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U.S. LIVESTOCK PRODUCTION TRENDS

KRETANJA STOČARSKE PROIZVODNJE U SAD-u

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Thank you for this opportunity, I am very pleased to be invited to speak at the 2002 Croatian Feed Milling Association meeting. I have been asked to address the issue of U.S. Livestock Breeding and Production Trends. This is a rather broad issue and I hope that I will have identified specific areas that are of interest to each of you. I will touch upon trends in production relating to beef and dairy cattle, swine, and poultry in the U.S., as well as consumer trends and the impact of public perception on animal production today and in the future.

PRODUCTIVITY

Increased agricultural productivity has been one of the most significant farm developments during the second half of the 20th century in the U.S. Productivity gains have been largely due to the availability and adoption of new or improved technologies. Over the past 50 years, agricultural output has increased as the level of inputs has remained constant or declined. The result has provided sustained growth in farm productivity without the need to commit additional resources to the production process. Increased productivity has been a major factor in a farmer's or rancher's ability to stay in business when prices they received for production were relatively low. Meanwhile, increased competition and the need to keep pace with high production levels have forced many low-end producers out of business.

The largest sector impacted negatively has been the small family farm. The end result is a continued shift from small, diversified farms to large, integrated, corporate operations that capitalize on technological advances that continue to drive increased efficiency of production and maximum output. Market shifts have increased over the past 30+ years that have resulted in decreased numbers of retailers, packers, feeders, and farmers, as a continued increase in integration, alliances, and other forms of cooperative production have occurred. Historically, vertical integration and consolidation in the livestock industries wasn't accomplished until health advances brought disease under control. The poultry industry was the first to begin consolidating in the 1950's and 60's. Beef feedlots began to consolidate in the 60's and 70's but the cow/calf industry recently beginning to form more alliances/cooperatives. The dairy industry is expected to complete consolidating by 2010 and the swine industry, which began in the 1980's, will complete the majority of consolidation by 2005. Twenty to thirty years ago, beef, pork and chicken were produced more similarly, through fairly inefficient production methods and with a fairly inconsistent end product. Today, chicken (broilers) is very efficiently produced through large, vertically integrated production systems that have adopted production and processing technologies in order to produce a consistent, consumer-friendly product. Although it began consolidating much later, the pork industry is rapidly changing and integrating to achieve similar consistency and efficiency of product production. While the beef industry, as a whole, is just beginning to integrate through

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alliances. There is still a great deal of resistance to vertical integration by individual, independent producers.

Production contracting has progressed most rapidly in the broiler industry, and nearly all broilers are now produced under contracts between processors and growers. In the pork industry, marketing contracts have also become more popular and packer ownership of hogs has risen in recent years (Martinez, 2002). Contracting and vertical integration provide a means for both reducing transaction costs and decreasing risk for producers. Producers have struggled with vulnerability and risk as processors could delay acceptance of perishable meat and egg products in order to obtain a lower price for the product.

LIVESTOCK IN GENERAL

As stated above, trends are continuing toward larger and more commercialized livestock, dairy, and poultry systems. Relatively low grain and soybean meal prices have been projected and these low prices will continue to encourage livestock expansion (USDA ERS, 2002). However, slow adoption of technology in production processes and poor forage conditions due to drought in recent years are expected to delay higher output for beef in the near future. In the longer term, moderate feed price increases are expected, along with replenishment of forage supplies, low inflation, domestic demand increases, and gains in meat exports (USDA ERS, 2002). These increases are expected to contribute to producer returns that encourage higher total beef, pork, and poultry production.

TECHNOLOGIES

Technologies being utilized in the areas of breeding and reproduction include estrus synchronization, artificial insemination, embryo transfer, as well as the newer technologies of sexed semen and embryos, cloning, transgenics, etc. Separating semen into male and female sperm has a 90% accuracy rate. The technology, used in Europe for years, uses a laser beam to sort the sperm based on the x-chromosome having 4% more DNA than the y-chromosome. In terms of success rates, a 50% pregnancy rate with the sorted sperm versus the traditional 70% is often realized in the cattle industry. In the area of genetics, an increased understanding and utilization of expected progeny differences (EPDs) to measure genetic superiority for numerous traits such as milk production, percent lean, marbling, etc., is occurring. Genomic technologies include identifying gene markers for Quality Trait Loci (QTL). Currently, markers are being evaluated for tenderness, marbling, and ribeye area in beef cattle, as well as temperament and docility in swine in order to increase rate of gain. The broad benefits of this technology include identification of superior offspring based on carcass or production traits, verification of breed or sire, and source verification of product in the retail case. "Source verification" is of interest to beef and sheep producers so that products from individual animals can be traced back to the farm. This animal identification will ensure that producers are paid for superior animals, as well as to provide better tracking for health and food safety concerns. Animal nutrition and health technologies are being continually applied and re-evaluated. Within nutrition, early weaning, growth promotants, diet formulation, time on feed, slaughter age, etc. are considered. The use of applied technologies such as ultrasound is increasingly used to quantify livestock carcass traits. For example, ultrasound data is used as a primary selection criterion to identify leaner hogs - although the pork industry has adjusted slightly from over-lean hog production that had a negative effect on number of pigs farrowed and weaned per sow. Cloning technologies are also of great interest; however, these are not likely to be cost effective in the near future. Some benefits of cloning applications are rapid propagation of genetically superior animals, acceleration of progeny testing, increased product uniformity, and enhanced disease resistance. However, the drawbacks of high mortality rates and very high cost per animal produced are not likely to be overcome in the short-term. Additionally, the latest applications of biotechnologies are now resulting in transgenic "Pharm" animals (cattle, sheep, goats, chickens), including sheep that produce human proteins in

their milk, goats that can be milked for spider web proteins, and chickens that can produce useful drugs in their eggs. Again, the costs associated with implementing these very new technologies are still much too high to encourage wide adoption within agricultural production.

FOOD SAFETY

The series of food safety "scares" in Europe over BSE, FMD, Dioxin, E.coli and others have caused consumers to be very discerning about food systems. The lack of first-hand knowledge about farming practices has led to a perception that large operations house animals in "horrific" conditions, pump the animals full of chemicals to make a profit, then dump unhealthy meat onto the market (Peet, 2002). The tabloid press in Europe and the U.S. has played upon those fears and perceptions. European governments have implemented increasingly strict regulations for the environment, food safety and animal welfare. Food chain participants have enacted Quality Assurance programs to help reassure consumers (Peet, 2002). The situation now in North America is approaching what Europe saw 10-15 years ago.

As mentioned previously, source verification or "traceability" (farm-to-fork traceback) is become an important component of the beef industry. If you purchase beef at a Tesco supermarket in Ireland, the name, address and telephone number of the person who produced the animal from which the meat was derived is a part of printed cash-register receipt. In Ireland, New Zealand and Australia, muscle or blood samples are taken from individual cattle and lambs so that matches can be made (using DNA fingerprinting) between animal and specific meat cut if a problem (e.g., chemical residue, unsatisfactory palatability) occurs with a product sold at retail. Present thinking in the U.S. is that traceback to all animals produced by a supply chain, rather than traceback to individual animals, will be the manner in which traceability is accomplished in the future.

In the U.S., feeding low doses of antibiotics has been employed widely in the cattle, swine and poultry industries. The use of antibiotics in feeds has resulted in increased feed efficiency and an increased growth rate. However, concern regarding antibiotic resistance in humans has increased pressure to restrict use as well as labeling on such feed additives. It is anticipated that in the near future all antibiotics currently used as common feed additives to healthy animals will be phased out through regulations.

ANIMAL CARE AND WELFARE

Animal care and animal welfare issues are increasingly of interest and concern, both to producers and others involved in the food production chain, as well as the general public. It is through public interest and pressure that this issue continues to gain attention. Groups like People for the Ethical Treatment of Animals (PETA) have forced the largest quick-service restaurant companies in the U.S. (McDonalds, Burger King and Wendy's) to develop animal management and welfare guidelines for their suppliers of beef, pork, poultry, seafood and dairy products. It is likely that the same pressure will be applied to supermarkets as well as to on-farm production of livestock. Some companies have already implemented farm-to-fork animal welfare programs with objective, practical and rational measurement systems based on scientific information as well as quality assurance audits that will measure adherence to the adopted system. The American Society of Animal Science (ASAS), through the Federation of Animal Science Societies (FASS), is participating in activities intended to develop both humane animal production guidelines as well as the certification/measurement tools needed for implementation of these guidelines.

ENVIRONMENT

Similar to animal welfare issues, environmental issues have gained increasing importance primarily due to public interest and concern both in Europe and more recently in the U.S. This public interest has driven the U.S. Environmental Protection Agency (EPA) to develop guidelines regulating the waste management and treatment of both animal feeding operations (AFOs) and large confined

animal feeding operations (CAFOs). The likelihood exists that more poultry and pork production will increasingly move to countries with less restrictive environmental, and in some cases animal welfare, standards. Some states, such as Iowa, are reacting to public concern by making all information available via the web regarding large confinement operations that have state permits (beef, dairy, layer, hog, turkey). Scientific response has focused on producing new technologies to combat groundwater pollution as well as odor and air pollution. Specifically, some of the more interesting field trials in these areas involve use of a compound that absorbs phosphates and ammonia (nitrates), produced by livestock. Additionally, researchers at USDA Meat Animal Research Center (MARC) have developed a combination of naturally occurring oils (thymol and carvacrol) to inhibit odor-causing microbes in manure. These oils are extracted from common herb plants and are environmentally safe. The mixture of the oils can be spray-applied to lagoons and feedlots.

BEEF CATTLE

Total beef cattle numbers have been held down by droughts and poor forage conditions over the past several years, which have encouraged more heifers to be placed in feedlots rather than retained for calving even as cattle returns have improved (USDA ERS, 2002). Drought conditions are continuing this spring across the U.S. The length of the biological lag is likely to prevent beef cowherd expansion before 2004-2005 and the cattle herd is predicted to hit a cyclical low near 96 million head in 2003-2004 (USDA ERS, 2002) prior to trending upward. Shifts toward a breeding herd of larger-framed, higher-grading (quality scored) cattle with heavy slaughter weights will partially offset the need for further expansion of cattle inventories. Beef production will continue to shift toward a larger proportion of higher-quality fed beef, with almost all steers and heifers being feedlot fed. Beef production also continues to move toward higher quality products being directed toward the export and domestic hotel-restaurant markets. The U.S. remains the primary source of high-quality fed beef for export, largely to Pacific Rim nations (USDA ERS, 2002).

CHANGES IN THE BEEF INDUSTRY

Future beef production will involve application of technologies in all links of the production, feeding, processing, and marketing chain and the cow-calf producer will continue to be a foundation player in the beef industry. Fifty percent of the beef animals produced in the U.S. today come from cow-calf operations with less than 100 animals, but producer application of even basic technology (in management, breeding, reproduction, nutrition, and ethical and environmentally sustainable beef production) is at a low level in these operations. This is unfortunate since these producers are missing financial advantages offered by technology adoption and are going to suffer if they continue to produce cattle that do not meet consumer-dictated industry standards.

Future beef production will likely be based on "committee" decisions with committee members representing people in various positions in the production chain. This change will reduce the independence of decision-making by individual operators throughout the system and will lead to various forms of vertical integration. Large feeders, processors, and marketing companies will dictate what products they will accept and for what products they will pay premium prices. For example, beef supply-chains, which are vertically-coordinated, farm-to-fork, sequences of beef-production operations in which producers, feeders, packers and retailers work collectively to meet consumers' wants and needs for beef products, are increasingly prevalent. These supply-chains often represent a collective set of interdependent strategic alliances between full partners. In many of these supply-chains, genetic, management, and humane handling practices are specified and adhered-to by those in the production sector; and diet, supplementation with Vitamin E, use of medicines/drugs, and time-on-feed in the feedlot are controlled. In many supply-chains, Palatability Assurance Critical Control Point (PACCP) systems are increasingly used to ensure that the beef will be flavorful, juicy, and tender while Hazard Analysis Critical Control Point (HACCP) systems are nearly universally used to assure that the products are safe, healthy, and wholesome.

NICHE MARKETS

Ten years ago it was rare to see more than two kinds of fresh beef in self-service cases of supermarkets, usually as beef of the USDA grade featured by that store plus either a high-quality product or a "Natural" product. There are now supermarkets which merchandize five kinds of fresh beef (steaks, roasts, thin meats, ground meats). "Branded-beef" is gaming market share in supermarkets with many supermarkets now wanting to capture some or all of the advantages of branding beef for themselves ("owning" the brand) as opposed to forfeiting them to others (e.g., Certified Angus Beef). Consumers in the U.S. will pay a premium for beef promoted as "lean," "tender," or "Natural". For example, they will pay a premium for lean in ground beef. Studies conducted by National Cattlemen's Beef Association, Kansas State University, Texas A&M University and Colorado State University demonstrate that, with USDA Quality Grade held constant, consumers will pay 50 to 60 cents per pound premium for "guaranteed" or "verified" tender beef. There are premiums of $0.50 to $3.00 per pound for "Natural" beef for which production-practice claims (no hormones; no antibiotics; fed vegetarian diets) are made.

DAIRY CATTLE

Milk production is expected to grow despite slowly declining cow numbers as strengthening milk-feed price ratios, improved management, and dairy productivity gains push milk output per cow higher (USDA ERS, 2002). However, domestic dairy demand is expected to show slow growth overall (USDA ERS, 2002). While demand remains strong for processed milk products such as cheese, yogurt, and butter; overall demand for whole, skim and other lowfat milk is expected to remain fairly steady.

Productivity gains in the dairy sector will reflect the continued structural shift to larger-sized operations as many traditional dairy farms, particularly smaller operations, will experience income stress and will exit the industry. The largest 2.5% of dairy farms (2680) have 31% of all dairy cows in the U.S. and produce 36% of the milk (Taylor and Field, 1998). Additionally, a continued migration of dairy farms is expected from the Northeast to both the Central Plains and Western regions of the country.

CHANGES IN THE DAIRY INDUSTRY

The dairy industry provides another example of significant production increases achieved during the past century, primarily through the application of genetic information. The number of cows milked was at the century's high in 1944, when an average 25.6 million head produced 117 billion pounds of milk (USDA NASS, 2002). Since then, the number of cows has steadily dropped. Less than 20 million head were milked in 1957 and in 1990 the average number fell to less than 10 million (Taylor and Field, 1998). Conversely, annual average production per cow has risen dramatically. Selection for milk production has resulted in doubling the pounds of milk produced per cow from 1960 to 1990 (Taylor and Field, 1998). Annual production per cow was 4,572 pounds in 1944. The average exceeded 5,000 pounds per cow for the first time in 1947 and 6,000 pounds was topped in 1956 (USDA NASS, 2002). The first 10,000 pound average was achieved in 1971 and 17,000 pounds per cow was reached in the late 1990's (USDA NASS, 2002).

TECHNOLOGIES AND PRODUCTION TRENDS

Dairy producers in the U.S. have found that increasing the number of cows while keeping overhead low is the key to staying in business and making a profit. Well-ventilated, comfortable bams that are full of cows weather many price declines if the cows are in good health and milking well. Milking parlor setups that allow maximum numbers of cows to be milked in a short period of time as well as requiring low labor inputs, barn size and low cost bedding, as well as high quality forages, roughage, and feeds, are primary factors of consideration. Milking parlor technologies such as automated milking, which decrease the amount of labor input, are a new trend with increasing adoption in the U.S. Dairy producers are meeting to

exchange information and form alliances in areas such as labor, equipment purchases and input acquisitions. With the advent of milk futures, marketing clubs are also starting to emerge.

Farmers who adopt additional new technologies, while increasing production and holding costs low, will continue to be at a competitive advantage over those who do not move as quickly with adoption of newer technologies. In addition to the tremendous changes that have occurred due to use of genetic information in the dairy industry, application of reproductive technologies (artificial insemination, estrus synchronization, embryo transfer, cloning, etc.) continues to occur. Sexed semen and embryos also have great potential for application in the dairy industry. As with any selection-based breeding program, other areas of management need to be monitored and adjusted carefully. The interactions of applying reproductive and genetic technologies require strict attention to the nutritional needs of high producing dairy cattle: the resulting changes in growth and development, the genetic potential of significantly enhanced production output, additional health needs, as well as potential implications of and to the environment, etc. This is especially true of producers who use bST, or bovine somatotropin, to increase production in their top cows. The advent of genetic engineering has allowed for production of large quantities of this hormone for use in cattle. Injections of bST can increase milk production of dairy cows by 15% around peak lactation and even greater in late lactation, and have resulted in greater productivity of the U.S. dairy industry in recent years (Campbell et al., 2003). Injection of bST every two weeks beginning at nine weeks of lactation has become a common procedure for enhancing milk production in dairy cattle (Campbell et al., 2003). However, to be effective, bST administration must be accompanied by an increase in feed intake. Administration of bST does not affect reproductive performance or susceptibility to mastitis; however, difficulties in reproducing or increased incidence of mastitis do occur in association with high milk yield in cattle.

Additionally, management of cows during lactation curves with the intent of extending the lactation curve may be a key factor in increasing performance and production of individual cows in the future. There is increased focus by producers in regard to the potential of extending the lactation curve of high producing cows to greater than 18 months (in comparison to the typical 12-13 month currently used for high producing cows). If this is accomplished, current practices for the time of rebreeding following parturition, nutrition before and after peak lactation, and the need for a dry period may all be changed.

PORK

Producers only recently have been able to make up for the losses that occurred in 1998-99 when U.S. prices for hogs dipped to $8. Profit/loss margins have shifted since this time from approximately $22 losses/hog to $25 gains/hog (Martin et al., 2002). Pork production is expected to continue to rebound in 2002 and 2003 with moderate expansion occurring in the long term (USDA ERS, 2002). The pork sector will continue to transform into a more vertically coordinated industry with a mix of production and marketing contracts (USDA ERS, 2002). Increased vertical coordination in pork production will continue to lower production costs and improve pork quality and product consistency, resulting in timely production of pork products with characteristics desired by domestic and foreign consumers. Larger, more efficient pork producers will market a greater percentage of the hogs over the next 10 years (USDA ERS, 2002). The top six producers in the U.S. (Smithfield, Premium Standard, Seaboard, Cargill, Farmland, and Clougherty Packing) control approximately 1.8 million sows, which is 30% of the U.S. industry. The largest producer in the U.S., Smithfield Foods, contracts 50% of sows, 75% of nursery pigs, and 75% of finishing hogs through 1300 independent family farms (Coffey, 2002). Through contracting, Smithfield controls production of 12 million of the 100 million hogs produced in the U.S. annually (Coffey, 2002). Smithfield incurs approximately 60-70% of their costs in the area of nutrition and maintains complete feed manufacturing control through owning nine mills in five different states (Coffey, 2002).

The restructuring of the Canadian and U.S. pork sectors will continue the development of an

integrated North American pork industry. The United States is an important net pork exporter, in part reflecting land availability and environmental constraints in a number of competing countries that limit their production gains. Prospects for long-term growth markets for U.S. pork exports remain focused on Pacific Rim nations and Mexico (USDA ERS, 2002). Canada will increasingly compete for trade in these markets and currently provides the greatest number of feeder pigs to the U.S. (32,000/wk from Manitoba; Martin et al., 2002).

PORK PRODUCTION TRENDS

In the last 10-20 years, the evolution of pork production has shifted from producers who owned diversified farming operations and who produced pork as an alternative market for grain to highly integrated food producers. Integrated food production has evolved from an industrialized model which has focused on efficient, least cost production of lean meat to the highly integrated conglomerates of today that are primarily consumer driven, with cost and quality controlled production of food made from pork. The rapid vertical integration that has occurred in the swine industry has yielded multiple-site production systems and very large operations that were unheard of ten years ago. Multiple-site production involves moving pigs to a separate site/location between three phases of production: farrowing, nursery, and grower/finisher.

The integrated production processes employed in current systems rely on a very high degree of scientific expertise in regard to genetic selection and breeding, feed and diet formulation for each stage of production, as well as housing systems, health care, environmental control, and animal care and management. Swine genetics companies exist to provide semen to sow operations. Artificial insemination (AI) is the most frequently used mating method for breeding sows and gilts, with approximately 70% of all females bred by AI (USDA APHIS, 2002). Traditional methods of improving both genetics and production efficiency such as culling sows with high pre-weaning mortality, low birth rates, lower quality genetics, lameness and/or that are old are frequently employed. As sow genetics have focused on fecundity, the current average is 10 live pigs born per litter and 9 weaned/sow with average weaning age ranging from 16-28 days (USDA APHIS, 2002). Due to advances in nutrition that yield excellent growth rates, the average time to market ranges from 166-209 days for the majority of pigs raised commercially in the U.S. (USDA APHIS, 2002). Biosecurity to prevent introduction of disease into a swine site is employed by nearly two-thirds of all swine production sites in the U.S. (USDA APHIS, 2002). Additionally, safety methods employed on-site to prevent and contain disease through the various stages of production are very popular. All-in/all-out and continuous flow are two management methods of pig flow on swine sites. Continuous flow is most often employed in gestation facilities, where all-in/all-out management by room, building or site is used more frequently in farrowing, nursery, and finishing facilities (USDA APHIS, 2002). All-in/all-out management means that every animal is removed from a room, building or site that is then cleaned and disinfected prior to placing new animals in the facility. For example, because respiratory disease remains the greatest cause of death for pre-weaned and growing/finishing pigs, segregated early weaning (SEW) is employed as a disease control management strategy that includes moving early weaned pigs (20 days or less) to a separate site. Larger producers are more likely to practice SEW than smaller sites (USDA APHIS, 2002). Additionally, total confinement is the most common type of facility for all phases of production, except gestation.

POULTRY

Broiler production is expected to continue to grow steadily, but gains will be slow due to the maturity of the sector (USDA ERS, 2002). The broiler and turkey industries have kept production costs from increasing through technological advances and improved production management practices, including taking advantage of economies of size through increasing horizontal and vertical integration. Although further technological improvements are expected to occur, efficiency gains are likely to be smaller than in the past. Processed products and fast food markets are

important sources of domestic growth for the poultry sector. Competition in global poultry markets, where the focus is on low-valued products, holds U.S. poultry exports to moderate gains (USDA ERS, 2002). Asian imports are projected to expand through the baseline, even with growing domestic broiler production in China, with exports to Mexico and Russia also expected to increase (USDA ERS, 2002). China's accession to the WTO is expected to provide a modest increase in imports of key bulk commodities in the next few years, but most benefits to US farmers will occur several years down the road.

CHANGES IN THE POULTRY INDUSTRY

The broiler industry has been one of the largest success stories in American agriculture during the last century and is an example of how the use of technology, improvements in production practices, and product marketing can change the basic structure of agriculture. Broiler meat has been improved and is now a healthy, nutritious, convenient product available at a price lower than it was 50 years ago. Broilers have the best feed conversion ratio of any domesticated land-based animal (Taylor and Field, 1998). The broiler industry has evolved from millions of small backyard flocks of dual-purpose (eggs and meat) chickens in the early 1900's to less than 50 highly specialized, vertically integrated agribusiness firms (USDA NASS, 2002). Until 1920, chicken meat in the U.S. was considered a luxury reserved for special occasions. At this time, chickens were primarily a by-product of egg production. In the mid 1920's, production of chickens for meat reached significant levels, and the poultry industry in the U.S. began it's evolution. Broiler production emerged in the 1930's as a separate industry that operated year-round, rather than only one producing seasonal spring chickens. Scientists developed ways to meet the nutritional needs of chickens kept in protective environments, making large-scale, year-round production possible. During World War II, the biggest broiler customer was the U.S. army. After the war, more emphasis was placed on integration of production and marketing processes. In the 1950's and 1960's, vertical integration became common, with a single company involved in every process, stabilizing the rapidly changing relationships between inputs, production, and marketing segments (USDA NASS, 2002). Vertical integration allowed the broiler industry to take advantage of new production and processing techniques in order to become more efficient, responsive, and profitable.

In the 1970's and 1980's the broiler industry continued to implement improved production practices involving nutrition, disease eradication, genetics, and meat processing. United States chicken consumption surpassed pork consumption in 1985 and beef consumption in 1992. Many of the structural changes that had taken place in the poultry industry began to take root in these other agricultural industries later in the century. In the 1990's, the U.S. Government helped sponsor broiler parts exports. The volume of exports skyrocketed to approximately 17% of American production (USDA NASS, 2002). In 1999, USDA required the Hazard Analysis and Critical Control Points process in all federally inspected poultry slaughter establishments. Combined with an additional program of pathogen reduction, this modern approach to quality control is aimed at increasing food safety.

EGGS

Per capita consumption of eggs is expected to rise moderately. Processed egg products will become an increasing part of the egg market, in part due to fast food establishments expanding breakfast items that often incorporate egg products.

FOOD PRICES AND EXPENDITURES

Retail food prices in the baseline are projected to rise less than the general inflation rate, continuing a long-term trend (USDA ERS, 2002). The largest price increases generally occur among the more highly processed foods, such as cereals and bakery products. Retail prices of these foods are related more to the costs of processing and marketing than to the costs of farm commodities. Expenditures for meals eaten away from home account for a growing share of food spending,

reaching nearly 50 percent of total food spending by the end of the baseline (USDA ERS, 2002).

Decreases in real prices of meats combined with increases in real disposable income allow U.S. consumers to purchase more meat with a smaller proportion of disposable income. Small declines in per capita consumption are projected for beef and pork, while increases continue in per capita consumption of relatively lower priced poultry (USDA ERS, 2002). Thus, poultry gains a larger proportion of both total meat consumption and total meat expenditures.

Recently, prices have declined fairly dramatically. This has primarily been due to near record production of all meats this year - up 2.6 percent from the same period in 2001, record high dressed weights for cattle, poultry and hogs - due primarily to a mild winter, the Japanese safeguard tariff that was in place until March 15, plus Japanese holidays in early April, and cessation of poultry trade with Russia March 10 to late April (the U.S. exported 224 million lbs of chicken to Russia in January) (Meyer 2002). Additionally, year-ago meat prices in the U.S. were buoyed by FMD problems in Europe.

AGRICULTURAL COMMUNITY

Over the past 100 years, the U.S. agricultural sector has become one of the most productive in the world, and U.S. citizens have become accustomed to a safe and relatively inexpensive supply of food. Despite the sharp decline in the number of citizens involved in production agriculture over the past century, there is some recognition that families involved in farming and the diversity of farm operators are important to the cultural identity of our country. The continued trend is of decreasing numbers of family farms and persons working in agriculture. Fewer persons in the U.S. understand the importance of agriculture or where their food comes from. "Milk comes from a store" and "burgers come from McDonalds" are the general consensus of many urban Americans. Over the past few decades, the percentage of persons with immediate ties to food production has decreased to less than 18% of the population, with less than 2% producing food directly. The general public not only doesn't understand where and how food is produced, but they also don't commonly trust the individuals and companies who are producing it. This is especially true of larger companies in the food sector. Legislators also seldom have ties to agricultural backgrounds, nor do they have large agricultural constituencies. Therefore, farm policy, including additional funding for agriculture research, has not been very effectively constructed or implemented. With no increase in funding for agricultural research, the opportunity to continue to identify and adopt new technological advances is not positive in the future.

THE FUTURE

What revolutionary changes are in store for agriculture in the foreseeable future? We will likely see continued specialization and growth in the areas of sustainable agriculture, organic farming, niche farming, and direct marketing. The promise for genetic engineering to lower costs, improve production, and reduce the impact of farming on the environment still must be realized. A trend toward biobased energy products, as an alternative to those made from petroleum, could have a profound impact on the future role of agriculture in this country. The increasing use of technology, such as computers and global positioning systems, in the production and marketing of commodities also provides a glimpse of what is to come.

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SAŽETAK

Zahvaljujem na ovoj prilici. Vrlo mi je drago da sam pozvana govoriti na 2002. skupu udruženja hrvatskih proizvođača krmiva. Zamoljena sam da govorim o kretanjima u uzgoju i stočarskoj proizvodnji u SAD. To je prilično opširno pitanje te se nadam da ću prepoznati određena područja koja će vas zanimati. Osvrnut ću se na kretanje u proizvodnji u svezi s mesnim i mliječnim govedom, svinjama i peradi u SAD kao i o tendencijama potrošača te djelovanju javnog shvaćanja proizvodnje životinja danas i u budućnosti.