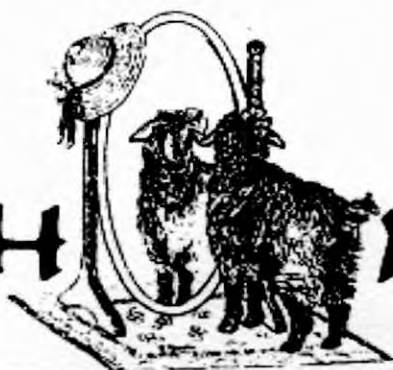


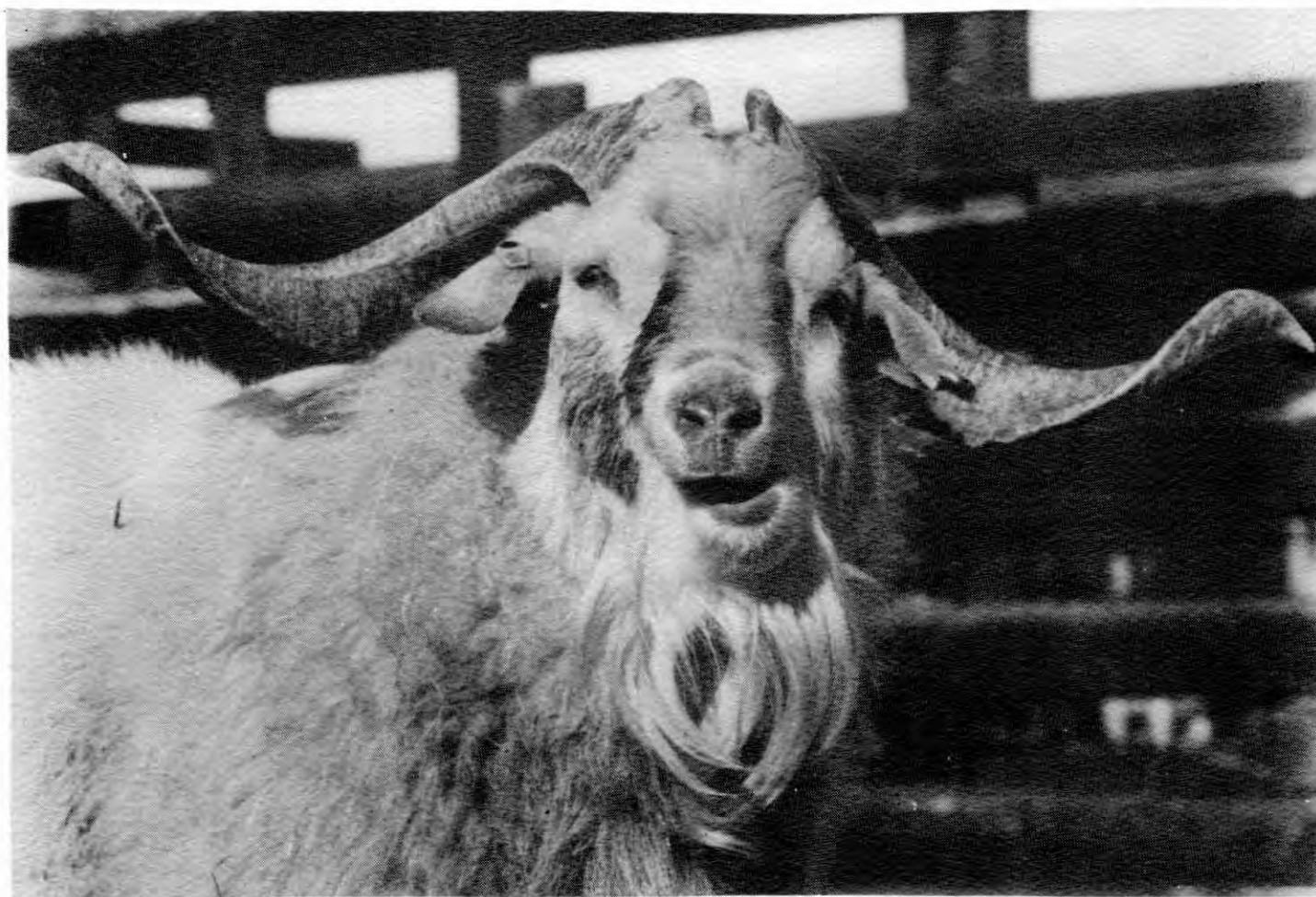
CASH MIRROR



Volume 7, Issue 11

September 1996

The monthly magazine devoted to cashmere goats and their fiber



BREEDERS SHOWCASE

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CASHMIRROR

Published each month by:
CashMirror Publications
2280 S. Church Rd.
Dallas, Oregon 97338
(503) 623-5194
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The *CashMirror* welcomes contributions of articles and photographs. Submissions may be made by mail, fax or e-mail.

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Cover photo: Gerry and Pat Fuhr, Giant Stride Farm
CCC Strider contemplates the life of a ruminant.

The Boys are Back in Town!

Ah...summer. Late summer. Enjoying the wonderful weather, knowing it can't last forever. Summer smells in the air—mowed hay and grain fields, blackberries and...

What's that *awful* smell wafting down the hill from the upper pasture??? Yes, it's the bucks. It's breeding season again and the guys are feeling "frisky."

This is a fun time of year and not just for the bucks! Time to make plans about breeding decisions. What do we want to bring into our line with the buck of our choice? His few minutes of glory are contributing half of the genetics to our herd...so bring them down from the back forty where they've been ignored during the spring while the does and the kids got all the attention, and let's see what they've got.



Above: Bo Dyer feeds Jerry (the huge buck on the left) and friends at The McRanch, Dripping Springs, Texas, Below: Bo and Ajax



Ten Rules for Breeding Goats

1. Don't assume all your relatives who came over for Thanksgiving dinner will want to help you breed the goats who came into heat that day.
2. If you spend enough time around your bucks, you will probably get used to the smell and even think they only have a "faint" aroma. It's only those nasty dairy bucks that have the awful smell!
3. Don't leave your bucks with their 'faint aromas' in the pasture next to the house and wonder why you no longer have human visitors.
4. Do assume that your teenage nieces who came to stay for the weekend will want to help you select mates for the does who come into heat and be delighted to help with the process.
5. Don't assume that the parents of the teenage nieces mentioned above will be thrilled with this.
6. If you have an accidental breeding, it will be the smallest doe you've got, the one that you definitely weren't going to breed this year.
7. "Lifetime" gates do not last a lifetime when a buck is on one side and a doe in heat is on the other.
8. The white-dominant theory doesn't always work. Sometimes if you breed a white-white doe with a white-white buck, you will get two of the cutest pure black kids you've ever seen.
9. Not all your friends and relatives will appreciate discussions at length about your breeding plans. (Actually, probably none of them will, but I was trying to be optimistic.)
10. Your bucks' hooves will need trimming in the middle of the season when their "faint aroma" is the worst.
- 10 $\frac{1}{2}$. The length of heat of the goat is in inverse proportion to how bad you want the goat bred. For example, if you really must get her bred this month, her heat will last three minutes and occur while you're down at the feed store. If it's a goat you want to wait a couple of months, she will stand at the fence for three days bellowing.

Reflections

By Linda Fox

Fencing-Fencing-Fencing (To Avoid Breeding-Breeding-Breeding)

You know what they say about purchasing real estate—the three most important things are location, location, location. Well, the three most important things in raising goats are fencing, fencing, fencing. Goats can get through an amazingly-small hole in a fence. They can worm their way under a low wire as well as clear a high wire if they are so inclined. They are so inclined if there is better food or a goat of the opposite sex on the other side.

However, goats have an extreme dislike for electricity and learn quickly the power of that unassuming silver wire. We've found that one strand of electric wire on a fence in any state of disrepair will keep our goats in.

Before bringing home our new herd of cashmere goats last year, we electrified all our newly-built fences, but decided that the old fence on the east side of the pasture was good enough. Part of it consisted of several strands of barbed wire, part was woven wire nailed to ancient oak trees and part couldn't be seen at all because of the dense scrub oak, blackberries and poison oak that had grown through it.

As the new goats cleared the pasture of brush, we worried some about the east fence, but assumed if the goats crossed the fence, they would just eat brush and come back home. Over the east fence are ten acres of forest with dense brush undercovering.

Our pasture is divided with a new, strong, straight fence with electric wires on both sides to separate our does from our bucks. Between the two pastures, we built a small corral (the honeymoon suite) where carefully selected matings occur. For three months, our goats followed our plans. They stayed in their designated pastures except when we brought an eager couple together in the honeymoon suite.

We came home late one night to discover our first fencing problem. When completing our nightly goat count in the pasture by flashlight, we found a large pair of horns in the middle of our small-horned does. Rayvon, one of the bucks, had managed to infiltrate the does' herd and two of the does were in

heat. The does in heat were his mother and sister—not our first choice of mates. However, the match wasn't terminal, so we just marked it in our records as an "oops", put the smiling Rayvon back in his pasture and locked the does in the barn until we could find the leak in the fence.

The next morning, we surveyed the fence. From the hair stuck on the barbed wire, we deduced that Rayvon had gone under the east fence next to the cross fence, walked north twenty feet and jumped back over into the does' pasture. I hadn't thought that goats were that smart, but apparently when properly motivated, they can be creative.

We improved the east fence line for fifty feet in both directions from the cross fence with new woven wire and two strands of electric wire. They certainly wouldn't go farther than fifty feet. Right?

The second accident happened a week later. Ashley, a small two-year old doe (my favorite) who has beautiful ivory and gray guard hair and thick, long cashmere, had been bred several days earlier to our best buck. We came home to find her in the bucks' barn with thirteen male companions! I led her back to her pen explaining to her that nice young ladies did not cross fences to play with bucks. I think the word "slut" may have been mentioned. We dutifully noted in our goat records that Ashley's true love could be any one of those thirteen grinning bucks.

Ashley is a smallish goat so we found a smallish hole in the fence, patched it, and decided that this was another of those freak accidents which probably annoy every breeder from time to time. Right?

Two days later turned into every breeder's nightmare. We left for an hour and upon our return, only one lone doe occupied the girls' pasture and only two bucks were still ruminating in the boys' pen. We had a problem—a **big** problem.

We climbed over the east fence and searched the ten overgrown acres for our herd. We found their little orgy in the southeast corner. It took us two hours and several buckets of grain, to lure thirty-nine, indiscriminately-breeding goats back over the east fence and into their respective barns.

We decided we had several unknowns as far as our carefully-designed breeding program was concerned. However, we do know for sure that the east fence is inadequate. We spent the next two days replacing the east fence, including adding electric wire. It's amazing how creative humans can be when properly motivated...

Fiber Testing in the U.S.A. - Yokum-McColl

Ed Note: At the current time, the only place in the United States we have found where cashmere may be tested commercially is at the Yokum-McColl Testing Laboratories, Inc., in Denver, Colorado. The information below was obtained from numerous telephone conversations and e-mail exchanges with Mr. McColl and others indicated in the article.

Yocom-McColl Testing Laboratories, Inc., in Denver Colorado is equipped with the latest fiber diameter measurement equipment, including the software package to determine yield in cashmere using the Optical Fibre Diameter Analyser (OFDA). The laboratory and Angus McColl have impressive credentials, along with a worldwide reputation.

Angus McColl attended college in Scotland before transferring to the University of Wyoming to obtain a degree in Animal Science with a minor in Agricultural Economics. He is a member of the American Standards for Testing and Materials (ASTM) D13-13 wool committee, which includes other animal fibers, a representative of the American Sheep Industry Association's (ASI) Fiber Group, and the U.S. representative at the annual technical meeting of the International Wool Textile Organization (IWTO) in Nice, France. McColl has been an active supporter of various western wool grower associations. In 1995, he was named a technical advisor to the Alpaca Registry Screening Committee in the area of fiber standards.

In business since 1964, Yocom-McColl tests wool, mohair, camel hair, cashmere, alpaca and llama fiber. Working with CSIRO's Sirolan LaserScan and BSC Electronics' OFDA hardware from Australia, the lab can now provide even

better service, especially regarding cashmere. This equipment, which is the same used by labs in Australia and New Zealand and other countries, is calibrated using the world standard Interwoollabs tops. Incidentally, this lab tests for Forte' Cashmere.

Diagnostic and calibration checks are performed daily. Accuracy of tests are plus or minus 0.3 microns, and tests are conducted under standard conditions of 65% (plus or minus 2%) relative humidity and at 70 degrees F, plus or minus 2 degrees.

Samples for individual animal testing must measure at least one and one-half (1-1/2) inches in length.

In preparing this report, we spoke with Dr. Chris Lupton at Texas A&M and Dr. Joe Davis Ross. They, along with Mr. McColl, emphasized the importance of taking standardized samples to enable any report to be credible.

Sample taking is the single most important element in testing. With cashmere, selecting small samples from 30 random locations from all over the fleece is essential, with the total sample weight being 15g, or approximately 1/2 ounce.

Any test will only be as accurate as the sample submitted for testing, along with the requested identification you will be asked to provide (sex, age, date of sampling, etc.)

Fiber reports received by customers include a histogram displaying the fiber diameter distribution in microns placed on the horizontal axis, and the relative frequency values on the vertical axis. The bottom or horizontal scale is listed in

one-micron increments. The Average Fiber Diameter (AFD) or, Standard Deviation (SD), and Coefficient of Variation are also given. Early in 1997, a theoretical yield report will also be available.

Yocom-McColl's prices for individual animal diameter testing are \$5.00 per sample, up to 25 samples. Orders containing 26-50 samples are discounted 5% to \$4.75 each, and orders of 51 plus samples are discounted 10%, to \$4.50 each. The lab's new internet website includes a downloadable sample submission form. Check with the lab for other prices by contacting:

Yocom-McColl Testing Laboratories, Inc.
540 West Elk Place
Denver, CO 80216-1823
Phone: (303) 294-0582
Fax: (303) 295-6944
E-Mail: ymccoll@ix.netcom.com
Internet website: <http://www.ymccoll.com/>

Testing must be kept in perspective. It is but one tool (albeit useful) in producing and marketing cashmere. To rely on tests to make your decisions on herd maintenance is too narrow of a focus. The ability to look at the whole picture, both the goat and the fiber, is necessary. Body confirmation, style, breeding history, and other variables must also be taken into account when making breeding, purchasing or culling decisions. Also, fleeces can vary from year to year for a variety of reasons, including nutrition, stress, and other environmental factors.

Perhaps the most important tool you have or will acquire, is that YOU must be familiar with what is good and bad fiber, fine and coarse. It will come with practice.



Whatawhata Fibre Testing Centre

Sample ID:

SKEEZIKS 1996

Fibre Decrip:
Sample Type:Cashm
RandomSex:
Year Born:

Buck

Sampled by:

Client

Fleece Weight:

Down Yield:

Down Weight:

Scoured Yield:

Down Length:

Colour:

22.1

gm

%

gm

%

cm

Sampled on:

Shorn on:

Shorn prev:

DISTRIBUTION OF FIBRE DIAMETERS

Mc Count Cum %

6	1	100.0
7	3	100.0
8	28	99.9 *
9	89	99.5 ****
10	330	98.1 *****
11	713	93.0 *****
12	913	81.8 *****
13	1067	67.6 *****
14	865	50.9 *****
15	725	37.4 *****
16	558	26.0 *****
17	385	17.3 *****
18	240	11.3 *****
19	142	7.6 *****
20	81	5.3 ****
21	40	4.1 **
22	24	3.5 *
23	18	3.1 *
24	13	2.8 *
25	6	2.6
26	13	2.5 *
27	6	2.3
28	7	2.2
29	8	2.1
30	14	2.0 *
31	12	1.7 *
32	14	1.6 *
33	19	1.3 *
34	8	1.0
35	8	0.9
36	16	0.8 *
37	12	0.5 *
38	14	0.4 *
39	5	0.1
40	4	0.1

FIBRE DIAMETER SUMMARY

③ MEAN FIBRE DIAMETER : 14.3 micron
40mic cut off

④ STANDARD DEVIATION : 4.0 micron
40mic cut off

COEFFICIENT OF VARIATION : 27.9 %
40mic cut off

⑥ MEAN FIBRE DIAMETER : 13.9 micron
30mic cut off

⑦ % FIBRES > 27 microns : 2.3 %

% FIBRES > 30 microns : 2.0 %
& < 40 microns

CLIENT: L FOX
GOAT KNOLL
2280 S. CHURCH RD
DALLAS
OR 97338
USA

RECEIVED: 2 JUN 96 BATCH NO: 2056/95
COMPLETED: 2 JUN 96 SAMPLE NO: 49159/95

STANDARD ERROR OF MEAN FIBRE DIAM. = 0.19 micron ← ⑧ → FDA CALIBRATED BY INTERWOOLLABS TOP



Interpreting Fleece Test Results (aka Having Fun with Statistics)

So you've got your test results back from the fleece testing lab. You dutifully sampled as instructed in order to get a fair and accurate result on your test. Now you've got this page back full of numbers with cryptic titles and little asterisks all over the place. This is all really cool stuff, but for us non-statistical types, WHAT DOES IT ALL MEAN???

Translating these results into meaningful information is important for looking at the results of your own tests and studying the test of other breeders when you're shopping for that special buck for breeding to your does via purchase or short-term rental.

A copy of a test returned from Whatawhata Fibre Testing Centre is printed on the opposite page. This will be used as an example for the rest of our discussion. The test is a 1996 sample from a buck named Skeeziiks. We can already determine (without any statistical knowledge) that the owners of this animal have no lives as they apparently have nothing better to do than sit around and name their animals.

Circled numbers have been placed on this test for identification of the various parts. These numbers are referenced in the paragraphs below.

1. Identification. The top block is easy. It informs us that the sample was from the 1996 goat identified as Skeeziiks and the fiber sample submitted was cashmere, randomly selected by the client. The goat was (and still is thanks to this test results) a buck. From the sample submitted, Whatawhata has determined that the down yield is 22.1%. This means that, of the total fleece removed from this goat, 22.1% of it was cashmere and 77.9% was guard hair. This measurement is determined solely by using the sample submitted. The lab subsamples your sample using a random method to obtain the amount of fleece required for their test and then dehairst it. They then compare the weight of the hair removed to the fleece remaining and compute

the percentage. This yield percentage is also referred to as the theoretical yield.

2. Histogram. This is the cool part. This graph, entitled "Distribution of Fibre Diameters," is called a histogram, defined eloquently by Webster as a "graphical representation of a frequency distribution by a series of rectangles which have for one dimension a distance proportional to a definite range of frequencies and for the other dimension a distance proportional to the number of frequencies appearing within the range."

Less eloquently stated, a histogram shows you how many of each thing you've got.

From our submitted sample, after it is sub-sampled and dehaired, the diameter of the cashmere hairs is measured and results are placed on the histogram. The first column on our histogram, labeled **MC** is diameter in microns. These are the "things" we're examining. The second column, labeled **Count**, is "how many." So, on the first line, we find that there was 1 fiber that measured 6 microns in diameter. Line 2 tells us that there were 3 fibers that measured 7 microns.

Six and seven microns! Wow! This must be a really great goat! Before we get too excited, let's look at the bottom of the histogram. We can see that he also had 4 fibers that measured 40 microns and 5 that were 39 microns in diameter, so maybe he's not so great after all.

In this sample, per line 8, more fibers (1,067 to be exact) measured 13 microns than any other number. We would expect the average (mean) of this sample to be somewhere around 13 microns if the histogram is balanced and doesn't have a "tail."

Oops, this histogram has a tail on the high end. The tail is the line of asterisks which extend from 22 to 38 microns. A tail will skew the mean diameter to a higher number. A tail can mean intermediate fibers, or it can mean some fine guard hair which slipped through the dehairing process. Since I know that this is Skeeziik's first fleece and

because I personally looked at it, and because I like to think positive, I am betting on fine guard hair, which I will hope to not find again next year.

The third column on our histogram, labeled **Cum%**, is the percent of fibers that are this size or larger. On the fifth line, labeled 10 microns, we see there are 330 hairs of this size. In the cumulative column, we read that 98.1% of the sample is 10 microns or larger. More informative is the line labeled 19 microns. Here we read that 7.6% of the hairs were 19 microns or larger. We obviously would like a smaller percentage on this line!

The asterisks on the right side of the histogram merely puts the sample in a visual form. The longest line of asterisks is opposite the diameter size which is most common in our sample.

As you've no doubt been told, a tall, steep-sided histogram is best. Of course, we'd prefer the tall part to be clustered around a low micron number as well. A tall, steep-sided histogram indicates that the fibers don't vary much in size.

You do not want to see a double-peaked histogram. This usually indicates that you have an intermediate fiber.

You may find some histograms turned 90°, with the asterisks vertical instead of horizontal. Don't let them fool you--it's still a histogram.

3. Mean Fiber Diameter. This one's easy. It's just the average. The mean fiber cashmere diameter in this sample is 14.3. The fine print, "40mic cut off" tells us that they didn't count any fiber which measured larger than 40 microns. They told their machines to assume these were just stray guard hairs and to skip over them. Any fiber over 40 microns is not included in the histogram or used to calculate any of the following statistics.

4. Standard Deviation. The standard deviation was invented to provide the answer to that age-old question: On the average, how far from the average are they? In this

Continued on next page

CASHMIRROR

FLEECE TEST TRANSLATION Continued from previous page

sample, our fibers are, on the average, 4 microns larger or smaller than the 14.3 mean. A 4 micron spread would make our range of cashmere diameter 10.3 microns - 18.3 microns. That's quite a spread. If you look at the asterisks on the histogram located between the 10 and the 18 micron lines, you see that, yes indeed, that's pretty much where they are!

In a taller, steeper graph, you would find a smaller standard deviation.

5. Coefficient of Variation. This, for all its fancy title, is just the standard deviation divided by the mean, expressed as a percentage. In other words, number 4 above times 100 divided by number 3 above--and you thought this was a brand new deal. Now that we know it's just a rehash of the same old stuff, it certainly won't intimidate us anymore!

The coefficient of variation, affectionately referred to as COV, is a convenient way to express the variation of the sample independent of the measurement units. For

our purposes, it is a useful number to compare with other samples and will often have more meaning than comparing the standard deviation.

6. Mean Fiber Diameter (30mic cut off). This item (13.9 in our example) is the mean diameter if any fibers larger than 30 microns are not counted--instead of the 40 micron cutoff in the first mean.

This number gives us the benefit of the doubt on our tail in this sample. If we were convinced that the larger fibers in this sample were merely errant guard hairs, sure to disappear as the goat ages, we would be inclined to use the 13.9 microns as the mean instead of the 14.3.

If we were really enthused and had advanced math skills (or a statistical calculator) we might even recalculate the standard deviation and coefficient of variation based on the 30 micron cutoff. Don't worry, we won't do it here.

7. % Fibers > 27 microns and % Fibers > 30 microns. In this sample, 2.3% of the fibers were over 27 microns in diameter and 2.0%

of them were over 30 microns in diameter. We already knew that because we looked it up on the histogram, but Whatawhata just wanted to make really sure we were aware. And, in their fine print, again, they remind us that this still doesn't include those pesky hairs with diameters greater than 40 microns.

8. Other Information.

Standard Error of Mean Fibre Diam. At the bottom of our sample, the lab informs us that their standard error in calculating our mean fiber diameter is 0.19 microns. This means, on the average, they are off by plus or minus .19 microns in the calculation of our fiber diameter. This number should be the same on all tests from a single lab and can be used to compare testing facilities.

FDA Calibrated by Interwoollabs Top. This is the international standard by which most testing labs calibrate their testing machinery. For the results of your tests to be comparable to other labs' tests, it is important that they be based on the same system of equipment calibration.



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The Big Enchiladas

at

Black Locust Farm

Aegisthus LLC/CB92

Zoroaster CCB 79020

Both Chinaman sons

Both still going strong at age 6

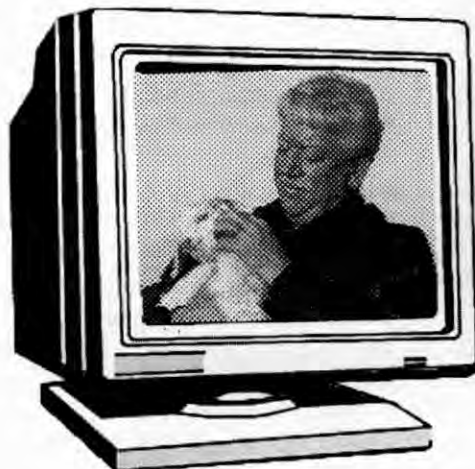
Terry Sim style ratings of 2 and 2+ respectively

Offspring available

Will consider leasing

Little Goats on the Prairie

**Starring John Harris
and a supporting (fuzzy) cast of hundreds**



I first found John while searching for information on cashmere goats on internet. I was snooping around in New Zealand and Australia in their university library files when I discovered a link right back to Mitchell Nebraska, not far from where I grew up. After exchanging e-mail with John, we decided to stop by his farm in Nebraska while visiting relatives in July 1995, and pick up a copy of his cashmere video.

His farm, Nebraska Western Cashmere, nestled in view of the bluffs, near Scottsbluff Nebraska is beautiful! With scenery like this, any goat could probably grow cashmere!

John sold us his video, answered our numerous questions and graciously gave us a tour of his farm. There were goats everywhere on his five acres except a small, green (in Nebraska in July, green takes work!) island where John and his wife Georgiann live in a beautiful home. We could quickly see that you didn't need elaborate, expensive facilities to raise cashmere goats. Housing was minimal and fences were creative.

John discovered cashmere goats by way of pygmy goats. He had been raising pygmy goats for three years when he heard about cashmere goats. After quickly calculating that a \$3,000 cashmere goat would eat no more than a \$40 pygmy goat, he decided to see if he could come up with a plan. John then started a "journey" which has not yet ended. If anything, it's becoming more and more interesting and unique each year!

John's first step was to educate himself on cashmere goats. He then developed a plan on how to come up with the \$3,000 investment per goat required. John's plan developed into a unique investment program. He would supply all the feed, shelter, shipping, and miscellaneous expenses. The investors would pay for the goats. John

would then split profits 50/50 with his investors.

Carrying insurance on the goats was necessary to attract investors and protect their investment should the goat die. John was able to find an insurance carrier via an advertisement in the *CashMirror*.

With seven investors and eleven goats, he launched his business. John started his herd by utilizing the services of a veterinarian who was known for cattle embryo transplants. This veterinarian had even cloned a calf at one time. John imported embryos, both fresh and frozen to implant into his investors' nannies. His transplant success rate was good, with 50% of frozen and 70% of fresh embryos resulting in kids.

The investors like to come out to the farm on weekends with their families, have a picnic and visit with their investments (the goats). You can't do that with a mutual fund!

Over several years, John increased his herd to its present size, at 60-70 goats. John keeps three separate, genetically unrelated herds, one from New Zealand stock, one from Australia, and one from Tasmania. Per John, the result of his work has produced goats that have fine fiber which has good style and crimp and yields of 40% to 60%.

Another venture has worked well for him as well. Goat dairy farmers need to have their does bred each year to enable them to have a continuous milk supply. Often, the farmer is not interested in keeping the kids. So, John furnishes an imported cashmere billie to breed the farmers' stock. The farmer gets his milk supply and John gets the kids. John, in turn sells the billie kids and keeps the nanny kids for future breeding.

Since John is running a large number of goats on his five acres, supplemental feeding is required. He feeds his goats a mixture of corn, minerals (with selenium), and diatomaceous earth, supplemented with alfalfa hay and grass hay (50%/50%). The diatomaceous earth helps control worms. As he only de-worms twice a year, it does seem to work.

John has found that the goats need only modest shelter, even with the weather extremes found in western Nebraska. Protection from wind and elements can be as fancy or as simple as you want. Fencing is a key ingredient, especially when keeping three herds separated, but as you can see from the picture, these fences can be creative.

Because of John's internet talents, he has recently obtained the exclusive right to import embryos from Outer Mongolian into the United States, Canada, Mexico, and the Caribbean. The only hurdle remaining for this



Creative fencing keeps them in at John's

venture is to find a USDA-approved sponsor, which John believes will happen soon.

John owns the exclusive rights to import Mongolian cashmere finished products from the Gobi Cashmere Co. He also is importing finished goods from China.

For beginning cashmere goatkeepers, John passes on the following tips: Keep good records (very important!) including records of progeny, health, fleece information, and test results. He favors a 24-tooth comb for shearing.

John's farm has a diverse range of products from his "Raising Cashmere Goats for Fun & Profit" video which includes an excellent booklet entitled "A Beginner's Guide to Cashmere Goats" to meat and fleeces, both dehaired and undehaired. "Don't overlook your local spinners as a market," John reminds us. John also sells breeding stock all over North America. When we asked the Paulin's about cashmere goats south of the border, they advised us to talk to John Harris as they knew he had just delivered a load of breeding stock to Mexico.

John feels that what for some was undertaken as a "fad," has developed into a solid industry. Being aware of your markets, both real and potential, and keeping an eye out for opportunities has worked well for John in some unusual ways.

John's internet articles about goat-powered weed control has sparked interest in Europe, Australia, New Zealand as well as here in North America. Many cattle ranchers are entering the field, to assist them with their control of weeds. John's articles on weed eradication are found worldwide.

The dog of choice for him is the great Pyrenees. He told us he first had a German Shepherd for herd protection, but the coyotes would outwit the dog. One coyote would lure the dog away from the herd while the rest of

the pack went for the goats. His Pyrenees don't seem to fall for this trick.

John is active in his local cashmere goat association and currently serves as President of the Western Prairie Cashmere Association.

In John's cashmere video, he gives detailed, illustrated instructions for installing ear tags, trimming hooves, feeding, and sheltering. There is even a shearing demonstration by Sarah Harris (no relation) on the tape. As beginners, we found this a valuable resource for acquiring basic skills. You can read all the information you can find about trimming hooves or ear-tagging, but there's nothing like a visual demonstration with a rewind button to make you more comfortable with the process.

John's easygoing nature and knowledge of the industry makes it easy to seek advice from him. We are lucky in the cashmere industry to have someone of John's creative talents working with us!



John's kids admire the view of the bluffs

INTRODUCING THE FAURÉ ISLAND GOAT

Fauré Victoria Goat Open Day

By Terry Sim

Australia's cashmere and cashgora goat breeders were told there was "money in partnerships" by incoming International Wool Secretariat chairman, Alec Morrison, at a major industry field day held on June 22nd.

Mr. Morrison told growers at the "Fauré Victoria" Goat Open Day at Barry Bell's "Kawalla" property near Horsham, Victoria, to consider partnerships with other fibers, spinners, consumers and branders, and among themselves.

About 100 growers, industry leaders and local farmers attended the field day which featured presentations from pioneers, innovators and researchers in the cashmere, cashgora and meat goat fields. It

included a fashion parade of domestically manufactured Australian cashmere and cashgora garments from Belisa Cashmere, Kellyville, New South Wales.

The open day was the first major field day on the cashmere-cashgora industry calendar for many years and promoted the potential for using the Fauré Island goats to develop Australia's goat industries. The unique goats originated from angoras left on Fauré Island off Western Australia in the 1800's. Since 1990 they have been the focus of a research project to explore the animals' value in crossbreeding programs and the market po-



Alec Morrison, IWS Chairman gets his hands on the latest development - Fauré fiber

tential of the 18-23 micron fiber.

Mr. Morrison said he had been told the goat industries were in a "parallel" situation to the wool industry in the last century. "Clearly the potential use of new breeds and strains via crossbreeding with existing strains can offer large potential gains if undertaken carefully and respectfully of fiber quality standards. New exotic breeds to Australia have to adapt to our unique environments and the fastest way to achieve this is by crossbreeding," he said.

Mr. Morrison said today's apparel market consumers are constantly seeking "newness" in yarns, finishes, colors, textures and styles. "Working with other fibers in blends will enable you to have the flexibility to meet constantly changing fashion," he said.



Mr. Fred Moylan, Fauré Victoria principal (left) and Mr. Barry Bell, open day host (right) show dehaired Fauré fiber to Mr. Wal Clarke (center), retired New South Wales goat researcher.

Continued on next page

CASHMIRROR

Fauré Fiber

Continued from previous page

Mr. Morrison said that partnerships with spinners and other processors would ensure breeding and managing stock is related to benefits for the consumer. "Particularly with spinners because it is at that stage your product transforms from a raw material into something that influences the salability of a garment," he said.

Mr. Morrison highlighted partnerships with consumers "because benefits to you only begin when someone buys a garment that carries your fiber." He said, "To get that sale you need to provide the consumer with benefits, and before you can offer those benefits you have to know what the consumer wants."

"I see no problem in a level of cooperation between wool and yourselves in this area, because there are opportunities for both of us," he said.

The IWS chief also touted the possibility of goat fiber partnerships at

the retail brand level. "The branding needs to be managed so that you hold your identity and credibility, but careful brand positioning and extension will give you the opportunity to appear at a number of price points without loss of reputation."

Mr. Morrison said "the one living certainty is that all apparel fibers face increasing competition, not only between themselves but from new developments in man made fibers. The apparel customer is extremely value conscious, and is extremely ruthless in selecting exactly what she wants at the price she is prepared to pay."

"In this price competitive environment, natural fiber producers must constantly work up our productivity and efficiency so we can retain trading margins. So it would make a lot of sense for producers to cooperate regionally, to benchmark, to share and compare information on production per head, per hectare, costs and quality. The competition created within and between groups will bring with it increased productivity."

Australian wool and goat fiber pioneer, and driving force behind the Fauré project, Mr. Fred Moylan, said the Fauré fiber represented a wonderful opportunity to the wool textile industry, "with a fiber diameter right in the most popular micron area and with a shorn length of 100 mm, to card or to comb, or to spin on both the worsted and woolen systems."

"With a new distinctive type of fiber, we have the opportunity to create model marketing providing we learn from the shortcomings of others," he said. "Those who did not plan for the long term and relative price stability, to target reliable processors with access to profitable markets and negotiate prices with those processors suffered booms and busts and depression."

"We have identified processors in niche markets. Whilst quantities are small, another niche market



Another cashgora creation from Belisa Cashmere (Why did you send us so many pictures of models, Terry?)

presents itself—hand spinners, who report that Fauré Fiber 'spins like a dream' and prices are profitable," Mr. Moylan said.

Mr. Moylan said the Fauré goat offered opportunities to produce long-stapled 200 mm, 19 micron cashmere for worsted knitwear, to crossbreed with cashmere goats to increase down weights and with Boer goats for a dual purpose fiber-meat goat, and to produce superfine mohair.

Scientist in charge of the Fauré research project and acting head of the Victorian Institute of Animal Science's Fibre Quality Department, Mr. Bruce McGregor, said the Fauré goat offered great potential as a valuable genetic resource. He said project results indicated it was possible to select Fauré goats producing 450 gms of under 19 micron strong cashmere, 750 gms of

Continued on next page



Cashgora garmets from Belisa Cashmere take the runway

Fauré Fiber

Continued from previous page

20.8 micron fiber and more than 1.1 kg of fiber at 22 micron.

"These results are very encouraging for the continued development of a new breed or type of fiber goat which has every prospect of being selected quickly and surely towards sensible objectives," Mr. McGregor said.

Australian cashmere garment manufacturer and Victorian breeder, Mr. Jim Browne, told growers there was an opportunity to duplicate with Fauré fiber what his company had done with Australian "middle-micron" cashmere.

"What I did in looking at the processing of Australian Cashmere was I said what was the fiber that we grow best, and what we grow best in Australia is the middle micron fiber about 16.8 microns which is grown in bulk and that's what we took as our raw material. Then we said how do you alter the manufacturing process to suit and we altered it and we've got a wonderful product," he said, "Now you can do the same with Fauré fiber."

All photos with this story by Terry Sim

Are There Cashmere Goats in Hawaii? Inquiring Minds Want to Know

While surfing the internet, Paul surfed over to Hawaii where he contacted Doug Vincent, an extension agent. He asked him if cashmere goats were raised in Hawaii. Mr. Vincent spoke to other extension personnel on the islands and reported back that there is no one in Hawaii, that they know of, producing cashmere. He said that in their warm climate, there is no real market for it and no way to market it if there was a demand.

He said that most of their goat production was for meat goats, serving, primarily, the Asian and Filipino communities. Most goats are raised on the farm and sold on the hoof for home slaughter.

About the Fauré Island Goat

The Fauré goat originated on the Fauré Island in Shark Bay off western Australia. These goats descended from Angora goats which came from either South Africa or Asia Minor around 1890. During the past 100 years, these feral goats, under the influence of natural selection, they reverted to the two-coated goat like the Angora's ancestors. They have developed distinctive characteristics which include:

Fleece style and handle - soft, downy, two-coated
Mean fiber diameter - mostly 19-22 microns
Fiber length - 200-230 mm (8-9 inches!)
Luster - medium
Color - white
Yield of down - 70% by weight, 90% by count

During the 1980's, the Moylan family moved 500-600 of these goats from the island and ventured a project with the Victorian Department of Agriculture and RIRDC which attempted to produce 19-20 micron cashmere or superfine mohair, while eliminating kemp. By 1994, the averages for the eight sires selected for mating were:

Fleece style and handle - crimped and resilient
Mean fine diameter - 20 microns (range 17-22)
Length - 117 mm (at 6 mos.), 234 mm (9 inches) per year
Luster - low to medium
Color - still white
Yield - 75%
Guard hair - short

Some have compared the Fauré goat with the Chinese Liaoning goat in its ability to produce a high frequency of homozygous white, good frame size and a very dense fleece of commercially salable cashmere. The Fauré goat or Liaoning goats' strong point is not a very fine diameter cashmere, but as has been noted, processors ask for fine cashmere, but don't pay the premiums necessary to make it economical.

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CASHMIRROR

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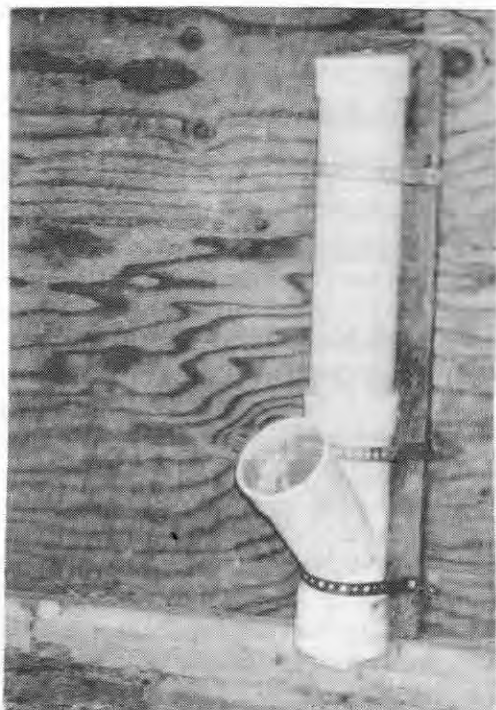
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Goat a d g e t s

Mineral Mix Feeder

By Douglas Maier

BREEZY MEADOW CASHMERE FARM



Ed note: As you've noticed, goats have a tendency to play with their food and food dishes. I'd hate to guess how many bags of minerals we've lost on the ground. We will be building one of Douglas's mineral feeders before you even get these instructions in your hot little hands. Thanks Douglas!

Here is one of the gadgets we use on our farm, to try and make life a little easier. I can't take credit for coming up with the basic idea as it is an adaptation of one Mirriam Jeswine made out of 3" sewer pipe. My mineral feeder is made from a 4" PVC pipe and fittings, which are cheaper than sewer pipe.

Materials list

- 1 piece 4" PVC solid pipe
- 1 4" PVC wye
- 1 4" PVC clean out adapter
- 1 4" PVC clean out plug (threaded)
- 1 4" PVC cap
- plumbers tape
- wood screws

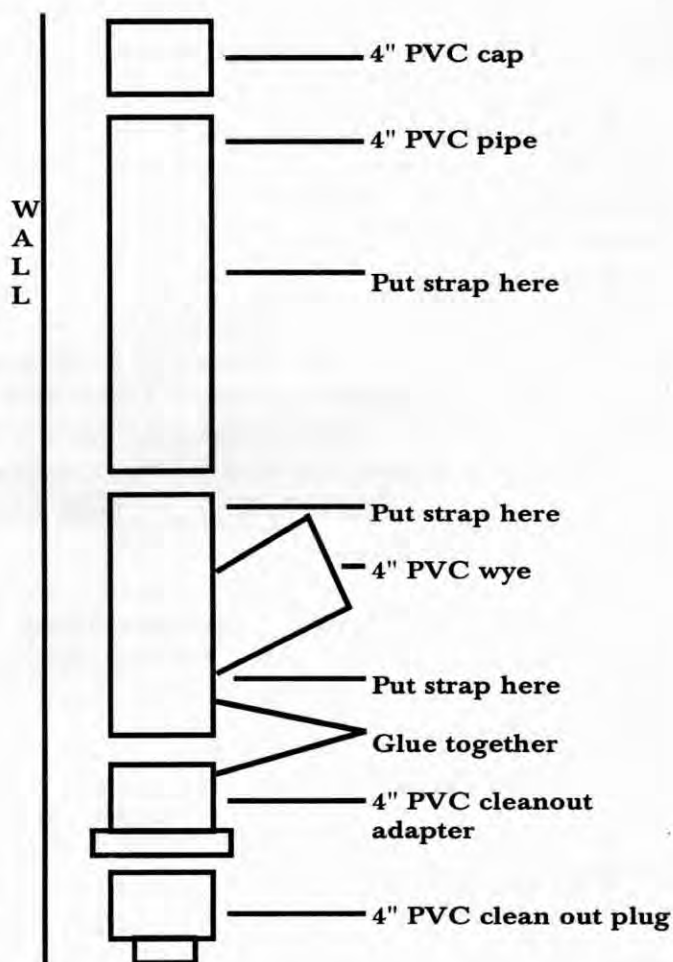
Direction for assembly. Glue clean out adapter into bottom of wye. Screw clean out plug into adapter. This will enable you to clean out the feeder after it is mounted to the wall. Cut 4" PVC pipe to desired length. Slip pipe into top of wye. I don't glue the pipe into the wye just in case I might have to take the whole thing apart to clean it.

Mount to the wall using the plumbers tape and wood screws. Put one strap at the bottom of the wye and one strap at the top of the wye. The third strap goes on the PVC pipe. Mount the feeder at whatever height best suits your goats.

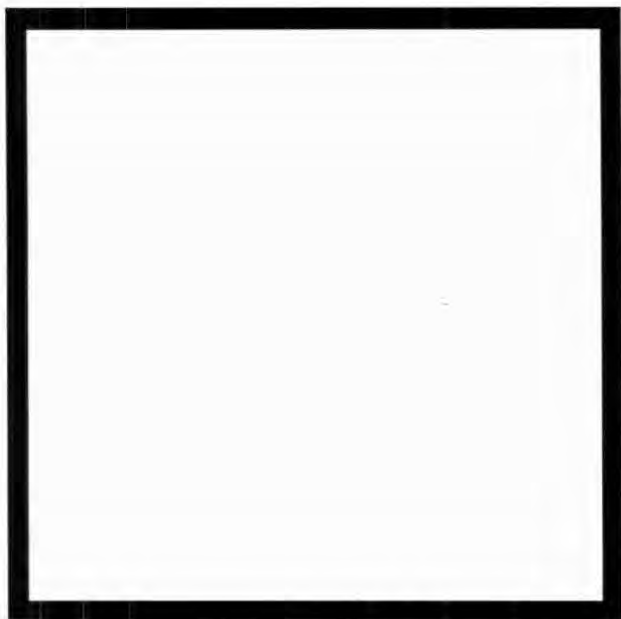
Fill with mineral mix from the top and put on the cap. Gravity will supply mineral mix to the open wye fitting. Goats can only get their noses in the 4" diameter hole so the mix tends to stay fresh and clean. Kids can't jump into the mineral mix and the older goats won't paw at it.

The only problem I have encountered is that the bucks like to rub their horns on it so you will need to attach it **securely** to the wall.

Details of construction



Black Welsh Mountain Sheep!



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4 ewe lambs
3 ram lambs**

**CAE and CLA negative
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A century ago, in Wales, flockmasters bred, from select black lambs, a separate and pure strain of Black Welsh Mountain Sheep. The breed has had its own flock book since 1922 and the breed is widely distributed through Wales, England, Scotland, Ireland, Belgium, France, USA and Canada. Even though widely distributed, numbers are still small in the United States.

The breed is well known for its hardiness, self-reliance and intelligence. They survive well on natural hill vegetation and also thrive under better lowland management where they grow heavier fleeces.

Males sport magnificent curled horns and the sheep have a blue skin.

The wool is prized by spinners. They have a short, thick wool, firm to the hand. Tips weather to a rich, dark brown. Average fleece weight is four pounds with length of 2-4", graded 48's to 54's with a demi-luster. The locks have a lively crimp. The wool is used pure or in combination with quality white wool resulting in interesting patterns and checks characteristic of the Welsh woolen industry.

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George Howe: The Maker of Wheels

By C.J. Prince

After 10 years of working with wood in his shop as a hobby, George Howe of Kiowa, Colorado, is now consumed with the passion of creating spinning wheels, a more challenging task than the cradles, checker tables and inlaid trays he'd previously made.

"I worked as a machinist for 35 years. I could understand the machining and the relationship between mated parts. I've looked at spinning wheels for years but when you think of all that goes into them, it's very intimidating," said the Colorado native.

Howe's interest in twining fibers began in childhood as he watched his father braid horse hair bridles. He realized that bridles, rope and yarn had a common denominator: the consistent twisting of a fiber source.

"I had no idea how to spin other than by twisting the individual fibers, like cedar bark and yucca plants. I've broken fibers out of the leaves and made a rough cord," said Howe. His interest sparked, he studied the history of spun threads, yard and rope from picture references of England, Scotland and Ireland to the Native American use of stinging nettle, cedar bark and other plants which provided fibrous stems.

After a year and a half of paper work, researching, designing and re-designing, Howe faced the tools in his shop with the intent of making a spinning wheel. The original design was created by a professor in Minnesota who determined that anyone could make a spinning wheel. Howe's technical background provided a strong base for expanding on that design.

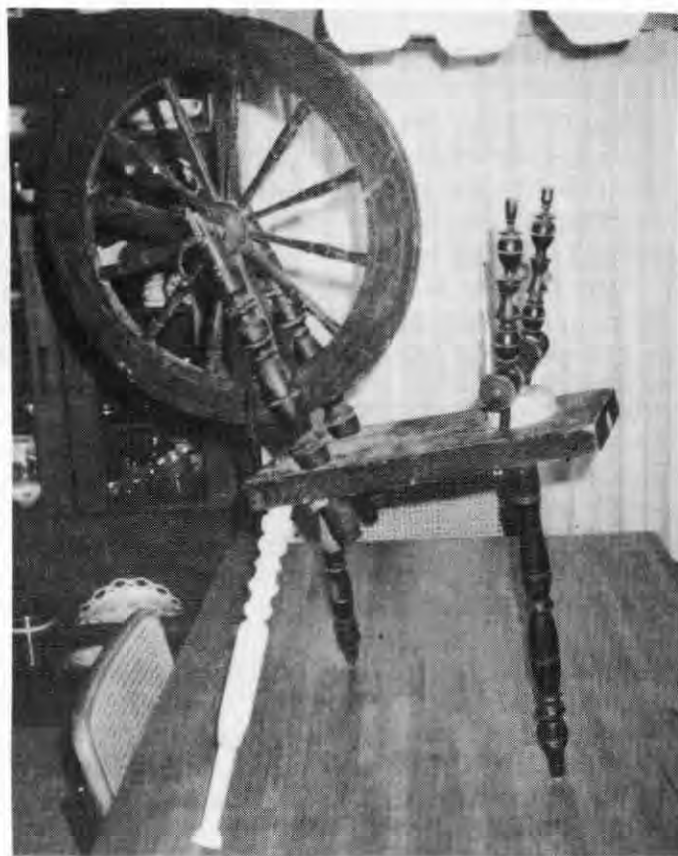
"This wheel has three different kinds of wood in it." Howe gathered scraps of woods from other projects and forged ahead. "The wheel is poplar, the cross bar is birch. The mother-of-all and the support bar and the maidens are poplar. The spokes are oak." Howe points to various parts of the complicated pieces required to make what might appear to be a simple spinning wheel.

"The mother-of-all is what holds the maidens, the spindle, bobbins and flyer unit. It supports everything. The cross bar is normally pinned in place so it doesn't move.

"This is a modified Bavarian or Swiss wheel where everything is stacked on top. There is a difference between this and a castle wheel, where the big wheel sits on a frame at top and everything else is underneath it," explained Howe.

"This is a small wheel, a 14 inch wheel. It's light. I want to make the wheel heavier so it will spin freer," analyzed Howe. "This is an easy wheel to use and you don't wear yourself out just getting the wheel to turn."

When he first began to work on the design and creation, he did not know how to spin. Recently he



**Antique spinning wheel
in the process of being restored**
Photo courtesy of George Howe

faced the spinning wheel from a practical approach and began to spin wool into a remarkably uniform yarn, a process which helps him to determine the needs of the spinner from a hands-on point of view.

"I didn't realize the relationship and difference between the wheel tension for flax, silk, cotton and wool and different types of wool, the long staple and the short staple," admitted Howe. With the experience of the wood and the fiber at his fingertips, he now problem solves the unexpected.

"People who have been spinning for years are only interested in the end result. If you're going to spin a fine embroidery-like thread and you've been spinning knitting yard, you need a tension change. You'll pull the fibers apart if you have too much tension on fine fibers," he explained.

Howe experimented with making drop spindles, calculating the weight of the spindle and the length and fineness of the fiber. He hopes to chart the results for other spinners. "I've been thinking about making some drop spindles in exotic woods like redheart, kokobolo and zebra wood."

Fascinated by the history of spinning and the spinning wheel, Howe noted small details that no longer apply in the design. "On antique wheels, they put nail

Continued on next page

CASHMIRROR

George Howe

Continued from previous page

spikes in the legs but it raises cain on vinyl floors." He chuckled. "They had plank floors then and the wood of the spinning wheel would slide, so they left nail tips sticking out so they could press it into the wood of the floor."

His interest in the wheels of the past will lead Howe in a slightly different direction. "My real desire is to repair and refurbish antique spinning wheels and put them back into working condition," he stated. "I'm working on one now, a Saxon style, double band drive with lots of pieces missing, one leg, the treadle and the cross bar. It's practically going to be a new wheel when I'm finished."

The challenge of the antique spinning wheel comes with recreating parts that no longer exist. Occasionally Howe will find a drawing in a book that will help him make a missing piece but he must also depend on his knowledge of the wheel itself and make up parts when needed.

George Howe is an active member of the Down Home Spinners in Elbert County, Colorado and will demonstrate his wheel at the Colorado State Fair in Pueblo in August.

C.J. Prince is an actress, writer and herdsman who raises Karakul sheep and Nubian goats at Peachdätter Farm in Calhan, Colorado



Spinning wheel designed and build by George Howe
Photo courtesy of George Howe

Page 20, August 1996

PJ's Rambling Observations on Breeding

The doe must be in heat. Sounds simple, doesn't it? Usually it is, but exceptions do occur in most herds. The so-called "silent heat" can be a problem. We have one doe whom we spent an inordinate amount of time trying to figure out when she was in heat and never did hit it right!

The normal estrous period lasts from 20 - 25 hours. However, it is not uncommon to have one go into heat an hour after you go to bed, and be out of it by morning.

Environmental temperatures effect cycles. It has been found that warmer temperatures can increase the length of the cycle by 3 or 4 days and also reduces the duration of estrous to 12-13 hours. 65o F or lower is good temperature. If the temperature is over 75° F and especially if it's over 90° , there can be a substantial difference. Observation is the key.

Last year, we tracked heat periods for 2-3 cycles before breeding by making notes on a feed store calendar on the wall.

This way we could anticipate their heat periods prior to breeding. You accomplish two things: Avoids wasting your time and the goats' and allows you to "flush" them.

Flushing is making sure the lucky couple (or whatever numbers are involved) are on a rising plane of nutrition at breeding.

This can be accomplished by putting them in a fresh, green pasture or giving them 1/2 lb. of feed per day. Do this for 2 or 3 weeks prior to the big event.

This is also a good time to treat them for lice.

Breeding Terms

Inbreeding - Mating between animals that are more closely related to each other than the average relationship between all individuals in the population.

Linebreeding - Less intensive form of inbreeding where you are continually introducing bloodlines all related to a single individual.

Bred-on - A goat which has known ancestry on both sides for at least one generation.

Gestation period for goat - 145-155 days per reference materials (in our experience 147-152)

Heritability - A measure of how much genetics affects the occurrence of a certain characteristic of the goats.

Upgrade - Practice of mating the best does with the best bucks to improve the herd.

Flushing - Practice of feeding grain or other high nutrition food to breeding does about two weeks before breeding. Ensures that does are on a rising plane of nutrition encouraging eggs to drop more than one at a time.

Report of Cashmere Research in Europe - Part I

by Angus Russel

Macaulay Land Use Research Institute

Craigiebckler, Aberdeen AB9 2QJ

The production of high quality, high value animal fibre has the potential to make substantial contributions to the economy of hill and upland farms, not only in the UK but also in those countries in Europe and beyond which have a tradition of ruminant livestock enterprises.

At one time the annual wool cheque was sufficient to pay the rent of the average UK sheep farm. Then, the value of the clip started to decrease and the return from wool covered only the shepherd's wage. At present times, although there has been a recent modest improvement in wool prices, the income from wool does little more than pay the cost of shearing, and in some cases does not do even that.

The main reason underlying the change in profitability of wool production is the poor quality of the product in relation to present pay demands. As with other commodities, the expectations of consumers as regards quality have risen with improvements in living standards; the quality of wool produced in the UK, and indeed in most European countries, has changed little if at all. Recent research in the Institute has shown, however, that the production of high quality, high value wool is eminently feasible and that the opportunities for generating income from quality animal fibre are not confined to wool. Other fibre-producing species merit serious consideration.

Specialty and high value animal fibres come from a wide range of species including goats, sheep, camels, the South American camelids, yaks, musk ox and rabbits. Some, such as yaks, are physiologically unsuited to the comparatively low altitudes of most European farms and others, notably the musk ox, exist in only very small

populations and are not available in numbers sufficient for research purposes. Angora rabbit fibre enterprises do not have any substantial land use requirements and Bactrian camels and dromedaries, have not been seriously considered as alternative animal species in European agriculture - yet!

The range of species which has received attention as high value animal fibre producers, particularly from the more marginal areas of the EU, is therefore restricted to goats, sheep and some of the South American camelids, viz llamas, alpacas and guanacos. These species have all been the subject of recent research in MLURI, although work on fibre-producing goats has been confined to cashmere. Mohair, produced by Angora goats, cannot be accurately described as a fine fibre, world markets are currently oversupplied, and Angora goats appear less well suited to many of the UK hill areas, although they undoubtedly thrive well in the drier climates of certain European countries, including the more favoured parts of the UK

Cashmere goats

The Institute's interest in cashmere dates back to 1982. Feral goats captured in south-west Scotland for use in grazing studies on reseeded and indigenous blanket bog vegetation, with the aim of improving the quality of grazing for sheep, were found to be carrying an undercoat of fine cashmere. Weights of cashmere per individual—generally less than 50g—were too low to justify farming these animals for their fibre, but the fibre diameter of the cashmere, at 14 microns or less, was exceptional and as good or better than the top quality cashmere imported from China. The majority of the cashmere was either grey or fawn, which attracts

lower prices than white cashmere, and the few white individuals tended to have very low levels of production. It was considered, however, that the population of Scottish feral goats had the potential to serve as the basis of a research programme on cashmere production.

Integration of Research

In the early 'eighties it was clear that the research on cashmere production as a possible land use option would require to be multi-disciplinary. Little was known about the growth of cashmere or the factors influencing it; there was no experience of the harvesting of this potentially valuable commodity; the scientific literature on nutritional requirements and the grazing ecology of goats was sparse and what little was available referred either to dairy goats or goats kept under very different environmental conditions; little was known about goat health other than that they were probably susceptible to a similar range of diseases as were sheep. These areas of work have been addressed in recent years by the development of an integrated research programme. This programme has benefited greatly from collaboration with other institutes, notably the Rowett Research Institute and the Medical Research Council's Reproductive Biology Unit in the field of fibre biology, the Roslin Institute in the work on genetics and animal breeding, and the Moredun Research Institute in research on animal health and particularly parasitology. A close association with textile companies, and in particular Johnstons of Elgin, has been invaluable in ensuring that the characteristics of the final product accord with the rigorous specifications of the textile industry.

At the outset it was clear that if cashmere production were to be seriously considered as an avenue

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for diversification, one of the first priorities had to be an appraisal of the possibility of substantially increasing fibre production to economically viable levels. The two principal means of achieving this objective were considered, at that time, to be through breeding and by nutritional manipulation.

Breeding

Two options for increasing cashmere production through breeding were available, viz selection within the existing feral population and crossbreeding with cashmere goats from other countries. It was considered that the latter was likely to result in more rapid progress in the first instance and a programme of importation of animals, semen and embryos was initiated by a cooperative, Cashmere Breeders Ltd., of which the Institute was a founder member and for which it still acts as managing agent.

Goats were imported from Iceland, semen and later live animals from Tasmania, and embryos from New Zealand and Siberia. These were used in a structured programme of crossbreeding in the Institute and on CBL's members farms. In this programme feral goats were crossed to one of the exotic breeds and the resulting progeny crossed again to either the same or a different exotic genotype to produce goats which had 25% feral ancestry, the remaining 75% being made of one or two exotic breeds.

Extensive use of artificial insemination, multiple ovulation and em-

bryo transfer technologies was made to increase the numbers of exotic genotypes and to distribute these among members of the breeding group. In turn, CBL members contributed crossbred animals deemed to be superior in terms of their fibre characteristics to found a elite herd of Scottish cashmere goats managed by the Institute and located at Sourhope Research Station.

Estimated annual production (EAP) of cashmere and measurements of mean fibre diameter were made on samples of fibre collected from kids at five months of age. Mean values for these traits in the native feral goats and the four exotic genotypes are contained in Table 1. These data illustrate the positive relationship observed between weight of cashmere and fibre diameter which is, of course, a negative relationship between quantity and quality. The variation between genotypes was substantial, with the feral goats producing small quantities of very high quality cashmere at one end of the scale, and the Siberians producing high weights of very coarse fibre at the other.

These quantitative and qualitative traits were combined by their relative economic values in a cashmere production indexes (CPI): $CPI = EAP \{1 + k(\text{fibre diameter} - \text{mean fibre diameter})\}$ where k describes the price differential paid per unit decrease in fibre diameter.

At the outset of the cross-breeding programme it had been anticipated that this stage of the work would serve as a screening process, allowing the subsequent breeding work to concentrate on the superior 3-

way crosses and resulting in the inferior crosses being discarded. The results, showed, however, that although those crosses with an Icelandic component were generally superior in terms of quality, those with a predominance of Siberian ancestry were better as regards quantity. When these traits were combined using the CPI, differences between genotypes became less clear (See Figure 1). It was accordingly decided that subsequent breeding work would be conducted without regard to genotypes and that individuals would be selected on the basis of genetic merit.

The cross-breeding programme also showed evidence of significant heterosis, or hybrid vigor, in weight of cashmere produced, i.e. the value in the progeny was significantly greater than the mean values of the parents. What was equally noteworthy and of benefit was the lack of heterosis in fibre diameter. In practice this meant that an increase in the weight of cashmere produced had been achieved without an accompanying decrease in quality.

In general, the results of the cross-breeding work indicate that the progress made towards the development of a breed of goat producing economic quantities of high quality cashmere was greater than would have been achieved by selection within the native population of feral goats.

The second and current phase of the cashmere goat breeding programme is concerned with genetic selection. Two selection lines and a random bred control, against

Continued on next page

	<u>Feral</u>	<u>Icelandic</u>	<u>Tasmanian</u>	<u>New Zealand</u>	<u>Siberian</u>
Live weight(kg)	15.7 (2.15)	17.65 (0.93)	16.39 (0.83)	16.53 (1.28)	1.88 (1.28)
Cashmere weight (g)	37.3 (71.3)	91.4 (31.7)	227.1 (28.1)	275.1 (42.5)	79.8 (44.7)
Fibre diameter(µm)	13.75 (0.82)	14.04 (0.41)	16.13 (0.35)	16.63 (0.49)	7.97 (0.50)

Table 1 Mean values ($\pm$ se) for live weight, estimated annual cashmere production and fibre diameter measured at 5 month of age in cashmere goat genotypes used as the basis of the cross-breeding programme.

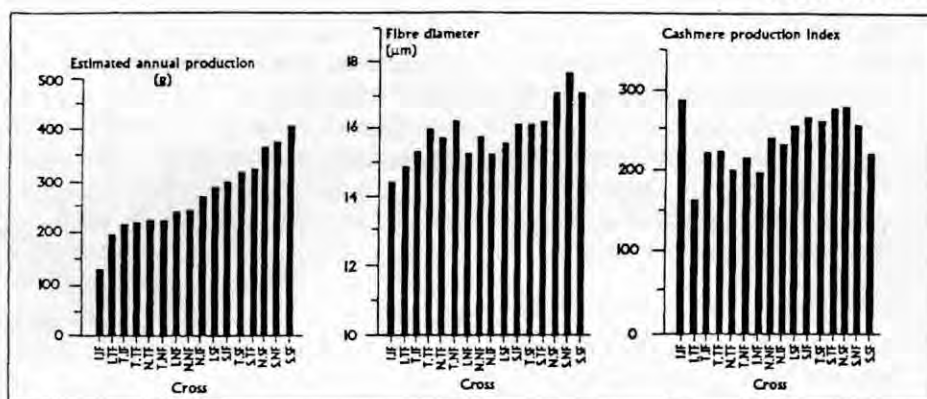
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which the rate of genetic progress can be measured, were established at mating in 1991, using goats from the cross-breeding work outlined above. In the first line, comprising 190 breeding does, selection is for maximum value of cashmere. The criterion used here is the CPI described above which combines cashmere weight and fibre diameter by their relative economic values. The second line, consisting of 95 breeding does, is selected for high quality cashmere, i.e. for low fibre diameter. The control comprises 70 does. Does are kept for three breeding seasons, bucks are selected on the basis of their index scores at 5 months of age and are used only once at 12 years of age. To date, results are available from only two years of selection, which is too short a time for any meaningful evaluation of progress.

Goats in general are more susceptible to helminth parasites than are sheep and consequently require more frequent treatment with anthelmintics. This, in turn, can lead to the rapid emergence of multiple anthelmintic resistance. On hill and upland farms the opportunities for controlling helminth infestations by the use of non-susceptible livestock or by cropping or conservation are severely limited and the only alternative to intensive chemotherapy lies in the breeding of stock with an enhanced helminth resistance. It was against this background that a third selection line, this one for helminth resistance, was added to the cashmere goat breeding programme in 1992.

Two bucks, selected from a total of 83 gathered from 11 different cashmere herds on the basis of their cumulative nematode egg counts in response to both artificial and natural challenge, were mated to 95 does to establish a helminth resistance selection line. Studies in 1993 and 1994 examining



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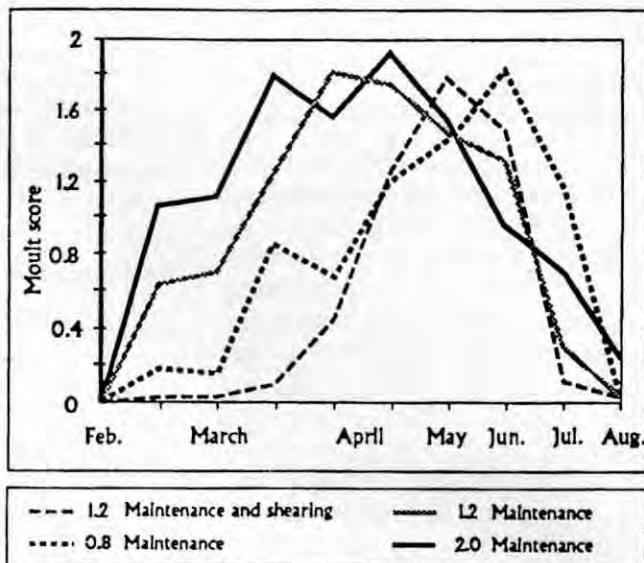
tionally high, demonstrating that these traits are determined primarily by genetic factors and implying that little of the variation in cashmere production was influenced by nutrition.

More recent research in the Institute by Dr. Margaret Merchant has shown that this conclusion requires to be revised. Although nutrition may not influence the contemporary rate of growth of cashmere or the diameter of the fibre, it is now clear that it can affect the timing of events in the annual cycle of fibre growth and shedding. The results shown in Figure 2 (below) indicate that goats on high levels of feeding and gaining weight shed their cashmere earlier than those on a submaintenance diet and which consequently lost weight. The effect of shearing goats fed 1.2 times the maintenance requirements of a fully-fleeced animal was a substantial loss of weight and a significant delay in the time of shedding to beyond that of animals receiving 0.8 maintenance.

The consequent of this finding with respect to the annual weight of cashmere produced is not clear at this stage. In this particular experiment the moult appeared to finish at about the same date in animals on all treatments. It is not yet known, however, whether the treatments have had any effect on the time of initiation of the subsequent growth cycle or, if such an effect is found, whether the duration of the period of active fibre growth (the anagen phase) will be altered or whether that duration remains constant in length but occurs over a different time of year.

The demonstration of clear effects of level of feeding and of shearing on the timing of events in the annual cycle of cashmere growth and shedding suggests that other non-genetic factors could have significant influences on cashmere production. Nutritionally related fac-

tors likely to be important in this respect include body condition and physiological state; the major environmental factors are ambient temperature and photoperiod. A research programme to study the effects of such factors, and of interactions between them, is now being developed.



To Be Continued- Fig 2 The effect of nutrition and shearing on the timing of the moult in Scottish Cashmere goats
.....Next Issue

Goatherders' Summary

The following is a summary of the important stuff, as the editor sees it, from the research article beginning on Page 21 and ending here. Rather than keep you in suspense about what might be important in the second installment of this article, I have herein listed the important stuff for both parts.

1. Researchers found little or no increase in fiber on kids from 5 months of age to shearing - a period over which substantial increase in cashmere is experienced in adults. They hadn't pinned down why, but had some theories.
2. They found that shedding of cashmere is triggered by photoperiod (length of daylight hours) and "mediated" through the hormone melatonin. They hoped that giving goats melatonin prior to winter solstice might counteract the effect of daylight decrease and delay shedding, but this didn't work (shedding was actually advanced). These results led to other theories to test.
3. Researchers crossed feral Scottish cashmere-producing goats with cashmere-producing goats from Iceland, Tasmania, New Zealand and Siberia. They found no one certain cross was consistently "better" but had to look at each new goat individually. They did conclude, however, that the "value" of progeny was greater than the mean "value" of the parents. Cross breeding seemed to work better than selection within the native feral population. They also felt they had produced a valuable gene pool, one with a wide range of colors and color patterns.
4. Nutrition research - Goats on high levels of nutrition tend to shed earlier than those on a sub-maintenance diet. Those on sub-maintenance diet, in addition to losing weight, shed their cashmere later. All goats in test finished their molt at about the same time. Researchers didn't know yet if the feeding variation would effect the subsequent cashmere growing season.
5. Parasite resistance was studied by crossing does and bucks who showed more resistance to helminth parasites (worms) and then testing the parasite-resistance of the offspring. Increased resistance was shown in their doe kids, but no difference was found in buck kids. Neither sex showed a difference until their second "grazing season."

Mad Cow Disease What is it? Are Goats Susceptible?

Reprinted from
Texas Cashmere News

The media has made hay with the so called mad cow disease, formally known as **Bovine Spongiform Encephalopathy** or BSE, which has created a European food industry and political crisis. It has also added to the fire of groups in the U.S. who oppose the consumption of meat. In order that our readers might be better informed about this disease, we have taken excerpts from the May 1996 issue of "Asian Livestock, published by the Food and Agriculture Organization of the UN's (FAO) Regional Office, Bangkok.

What is BSE? BSE is one of a group of diseases called transmissible spongiform, encephalopathies. Other diseases in this group include scrapie in sheep and goats; Creutzfeldt-Jakob disease (CJD) and Kuru in man; chronic wasting disease in deer; feline spongiform encephalopathy; and transmissible milk encephalopathy. BSE has a very long incubation period in excess of one year, more usually several years.

The nature of the causative agent has not been fully elucidated. Although clearly transmissible, the disease appears not to be caused by a conventional infectious agent such as virus or bacterium. It is believed that a protein which occurs normally in the central nervous system is slowly and progressively converted to an abnormal form in the disease.

BSE first appeared in the United Kingdom (UK) in the mid 1980's, most probably through cattle eating feed supplement that contained meat meal and bone meal derived from scrapie infected ruminants.

How did BSE arise in the UK?

It seems likely the BSE epidemic in the UK began by the infection of

cattle with the scrapie agent from sheep. It appears that it started as a consequence of a change from high temperature batch rendering with solvent extraction of slaughterhouse waste incorporating sheep carcass material, to low temperature continuous rendering. The changed process, introduced in the 1970's and 1980's, appears to have been less efficient in inactivating the scrapie agent. When meat meal and bone meal processed in this manner was fed to cattle as part of their concentrate rations, the agent may have been introduced into cattle. The epidemic would inevitably have been amplified by the subsequent recycling, via meat meal and bone meal, of infected cattle material within the cattle population.

Can BSE be transmitted from

cattle to cattle? There is no scientific evidence at this stage to suggest that BSE is transmitted by contact between cattle, nor from mother to offspring. Artificial insemination and embryo transfer do not seem to transmit the BSE agent but the definitive experiments on this have not been completed.

Can other animals be infected

with BSE? Since commencement of the BSE epidemic in the UK, there have been a number of cases of spongiform encephalopathy in domestic cats and also in antelope species and wild cats in zoological gardens; these are believed to have been associated with the use of feed containing the BSE agent. (Apparently, goats are susceptible if fed feed containing the BSE agent.)

Where does BSE occur? The overwhelming number of cases have occurred in the UK-approaching 160,000 cases since 1986. Importation of infected cattle or contaminated livestock feed has been implicated in most other countries where the disease has occurred. Up to the end of 1996, BSE had been reported in only 10 countries or territories outside the UK. In six of these (Canada - 1 case, Denmark - 1 case, Falkland Islands - 1 case,

Germany - 4 cases, Italy - 2 cases and Oman - 2 cases) the only cases were in cattle imported from the UK. In the other four countries, a limited number of cases occurred in native-born cattle (France - 13 cases and Switzerland - 183 cases) and in native-born cattle as well as cattle imported from the UK (Republic of Ireland - 115 cases and Portugal - 26 cases).

Is there a risk of transmission of BSE to humans?

Until recently, the consensus of scientific opinion was that the risk of transmission of BSE to humans was negligible, particularly when action was taken to exclude from the human food chain those organs from cattle most likely to contain the BSE agent, i.e., brain, spinal cord, and certain lymphoid tissues. However, the detection of a small number of atypical cases of CJD in humans in the UK in the last two years has cast doubt on this; a younger age group was affected and the distribution of lesions differed from that of typical CJD. Although no casual link between BSE and the atypical CJD cases has been demonstrated, the UK Advisory Committee on Spongiform Encephalopathy (March 1996) has concluded that "On current data and in the absence of any credible alternative the most likely explanation at present is that these cases are linked to exposure to BSE before the introduction of the SBO (specified bovine offal) ban in 1989." The current scientific view is that the BSE agent cannot be transmitted in milk.

Coming Attractions!

Farm Features:

October - Black Fen

Farm-New Jersey

November - Texas!

Feature Articles:

Crossing state/national
lines with goats

Dehairing options

The Great American Goat
Roundup

A small (stupid) gray
cat plots revenge

Calendar of Events

August 30-31 and November 29-30

Alternative Livestock Auction - Mustang, Oklahoma. Vandiver Sales, Inc., Leon or Marie Vandiver, 405-373-2648 or 405-373-4800.

September 20-22

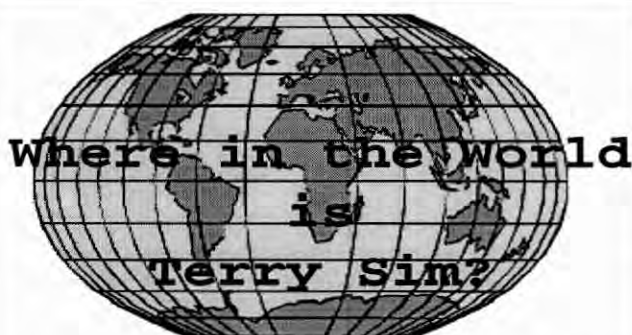
PCMA Business of Cashmere Conference II - Holiday Inn, Bozeman, Montana. For information contact Tom and Ann Dooling, 406-683-5445.

September 18-29

Mid-South Fair - Cashmere Exhibit, Memphis, Tennessee. For information contact Shirley Key, Livestock Director, 1-800-552-7275.

September 30-October 3

1996 ECA Goat Show and Fleece Competition - Virginia State Fair. For information call 207-935-3843.



At last report, he was on the southwest coast of the Australian state of Victoria. He is currently the rural editor of the *Warrnambool Standard*, a regional daily newspaper.

Per Terry, it is possible that he will make it to the US in January for the National Western Stock Show and (hopefully) do a few clinics.

No worries, Terry.

Association Contacts

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Cashmere America Co-operative

Joe David Ross, Manager, 915-387-6052

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Carol Kromer, Club Contact, 719-347-2329

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North West Cashmere Association (NWCA)

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Harriett Morley, Coordinator, 360-748-0157

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915-396-2920 or 915-396-2195

Western Prairie Cashmere Association

John Harris, President, 308-635-1579
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Wild Goat Women

Debbie Walstead, Chairperson, 719-495-2962

Mild Goat Men

Paul Johnson, Head Herder
Membership has DOUBLED since last issue (You're still with me on this aren't you Bo?) 503-623-5194



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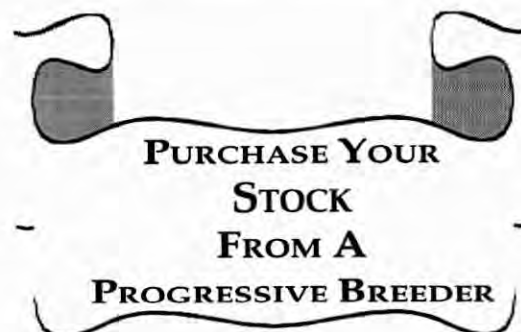
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1995	BRS1	16.38	12.83
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