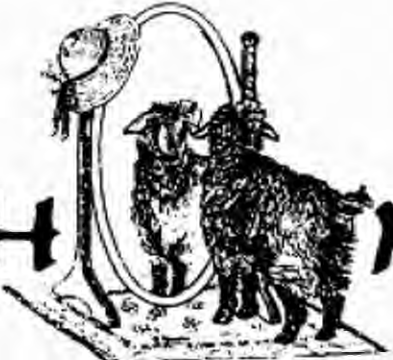




CASHMIRROR

Volume 8, Issue 1

November 1996

The monthly magazine devoted to cashmere goats and their fiber



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Cover photo:
Diana Hachenberger
Castle Crags Ranch

Steve and The Whiting share a magic moment. He claims there is an oreo between them. Who got the middle, Steve?

Good Deal! Breeders Are On the Internet!



Here's the deal

The Breeders Directory is now on line, accessible from the *CashMirror* home page at <http://www.teleport.com/~goatknol> or direct at <http://www.teleport.com/~goatknol/breeders.htm>. This "page" was up and running October 6, 1996. Every breeder listed in the magazine is also listed on the Internet. The listing is complete with name, address, phone numbers and direct links to home pages and e-mail boxes of breeders who have these things. If you're on line, check it out!

For current breeders subscribers (They pay an additional \$30 per year to be listed in the magazine Breeders Directory), this internet listing is FREE (for now). For now, anyone who wants to be added to our Breeders Directory in the magazine will also be listed FREE on the internet. We don't expect this FREE stuff to last forever as it does take space on our internet server and time to maintain the directory, but we think it important for our breeders to be on-line, so we're doing it free for now.

If you want to be added to the Breeders Directory before your annual subscription expires, we will pro-rate the \$30 annual fee so that your breeders directory advertising coincides with your annual magazine subscription. We're doing the pro-rating thing to keep the bookkeeping simpler. So, if you want to add a breeders listing, send us the pro-rated fee for the months left on your subscription and the contact information you want included in your listing. Hey, let us know you want to do it and we'll even do the heavy math!

About those computer nerds

We've occasionally heard it said that goat breeders shouldn't be concerned about computers and being on the internet as goat folk and computers do not mix. "Only doctors and lawyers use computers." We

(and professionals' surveys of computer users) do not agree with this assessment. We have found as many computer users among goat people as we have among normal people. We believe that there are as many goat people on the internet as there are desk jockeys. (Well, not the same number, but the same percentage--you know what I mean.) And, I hate to break it to you, but sometimes the goat people and the desk jockeys are the *same people!*

Give us your e-mail address (please?)

So, if you have an e-mail address, it's time to come out of the closet and link up! Even if you have no need to be listed as a breeder, we would like your e-mail address. We've found this method of communication is fast, cheap and fun!

More stuff you need to know

We often receive inquiries from potential goat buyers requesting the names and addresses for cashmere goat people in their area. We cheerfully relay names and contact information from our Breeders Directory and from our other advertisers, but we do not relay other subscriber information without permission from the subscriber. We feel that subscriber information is personal, not public information. Unlike the big boys, we do not pass on (or sell) our subscriber list.

However, we feel that Breeders Listings are public information (advertising actually) and fair game for dispersal to interested parties. So, if you want your name passed on, you need to be in the Breeders Directory. And if you don't, don't.

Confused?

Call us.

Anything else?

No.



When Our Readers Talk...

Dear Paul and Linda,

I have really enjoyed the articles and humor you add to your magazine. I am a co-leader of a 4-H Cashmere Goat Project (Greensleeves) in Bothell, Woodinville, Monroe area (near Seattle) in Washington State.

This has been our 1st year as a Cashmere Goat project and we were able to show at the Evergreen State Fair at Monroe, WA and at the Puyallup State Fair in Puyallup, WA. We were joined at Puyallup by another cashmere group, the Pins and Needles 4-H Club from Naches, WA, which really was a lot of fun.

We would like to find more 4-H cashmere goat clubs, or people who would like to start their own, so we can share this fun with even more clubs at these fairs next year! We would like to make this project grow.

If you could print my letter or an article related to this subject, I would appreciate your help in finding, or helping others start a cashmere goat project in their club. Who knows, maybe we will get big enough to have a sharing column in your magazine.

Sincerely,
Allene Beath
15448 N.E. 157th St.
Woodinville, WA 98072
Call 206-481-4177 (evenings)
Sorry not on line, but will work on it.
October 13, 1996

Yipes! A letter to the editor.....

Thanks for another totally enjoyable issue (Oct. 1996). It was especially gratifying to see the large doses of reality in Paul's article on buying goats. Even wise old-timers benefit from the reminder that it is up to the buyer to do homework and to decide if a goat's price and quality really go together.

My years of conversations with new or potential goat owners have taught me a couple of places where confusion typically emerges, and so I would like to add a couple of clarifications to Paul's article.

The essential thing is the use of the word "pure." Even in quotation marks it can be misleading to the uninformed. A "pure" Australian cashmere goat is, in fact, a goat with a few generations of selective breeding separating it from its feral ancestors. At the Wyoming conference Australian Bev Foard expressed surprise at the thought of having a breed registry, since cashmeres are not a breed (e.g. not pure) - not in Australia any more than here.

All we can accurately say about Australian goats is that they are from feral Australian stock and have a few generations of selective breeding behind them.

It is also important to keep in mind Barrie Restall's comment at the Wyoming conference. He noted that most of the Australian goats which were imported to the U.S. during the 1980's had been selected for high production, and that typically meant working with feral goats that had been crossed with Angoras. The task which serious breeders in this country have faced is SELECTING OUT the very traits which the Australians at that time had selected in.

Rather than creating confusion with a word like "pure," it seems safer and more accurate to maintain the source of goats as reference points without any judgments about purity. We have improved Australian/Tasmanian/New Zealand ferals and improved Texas ferals. It is up to us to develop the genetic predictability which legitimately can be considered pure. That is the adventure of what we are doing. It is more complicated, more challenging, and much more rewarding than breeding established old pure stuff.

Marilyn Ackley
Buckfield, ME
October 19, 1996

Continued on next page.

To: Linda and Paul, Cashmirror magazine

I just received my latest Cashmirror magazine. Now the not-so-fun part of your job begins. In your report on the 1996 CaPrA Fleece Contest winners you very rightly state it is an incomplete list. You also state that it is important and needs to be listed. Well, it not only is incomplete, it is dramatically wrong. This was the first time I have entered fleeces in a national fleece competition. I walked away with the three highest awards in the combed division. These are not reflected at all. There were only two CaPrA fleece trophies given for the overall champions, one for the shorn division and one for combed. I won for the combed, Kris McGuire won for shorn. These awards are separate from the rosettes and should have been annotated that way. I have worked hard on my bloodlines and was absolutely thrilled with the recognition of my efforts. In this instance, the incorrect reporting is more damaging than waiting a month to report the winners correctly. Additionally, the Best Commercial Fleece award was not CaPrA sponsored, it was a private award given by a separate farm, not a CaPrA certified judge. It should have been listed that way, not as a CaPrA decision. As listed, it appears that the judges gave that award, which is simply not true. Following is the way I know the combed division awards should have been listed. The shorn division had a junior and senior award as well, but it was something like this:

Grand Champions

Junior(?) Champion Shorn Doe - LPC
118#Y118, L&P Sheep and Goat
Senior(?) Champion Shorn Buck - Goat, Kris McGuire
Overall Grand Champion, Shorn Division -
Goat, Kris McGuire
Junior Champion Combed Doe - Geri, Royal
Cashmere Goats
Senior Champion Combed Buck - Titan, Royal
Cashmere Goats
Overall Grand Champion, Combed Division -
Titan, Royal Cashmere Goats

This is obviously very important to me (and I would assume to Kris McGuire as well). I always look through these fleece results to know who I will contact for replacement stock. I would very much appreciate a retraction in the next magazine, Thank you. I still think you two are doing a great job overall.

Eileen Cornwell
Royal Cashmere Goats
October 17, 1996

Ed Note: Consider our (incomplete and inaccurate) fleece contest results as printed in last issue, retracted. A new-improved complete list appears on pages 12 and 13 of this issue. In the future, we will print no fleece contest results before its time—in other words, before we have a list straight from the horse's mouth. Sorry for any confusion. We (mistakenly) thought that timeliness was more important than completeness.

To the Editors and Readers,

I attended the 1996 CaPrA conference and The Great American Goat Round-up in August in Laramie, Wyoming.

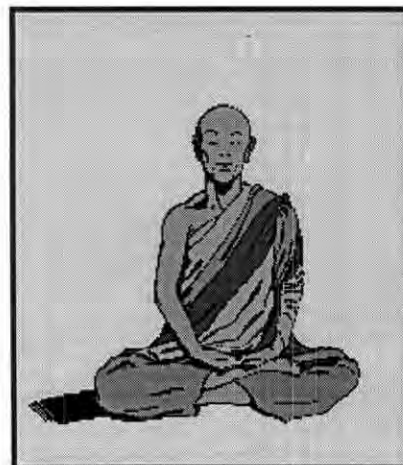
The conference was fabulous. So very worth every effort it took the organizers to put it together, and the attenders to enrich the event. It was an invaluable opportunity not to be missed.

At the next conference - should we be all so gifted to have one - I would like to see more Growers' Forums ("Fora"? What's the plural?) I'd like more forums devoted to specific subjects such as goat behavior, goat health care, goat fencing, the law and your goats: hands-on, nitty-gritty, basic. I'd like seminars on hoof trimming, worming, giving injections.

As I looked around at the attenders, I saw as many experts in our own fields as there were cashmere growers.

We have the resources to accomplish our goal at our fingertips!

Sincerely,
Sherry Joanne McVickar
Berkeley, CA
October 10, 1996



...we listen (sometimes).

Reflections

By Linda Fox

Billy's Harem

OR

How We Acquired Our First Cashmere Goats

I'd like to say that after serious research, visits with numerous breeders and days spent at the kitchen table working on projected finances, we carefully selected and purchased our first cashmere goats. But, here is the real story of how we acquired our first cashmeres several years ago:

Billy, the huge, old, white wether who came with my mini-farm (2 acres in the middle of the city), had never had another goat to call his own. His prior owner, while not being able to give me Billy's age, told me of generations of animals who had served as Billy's herd. None of them, in recent history, had been goats. He told me that Billy had been quite attached to an old grey goose. They had traveled everywhere (mostly within the confines of the pasture) together. The sheep had been shunned by both of them. He said the sheep had repeatedly tried to make friends with the dynamic duo, but had been rebuffed at every turn. When the old goose died, Billy reluctantly took up with the sheep.

When I bought the place, Billy and Shep were a team. There were two white geese who followed them in the pasture at a distance, but Billy paid them no heed. Apparently, his old grey goose had been special and he found nothing of interest in the current crop of poultry.

A year later, both white geese and Shep met their maker at the fangs of two wandering neighborhood dogs and Billy was alone. He was alone except for one lone bantam hen, but he let me know that even he was beneath making friends with a chicken.

I soon replaced Shep with two sheep, and the two geese were replaced with three geese, and I even added a pig, but it was never quite the same. Billy grazed with them at times, but often he would just lay in the upper pasture, chewing his cud and gazing at the horizon, obviously reminiscing about the good old days. Perhaps, he feared getting attached to something else that would also soon be gone.

Meanwhile, back at the peoples' house, I was debating getting back into the dairy goat business. I wanted more animals (always), but since the days of my herd of seventeen goats, six cows, ten horses, who-knows-how-many chickens, and seasonal feeder pigs, I had come to a better understanding of number of animals versus number of hours required for the care

and feeding thereof. I remembered fondly the personalities and idiosyncracies of each of my Nubian goats, but I also remembered those cold wet pre-dawns when I hauled pails out to the barn for milking. I also remembered rushing home early from social events to attend to the evening milking, and whole weekends consumed in animal-related chores. Animals are a joy, but they come at a price.

I was also concerned about how many animals could be supported on my measly two acres.

An article in a business magazine about cashmere goats caught my eye. It featured a Montana couple who had started with a herd of two hundred cashmere goats imported from Australia. Cute, little, fuzzy kids stood on the laps of the happy couple. The couple admitted that more profits of their business came from turning the cashmere into user products than raising the goats, and that you needed one hundred goats and seven years if you hoped to break even. Since I had never had any delusions about profiting from my animals on two acres, this did not concern me. What did interest me was the fact that they were cute and I thought Billy would like them.

I was also intrigued by an animal whose product could be obtained without killing the animal—or milking twice a day. Milking is fun, but once the novelty has worn off and you are sick and tired of fresh milk and the million products you can make from it, the twice-a-day routine becomes a chore.

I made a limited attempt to research cashmere goats in the goat books I owned, but little mention was made of them. They were either of little interest in this country or, because my books focused on dairy breeds, perhaps they were not considered a serious venture.

We followed an ad in the Sunday paper to a farm in the country with cashmere goats for sale. From the breeder we learned that this country's interest in cashmere goats is relatively new, and that the cashmere goat is not a breed of goat, but a type of goat. Most goats produce some cashmere and the commercial cashmere goats are those that have been successively bred for increasing amounts of cashmere in their coats. Each year, the cashmere is either combed out, if you have a small flock and lots of time, or sheared, if you have more goats and labor cost is an issue.

The breeder talked endlessly of diameter of the cashmere, measured in microns (less is better), amount of cashmere per goat, measured in grams (more is better), length of fiber (longer is better) and angora versus cashmere (cashmere is preferred). Apparently angora goats and cashmere goats were crossed in hopes of improving the breed with disastrous results. The cross produces a fiber which is neither angora nor cashmere and is not commercially desirable.

The breeder walked among her goats, talked, pulled hair from various goats and used these wads of fuzz to

Continued on next page

Reflections

Continued from previous page

show us their traits. Most of her goats were white. She told us that white is considered preferable as the white cashmere can be dyed to any color. The other less-pre-dominant colors are not totally bad as they are sought after for their natural colors by the hand-spinning folks.

When she finally paused for our decision on which goats we wanted to buy, we were totally confused and the goats were sick and tired of having their hair pulled out. We quickly arrived at a decision to save the goats further grief. We didn't choose the ones she identified as angora-crossed (although we really couldn't tell the difference) and we stayed away from the more expensive ones. We decided on three young does—mostly because we thought they were cute.

Curly Sue, named thus because she had a curly coat at birth, was pure white and a little over a year old. We renamed her Pearly Sue as she was no longer curly. Hot Chocolate was also one year old. She was mostly white with orange-ish trim. She looked more like a mocha or a latte, but we did not rename her. Samantha, the third doe was a ball of fluff. She looked like a cotton ball with legs. She was only six months old, white, and almost as wide as she was high. I suspect that Paul wanted Samantha because she had the same name as his granddaughter, but he would never admit this. Her hair was slightly curly and about twice as long as the other two goats'. They were all incredibly soft and not too anxious to ride in the back of Paul's Bronco to their new home.

As we unloaded the new goats in their new home (and Paul cleaned out his Bronco), Billy curiously looked over the fence. Almost immediately, Samantha jumped through the fence rails to touch noses with Billy before she jumped back.

For a few days, the three newcomers lived across the fence from the rest of the herd. I always prefer that new animals get acquainted across a fence before having to establish their location (which is not without some physical jostling) in the pecking order. When I put "the girls" in the pasture with the rest of the animals, Samantha, Sue and H.C. seemed to immediately be at home with the herd.

Billy became a new goat. He was then usually found grazing with the herd and pranced around to impress "the girls." I believe he liked to toy with them. He often nudged them and chased them around. I guess an old goat can learn new tricks.

I wasn't sure what I'd do with my few ounces of cashmere per year, but the entire experiment had been worthwhile just to add a little fluff to the life of an old goat.



Little Miss Muffitt and the Spider Goat



2-footed jogger and unhappy 4-footed jogger.

Pictures at right: Estes Park Cashmere Goat Costume Show - Photos compliments of Kathy Barber-Harbert, Herbal Maid Fiber Farm

Goat Replaces Beef At the Palace!

The Palace Kitchen, a small restaurant in downtown Seattle, serves marinated goat instead of pot roast on its Tuesday night specials.

A restaurant reviewer for the Puget Sound Business Journal commented that the goat was "surprisingly good, at least to this novice goat-eater." He reported that they use a good marinade and slow roasting over an apple wood fire worked together to bring out its flavor and tenderness. He thought that goat meat would be a good alternative for those who really liked beef but were "loathe to order it."

In addition to the marinated goat (\$16), the restaurant also serves other specialties including rabbit stew and roast pig.

The owner, Tom Douglas, who owns two other restaurants, and his chef Eric Tanaka have taken the North American foods of the 1950's, traced them back to their European roots and added their own culinary touches.

Could it be that chevon is becoming trendy as well as a healthy choice?

Remember last month's recipe - the one for Durham Chevon Squab Pie? The recipe called for baking at "gas mark 4" and we told you that you were on your own because we had no idea what it meant. Well, we are considerably wiser now. Gas mark 4 is the equivalent of 350° in your oven. And, if you burnt your creation to a crisp or it is still on simmer and not yet done...we're sorry.

R e c i p e s !

YOUNG GOAT ("CAPRILLO") WITH WINE

Compliments of Miso via the Internet from Slovenia (a country in Europe) Thanks Miso!

Ingredients

1.5 kg boned leg of young goat
3 dag olive oil (dag = 10 gm)
3 dag butter
6 cloves of garlic, sliced into medium thin strips
1 heaped tsp. dry marjoram
Freshly ground black pepper
1/2 celery root, peeled and sliced
2 small carrots, sliced
3 small peeled tomatoes or 2 Tbsp tomato puree
Twig of rosemary
Pared peel of 1/4 orange
4 dl white wine (dl = .1 liter or 2/5 cup)
Juice of 1/2 orange

Using a thin sharp knife, pass the garlic slices into the meat. Rub the meat with salt, pepper and marjoram.

Heat oil and butter in a casserole, cook the meat until browned on all sides. Add celery, carrots, tomatoes or tomato puree, rosemary, orange peel and wine, cover and stew until the meat is very tender, some 1.5-2 hours.

Remove from heat and add the orange juice (do not boil the sauce once you've added the orange juice or it will turn bitter). Slice and arrange the meat on a heated serving dish, puree the sauce through a strainer and pour over the meat. Serve immediately.

Hints for the "metric-impaired":
1 kg. = 2.2 lb., 1 gm = .032 oz.

These next two are from Langston University via their Internet pages.

CHEVON CHILI

Ingredients

2 tbs. cooking oil
1 tbs. ground oregano
3 lbs lean ground chevon
1/2 cup (plus 2 tbs.) chili powder
1/2 cup flour
2 cups chopped onions
2 tbs. ground cumin
1 tbs. salt
8 cups boiling water

In heavy pot, saute onions in cooking oil, add oregano, cumin, garlic powder and salt. Stir and saute. When onion is almost clear, add ground chevon and cook and stir until crumbly and almost gray. Add chili powder, stirring until thoroughly blended. Next add flour mixing well. Last add boiling water, bring to a boil and simmer for one hour. Seasonings may be adjusted to individual taste at this time. For additional spice cayenne pepper may be added. Makes approximately 14 cups of chili.

CHEVON SAUSAGE

1 lb. ground chevon
1 tsp. sage
1/4 tsp. black pepper
1/2 tsp. red pepper
Salt to taste

Mix well and make into patties.

Fry until brown. Do not over cook.

Serve with eggs and hash browns.

Cashmere Kids Visit Goat Knoll



Nannette Martin (pointing), Cashmere Kids 4-H leader. She explains to kids and parents how to tell when your doe is in heat.

On October 12th, a group of 20 from the Marion County 4-H group, the Cashmere Kids, with Leader Nannette Martin and President Tiffany Andersen, took a tour of Goat Knoll. They arrived with their Mason jars, buck rags and many questions. Some were interested in shopping for a buck to breed with their project does and many were just out gathering information.

The group looked at goats (nice does, cute kids and gross bucks) and examined fleeces, goat pedigrees, progeny records and fleece tests. Some of the boys also looked for cool rocks in the driveway and scouted Paul's science fiction book collection.

Nannette explained to the group how they could tell when their doe was in heat and how the use of a buck rag might help if you were unsure. Many bribed Paul to rub their rags on the bucks and place them in their airtight containers.

The Goat Knoll folk learned much from the Cashmere Kids and accompanying adults. Everyone had a great time and the rain stopped long enough for the tour

to be completed without anyone drowning.

The Cashmere Kids group formed in February, 1996, and their ages range from 7 to 17. They meet once a month.

The group got a jump-start for their projects with the donation of ten cashmere does by Susan Stutz of Mountain Lake Farm. Since forming, the group has organized four field trips.

The first field trip was to Mountain Lake Farm for a tour and to pick up their

does.

They attended Black Sheep Gathering in Eugene, Oregon in June where they tried out various spinning wheels. They pooled their funds and purchased, as a club, a Columbine Spinning Wheel. The wheel will be used for group lessons and will be available for the members to borrow.

The group also attended the Northwest Dairy Goat Association conference in Clackamas, Oregon where they learned about kidding. Since their goats kidded shortly after purchase, hasty lessons were important. Nannette reported that they had no difficulties with kidding.

The Cashmere Kids exhibited goats at the Marion County Fair and presented an educational display. They won Reserve Grand Champion in the RCH Poster Contest with a poster entitled "What About Those Horns?" Their poster explained the purpose of a goat's horns.



**Wil Clouser, Jessica Smith, Kim Washburn, Tiffany Andersen
The Cashmere Kids inspect fiber.**

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Knits



by Tom and Ann Dooling

Montana Knits is a tiny but perfect example of one Montana couple's response to adversity and frustration with a farm too small to produce sustainable income from conventional agriculture and those all-too-frequent troughs in cattle prices. They decided to raise an alternative livestock, cashmere goats.

Then the sale of fiber alone to a single eastern buyer was the same old commodity trap that has always plagued Montana's primary producers. The same, it turned out, was true with selling yarn to handknitters.

So, the frustrated pair decided they'd just have to keep the yarn and knit something out of it, which they did.

So, out of frustrations came, eventually, "niche marketing," the custom-manufacturing of one-of-a-kind, custom-fit, custom-knit cashmere bathrobes, evening gowns, cashmere-lace sweaters and even the world's most exclusive thermal underwear.

American cashmere is longer, livelier, has a higher loft and a springier finish than traditional Chinese cashmere. It's also a lot more expensive to produce because of both the need to provide better animal health and nutrition than the Chinese do, as well as to pay a living wage to the knitters, at \$6.50 per hour rather than per week.

Under those circumstances, you just have to do it better. Montana Knits, a little home-grown company that grew out of Montana's most plentiful resource, adversity, proudly advises that two of its products,

an elegant, classic black evening gown and a luxurious natural brown bathrobe, will be featured in the exclusive J. Peterman catalogue over the 1996 holiday season. Both garments were designed by Montana Knits' Ann Dooling. The J. Peterman catalog can be obtained by calling the company in Lexington, KY at 1-800-231-7341.

The company has also provided a 55% cashmere/45% fine wool Black Watch plaid woven throw which will be featured in all 30 Nieman-Marcus stores over the 1996 holiday season.

These three products inaugurate the sale of American-grown cashmere in the high-end commercial marketplace, successfully competing against not only far cheaper Chinese imports, but traditional Scottish and Italian imports, known to the trade for the luxurious drape and handle of their fiber and excellence of manufacture.

The Doolings' own goat operation continues to provide feedstock for their knitting company, but only a decreasing fraction. Montana Knits buys fleeces from growers all over the United States and Canada, and is always on the lookout for more. "We have already had to turn down orders this year for lack of raw material," says Ann Dooling.

"It's a shame that buyers are starting to look for American cashmere while some growers have fleeces stored in their barns for lack of information on how to sell it." The company will buy qualifying white cashmere on a yield basis for \$40 per pound, colored fleeces

Continued on next page

Montana Knits

Continued from previous page

for \$37.50, and accepts fleeces, even one at a time, year round.

"The cash price for cashmere is stable," says Tom Dooling. "We're actually paying substantially more than the international price, in part to give something back to the grower and encourage the growth of the industry. Then, American cashmere is always going to be more expensive than imports because of our higher ethics in the labor market. The higher cost of raw material isn't that much of a greater burden for us as manufacturers."

Tom and Ann have been active boosters of a national industry from the beginning. They were instrumental in forming the first national cashmere growers' association, Cashmere Producers of America, and have devoted their efforts over the last two years to developing a commercial marketing association which narrows its focus to producers seeking commercial return on growing, processing, adding value to and marketing cashmere and cashmere-bearing animals. The couple has been instrumental in raising public awareness of the returns to be obtained from working with the animals and their fiber.

"From a producer's standpoint, fiber is only a part of the picture," says Tom, a second-generation Montana rancher. "The goat breed that produces the best cashmere is also a very thrifty, range-hardy animal



The ultimate in loungewear - The cashmere robe

that fills a definite need in range management, brush and weed control and meadow enhancement. The savings in farming costs and over using pesticides is significant, and the animals nearly pay their own keep in land use management."

Cashmere-bearing goats also have a steady value in the meat market, accordingly to the Doolings. "You have to work a little harder at marketing them," says Ann. "But the return is definitely there if you do it right." The couple has been getting \$0.95 - \$1.00 per pound, liveweight, for cull and excess stock for the last two years.

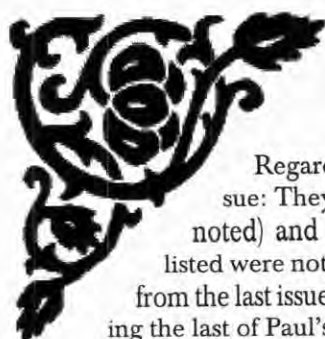
The Doolings' knitting company and ranching operations were co-sponsors, with Castle Crag Ranch out of Hamilton, Montana, Professional Cashmere Marketers' Association and the Montana Department of Agriculture, of the Business of Cashmere Conference II, held in Bozeman, Montana on September 20th through 22nd. The conference not only provided present and potential growers with the necessary information to get started, but guidelines and tools to go on to adding value, managing, financing, and marketing cashmere and its products and byproducts.

"Come join us in the marketplace," invites Ann Dooling. "We're just beginning to tap the potential of interest in American-grown cashmere. We'll be showing our line later this winter both to San Francisco skiers interested in cashmere as a thermal underwear and to members of New York City's Junior League interested in cashmere as prestige evening and casual wear."



Set for the evening in a Montana Knits cashmere gown

The Doolings are presently working on holiday '97 sales and hope that with a little luck and a lot of hard work, they will find themselves on Madison Avenue in New York.



1996 Cashmere Producers of America

Regarding the results printed in last issue: They were not complete (as we had noted) and the Grand Champion winners listed were not all accurate. So, rip out page 18 from the last issue (assuming you've finished reading the last of Paul's article on the back) and feed it to your dog (**not** your goat) or line your canary cage with it. In the future, we will not be jumping tall buildings to obtain fleece contest results to print in the *CashMirror*. If you want them printed, you will need to send them to us. Here are the official results as faxed to us by official people:

SHORN DIVISION

1995 Bucks (Class 40)

- 1st "Isaac", Cliff & Mickey Nielsen, Liberty Farm
- 2nd P6144, Kris McGuire, Capricorn Cashmere
- 3rd BK0537, Kris McGuire, Cashmere Wyoming
- 4th P6195, Kris McGuire, Capricorn Cashmere
- 5th BPC, Marilyn Ackley, Bessey Place Cashmere

Judge's Comments: I would like to see a greater emphasis placed on fineness and down weight with the selection of Milk Tooth Bucks, as these are the future sires for our Industry. Some fleeces were lacking style, fineness and TDW.

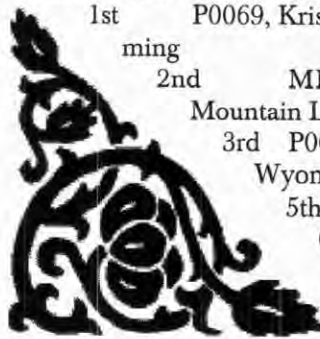
1994 Bucks (Class 41)

- 1st P8, Kris McGuire, Cashmere Wyoming
- 2nd "Muddy", Guy & Karen Tripplett, Harvest Moon Farm
- 3rd P29, Kris McGuire, Cashmere Wyoming
- 4th "Duke", Guy & Karen Tripplett, Harvest Moon Farm
- 5th P5020, Kris McGuire, Capricorn Cashmere

Judge's Comments: My feelings are the same with this Class as #40. Breeders need to recognize the importance placed on buck selection for improvement in our fiber production.

1993 Bucks (Class 42)

- 1st P0069, Kris McGuire, Cashmere Wyoming
- 2nd MLF "Trooper", Susan Stutz, Mountain Lake Farm
- 3rd P0062, Kris McGuire, Cashmere Wyoming
- 5th W81, Kris McGuire, Cashmere Wyoming



Judge's Comments: In this class 5th placing was

awarded instead of 4th, although the fleece was fine and of good style and character, the shortness of cashmere length and TFW was not worthy of 4th place.

1992 Bucks (Class 44)

- 1st "Gwilliam", Cliff & Mickey Nielsen, Liberty Farm
- 2nd W276, Kris McGuire, Cashmere Wyoming
- 4th WN662, Kris McGuire, Capricorn Cashmere

Judge's Comments: 4th placing was given to third position, as this fleece needed an increased yield, due to fiber length.

Senior Champion Buck, Shorn Division - P0069,
Cashmere Wyoming

1995 Does (Class 45)

- 1st LPC510, Betty Landberg, L&P Sheep & Goat Co.
- 2nd LPC518, Betty Landberg, L&P Sheep & Goat Co.
- 3rd LPC515, Betty Landberg, L&P Sheep & Goat Co.
- 4th Y1332, Kris McGuire, Cashmere Wyoming
- 5th P6143, Kris McGuire, Capricorn Cashmere

Judge's Comments: Over all a nice class of fleeces, still need to work on fineness and style.

1994 Does (Class 46)

- 1st P5241, Kris McGuire, Capricorn Cashmere
- 2nd "Patsy", Guy & Karen Tripplett, Harvest Moon Farm
- 3rd "KD", Guy & Karen Tripplett, Harvest Moon Farm
- 4th "Spooky", Cynthia Heeren, Hokulani Farms
- 5th Y1106, Kris McGuire, Cashmere Wyoming

Judge's Comments: Would like to see more fleeces in this class as Producers usually make their selection on animals in this age group.

1993 Does (Class 47)

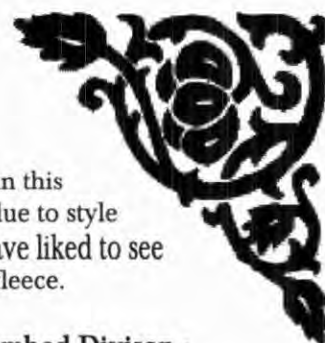
- 1st "I-5", Cynthia Heeren, Hokulani Farms
- 2nd "Mocha", Guy & Karen Tripplett, Harvest Moon Farm
- 3rd "Sadie", Cynthia Heeren, Hokulani Farms
- 4th W5126, Vern Moore, Keystone Ranch
- 5th Y1107, Kris McGuire, Cashmere Wyoming

Judge's Comments: This class had a small marginal difference in style.

1992 Does (Class 48)

- 1st AKF WT1094, Harriet Jensen, Airy Knoll Farms, Inc.
- 2nd AKF WT 1104, Harriet Jensen, Airy Knoll Farms, Inc.

(CaPrA) Fleece Competition Results



- 3rd Y1074, Kris McGuire, Cashmere Wyoming
 4th Y1127, Kris McGuire, Cashmere Wyoming
 5th "Tex 08", Betty Landberg, L&P Sheep & Goat Co.

Judge's Comments: I liked the evenness in this class, especially in the 1st to 3rd placings.

1991 and prior Does (Class 49)

- 1st LPC 118, Betty Landberg, L&P Sheep & Goat Co.
 2nd 0 39, Kris McGuire, Cashmere Wyoming
 3rd "Cashmears Delphi", Marilyn Ackley, Bessey Place Cashmere
 4th G253, Kris McGuire, Capricorn Cashmere
 5th AKF YT 33, Harriet Jensen, Airy Knoll Farms, Inc.

Judge's Comments: These "old girls" were pretty nice; they were able to keep it together for the most part.

Senior Champion Doe, Shorn Division - LPC 118, L&P Sheep & Goat Co.

Overall Champion, Shorn Division - P0069, Cashmere Wyoming

COMBED DIVISION

1995 Bucks (Class 50)

- 1st BLF Hippomenes, Yvonne Taylor, Black Locust Farm
 2nd "Cody", Yvonne Taylor, Black Locust Farm

Judge's Comments: First place was awarded due to the extra down length, otherwise they were fairly equal in every other way.

1993 Bucks (Class 52)

- 1st "Chris", Jody Greene, Diamond Peak

Judge's Comments: Although there was only one entry in this class, I believe it deserved a Blue Ribbon. It was a beautiful fleece, it had volume of down, was a stronger micron, but the bulk of fiber gave it a worthy place.

1992 Bucks (Class 53)

- 1st "Titan", Eileen Cornwell, Royal Cashmere

Judge's Comments: Excellent combing, producing a good yield of down. Fine micron for age.

1991 and prior Bucks (Class 54)

- 1st "Aegisthus", Yvonne Taylor, Black Locust Farm

Judge's Comments: Once again this entry deserved it's first place due to style for medium micron. Would have liked to see less Guard Hair in a combed fleece.

Senior Champion Buck, Combed Division - "Titan", Royal Cashmere

1995 Does (Class 55)

- 1st "Bouchaine", Yvonne Taylor, Black Locust Farm
 2nd "Black Opal", Yvonne Taylor, Black Locust Farm

Judge's Comments: These two entries were very similar; handle was the deciding factor for 1st prize.

1994 Does (Class 56)

- 1st "Geri", Eileen Cornwell, Royal Cashmere
 2nd PR 16 GSF Ciervo, Becky Wright, Lemon Fair
 3rd "Heidi", Eileen Cornwell, Royal Cashmere

Judge's Comments: The three entries in this class deserved their ribbons, it was an even class, with handle and micron earning first place. Second placing had good handle and density. Third position was not quite as fine.

1992 Does (Class 58)

- 1st "Ebony", Jody Greene, Diamond Peak

Judge's Comments: Even micron, good length, very good down weight achieved with combing.

1991 and prior Does (Class 59)

- 1st LCB Lady, Yvonne Taylor, Black Locust Farm

Judge's Comments: Superb handle. Remained fine throughout her lifetime.

Senior Champion Doe, Combed Division - LCB Lady, Black Locust Farm

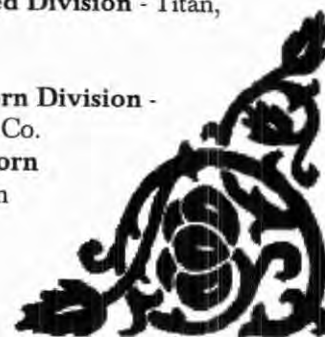
Overall Champion, Combed Division - Titan, Royal Cashmere

Junior Champion Doe, Shorn Division - LPC 510, L&P Sheep & Goat Co.

Junior Champion Buck, Shorn Division - Isaac, Liberty Farm

Junior Champion Doe, Combed Division - Geri, Royal Cashmere

Junior Champion Buck, Combed Division - not awarded (single entry only)



Livestock Guarding Dogs (Animal Damage Control)

US Department of Agriculture



Maremma guardian puppy

Livestock guarding breeds originated in Europe and Asia, where they have been used for centuries to protect sheep from wolves and bears. Americans have used guarding dogs since the mid-1970's. They are large animals (80-120 pounds) and are usually all white or fawn colored with dark muzzles. Some of the more common breeds are Great Pyrenees (France), Komondor (Hungary), Akbash dog and Anatolian shepherd (Turkey), and Maremma (Italy). Pyrenees and Akbash dogs are among the more successful breeds.

Unlike herding dogs, guarding dogs do not usually herd sheep. Acting independently of humans, guarding dogs stay with or near sheep most of the time and aggressively repel predators. Genetics and proper rearing both contribute to the makeup of a successful guarding dog.

Some guarding dogs do

not adequately carry out their protective role. Failures can generally be attributed to improper rearing or acquiring the dog after it is too old for training. However, some dogs don't work well despite having been reared properly. Research and surveys indicate that about three-fourths of trained dogs become good guardians. Knowing what a good guarding dog is and how to raise one correctly can help producers be sure they get the best possible service from their dogs.

Key Points in Successfully Rearing a Guarding Dog

1. Select a suitable breed and reputable breeder.
2. Rear pups singly from 8 weeks of age with sheep, minimizing human contact (probably the most critical ingredient for success).
3. Monitor the dog and correct undesirable behaviors.
4. Encourage the dog to remain with or near the livestock.
5. Ensure the dog's health and safety.
6. Manage the livestock in accordance with the dog's age and experience (e.g., use smaller pastures while the dog is young and inexperienced).
7. Be patient and allow plenty of time to train your dog. Remember that a guarding dog may take 2 years or more to mature.

Potential Benefits and Problems With Using Dogs

An Oregon sheep producer nearly eliminated coyote predation in her pasture flock of

50 ewes by adding a single guarding dog. In 6 years of using the dog, she lost only one lamb to coyotes. In contrast, coyotes and bobcats killed several sheep on her neighbors' farms each year.

Effective guarding dogs help livestock owners by:

1. Reducing predation on sheep.
2. Reducing labor (lessening the need for night corraling).
3. Alerting the owners to disturbances in the flock.
4. Protecting the family and ranch property, and
5. Allowing for more efficient use of pastures and potential expansion of the flock.

However, guarding dogs require an investment with no guarantee of a positive result. The dogs can become ill, be injured, or die prematurely. Some dogs roam away from the flock. Guarding dogs are potentially aggressive; some dogs injure the stock or other animals, including pets, or confront unfamiliar people (e.g., hikers) who approach the sheep. Producers who use dogs should post signs to alert passers-by and escort visitors when near sheep.

Guarding Dogs and Other Control Tools

The use of a guarding dog does not prevent the use of other predation-control methods. However, the other techniques must be compatible. The use of toxicants is not recommended where guarding dogs are working. Traps and snares can kill dogs if they are caught and not released in a reasonable

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Professional Cashmere Marketing Association (PCMA)

Business of Cashmere Conference II

The Professional Cashmere Marketers Association (PCMA) held its second Business of Cashmere Conference in Bozeman, Montana on September 20th through 22nd. The conference was sponsored by the PCMA, Pioneer Mountain Farm, Inc., Montana Knits, Inc. and Castle Crags Ranch and was supported with grants from the Montana Department of Agriculture. As last year, the conference focused on marketing cashmere and related products, which included breeding stock and culls to the meat market. Conference workshops also covered how to effectively manage and finance your business as well as goat health and management.

Featured speakers included experts on goat management, health, fleece dehairing, fleece classing, agricultural insurance and business management. Participants were evenly split between new and "seasoned" producers.

An employee of the hotel commented how up-beat and eager the "goat people" were compared to a llama group who had stayed at the hotel the week before. Hotel employees had heard mostly "doom and gloom" about how prices were down, and markets saturated.

A cattlemen's group was meeting at the same hotel one day of the conference. Some of them asked conference attendees if cashmere goats were another pyramid scheme. The cattlemen were assured that unlike exotic animals, where eventually there is more supply than demand, we in North America can't begin to satisfy the demand for cashmere any time in the next 100 years. This, coupled with discussion of weed control, drew the interest of not a few cattlemen.

One unsettling item discussed was the removal from veterinarian medicine of several currently avail-

able drugs of importance for goats, effective January 1, 1997.

The session on agricultural insurance was enlightening in several areas. It was noted that you can insure your goats, hay and other farm assets, for loss in certain circumstances. However, you cannot insure for the death of a goat killed by disease or caused by another farm (domestic) animal. It was suggested that everyone check with their insurance agent to be sure what is covered or can be covered at what cost.

A recent check with our own insurance agent found our insurance to be deficient. We were not covered for some items that we thought were included in our current policy. It is important to know what can be insured (whether the cost justifies obtaining the insurance is another issue) and what is actually insured under your policy.

The purpose of the fiber identification workshop presented by Ann Dooling was to enable participants to class their own stock, within acceptable limits. An additional two-day classing clinic was held at Pioneer Mountain Farms following the conference.

Two dehairing sessions were offered, one by Diana and Steve Hachenberger of Castle Crags Ranch, and the second one by Talibah and Ajamu Al-Rafiq of California Cashmere. The sessions covered how to mail in fleeces for dehairing, what to expect from your dehairer, how fleeces are handled, and other items of interest to everyone who has fleeces with guard hair. It appears, from discussion with conference speakers, that we stand on the verge of overcoming the dehairing bottleneck of our industry.

Tom Dooling presented workshops on goat management, summary of the China International

Conference and advanced breeding strategies. In the advanced breeding session, Tom presented a model for breeding for a homozygous white goat. Tom's paper on advanced breeding is included starting on page 17 of this issue. His article on breeding to white will be included in next issue.

Allen Bjergo is a retired alternative agriculture specialist who has used his skills as an agricultural business planner in other countries including Russia and Vietnam. In his conference session, he presented a workbook to help weigh income alternatives. This workbook includes useful material and forms to fill out to self-evaluate farm-based alternatives and supplemental income sources.

For those interested in information on banks, business partners, government tax collectors, permits, licenses and other stuff you'd not normally think about (and would just as soon forget), Allen's workshop was an excellent source of information. He included information on market analysis and planning, writing a description of your farm business, resume writing, permit guide, where to get help and financial statement forms and guides.

CashMirror Ace Reporter and High-tech Photographer, Paul Johnson, gave a stirring talk entitled "How to Get Your Goat," covering aspects of buying your first goats or adding goats to your herd, including where to look, what to look for and what you should expect to pay. Paul's paper on this subject was included in last month's magazine.

Other business experts gave talks on new product development, targeting a market, advertising to reach your market and access to business resources.

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BOCCII

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Enough about the high points of the conference. Every conference has its low points and in an effort to be the ever-faithful objective reporters, we realize that the low points of the conference must also be passed along.

So, the low points of the conference were Steve Hachenberger's buck imitation and his wife's constant warning to not do that stupid buck thing again and Photographer Paul Johnson's \$9.95 Wal-Mart disposable camera.

B.O.C.C. II built upon the foundations of the 1995 B.O.C.C. I. This conference was informative and timely in many areas, for both experienced and new goat folk. We look forward to B.O.C.C. III which is tentatively scheduled for September 19-21, 1997.

1995 and 1996 Conference Proceedings are available for purchase from the PCMA. These may be obtained by sending \$28 for the 1995 Proceedings, \$17 for the 1996 Supplement, or \$43 for both books to PCMA, 3299 Anderson Lane, Dillont, MT 58725.

FENCING TIPS

Fence clips can be more easily put on using a large nail or phillips screwdriver, inserted in the eye or loop and twisted over the wire.

Re-bar, with one end bent (using welding torch) into a hook is great for pulling the fence down in a dip in the pasture.

Simple, large hooks (not too simple, goats are too smart!) that can be fastened and unfastened with one hand, in the dark, are really great! Chain hooks are okay if you have both hands free and the sun is shining.

General Health Management of Goats

Presentation by W.W. Hawkins, DVM at BOCC II

W. W. (Bill) Hawkins, DVM spoke at the BOCC II conference. He gave the attendees practical, down-to-earth suggestions for better health management of the goat herd. He offered the following health and management tips:

1. Don't forget to pay attention to basic sanitation.
2. Use of C&D (overeating) shots, and CD&T (overeating with tetanus) for new born kids.
3. When a doe goes into labor, give her an hour before assisting her, except for obvious problems.
4. Before kidding time, get down on the floor of the kidding pens and check for drafts.
5. Do not put or allow newborn kids on a concrete floor, as concrete is cold and doesn't drain (per Dr. Hawkins) and kids don't look good on gray (per Linda).
6. Newborn kids must have colostrum, preferably from the mother, as soon as possible after birth. Do not feed the kid anything else. The colostrum supplies needed nutrients, immunity from diseases and starts the rumen (stomach) off on the right foot, with needed bacteria in the rumen. This is so critical that in the event the mother's milk is not available, you should consider having colostrum from another goat, a sheep, or even a cow available for emergency use. Feed stores carry replacement powders or you can even take a little from each mother and freeze it in ice cube trays. Do not use a microwave to reheat it, as that kills the good bacteria the baby needs. Allow it to defrost by other methods.
7. Never use a heat lamp for kids as the dangers far outweigh the potential benefits. Overheating, or even fire, can all too often be the outcome. If a goat is chilled, use warm air (a hair dryer you hold) or warm water. Dr. Hawkins sug-

gested a milk crate type box lined with old towels, plus the hand-held hair dryer to warm kids.

8. Use of alcohol on ear-tags before putting them on the kid is cheap insurance.

9. Toxoplasmosis, a disease that can cause abortion or other birthing problems can be carried and introduced by your cat. (Suddenly, in the shocked silence, hysterical laughter was heard from a dark corner of the room followed by a deeply-disturbed voice murmuring "That stupid gray cat is mine!")

10. In the event of slow testicle drop, wait until both are down before castrating. You will definitely want to castrate as this is a line you will not want to continue.

11. Worm as needed, but no more than you have to.

12. A tip for a delicate (if that is possible) way to gather fecal samples for testing of internal parasites: Put on a latex glove and pick up fresh feces (directly from the rectum if possible). Then peel off the glove while holding the sample, pulling the glove inside out, with the sample in the middle. Seal, label and have the sample checked for parasites.

13. Worm when you flush before breeding using Ivomec injectable. Dr. Hawkins thought that the pour-on Ivomec was okay, but not as effective as Tamersol. He cautioned to not overdose.

14. A disease to be cautious of is white muscle disease, which occurs most often during the last month of pregnancy through the first month of lactation, and is usually caused by a lack of selenium and/or vitamin E.

Dr. Hawkins recommended the book Goat Medicine by Mary L. Smith and David Sherman as a good goat health reference.

Advanced Cashmere Breeding

By Tom Dooling
Pioneer Mountain Farm, Inc.

Breeding cashmere goats for the production of a desired fleece characteristic or body configuration is an application of the genetics you probably brushed through in high school. This presentation reviews the basic principles of genetics very briefly for the benefit of those who may either not have studied it or have forgotten it.

Heredity is determined by the chromosomes within the nuclei of the cells that make up an organism. Chromosomes come in pairs, and an organism inherits one of each pair from each parent. "Genes" are corresponding loci, or locations, on the chromosome strands, and are often referred to as "alleles."

In some cases, a given characteristic in the organism is determined by just one pair of alleles, such as eye color in human beings. Blue eyes is what is called a "recessive" characteristic, which means that if an individual has a "blue eye" gene from one parent and a "brown eye" gene from the other, that individual, referred to as a phenotype in genetics and breeding, will have brown eyes and is "phenotypically" brown-eyed. Considered as a "genotype" that individual is a Brown-blue hybrid. (See Figure 1.)

If two brown-eyed phenotypes that are actually Brown/blue hybrids mate, there are four possible combinations of eye-color genes in the offspring, referred to in genetics as the F1 or first filial generation. Those combinations are BB, bB, Bb and bb; in humans, that means three brown-eyed children and one blue-eyed. (See Figure 2.)

A cross between a blue-eyed (bb) parent and a "heterozygous" brown-eyed Bb parent will produce two brown-eyed (heterozygous) offspring to two blue-eyed, double-recessive or "homozygous" off-

spring. (See figure 2.)

One can also look at a cross between individuals where a dominant—like the brown-eye gene—does not completely mask the recessive, like the blue-eye gene. For instance, there is a feather formation characteristic in chickens called "frizzle." Let's call the semi-dominant allele "S" for smooth feathers, and the semi-recessive allele "F" for frizzled feathers. If you cross a homozygous smooth hen, SS with a homozygous "extremely frizzled" FF rooster, the crossing can produce only one outcome: SF or FS hybrids. Each chick gets an "F" from its sire and an "S" from its mother. (The order FS or SF

doesn't make any difference.) If you then cross the FS hybrids, 25% of the "F2" offspring chicks will be smooth (SS), 25% will be extremely frizzled (FF), and 50% will be heterozygous hybrid "semi-frizzled."

This 1:2:1 ratio in which a cross between hybrids "sorts out" is called a Mendelian distribution, after Gregor Mendel, the Austrian monk who observed and cross-fertilized peas in a monastery garden about the time of the Civil War in this country.

Homozygous simply means that the individual carries two genes which are identical; heterozygous means they are different. A hybrid is, by definition, a heterozygous individual, and this "Mendelian sort" of a second generation of hybrids is often referred to as "not breeding true" in animal breeding circles. Much of the lan-

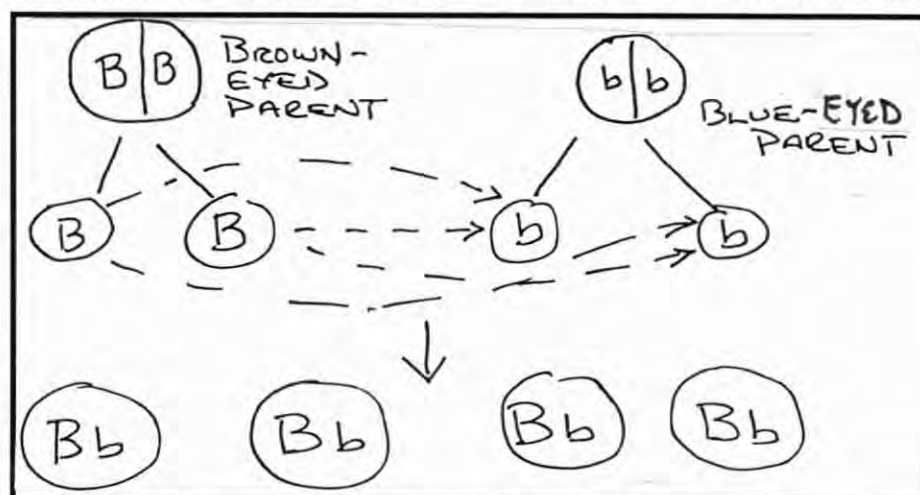


Figure 2. (F1 children all brown eyed)

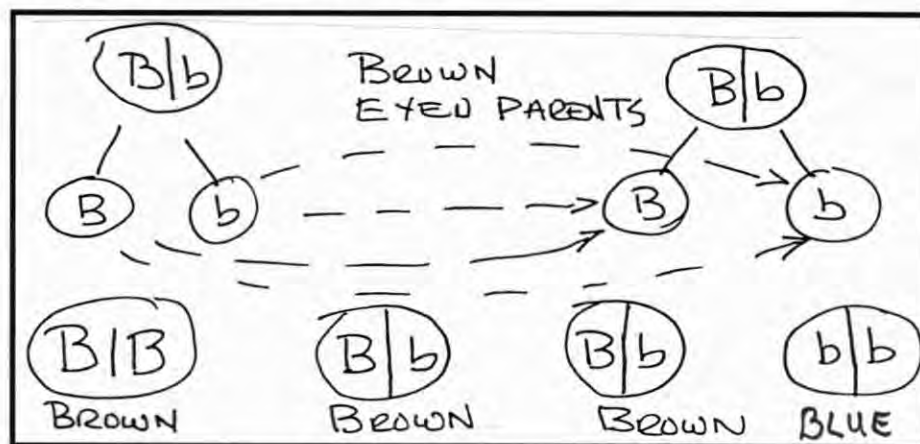


Figure 3. (F1 children brown and blue eyed)

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Breeding by Tom

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guage used in genetics is based on these principles.

Unfortunately, the characteristics we look for in breeding cashmere goats are not determined by single pairs of alleles and by simple dominant/recessive characteristics. (It is possible that one characteristic, hair color, might be and only under certain circumstances: if you consider only homozygous black and homozygous white goats, a black/white cross will produce all white F1 offspring, and crossing the Wb heterozygotes will produce a "Mendelian sort" of 1 ww homozygote to 2 Wb heterozygotes to 1 bb homozygote. Unfortunately, you can't always tell the Wb's from the WW's, since phenotypically they're all the same. In other words, no matter whether it's a homozygote or heterozygote, it's still a whitegoat. Sorry about that.)(*Ed Note: As you should be!*)

So the Mendelian analysis is useful for understanding some of the underlying mechanisms, but doesn't do us a lot of good when we're looking at a bunch of animals with differing hair coat color, fiber styles, fiber diameters and body conformation. We have to move into a more abstruse and somewhat scarier area, what is called "population genetics," where we deal with statistics.

We have to deal now with two concepts that are more difficult: "heridability" and "correlation," and get some kind of grasp on just what these are and are not.

"Heridability" is a number greater than 0 and smaller than one. It is assigned to a characteristic to define how predictably that characteristic will show up in a breeding program. (In fact, it is **the statistical probability of that characteristic being genetically determined and passed on to the next generation.**) As an example, the liveweight of beef cattle at the age of 15 months has the quite high heridability of 0.9. In effect, 90% of the variation in weaning weight of cattle at the age of 15 months can be regarded as genetically determined, and only 10% by other influences. The heridability of weaning weight of swine, by contrast, is only 0.1—not very heridable.

If a characteristic is highly heridable, it is possible to breed for it by selecting parental animals that have the desired characteristic. In a herd breeding situation, you use the animals that have the desired characteristic most strongly for breeding, and cull out animals that have it the least.

Estimated heridability, by 5 different research groups, of some desirable characteristics for cashmere goats are set forth in the following table (Figure 3):

Source Character	1	2	3	4	5
Liveweight	.29	.26	—	.22	.39
Fleece Weight	.29	.42	.45	.25	.42
Down Yield	.90	.23	.30	.52	.57
Down Weight	.61	.36	.38	.45	.62
Down Diameter	.47	.70	.68	.83	.99
Down Length	.7	—	—	—	—

Sources:

1. Pattie & Restall, 1987, 1989
2. Gifford et al, 1990
3. Couchman et al, 1987
4. Baker et al, 1991
5. Bigham et al, 1991

Figure 3.

Clearly, there is disagreement between the workers, which has to do with both statistical problems and experimental designs. However, without going into questions of "who's right and who's wrong," it is safe to predict that down diameter is more strongly heridable than liveweight, down yield more than fleece weight.

By the simple process of averaging the results of the separate scientists above, I come up with the following ranking from most to least heridable:

Down Diameter
Down Yield
Down Weight
Fleece Weight
Liveweight

A word of caution about heridability. If we take a heridability of around .7 for down diameter, it doesn't mean that a 15-micron buck will throw 7 15-micron kids out of 10: what it does mean is that, on the average, a 15-micron buck bred to a large group of 16-micron does will throw kids whose mean fiber diameter is closer to 15.3 microns than to 16.

I suggest caution about heridability because breeders have frequently looked at these figures and come to the conclusion that they can use the relatively high heridability of fiber diameter to breed rapidly toward very fine cashmere: it's simple, just keep and breed the very finest animals to each other generation after generation and after five or six years you'll have a herd mean fiber diameter of something on the order of 14 microns. It isn't that simple.

First, there isn't a "fiber diameter gene," like a frizzled-feather or a blue-eyed gene. Fiber diameter is determined by the microstructure of secondary follicles in the skin of the goat, which is both determined by and affected by a whole host of other factors, some of which are

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Breeding by Tom

Continued from previous page

determined genetically. All the heritability figure really tells us is that more is determined genetically than by other factors such as pre- or post-natal nutrition, environmental response, breeding stress and the like.

Second, the constellation of genetic factors that determine the characteristics of secondary hair follicles determine other characteristics as well, which may not be favorable to your breeding program. **This association of genetically determined characteristics is described, statistically, by the concept of "correlation."** Correlation is expressed by a number, called a "coefficient of correlation," which is between zero and one and, for convenience sake, expressed as a positive or negative number.

The following table (*which isn't printed here - if you want it, contact Tom Dooling*) sets forth the correlation, both genotypically and phenotypically, between the same characteristics discussed previously, and are derived from the same sources. You can see that there is still the same disagreement between scientific workers about these correlations, even extending to the point that one worker (Gifford) claims a positive correlation between down diameter and liveweight while the others say it is negatively correlated. Some of these results are intuitively obvious: total down weight and total down length are strongly correlated, for instance: that only makes sense—the longer a fiber is, the more it weighs.

What is not intuitively obvious is that there is a substantial negative correlation between liveweight and down diameter. What this means is that if you breed exclusively for finer cashmere, you will also breed for lighter body weights. The basic concept of breeding fine goats to fine goats will produce a herd MFD of around 14 microns—

growing on goats that weigh 70 pounds. Even worse, the total amount of fleece—guard hair and cashmere—will also decrease as one breeds for finer cashmere. There are no figures that I know of correlating what we call "coverage" with other characteristics.

A well "covered" animal not only has cashmere over its entire body—down to the wrists and ankles, well down onto the belly, on the brisket and neck and even on the cheeks—but that cashmere is fairly uniform throughout the body. There are no scientific studies that I know of correlating coverage, uniformity and fiber diameter, but **my observation on thousands of animals in the US, throughout China and in Australia, is that the more fully covered animals tend, in the main, to be coarser**—in the 16+ micron range—and frequently even coarser through neck, breast and shoulders.

From a practical standpoint, of course, the ultimate correlation that must be made is between these various characteristics and profitability. Fine cashmere does have a slightly higher value than coarser cashmere, so there is an economic advantage to breeding for it. But if the total fleece check at the end of the year is smaller because the total amount of cashmere is that much less, that incentive disappears. Second, the body-size cor-

relation is troublesome, since more than half of any commercial cashmere production's income is from sales of animals to the meat market. A thirty percent increase in cashmere value will not offset a thirty percent decrease in meat market value.

The negative correlations between desirable characteristics do not, however, mean that you are ineluctably stuck with choosing whether to breed small fine animals or big coarse ones. It does mean that you need to determine a strategy and make intelligent breeding decisions to reach that point.

Recognizing that breeding for body size will select against fine cashmere and vice versa, the "middle of the road" approach is to select for the largest and best-conformed animals with the finest cashmere. Many breeding strategies call for assigning a value to body weight and a second value to fleece characteristics, then using the combined values to select breeding stock. In effect, you can breed the biggest of your fine animals to the finest of your big animals.

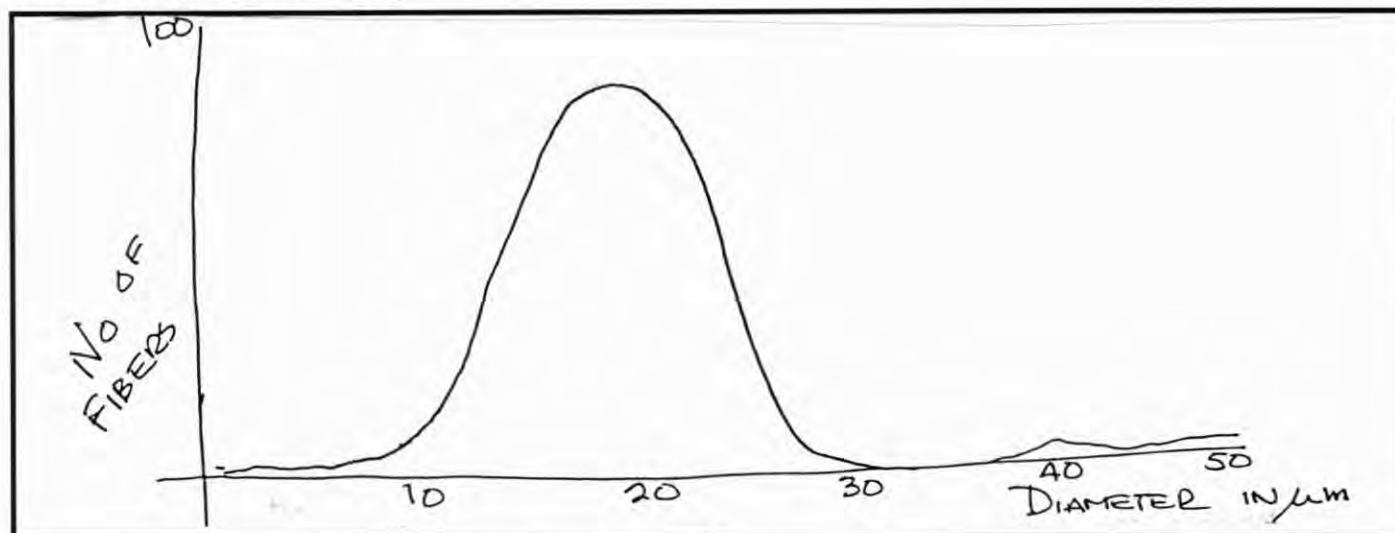
One tool that is helpful is to look at another statistical tool, the so called "bell curve." If you take a statistically significant population and graph the frequency of a given characteristic, for instance liveweight of two-year old does, you



We are the missing correlation table substitute - Aren't we cute?

Continued on next page

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**Figure 4B**

wind up with a graph that looks like a bell. (Figure 4 above)

It is one of statistics that a certain number of individuals fall within the upper and lower ends of the bell curve, and statistics shows that any characteristic in a population is distributed according to this kind of frequency. The more uniform a population is the more "bell shaped" the curve is: the more variegated, the flatter the bell.

If you create such a graph and are trying to select for body weight in your animals, it is fairly clear that you want to select for breeding those animals that are in the outer limits of the desirable range, and cull those that are in the outer limits of the undesirable range. If you are trying to breed for two characteristics simultaneously, you want to select for breeding those animals that are in the upper or more desirable category of both ranges and cull those that are in the lower or less desirable. What a negative correlation between two characteristics means is not that you can't maintain fine fiber at the same time as good body size and conformation but only that it will take longer.

It is somewhat of a truism in animal breeding that you measure your animals against themselves. In other words, while there are

breed standards and norms across the industry, your decisions whether to cull, keep or breed have to be based on a decision of how that animal and its characteristics rank against others in your herd, not some outside ideal.

I would like to return to one point. There is not a "fine fiber" gene in goats, as far as I know. (The character of fine fiber is determined by the microstructure in skin that establishes primary and secondary follicles and determines their activities. It is obviously not feasible for the practical cashmere producer to count follicles in kids, so we deal

with the fiber produced instead. In fact, however, there have been some studies done on the heritability of follicle density and microstructure distribution in Liaoning goats in China. Those same workers tell us that the basic structures in the Liaoning strain and the higher-yielding Australian lines are the same, so it is a fair gamble that the same genetic forces come into play. A study performed by Ma Ning and others looked at the heritabilities of certain follicle properties and the correlation of those properties with desirable down characteristics, with the following results (Fig 5):

Heritability

S/P Ratio, secondary to Primary	0.534
SD Density of Secondary Follicles	0.137
PD Density of Primary Follicles	0.160
EDS External diameter of Secondary	0.584
EDP External Diameter of Primary	0.080
IDS Internal Diameter of Secondary	0.187
IDP Internal Diameter of Primary	0.496
DS Depth of Secondary	0.002
DP Depth of Primary	0.204

Correlations

S/P to Down Weight	0.680
S/P to Live weight	0.423
S/P to Down Diameter	-0.343
S/P to Birthweight	0.674

Figure 5.

Continued on next page

Breeding by Tom

Continued from previous page

(Negative correlation of S/P to Down Diameter is favorable: a higher ratio of secondary follicles to primary is associated with finer fiber.)

Follicle density and S/P ratios are difficult to measure directly since, as in the Ma Ning study, the only way to do it is to actually examine a skin sample under a microscope. However, a high follicle density and high S/P ratios are desirable and are highly heritable.

High downweights and lower down diameters are not as heritable as follicle density and S/P ratios because, we believe, whether or not those follicles actually produce cashmere or remain dormant is dependent upon other factors, particularly environment (including latitude, ambient temperatures, humidity and altitude), nutrition and breeding stress. An animal bred for high follicle density and favorable S/P ratios has the genetic potential of producing better cashmere, i.e. is a more productive genotype. That animal can be managed to produce more cashmere, and therefore be a more productive phenotype as well.

Follicle density is an example of how heritability and correlation are not entirely predictive of phenotypic performance, and why, as you review scientific literature on the subject of cashmere genetics will often discuss "genetic" correlation and "phenotypic" correlation separately.

There is some evidence to show that follicle density in the embryo is influenced by maternal nutrition during the last third of pregnancy. Let me hasten to caution you that the scientists have come down on both sides of this issue and there are equally qualified people on both sides of the issue. Our experience has been that we do see better fiber from kids whose mothers received superior nutrition during the latter part of pregnancy, and a sub-

stantive study done in China shows that there is a higher density and a superior S/P ratio in singleton kids, which they attribute to better nutrition.

There's certainly no harm in a management program that steps up the protein levels of feed to pregnant does between shearing and kidding time. (We breed in December, shear in March and kid in May, so those does are not growing cashmere during the last six to eight weeks of pregnancy. We do suggest that you don't overfeed, however: overconditioned does, particularly those with a strong dairy influence, can result in too much milk come lactation time, with resulting udder problems.)

One other aspect of genetics deserves mention, the topic of "heterosis," or "hybrid vigor." There are a number of explanations for this phenomenon, which I will not go into, save to say that it is a well-known result of crossing two relatively pure or homozygous lines. I have maintained for many years that the best cashmere goats may be hybrids, and as you consider your breeding strategy you may wish to consider this as an option.

As already discussed, breeding for just fine cashmere is fairly effective if you are willing to accept a small frame size as one of the penalties. It is also possible to breed for a large, stocky animal with very extensive coverage and heavy fleeces, with the penalty that the resulting cashmere will be at the upper limits of acceptability and possibly the presence of nonqualifying, intermediate fiber particularly in the neck and shoulders.

There is some merit to maintaining lines of both small, fine animals and large, heavy-yielding coarse animals to cross for an F1 hybrid production animal. Where we have done some line breeding and then crossed back, we have seen an F1 progeny that has both relatively fine fleece coupled with large yields and a superior frame

size, which I attribute to heterosis. We do not see these F1's "breeding true," however, and it is frequently difficult to determine which are which in the Mendelian sort of the F2 crosses.

It is certainly possible to identify large animals at birth, but we have been completely unsuccessful at predicting adult fleece character on the basis of birth appearance or "kid coats." One of the obstacles to a rapid breeding program is that it is generally difficult to come up with an accurate phenotypic evaluation of an animal before the age of two, which can mean a three-year generation time if phenotypic evaluation is important. That is to say, it is possible to cull a yearling from your breeding program because of a fleece that is too coarse—it's never going to get much finer than that first fleece—but you can't really evaluate coverage, style, total fleece weights, or yields at one year.

Generally, cashmere coarsens somewhat with age up to three or four years, then stays level to become a little finer (and sparser) at seven or eight years.

A four-year old buck with 14 or 14.5 micron fiber clearly is a fine animal and should be kept in a breeding program, but a breeder cannot predict whether an animal will stay fine into maturity based on performance at one year or two.

There is, of course, need for research into the heritability of this kind of "staying power," but none has been performed to my knowledge.

Tom Dooling presented two workshop sessions at the October 1996 Business of Cashmere Conference in Bozeman, Montana. The above paper on advanced breeding was one of those workshops. His other session covered a plan for breeding for a homozygous white cashmere goat over 5 years. This plan was based on a paper presented by Chinese researchers at the 1996 Beijing International Conference and will be printed in our next issue.

EASTERN CASHMERE ASSOCIATION FLEECE COMPETITION

Virginia State Fair, Richmond, VA
October 2, 1996

Judge: Joe David Ross

First Place winners only are listed.

1995

Shorn Does(Class 1) - 8 entries
Roy & Anne Repaske, SFH2
Corelli
Combed Does (Class 2) - 6 entries
Tia & Peter Rosengarten, Sweetie
Shorn Bucks (Class 3) - 5 entries
Marilyn & Wes Ackley, BPC
Easter
Combed Bucks (Class 4)-2 entries
Yvonne Taylor, BLF Hippomenes

1994

Shorn Does (Class 5) - 1 entry
Tom & Gina Hagis, Annie-O
Combed Does (Class 6) - 4 entries
Tia & Peter Rosengarten, Coni
Shorn Bucks (Class 7) - 3 entries
Tia & Peter Rosengarten,
Esterhazy
Combed bucks (Class 8)-2 entries
Jeanne Austin, Chance Wayne

1993

Shorn Does (Class 9) - 1 entry
Roy & Anne Repaske, TFCCE1
Kimberleys
Combed Does (Class 10)-7 entries
Tia & Peter Rosengarten, Lady
Slipper
Combed Bucks (Class 12)-1 entry
Joanne Lisa-Strauch, UHO Bravo

1992

Shorn Does (Class 13) - 3 entries
Roy & Anne Repaske, LFC11
Vivaldi

Combed Does (Class 14)-3 entries
Christy Proost, Kookaburro
Shorn Bucks (Class 15)- 2 entries
Becky Wright, LFC Super Duke
79
Combed Bucks (Class 16)-1 entry
Yvonne Taylor, LLC Aegisthus
CB92

1991 and before

Shorn Does (Class 17) - 3 entries
Marilyn and Wes Ackley,
Cashmear's Oracle
Combed Does (Class 18)-4 entries
Tia and Peter Rosengarten,
Streudle
Shorn Bucks (Class 19) - 1 entry
Roy and Anne Repaske, LLC
CC35 Beethoven
Combed Bucks (Class 20)-1 entry
Tia and Peter Rosengarten, Alamo
Ross

COMBED CHAMPION

Tia and Peter Rosengarten, Lady
Slipper

COMBED RESERVE CHAMPION

Tia and Peter Rosengarten,
Streudle

SHORN CHAMPION

Marilyn & Wes Ackley, BPC
Easter

SHORN RESERVE CHAMPION

Anne & Roy Repaske, SFH2
Corelli



EASTERN CASHMERE ASSOCIATION CASHMERE GOAT SHOW CONTEST RESULTS

Virginia State Fair
Richmond, VA
October 2, 1996

Judge: Joe David Ross

Class 1

Animals born in 1996
Marilyn & Wes Ackley, BPC
Feather

Class 2

Animals born in 1995
Becky Wright, LFC 40

Class 3

Animals born in 1994
Christy Proost, Karma

Class 5

Animals born 1992 and
before
Tom & Gina Hagis, Sera WR2

GRAND CHAMPION

Becky Wright, LFC-40

RESERVE

GRAND CHAMPION

Christy Proost, Karma

Calendar of Events

Association Contacts

November 2 - 3

Farm Fair International First Ever Goat Gala
Edmonton, Alberta, Canada

For information call Pat Fuhr 403-967-4843 or email
103600.1332@compuserve.com

December 6

Texas Cashmere Association annual meeting, Gate 1
Motor Inn (one block from Fairgrounds)
Brownwood, Texas, 915-396-2920

December 6 - 7

Texas Cashmere Show and Sale - Brownwood, TX
Ruben Ortegón, Chairman of Planning and Operations,
915-646-1055.

December 6 or 7 (probably the 7th)

Cashmere America Co-op annual meeting - Gate 1
Motor Inn (one block from Fairgrounds above),
Brownwood, Texas, 915-387-6052.

January 11 - 26, 1997

National Western Stock Show - Denver, Colorado
For information call 303-297-1166.

January 18, 1997

Oregon's 3rd Annual Pygora Goat and Fiber Frenzy
Washington County Fairgrounds, Armory Building,
Hillsboro, OR. For information contact Lisa Roskopf
503-985-3331, email HAWKSMTN@aol.com

June - July 1997

Goat Production Workshop - Technology for Fibre
and Meat, University of Queensland, Department of
Agriculture, Australia, (07) 3365 2062 Only \$6,000
for a six week course. Plus
another \$6,000 for living
allowance. Plus air fare. Plus
souvenirs for your mother.
No worries, this may not be
as costly as it sounds be-
cause the price quoted is
probably in Australian
currency. Take the family.



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Cashmere Producers of America (CaPrA)

Joachim Grevel, President, 512-452-5205
73532.1742@compuserve.com

Cashmere America Co-operative

Joe David Ross, Manager, 915-387-6052

Colorado Cashmere and Angora Goat Association (CCAGA)

Carol Kromer, Club Contact, 719-347-2329

Eastern Cashmere Association (ECA)

Ray Repaske, President, 540-436-3546

North West Cashmere Association (NWCA)

Cliff and Mickey Nielsen, 509-658-2502

Pacific Northwest Boer Goat Association

Harriett Morley, Coordinator, 360-748-0157

Professional Cashmere Marketers' Association (PCMA)

Tom and Ann Dooling, 406-683-5445
tom@bigsky.dillon.mt.us

Texas Cashmere Association

Dr. Don Huss, President,
915-396-2920 or 915-396-2195

Western Prairie Cashmere Association

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

Wild Goat Women

Debbie Walstead, Chairperson, 719-495-2962

Mild Goat Men

Paul Johnson, Head Herder, 503-623-5194
Membership now too numerous to count (by men)

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email:103600@compuserve.com

Guarding Dogs

Continued from page 14

period of time. As a precaution, dogs should be restrained, confined, or closely monitored if these methods are being used in close proximity.

An Idaho sheep producer reduced coyote predation in his pasture flock of 200 ewes by adding a guarding dog to his operation. Prior to obtaining the dog, the producer lost an average of 12 lambs per year to coyotes. The use of the guarding dog, combined with other predation-control methods, has resulted in a loss of only four lambs in the past 5 years.

Guarding dogs can also be helpful in range sheep operations. However, many factors influence dog effectiveness. A Wyoming sheep rancher noted a significant reduction in coyote predation in his range flocks for the first 3 years he used guarding dogs. During that time, the coyote population continued to increase. In the fourth year, the producer began to see a decrease in his dogs' effectiveness. Coyotes had become so numerous they were simply overwhelming the dogs. By the fifth year, his predation losses had returned to previous levels.

Recommendations for Producers

Guarding dogs will not solve all of a producer's predation problems, but in many situations they are a useful tool. They can aid in reducing occasional predation and have worked well in both fenced pasture and herded range operations. Their effectiveness can be enhanced by good livestock management and by eliminating persistent predators.

Guarding dogs may not be suitable in very large pastures (several sections or larger) where sheep are widely scattered. At least two dogs are recommended for range operations or in large areas with more than several hundred sheep.

Additional Information

Sources of pups and additional information about livestock guarding dogs can be obtained from the nearest office of the Animal and Plant Health Inspection Service's (APHIS) Animal Damage Control (ADC) program. You may also contact:

Roger A. Woodruff
APHIS guarding dog specialist
720 O'Leary Street NW

Olympia, WA 98502
360-753-9884

Jim Luchsinger
APHIS guarding dog specialist
124 Call Hall, KSU
Manhattan, KS 66506-1606
913-532-1549

Jeffrey S. Green
APHIS, ADC
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If you need assistance designing or laying out a
display ad, or fine-tuning an article, earlier is
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MORE WWW. SITES

Admit it, you computer nerds! You were getting a
little nervous. Here you were, almost to the end of
the magazine and you couldn't find them! You
were getting frantic, just about ready to cancel
your subscription in disgust. Never fear, Paul came
through. Here's more good links:

www.uq.edu.au/~agdburli/main.html
University of Queensland Department of Agriculture
Animal Science
Dr. Barry Norton has recently conducted a work-
shop in China on goat and cashmere production
with Dr. Barrie Restall. The site contains general
information about the workshop as well as an
attractive picture of Dr. Barry Norton.

www.Fink.com/goatlane
Page on the book *Life in the Goat Lane* by Linda
Fink, a hilarious look at raising dairy goats.

Two more government links and pages:
www.cvm.fda.gov/
Federal Drug Administration Center for Veterinary
Medicine

www.aphis.usda.gov/bbep/vb/
Department of Agriculture, Veterinary biologics (not
a misspelling - just like they list it!)

www.royalcashmere.com/
Royalle Himalayan Cashmere, from Royal Cash-
mere. Check out "A Cashmere Story".

For those of you truly off the deep end in Internet
and JAVA (Your computer must have JAVA capabil-
ity for these to work.):

[www.ics.uci.edu/~pazzani/4H/Java/
Java.html](http://www.ics.uci.edu/~pazzani/4H/Java/Java.html)

See the dancing goat.

[www.ics.uci.edu/~pazzani/4H/Java/
PlayGoatGame.html](http://www.ics.uci.edu/~pazzani/4H/Java/PlayGoatGame.html)

Play interactive goat games including one very
exciting game where you control a cute goat trying
to eat tree leaves before they fall to the ground!
(PacMan for the goat set.)

[www.ics.uci.edu/~pazzani/4H/Java/
GoatPartsTest.html](http://www.ics.uci.edu/~pazzani/4H/Java/GoatPartsTest.html)

Test your knowledge of goat anatomy.
A special thanks to Michael Pazzani, University of
California, Irvine for these JAVA sites, as well as his
goat info and links!