingredient. Other studies pilot the use of RUSF to increase food security for other vulnerable groups such as pregnant and lactating women. Current state of knowledge indicates that cow's milk products have a central role in the treatment of both severe and moderate acute malnutrition. There is growing evidence that their benefit extends to the prevention of malnutrition, and delivery of other desirable health outcomes for vulnerable groups in developing countries.

Key Words: whey protein, milk powder, malnutrition

303 Development of local dairy production: The Indian experience. G. Sohani,* *BAIF Development Research Foundation, Pune, Maharashtra, India.*

Starting from humble levels, India today has the highest aggregate milk production in the world. Production levels have increased from 17 M tons in 1950–51 to over 110 M tons today, with 2022 targets at 180 M tons. In spite of growing population, the per capita milk consumption has also grown from 130 g per day to 263 g per day. Hidden behind the high aggregate production levels there is a skewness - both geographically and among various producer segments. This is a challenge as well as an opportunity. The growth has been through productivity enhancement and creation of processing capacity. Productivity enhancement has been the outcome of not just new technology, but also comprehensive approach covering breeding, feeding and health care, as well the mindset change required for assimilation of new technology. The growth is also unique, through 2 types of bovines: cattle as well as buffalo. The combination has important lessons for dairy development in tropical/sub-tropical parts of the developing world. BAIF, a professional non-profit PVO, has the pride and privilege of having contributed to dairy development in India. BAIF applied cutting-edge technologies for animal production through appropriate adaptations and by creating a novel delivery system to reach the dairy farmers in the remotest locations. This approach is now adopted and emulated across the country. BAIF's program has reached over 4 M farmers directly, and there is regular programmatic contact with close to 3 M farmers in over 50,000 villages of rural India. The value of annual milk production by this group is of the order of US\$3 billion. Moreover, this represents income accrual to small farmers, contributes to their food and income security, and to the nutrition security of an even larger number of households. Future challenges will require expanded breeding programs, fodder/nutrition security, health care, and application of newer technologies such as sexed semen, QTL and ET. The paper covers the Indian journey of four decades, the contexts and achievements, their relevance to the developing world, and emerging needs and directions.

Key Words: dairy development, Indian dairy production, milk production and productivity enhancement