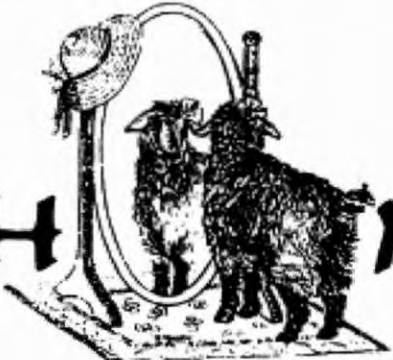




CASHMIR MIRROR

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The monthly magazine devoted to cashmere goats and their fiber



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Cover photo: Michelle Dobbins, Tucson, Arizona

Mama and her baby Lollipop, born December 29, 1996

Per Michelle: "This was the one patch of cactus left in the whole pen. Naturally, she goes there to birth instead of in the barn!!! Goats, I just love them!"



We lost our pig. Perhaps lost is not the right word. I think she ran away from home.

Mittens isn't a real pig—she's one of those pot-bellied pigs that many people bought as pets when they were the rage. We've had her five years and unlike many pigs of her ilk, she's never seen the inside of our house. She lived first with the goats and sheep in the pasture and then, after we moved to a more coyote-ridden neighborhood, in our yard.

One morning last week, she rushed the gate as I was driving back from the barn after the morning goat chores. By the time I climbed out of the truck to shut the gate, she had waddled halfway down the hill toward the pond. I was in a hurry myself, so rather than try to chase her in, I just let her go and figured she would be standing at the gate to be let in at the end of the day. She wasn't.

After dark, Paul and I searched the field with flashlights calling her, hoping to hear her familiar grunt from somewhere in the dark. We didn't think she could have escaped from the pasture, but that particular pasture contains over five acres and includes dense brush and a swamp so the search was not easy. Mittens is totally black so unless she found us or made a noise, we had no hopes of locating her. After several hours, we gave up until morning.

The next day, I located one small hole in the fence that Mittens could possibly have squeezed through with her considerable bulk. (She started life as a miniature pig, but she grew up to 90 pounds.) Maybe the goats or the dogs had chased her around and she had been able to find this one hole in the fence just her size.

I inspected the goats and the dogs. There were no bits of pig stuck to a cranky pregnant goat's horn. Surely, if the dogs had attacked her, she wouldn't have gone down without a fight and then, the dogs would certainly show signs of the struggle. This *was* the pig that had taken off part of a lamb's ear in her earlier days when we appropriated her pen for the lamb.

Assuming she had gone through the hole in the fence, I spent most of the next day looking through the woods on the rest of the fifty acres. No sign of her. I decided I'd better report her to the authorities. Where

do you report a lost pig? I started with dog control. They took my report (with little enthusiasm) and referred me to the Humane Society. I also reported her to both veterinarians in town. Then, not knowing what else to do, I waited. Either she would come home or she wouldn't.

What would cause a middle-aged pig to leave her home like that? Was she looking for a lover? Had she just reached that point in life when she thought there must be more? Perhaps she had heard tales of other mini-pigs living in houses and having rights on the family couch. Maybe she was hoping to hit the big time in a Babe sequel. Maybe she just was getting tired of Purina Pig Chow.

We had no doubt that Mittens could survive in the woods—if she could evade predators. She had a few pounds to spare and the woods is full of edible items for a pig. It certainly wouldn't be the life she was used to: a Frisbee full of pig chow topped with wet cob at night, a handful of cob in the morning, frequent treats of apple cores and french fries and all the lawn grass she could eat. And who in the woods would spray her with a hose in the summer when it gets really hot?

Three days later, Mittens was still missing. We still kept our eyes open, but figured she was gone for good. We found a book about pigs by Sandra Boynton (see review on page 18) called "Grunt." It explained that **"Time to a pig means zilch."** We decided that Mittens had just gone on an Australian "walkabout." She, like Crocodile Dundee, could be gone for years with no concept of time. Perhaps she had just gone feral. There must come a time in every over-indulged pig's life when they feel the need to try and make it on their own. These thoughts were easier on us than picturing her being ripped apart by coyotes or cut up into little (tough) pork chops in somebody's freezer.

On the fourth day, we heard the guardian dogs barking up on the hill behind the barn. Our dogs have different barks for different occasions. This was the bark they use for the neighbor's cows across the fence or a low flying bird. More of a playful warning bark than the "I'm going to rip your throat out" bark. We went to investigate.

We found Mittens burrowed in the ground under a pile of tree limbs. She wasn't quite herself. She snarled at us when we came close and seemed wobbly when she stood. Paul grabbed her and hauled her, screaming, back to the truck so we could transport her back to the house.

Mittens seemed glad to get back to her little house by our back door. She drank several quarts of water, ate her Frisbee full of food, rearranged the pile of old sweatshirts in her bed, and settled down to sleep.

We're still not sure why she left or why she didn't make her way back to the house. Maybe it was just a little pig going through a mid-life crisis.

Shearers without Terry

(A support group)

**They Boldy Go...
Where No Shearers Have Gone Before**

"Shearers Without Terry" (Sim) is a recently-formed support-group for first-year shearers. We were invited to attend one of their sessions. We personally had absolutely no shearing problems (even though this was our first time as well) and we certainly weren't part of this group! We merely attended to pick up newsworthy tidbits to share and perhaps to increase our readership somewhat (like that other great national publication, The Enquirer) at the expense of these poor witless folk. We wanted to insert this bit of information right away just in case you were thinking that some of our goats are hiding behind trees with less than perfect trims.

This year was a first for many of us. We had to shear our own herds. As a result, an impromptu support group calling itself "Shearers Without Terry" formed to help its members get over the trauma of butchering "the greatest fleeces of all time". We offer a portion of conversation from a recent meeting. Their names have been changed to protect them from the public ridicule which they so rightly deserve.

Captain Picard: (Holding extremely short bits of fuzz in his fingers) Do you suppose there's a market for second cuts? Maybe for stuffing very expensive toys...for Princess Di's kids?

Warf: There is no honor in second cuts! I have no second cuts! But, all my goats have horizontal stripes running the length of their puny, red-faced, bodies. Some are too ashamed to leave the barn. Others will only go outside with feed sacks over their heads. They all give me an angry stare whenever I get close...

Data: I got all the books. I have detailed pictures from a Co-op pamphlet. Heck, I even have John Harris's video where Sarah Harris makes it all look so simple. I always thought I could do it easily, but I didn't because it was so simple just to have Terry come by...

Captain: I can visualize how to do it, but somehow it doesn't translate to my hands. My hands turn into spaghetti and the shears seem to have a life of their own.

Deanna: I only ruined 7 fleeces before I decided to comb the remaining 70. Do you think I can get done before Christmas?

Paul: (Holding a baggie-full of marble-like objects) Are waddles considered second cuts or should they be bagged separately as SLY (short low yield) for the Co-op?

Deanna: That's all right, Paul. One-waddled goats are quite common.

Riker: I'll bet the combed category will be crowded in this year's fleece competitions. Do you think we could talk them into a new category? One for first time shearers. You know, one where they would ignore any damage caused by the

shearer. They could call it "The fleece that could have been" category. They'd ignore second cuts, bits of goat and other impurities in the fleece and just grade on what the fleece could have been...

Captain: Good idea, Number One.

Kirk: (How'd he get in here—he died! Twice!): I ruined the greatest fleece of all times (sobbing into his hands). It would have won all the contests! This was his third fleece and he was so crimp, so fine, so long, so thick and.....(breaks off into uncontrollable sobs)

Deanna: (trying to soothe Kirk) Combing is less stress on the goat you know. I'll come over and help you comb...

Kirk: (Looking encouraged): Yes, that would help me immensely. I could show you my fleece awards...from last year! (breaks into sobs again)

Chief O'Brian: (staring at a pair of shears at his feet) I just don't understand. My blades were sharp. I think they were adjusted okay, but all they would do is hack! They chewed up the fleece into tiny short pieces, kind of like dull scissors. I bought new blades thinking that the sharpener must have botched things, but I had the same problem. I drove 30 miles to buy yet another set of blades. Didn't take the model number off the shears. Came home with the wrong blade. Did you know that there's little bitty differences between blade models, barely discernible to the naked eye? Had to make another trip. I knew I had the problem solved this time. But, No!!!! Same stupid problem. (To the Captain) Maybe toy-stuffing for Martha Stewart's grandkids? Does Martha Stewart have grandkids?

Dr. Beverly: You moron! (Picking up the Chief's clippers) Did you know that you have the comb on backwards?

Chief: What do you mean? I put all the pretty shiny stuff up? Are you sure? Shouldn't the comb be on so the logo shows from the top? I took some marketing classes, you know.

Doctor: Of course I'm sure! See (pointing), the back side of the comb looks like the inside of a pair of scissors. You were cutting with an implement as sharp as an egg! No wonder your fleeces are mincemeat!

Chief: Well, what do you know. Why are you here if you have it all figured out so well, Beverly?

Doctor: Well, I, uh...couldn't find anyone to sharpen my blades...

Geordi: I've seen your goats, Beverly! They're a mess. You may have your comb on right, but you don't have the system either!

Doctor: Well, I...uh...

Riker: I can't understand it. I know that (beep) shears her own goats and (beep) do their own. They said they had no problems this year. I certainly thought they were less intelligent than I was and yet, I just can't seem to get the hang of it.

Paul: Terry and James made it all look so easy. Do you think we'll ever get it?

Riker: We've just got to keep trying! We must complete the mission and remember the prime directive: We must remove fleece where no fleece has ever been removed before!

Captain: Make it so!



Left to right: Joe David Ross, Angus McColl and Christopher Lupton, Laramie, Wyoming, 1996 CaPrA conference

Who is Christopher Lupton?

Christopher J. Lupton, Ph.D.
Professor
Department of Animal Science
Texas A&M University

Chris Lupton is Project Leader for animal fiber research conducted at the Research and Extension Center in San Angelo. He is a member of the Animal Nutrition Section in the Department of Animal Science and of the Graduate Faculty of Texas A&M University, Angelo State University and Texas Tech University. He earned his bachelor's degree and doctorate at the University of Leeds, England, in the field of textile chemistry.

Dr. Lupton plans and conducts a research program dealing with wool, mohair and cashmere that provides information as an aid in improving fiber production, quality, value and marketing. Because the Wool and Mohair Research Laboratory in San Angelo has unique capabilities for evaluating animal fibers, his research addresses areas of high national priority and involves cooperation with USDA and scientists from universities across the United States.

In 1988, Dr. Lupton served on a Western Sheep Task Force that produced a report on the status of the western sheep industry and proposed roles for land-grant institutions that would enable them to lead the industry into the 21st century. That same year, he was invited to make a presentation on marketing objectively measured animal fibers at USDA Secretary Lyng's Agricultural Products Quality and Competi-

tiveness Conference in St. Louis.

Professional memberships include the American Society for Testing and Materials, the Textile Institute, the International Goat Association, the American Society of Animal Science, the Texas Sheep and Goat Raisers Association and Phi Psi Textile Fraternity.

Dr. Lupton is well known in the cashmere industry and has a world wide reputation. He was a featured speaker at the 1996 CaPrA Wyoming conference. Working with Angus McColl, he was instrumental in assisting Yocom-McColl Testing Laboratories, Inc., in the set up of their O.F.D.A optical fiber diameter analyzer.

A summary of one of Dr. Lupton's projects is as follows:

Project Type: Special grant
Project Start Date: May 1, 1995
Project End: April 30, 1998
Investigator: C. J. Lupton.
Performing Institution: San Angelo-Tamu AGR RES CNTR, Texas A&M University, College Station, TX

Wool Research - Objective Evaluation of Animal Fibers to Increase Production Quality, and Value

OBJECTIVES: Develop and evaluate measurement techniques for rapid objective evaluation of wool, mohair, cashmere, and other animal fibers. Use objective measurements to increase fiber production; quality; and income to producers through improved selection, nutrition, management and marketing efficiency.

APPROACH: One series of experiments involves efforts to evaluate and develop instruments and methods for more rapid, accurate characterization of wool, mohair, and cashmere fibers. These include automatic image analysis and near infrared reflectance analysis. A second series of experiments will utilize standard and newly developed fiber measuring techniques to (ultimately) optimize fiber production, quality, and value. These experiments include performance testing and environmental studies with sheep and goats.

PROGRESS:

This project was initiated on 9/1/95. The objectives of the project are: to develop and evaluate measurement techniques for rapid, objective, evaluation of wool, mohair and, cashmere, and other animal fibers; and, to use objective measurements to increase fiber

Continued on next page

Lupton

Continued from previous page

production, quality, and income to producers through improved selection, nutrition, management, and marketing efficiency. The first objective is being met by evaluating a commercial image analysis system for measurement of fiber diameter, medullation, and cashmere yield and by evaluating near-infrared spectroscopy for measurement of mohair yield and fiber diameter. The second objective is being met by providing objective fiber measurements to cooperating USDA and state experiment station scientists who are conducting selection, nutrition, management, and marketing experiments with sheep, Angora and cashmere goats.

A very small selection of Dr. Lupton's research publications are as follows:

Peer reviewed, refereed journal articles

Qi, K., C.J. Lupton, F.A. Pfeiffer, and D.L. Minikhiem. 1994. Evaluation of the Optical Fibre Diameter Analysier (OFDA) for measuring fiber diameter parameters of sheep and goats. *J. Anim. Sci.* 72:1675-1679.

Qi, K. C.J. Lupton, F.A. Pfeiffer, D.L. Minikhiem, N.S. Kumar, and A.D. Whittaker. 1995. Automatic Image Analysis System for objective measurement of animal fibers. *Sheep and Goat Res. J.* 11, 2:71-77. cg6.

Lupton, C.J., 1996. Prospects for expanded mohair and cashmere production and processing in the United States of America. *J. Anim. Sci.* 74, 5:1164-1172.

Conference proceedings and WRCC 39 Reports

Lupton, C.J. 1989. Objective measurements applicable to cashmere fleeces and fibers. *Proc. Cashmere Goat Conference.* San Angelo, TX: 69-87.

Lupton, C.J., F.A. Pfeiffer and N.E. Blakeman. 1990. New instruments for measuring wool, mohair and cashmere. *Proc. West Reg. Coord. Comm.* 39. Phoenix, AZ:2-3.

Lupton, C.J., M.C. Calhoun, J.W. Holloway, J.E. Huston, M. Shelton and C.A. Taylor. 1990. Using objective fiber measurements to increase quality, quantity and value of animal fibers. *Proc. West Reg. Coord. Comm.* 39. Phoenix, AZ:4-5.

Huston, J.E., C.J. Lupton, M.C. Calhoun, M. Shelton

and C.A. Taylor. 1990. Effects of quality and quantity of supplemental nutrients on productivity of sheep and goats on rangeland. *Proc. West. Reg. Coord. Comm.* 39. Phoenix, AZ:58-59.

Lupton, C.J. 1990. Characterization and end-uses of cashmere and mohair. *Proc. Int. Goat Prod. Symp.* Tallahassee, FL:191-199.

Shelton, M. and C.J. Lupton. 1990. Selection for cashmere production. *Proc. Meat and Cashmere Goat Prod. Semin.* San Angelo, TX:9-15.

Lupton, C.J. and M. Shelton. 1990. The potential for cashmere on meat-type goats. *Proc. Meat and Cashmere Goat Prod. Semin.* San Angelo, TX:16-27.

Lupton, C.J. 1991. Characterization of cashmere. *proc. 4th Ann. Natl. Conf. Cashmere Prod America.* Columbia, MO:1-19.

Lupton, C.J. 1991 Characterization and end-uses of mohair and cashmere. *Pre-Conf. Proc. Invited Papers. V. International Conf. on Goats, New Delhi, India.* Vol. II, Part II:513-525.

Blakeman, N.E., C.J. Lupton, M. Shelton, F.A. Pfeiffer and T. Willingham. 1992. Cashmere production, measurement and research update. *Proc. Texas Cashmere Assoc. Clinic, San Angelo, TX.* 20 pp.

Texas Agricultural Experiment Station Reports (1986-1996)

Blakeman, N.E., R.P. Rogers, C.J. Lupton, F.A. Pfeiffer and M. Shelton, 1990. Comparison of fiber traits between Angora, Angora X Spanish Cashmere X Spanish and Spanish goats. *Texas Agric. Exp. Sta. Prog. Rep.* 4800.

Taylor, C.A., Jr., J.E. Huston, C.J. Lupton, W.S. Ramsey, and T.D. Brooks. 1996. The effects of nutrition, shearing, and environment on Angora and Cashmere goat production. *Texas Agric. Exp. Sta. Consol. Prog. Rep.* 5257:29-31.

Bohnert, D.W., G.R. Engdahl, M.C. Calhoun, C.J. Lupton, and D.R. Shelbery. 1996 Effects of supplemental zinc on performance and fiber production of Rambouillet sheep and Angora Goats. *Angelo State U. MIRC Prog. Rep. Pub. No. R-6:40-49.*

Lupton, C.J., J.E. Huston, F.A. Pfeiffer, and K.W. Bales, 1996. Residual insecticide concentrations in raw fleeces, scouring liquor, and scoured wool following application three weeks before shearing. *Texas Agric. Exp. Sta. Consol. Prog. Rep.* 5257:61-64.

Enforcing Trading Standards in Cashmere and Camel Hair Marketing

By K. Spilhaus

Cashmere and Camel Hair Manufacturers Institute,
Boston, USA

Summary

The paper examines current demand conditions for cashmere and cashmere blend products in North America and Europe and the fibre supply, with particular reference to China. The high level of retail demand, coupled with the extremely volatile supply from China, has led to misidentification and misstatement of cashmere content on all levels of distribution. CCMI has therefore refocused its efforts, not only on the mislabelling of cashmere garments at retail, but also on contamination, misdelivery and abrogation of contracts by fibre suppliers. At the same time, CCMI has heightened its efforts to encourage the development of better test methods for cashmere and other fine animal hair. The volatile nature of the market for these products only increases the necessity for these developments. This paper reviews the purpose and goals of the Cashmere & Camel Hair Manufacturers Institute, key issues of concern to our industry, CCMI programs and activities and the future outlook for this segment of the luxury fibre industry.

Introduction

Formed in 1984, CCMI is an international trade association representing the interests of producers and manufacturers of cashmere and camel hair fibre, yarn, fabric and garments. CCMI's membership represents most of the major cashmere and camel hair manufacturers throughout the developed world. CCMI members, include Amicale Industries, Forte Cashmere Company, James Johnston & Company of Elgin Ltd., Loro Piana & Company SPA, L.W. Packard & Company, Toyohoshi Kogyo Company LTD, W. Fein & Sons Ltd., Warren Corporation, and Z. Hinchcliffe & Sons Ltd.

CCMI is the leading authority on domestic and international issues concerning cashmere and camel hair. CCMI serves as an advisor to business, industry, government and the media on labeling, international standards, supply and market trends and related issues.

The goal of CCMI is to promote and protect the image and integrity of cashmere and camel hair textile products. This is accomplished through four CCMI program activities: industry relations, government relations, monitoring and initiating product testing, and media relations.

Originally CCMI was formed as the Camel Hair & Cashmere Institute of America by a small group of American manufacturers. The purpose was to combat the influx of garments being sold in the USA claiming to be genuine cashmere and camel hair which were not. Historically, CCMI has served as an "industry watchdog" and has policed the marketplace for mislabeled garments through random product testing. Today, the main focus of the organization is to maintain the integrity of cashmere and camel hair products through education, information and industry cooperation.

Current Concerns

Mislabeled luxury fibre garments continue to be the primary issue of concern to CCMI and its members. The severity of the problem has grown and expanded in recent years, particularly with cashmere. Historically, most mislabeled cashmere products have been found in woven goods originating from mills in Prato, Italy where fibres of all types, particularly wool, may be mixed with luxury fibres to make

fabrics which are shipped all over the world. Prato is still a major contributor of mislabeled goods, though the problem has expanded, as world-wide demand for luxury fibre garments has grown.

Today, mislabeled garments are common among knits as well as wovens. This is due primarily to the explosive growth of production among the Chinese. China produces 50 percent of the world's cashmere today and has developed its dehaired and garment making industry to the point of over-capacity. Increased demand for quality cashmere, increased competition for fibre and a decentralized supply mechanism are producing more product contamination. This is coupled with a more pervasive differing view of business ethics in China. Wool is being blended with dehaired cashmere in China and is being sold as 100 percent cashmere.

CCMI is working to address these mislabeling issues with three primary groups: garment manufacturers and retailers, US and international government leaders and the scientific community. CCMI continues to police the marketplace to identify mislabeled products on store shelves. It is estimated that 15 percent of garments claiming to contain genuine luxury fibres are indeed mislabeled. CCMI randomly purchases garments at a wide range of stores in a variety of cities across the US, and tests individual garments for accuracy of labeling. If the test shows that the label does not accurately reflect the fibre content, CCMI contacts the manufacturer or retailer and reports the problem. Normally CCMI is able to settle by having the goods with-

Continued on next page

Enforcing Standards

Continued from previous page

drawn. From time to time, CCMI publicizes these activities.

CCMI has successfully stressed the importance of this problem to manufacturers and retailers alike through legal actions. In recent years, CCMI won a court case against *Mr. Coats for Her*, which was distributing mislabeled goods that were sold in different stores including *Lord & Taylor*, *Filene's*, *Federated Department Stores*, *Associated Dry Goods* and *Allied Stores*. An injunction was entered, barring those defendants from selling certain mislabeled goods. This generated favorable publicity and sensitized the market to these issues.

In 1984, the organization created a free fibre content testing service for manufacturers and retailers alike. To date, hundreds of companies have taken advantage of the testing services with over 1,000 garments or fabric samples being tested since the service was introduced.

CCMI is reaching out to retailers and manufacturers to educate them about the mislabeling problem in the following ways: contacting buyers of major department stores through direct mail informing them of the services of CCMI and the free fibre content testing Service; arranging personal meetings with quality assurance and buying staffs from major retail chains to discuss labeling issues, contacting major retail trade associations to work with them to inform their members on the mislabeling issue through mailings, association newsletters and industry meetings.

CCMI works with the US government at the state and federal level, the EU and the Chinese government to raise awareness on the

importance of the mislabeling issue and to elicit help in policing the export and import of mislabeled products. Our members have met with senior EU and US government representatives on this subject.

In addition, CCMI works to enforce the textile labeling laws. The organization works with the US Customs Department to randomly inspect shipments of product and alert Customs to specific importers known to trade in mislabeled goods.

CCMI works with European textile groups, such as *Interlaine* and individual country organizations, to develop education and enforcement programs on labeling. CCMI is currently considering a more active presence in Europe as the level of mislabeling is known to be quite serious, particularly with blend garments.

CCMI is in discussions with the Chinese government to address issues of contamination of raw material and export of mislabeled cashmere products. The Beijing and Hohut Laboratories of the Chinese Commodities Inspection Bureau have been intensively consulted. At CCMI's request and expense Brian McCarthy of BTTG visited both the Beijing and Hohut laboratories to inspect, monitor and advise them on international testing standards and procedures.

CCMI is deeply involved in the effort to improve and perfect the science of textile testing and fibre identification. The institute is a member of both DWI (German Wool Research Institute) and BTTG (British Textile Technology Group), supporting and monitoring progress on the development of various techniques for fibre identification, particularly the DNA method. We also stay abreast of the qualifications of the various American laboratories involved in animal fibre testing.

We expect the demand for quality cashmere and camel hair garments to grow in the years ahead. To assure that the products sold on retail shelves are what they claim to be, CCMI will continue to take a leadership role with government and industry leaders alike to maintain the integrity of the cashmere and camel hair textile products through: a better educated retail and manufacturing community; more certain fibre identification processes; and a safer supply of luxury fibres, free of contaminants.

In closing, recognizing the theme of this conference and all the leading experts on fibre identification, particularly microscopy, who are gathered here, I give you this offering from a great 19th century American poet, Emily Dickinson:

"Faith is a fine invention.
When gentlemen can see,
But microscopes are prudent
In an emergency."

This paper was presented at a European Symposium entitled Metrol-ogy and Identification of Specialty Animal Fibres held at the German Wool Research Institute (DWI), Aachen, on May 18-19, 1995.



On the Cashmere Trail

By Jerry Laker

Jerry Laker is with the Macaulay Land Use Research Institute in Aberdeen, Scotland. He also works with the LSIRDnet (Livestock Systems in Rural Development in Disadvantaged Areas) and is the administrator of the European Fine Fibre Network.

To see cashmere goats at Thainstone, our local mart, on the day of the rare breeds sale, as they compete for interest with the rare breed sheep, ostriches and fancy ducks, one might be forgiven for thinking them more a curiosity than the future face of livestock farming on the hills.



It is hard to reconcile this image with my impressions following a recent trip to

China, where I went to give a paper at the VI International Conference on Goats.

In Fangshan County, near Beijing, a group of farmers, intensely proud of their selective breeding scheme, showed us their goats and fibre samples, and explained how cashmere goats were now the most profitable and numerous livestock species in the area. Just a few days later, over a thousand miles away in western China, a Kazakh herdsman pulled handfuls of fine white combed kid fleece from a sack as he described the traditional transhumance system for grazing the mountain pastures. With the aid of an interpreter we talked the familiar language of down yields and fibre diameters.

Right across Northern China, cashmere is a highly valued element of the rural economy. Some breed improvement work was started in the sixties, though, as in Scotland, co-ordinated efforts to improve down yields began only in the early eighties, since when there has been a dramatic increase in goat numbers. National production has increased by 80% in the last decade to approximately 6500 t

Liaoning cross does in the Fangshan breeding programme

combed fibre per year. Selection programmes have achieved impressive increases in yield, as they have had the advantage of a vast gene pool (there are about 15m cashmere-producing breeding does) from which to select superior stock.

Puwa, a village in Fangshan, participates in a breed improvement programme that has involved upgrading the local goats by crossbreeding with Liaoning stud males. The village uses an extensive area (some 9000 ha) of mountainous scrubland and steep pastures for grazing 7000 cashmere goats, which are herded in flocks of about 50 does. The 1995 production from the town was 3000 kg of combed fibre.

All the annual production figures quoted in China refer to weight of combings. Clean down yield of combings is about 70% for individual fleeces. For bulked up combings, the cashmere processors told us that the dehaired yield can vary from 40-70%. Much less emphasis is placed on fibre diameter,

Continued on next page

Cashmere Trail

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as all the fibre is claimed to be below 18 μ m. Recently, there has been some concern that fibre diameters are increasing as a result of the breeding schemes, though *reject* fibre appeared to be an alien concept.

The Fangshan breeding scheme is structured on three tiers. Elite Liaoning bucks are supplied from the stud farm to 20 specialised breeders who use them on 2000 breeding does. The progeny are supplied to commercial producers, who work together as a co-operative to market the cashmere.

In 1982, the average production of the indigenous goats in Fangshan was 93 g. By 1993, this had risen to 237 g, and the figure for 1995 was 318 g. Buck fleeces that we saw from the stud farm were about 800-1000g combed fibre. The stud farm doe fleeces were 450-600 g. The animals themselves were fairly small, see photo, with females weighing about 35 kg and bucks 50-55 kg. We were told that the S/P ratio was up to 18 in the bucks and about 12 in the does (though quoted figures at the conference were lower, around 11, which may be a more reliable value, similar to our Siberian bucks)

With Australian cashmere researcher Bruce McGregor, I left Beijing to travel to Xinjiang province, 1200 miles to the west, and right in the heart of Asia on the old Silk Road. There is a strong Muslim tradition in the area, which is peopled by a number of different ethnic groups, such as the Uygur and Kazakhs. There is a long tradition of goat herding in this beautiful, but inhospitable region, once at the heart of Ghengis Khan's empire. The city of Urumqi is also a major centre for textile weaving and is the main market for the 642 tons of cashmere produced in the province annually. After Inner Mongolia, Xinjiang is the second largest cashmere producing region in China.

Cashmere goats and horses are the main livestock kept by the Kazakh people in the Tien Shan, the Mountains of Heaven, whose massive alpine peaks run across the plains of the Gobi desert for 1000 miles. Most of the goats we saw were white, and by mid-May, nearly all had been combed. For combing, the goats are laid on their sides, with their legs tied, and the down is removed with a long curved comb. From a sack of fine white kid combings, we were able to estimate an average combed

fibre yield of about 220g per goat.

The herdsman explained that the down would be collected by an agent, who would sell the fibre on to the textile companies of Urumqi. The farm gate prices we were told in various parts of China ranged between 400 - 500 Yuan/kg (£ 31-£ 39) for combed fibre. No premium is currently paid for different quality grades, as the demand for cashmere of all grades is high. White cashmere is preferred, and all the people we spoke to, both farmers and processors, regarded lustre as a positive attribute.

The goats need to be extremely hardy to withstand the bitterly cold continental winters, where average temperatures may be below -10°C, and they are required to survive on dry grass on the hill-sides. A small amount of hay is made on the low-land pastures, which is stored on rooftops, and used to feed the does when they are brought in for kidding in March. It is normal for a goat to lose at least 15-20% of its body weight over winter.

There was no state-run breeding programme in operation in Urumqi, but selective breeding was carried out by the farmers. One of these had a policy of buying in new bucks each year, which were brought in by truck from neighbouring Kazakhstan.

There are, I believe, many lessons to be learned from China. For example, S/P ratio is used as a selection parameter in China, and in their top bucks, this may be as much as 18, which is, on the face of it, 50% higher than any in Scotland. It is, however, also interesting that some cashmere producers there choose to import bucks from outside China.

What is clear is that for the northern Chinese, cashmere farming works. It has an economic return that makes it a popular and valued commodity that is now contributing significantly to regional development. This snapshot of what is possible leaves me with some optimism that cashmere goats could become firmly established here, and that, one day, they may be elevated to the status in the farming psyche that their relatives currently enjoy in China.



Cashmere Research in Europe

By Paul Johnson

This article is intended to be an over-view of recent and current research in Europe on cashmere-producing goats including the introduction of cashmere goats into Europe.

This research summary was compiled from material and assistance received from Mr. Jerry Laker of the LSIRD Network and MLURI (Macaulay Land Use Research Institute), and administrator of the European Fine Fibre Network.

In the summer of 1993, the European Community (EC) established the European Fine Fibre Network (EFFN). Its goal was "the coordination of research activities in the development of animal fibre production systems." The organization was chartered through 1995. The information in this article includes material from the newsletters of EFFN, the *Fine Fibre News* which was published to improve the flow of research information, ideas, and techniques for researchers in mohair, cashmere, angora, camelid, bovine specialty fibers and super-fine wool.

Some of the research projects are on-going and we will provide updates. Also, we will include data from the EC Livestock Systems in Rural Development in disadvantaged areas (LSIRD) network, including research, abstracts and papers from the LSIRD network conference in Nafplio, Greece held January 23 - 25, 1997.

As you may expect, we will concentrate on areas of interest to cashmere producers.

The countries who initially re-

ported on cashmere-related projects include the United Kingdom, Germany and Italy. Research areas include measurement, classification and identification of specialty fibers as well as related areas, such as fiber biology, genetics, nutrition and economics, environment and environmental impact.

Some projects involve dairy goats, but are applicable in varying degrees to our fuzz-producers.

The ability to detect, identify and analyze the cashmere content of a yarn or garment is extremely important in the garment industry—see Spilhaus article on page 7.

Germany

The German Institute of Wool Research at the Aachen University of Technology developed the scanning electron microscopy (SEM) for the analysis of wool and specialty blends.

They are conducting research on the development of gel electrophoresis, an automated protein analysis system, which is used with pattern recognition techniques. These systems are quality control tools for specialty fiber blends like yak and cashmere.

Also, in Germany, the Gaesamthochschule Kassel University maintained a small herd of cashmere-producing goats for research in three areas: Determination of the genetic potential of Boer and Cashmere goats (in Germany); suitability of goats, including cashmere, for biotope management; and development of cost-effective management systems and marketing strategies.



Italy

Italy has governmental agencies as well as universities involved in research concerning cashmere. One of these is the ENEA (Italian National Agency for New Technology, Energy and the Environment). Their research involves animal husbandry, reproduction physiology, immunodiagnostic and molecular biology.

Of interest to the cashmere community are the studies addressing:

Biological, physiological, genetic and production parameters of fiber goats;

Pregnancy diagnosis and fetal development in goats by ultrasound scanning and;

The use of radio immunoassay and enzyme immunoassay to study embryo transfer, artificial insemination and *in vitro* fertilization in cashmere goats.

The textile institute (I.R.S.L. "O Rivetti") of the National Research Council (another Italian govern-

Continued on next page

Research in Europe

Continued from previous page

mental agency) based in Brella, concentrated on quantitative analysis of animal fiber blends (wool and cashmere) in which the proportion of cashmere was only 2% - 5% and classifying coarse fiber using microscopy and the O.F.D.A.

The Istituto Sperimentale per LA Zootecnia (ISZ) along with ENEA started a cashmere goat program to study adaption and production capacities.

Research started in 1994, in a collaborative venture with Macaulay Land Use Research Institute (Scotland), used cashmere-producing goats embryos imported from Scotland.

A third governmental agency, the Stazione Sperimentale per La Seta, performed studies on quality control tests and on the physico-chemical properties of protein fibers, such as keratin fibers.

The University of Basilicata Department of animal productions studies nutritional, breeding technology, metabolic profiles and related areas. One of interest is the physiological and economic effects of shearing cashmere and Angora goats at different times of the year.

A research team at the Facility of Veterinary Medicine, University degli Studi di Camerino, has researched the relationship between pigmentation phenotype and its genetic basis.

This is important to cashmere producers for whom "the creation of pigmented genetic lines" is relevant to their breeding program.

Spain

Spain imported Scottish cashmere goats on a project basis in 1993. This import included 80 live goats and 120 embryos. Two differing climatic/geographical zones were used, the Asturias and in the northern region, and Guadalupe in the central region.

United Kingdom

The United Kingdom has been pre-eminent in the introduction of cashmere goats in Europe.

The MLURI is very involved in several areas of cashmere research and maintains an elite herd of 600 breeding does at Sourhope. They also have a fiber analysis laboratory which is available commercially to producers.

The Institute has done and is doing research in many areas of interest. Research topics, including the participating scientist, are listed below:

Dr. Pam Dicks: The role of the follicle in the control of the growth and shedding of animal fibres.

Dr. Margaret Merchant: Fibre growth and energy expenditure of cashmere goats following harvesting of fibre.

Dr. Iain Wright: Complementarity of sheep, cattle and goats through the sequential grazing of sown swards.

Ms. Hilary Redden: Fiber testing and analysis.

Studies also have been conducted and/or are currently on-going involving cashmere goats at the following UK institutes:

AFRC Babraham Institute/U of Surrey

Use of artificial photoperiods and melatonin on breeding cycles and

coat growth. They are also studying the role of prolactin.

British Textile Technology Group
BTTG has been involved with specialty fiber research since 1919. They have set the patterns for fiber analysis and have a commercial test house available for producers. They liaison with the Camel and Cashmere Manufacturers' Institute for fiber identification, including use of DNA profiling to discriminate between closely related fibers (eg. cashmere v. cashgora).

University of - Institute of Ecology and Resource Management

Community funded project to define the social and economic conditions that will lead to incorporation of cashmere-producing goats into existing EC farming systems.

Scottish Agricultural College

Development of production systems for cashmere in the west of Scotland. They have 180+ cashmere goats in the western Highlands where they have an annual rainfall exceeding 3,500 mm.

In addition to studying the practicability and viability of cashmere fiber production systems, they have done studies on nutrition, reproduction, prediction of fiber yields, and the effects of different genotypes on yield. Research team members have worked with scientists from France, Germany, Greece and Italy on grazing of indigenous pastures.

SAC - Edinburgh Genetics

Reproductive biology of goats, especially in relation to artificial breeding techniques. They maintain a large database of results relating to embryo transfer procedures.

Continued on next page

Research in Europe

Continued from previous page

AFRC Roslin Institute

The Institute conducted a collaborative project with MLURI using the Sourhope Research Station cashmere herd. Research has included evaluating productivity of each line (feral and imported lines) and evaluation of cross-bred animals. The second phase includes selection for various production characteristics. Also evaluated on the cashmere lines was the genetic relationships between disease resistance and production traits. (This is the place where "Dolly" the sheep was cloned recently.)

University of Aberdeen

They are investigating the nutrition and biology of cashmere and Angora goats focusing on fiber/hair growth and the roles of protein hormones melatonin, prolactin, and others.



Joe Dooling, Montana, demonstrates effective shearing of a goat at the 1995 PCMA conference (Shearing Without Terry Groupies take notes!)

Rare Natural Animal Fibres

Alpaca, Camel, Cashmere, Mohair

By the RIRDC

The RIRDC is the Rural Industries Research and Development Corporation, an Australian organization which manages research and development investments on behalf of government and industry. The information below is reprinted (with permission) from their internet articles at <http://www.dpie.gov.au/rirdc/programs/rnf.html>

Objective

Facilitate the development of new and established industries based on rare natural animal fibres.

Background

The animal industries that produce rare natural fibres currently comprise angora and cashmere goats. However, other rare natural fibres from animals such as alpaca and camels could also have commercial potential for Australia. The Rare Natural Fibres Program expands the scope of what was formerly the Goat Fibre Program to encourage the newer animal fibre industries to consider their R & D needs in order to underpin future development.

With the global recovery from economic recession, the demand and market value of rare fibres have both grown dramatically. The value of the goat industries has risen from \$0.2m to \$0.6m for cashmere and from \$1.3m to \$1.9m for mohair in 1993 and 1994, respectively. These increases would have been more spectacular, had stocking rates not been severely constrained by the ongoing drought. The introduction of Texan and South African mohair breeding lines promise significant genetic improvements.

The development of strategic plans by both the cashmere and mohair industries has assisted in the iden-

tification of R&D priorities.

Program Strategies

Develop whole farm management systems for animals producing rare fibres.

Increase production of quality fibre as desired by the processing and textile industries.

Develop national classing and clip preparation procedures.

Evaluate and overcome limitations in processing and initiate product development of rare animal fibre products in Australia.

Establish, maintain and continuously improve the quality and flow of information concerning the domestic and world markets for rare animal fibre products.

Key R&D Issues for 1997-98

Identify new industry opportunities for use of rare natural fibres. Improve accelerated breeding technology for Australian industries. Develop the processing and manufacturing base in Australia. Improve quality and increase fibre demand.

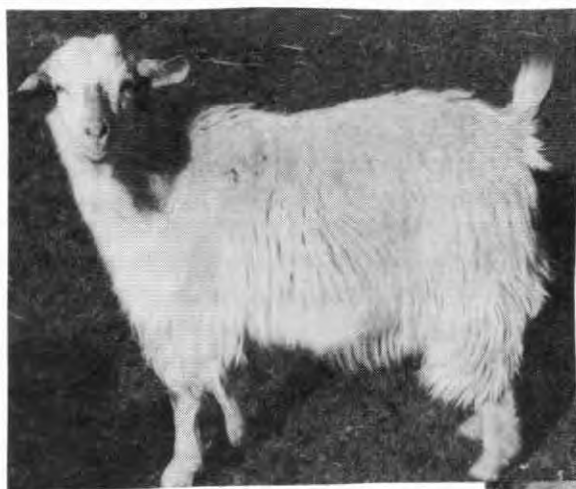
Resource Allocation

1996-97	AU\$250,000
1997-98	AU\$250,000

Note: The 1997-98 program budget will be dependent in part on industry R & D levies.

Management and Evaluation

The goat fibre component of this program is managed by RIRDC with the assistance of an Advisory Committee which includes representatives from the industry. The program will be reviewed again in 1997-98.

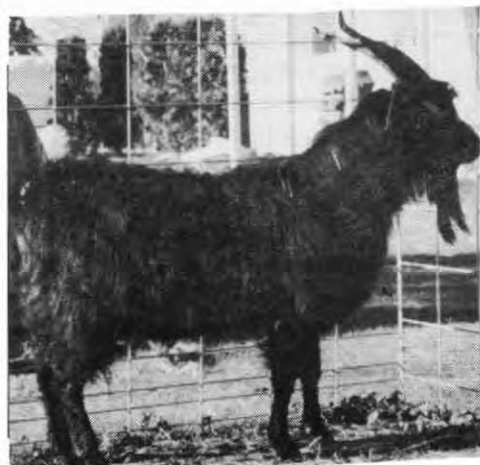


Cinnamon, doe, age two, bred, includes kid/s, \$150

*Cashmere
Goats!*



Chevy, buck, age one, style 2-2+, fine diameter, color black/grey, coverage classed 3, \$250



Cazamer, buck, age 3, color black/grey, style 2+ medium diameter, coverage rated 3, \$500



Eclipse, doe, age 2, bred, includes kid/s, color black/brown, style 2+, fine diameter, \$350



Rosey, doe, age 3, bred, includes kid/s, color brown/brown, style 2+, fine diameter, \$325

Herd Reduction

Pudding Creek Farm, Salem, Oregon

Ten does and three bucks available - white and colored
Prices range from \$100 - \$500, volume discounts definitely available

Most does are due to kid starting late March

Kids included free if picked up before kidding

All classed and sheared, 1997 fleeces included with purchase

Award winning bloodlines from the CCC, AF and TMR herds

A great way to start your herd or add quality to an existing herd

For detailed list of goats and classing information call
1-800-962-9634

How a Ruminant Ruminates

or

Why Goats Burp

Warning for the weak-stomached: You may not want to read this article while eating lunch.

I suppose most of us have never spent much thought on the mysteries of the goat's digestive system. We know they are ruminants of course. We know this because they sit around chewing their cuds and belching fowl-smelling stuff (methane gas, to be exact) in our faces if we get too close. Somewhere growing up, we learned about the cow's four stomachs, but probably not much about the details. So we know some of the basics already—goats have four stomachs and they sit around and chew and belch a lot.

The ruminant's digestive system is different and more complicated than our own. Their fourth stomach (fourth in order of use) approximates our own stomach. The first three stomachs, called the forestomachs are what allows a ruminant to ruminate and subsequently get fat on salad greens alone.

Simple-stomached beings, such as ourselves, cannot effectively break down the cellulose of plant tissues. We have a few cellulose-eating bacteria in our intestines, but not enough to enable us to gain weight by merely browsing on salad greens. The goat's stomachs can't digest salad either—they get assistance from a whole population of small helpers called microbes—bacteria, fungi and protozoa of many species. These helpers work together to break down the cellulose fibers and move through to the final stomach, where they, themselves, are di-

gested by the goat.

As a comparison, since we can't effectively digest plants, we feed on things that can digest plants. We go to MacDonalds to eat the hamburger made from the cow who could digest the plants. The goat is doing the same thing. The difference is that their hamburgers (the microbes) are made in-house.

Mouth, Teeth

The goat's food processing system has been designed very effectively. Their upper lip is complete, unlike sheep, and muscular which is more conducive to grasping and tearing at browse rather than consumption of grass close to the ground. Their tongue is shorter and smoother and not as extractable as the grazing ruminants. Their taste buds can differentiate between salt, sweet, sour and bitter, but they have a greater tolerance for bitter tastes than other ruminants which allows them to enjoy a greater range of plants.

Goats have no upper incisors. Instead they have an upper dental pad which facilitates the tearing of forage. Teeth, when fully developed include lower incisors suitable for gripping and tearing, and upper and lower molars and pre-molars used for successful cud chewing (If this information is just whetting your appetite for information on goat teeth, see article on page 18.)

Esophagus

The esophagus, which connects the oral cavity to the first of the four stomachs is about 40 inches long in an adult European dairy goat. It goes down the left jugular furrow

and you can see movement down (or up) its path when boluses or food is swallowed or when cud or gas is eructated.

Rumen

As you've probably noticed, goats eat very quickly, scarcely chewing their food. Ruminants would never fit in at a formal dinner party. These rapidly-swallowed gobs of food which contain very little saliva pass down the esophagus and land in the front part of the rumen on top of the fermenting vat of goo. Because the food gobs don't yet contain much liquid they stay on the surface where they can be conveniently belched back up for a more thorough chewing.

Cud chewing breaks the food into smaller pieces and mixes it with copious amounts of saliva. Per one study, around 30 ounces of saliva per day is secreted by a goat. Regular movements of the muscular wall push the rumen contents toward the back of the rumen, gradually absorbing fluid and mixing with the rest of the rumen contents.

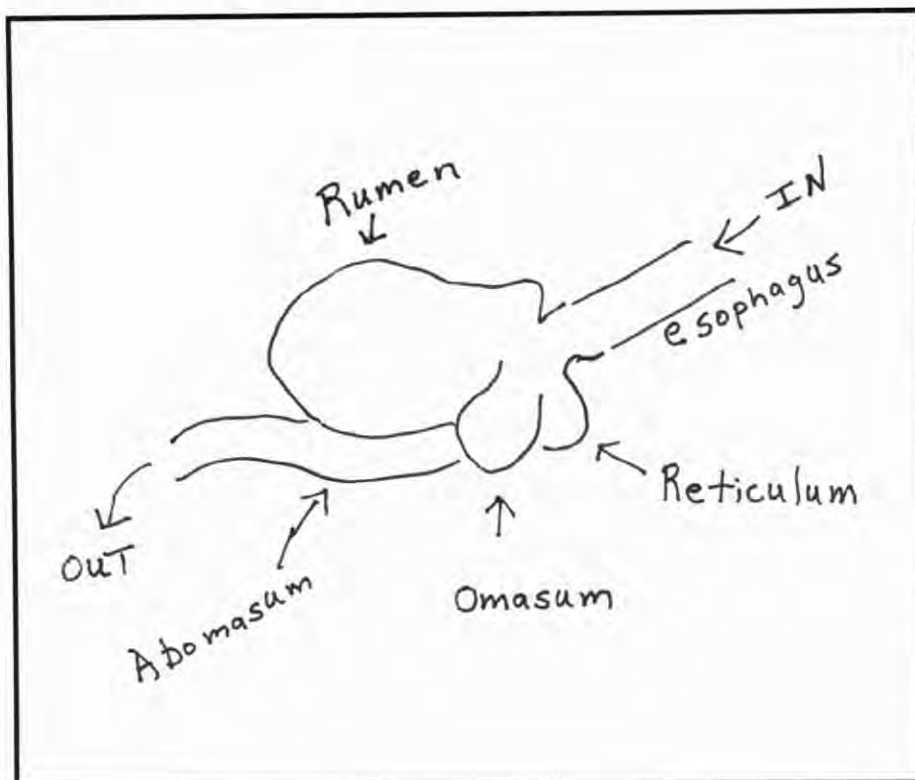
This first stomach is merely a large fermentation vat. It alone comprises over 1/2 of the goat's entire digestive tract. In an adult goat the rumen can hold 3 - 5 gallons of fermenting food along with its attendant microbes. The rumen is located in the left half of the goat's abdomen and contacts the left body wall. If you want to hear a goat rumen at work, press your ear to the left side of the goat. If you don't hear anything your goat is, or soon will be, in trouble.

The lining of the rumen is non-glandular, meaning that it contains no glands to secrete enzymes to aid with digestion. The microbes do it all. These microbes work together to ferment cellulose, starch and sugars, without oxygen. Different foods take different lengths of time

Continued on next page

Goat Digestion

Continued from previous page



The stomachs of the goat

to ferment and are broken down by different microbes. Roots ferment in two hours while straw may take two days to process.

During the fermentation process the microbes break down (eat) the food and break down the carbohydrates into Volatile Fatty Acids (VFA's), methane gas and heat. The VFA's are absorbed through the stomach wall of the rumen and combined with oxygen to provide an energy source for the goat. The methane is disposed of (tackily) by belching.

Cellulose, the major component of plant fibers and the most important ruminant nutrient, ferments slowly, but completely and produces mostly acetic acid. The bacteria which ferment the cellulose are sensitive to the acidity of the rumen and will fail if the rumen pH falls to 6.0. (Rumen pH is generally in the range of 6.0 - 7.5.)

Sugars and starch (main ingredient in cereal grains) could be digested without fermentation, but they also enter the rumen with the cellulose and are worked over by the microbes. Microbes are big into division of duties, so the cellulose-loving microbes will not touch sugar and starch, but have assigned them to other varieties of microbes. Sugars and starches are fermented very quickly, so it is generally assumed (by the cellulose microbe group) that the sugar/starch microbes are a lazy little group who have a lot of excess time on their hands.

The microbes who live in the rumen are mostly tiny bacteria and larger protozoans. After digesting the cellulose and releasing the nutrients inside the plant parts, the microbes themselves greedily use up the carbohydrates and proteins released and multiply rapidly. But, in the end, the microbes come to a bad end

in the goat's abomasum where they along with the remaining food parts are consumed by the goat.

Reticulum

The goat's second stomach, the reticulum contains 1 - 2-1/2 quarts of semi-liquid fermented food and lots of microbes. A small orifice connects it to the rumen and food passes to this stomach when it has been adequately digested in the rumen. Heavier food, such as grains may pass directly to the reticulum, bypassing the rumen. Food is further broken down by the microbes in the reticulum after which it passes through the omasum to the abomasum.

Omasum

The omasum is much smaller than the reticulum containing a measly 3/4 - 1-1/3 quarts of goo. It has longitudinal folds or leaves and is located on the right side of the abdomen. It doesn't contact the body wall. Food passes from the reticulum, through the omasum, into the abomasum, the "real" stomach.

Abomasum

Finally, we get to the real stomach! Here, in a 2-1/2 - 4-1/2 quart area, stomach action as we know it takes place. Here, also, the helpful microbes bite the dust. After all their hard work, they too become fodder on the road of life. The abomasum is located on the abdominal floor on the right side of the abdomen.

We are ending our digestive tour with the abomasum, but we all know that things go on (and out) from here. Perhaps later we'll explore the rest of the path. Not today. It's time for lunch.

Question: If a goat belches in the forest and no one is around, does it still smell?

...Steve Hachenberger

PJ Note

One of the saddest things I ran into while researching research is "project ended due to lack of funding."

Research does not take place in a vacuum. As NASA used to say, "No bucks, no Buck Rogers." I suppose we might say "No bucks, no super bucks."

As a fact of life, in the goat world, most research is devoted to those areas that have the numbers (and therefore the money)—Dairy, Angora and meat.



How the Kids Eat (Little Digestive Systems)

Newborn kids have an undeveloped rumen. At birth their rumen is small and their abomasum is relatively large. The abomasum is located mostly on the left side of the kid and, as the rumen develops and enlarges, it displaces the abomasum and finds its adult resting spot on the right side of the goat. At birth, reticulorumen (rumen and reticulum together) capacity is only 2-1/2 ounces, omasal volume is negligible and abomasal volume is about 10 ounces. Until the rumen is developed, the kid operates basically as a one-stomached animal.

Using an esophageal or reticular groove, milk ingested by the kid bypasses the forestomachs. This groove closes reflexively in response to suckling so that milk may pass via the omasal groove directly into the abomasum, where it is digested. If milk were to accumulate in the rumen, it would interfere with the growth of the rumen microflora.

Until the kid has reached about nine weeks of age, their rumen is not developed enough to meet nutritional needs. Kids should not be weaned until their rumens are well enough developed to give them their nutritional needs without milk. Full rumen capacity is usually reached by twelve weeks of age and can be encouraged to develop more rapidly by early introduction of roughage and concentrates.

Who Says

There Aren't Goats in the White House?

The most photographed Presidential grandchild of the 19th century must have been "Baby McKee," who lived in the White House with grandfather Benjamin Harrison and his four-generation family during the early 1890's. Little Benjamin was often photographed as he drove his own goat cart about the grounds. The goat once ran away with baby McKee. As the goat darted off with the boy and raced down the White House driveway onto Pennsylvania Avenue, the portly President himself, dressed in top hat and frock coat, followed in hot pursuit.

From the White House internet home pages at:
<http://www.whitehouse.gov>



President Benjamin Harrison and family and goat
(Hint: Write Bill. Tell him Chelsea needs a goat!)

Did You Know?

Did you know that research has shown that nutrition, diet and climate are factors in wool and mohair production, but not, apparently, with cashmere production?

The growth of sheep and Angora goats' fiber can be impacted by varying nutrition levels, but our cashmere goats seem to show no change in diameter, length or yield of their fiber with nutritional or climatic changes.

Goat Teeth

Count them - 32!

The dental formula for goats is 0033/4033. What this means is that a goat has 32 teeth, twelve in the top jaw and 20 in the bottom jaw.

Dental formulas are derived from the number of teeth the animal has in one half of the upper and lower jaws. The four digit system for each jaw half begins in the jaw center with the numbers representing number of incisors, canines, premolars (affectionately called bicuspids by dentists) and molars, respectively.

The numbers in the left part of the formula represent one half of the total teeth of the upper jaw. Therefore, in the goat's upper mouth, counting from the center out, are 0 incisors, 0 canines, 3 premolars and 3 molars. There are six teeth on each side for a total of 12 teeth in the entire upper jaw.

In the lower jaw, we have (counting from the center out again), 4 incisors, 0 canines, 3 premolars and 3 molars for a total of 10 teeth in this half or 20 in the entire lower jaw.

The mature goat will have, therefore, a total of 32 teeth.

A kid is born either with no incisors or with its first two baby teeth (milk tooth incisors). The second pair of milk teeth incisors appears at 1-2 weeks of age and the third and fourth milk incisors appear at 2-3 and 3-4 weeks, respectively. Be careful if you check for these teeth, as they are extremely sharp!

Molars are present at birth and erupt continuously throughout life, being worn down by the grinding action of cud chewing.

A goat's age may be approximated by the status of its teeth. Baby teeth are generally lost and replaced with permanent teeth following this time table:

Center incisors - 1 - 1-1/2 years
 Next incisor pair - 1-1/2 - 2 years
 Next incisor pair - 2-1/2 - 3 years
 Final incisor pair - 3-1/2 - 4 years

After four years, a goat's age may only be estimated by the amount of wear on the teeth. The teeth are worn down from the rectangular crosssectional shape to a more rounded shape

Page 18, March 1997



Grunt - Pigorian Chant

Another Book Report
 By Linda Fox

And how, you may be thinking, does a goat farmer have any time left to read books? Especially this time of year with kidding and shearing/combing? The answer is: Read very small books. Like this one.

Grunt - Pigorian Chant, by Sandra Boynton is a charming little book (5-3/4" square to be exact) with all of 32 pages. It was published in 1996 by Workman Publishing Company, Inc., New York. The book comes with a CD which contains the chants.

Boynton is perhaps better known for the cute animal cartoon characters you frequently find on coffee mugs and notepads, but her book is delightful and the CD is also nice, especially if you are into Gregorian-type chants.

The story is of the farm animals of Snouto Domoinko de Silo located in "an overgrown valley outside an obscure town in an insignificant country on a forgotten continent." Here live the "pleasantly obeisant Domoinkan Pigs." And, of course, they are known for their chants.

The book begins with a short story about the pigs and their town and tries to explain exactly why it is they choose to chant. The rest of the book contains all the words for the chants, including parts for pigs, chickens, ducks, sheep, cows and the resident farmer. The chants are in Latin (of course) except for the pigs' parts, which are in pig-Latin. All chants have been translated to English for the non-Latin speaking crowd and for those of us who may be a little weak on our pig-Latin.

The chants on the CD are soothing and melodious and if you heard them from a sophisticated sound system in a trendy restaurant (and didn't happen to hear the occasional E-I-E-I-O), you wouldn't even guess that farm animals were involved.

All in all, I'd recommend this book for a little diversion and a CD to play for background music next time you want to impress guests with Latin chants. You could even use the printed words to sing along.

My only complaint...no chanting parts for goats. I guess they're just not into that.

Cashmere's Story

By Forte Cashmere Co.

The name "cashmere" comes from Kashmir, the wild and mountainous area of India and Pakistan. Actually, the fiber came from Tibet and was woven in Kashmir. We know that in 15th Century India, more than 50,000 people were employed in the processing of cashmere.

Cashmere's use as a luxury fiber can be dated as far back as Roman times. More recently, it was popularized by the Empress Eugenie, wife of Napoleon III, who had the fiber woven in France into her famous "ring shawl"—so called because it could be drawn through her wedding ring.

Late in the 19th Century, a Scottish manufacturer, Joseph Dawson, developed the first mechanical method of separating the fine down fibers in the goat's fleece from the coarser outer hairs. This breakthrough shifted the cashmere manufacturing to Scotland and the modern era of fine cashmere knitwear began. Recently this business has shifted back to China, the origin of the fiber. Importing the latest technology and quality control from Japan, China has become the major source of high quality cashmere knitwear.

The best cashmere garments are, to a great extent, made by hand. This starts with the combing of the goats. Each goat is combed by hand in the spring when they are shedding the fine underdown that protected them during the winter. These fleeces are then washed and dehaired, dyed and spun mechanically. The hand work returns in the knitting.

Each knitting frame is operated by hand. The knitter pays careful attention to the specifications of the garment being knitted. Critical factors like yarn tension and garment shape are monitored continuously.

The knitted panels are then linked together by hand, a laborious process. Seams are linked stitch by stitch, not butted and sewn as in cheaper garments. The garment is then washed to achieve just the right *handle* or *touch*. This process is monitored by an expert in the art.

The finished garments are then individually inspected to insure perfection. All this hand work is what separates a Chinese made garment from garments from other sources where the labor is too expensive to allow for this kind of individual attention.

The finest cashmere comes from the high desert pla-

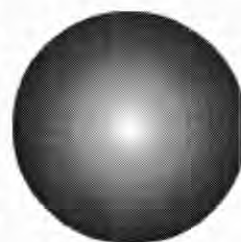
teaus surrounding the Gobi desert. The yarn is so fine that it takes 7 miles of it to make 1 sweater.

Understanding Cashmere's Value

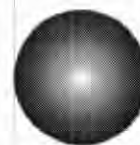
It takes 1 cashmere goat 4 years to grow enough cashmere for 1 sweater!

The yarns used in a cashmere garment are the finest that can be produced with current technology.

Cashmere is extraordinarily fine as these cross-sections indicate:



Human Hair



Fine Wool



Cashmere

In the spring, the cashmere is combed from each goat by hand. As a result, there is very little cashmere produced each year. The cashmere crop is 1/100 of the wool crop and 1/5000 of the cotton crop.

All cashmere is not created equal. The quality varies considerably. Lower priced sweaters are made from

Continued on next page



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Cashmere Goats
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Home of
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Cashmere's Story

Continued from previous page

lower quality fiber. Your fingers can tell the difference. Value is a combination of price and quality.

European and Scottish manufacturers use Chinese cashmere, but cannot afford to include the amount of hand labor that goes into the finish detail included in a Chinese made sweater.

A two-ply yarn is better than a single-ply yarn because it is more even and stronger. Fabrics made from two-ply yarn drape better because there is less torque in a two-ply yarn. However, increasing the plys beyond two does *not* increase the quality; it just increases the weight of the fabric.

Frequently Asked Questions about Cashmere.

1) If two-ply is good, is three-ply better?

Three ply indicates a weightier sweater, not a superior one. Adding a third strand simply thickens the yarn.

2) How can you tell the difference in cashmere?

Your fingertips can tell you quite a lot; they are able to distinguish the difference of one micron. A human hair is about 50 microns; fine white Chinese cashmere fibers are under 16 microns. This is what makes it so luxurious to the touch.

3) Do some cashmere sweaters actually pill less than others?

Quality cashmere fibers are usually spun into very fine yarns; 20 kilometers per kilo for a man's sweater, 24 kilometers per kilo for a woman's. Yarns this fine must be made from long fibers. When a sweater pills, it is actually releasing short fibers that are then abraded into little balls. The longer the fiber and the tighter the knit, the less the sweater will pill.

4) When a label says "100% cashmere," does that mean it's the finest?

All cashmere is not created equal. Where it comes from, how it is collected and sorted, the way it is dyed or bleached all play a part in determining the characteristics of the fiber.

Chinese cashmere, because of its fineness, length and whiteness, is the primary source for better sweaters; Mongolian cashmere is preferred for fine quality wovens as well as knits.

5) Why can't we simply breed more cashmere goats?

It's been tried, in places such as the British Isles, Australia and New Zealand. But keep in mind that the finest cashmere comes from the areas of the world with the worst climatic conditions. It's nature's way of protecting the goat from the rigors of extreme cold and wind. Underneath the coarse outer hair a fine, silky insulating undercoat grows. This is pure cashmere fleece and to date, the silkiest, whitest, longest fleece is found only on animals of the Far East.

6) Why is cashmere so expensive?

A simple case of supply and demand. The annual cashmere, in tonnage, is only a fraction of that of wool or cotton. A goat will only produce about 4 ounces of fine cashmere fleece in a year. This means it would take 2 to 3 years for 1 goat to produce enough cashmere for a woman's sweater, 3 to 4 years for a man's sweater, 4 to 5 years for a man's sportcoat and about 10 years for an overcoat.

Information above reprinted, with permission, from Forte's internet pages at <http://www.cashmere.com/story.html>.

Content by Forte Cashmere Co.

Forte's web site created by Smith Forte, s4te@earthlink.net

A Goat Named Dolly?

None of the goat research involved cloning (i.e., the current controversy over the cloned sheep called "Dolly.")

The *Wall Street Journal* (February 25, 1997) reported a US company, Genzyme Transgeneics, Corp., Framington, MA, is using genetically engineered goats for treating cancer, trauma and other disorder in humans. However, they are not pursuing cloning. However, they are not pursuing cloning. The debate over cloning continues. Will it ever be used in the cashmere industry? Only if we find the perfect goat and it becomes economically viable to create exact duplicates of it. Meanwhile, we will all keep doing it the old fashion way, with our breeding schemes, simple or elaborate.

As a side note, the two Scottish researchers involved in the cloning of "Dolly" are now in the US working for private industry, as their research program had concluded and funding ended.

Lambing (Kidding) Tips

Picked up at Oregon State University's
1997 Lambing School



We attended the 1997 Oregon State University Lambing School, a one day, hands-on class presented by James M. Thompson, PhD, Extension Sheep Specialist and Dr. Don Hansen, Oregon State School of Veterinary Medicine. The day was spent in Oregon State's lambing barns which were filled with new lambs and pregnant ewes of various breeds.

The class was hands on (and hands in). Everyone got to check out soon-to-be-born lambs inside a ewe for abnormal positions, jug mother and babies, dock tails, castrate male lambs and practice tubing a lamb.

Soon after our arrival, before we even had time to consume our first of many cups of coffee (it was cold!), one ewe they hoped would lamb later in the day decided she didn't want to wait. She stood patiently while Dr. Hansen aided us in gloving up and checking around inside. Then, she dutifully gave birth to twins while we watched—both born normally without requiring assistance—although, much to her dismay, we assisted anyway.

Later in the day, three more ewes gave birth, two had twins and two to triplets. The ewe giving birth to triplets had difficulties. Her water bag had appeared, but an hour and a half later, she had shown no signs of straining. Dr. Hansen went in to investigate. He had planned on letting us take turns in assisting, but found such a mess, he took charge and completed the deliveries himself. As he hauled out the three lambs, the class took charge of making sure they were cleaned and breathing until the mother could take over.

At the end of the day, we felt tired, extremely dirty and much better prepared for lambing/kidding

than when we came. Tips we picked up during the day from Dr. Hansen and Dr. Thompson, which should be just as applicable to kidding as lambing are as follows:

Most births are normal and require no assistance from the shepherd. However, once the shepherd has decided to intervene, he should take charge of the situation and assist until the birthing is complete. Dr. Hansen stressed that, in his opinion, once you decide to intervene, assist 100%. In other words, once you go inside the ewe because you believe there is a problem, you should assist with delivering all the lambs.

You would make a decision to intervene if things don't proceed normally. Dr. Hansen defined normal as a normal progression of events as follows:

1. Water bag appears
2. Progress continues on schedule
3. Lambs are in normal birthing position
4. Dilation is complete and there is enough room for birth

Lambing difficulties happen because of three things:

1. Malposition of babies
2. Lamb too large to pass through birth canal
3. Cervix not dilated.

If the problem is malposition (he considered both the front and rear presentations of the kid as normal positions), you must first correct the baby's position. **Don't try to deliver a lamb until it is in one of the normal positions**—either of the normal positions. Two lambs cannot be born at once.

When the lamb is ready to be born, messages are sent from the baby to the mother through the umbilical cord. This "message" prompts the mother to release hormones which cause the uterine contractions to start. The uterine contractions cause the lamb to straighten out.

The mucus plug is expelled minutes or days before birth. The next sign of birth is the appearance of fluid-filled sack (water bag). After the water bag appears, regular progress should be seen. From appearance of the water bag to first lamb on the ground should not be longer than 30 minutes.

The entrance of the lamb (or anything else, including your arm) into the birth canal triggers strain-

Continued on next page

Lambing Clinic

Continued from previous page

ing by the mother. The lambs in the birth canal also trigger release of pheromones in the mother which increases her maternal instincts and heightens her sense of smell. The lamb in the birth canal also stresses the lamb. Per Dr. Hansen, **there is a balance between the value of triggering maternal instincts and increasing stress on the lamb** which must be considered.

During our class day Dr. Hansen made a decision to intervene in two births. The first intervention of the day was only for the purposes of class illustration. The second intervention was made due to the fact a water bag had appeared and no further progress had been made. Even though birth had obviously started, an hour later the ewe had shown no signs of straining. We later learned that this was because there was nothing in the birth canal to trigger straining by the mother.

The most common malposition for lambs are the baby's front "elbows" locked behind the mother's pelvis. Even though the position appears normal at first (two toes pointing downward and a nose), the legs are actually hung up. The nose, upon closer inspection is found lying on the toes rather than behind the first joint of the leg. To correct this position, after making sure that both legs belong to the same lamb, they are straightened by pulling one at a time. When the legs are straight, birth can proceed normally.

Per Dr. Hansen, **a malposition should be corrected in no more than 5 - 10 minutes. If it can't be done in that time, professional help should be called** (either a veterinarian or a more experienced neighbor) to avoid excess stress on the lamb and ewe. As labor progresses and if no lambs are delivered, the lambs may lose the "connection" of their placentas to the uterus, cutting off their oxygen supply.

Normal time between the first lamb born and subsequent lambs is 20 minutes to an hour.

After the lamb is born, the lamb needs, in order, air and energy. The first order of business is air. The lamb needs to breathe no later than 3 minutes after the umbilical cord breaks. Next order of business is food. The lamb needs colostrum as soon as possible. Colostrum is manufactured by the ewe in the last one to two weeks before lambing. When the lamb is born, the mother no longer manufac-

tures any more colostrum. This fluid contains energy and antibodies that the lambs need for survival. The immunoglobulins, large protein antibodies contain immunization for the lamb to all diseases either contracted or immunized against in the mother. For only the first 24 hours after birth, a lamb's gut is permeable (becoming less so as the 24 hours passes). Only during this permeable time, may the antibodies pass through the lamb's gut into its bloodstream. If 24 hours passes before the lamb receives colostrum, they will have no disease protection even with a later feeding of colostrum as their gut will no longer be permeable.

Dr. Hansen explained that **colostrum from another ruminant is better than no colostrum at all**. Some diseases are general to all ruminants and even cow colostrum given to a lamb would provide some protection.

A ten pound newborn needs the following amount of milk during its first three weeks of life:

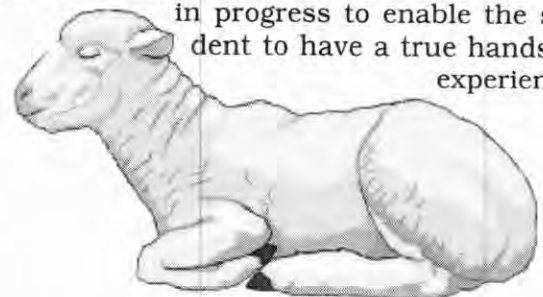
Week one	40 oz/day
Week two	50 oz/day
Week three	60 oz/day

He explained that, using the table above, the milk requirement for a smaller or larger lamb may be mathematically adjusted for body weight.

Dr. Thompson presented valuable information on castration and tail docking of lambs which was also a hands on experience. He showed various tools of destruction used for castration. Class members castrated and docked several lambs using the elastrator.

Dr. Thompson also talked on nutritional requirements of sheep. We will present this information in a later article after we have a chance to translate it from sheep to goat (if necessary).

I would recommend that anyone wanting more information about kidding, attend a lambing clinic. These will be easier to find than "kidding clinics" and, if connected with a large facility, such as a college or university, would likely have actual births in progress to enable the student to have a true hands on experience.



Calendar of Events

Association Contacts

March 22, 1997

FoxMoor Farm's Field Day
Silverton, Oregon, Carol Spencer 503-873-5474
Combing demonstration and questions answered

May 17, 1997

Fiber Fest
Skagit Valley Fair Grounds, Mount Vernon, Washington, 360-724-5371

June 7-8, 1997

8th Annual Big Sky Fiber Arts Festival
Hamilton, Montana
PO Box 1525, Hamilton, MT 59840, 406-777-4178

June 20-21, 1997

Black Sheep Gathering
Eugene, Oregon, 503-621-3063

June 25-27, 1997

Fiberfest '97: The Forum
Lakeland Community College and Lake Farmpark,
Kirtland, OH
70 workshops on all aspects of natural fiber industry
For information contact: Fiberfest '97, PO Box 508,
Novelty, OH 44072, 212-256-3828

June 28-29, 1997

Fiberfest '97: The Festival
Vendors, animal displays, competitions, workshops
Location and contact information same as Forum
above

September 19-21, 1997

PCMA Business of Cashmere Conference III
Bozeman, Montana, Holiday Inn Convention Center
For information, contact PCMA at 406-683-5445,
fax 406-683-5567

September 27-28, 1997

Oregon Flock & Fiber Festival
Angora, cashmere, pygora—livestock and fiber shows
and sales, Clackamas County Fairgrounds, Canby,
Oregon. For information contact Brandy Chastain,
Whistlestop Farm, 503-628-1205

American Meat Goat Association

W. E. Banker, President
512-384-2829

Cashmere America Co-operative

Joe David Ross, Manager, 915-387-6052
fax 915-387-2642
Wes Ackley (Maine) 207-336-2948
Marti Wall (Washington) 360-424-7935

Cashmere Producers of America (CaPrA)

Marilyn Ackley, President, Phone/fax 207-336-2948,
ackley@megalink.net
CaPrA office: 512-452-5205, fax 512-452-5521

Colorado Cashmere and Angora Goat Association (CCAGA)

Carol Kromer, Club Contact, 719-347-2329

Eastern Cashmere Association (ECA)

Ray Repaske, President, 540-436-3546

North West Cashmere Association (NWCA)

Cliff and Mickey Nielsen, 509-658-2502

Pacific Northwest Boer Goat Association

Harriett Morley, Coordinator, 360-748-0157

Professional Cashmere Marketers' Association

(PCMA), Tom and Ann Dooling, 406-683-5445
t_dooling@wmc34b.wmc.edu

Texas Cashmere Association

Dr. Don Huss, President,
915-396-2920 or 915-396-2195
tca@webstar.net

Western Prairie Cashmere Association

John Harris, President, 308-635-1579
JHarris@Hannibal.WNCC.CC.NE.US

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<http://ourworld.compuserve.com/homepages/GIANTSTRIDE/>

The world of Merck, the pharmaceutical Co.
www.merck.com

It provides a search for drugs, publications, etc.

Hungarian Ag sites - links to Ag and veterinarian schools in Hungary. Well done pages
www.omgk.hu/agrweb_e.html

University of Zagreb, Croatia, Faculty of Agriculture
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