CASH MIRROR

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The monthly magazine devoted to cashmere goats and their fiber

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CASHMIRROR

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Linda Fox, Goat Knoll
"...and then the Big Bad Wolf said..."

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Important Notice
CaPrA *Concerning Cashmere* Delayed Due to Flooding (?)

Kris McGuire, CaPrA President reports that the March/April edition of the Concerning Cashmere newsletter will be mailed late.

After an extended abscense, Kris returned home to a flooded basement. As soon as she wrings out her computer, she will get right on it!

Fleece Contests!

Here's the deal:

This is THE year to enter cashmere fleece contests. During the past few years, there has not been a National Fleece Contest as such. There has been, however several regional contests. Two of these regional contests—one sponsored by the ECA (Eastern Cashmere Association) and one sponsored by the NWCA (North West Cashmere Association). The past two years, these two contests have been so close together, it was impossible to enter the same fleece in both contests.

This year is different!

The NWCA Fleece Contest will be held during the week of July 13-18 in conjunction with the Crook County Fair, in Prineville, Oregon. The judge will be Joe David Ross from Texas.

The ECA Fleece Contest will be held during the last week of September in conjunction with the Virginia State Fair. The judge will be the noted Bob Bucholtz also from Texas.

A clever person can now enter their best fleeces in both contests and truly beat them all, rather than having to pick and choose which fleece to send to which contest.

So, here's what to do:

Watch this space in subsequent issues. We will list in this space how to do it. If you don't intend to deliver your fleeces to the event, you will need to mail it to someone by some deadline. Usually there is a small fee and a small form involved. We'll tell you here how to do it. Let's make these Texas judges work through a mountain of fleeces for both contests. Let's show the big guys with the big hats from the big state that we too know how to do things big!

And may the fleece be with you...

Reflections

by Linda Fox

I've never had much success combing the goats—even in the early years, when we only had three. Timely combing is just one of those things that doesn't happen here, despite all the best-laid plans. For shearing, both Paul and I share the chore, but combing requires too much extended bent-back work, so the chore falls to me, the person closest to the ground.

The first year we had goats, I combed the three girls much too late. By the time I salvaged the cashmere, only a few matted remnants were still hanging in the ends of the guard hair. I retrieved what I could, bagged it, stored it and later sold it, guard hair, mats and all.

We had a professional shearer come in the next year. We had more goats by then and decided we were too big to attempt to comb them all.

The year after, we couldn't find anyone to shear for us at the time the goats needed to be sheared so, after a brief and unsuccessful attempt at shearing our own goats, we decided to comb the herd. Perhaps we could hand dehair our crop. We still had lots of goats, but we had all year to get through the stack so why not give it a try?

I don't remember any free time activities that spring except catching and combing goats. On the long-haired goats, we first cut back the guard hair to supposedly make combing easier and also to avoid the dreaded Short Low Yield category of the commercial buyers. Combing was a chore. It was hard work, most of our goats fought it, and we didn't get to it nearly often enough. I'm sure that half the crop was lost to the wind.

I hand dehaired a bit of the stack of combed crop for my own spinning use during the next year, but even after the next year's harvest, most of the combed cashmere was still stored, with all guard hair still intact. We eventually sent it out for commercial processing.

In theory, it sounds like an excellent idea to hand dehair cashmere, but around here, it just doesn't happen. I enjoy hand-dehairing, but my hands are usually busy with other projects.

In subsequent years, we sheared most of the goats, except for a handful of goats which have cashmere that I especially like to spin. Those I will patiently comb and, over the following year, usually get those wretched guard hairs removed from the fluff.

This year I decided to give combing another chance. I decided to comb the 20 doelings kept from the 1998 kidding year. They are small so they shouldn't have as much cashmere on them and they should be easier to restrain. The additional handling should also pay off in friendlier adult does. And, if all else fails, I should have good data on how long it takes to comb and over how many separate combing sessions. It would certainly make a good story.

On February 12th, I labeled 20 bags, assembled supplies, printed a barn worksheet from the computer data base and headed for the barn. The plan was to comb these doelings every Friday. I would comb on them for as long as it took and for as many Fridays as they were still shedding. At the end of the harvest, I would analyze my notes and draw conclusions about who shed when and how much and how long one can expect the whole process to take.

I spent most of that day in the barn. In addition to combing, I also gave them their annual CD&T booster, wormed them and trimmed their feet. I decided to train them to jump up on the milking stand for their maintenance chores.

Most of the doelings were not shedding yet and those that were shedding were releasing mostly on their rumps. Ha! My first bit of useful data!

The next Friday (2/19), I took the box of sorted-by-number, partially-filled, individually-labeled bags and a new computer-generated worksheet to the barn and combed the girls again. It took most of the afternoon. They were shedding more than last week, but not much. I took good notes on who I liked and who I didn't and noted who needed to be culled.

I was too busy the next two Fridays (2/26 & 3/5) to comb on the doelings. The next time I got to it again was March 7th, a little over two weeks since the last combing. The goats who had not yet started shedding at the last combing were now beginning to release. For one goat, this was her last combing. All of her cashmere had been released over the course of three weeks.

On March 16th, a little over one week later, I combed them again. Five more doelings hit their last combing. It seemed that later combings bring out more guard hair with the cashmere. Of the 14 remaining doelings, 11 had released most of their cashmere, one loaded one had just started to release and for the two who escaped into the pasture before I could catch them, I have no idea of their status.

Unfortunately, that is the last time I combed them. From afar, it looks as if some of them still have a few casgnere remnants. I should catch them all one more time, comb anything out that's left, make a few final notes, weigh their little bags and try to draw some conclusions. However, as usual, the plan was good, but the follow through (and therefore, the data) will be somewhat incomplete. Maybe next year I need to be less ambitious and choose 5 or 10 goats to study instead of 20.

The good news is that these doelings are considerably friendlier than the prior year's crop and this gave me a good chance to get to know them up close and personal.

THE UDDER

From the United States Extension Goat Handbook
By G. F. W. Haenlein and R. Caccese, University of Delaware, Newark

Editors Note: I can hear you mumbling, "Heh! We have fiber goats! We don't have to worry about those bothersome udders." As much as I too love to see a photograph of a goat other than from the hind end featuring a huge distended sack of milk, I believe that we also need to worry about the udders. They are an important part of our fiber goat's (and their kids') health.

Udderly delicious!

The udder of goats consists of two separate halves with a single gland in each half. The udder is a gland derived from the skin, and has no direct connection with the abdominal cavity except through the inguinal canal, through which strands of blood vessels, lymph and nerves enter and leave the udder.

The size of the udder depends on age and stage of lactation of the animal but should be well developed. Viewed from behind, the udder should appear deep and broad with high and wide attachments. Ideally, the two halves will be symmetrical, with a slight cleft between them.

Viewed from the side, the back end of the udder should be well contoured, rounded, deep, with smooth, strong rear attachments. The fore udder should extend forward from the teats, merging gradually into the abdomen on a forward reaching angle. The lack of good fore udder attachment often leads to a pendulous looking udder, especially during the heavy periods of lactation.

The udder quality should be free of lumps and fibrous or "meaty" conditions. Each udder half should have only one teat, although supernumerary (extra) teats are not uncommon, being located mostly posterior to the true teat. The size of the teats varies greatly among goats; some are quite small and short, making it difficult to milk them; others are very large, plump, and funnel shaped and even sometimes with seemingly no apparent point of connection to the udder.

Supporting Structure

The separation of the goat udder into halves and their support is achieved by the medial suspensory ligament, which is comprised of two strong sheets of elastic tissue which attach to the pelvic arch. Strong support from this ligament is required during the periods of heavy lactation in order to prevent the formation of a pendulous type udder. A flat floor to the udder is an indication that the ligament is in fact weak. A good udder support should have a slight crease or inverted "V" shape between the teats.

The lateral suspensory ligaments form a fibrous layer on the outer surface of the glands, joining the medial ligaments on the bottom side of the udder. Fibrous connective tissue will also penetrate the glands, joining with the interglandular supporting tissue, thus lending support to the entire udder.

When the udder fills, it stretches the median suspensories, causing the teats to protrude outward and downward. This allows for the greatest expansion of the udder with a minimal amount of dropping of the udder. Around 40% of the milk, that is produced by the mammary gland, is held in the natural storage spaces of the udder. The other 60% must be accommodated by stretching of the udder. When and if these ligaments weaken, the udder will begin to break away from the abdominal wall.

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Inner Structure

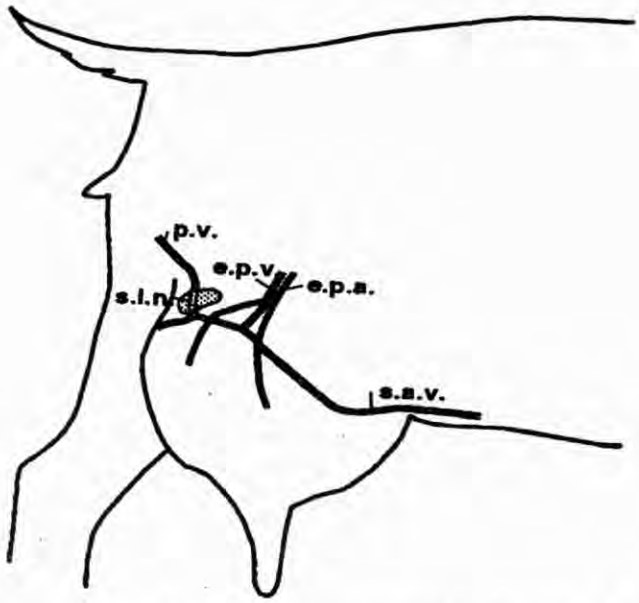
The basic units of the mammary system are the secretory cells known as alveoli, or acini. These production sites are extremely small, having a distended diameter of about 0.01 to 0.03 mm. In a single cubic centimeter of mammary tissue, over one thousand alveoli could be present.

Groups of alveoli are bound together by a wall of connective tissue that isolates the enclosed groups into functional units known as lobule. These lobules are in turn connected together like grapes by more extensive connective tissue into groups called lobes.

The alveoli are surrounded by myoepithelial (muscular) cells, which are responsible for the milk "let down" that occurs through the release of the hormone oxytocin. These cells are also found throughout the various ducts of the mammary system. Milk production within the alveoli is inversely related to the pressure exerted on the alveoli from the buildup of milk.

A series of ductules and ducts, or milk canals, lead from the lobules and lobes to the storage area located at the distal part of the udder, just above the teat, called udder cistern or gland cistern. It is capable of storing about a pound of milk, but the majority of milk is retained within the alveoli, lobules, and ductules.

From the udder cistern, milk passes into the teat cistern, which terminates into the streak canal, the final passageway. The distal end of the streak canal is kept closed by a dense, elastic tissue consisting of circular smooth muscle fibers popularly called sphincter but being not a true sphincter by definition. Because of the lack of a true sphincter muscle, it is possible, although difficult to remove milk from a goat udder that has not undergone the let-down reflex.



e.p.a. = external pudendal (mammary) artery; e.p.v. = external pudendal vein; s.a.v. = subcutaneous abdominal vein; p.v. = perineal vein; s.l.n. = supramammary lymph node

What's in the bag?

Spreading from the streak canal up and into the teat cistern is a structure consisting of several folds of mucous membranes, each having several secondary folds. This structure, known as Fuerstenberg's rosette, aids in the retention of milk within the teat. It also prevents bacterial entrance into the gland. It functions as a plug and seal, so that as pressure builds within the udder this rosette closes off the teat cistern and milk leaking is prevented.

Blood Supply

The main blood supplies to the udder are the posterior aorta, the right and left common iliac arteries, the external iliac arteries and the external pudic arteries. From the external pudics, the mammary arteries arise at the base of the udder. As the arteries pass upward and forward through the udder, numerous lateral and cranial branches arise. They break off into finer arteries to supply the lobules and alveoli.

It appears that the size of the external pudic artery has some determination on the development and size of the udder. If the external pudic is severed experimentally, the small arteries of the udder increase in size. Milk production will drop off to almost nothing for the first few days, then gradually return to normal. The return increase parallels the increase in size of the subcutaneous abdominal arteries to the anterior portion of the udder.

The volume of blood flow through the udder in a lactating goat has been estimated to be 280% of the minute-volume of the heart, or

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1,200 liters of blood per day. On the other hand, arterio-venous difference measurements have established a relationship of 400 volumes blood for each 1 volume milk, i.e. for a gallon milking goat it would mean 400 gal blood flow per day.

The venous system is more pronounced and evident than the arterial system, and blood vessels that can be seen on the udder or abdomen are veins, not arteries. The external pudic vein is the principal component of the venous system, passing back out of the udder close to the caudal border and into the abdominal cavity through the inguinal ring, finally returning to the heart via the posterior vena cava.

A second return system is via the subcutaneous abdominal veins (milk veins) that run along the abdomen until they pass through the milk well back into the thorax.

The mammary veins develop from the external pudic veins at the posterior basal border. They turn forward along the basal surface of the udder until they merge into the subcutaneous abdominal veins.

Lymph System

Few studies of goat lymphatic systems have been done, although it appears that they may be similar to the lymphatic system of cattle. The supramammary lymph nodes have been observed to be located in corresponding locations between goats and cows.

Lactation increases the flow of lymph through the mammary glands ten-fold. Flow rates of lymph undergo large variation depending on the time of day. Mild exercise also elevates the rate of lymph flow sharply. Suckling or massaging actions will increasethe flow of lymph, but a machine milking does not seem to produce this effect.

The mammary lymph of cows, sheep and goats appears to be basically similar in composition, with a protein content of about 56-59% of plasma values, decreasing in level before parturition and during early lactation. Ratios of albumen to globulin are higher in lymph than in plasma.

Nerve Supply

The udder of the goat appears to be supplied by one primary nerve, the external inguinal, which divides into two branches. The superficial branch runs to the abdominal muscles and the deeper running branch passes through the inguinal ring, following the external pudic artery and vein in the udder. This branch in turn branches off into two again. They are termed the ramus medius and the ramus inferior. At the base of the udder, the ramus medius divides into 3 branches, the smallest of which innervates the pudic vein; the larger, ramus papillaris enters the teat, and the ramus glandularis joins the larger milk ducts and the udder cistern.

The ramus inferior enters the udder between the external pudic vein and artery, where the main branch can be traced to the vasuclar system.

The udder is of primary importance to goat dairymen, thus a basic knowledge of it's form and function is very valuable.

"Those may look attractive now, Martha, but wait until she's four—She'll be stepping on them! Then see who gets culled!" (Photo by Michael Keller, Kellers Kritters, Arlington Washington.)

Mastitis

By Linda Fox

Mastitis is a broad diagnosis given to an inflammation of a goat's mammary glands which is indicated by a change in the udder or the milk. An acute case of mastitis may leave a portion of the udder permanently damaged, thus being able to produce less (or no) milk. Also, in acute cases, left unchecked, there can be a rapid advance to a gangrenous condition. The udder may putrefy and slough away and the doe die in high fever.

The udder inflammation can be caused by a variety of bacteria or fungi and may be passed from one goat to another, or it can be noncontagious, caused by an injury to the udder or poor milking practices.

An indication of mastitis is a change in the appearance of the udder or milk. The infection may be in one or both sides of the udder. The udder may appear red or swollen or be asymmetrical. Milk may be "pinkish" (containing blood) or be stringy or clotty. The doe may appear to be limping, by avoiding contact with the painful side of the udder with a back leg. There may be a decrease in the amount of milk produced. Hungry kids may be trying to tell you about a case of mastitis in their mother. In severe cases, a doe may lose appetite and run a fever.

There are mastitis tests available for the producer (such as the simple CMT—California mastitis test), involving the testing of milk from the suspect udder, but these tests are best used as a way to rule out mastitis rather than to determine treatment. In dealing with a bacterial infection, you will need to enlist the help of a veterinarian to identify the specific bacteria involved and prescribe the appropriate antibiotic for treatment. Treatment with antibiotics may be systemic or by infusion of the udder with antibiotics using a tube.

Mastitis caused by injury—due to accident, damage by kids or poor milking practices—is normally treated with hot compresses, massage and frequent milking.

Mild or chronic forms of mastitis caused by bacteria or often characterized by lumps, bumps, or hardness of the udder and there will usually be some milk abnormality present.

Acute mastitis is characterized by loss of appetite, a hard, swollen udder, abnormal milk and a decrease in milk yield.

It seems that there are fewer mastitis problems with fiber goats than dairy goats. Perhaps this is due to smaller udders, lesser milk production and the more frequent milk removal by kids than by a dairy's artificial means.

General good health of the goat will help prevent mastitis. The goat should have a dry, clean place to lay. Prevent contact of healthy goats with mastitis-infected goats.

To avoid undue stress and possible injury to the udder after a doe kids, make sure that the teats are not plugged and that the kid/s are nursing both sides. Some does will have larger teats that, when very engorged with milk, will be too large for a new kid to easily take in its mouth. You can aid this process, at first, by milking the fat teat out somewhat to make it a more manageable size for the new kid.

Even though you're not dealing with your goats' bags twice a day, as in a milking operation, you need to keep an eye on them for potential problems—especially during the milk production months.

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Milk Secretion

From the United States Extension Goat Handbook
By G. F. W. Haenlein and R. Caccese, University of Delaware, Newark

Growth and Development

The mammary glands of goats are specialized cutaneous glands, related to the sebaceous (oil producing glands of skin and hair) and sweat glands. From a physiological viewpoint, they might be classified as accessory reproductive organs, as they are intrinsic to the reproductive function. Mammary glands are present in both sexes. Functional activity in the male is rare, although milk secreting glands have been developed in both virgin does and bucks by repeated gentle massage of the mammary area. Differentiation in growth of mammary glands between the sexes is usually not obvious until puberty. At that time, glandular enlargement occurs in the female. Most of it is in increased amount of connective tissue and fat deposition, but not increased formation of secretory tissue. Estrus periods bring on increases in the development of the secretory and duct tissues, with a recession during the anestrus period. The process of enlargement is minimal however, and the glands will not approach a functional state until the animal becomes pregnant.

Growth of lactating tissue is dependent mainly upon two hormones, estrogen from the developing follicles and progesterone from the corpus luteum. The corpus luteum is the naturally regressed stage of the follicle after it has ovulated, releasing ova into the oviduct. Estrogen, which is cyclic, stimulates the duct development of the mammary gland. Progesterone is almost continuously secreted during pregnancy, causing secretory tissue development. As the gestation period nears its end, the mammary glands become capable of producing milk. After parturition, the rate of milk secretion increases for some time, reaches a peak, and then gradually declines. A loss of secretory epithelial cells occurs during involution, although some new cells are being formed. The general activity level of the individual cells declines also. At the cessation of milk production, secretory epithelial cells will totally disappear, leaving only myoepithelial cells. The frequent release of oxytocin may slow down the rate of the involution process and some goats may secrete milk for years continuously.

Milk secretion during lactation tends to inhibit the normal cycling of the estrus periods, with some temporary suppression of ovulation. With time, there will be a return to normal estrus cycles. Milk production will decline, and the glands will go into involution; although not complete, since the glands increase in size with successive pregnancies.

Hormones other than estrogen and progesterone that influence development of mammary glands or lactation originate from the hypothalamus and pituitary glands of the brain.

The anterior pituitary produces, in response to stimulation of the hypothalamus, six hormones, which exert either a direct or indirect influence on milk secretion. Somatotropic or growth hormone (STH); follicle stimulating hormone (FSH); luteinizing hormone (LH); prolactin (most intimately associated with initiating and maintaining lactation); thyrotropic hormone (TTH); and adrenocorticotropic hormone (ACTH).

The posterior pituitary stores two hormones from the hypothalamus both related to lactation. Vasopressin or antidiuretic hormone (ADH), decreases the amount of water lost in the urine, retaining it instead for use. Oxytocin is best known for its ability to cause milk "let down" in mammals, although it is also capable of stimulating contractions in other smooth muscles such as the uterus during estrus and parturition, as well as in the urinary bladder and intestine.

The pars intermedia of the pituitary secretes the hormone intermedin, which has some effect on water metabolism.

In mature goats secretions of FSH stimulate follicular development, which then becomes a source of estrogen. LH, working in the presence of FSH, produces ovulation;

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Does it take three milkers to remove milk from one goat? From left to right: Linda Fox, Sue Cullers and Harriett Jensen steal milk from a doe to feed a needy kid.

Milk

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and from the corpus luteum progesterone is released.

Estrogen by itself generally stimulates duct development of the mammary glands, while estrogen and progesterone together cause lobuloalveolar growth. In the goat, however, estrogen alone will initiate abnormal development of the mammary, producing dilated alveoli and even milk production in some cases. High levels of estrogen in circulation have a negative effect on feed consumption and milk production in goats. Estrogen and progesterone are required both for the complete development of the mammary system, along with the other pituitary hormones. Large amounts of prolactin are to be used just prior to parturition in response to the higher levels of estrogen and progesterone at this time. Prolactin matures the alveolar cells to a functional condition. STH and thyroxine, also exert an influence on the amount of milk produced. Small injections of estradioltestosterone produce a colostrum-like milk in goats, while large doses produce a watery, clotted milk secretion.

The hormone of most interest is oxytocin. It is responsible for milk let-down, causing the myoepithelial cells that surround the alveoli to contract, forcing the milk out into the ducts of the udder. Oxytocin release is initiated in several ways, the most natural being nursing. It will directly stimulate the afferent nerve fibers of the teat, causing the release of the hormone and transportation via the bloodstream to the mammary glands, with subsequent contraction of the myoepithelial cells. This milk let-down reflex can also be initiated by other repetitive occurrences, such as washing the udder, approaching the milking area, the sounds of the milking machine or milk buckets, or even the sight of the milker.

The process of milk let-down is subject to interference if the goat should become excited through some disturbance. A release of epinephrine (adrenalin) follows such excitation. Epinephrine causes constriction of the small arteries and capillaries of the udder and may prevent the myoepithelial cells from contracting. Therefore, anything that may cause a disturbance or alarm near milking time should be avoided.

After the initial stimulus for let-down, it takes a period of about 20-60 seconds for the response of oxytocin, which influence will last about 5-6 minutes. It is important to milk goats soon after their let-down and not a stimulate more does than can be milked immediately. Due to an inability to completely close off milk ducts, goats in contrast to cows cannot hold back milk flow entirely.

Artificial induction of lactation has been accomplished in goats with good results by injections of hexestrol at a daily rate of 0.25 mg. Pellet implantations of estrogen and progesterone have also successfully created udder growth, with final treatment of estrogens to initiate lactation. Artificial induction of lactation has experimental value, but is not practical for several reasons. Injections must be given over a period of time on a daily basis, or tablet implants must be inserted. The methods are costly, labor intensive, give a low yield of milk, and do not produce income from the sale of the kids. There may also be questions of safety of the milk after using these injections.

Milk Composition

Milk differs in structure and composition from the blood from which it originates. Milk is composed of protein, fats, sugar and mineral salts. The osmotic pressure of milk is essentially equal to that of blood. The pH at 6.5 is slightly acidic. Milk contains higher levels of sugar, lipids, calcium, phosphorus and potassium than blood, but lower amounts of protein, sodium and chlorine. Proteins also differ, since milk protein is composed primarily of casein, with smaller amounts of albumin, globulins and others. Blood protein, is primarily composed of albumin and globulins. Fat composition differs, as milk lipids are predominantly triglycerides and blood lipids consist of phospholipids and cholesterol. Non-protein nitrogen compounds are also found in milk, such as urea, uric acid, creatine, creatinine and ammonia. Some of these are from the blood system, while others are waste products of the mammary gland.

Lactose, the milk sugar, is a disaccharide carbohydrate that is unique to the mammary gland. Blood glucose is the primary precursor of lactose, besides propionic acid, while acetate (another VFA) is predominantly used in milk fat synthesis. Butyrate is generally distributed fairly evenly between lactose, casein and fat constituents of the mammary secretion.

Milk lipids (fat) consist primarily of triglycerides, although there are small amounts of phospholipids, cholesterol, fat-soluble vitamins, free fatty acids, and monoglycerides. Fat exists in small globules in the freshly secreted milk, averaging under 4 microns in diameter in goats and being smaller than for cow milk. The outer layer of the globule contains phospholipids, cholesterol, protein, and vitamin A and stems from the alveolus. Acetate is the major precursor of milk fat in goats. Goat

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milk fat does not rise or "creamline" as easily as cow milk fat since it lacks the coalescing factor besides being of smaller average globule size. Rupturing the milk fat globule membrane can add to off-flavor problems of goat milk. Since milk fat synthesis depends on the supply of acetate from the rumen, any feeding regime, such as high grain feeding which lowers the production of rumen acetate, will also lower the fat content of goat milk. Supplementing the feed ration with more crude fiber sources, such as hay, sunflower seeds, peanuts in their shells, etc. will restore milk fat levels to normal.

Most major vitamins are found in goat milk, some in abundance. B-complex vitamins are manufactured by the rumen flora. Vitamin K is synthesized in the rumen and the intestine. Vitamins A, D and C tend to be diet related; expecially vitamin A and the precursor carotenoids. Milk levels of vitamin D are usually increased during commercial milk processing. Vitamin A in goat milk is related to blood levels; and no carotenoids are found in goat milk.

Minerals in goat milk consist mostly of calcium, phosphorous, sodium, potassium, chlorine, magnesium and sulfur. Trace amounts of aluminum, boron, bromine, cobalt, copper, fluorine, iodine, iron, manganese, molybdenum, silicon, silver, strontium and zinc are found in milk in less than 1 part per million.

Colostrum

The first milk after a doe kids is of great significance to the young. This colostrum has a high nutritional value and contains antibodies essential for the survival of the newborn. Goats like other ruminants have a 5-layer placenta through which no antibodies can be transmitted from the dam to the kid in utero. Thus the kids depend on the colostrum as their source of antibodies, providing passive immunity until they are developing their own active immune system. The period in which the immunoglobulins can be absorbed through the kid's GI tract lasts 3 to 4 days in goats. Beyond this time, the digestive enzymes in the gastrointestinal tract of the kid will break down the protein structures of the antibodies, rendering them ineffective. The high percentage of these immunoglobulins in colostrum, along with albumin, gives it its thick, sticky consistency.

Globulin, having a high proline content, is also important for the formation of hemoglobin in the young kid. Normal milk is much lower in globulin levels, having instead a higher level of casein. The functional importance of casein is that it is the only milk protein forming a curd upon coagulation in the abomasum thereby creating a slower moving food reserve for the young kid.

The dry matter content of colostrum is much higher than in normal milk, primarily due to the large amount of proteins, especially albumin and globulins. The vitamin content of colostrum is also higher than normal; the lactose content is low. The colostral content of iron is generally about 15 times greater than in normal milk, while vitamin A and vitamin D levels are about 10 and 3 times those of normal milk.

Colostrum or milk bypasses the reticulorumen area because of the formation of the esophogeal groove, thus preventing the milk from laying in the rumen and turning rancid, which would then develop scours. The formation of this groove is in response to the sucking reflex of the young kid. Actual suckling need not occur however, as a kid can drink from a bucket and still bypass the rumen.

Milk Production

Milk production consists of secretion and excretion. Secretion is the formation of milk from its blood precursors within the alveoli. Excretion is the discharge into the lumen, ducts, cistern, teat and final harvest by the milking person. As the collecting ducts begin to fill with the accumulated excretion of the alveolar cells, they experience difficulty in ridding themselves of milk. When the pressure in the udder rises, the cells and lumina of the alveoli become distended, compressing the small collecting ducts. This prevents a pressure overload on the teat sphincter and any leaking of milk.

There is little milk production going on while milking is being done. Udders can extend themselves greatly to hold high volumes of milk. During the first hour after milking, there is no discernible mammary pressure; but a steady, gradual increase in pressure occurs until the time of the next milking. Milk let-down results in a dramatic increase in mammary pressure which will gradually subside, even if no milk is removed.

While much has been said about the virtues of milking at equal intervals (2 x 12 hrs or 3 x 8 hrs) in order to keep up good production levels, studies have shown that the drop in goat milk production may be quite small. However, stress and mastitis incidence can be reduced significantly by equal milking intervals or by 3-times milking for very high milkers.

Rapid removal of milk after stimulation of letdown is essential for complete milking. There is always

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Milk

Continued from previous page

some residual milk left in the udder after milking, but it is normally less in goats than in cows. Regular and complete milking is one of the requirements for continuance of lactation. The stimulus of nursing prevents mammary gland regression. The response is due to release of prolactin from the anterior pituitary. Lack of this hormone hastens mammary involution and drying off of the doe.

Stage of Lactation Effects

There is a great difference in the composition of milk during the various stages of lactation among does. Management practices such as the length of the dry period, feeding program and general health practices play a significant role in the quality and quantity of milk that is produced during lactation.

Colostrum appears to be a waste product from the new development of secretory tissues; and while essential to the kid, is not used for human consumption normally. In some does, during the first few weeks for milk production, there can be evidence of some blood in the milk. This is more common in the heavy producing, first-time freshner and likely the result of rupturing some tiny blood vessels in the udder. Milking the doe 3 or even 4 times a day may alleviate the problem. A lack of calcium may also be involved, and should be supplemented in the diet. Forceful milking is another possibility.

The production level of goat milk increases for about 20-30 days after kidding. During this period of lactation, there is an inverse relationship between levels of milk and fat content. The percentage of total fat as well as the composition of milk fat varies. Towards the end of lactation, fat and protein contents rise while milk yields decrease.

Calcium and phosphorous levels in milk are high in colostrum, then decrease constantly until near the end, when they rise again. During this period, the overall salt content of milk tends to increase, affecting the taste of milk. Somatic cell numbers are also very high normally in late lactation as well as in colostrum.

Persistency of milk secretion throughout lactation can be mathematically expressed by determining the average percentage of decrease in milk for each month, compared to the previous month. Goats, given proper feed and not being rebred, will continue to give milk with a high degree of persistency for a long time. High production on a yearly basis must combine high initial production and good persistency, which is a heritable characteristic.

Age Effects

Milk volume increases with age up to the fourth or fifth year. After that, the volume decreases with advancing age. The rate at which production decreases is slower than the rate at which it increased to maximum yield. The average milking life of a doe may be about 12 years.

Body Size

The relationship of size to milk production provides a misleading picture. Large does are not necessarily more efficient producers. Based on gross energetic efficiency, there is little difference in milk production due to species. Although a goat produces more milk per unit of bodyweight than a cow, the actual net energy efficiency is close. Goats have, however, a relatively high basal metabolic rate and therefore tend to have, among the single-purpose dairy breeds, a relatively high dairy merit and net efficiency.

Estrus

It appears that upon coming into estrus, the doe goes through a decrease in milk production. This is only temporary, and is usually compensated for by a brief period of higher than normal production after the estrus cycle. There may also be an increase in the level of fat produced during the estrus period, as is often the case when milk production is lowered.

Disease Effects

Most diseases, including mastitis reduce milk yields. Fat content will rise due to lower milk production. The solids (and minerals), albumin, globulin and non-protein nitrogen levels will increase, while casein and lactose contents decrease.

Dry Period

A dry period for the doe is necessary to rebuild her body reserves, especially minerals and to prepare for the period of heavy production in the next lactation. Fattening during the dry period can lead to ketosis or pregnancy toxemia problems. A 60-day dry period is considered normal. Goats without a dry period tend to produce less in the next lactation.

Season Effects

Temperature, humidity, management practices and feeds tend to vary with seasons, thereby affecting milk and fat production. Does test lower in the summer than in the winter, not necessarily due to drop in milk production. Does which freshen later in the spring or early summer will usually have a higher test average for the year than does freshening at other times.

There are many variables that can affect quality and quantity of goat milk. Many may be hard to control. Careful and efficient management with a willingness to learn and try new ideas, is certain to increase productivity of the goats and the quality of their milk.

Noses, Teeth, Legs and Butts (Goat Conformation)

By Linda Cortright

Is there a plastic surgeon in your farm budget? What about an orthodontist? If the answer is no then you may need to postpone buying that new John Deere until a few other necessities have been properly addressed.

Last March, during the workshop Kris McGuire conducted here in Maine, I learned that my goats need to be doing a lot more than just growing beautiful cashmere. They need to be built for the range and ready for battle. Kris gave a useful description of the ideal body style from head to toe, face to foot, tooth to tail. In fact, had she been any more precise about desirable features I'm sure some of us would have blushed.

Let's begin with the face. Slender, aristocratic noses are out. No politely upturned snouts in this crowd. We're looking for a nice broad Roman nose. The kind that would make the Pope proud. In fact, the broader the better. The reason is simple. Goats with cute, little pinched-in faces do not have as broad a bite pad in front and so each mouthful is smaller and less productive than those who are able to snag a great big hank of hay in a single snatch.

So what's wrong with dainty little bites? Is this not precisely what our mothers spent years trying to drill into our heads? "Stop shoveling food into your mouth like a truck driver!" I can hear her cry. Had I only but known that I was actually practicing perfect range etiquette perhaps she would have thought different. Dainty little bites mean skinny little goats in an unprotected world and ultimately extinction in the Darwinian theory of natural selection.

If you're a goat out roaming the range of Outer Mongolia and there are only 10 blades of grass to feed a herd of eight hundred, then you better believe you want the biggest mouth to grab as many as you can for yourself.

Although I don't want to be known as the lady who breeds the goats with the big fat schnozz, I certainly understand the need to maintain survivable characteristics in our predominantly feral creatures. Otherwise, they will become as ill designed and structurally hampered as the Bulldog.

The next area of scrutiny was teeth. While Kris was classing my goats she checked their teeth for age and then politely snorted something about bad teeth. What? Bad teeth? My goats? Naaah. I was willing to concede a few snooty snouts, and maybe a lack of flossing, but my girls had beautiful teeth, or so I thought.

According to Kris, the bottom teeth should line up directly with the bite pad so that if you run your fingers over the teeth they should be smoothly aligned. Hmmmm. This was not the type of bite my orthodontist strove for but according to Kris if the teeth are not directly meeting the bite pad then they are chewing less efficiently and once again we're back to the ten blades of grass scenario. If you've got a nice broad mouth and can get just two blades of grass (because they're far apart) but it takes you longer to chew because your teeth don't line up, then you're out of luck when it comes down to grabbing what's left because you're still busy chewing. Once again mother was wrong with that whole "take time to chew your food thoroughly" routine.

Who knew this cashmere business was so contrary to social graces.

Horns. Now horns are something that can make or break a goat—literally. There is nothing worse than seeing some big majestic buck with a set of horns

Continued on next page

**"Mirror, mirror, on the wall,
Who's the best conformed of them all?"**

Goat Conformation
Continued from previous page

that stick straight up like a jack rabbit. You are definitely considered a "geeky goat" if you could run a piece of string between the horns like a clothesline. Horns that stick straight up are really cumbersome in battle. In order to strike another goat you'd have to slam into them with your head hoping to somehow deflect some of the blow to the horns. Horns with no curl are not only unsightly but will truly—according to my mother—poke someone's eye out.

For those of you who managed to escape your childhood without ever actually seeing someone's eye get literally poked out, the proper term is enucleation. I think mothers would gain greater respect if they started warning children to put down the fire poker before someone gets enucleated.

Horns should rise at about a 65 degree angle from the head and then taper around. They should not grow straight out to the sides like braided pigtails because other goats will laugh at them and they will surely clip your leg or someone else's.

Speaking of legs...having a problem with those knock-kneed ladies? Or a few bow-legged broads? Legs are just as important as mouths because what good does it do to spend the whole day feasting if your legs aren't lined up correctly to carry you to the next meal. Joe David Ross says you should be able to put a soda can between their knees. Now I ask you Joe David, why would I want to put a soda can between my goat's legs? I'm sure there must be a better way of collecting a urine specimen than that. Regardless, if there's room for a sixteen liter bottle, it's time to bring in the orthopedic surgeon.

The last area to be covered is truly the last area—the rear end. Once again, forget those slender behinds that look perfectly posed for *Vogue*. Skinny butts make lousy birth canals. The hind quarters should appear fairly boxy and the backline should not taper down dramatically. Once again we're looking for survivability.

As Kris carefully went through the list I started adding numbers in my head. OK, that's thirteen nose jobs at $6,000 a piece. Braces for everyone, adults included, perhaps they'd give me a family discount on that one? Horn adjustment, no problem, I wouldn't have a silly looking goat on the property. Legs and butts? Well, I guess you can't have everything. Maybe it's time to get that John Deere after all.

Is there room for a can of soda between these knees? Or a six-pack?

Steve Hachenberger's overly-indulged wether, The Whiting. Maybe his horns are a little too far-reaching, maybe his belly is a little too round—but he has personality!!! (Photo by Steve Hachenberger)

This is Walter, a bulldog. Per LC, he's ill-designed and structurally hampered. She lets him sleep on the sofa anyway. (Photo by Linda Cortright)

Internet Surfing (for non-surfers)

By Linda Fox

You've probably noticed in *CashMirror* that the internet addresses, URL's or whatever we're calling them this month, have always been provided by Paul the Publisher. There's a reason for this.

Paul is one of these people who sits down at a computer to check his email just after dinner and, at midnight finds himself still there immersed in cyberspace. So, since he spends a good deal of time in the internet, he's the one who comes up with all the interesting places to recommend to others.

I've never understood how seemingly-sensible people can spend hours, even days, lost in the internet, staring blankly at an ever-changing screen, pointing, clicking, occasionally typing a few characters on the keyboard. It all seems such a waste. I can understand the use of the internet. I occasionally log on myself to retrieve a foreign exchange rate, answer the email or check out an interesting site someone has given me, but it's more like going into the store to purchase a needed item rather than walking blindly up and down the mall for hours.

So, for this month's supply of URL's, one morning I decided to take a short internet trip myself. Perhaps a brief trip will help me understand how the world can waste so much time there. On to the URL's—That stands for Uniform Resource Locator, in case you were wondering. So, what does it mean? How the heck should I know. I'm not a computer nerd.

http://www.riverspunfiberworks.com/ I started out here, at Riverspun Fiberworks, a fiber mail order store in Lava Hot Springs Idaho. Someone told me they were selling "fake cashmere" and I wanted to see if our goats had anything to worry about. (See next page.) When you enter the page, you are greeted by a spinning, spinning wheel. Cute. This site has an extensive list of spinning fibers for sale and the screens allow you to pretend that you have a shopping cart that you are loading up with items from their cyber-store. Then when you are ready to check out, you move on to a place to enter your shipping information and handy Visa number. I ordered 4 oz. of Fake Cashmere ($4) plus shipping ($5). Then a message came on asking me if they could send me a cookie. I didn't want a cookie, I just wanted Fake Cashmere, so I told them no. After a second rejection of their cookie, they bumped me out of the checkout area. After repeated tries, I realized that a cookie is part of the deal and you can only complete your transaction if you allow them to give you a cookie. I finally said "yes" so I could move on. I hope it's chocolate chip.

http://www.acs.ucalgary.ca/~ahung/baby.html Next I wanted to find out the name of Madonna's baby. I have a goat named Madonna who had a single doe kid this year. I thought it might be fun if my kid had the same name as hers so, using one of the search engines, I checked out Madonna pages (there were several in various degrees of tastelessness) until I found one with the desired information. I found out that her daughter's name is Lourdes Maria Ciccone Leon. Madonna just calls her kid Lola. I figured my Madonna's kid could just be called Lola, too. I also found out that Madonna's baby was born October 14, 1996, that she is trying to dump Lola's father and has had an "encounter" with Michael Jackson. She also has a new album.

Http://www.askjeeves.com Not finding anything on the Madonna site that I wanted to jump to, I went to another search engine called "Ask Jeeves." Here, rather than trying to decide which search words to use, you just ask Jeeves, the proper British butler, a question. I couldn't really think of a question I wanted to ask, so I put in their sample question, "How do you Measure Body Fat?" This dumps you to a screen where you enter your sex, height, waist and hip measurement and your body fat percentage magically appears. Interesting, but I don't think I want to

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URL's

Continued from previous page

discuss this any more.

http://www.xlynx.com/inam/home.htm This is a place I found by searching "cashmere goat" on Compuserve's search engine. This is a mail order cashmere knitwear manufacturing company in France called In'am. If you go to "Virtual Fashion," you can change the color of your selected cashmere garment by moving your mouse pointer over little boxes of knitted color at the bottom of the page. They promise you manufacture, shipping and delivery of your finished garment within 7 days of your order. Amazing.

Http://www.ipt.dtu.dk/ Next I ended up at the University of Denmark, Department of Manufacturing Engineering. Not sure how I got here, but as long as I was here I checked out their News and Links. The News was not news in English so I went to Links. Only one of the links was in English, Design inSite, so I went there. From here, there was a choice of Products, Materials or Processes, so I went to Materials. Maybe they will have cashmere. I found a definition of fibres: "Fibres are pliable hair-like substances, built up by long chains of basic molecules. Fibres are very small in diameter in relation to their length. Long continuous strands of fibers are called filaments. The only natural filament fibre is silk from butterflies or spiders." From here, there was a link to Owens Corning, where they suggested you go for more information about typical fibre costs. I went there and found, among other things, How Glass Fibers are Made and an Introduction to Composites. I could also click on a row of pink panthers to access other Owens Corning information. I went back to the Products portion of the Design inSite pages. It contained photos, technical information and brief descriptions of various products, alphabetically, staring with ax: "This axe illustrates how plastic can be used in high quality products with strength requirements. The steel head is insert moulded using glass fibre reinforced polyamide plastic. The axe is developed in Finland where people use axes not only for cutting firewood but also for fine carpenter works." There was no Cashmere under C so I left (after taking a quick trip to the link "Polyamide Steel" to check composition of the axe).

http://www.excite.com/shopping/clothes_and_beauty/women/ I went back to a search engine and searched for "hoof rot shears." We've been having trouble sharpening ours and I needed advice. The search engine came up with 56,174 choices of places to go. I thought this was a few too many to look through so I decided to narrow my request. I put in "hoof trimmers sharpened." This time they only came up with 21, 208 choices. Better. While scrolling down the first 10 on the list, I came to a little yellow bar promising to show me the latest women's spring fashions and took a little side trip. From here you could zoom in on a clothing item by type like "cropped khaki" or a designer's name, like "Theory." Then, you can add the virtual clothing item to your virtual shopping basket, head to the virtual checkout stand and produce your (real) Visa number. At the bottom of each screen was a link option called "FlyPaper" so I checked it out. I found it was an online fashion magazine that promised to tell you about the hottest new trends and the secrets to dressing for success. "We have sent our Flies in all directions to keep pace with all that's fashion newsworthy." From one of their pages, you can select size, clothing type and brands desired and up pops a slew of tiny pictures showing your choices. I selected jeans (in a medium size) and found about fifteen choices ranging from $27.95 - $89.95. Jeans without holes in the knees are more expensive than I thought.

Http://www.nzmeat.co.nz/ Then, I forgot where I was before the last diversion, so I went into Paul's history files, deciding to visit some of the places he'd been recently. I found "Meat New Zealand on-line." This collection of pages are from the New Zealand Meat Board, an association funded by pastoral farmers. I need a goat meat recipe and this looked like a good place. I didn't find any meat goat recipes, but I did find interesting recipes for Lamb Ravioli with Split Pea Essence, which translated means Lamb Ravioli with a side of real thin split pea soup. I downloaded these for offline scrutiny. This page also has a link to veterinary information including a Virtual Veterinary Centre with includes links to many online veterinary journals.

http://www.fishersnet.com/goat2.html I went back to the search engine and entered "goat meat recipes." One for Goat Getter Roast looked good so I went there. I printed the recipe and put it in the stack to try and get permission to reprint. I followed a link to Fisher's Wild Game Recipes on the bottom of the page and found recipes for Perfect Possum, Coon Pate' and Beer Batter Cat...Beer Batter Cat? This man has gone too far. I followed the BB Cat link to the recipe and found, to my relief, he was only talking about catfish. Next...

...Needless to say the journey did not end here; it went on and on and on. Finally, I noticed that my back was sore from sitting, my shoulders were tense from mouse control and I was starving. I looked up from the computer. It was dark and long past animal feeding time. Had my time been well spent? Can I now understand how people spend hours and hours doing this? I'm not going to answer those questions, but Paul is back in charge of the URL's.

About that Fake Cashmere

I ordered 4 oz. of Fake Cashmere from RiverSpun Fiberworks via the internet. Fibers are fine, very white, pretty straight, shiny, slick and about 4 inches long. It is easier to spin than real cashmere due to the length. I spun it as I would for fine, lace weight, 2-ply cashmere yarn and ended up with a yarn which is soft, sheds and looks very synthetic. Tell the goats "no worries." Know where I can sell slightly less than 4 oz. of Fake Cashmere cheap?

Scottish Cashmere

By Eogham Carmichael

Reprinted, with permission, from the West Highlands and Islands Goat Society Newsletter, Scotland

The Scottish Cashmere Producers Association was set up in 1986 to promote the establishment of a viable Scottish cashmere producing industry. This was in response to changing trends in the world market, particularly in China where more of the raw fibre was being processed in the country of origin, and the Scottish textile industry had been finding it increasingly difficult to secure adequate supplies of top quality fibre. This coincided with research work carried out by the Hill Farming Research Organisation—now the Macaulay Land Use Research Institute—which had shown that high quality cashmere fibre could be produced in Scotland from goats bred from native feral stock crossed with animals from established cashmere producing countries, and that Scottish pasture currently grazed only by sheep and cattle could be considerably improved by grazing goats alongside existing stock.

Ten years on and the SCPA is a thriving, self financing organisation supplying top quality cashmere fibre to the textile industry. While the amount of fibre produced in Scotland (450kg raw weight, dehaired and processed around 200kg—990 lb. raw, 440 lb. dehaired) is minute compared to the quantities imported, the quality of the fibre is second to none and superior to most, and with the textile industry in general having increasing difficulty in procuring adequate supples of quality fibre from abroad, there is much enthusiasm for the development of a Scottish cashmere producing industry which can be relied on for supplies of top quality fibre.

To secure the necessary bloodlines when the project began it was necessary to import stock from abroad, and animals were brought in from Australia, Tasmania, New Zealand, Iceland and Siberia. The cost of these importations meant that the price of breeding stock was very high, and these prices were maintained for a number of years as farmers bought up stock to establish their herds. After a few years, however, with farmers breeding their own stock and with a limited number of new people entering the industry, stock dropped to more realistic and acceptable levels. Quality does and bucks can now be purchased for the same price as breeding sheep.

Returns on cashmere goats compare favourably with those achieved by sheep if subsidies are not taken into account. The main factor preventing the further development of the Scottish cashmere industry is the fact that farmers can more profitably invest in sheep, on which they can claim subsidies, whereas goats at present attract no support. The SCPA has long been lobbying government through MPs and the Scottish Office for changes to the regulations to allow farmers to use their existing SAP quotas to claim for goats rather than sheep should they wish. This system would involve no extra expenditure by the government as quota limits would remain the same, and would bring the UK into line with other EC countries.

A great deal of UK and European money has been invested in developing a Scottish cashmere goat herd, and now that the nucleus of this herd has been established and it has been proved that cashmere production could be a viable proposition for many Scottish farms, further development is being stifled by lack of support which is available to other more traditional livestock enterprises. Currently, cashmere goats bred in Scotland with Scottish money are being exported to other European countries where they are eligible for subsidies, and a unique opportunity for Scottish farms is being squandered.

There is some hope on the horizon, however, as a House of Commons Scottish Affairs Committee report on "The Future of Scottish Agriculture" published in July 1996, states "*...it should be the choice of the individual farmer whether, within his quota, to claim on sheep or on alternative species such as deer or goats...we are particularly concerned that cashmere goatlings and semen are being exported to southern Europe where they are eligible for subsidy, thus depriving Scottish farmers of an opportunity to supply the Scottish knitting and weaving industry*." Expression of support from MPs of all persuasions indicates that all is not yet lost for the Sottish cashmere producing industry.

As to the practical aspects of cashmere farming, cashmere goats are not dissimilar to any other type of goat in the UK in terms of husbandry, although feeding costs can be lower. All goats (apart from Angora) produce some cashmere, which is a fine down undercoat grown in the autumn and winter and shed naturally in the spring. Selection of breeding stock is primarily based on the amount and quality of cashmere produced by each goat. The cashmere can be combed out in the spring, the timing varying between individual goats, or goats can be shorn in January/February, but if shorn they must be housed for a period afterwards. All fleeces are kept individually packaged and sent to the SCPA fibre pool at the end of May, where they are graded according to colour (white, off-white and coloured) and quality (hosiery, under 16.5 microns, or weaving, 16.6-18.5 microns). Producers are notified of the weight and grading of each individual fleece to help them with their breeding decisions, and paid accordingly. With many farmers still in the process of developing their herds, average fleece weights are around 100g, although 300-400g fleeces are not uncommon, and it is hoped over the next few years to see the national average increase significantly to nearer the 200g mark.

Book Reports—Three Children's Books

By Linda Fox

Three Cool Kids

By Rebecca Emberley

This children's book, published by Little, Brown and Company of Boston, New York, Toronto and London, is interesting. My Mother always told me to precede any upcoming criticism with a "nice" comment. This book is a less-than-original tale about three goats (boringly named Big, Middle and Little) who live in a vacant lot in the city in the middle of tall buildings and parking meters. Little is a small, cool goat who wears red sneakers which he obsesses about keeping clean. Middle is a prissy mid-sized doe who wears jingling silver earrings and spends an excessive amount of time and money fixing her hair and Big is, well...big.

The Three Cool Kids story is a takeoff on the ancient Billy Goat's Gruff. In this updated version, the three cool city goats try to move across the street to a better vacant lot where they will have ready food from the adjacent recycling center and better access to a beauty parlor for Middle. Alas, a huge rat, who wants to eat them for lunch obstructs their progress. Don't worry, Big ends the problem by stomping Mr. Nasty Rat back to his place in the sewer.

This books's one merit, in my opinion, is the use of fabrics and other objects to create the goats for the illustrations. It would be a good example for an art class or 4-H group looking for a way to portray goats without drawing.

Corgiville Fair

By Tasha Tudor

Corgiville Fair, published by the same company as Three Cool Kids is much better than the aforementioned book. The illustrations are captivating and the story is a wonderful journey with a few goats and other animals. The book is about a family of Corgis (you know, the small dogs about the color of foxes) who live in Corgiville with some other animals and the mythical Boggarts (they're spotted, rope-tailed creatures who smoke cigars). The Corgis have a passion for racing goats. Not only do these goats race (at the Corgiville Fair), but since Corgis are so small, they can ride the racing goat around the track.

This tale is the story of Caleb, the Corgi and his spirited racing goat, Josephine who has a mind of her own. When not watched, she will consumes cigars, pillowcases and flower beds. After training Josephine for the race, the Corgis head to the Fair. Unfortunately, there was trouble brewing. An unethical tomcat, Edgar also has a racing goat and Edgar, without a thought of the ethics involved, was willing to go to any lengths to see that his goat won the race. Of course, justice triumphs. Even after Josephine clandestinely consumes thirteen heavy mince pies and twenty-two strong five-cent cigars, she wins the race, hooves down. Talk about carbohydrate loading!

I liked this book, but if you're worried about the clothes-eating-bad-image-goat thing, you might want to look elsewhere.

The Goat in the Rug

By Geraldine
As told to Charles L. Blood & Martin Link

If you insist on at least a modicum of goat realism for books to be consumed by your children and grandchildren, this book is the best of the three. It presents a good deal of basic, understandable information in a very short story, about fiber goats, spinning and Navajo rug weaving. It's about an Angora goat named Geraldine and her Navajo friend/spinner/weaver, Glenmae. The story accurately follows Glenmae and Geraldine through shearing, washing, carding, spinning, dyeing and rug weaving.

The book is published by Aladdin Paperbacks (Simon & Schuster) New York and is delightfully illustrated by Nancy Winslow Parker. The recently-sheared Geraldine follows Glenmae as she works with her mohair fiber, cheerfully eating the plants that Glenmae has collected in the forest for the dye. However, resourceful Glenmae is able to buy dye at the store to finish her project. By the time the rug is completed, Geraldine's fiber has regrown. As the story ends, we leave Glenmae with a magnifying glass and measuring tape homing in on Geraldine for another clipping.

Only one flaw with this book—Geraldine wasn't a cashmere goat. I suppose that cashmere wouldn't have made the greatest Navajo rug anyway.

Goat Breeds

From the Oklahoma State University Department of Animal Science internet page at http://www.ansi.okstate.edu/breeds/

What is a breed?
The classic definition of a "breed" is usually stated as a variation of this statement: Animals that, through selection and breeding, have come to resemble one another and pass those traits uniformly to their offspring.

Unfortunately this definition leaves some unanswered questions. For example, when is a crossbred animal considered a composite breed and when do we stop thinking about them as composites? Perhaps this definition from The Genetics of Populations by Jay L. Lush helps explain why a good definition of "breed" is elusive.

"A breed is a group of domestic animals, termed such by common consent of the breeders, ... a term which arose among breeders of livestock, created one might say, for their own use, and no one is warranted in assigning to this word a scientific definition and in calling the breeders wrong when they deviate from the formulated definition. It is their word and the breeders common usage is what we must accept as the correct definition."

As you can see from Dr. Lush's definition it is at least in part the perception of the breeders and the livestock industry which decides when a group of individuals constitutes a "breed".

The development of the breeds takes different routes also. In some breeds you can see the amount of change that can occur as the result of selection for a small number of traits. As an example, Holstein cattle have been selected primarily for milk production and are the highest milk producing cattle in the world. Other breeds have traits that result from natural selection pressure based upon the environment in which they were developed. An example of this might be the N'dama cattle from west Africa. These animals have, through the centuries, developed a resistance to trypanosomiasis or sleeping sickness spread by the tse-tse fly, which is fatal to most other breeds of cattle.

Why are we concerned about preserving information about minor, or relatively unknown, breeds of livestock? Is there a reason for the preservation of minor breeds of livestock? Couldn't more improvement be made if there were fewer breeds? Well, lets go back to our Holstein example again for a moment. While the Holstein clearly has an advantage over other breeds in the production of whole milk, this advantage is based on feeding high levels of cereal grains and pricing that favors low milk-solids content. A drastic change in either of these factors could result in a decrease in the advantage of the Holstein. Given these conditions perhaps a breed that is currently rare or endangered, such as the Dutch Belted, which displayed excellent milking ability in a grass-based dairy situation in trials in the early 1900's, would find itself on the forefront. In Australia, composite breeds, such as the Australian Friesian Sahiwal, have been developed which have higher milk production levels than Holsteins in the tropical regions of that country.

Another example might be an increased need for natural resistance to diseases or parasites should a current antibiotic or other treatment become unavailable or ineffective. An example of this type might be the natural resistance of some breeds of sheep have to internal parasites. Should anthelmintics become restricted or uneconomical then a breed such as the critically endangered Gulf Coast Native, with the parasite resistance it has developed through natural selection, could be of critical importance in the sheep industry. In many areas, genetic diversity should be maintained to help meet the potential challenge resulting from changes in production resources and market requirements. We hope that this project will serve as an information resource for the potential of some of these breeds.

Why do we have livestock at all? Don't they just eat the food that would be better utilized by being given directly to people? Agricultural animals have always made a major contribution to the welfare of human societies by providing food, shelter, fuel, fertilizer and other products and services. They are a renewable resource, and utilize another renewable resource, plants, to produce these products and services. In addition, the manure produced by the animals helps improve soil fertility and, thus, aids the plants. In some developing countries the manure cannot be utilized as a fertilizer but is dried as a source of fuel.

Food is, by far, the most important contribution of agricultural animal, although they rank well behind plants in total quantity of food supplied. Plants supply over 80 percent of the total calories consumed in the world. Animals are a more important source of protein than they are of calories, supplying one-third of the protein consumed in the world. Meat, milk and fish are about equal sources of animal protein, supplying, respectively, 35%, 34% and 27% of the world supply of total protein.

There are many who feel that because the world population is growing at a faster rate than is the food supply, we are becoming less and less able to afford animal foods because feeding plant products to animals is an inefficient use of potential human food. It is true that it is more efficient for humans to eat plant products directly rather than to allow animals to convert them to human food. At best, animals only produce one pound or less of human food for each three pounds of plants eaten. However, this inefficiency only applies to those plants and plant products that the human can utilize. The fact is that over two-thirds of the feed fed to animals consists of substances that are either undesirable or completely unsuited for human food. Thus, by their ability to convert inedible plant materials to human food, animals not only do not compete with the human rather they aid greatly in improving both the quantity and the quality of the diets of human societies.

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The goat, along with sheep, were among the earliest domesticated animals. Goat remains have been found at archaeological sites in western Asia, such as Jericho, Choga, Mami, Djeitun and Cayonu, which allows domestication of the goats to be dated at between 6000 and 7000 B.C.

However, unlike sheep, their ancestry is fairly clear. The major contributor of modern goats is the Bezoar goat which is distributed from the mountains of Asia Minor across the Middle East to Sind.

Unlike sheep, goats easily revert to feral or wild condition given a chance. In fact, the only domestic species which will return to a wild state as rapidly as a goat is the domestic cat. (Go Mickey!)

Here are a few of the less familiar breeds of goats.

Booted Goat
Also Known by: Stiefelgeiss (German)

Origin: The Booted Goat was earlier spread throughout the uplands of St. Gallen (Walensee, Flums, Weisstannental and Taminatal), in the canton Glarus and in the bordering regions. It belongs to the breed of moutain goats. Until at least the 1920's it was purposefully bred, but in the 1980's it became nearly extinct. It was saved at the last moment by the foundation Pro Specie Rara.

The current breeding region has its concentration in eastern Switzerland, with individual breeding groups in the central and western parts of the country.

Appearance and Characteristics: The Booted Goat is a robust, vivacious, easily satisfied breed not specialized for milk production which is well suited for extensive keeping under extreme topographical and climatic conditions, most of all in moutainous regions. It is horned, of bright gray-brown to dark red-brown color with black or brown markings (black or brown boots). Typical are the long beard hairs over the back (called Mänteli, meaning "little covering") and on the hind quarter, which are markedly darker or lighter than the rest of the coat of hair.

Goal of Breeding: The most important goal is the reintroduction and expansion of the Booted Goat in its original region of distribution. For securing its existence Booted Goat breeding groups are being maintained, also in the remainder of Switzerland. This goal is supposed to be reached (in correspondence with its original intent) through the use of the Booted Goat as an agriculturally useful animal for the production of milk (for milking or as mother nannies), meat and fleece. In place of this production goal, the use of the Booted Goat for putting fallow ground into production or for caring for the landscape can be the main breeding and domestication goals. In these cases, however, the use of the products should always play a role.

The Booted Goat

The goal of breeding is supposed to be reached with natural methods and more extensive care. The conditions for care are supposed to correspond as much as possible to the natural living environment and the behavior of the goat.

Breeding Organization: Responsibility for the maintanence and promotion of the breed has been assumed by the Booted Goat Breeders Club of Switzerland. This organization is connected to the herd book site for the endangered domestic animal breeds of the foundation Pro Specie Rara.

Bagot

This breed was formerly feral at Blithfield Hall, Staffordshire, England but has become scattered since
1957. The breed is nearly extinct. The Bagot goat is one of the oldest breeds of goats in Britain today. It goes back in history to around the 1380's. This is when it was introduced to Blithfield Hall in Staffordshire. The actual date for this is well documented. It is likely that the Bagot may be descended from the Schwarzhal goat from the Rhone valley. There are many stories as to how they got to Blithfield Hall, the most likely one which cannot be proved, but the most factual being, some goats were brought back to England by the returning crusaders. Some were it seems, given to John Bagot who was at Blithfield, by King Richard II. This was in recognition of a good days hunting by the King at Blithfield, in Bagots Park. It is known that these goats have been running semi-wild at Blithfield for well over 600 years. As regards the history story and the crusades, it must be pointed out that the crusades finished around 1100. The goats, so the story goes, went to Blithfield around 1380. This would indicate that the goats probably went first to one of the Royal Parks. The damage they would have done there,

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no doubt would have been considerable and the King would have been glad to get rid of them to another place where they could be enjoyed for hunting.

In 1998 there were approximately 200 pedigree nannies in Great Britain. They have no commercial use either for milk or meat.

One popular legend surrounding this breed is if the Bagot goat dies out then the Bagot family will die out.

Arapawa Island Goat

The Arapawa goats are among the few survivors of the Old English milch (milk) goat which is now extinct to their native England. These animals were brought to the shores of New Zealand some 200 years ago aboard Captain James Cook's vessel. They have been roaming parts of the island ever since. Left on Arapawa island to breed as a future source of food and milk by explorers, the goats came under seige in the 1970's. The goats have been recognized by the Rare Breeds Conservation Society of New Zealand. Arapawa goats have been sent to sanctuaries and wildlife parks in New Zealand and overseas. The goats are colorful with distinctive markings and brown and black patchwork.

Peacock Goat
Also Known by: Pfauenziege (German).

Origin: Little is known about the origin of the Peacock Goat. The first mention of it was in the year 1887, under the name Prätttigau Goat. This description is for the most part identical to the present outward appearance. Later other names surfaced like gray-black or gray-black-white mountain goat, or razza naz (Tessin) and Colomba (Bergell). The front body half is predominantly white with black boots, the rear half predominantly black. The inside of the ears and the area around the mouth are dark. On the mostly dark rear portion of the body the white top side of the tail and the white spots on the thighs and flanks are noticeable. The animals wear a thick, mid-length coat of hair and are horned. Characteristic are also the dark facial spots and the dark stripes from the base of the horn over the eyes up to the nose. These stripes or "pfaven" gave the breed its name in that a spelling mistake of a journalist (Pfauenziege peacock goat, instead of Pfavenziege striped goat) was perceived as fitting for this beautiful animal. During the breed cleansing of 1938 the Peacock Goat was incorrectly considered to be a color variant of the Grisons Striped Goat. More recent blood testing however could not confirm this assumption. For the near future the Peacock Goat will survive without official recognition as a breed and that without any public funding. For a longer period of time, however, the danger exists that the breeders of the Peacock Goat will increasingly switch to other recognized breeds. For the survival of the breed it is therefore important for the Federation to rank the Peacock Goat as equal to the other breeds.

The Bagot Goat

Arapawa Island Goat

Expansion and Characteristics: This ancient mountain breed was encountered primarily in the canton Graubünden and in Upper Tessin, where it was often put to use as a lead goat in Verzasca herds. Today Peacock Goats are spread throughout all of Switzerland. In milk production the Peacock Goat is equal to most mountain breeds. It produces a good amount of meat with modest fodder demands. In Switzerland about 300 Peacock Goats are kept.

Breeding Organization: In the canton Aargau the first Peacock Goat Breeding Association was founded in 1989. An interest society was founded in 1992 with the help of Pro Specie Rara. In eastern Switzerland a breeders' union was founded in 1993.

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Peacock Goat

Uzbek Black Goat

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In the canton Bern an association was founded in 1994. More recently one exists also in Graubünden.

Uzbek Black

Black wool goats in Uzbekistan were produced as a by-product in the formation of the new breed—Soviet Mohair goats. Mating of predominantly white first and second generation crossbred females with purebred white Angora males resulted in the appearance of 1-2% of black kids.

After 4-5 years, there were already several hundred black wool goats; they were gathered into one herd and females were mated only to black males. Such mating produced in the first year 64% and in the second 74% of black kids; others were white, tan, grey, etc. Later, due to positive assortative mating, it was possible to obtain 94% of black kids.

The black goats are similar to Don goats in such aspects as fleece structure, physical properties of wool fibers and productivity. In contrast to Orenburg goats, which have long guard hairs and very short wool fibres, Uzbek goats have wool fibers longer than guard hairs, except along the spine where the latter are very long. Hair is not shed in spring but wool is shed abundantly, starting from the first warm spring days when goats pass to grass feeding.

Wool is combed out selectively at the time of moulting and, as a rule, only once, in mid-March. Average yields per head in collective farms vary from 280 to 440 g. While the length and fineness of fibres depend on the level and quality of feeding, wool yields are actually determined by the time of combing out the moulting fibers. Shedding is very rapid and 5-10 days delay in combing results in 20-40% loss irrespective of age. The extreme limits are 6 and 12 cm (2.4 - 4.7 inches) in females and even more in males.

Fiber diameter is within the range 15-24 µm; the average for females is 19 and for males 22 µm. In the young, wool is 1-2 µm finer than in adults.

The state farm Baisun in Namangan region of Uzbeckistan has a goat herd of 10,000 head and is considered one of the best enterprises for raising black wool goats. Average wool yields are 450 g from females, 700 g from males and 600 g from castrates. Wool goat husbandry in this state farm is very profitable and cost-effective.

Zhongwei

Zhongwei goats are produced only in the arid desert steppes of some counties in the Ningxia Hui Autonomous Region and

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Gansu Province (China). They live chiefly, if not solely, on salty or sandy plants or shrubs. The kids are slaughtered at 35 days of age for their pelts, which have white, lustrous staples and attractive curls.

Both sexes are horned with the male's horns stretching upward and twisted. The males average 39 kg (85 pounds) and females 24.5 kg (55 pounds).

These goats also produce cashmere. The males produce approximately 140 g of cashmere and the female 120 g. The percentage of cashmere in both sexes is 25% of the total fleece. The cashmere length is 7.0 cm (2.8 inches) and diameter is 12.5 microns.

The Zhongwei reach sexual maturity at five to six months and are generally mated at 18 months of age. The kidding percentage is 104-106 percent.

San Clemente

San Clemente Island is located off the coast of southern California. It is owned by the U.S. government and used and managed by the U.S. Navy. Feral goats, probably of Spanish origin, have inhabited the island for several centuries, possibly since the 1500's. Later introductions may have come from the mainland Franciscan missions during the 1600-1700's, while farmers were responsible for later introductions.

The U.S. Navy became responsible for the island in 1934. Hunting and trapping were allowed, but in 1972, when a survey concluded that there were 11,000 goats on the island, a systematic removal program was begun. By 1980 an estimated 4,000 goats still remained on the island.

The Navy then proposed a shooting program to be conducted from helicopters, but was blocked in court by an animal welfare group, the Fund for Animals. This group used helicopters and nets to capture the goats, then took them off the island and found homes for them across the country. Practically all the goats were removed from the island in this manner.

San Clemente goats are relatively small, close to the maximum standard for dwarf breeds. They are a meat breed, though uncommonly fine-boned and deer-like. They are horned in both sexes. Although the island population once exhibited a wide range of colors and color markings, the goats are now mostly red or tan with black markings.

Status: RARE. A small number have been registered with the International Dairy Goat Registry.

References:

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American Livestock Breeds Notebook. 1989. The American Livestock Breeds Conservancy, Pittsboro, NC.
Dmitriez, N.G. and Ernst, L.K. (1989) Animal Genetic Resources of the USSR. Animal Production and Health Paper Publ. by FAO, Rome, 517 pp.
Cheng. P. (1984) Livestock breeds of China. Animal Production and Health Paper 46 (E, F, S). Publ. by FAO, Rome, 217 pp.

Photographs:

Betty Rowe, Picton, New Zealand
Tony Jackson, Lancashire, England
Truman N. and Sheryl A. Bernal, Earth Spirit Preserve, Cedar Ridge,

Zhongwei Goat

Zhongwei Goat

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California
Cheng. P. (1984) Livestock breeds of China. Animal Production and Health Paper 46 (E, F, S). Publ. by FAO, Rome, 217 pp.

The selected information above is from the Oklahoma State University Department of Animals Science. It has been reprinted with permission. For this article, we have selected breeds which we thought were interesting. To see the much longer list (60 breeds listed including the "cashmere breed") log onto their internet web site at: http://www.ansi.okstate.edu/breeds/

Above and below: San Clemente Goats

Calendar of Events

May 22, 1999
Northwest FiberFest, Evergreen State Fairgrounds, Monroe, Washington.
Wool show, sale and contest, cashmere fleece contest, commercial vendors, livestock and equipment sales, demonstrations, spinning classes. Information contact: Linda Twitchell, 1305 E. Smith Rd, Bellingham, WA 98226, phone 360-398-2778

May 29, 1999
Back of the Wasatch Fiber Festival, Summit County Fairgrounds, Coalville, Utah, Featuring llamas, alpacas, sheep, stocksdogs and everybody's favorite: goats! More info: Heide Smith 435-649-3856 (evenings).

May 29 - 30, 1999
Sheep and Woolcraft Fair, Cummington Fairgrounds, Cummington, MA. Contact: Scott Poitras, 128 Washington Road, Brinfield, MA 01010.

June 5-6, 1999
Big Sky Fiber Arts Festival (10th annual), Ravalli County Fairgrounds, Hamilton, Montana
Workshops, commercial booths, animals shows
Information: Big Sky Fiber Arts Guild, PO Box 74, Hamilton, MT 59840, phone 406-363-0338 or 406-642-6424.

June 17 - 20, 1999
Estes Park Wool Market & Fiber Animal Show
Estes Park, CO. Contact 970-586-6104.

June 18 - 20, 1999
Black Sheep Gathering
Lane County Fairgrounds, Eugene, Oregon
For info: 25455 NW Dixie Mountain Rd., Scappoose, OR 97056, 503-621-3063.

June 23 - 27, 1999
Fiberfest '99
Lake Farm Park, Kirtland, OH
June 23-25 classes/workshops, June 26-27 fiber animals/vendors. Contact: Fiberfest '99, 8800 Chardon Rd, Kirtland, OH 44094.

July 13 - 18, 1999
Crook County Fair, Prineville, Oregon
NWCA cashmere fleece competition and live goat show.

Association Contacts

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)
Kris McGuire, President, 970-493-6015
email: krisvadale@aol.com
Membership info: Marilyn Burbank, PO Box 2067, Rogue River, OR 97537, email: burbank@cdsnet.net

Colorado Cashmere and Angora Goat Association (CCAGA)
Carol Kromer, Club Contact, 719-347-2329

Eastern Cashmere Association (ECA)
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North West Cashmere Association (NWCA)
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Professional Cashmere Marketers' Association (PCMA), Tom and Ann Dooling
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Pygora Breeders Association (PBA)
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Texas Cashmere Association (TCA)
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Wild Goat Women
Debbie Walstead, Chairperson, 719-495-2962

Breeders

CANADA

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ROLIG GOAT RANCH
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Directory

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BROOKFIELD FARM

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Breeders Directory
Continued from previous page

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Goats in the News

By Paul Johnson

Reuters News Wire reported in March on a herd of cashmere ("kashmir") goats being used by Denver city officials as a low-tech weed control scheme. They will be using 50 -100 of the fuzzy critters belonging to Lonnie Benz-Lamming of Alpine, Wyoming. It was speculated the sight of goats grazing on weeds next to high tech skyscrapers would be a sight to see. The goats are an experiment in an attempt to replace or at least reduce the use of pesticide.

Associated Press reported on a West Bank incident last year where a violent clash broke out between Bedouin Arabs and Israeli soldiers over the confiscation of the Bedouins' goat herd which happened to be grazing in the army's firing zone. More than 30 Bedouin were reported injured. No report on goat casualties.

Capital Press, a weekly northwest agricultural newspaper recently featured Carol Conner, Culver, Oregon resident, and her cashmere goat herd. Besides fiber, Ms. Conner also makes goat milk soap and related items for sale. She also sells goats to the meat market.

CNN reported in March, as did the National Geographic Magazine, on the hunting and destroying of goats on the Galapagos Islands. The goats, non-natives which were placed on the island by early sailors for future food reserves, were apparently destroying the fragile ecosystem of these islands.

UPI in April reported that researchers in the US and Canada each claimed to have successfully cloned goats. The US group, Genzyme Transgenics Corp. of Framingham, Massachusetts named their three doe clones Mira, Zeda and Zesta. The Canadian group, Nexia BioTechnologies, Inc. of St. Anne de Bellevue, Quebec (the same outfit that's working on the spider silk from goat's milk) cloned bucks named Arnold, Clint and Danny. Appears that the US group may have the edge—at least they knew to go for does!

CNN ran a story last year of the capture of a rare Snow Leopard in Pakistan. Farmers captured the leopard when it was attacking their goat herd.

CNN also ran a story last year about a chimpanzee in England that had lost all its hair. It was later put on a diet which included goat's milk and the hair grew back. (Paul, take note—Ed.)

Associated Press quotes insurgents in Nepal as saying in their anti-parliament leaflets that "Parliament is like a butcher shop where they display a goat's head but sell dog meat." We think this is a complement to goats, but we're not sure...

Did you know that Secretary of State Madeline Albright occasionally wears a goat brooch? The goat is the gift of an admiral at Annapolis, who sent it to her after he read accounts that the brutal Bosnian Serb General Ratko Mladic had apparently named one of his goats after her. (Time) Was this a complement?

Animal Control Using Pheromones

Have you ever thought of controlling your goat using nothing more exotic than a bottle of pheromones? Perhaps a little whiff of something to make them calm down. A sniff of this and they will drop their aggressive behavior. Or maybe even a scent that will encourage them to follow you anywhere?

Three big boys doing the "Flehmen."

As far fetched as this may seem, all of these ideas are plausible. Researchers have been studying ways to alter unwanted behavior patterns in companion and farm animals using synthetic pheromones. Per Petra A. Mertens, TA, DMV, FTAV, of the Institute for Animal Hygiene and Animal Welfare, Ludwig-Maximillians University in Munich, "Pheromones play a significant role in individual recognition and may find therapeutic applications in the treatment of aggression, dominance-related behaviors, fear, and sexual behavior.

Dr. Mertens presented "The Role of Olfaction in Animal Behavior and Behavior Therapy" at the 135th annual meeting of the American Veterinary Medical Association held July 25-29, 1998, held in Baltimore.

Pheromones are chemical substances produced by an animal designed to produce a reaction in another animal of the same species. Pheromones are secreted by glands and mucosa cells, including anal sacs and are contained in saliva, feces and urine. Specific pheromones illicit responses (behavioral and emotional) including sexual behaviors, aggression, fear and avoidance.

You've probably seen goats and other animals stretch their neck, lift their upper lip and open their mouth. Bucks seem to do this more than does. This maneuver, called the "Flehmen" increases the animal's sensitivity to smell. The vomeronasal organ (also called Jacobson's organ), located in the upper palate of the mouth, plays an essential role in olfactory communication in all species. This organ consists of two fluid filled sacs that connect to the nasal cavity via fine ducts. When a goat does the "Flehmen", they are not showing off their teeth; they are increasing the opening of the ducts connecting the Jacobson's organ with the nasal cavity, thus heightening their sense of smell.

Products designed to attract insects by using pheromones have been around for 15-20 years. New perfumes for humans are now advertised which supposedly (per the ads) contain pheromones to make you more popular with the opposite sex. Whether these human aids work as well as the insect pheromone that causes bugs to peacfully enter insect traps has yet to be demonstrated.

Pheromones have also been used successfully in pig breeding for the past 10 years. Pheromones from the boar contained in their saliva, causes the sow to stand still for breeding. The use of this scent has proved a an aid in artificial insemination of pigs.

Pheromone-based substances are available for cats. This synthetic substance is designed to mimic the effect of pheromones secreted by feline facial glands. You've probably had a friendly cat rub his head on you. You may have been flattered that the cat liked you; actually it was just marking you as part of its territory. They were just sliming you with pheromones. Cats typically mark their territories by rubbing their heads on objects or surfaces. If this substance is applied in a cat's household, marking behavior can be reduced. This same substance can have a calming effect to the cat if it is applied to new or unknown environments into which a cat has been introduced. Dr. Mertens reported that other feline pheromones could be useful in reducing conflicts in multiple cat households and even to facilitate socialization with humans and dogs. Veterinarians could use it to decrease fearful behavior in order to facilitate handling during examinations.

"Due to the development of analytical methods and molecular biology, the level of interest in behavior modification via olfactory stimulation is growing fast," said Dr. Mertens. "Big steps are being made every day towards identifying genes that act as receptors to pheromones, and new applications are being tested to affect different aspects of behavior in various species. It's a very exciting time, indeed."

Although goats may not be as high on the researchers' lists as pigs, dogs, cats and insects, perhaps some day we will have bottles of goat pheromones to add to our arsenal of veterinary supplies.

Small Dehairer News!

The Pendergrasts' TrickumHokieEiss
Late breaking news, contained in the Spring 1999 ECA newsletter, Hoofprints, reports that THE TrickumHokieEiss prototype dehairing machine is now operational. The production model is now in the works and it, or the final prototype, will be demonstrated at the upcoming Virginia State Fair in late September 1999. Rosalie Pendergrast said that the machine is a table top machine capable of handling single fleeces and is not designed to handle bulk fleeces. She emphasizes that this is a personal dehairing machine. It is recommended for combed fleeces.

The Hachenbergers' DH-2
Steve Hachenberger reports that his small DH-2 machine in now complete (photograph below) and working. This machine is a smaller version of his larger, patented, DH-2 dehairing machine. Steve is currently completing tests on the machine. This machine is designed to run individual fleeces, either combed or dehaired. As Steve reported in late 1997, his plan, after he finishes his tests on the machine is for it to be further tested and reported on by Paul Johnson at his farm in Oregon. Steve plans to have the machine ready for retrieval by Paul by the end of June 1999.

ACGA
The Australian Cashmere Growers Association (ACGA) is currently pursuing the feasibility of dehairing their members' cashmere before sale. After discussion with potential buyers, it was determined that there might be a better market for dehaired Australian cashmere, rather than selling the raw clip, as has been the Australian marketing pool's approach in past years. The ACGA is currently testing selected dehairing machinery with different "types" of Australian cashmere

Steve Hachengerger's prototype DH-2. Photo by Steve Hachenberger.

Classified Advertising

Buster, the Cashmere Goat. A children's book by Paul G. Johnson, CashMirror's Ace Reporter. 66 pages, includes photographs. Suitable for read-aloud for young children, 3rd to 4th grade reading level or for brightening the lives of bored adults. To order, send $7.50 (includes shipping) to CashMirror Publication.

CashMirror back issues 7/96 - 3/99 $3 each or a whole dozen for $30. Back issues 10/89-6/96 $2 each or $15 for a dozen. We'll pay the shipping. About 2/3 of old issues still available. A good reference source about cashmere goats and history of the industry. Index for 11/89-4/96 in May 1996 issue, index for 7/96-6/97 in July 1997 issue. 7/97-6/98 in July 1998 issue. Index after that, ask us.

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Notable Quotes

"Man...must protect his animals from the elements, parasites and diseases, and furnish them sanitary quarters and suitable rations. Abuse leads to the reduction of profit—a case in which money and decency are on the same side of the ledger."

...M.E. Ensminger, Ph.D and Robert Behlow, DVM

"Managing senior programmers is like herding cats."

...Dave Platt

"Ten of the 11 cashmere case studies listed weed control and pasture management among the reasons for running cashmere."

...Carolyn Gould, Executive Officer, Australian Cashmere Goat Association (1/98)

The Deadlines:

Articles, photographs, advertising and other information submitted must be received by the 25th of the month prior to magazine issue date.

If you need assistance designing or laying out a display ad, or fine-tuning an article, earlier is appreciated.

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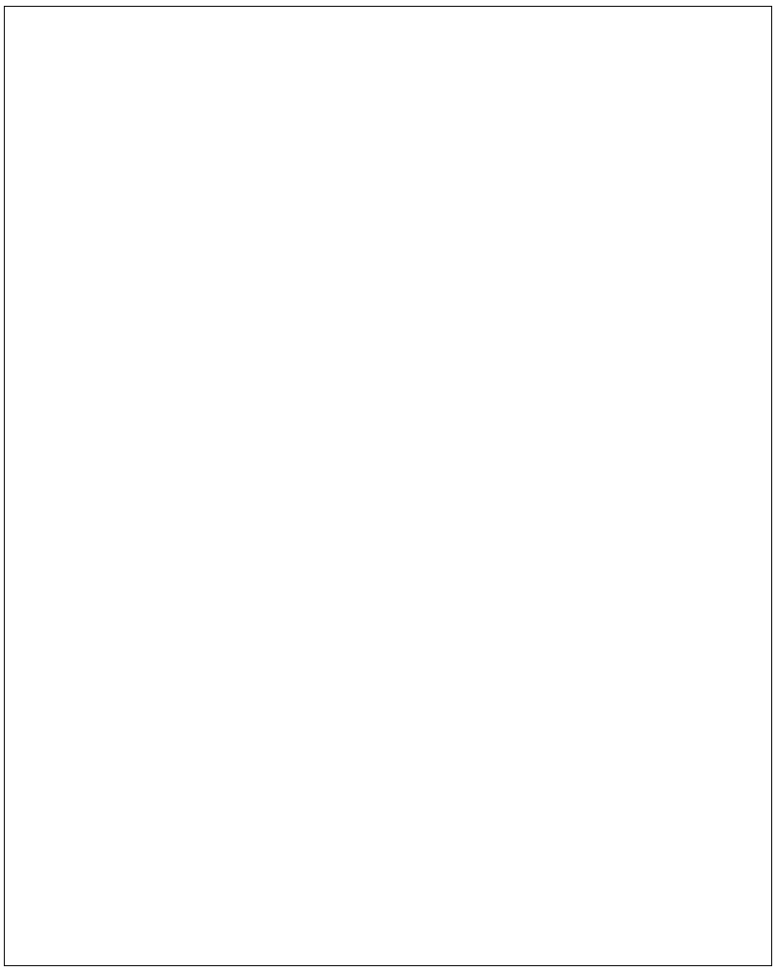

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