Goat Species: Export Potential, Market Outlook, and Value-Added Processing

868 Export potential, market outlook, and value-added processing of goat fibers. C. J. Lupton*, *Texas Agricultural Experiment Station, Texas A&M University System, San Angelo*.

Goat fiber production in the USA is examined from the perspectives of world production, export potential, market outlook, and adding value. Fibers harvested from more than 85 million goats in 12 countries make up about 0.04% of the world's annual textile fiber production. Cashmere, the fine (mean fiber diameter (MFD) less than 19 microns) undercoat combed or shorn from numerous breeds of goat, comprised about 15 million kg (mkg) of this total in 2003, whereas mohair, shorn from the Angora goat, constituted about 6.60 mkg. Only a very small amount of the cashmere (about 3,000 kg) and 0.75 mkg of the mohair were produced in the USA. Cashmere is more valuable than mohair. Commercial quotations for cashmere (dehaired Chinese white) currently range from $57 to 68/kg, whereas greasy mohair sold in the range $4/kg (MFD greater than 34 microns) to 18/kg (MFD 24 to 26 microns) in a recent South African sale. The small quantity of US cashmere prohibits export. In contrast, the majority of US mohair is exported, most with little or no added value. Value adding opportunities exist in post-shearing, processing, and textile manufacturing systems. These include skirting, classing, and objective measurement of the raw material before sale; scouring; dehairing (in the case of cashmere); production of sliver, yarn, and fabric (knitted or woven); end-product manufacture; wholesale; and retail. Participation in these opportunities in the USA ranges from none to all of the above. Examples of the latter are activities of the Cashmere America Cooperative and the Mohair Council of America that include retaining ownership of products all the way through retail. Participation in value adding through intermediate stages (e.g., scouring, dehairing, hand spinning, and hand knitting) is practiced by many individuals and groups throughout the country at the cottage industry level. The market outlook for both cashmere and mohair is good. Inclusion of mohair in the 2002 Farm Bill should provide growers with greater financial security through 2007.

Key Words: Goat Fibers, Cashmere, Mohair

869 Marketing slaughter goats and goat meat products. T. L. Stanton*, *Cornell University, Ithaca, NY*.

The survivability of our US meat goat industry is dependent on improving its accessibility and desirability to our consumer base. Goat meat consumption in the US has grown sharply in the last 10 years. The goat slaughter rate at USDA inspected facilities climbed from 207,893 goats in 1991 to 595,500 goats in 2002. Imports from our largest importer, Australia, increased from approximately 3 million pounds in 1990 to 17 million pounds in 2003. At 40 lbs, the largest carcass popular with most importers, this is equal to 425,000 more goats. Increased consumption is driven by the popularity of goat meat with the diverse ethnic groups that immigrate yearly to the US and also the popularity of heart-friendly, ethnic foods. However, desired goat meat products need to be readily available year round to encourage consumers and processors to continue these dietary preferences. It is counterproductive if goat meat is available only sporadically, specific carcass preferences are ignored, people are made to feel unwelcome when seeking out goat meat through established channels, or if our marketing infrastructure collapses in on itself and offers all of us fewer marketing choices. There are many marketing strategies that producers can adopt to reap more of the market share of their goats. Almost all of these require extra investment in labor and/or capital. Educational institutions can aid meat goat producers by maintaining web-based marketing services directories to facilitate easy access to potential buyers and slaughterhouses, moderating email list serves that allow producers to group together to meet volume demands of specific markets, creating fact sheets on marketing goats through various channels, and presenting case studies on market pools, etc. Programs that help producers and buyers to find each other and arrange necessary market logistics will help maintain and expand our meat goat industry. The goat meat market is highly diverse in part because its customers and producers reflect a wide range of life styles and needs. Presently, programs that provide producers with a wide range of marketing opportunities may help the industry more than establishing a "one size fits all" marketing model.

Key Words: Goat Meat, Marketing

870 Value-added processing and consumer preference of goat meat. K. W. McMillin*, *Department of Animal Sciences, Agricultural Center, Louisiana State University, Baton Rouge*.

Value-added food products have been changed in form, function, or grouping to increase their economic value and/or appeal. Goat meat value is increased with fewer market channel steps or decreased distribution costs, in specific uniform or consistent groups, after processing into more palatable or usable forms, or when available in a different form or at a different time more highly demanded by the purchaser. The fat in primal and retail cuts from kid goats is increased with feedlot or concentrate diets, which lessens the ethnic consumer and processing market value. Value is increased with year-round availability compared with limited seasonal supplies. Meat from kid and yearling goats was not distinguishable by ethnic consumers unless the meat was from goats with low conformation. The consistent size, conformation, and characteristics of imported frozen goat meat has made it acceptable in some markets and its value is increased when shipped as wholesale or retail portions rather than as carcasses. Institutional Meat Purchase Specifications (IMPS) for goat meat provide descriptions of cuts and size uniformity. Processed meat research has been with products or with processes similar to those of other meat species. The tenderness of domestic goat meat is improved with electrical stimulation and postmortem aging of carcasses and blade tenderization of cuts. Addition of oat trim or oat bran reduced fat and shear value while tocopherol antioxidant addition improved shelf-life of goat meat patties. Smoked and fermented sausages from goat meat are acceptable, but more expensive per unit weight than sausages from other species. The emulsification capacity of goat meat proteins is high, with palatability of frankfurters increased with use of mechanically separated goat mince. Goat meat was distinguishable from other species in plain and seasoned meat loaves, chili, curries, and patties. Specific organic acids are associated with goat meat flavor and oxidized or warmed-over flavors develop more rapidly in cooked goat meat than in meat from other species. More convenient product forms and availability would increase value of goat meat to ethnic and non-traditional consumers.

Key Words: Goat, Meat, Processing

International Animal Agriculture: Animal Agriculture in Global Context

871 Setting research agendas for animal science in a global context. M. Gill* and R. Dyer, *Macaulay Institute, Craigiebuckler, Aberdeen, Scotland*.

The world is changing fast, but not homogeneously! Meat consumption in some countries is increasing rapidly, in others decreasing. World Trade is a political issue, favoured by some, rejected by others. Climate change is recognized as an urgent issue by some less by others. What does all this mean for research in animal science?

I will discuss the importance of being aware of global trends and of translating these into potential policy requirements in terms of setting research agendas. 'Thinking globally while acting locally' will be one theme. A second theme will be inter-disciplinarity. Increasingly it is recognized that policies need to be 'joined-up', water is a good example. In Europe, the Water Framework Directive builds on a number of other policy directives and is a good example of what future policies might look like.

I will use at least 1 Case Study to illustrate how inter-disciplinary projects can be developed to meet policy needs. The Case Study is from the Philippines, where the original aim was to test the hypothesis that intensive livestock production systems inherently have more negative impacts on the environment than small-scale systems. During its implementation, the project has evolved to interest experts in water quality, economists and medics with an interest in environmental health issues in addition to animal scientists. The project has also been discussed with both people living in the communities and with policy people in government departments. I will describe the process and how

the mix of disciplines involved have added value to what is an animal production problem.

Key Words: Environment, Inter-Disciplinary, Policy

872 Today's poultry industry from a global perspective. P. Aho*, *Poultry Perspective, Storrs, CT*.

In the last 50 years the world consumption of chicken eggs increased from 5 to 10 kilos. Chicken meat consumption rose from 2.5 kilos to 10 kilos. While most people have benefited from the overall increase in poultry consumption, the distribution of these products is far from uniform. Using information from the World Bank and the Food and Agriculture Organization of the United Nations, an estimate was made of average income(purchasing power parity)and consumption of chickens eggs and meat by income quintile. The estimates demonstrate a correlation between income and poultry consumption. The future consumption of poultry products will also be influenced by income distribution. This kind of analysis can be useful for market studies either globally or within individual countries.

Purchasing power parity income quintile and chicken/egg per capita consumption in kg

Quintile	Yearly Income	Chicken	Egg	Total
1	$26,000	22	18	40
2	$7,000	15	14	29
3	$4,000	9	9	18
4	$2,000	3	6	9
5	$1,000	1	3	4
Average	$8,000	10	10	20

Key Words: Income Quintile, Egg Consumption, Chicken Consumption

873 Withdrawn by author. , .

Animal Behavior & Well Being III

874 Choice of attractive conditions by beef cattle in a Y-maze just after release from restraint. T. Ishiwata*[1], R. J. Kilgour[2], K. Uetake[1], Y. Eguchi[1], and T. Tanaka[1], [1]*School of Veterinary Medicine, Azabu University, Sagamihara, Japan,* [2]*Agricultural Research Centre, NSW Agriculture Trangie, NSW, Australia*.

To determine the attractiveness of different conditions to cattle, 189 Angus heifers were individually allowed to enter a choice area after 2 min of restraint in a crush to choose between 2 pens. After the animal had chosen a pen, she could freely access both test pens and the choice area for 5 min. In experiment 1, each heifer was given one of the following choices: pen with 3 familiar animals (Peers) vs. pen with a pile of hay on a metal rack (Food) (n=34); Peers vs. the bare pen (Bare) (n=34); Food vs. Bare (n=35). More heifers chose Peers over Bare (χ^2=5.76; P<0.05). More heifers tended to choose Peers over Food (χ^2=2.94; P<0.10), whereas Food and Bare did not differ. The latency to choose either pen was shorter (P<0.01), and they spent less time staying near the crush (P<0.05) if Peers was one of the two choices. After choosing, more heifers entered the Peers pen than the Food (P<0.05) and Bare (P<0.01) pen. Peers were the most attractive for heifers, and food was as least attractive as the bare condition was. In experiment 2, another 86 heifers were given one of the following choice: pen with a familiar handler standing inside (STI) vs. pen with a novel object (NO) (n=29); pen with the handler standing outside the pen (STO) vs. NO (n=29); pen in which the handler is sitting inside (SI) vs. NO (n=28). Fewer heifers chose the pen with the human (χ^2=9.97, 12.45 and 7.00 for STI, STO and SI, respectively; all P<0.01). Except for the choice of STO vs. NO, the number of heifers that had voluntarily chosen either pen was larger than that of heifers that had not chosen 5 min after release (both P<0.01). The number of times in which the NO pen was entered was larger than the STI and STO (both P<0.01), although the numbers of times in which the SI and NO pens were entered was not different. Heifers avoided human, especially with them standing outside the fence. Heifers seem to recognize the sitting human as a kind of object.

Key Words: Beef Cattle, Behavior, Preference Test

875 Out-wintering pads (owp) for steers- animal wellbeing and production. M. C. Hickey*[1], A. P. Moloney[2], and P. French[2], [1]*Teagasc Beef Research Centre Grange, Dunsany, Co. Meath, Ireland,* [2]*Teagasc Beef Research Centre, Dunsany, Co. Meath, Ireland*.

Indoor slatted floor accommodation raises fundamental concerns for animal wellbeing. The objectives of these 2 experiments were to evaluate the effect of accommodating steers, on OWP or indoors on slats a) with or without daily exercise, b) with access to an OWP or c) with modified slat surfaces, on animal wellbeing and production. In experiment 1, 54 steers were assigned to one of 3 treatments (i) slats at 3m^2/hd, (ii) as with (i) but walked 4km/d or (iii) accommodated on an OWP. In experiment 2, 75 steers were assigned to one of 5 accommodation systems (i) slats at 2.5m^2/hd, (ii) OWP at 18m^2/hd, (iii) slats at 2.5m^2/hd with access to an OWP, (iv) rubber matted slats at 2.5m^2/hd or (v) straw bedding at 4m^2/hd. Animals were offered grass silage ad-lib and 6kg grain daily in experiment 1 and a silage/grain mixture in experiment 2. Diurnal lying and eating behavior, hoof health, cleanliness, feed intakes, liveweight and slaughter data was recorded. Both experiments were of 5-month duration after which all animals were slaughtered. There was no effect of treatment on the duration of time spent lying or eating on either study. In experiment 1 animals accommodated on slats were dirtier (p<0.01) than animals accommodated on OWP, and had a greater incidence of medial erosion (p<0.05) on the hind, and lateral and medial erosion on the front hoof. Animals on the OWP had higher (p<0.05) feed intake and carcass gain than animals on slats. The inclusion of daily exercise did not affect animal behavior, intake or carcass gain. In experiment 2, when given access to an OWP, animals chose to lie outside irrespective of weather conditions. Animals accommodated on slats were dirtier (p<0.05) and had lower carcass gain (p<0.05) and feed intake (p<0.01) than animals accommodated on or with access to OWP. The provision of straw bedding or rubber matted slat surfaces did not affect behavior, feed intake or carcass gain, relative to animals housed on slats. In conclusion, the performance and wellbeing of steers was enhanced when accommodated on OWP rather than slats with or without modified surfaces.

Key Words: Beef Production, Outwintering, Slatted Accommodation

876 Effect of feeding Ascophyllum Nodosum on thermoregulation, behavior, and dehydration of sheep subjected to 12-h of transport. G. S. Archer*, T. H. Friend, C. Iacono, P. Krawczel, and R. Johnson, *Texas A&M University, College Station, TX*.

In order to determine the effect of feeding the seaweed A. Nodosum on thermoregulation, behavior and dehydration, 44 lambs (26 kg ± 4.3) were fed one of four levels of the seaweed for two wk prior to 12-h transport during hot weather. Sheep received seaweed at either 0, 0.5, 1.0, or 2.0% of dry matter intake per day. Each sheep swallowed four gelatin capsules twice a day filled with A. Nodosum or their normal ration, depending on the treatment. Prior to transport, temperature data loggers were secured in the ear of all sheep to measure changes in body temperature during transport. Blood samples were taken immediately before and after transport. When the 0% lambs body temperature peaked, the 2% lambs were significantly lower (P = 0.03), with the other treatments being intermediate. Variation in body temperature during the course of transport for the 0% lambs (1.3 C) was wider than the 2% lambs (0.9 C, P = 0.055). All sheep immediately went to feed post-transport. There was a trend (P = 0.21) for 2% lambs to have the shortest latency to drink (589 s) and for 0% lambs to have the longest (823 s). All sheep laid down at approximately the same time post-transport. The 0% lambs significantly increased in sodium (Na), chloride (Cl), and potassium (K) and the 0.5% lambs significantly increased in K concentrations post-transport compared to pre-transport concentrations. Changes in electrolyte concentrations for the other treatments were not different from pre-transport concentrations. Post-transport concentrations of Na and Cl were less (P < 0.05) in 1 and 2% lambs than in 0 and 0.5% lambs. The 0% lambs also had higher (P < 0.05) K concentrations post-transport than 1 and 2% lambs. Feeding A. Nodosum for two weeks prior to transport allowed the animals to better thermo regulate during