

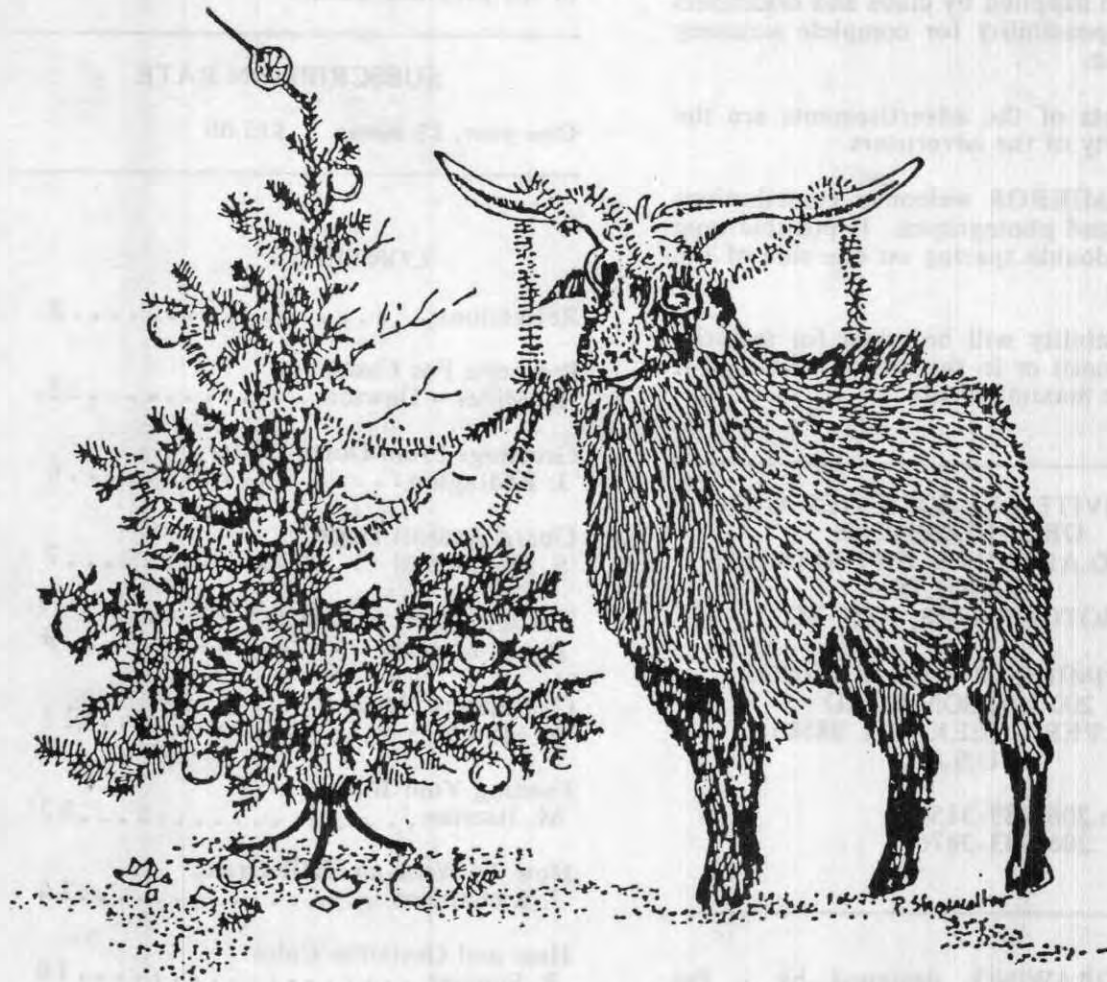
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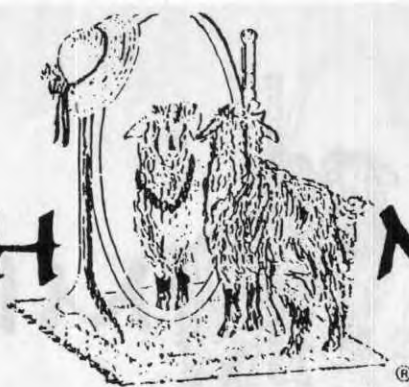
VOLUME ONE, ISSUE THREE

DECEMBER 1989

SEASONS GREETINGS



CASH MIRROR



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REFLECTIONS

We at CashMirror wish all of you Season's Greetings. Like most everyone, we face the New Year with both eagerness and trepidation. Our world is changing so radically and so quickly...from the unbelievable terrorist and drug related horrors to the coming down of the Berlin wall. Change can be scary, but its something that is with us all most of the time.

And so it is with our publication as we explore different print styles, formats and so forth. We've made some big changes in this issue and we think we have made it more readable. We will continue to make changes and develop along with our evolving Cashmere industry. But our goal to provide you with useable information will remain the same.

Our correspondence makes us aware that while we have a tendency to concentrate on the technical aspects of fleece, the readers are very interested in the basics of goatkeeping. The letters and calls come in asking how and when to trim hooves to the emergency calls of what to do about bloat, shut down of the rumen and other health problems. For this reason we have our "goat expert", Miriam Jeswine writing a monthly column. And to add to that we are currently talking with several goat veterinarians in the country for a vet column.

We greatly enjoy publishing CashMirror and have been overwhelmed with the warm response (and subscriptions). I might also note that the greatest percent of the subscribers are from people whom are considering purchasing cashmere goats and are not current cashmere breeders. So get yourself listed in our Breeder's Directory.

We wish you all a Happy New Year!

Judith Richardson
Editor/Publisher

LETTER TO THE EDITOR

Congrats on "CashMirror" The info is great for our office to answer the many inquireys. We'd like to run "Registry Vs. Production" in the newsletter and distribute it to inquirees along with the Breeders Directory and portion of the "Cashmere Question". Will await your confirmation.

Dr. Don Bixby
American Minor Breeds Conservancy



Champagne Cashmeres of Bend, Oregon, share a climb on the lava rock formations with Cascade Cashmere Buck "Gorgeous George"

CORRECTION:

In the November issue of CashMirror We regretfully left Jerry Kaplan's name off the list of newly elected Board of Directors for CaPra (Cashmere Producers of America). Jerry Kaplan is Vice President of Amicale Industries and holds the position of Fiber Standards committee chairperson for CaPra.

PROSPECTS FOR CASHMERE IN THE 1990'S

By Ronald Miller, Chairman, Dawson International
Reprinted from Wool Record, April 1989

Not everyone connected with the world's cashmere industry realizes that our group, Dawson International PLC., are the world's largest processors of cashmere fiber. However, this most certainly is the case and it allows me as Dawson's chairman to offer the benefit of a unique view into prospects for what is, for all practical purposes, the world's rarest natural fibre.

There has been much comment, particularly in the last two years, about the difficulties in cashmere supply. Most of the headlines relate to China from where perhaps 60% of the world clip emanates; the remainder comes from Outer Mongolia (an autonomous republic of the USSR), Iran and Afghanistan. In spite of the eight-year-long Gulf war and in spite of the Russian invasion of Afghanistan, the clips of these two countries have never failed in their availability.

The Outer Mongolian clip tends to find its way to the west via the Comecon countries and is also sold extensively in Japan. During the last two years China, the largest producer of fine cashmere pre-eminently suitable for knitwear, decentralized the traditional distribution channels with the result that, at one time, literally hundreds of new organizations and enterprises started to trade in the fibre.

This led to a sharp deterioration in quality standards and artificial shortages: artificial, because the new traders were not using the fiber but selling it on, mainly to merchants in Hong Kong, whilst traditional sources were denied supply and could not meet contracts. Today there are signs that the proliferation of supply and contamination which it promptly led to are improving as the State takes back control of distribution of a commodity so vitally important to China's own economy.

The results of uncontrolled distribution and contamination manifested themselves in the price of Chinese cashmere. Contracts were not met, sometimes as to price, sometimes regarding delivery, sometimes both, but the inevitable result of the artificial shortage was to drive the price ever upward. The consequence to Japanese and western users of the fibre has been expensive and in some respects cannot yet be fully calculated.

The ripple effect of late deliveries has meant that retailers, too, have suffered delays and received seasonal merchandise too late, resulting in lower sales to the consumer. Consumers, too, have become wary as they have learned that not all cashmere is pure cashmere, and this has affected confidence. Finally, the effect of at least a 50% price increase within one year has not yet hit the consumer. This will only be apparent in the autumn of 1989 by when older, much cheaper stocks are cleared from the retail pipeline.

Within our own group we have reacted to these problems in a variety of ways. As far as supplies from China are concerned, we are strengthening our buying organization within that country by employing active Chinese speakers, today based in Dawson's Hong Kong office. In spite of our 90 years connection we need to get closer to our lines of supply.

I should also note, that we have been instrumental in inspiring a new source of cashmere in Australia and New Zealand. Though, as yet, the quantities produced in Australasia are not significant, the multiplier effect is about to impact. There is no doubt, in my mind, that these new origins will be a force to be reckoned with in the 1990s. We are confident that in spite of the not yet stable politics of the Middle East, supplies of Iranian and Afghan hair will continue. Consequently, on the supply side we see an improving picture.

In the market-place Dawson has decided to give sharper focus to its marketing of cashmere. When all is said and done, this is the world's rarest natural fibre and deserves to be marketed perhaps as well as De Beers markets diamonds.

Two years ago we took the decision to re-think our cashmere marketing policies in the United States. Apart from existing famous knitwear brands in our portfolio long associated with cashmere - Ballantyne, Pringle, Barrie for example - we researched the US market and found a niche for two completely new US cashmere brands. We were fortunate to conclude a licence deal with one of the darlings of US society, Oscar de la Renta, and we signed up two more US designers to create a cashmere brand for US

Dawson.....Cont.

yuppies. This new brand became Cashmere and Company. More recently, Ballantyne have agreed to a licence arrangement with Donna Karan.

All these inter-relating brands are displayed in a unique cashmere environment in a new showroom in New York's 7th Avenue. We have invested \$5 million in the project and we were glad to harvest the first fruits of this in autumn 1988. We were singularly fortunate to enjoy the enormous PR bonus of the Princess of Wales' visit to a reception which I hosted on February 1st this year where she met 100 of our US store buyers in the amazing Equitable Insurance building. The visit just happened to coincide with the opening of the order-taking season for autumn 1989!

All this investment reflects our group's determination to show the world that Scotland leads in the marketing and making, not just of quality cashmeres, but also of fashion in cashmere. We see this as being the best way of maximizing our own resources and of using this wonderful fibre to best advantage in the exciting environment that lies ahead in the 1990s. °



Mr. Ronald Miller

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AMERICAN BREEDERS ATTEND AUSTRALIAN CONFERENCE

By Jill Darrah-Cashco America
Longmont, Colorado

Several American cashmere breeders made the long trip "down under" to attend the Third International Cashmere Conference in Adelaide, Australia. On the whole, the information presented was on the technical side, but useful to the grower. Bronwyn Schuetze, CaPrA's newly elected president, was asked to speak on the status of the cashmere industry in the U.S.. She was well received by our Aussie and New Zealand friends when she donned her large Stetson and greeted the crowd with a hearty "Howdy". Presentations were given by the budding industry in the U.K. as well as an update from New Zealand.

The processors from the U.K., Italy and the U.S. encouraged the ANZ growers to continue efforts to expand the industry, to breed towards fine cashmere and work to breed away from intermediary fibers i.e. keep good differentiation between the guard hair and the down. Dawson International pledged support to the ANZ industry for the next 10 years and is placing a liaison employee in Australia to encourage cashmere production. Hugh Hopkins of the Forte' Cashmere Company, announced that he is enthusiastic about the new U.S. Industry, believing there is a great potential for cashmere production in the U.S.. Forte' is proud to support the new industry and is encouraged by the quality of the first American clip.

Evenings were spent in enjoyment and relaxation; good meals (goat), hearty drink, and lively conversations, some even about cashmere goats! A fashion show of ANZ cashmere clothing was a highlight of the conference' farewell celebration. The clothing was "high fashion" and beautiful to the touch, the models were tolerant in that most everybody in the room had to give the models a swipe or two!

All in all, the U.S. travellers agreed that the 25 hour flight and 12 hour drive to Adelaide was beneficial to themselves as well as providing information to the U.S. industry. Knowledge was gained and friendship begun--another step in the exciting growth of this truly international industry.



AMERICAN MINOR BREEDS NOTEBOOK PUBLISHED: A GUIDE TO RARE BREEDS OF LIVESTOCK IN NORTH AMERICA

The American Minor Breeds Conservancy announces the publication of its Minor Breeds Notebook, a guide to minor and rare breeds of livestock in North America. This unique book provides descriptions, photographs, and current status information for 69 hard to find breeds of asses, cattle, goats, horses, pigs and sheep.

"The Purpose of the Notebook," says Dr. Don Bixby, Director of AMBC, "is to educate the public about the importance of minor breeds. Many of today's "minor" breeds were in fact the major breeds of the past, but because of recent trends in agriculture are now in danger of extinction. It's of great importance to save these animals for the future when their qualities could again be important."

Minor breeds possess qualities not found in commercial types of livestock. The Scotch Highland cow, for example, has a heavy coat (not fat) as protection from cold weather, so it can be used for outdoor production of lean beef. The Tamworth pig can be raised outdoors, too, while most commercial pigs are confined on concrete. Other animals are well-adapted to particular regions of the continent, such as the Gulf Coast Native sheep and Florida/Pineywoods cattle, which thrive in the Deep South despite heat and humidity. Still others are valued for their special products, such as the long wool of the Cotswold and Lincoln sheep, or for their special talents, as the Lipizzan horse.

"The complex traits found in minor breeds cannot be found elsewhere nor recreated. If we want to have hereditary variability in our livestock species for use in the future we must save these animals today," says Elizabeth Henson, Technical Consultant for the AMBC. "In the future we may again want to raise animals without high cost management. We certainly will want to have all the options possible with which to cope. °

GREETINGS FROM DOWN UNDER

By Jenny Eddington - Tasmania

Suddenly it seems to be nearly Christmas; where has the year gone? The weather has been very hot and good for hay making. There is the occasional shower which sends all haymakers into a frenzy of weather watching. But that is farming! We have half of our hay in the barn and the rest will join it later in the week.

It is ram buying season so the past weeks have seen us viewing rams of both wool and meat breeds. We do not breed our own rams but rely on specialty breeders to supply us with the type of commercial animal we need. A new addition this year is a white Suffolk ram as a trial terminal sire for meat lamb breeding.

Much of my time has been taken in organizing the next shipment of goats which leave for Honolulu Quarantine on January 8th. The long process of blood testing is now complete and in a few days we will dip them to comply with protocol. They are now being fed a similar ration that is fed in Honolulu so they will be used to the diet. They will arrive mainland United States of America around February 8th. Tim is a great help with the blood testing and dipping. I have to organize the paperwork some of which is not able to be done ahead of time.

Last week I was speaker at a producers day for supplying goat meat to a growing market. It was a very worthwhile day with a good role up of breeders both Cashmere and Angora. I always enjoy a get together with other people in the goat industry.

We will begin weaning this Spring's kids next week. The mothers and kids won't like it at all but we find if we can get them off at around 12 weeks both mother and kid benefit. If the kids stay with their mothers for longer they don't make the best use of the pasture available to them. They hang around Mum and fill their bellies with milk which by this stage is not going to give them as much nutrients as the pasture. I really enjoy the kids at this time of year because they are beginning to grow their first fleeces of cashmere and almost change daily. One day they will be smooth and the next time you go out they have become a ball of fluff. I am keeping my eyes out for some special kids to put in next years show team. I will keep the show team near the house so I can make them tamer than they otherwise would be.

Christmas is always such a mad rush coming in the middle of Summer. There is always the hay at Christmas so while most of the community goes on Summer holidays - farmers usually don't get far until later in the year. Never the less, I'm sure we will manage some Christmas dinner of turkey and plum pudding. WE hope you and yours have a great Christmas. And when you toss a few snowballs think of us "down under" in the hot sun! o



Jenny Eddington selling goat meat products at the Agricultural Festival in Tasmania.

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GUARD AGAINST DOGS WITH DOGS?

By Susan Drummond - Freeport, Michigan

"Put a dog in with my goats to protect them against other dogs and predators??? You must be joking. Using a dog to protect against dogs?? Maybe that works in primitive countries but certainly not in modern America. I have electric fence, barns to shelter my goats, closed circuit TV to monitor the goats -- all the latest and best scientific gadgets. This is an up to date operation which utilizes the most modern equipment."

Oh yeah?? You might want to consider keeping a livestock guardian dog to protect your stock. The combination of good fences, shelter for your animals, and a guardian dog which is with your flock at all times has been shown to be the best protection for livestock by the Livestock Guardian Dog Project at Hampshire College in Massachusetts. A wandering neighborhood dog, coyote, or wolf can jump over or dig under an electric fence but a guardian dog on duty will swiftly show them the way out. Neighbors of ours lost forty angora goats to two roaming neighborhood dogs a couple of years ago. In addition to the forty dead goats, many of the other goats were wounded and others aborted because of the stress of being chased. He bought a pup from us shortly after his losses.

With the high value of cashmere breeding stock at this time perhaps the biggest "predator" to be guarded against is the human being. It would be a very foolish thief who would enter a field or barn with a guardian dog in full cry.

Guardian dog research has also been done at the US Sheep Experiment Station at Dubois, Idaho, in cooperation with the Hampshire College project. In response to a survey of 1000 livestock producers cooperating with the Dubois Station in 1986, 99% of the pasture operators replying recommended the use of guardian dogs and 99% of the range operators said the same thing.

Jeff Green who heads the Dubois project says, "Despite their limitations, livestock guarding dogs probably have a wider potential for application, a greater chance for reasonable effectiveness, and a more favorable relationship with the ecosystem than any single method of reducing predation examined during the past century." (Jeff Green can be reached at 208-374-5306, in Dubois.)

Most of the shortcomings of guardian dogs

involve roughhousing with lambs or goats, not staying with the animals, or attacking other farm dogs. Guardian dogs must be managed to minimize the opportunity for these things to happen. They must be put into a situation where they can succeed.

Guardian dogs rarely fight with predators but advance toward any intruder barking. Because coyotes and other dogs are territorial, they respect the guardian dog's territory and their fierce display. The sight of a large dog, hair bristling, advancing in an aggressive manner, barking loudly, will turn the most determined predator away.

Any of the traditional guardian breeds -- Great Pyrenees, Kuvasz, Maremma, Anatolian, Komondor etc, -- have a very strong sense of territory and an instinct to protect what they consider to be "theirs". When they are raised in a particular place with the animals which need protection, they instinctively guard both territory and animals. Generally, the dogs are trained by putting them with the animals to be guarded when the pup is six to eight weeks old and keeping them there at all times. Pups have been successful when introduced to animals and territory as little as one year old. A guardian dog is considered mature and reliable at around two years old.

Guardian dog breeds are very independent. For centuries they have been expected to guard their charges under all conditions, at all times, without direction from their masters. Therefore, they have developed an independent nature and do what they consider is appropriate to the prevailing circumstances. Major human interaction with the dogs is to teach them what they are not supposed to do -- such as, play with the animals which they are guarding or leave their territory. They respond as a partner to their masters, not as a servant.

We find guardian dogs very effective in our pasture operation. We have five adult dogs guarding 250 angora goats on 160 acres in southwest Michigan and have had no predator losses since we got the dogs.

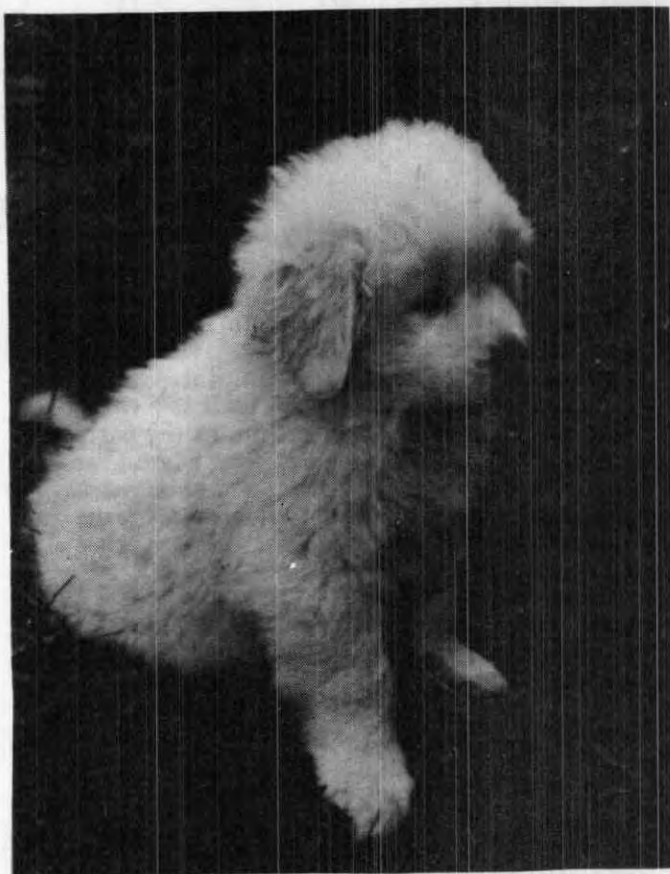
After a long investigation of guardian breeds, we purchased a pair of Maremmas from England in 1982. We rarely even see any other dogs anywhere near our farm.

Maremmas are of Italian extraction and are

still used in Italy in the traditional way. They have the reputation of being the most friendly of the guardian breeds which was important to us since we have many people here looking at the goats. We spend time with all our pups socializing them, petting them, etc., which is contrary to the "hands-off" training which some people advocate for guardians. We want our dogs to respond positively to people who we tell them are friends. If a dog is not used to being handled, it will be difficult to catch for inoculations, nail trimming, etc.

Maremmas are large, white dogs with heavy, coarse coat. Our female weights about 85 pounds and the male runs around 100 pounds. They are outside all of the time guarding the goats. We kept a male pup from our pair's second litter to help with guarding and have kept a female from two years ago to replace our older female as a breeding bitch. We also imported another male this summer to bring in some new genetic material.

We believe, and our experience bears out, that guardian dogs are good protection for valuable livestock. According to Jeff Green, "They solve a tremendous number of problems all over the West. We don't view the dogs as a replacement, but as an additional tool -- although, for some producers, dogs alone may be enough." ◊



A Maremma Puppy at Drummond's Farm

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TOXOPLASMOSIS IN GOATS

By Dr. Barry Monday - Launceston Tasmania

Dr. Barry Munday, author of this article, is one of Australia's leading veterinary pathologists and has had an interest in toxoplasmosis since he first found it as a cause of abortion in sheep in Tasmania in the early 1960's. In 1979, he and Dr. Roy Mason, at Mt. Pleasant laboratories, Launceston, Tasmania, published the first paper in the scientific literature on toxoplasmosis as a cause of abortion in goats.

Since then Barry has developed an even greater interest in goats as his wife Fay and neighbor Leonie Harding have become the owners of the successful Yarrum Cashmere stud at Glengassy in Tasmania.

Toxoplasmosis is caused by a tiny protozoan (one-celled) parasite called *Toxoplasma gondii* which was first discovered in a north African rodent called the *gondi*. As will be appreciated from the accompanying diagram, this parasite can infect a wide range of animals and has various routes by which it can be transmitted. However, central to the organism's survival, is the domestic cat and its wild relatives (lynx, etc.) Without these animals (the felines) there is no toxoplasmosis; indeed *toxoplasma gondii* is probably also celebrating its bicentenary in Australia this year.

Adult animals often do not develop significant illness from toxoplasma infection unless their immune system is depressed (e.g. AIDS patients) or the species is particularly susceptible (e.g. kangaroo which have evolved in the absence of *toxoplasma gondii*). However, the young whether goat, sheep or other species is particularly susceptible both due to the effects of the parasite in its own organs and, more particularly, on the foetal (placental) membranes which lavish it! If the damage to the membranes is severe, abortion occurs.

To put the circumstances of toxoplasma abortion more in perspective the following points need to be made;

1. Abortion will only occur if susceptible does are infected during pregnancy.

Susceptible does are those which have not

previously been infected. Studies at Mt. Pleasant Laboratories have shown that does which have previously experienced toxoplasma infection are relatively resistant to the effects of response to the parasite. This work was done with "typical" abortion strain of *toxoplasma gondii*. Work done in the U.S.A. with an atypical or strain of *toxoplasma gondii* has shown that this natural immunity is not absolute under extreme challenge. Incubation is a maximum of 30 days, usually 7 days from infection.

2. Infection will only occur if the does are exposed to a significant number of infective organisms (oocysts). These oocysts survive very well under moist, temperate conditions such as occur in southern Australia during the Autumn and Winter. As they must be eaten, the common routes of intake are on hay, in grain (when storage bins are open topped) or on grass. Grass is particularly likely to be infected when it is moist and contaminated by soil and worm casts (worms can transfer buried oocysts to the surface).

3. Infections during the middle third of pregnancy are most likely to lead to abortion, particularly if the challenge dose of oocyst is heavy leading to severe damage to the foetal (placental) membranes. Membranes from infected does should be handled with care and destroyed. They are potentially infectious to humans and are a potent source of reinfection to perpetuate the life cycle of *toxoplasma* in stray cats.

The question may well be asked "what can be done to prevent toxoplasma abortion?". Firstly, every effort should be made to reduce exposure of pregnant does to infection. Food bins should be kept covered and, as far as possible, cats excluded from hay barns and goat sheds. If you must have a cat, choose a seasoned veteran rather than a cute kitten as cats also develop some immunity to toxoplasma infection.

Secondly, try to expose your unbred goats to light toxoplasma infection. This is, of course, fairly hit and miss. Sometimes it is possible to identify a part of the property which is frequented by cats and may be a suitable area.

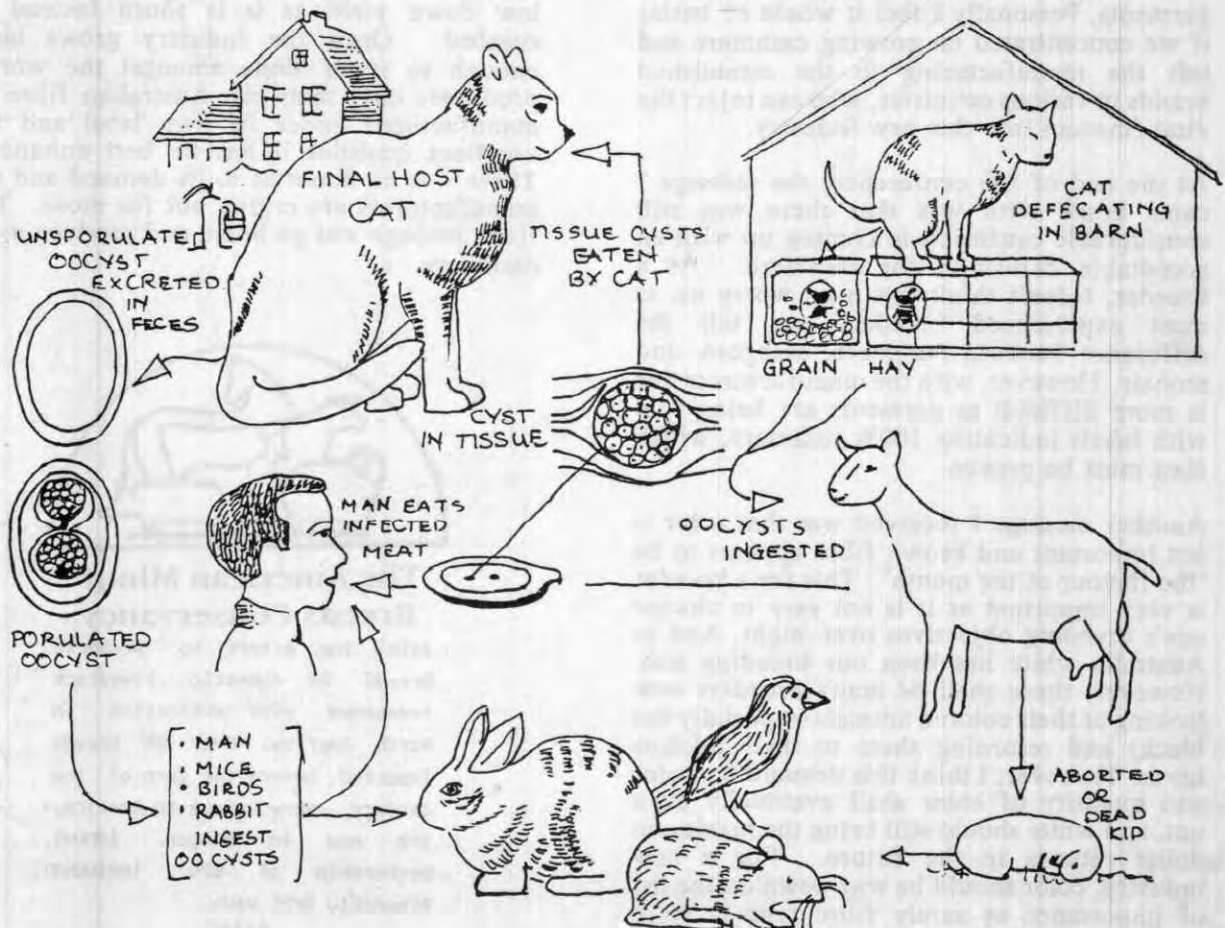
Toxoplasmosis....continued

It should be kept in mind that some strains of the parasite are particularly resistant and can cause illness even in adult goats. Hence this practice is not without potential danger.

Vaccination would be the ideal way of preventing abortion and this aspect is being researched by the Tasmanian team now headed by Dr. David Obendarf. A preliminary trial using a closely related, but harmless, parasite called *Hammondia bommondi* has shown that vaccination is feasible. Unfortunately *Hammondia* is not a practical vaccine because; 1. It must be produced in live cats which is costly and potentially hazardous if other germs are present in the cats. 2. The vaccine itself produces a fever and mild illness in the does. The Tasmanian researchers are now testing a non-persistent strain of *Toxoplasma gondii* which is grown in tissue culture and a recombinant vaccine produced by molecular biology techniques.

The work to date has been very much a co-operative effort involving assistance from workers in South Australia and the United States of America. Funding has been provided by the Tasmanian Development Authority, the Australia Mohair Research Trust and the special Rural Research Fund.

The natural response is often to consider culling does which have aborted. However, if the abortion is due to toxoplasma infection the doe will be relatively resistant to reinfection and should be retained.



Transmission of *Toxoplasma gondii*

NOTES ON INTERNATIONAL CASHMERE CONFERENCE AT ADELAIDE, SOUTH AUSTRALIA

By Lisa Murch
Berrambool Cashmeres
Willaura, Victoria
Australia

This year was the conclusion of the fibre contracts with Dawsons Scotland, Filati Biagioli Modesto, Italy, and Forte' Cashmere Company America. Australia has had guaranteed minimum prices for the previous three years, which has allowed the industry to stabilize.

Garments manufactured in Australia by Monici of Parma using Australian fiber were displayed at a fashion parade at the Adelaide conference. Some cashmere growers would like to see Australia manufacture its own garments. Personally I feel it would be better if we concentrated on growing cashmere and left the manufacturing to the established brands in various countries, who can inject the vital finances into this new industry.

At the end of the conference, the message I came home with was that there was still considerable confusion in coming up with an acceptable definition for cashmere. As a breeder, I don't think this need worry us, as most experienced breeders can tell the difference between cashmere, cashgora, and mohair. However, with the manufacturers this is more difficult as garments are being sold with labels indicating 100% cashmere, which then must be proven.

Another message I received was that color is not important and brown fibre appears to be "the flavour of the month". This for a breeder is very important as it is not easy to change one's breeding objectives over-night. And in Australia white has been our breeding aim. However, there shall be many breeders now looking at their colored animals (especially the black) and returning them to their nucleus herds. However, I think this demand for color and quantity of color shall eventually even out, and white should still bring the maximum dollar returns in the future. For a new industry, color should be way down on the list of importance as surely fibre type is more important than color.

The major message from the manufacturers was that we should all be breeding FINE, FINE AND FINE again. There was virtually

no discussion on cashgora and the manufacturers stressed their preference for fine cashmere. They also stressed the importance of producing cashmere with good fibre differentiation. Their dehairers were experiencing difficulties dehairing some Australian cashmere due to intermediary fibers. Another problem with the Australian industry is that because there is so little cashmere produced, and it must be manufactured differently than the Afghan/Iranian fibre, we are really an industry on our own and we must produce more cashmere (consistent to the demands of the manufacturers).

At the moment most Australian cashmere is blended with Iranian and Afghan fibre. Australian fibre is supreme in that it has no lice eggs, produces much less pilling and is very well classed with the high Australian standards. However, its disadvantages are lustre, less crimp, lower felting properties, and low down yield as it is shorn instead of combed. Once the industry grows large enough to stand alone amongst the worlds producers only then can Australian fibre be manufactured under its own label and the excellent qualities it has be best enhanced. There was no doubt as to its demand and the manufacturers are crying out for more. The final message was go home and produce more cashmere. o



The American Minor Breeds Conservancy

Join the effort to preserve breeds of domestic livestock threatened with extinction in North America. Over 80 breeds imported before the turn of the century, many unique to America, are now in danger. Annual membership of \$20 includes bimonthly AMBC News.

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FEEDING YOUR BUCK

By Miriam Jeswine - Dexter, Oregon

Now that Mr. Buck is in his perfumed glory, it is both more difficult and more important to keep him healthy and productive. If he gets sick, he will lose his desire to breed, and a big part of the breeding season may pass without his services. Your efforts to keep him healthy will be focused mostly on providing the nutrition he needs to be able to maintain and repair his body. Your job is complicated, of course, by the fact that he is easily distracted from food this time of year. It really helps to have a companion with him to compete for food, a bred doe, a wether, or another buck about the same size. Of course, you will have dewormed him before the beginning of breeding season.

Fertility is your chief concern during the breeding season. For this reason, the buck must have adequate protein for tissue repair and maintenance, but not so much as to stress his liver and kidneys, bucks being prone to kidney stones. If his hay is mainly grass, the grain can be fairly high protein. If his hay is mainly legumes, such as clover or alfalfa, then the grain should be lower protein so that the total ration is an average of 12 to 14%. The higher percent would be best for young bucks who also still need to grow.

Hay will vary greatly in protein content depending on plant variety and the time it was cut. For maximum protein, the hay should be cut just before bloom. The later the cut, the lower the protein. Grass hays will run between 7% or less and 15% protein. Average is about 8%. Alfalfa can vary between 8% and 24% or more, with an average of about 16%. Let us assume, though, that he is eating 4 lbs. of 8% protein grass hay. It takes 2 lbs of 16% protein grain to bring the average up to 12% overall. If the hay is good alfalfa of 18% protein, then 2 lbs. rolled oats, or COB, (corn, oats, barley) will give an average of about 14%. The concern with alfalfa is that the buck may develop kidney stones, because alfalfa is extremely high in calcium but very low in phosphorus and magnesium. The balance of calcium to phosphorus should be no more than 2 parts of one to one part of the other, but alfalfa may be as much as 16 to 1. Grains and high phos mineral mixes such as Manna Pro makes can help correct the balance. Ample fresh water, warmed in cold weather, helps prevent kidney stones. Vitamin D is also essential for appropriate calcium uses in the

body. Two other nutrients important for fertility are selenium and zinc, both of which the body uses in making seminal fluid. Most mineral mixes have zinc, but the selenium content is so restricted that frequent small shots of Se or top-dressing with supplemental Se are essential during breeding season in deficient areas of the country. A monthly shot of 1 cc of MuSe will give 166 micrograms daily supply, but only about 2 units of E. Research at Oregon State University suggests that selenium is either used or secreted in about 3 to 4 weeks after an injection. Absolute daily requirements have not been established, but it looks like 200 to 300 mcgs. of Se per day and 45 or more units of E per day would be desirable. Toxicity level is about 1 mg. (1000 mcgs) per 100 lbs. body weight. Selenium also is important in making glutathione peroxidase, a huge factor in the ability to repair damage to tissue from all sources, whether disease, injury, or radiation. White muscle disease is caused by selenium deficiency which also may contribute to sudden heart failures. Another kind of failure, of interest in does, may be blamed on mineral deficiency.

Without zinc, the buck loses his libido, so of course it is essential to fertility. Zinc is also an important component of T cells which fight viruses. Zinc deficiency shows in lowered resistance to disease, slow healing, and poor skin and hair quality. The buck will be more likely to get pneumonia, arthritis, parasites and foot rot if he is deficient in zinc or in Vitamin A.

Vitamins A, D and E are essential to the buck's disease resistance and they will be in short supply in poor quality hay. A cc per month of injectable would do the buck some good with 500,000 units of A, 75000 units of D, but unfortunately only 5 units of E. This is well below toxicity levels. The result of too little A shows up in eye problems, dull coarse hair, skin diseases, poor disease resistance, and hoof rot. Too little D shows in bone malformations, weak or short, thick bones, and kidney problems. During winter the need for these vitamins is particularly great.

Vitamin E deficiency is a problem but hard to identify. I had a friend lose several kids to white muscle disease, but blood tests showed adequate selenium. Vitamin E seemed to be

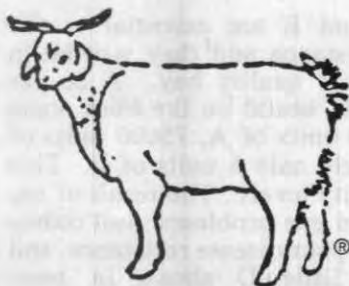
Feeding Your Buck....Cont.

the culprit. The body does not store E, but uses or secretes it in about 3 days. Overdoses are almost unheard of. Heat destroys E and the common practice of milling and pelleting feeds burns off the E in the grains and vitamin mixes so that even if the feed tag says E was added, it may get demolished. A good source of E would be raw wheat germ top dressed in the grain.

If, despite your best efforts, the buck does fall ill, there are nutrients which help him recover more quickly. These include vitamin C, which is available in powder form to mix with water in a drench, and B complex, either by injection or by mouth. These are powerful stress fighters, and during illness, the need for them rises just as the ability to get them from food drops. Franklin's Ave solution is a good item to keep on hand. It contains essential amino acids (proteins), B vitamins and electrolytes. If you poke that boy full of goat builders, he might just muster up the resources to get well without much else.

Remember that good nutrition is simply a matter of providing the raw materials to main the body in good, or preferable, in optimum health. That healthy animal probably will not get sick, or if he does, he won't get very sick. After all, the agents of disease are all around. They only take over when the animal is weakened by poor nutrition, some external stress, or excessive parasites. Feed the buck and starve the disease bugs. Then you might have a buck which lives to a valuable and respected old age.

Next Month: Feeding pregnant does



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SO..YOU WANT TO WRITE A USDA/SBIR RESEARCH GRANT
By Judith Richardson, 1989 recipient of a Phase II USDA/SBIR grant.

Lots of folks would like to try for a grant and have written to us about the USDA-SBIR granting process. My experience in writing grants is limited to this particular agency so I can only speak on this granting process. But I will give you as much information as I am able to.

First of all, USDA-SBIR stands for United States Department of Agriculture Small Business Innovation Research. The USDA actively solicits grant proposals in various categories and you will need to know what those categories are for the year in which you will write your proposal. You obtain this information by writing:

Cooperative State Research Service/CRGO/SBIR
US Department of Agriculture
901 D Street SW, Room 323
Washington DC 20251-2200

and ask for the USDA Program Solicitation Small Business Innovation Research for the current fiscal year (this year, 1990).

Firms with strong scientific or technological research capabilities in any of the topic areas described in the program solicitation are encouraged to participate. The USDA will support high-quality research or research and development (R&D) proposals containing advanced concepts related to important scientific or technological problems and opportunities that could lead to significant public benefit if the research is successful.

The program is carried out in three separate phases. Under Phase I, the USDA anticipates making approximately 25 awards to small businesses a year with each award ranging up to \$50,000 for a period normally not to exceed 6 months. Phase I is to determine, if possible, the scientific or technical feasibility of ideas submitted by proposers on research topic areas described in the Program Solicitation. The Phase I proposal should concentrate on research which will significantly contribute to proving the scientific or technical feasibility of the approach or concept and that would be a prerequisite to further USDA support in Phase II.

Phase II awards are made to firms with approaches that appear sufficiently promising as a result of Phase I studies. **ONLY THOSE SMALL BUSINESSES PREVIOUSLY RECEIVING PHASE I AWARDS ARE ELIGIBLE TO COMPETE IN PHASE II.** In other words, any small business can write a Phase I proposal, but Phase II is by invitation only.

The typical level of support for individual Phase II projects is expected to be in the \$150,000 to \$250,000

range with most projects funded at \$200,000 for a period normally not to exceed 24 months. It is anticipated that approximately 50% of Phase I awardees will receive phase II grants, depending on Phase I results, the scientific and technical merit of the Phase II proposal, the final Phase I report (required), and the availability of funds. Phase II is the principal research or R&D effort and will require a more comprehensive application outlining the proposed effort in detail.

Phase III, to be conducted by the small business concern, (including joint ventures and limited partnerships) will be privately funded by a non-Federal source through the use of follow-on funding commitment(s). The purpose of Phase III is to stimulate technological innovation and the national return on investment from research through the pursuit of commercial objectives resulting from the USDA-supported work carried out in phases I and II.

Each organization submitting a proposal must qualify as a small business, must employ the principal investigator with at least 50% of his/her income from the time of the award and during the conduct of the actual research, and must be the primary performer of the R&D effort. In addition the work must be performed in the United States.

The definition of small business must meet the following criteria:

Is organized **FOR PROFIT**, (this excludes Universities, etc. from participating in this granting process) independently owned or operated, is not dominant in the field in which it is proposing, has its principal place of business located in the United States, has a number of employees not exceeding 500.

This means that you will have to prove, via business license and two years of tax returns that you have been in business for a minimum of two years and that your business is **FOR PROFIT**. In addition, you will have to provide both a business and personal financial statement.

The proposal will be judged competitively in a two-stage process, based primarily upon scientific or technical merit. First, each proposal will be screened by USDA scientists to ensure that it is responsive to stated requirements contained in the program solicitation. Proposals found to be responsive will be technically evaluated by peer scientists knowledgeable in the appropriate scientific field using the criteria previously listed. **Each proposal is judged on its own merits.** Both internal and external peer reviewers may be used during the technical evaluation stage of this

process. Selections will be made from among recognized specialists who are uniquely qualified by training and experience in their respective fields to render expert advice on the merit of proposals received. It is anticipated that such experts will include those located in universities, government and non profit research organizations, but not in concerns organized for profit. If possible, the USDA intends that peer review groups shall be balanced with minority and female representation and with an equitable age distribution.

Final decisions will be made by the USDA based upon the ratings assigned by reviewers and consideration of other factors, including the **POTENTIAL COMMERCIAL APPLICATION**, possible duplication of other research, any critical USDA requirements, program balance, and budget limitations. Information contained in unsuccessful proposals will remain the property of the proposer. Public release of information for any proposal submitted is subject to existing statutory and regulatory requirements.

If a proposal contains proprietary information that constitutes a trade secret, proprietary commercial or financial information, confidential personal, information or data affecting national security, it will be treated in confidence to the extent permitted by law.

Rights in technical data, including software developed under the terms of any funding agreement resulting from a proposal submitted in response to this solicitation, shall remain with the grantee. However, the government shall have the limited right to use such data for governmental purposes and shall not release such data outside the government without permission of the grantee for a period of two years from completion of the project under which the data were generated. However, under the Freedom of Information Act, USDA or you may be obliged to give requestors more information than you would like. Therefore, careful working of Proprietary information is recommended.

Many of you wonder why an individual received this grant rather than a research facility or university. This granting process has been developed for the small business owner like you and me. It is to promote the **FOR PROFIT** concept. For example, we have 15 test farmers in our grant project. The end result should be that there are 15 additional small businesses at the end of this project.

It is also important that you understand that while the government is funding a project, your actual grant research may begin before you receive any actual funds. For instance, our grant started

officially September 1. It is now the end of December and we are over two months into the project with a cash outlay of over \$165,000. So, in some instances you must be in a position to finance the project prior to actually receiving funds. Ninety nine percent of what I have just written is verbatim from the 1989 USDA-SBIR program solicitation. The basic premise of this granting program is that it is for **PROFIT MAKING SMALL BUSINESSES** only! I stress the words **PROFIT** and **SMALL BUSINESSES**. But it is also essential to remember that this is a scientific/technological program, and that "Innovation is, quite literally, its "middle name".

You should also know that while you may be proposing to build a Widget Z, you will be competing against companies that are building Widgets R,S and T. You will not be competing against a firm that is proposing the same thing. Our biggest competitor was an Oregon firm that makes the membranes and filter systems for the space shuttles.

In a nutshell:

1. Send for the program solicitation
2. See if your idea falls into the solicited categories. You may need to give this a lot of thought in order to fit your idea into their categories.
3. Formulate all of your goals and objectives on paper and then fit them into the proposal guidelines in the appropriate manner.
4. Follow all the directions carefully.

Cascade Cashmere Company received this grant because we had a good idea and we wrote a good proposal. Its kind of like the lottery, if you don't buy a ticket, you don't get any money. If you don't write a proposal, you don't get any money either!!

Remember the qualifying words: **FOR PROFIT...SMALL BUSINESS...INNOVATION RESEARCH**. Good luck! °

HEAT AND GESTATION DATE CALCULATION FOR GOATS

By Ruth and Pete Smelser of Goatridge Farm, Texas

BREEDING TIPS

If you have more than a few goats you will need to keep two types of records in your breeding program: by date and by individual animal. This chart will save time for both types of records. Cover it with transparent contact plastic and tack it to the wall near your goat calendar for handy reference.

Intervals given are averages: 21 days between heats and 151 days for length of pregnancy. For your goat calendar, use a calendar with large date spaces. Note when a doe comes into heat and then make a notation 21 days later to watch for her to return to heat. If she receives buck service, skip ahead and make a note on the probable freshening date. Remember that normal freshening can be as much as five days before or five days past that date. Make a habit of checking the calendar daily. We keep ours where we have to look at it as we go out the door. At the end of the year the calendar goes into the file cabinet for future reference.

You will also need an easily available working record for details on each animal. Make a 3x5 card for each one and stick the bundle of cards in your pocket when going to the barn. In the upper left corner write the name, birth date, number, and sire and dam of the animal.

In the upper right corner write the year and potential mate for that season. In the lower right corner note if the animal is to be kept or sold and possible asking price. In the lower left note health details, such as dates of worming, TB and Bangs tests, and immunizations such as those for leptospirosis or enterotoxemia. Also note dates of injections of vitamins, antibiotics, etc.

Keep track of everything which may be important later, such as dates of illnesses or injuries. Then if you have a defective kid you may be able to pinpoint the cause. In the center of the card keep a running record of heat dates and buck services so that you will know kidding dates and can give appropriate care at the right time. If you wish to use artificial insemination your records need to be more detailed because A.I. has to be done at the correct point during the heat cycle to succeed. At the end of the kidding season file this bundle of cards and start new ones for the next year. You can transfer all this information to your permanent records in your

home computer if you are using one.

Goats are very seasonal. Most come into heat every 18-21 days from August through January and stay in heat from 18-60 hours. Average is 36. Some tropical breeds such as Nubians and Pygmies may come into heat almost year around, depending upon latitude.

Signs of heat begin with a pre-heat period when the animal is more active than usual, may become vocal, and may pester you for attention, but won't stand for the buck. This period lasts for about ten hours. Vaginal redness and a slight discharge may be noted, thick and cloudy in appearance. As heat increases, the discharge becomes clear and runny and the doe will stand for the buck. Midway in this time period is the best time for successful breeding. As the heat decreases, the discharge again thickens and clouds up and the doe will no longer stand. A.I. can be successful from the middle of the standing heat through the post-heat period, because hormone interactions cause the egg to be released about the time the doe will no longer stand. One easy way to handle service is to examine the herd in the morning and note all does in heat. Service those does the following evening. At that time, examine the herd and note all does coming into heat so they can be serviced in the morning.

USEFUL FACTS ABOUT GOATS:

AGE OF PUBERTY 4-8 months
(When breeding is possible) Breed by weight, not age. Doe should weigh 70 pounds (less for pygmies)

LENGTH OF HEAT: 60 hours, average. 2-3 days range. Double service increases rates of impregnation.

LENGTH OF CYCLE: 21 days, average. 15-24 days, range.

LENGTH OF GESTATION: 151 days, average. 145-157 days, range.

AVE NUMBER OF YOUNG: 2-3
average. 1-6 range.

Heat and Gestation dates cont....

Dry up milking goat two months before due date. Modify diet one month before freshening to decrease udder problems. Signs of impending birth include slight fall in temperature, loss of appetite, restless behavior, vocalizing, and displays of affection for you. The vulva will become reddish and begin to enlarge. Udder can fill a day before birth or fill suddenly just before freshening.

Look for signs of heat 21 days after the animal gives birth. An occasional goat comes into heat and could be bred during this time. If animal aborts she could also come into heat one cycle (21 days) later if you wish to rebreed her.

Buck goats reach puberty the same age as does, but are usually not used under the age of six months. A young buck can service one doe a day his first year, more than that when mature. He reaches maturity about the age of three and gets too old for breeding about the age of eight. Keep the sexes separated to avoid accidental breedings.

NORMAL HEALTH SIGNS FOR GOATS:

NORMAL RECTAL 103.8 degrees F, normal

TEMPERATURE: 101-105 degrees F, range

Length of hair coat, amount of activity, and ambient temperature that day can all cause variation in rectal temperature. To test, take the temperature of a healthy goat for comparison.

NORMAL PULSE RATE 75, normal
(PER MINUTE): 70-80, range

Pulse rate can be estimated at points on neck and limbs where large blood vessels are close to the surface.

NORMAL RESPIRATION: 15 normal
RATE (PER MINUTE) 12-10, range

Breathing rates can be estimated by watching rise and fall of flanks. Pulse and respiration rates are also affected by activity and ambient weather conditions.

Marked deviations from these averages indicate illness. Some breeds may have higher metabolic rates and show higher than normal average readings. Small deviations may be due

only to environment of exertion. Temperature increase may indicate infection (local wound or general illness). Subnormal temperatures may be due to conditions such as anemia, coccidiosis, or mineral imbalance. Consult your veterinarian for diagnosis and treatment. °

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HEAT AND GESTATION DATE CALCULATOR FOR GOATS

LENGTH OF CYCLE (between heats): 15-24 days, range, 21 days, average.
 LENGTH OF GESTATION: 145-157 days, range, 151 days, average.

JANUARY

IF DOE IN HEAT	RETURN TO HEAT	BRED (?) WILL KID
Jan. 1	Jan. 22	May 31
Jan. 2	Jan. 23	June 1
Jan. 3	Jan. 24	June 2
Jan. 4	Jan. 25	June 3
Jan. 5	Jan. 26	June 4
Jan. 6	Jan. 27	June 5
Jan. 7	Jan. 28	June 6
Jan. 8	Jan. 29	June 7
Jan. 9	Jan. 30	June 8
Jan. 10	Jan. 31	June 9
Jan. 11	Feb. 1	June 10
Jan. 12	Feb. 2	June 11
Jan. 13	Feb. 3	June 12
Jan. 14	Feb. 4	June 13
Jan. 15	Feb. 5	June 14
Jan. 16	Feb. 6	June 15
Jan. 17	Feb. 7	June 16
Jan. 18	Feb. 8	June 17
Jan. 19	Feb. 9	June 18
Jan. 20	Feb. 10	June 19
Jan. 21	Feb. 11	June 20
Jan. 22	Feb. 12	June 21
Jan. 23	Feb. 13	June 22
Jan. 24	Feb. 14	June 23
Jan. 25	Feb. 15	June 24
Jan. 26	Feb. 16	June 25
Jan. 27	Feb. 17	June 26
Jan. 28	Feb. 18	June 27
Jan. 29	Feb. 19	June 28
Jan. 30	Feb. 20	June 29
Jan. 31	Feb. 21	June 30

FEBRUARY

IF DOE IN HEAT	RETURN TO HEAT	BRED (?) WILL KID
Feb. 1	Feb. 22	July 1
Feb. 2	Feb. 23	July 2
Feb. 3	Feb. 24	July 3
Feb. 4	Feb. 25	July 4
Feb. 5	Feb. 26	July 5
Feb. 6	Feb. 27	July 6
Feb. 7	Feb. 28	July 7
Feb. 8	Mar. 1	July 8
Feb. 9	Mar. 2	July 9
Feb. 10	Mar. 3	July 10
Feb. 11	Mar. 4	July 11
Feb. 12	Mar. 5	July 12
Feb. 13	Mar. 6	July 13
Feb. 14	Mar. 7	July 14
Feb. 15	Mar. 8	July 15
Feb. 16	Mar. 9	July 16
Feb. 17	Mar. 10	July 17
Feb. 18	Mar. 11	July 18
Feb. 19	Mar. 12	July 19
Feb. 20	Mar. 13	July 20
Feb. 21	Mar. 14	July 21
Feb. 22	Mar. 15	July 22
Feb. 23	Mar. 16	July 23
Feb. 24	Mar. 17	July 24
Feb. 25	Mar. 18	July 25
Feb. 26	Mar. 19	July 26
Feb. 27	Mar. 20	July 27
Feb. 28	Mar. 21	July 28
Feb. 29	Mar. 22	July 29

MARCH

IF DOE IN HEAT	RETURN TO HEAT	BRED (?) WILL KID
Mar. 1	Mar. 22	July 29
Mar. 2	Mar. 23	July 30
Mar. 3	Mar. 24	July 31
Mar. 4	Mar. 25	Aug. 1
Mar. 5	Mar. 26	Aug. 2
Mar. 6	Mar. 27	Aug. 3
Mar. 7	Mar. 28	Aug. 4
Mar. 8	Mar. 29	Aug. 5
Mar. 9	Mar. 30	Aug. 6
Mar. 10	Mar. 31	Aug. 7
Mar. 11	Apr. 1	Aug. 8
Mar. 12	Apr. 2	Aug. 9
Mar. 13	Apr. 3	Aug. 10
Mar. 14	Apr. 4	Aug. 11
Mar. 15	Apr. 5	Aug. 12
Mar. 16	Apr. 6	Aug. 13
Mar. 17	Apr. 7	Aug. 14
Mar. 18	Apr. 8	Aug. 15
Mar. 19	Apr. 9	Aug. 16
Mar. 20	Apr. 10	Aug. 17
Mar. 21	Apr. 11	Aug. 18
Mar. 22	Apr. 12	Aug. 19
Mar. 23	Apr. 13	Aug. 20
Mar. 24	Apr. 14	Aug. 21
Mar. 25	Apr. 15	Aug. 22
Mar. 26	Apr. 16	Aug. 23
Mar. 27	Apr. 17	Aug. 24
Mar. 28	Apr. 18	Aug. 25
Mar. 29	Apr. 19	Aug. 26
Mar. 30	Apr. 20	Aug. 27

APRIL

IF DOE IN HEAT	RETURN TO HEAT	BRED (?) WILL KID
Apr. 1	Apr. 22	Aug. 29
Apr. 2	Apr. 23	Aug. 30
Apr. 3	Apr. 24	Aug. 31
Apr. 4	Apr. 25	Sep. 1
Apr. 5	Apr. 26	Sep. 2
Apr. 6	Apr. 27	Sep. 3
Apr. 7	Apr. 28	Sep. 4
Apr. 8	Apr. 29	Sep. 5
Apr. 9	Apr. 30	Sep. 6
Apr. 10	May 1	Sep. 7
Apr. 11	May 2	Sep. 8
Apr. 12	May 3	Sep. 9
Apr. 13	May 4	Sep. 10
Apr. 14	May 5	Sep. 11
Apr. 15	May 6	Sep. 12
Apr. 16	May 7	Sep. 13
Apr. 17	May 8	Sep. 14
Apr. 18	May 9	Sep. 15
Apr. 19	May 10	Sep. 16
Apr. 20	May 11	Sep. 17
Apr. 21	May 12	Sep. 18
Apr. 22	May 13	Sep. 19
Apr. 23	May 14	Sep. 20
Apr. 24	May 15	Sep. 21
Apr. 25	May 16	Sep. 22
Apr. 26	May 17	Sep. 23
Apr. 27	May 18	Sep. 24
Apr. 28	May 19	Sep. 25
Apr. 29	May 20	Sep. 26
Apr. 30	May 21	Sep. 27

Leap year: push all
 dates listed up one day.

MAY

IF DOE IN HEAT	RETURN TO HEAT	BRED (?) WILL KID
May 1	May 22	Sep. 28
May 2	May 23	Sep. 29
May 3	May 24	Sep. 30
May 4	May 25	Oct. 1
May 5	May 26	Oct. 2
May 6	May 27	Oct. 3
May 7	May 28	Oct. 4
May 8	May 29	Oct. 5
May 9	May 30	Oct. 6
May 10	May 31	Oct. 7
May 11	June 1	Oct. 8
May 12	June 2	Oct. 9
May 13	June 3	Oct. 10
May 14	June 4	Oct. 11
May 15	June 5	Oct. 12
May 16	June 6	Oct. 13
May 17	June 7	Oct. 14
May 18	June 8	Oct. 15
May 19	June 9	Oct. 16
May 20	June 10	Oct. 17
May 21	June 11	Oct. 18
May 22	June 12	Oct. 19
May 23	June 13	Oct. 20
May 24	June 14	Oct. 21
May 25	June 15	Oct. 22
May 26	June 16	Oct. 23
May 27	June 17	Oct. 24
May 28	June 18	Oct. 25
May 29	June 19	Oct. 26
May 30	June 20	Oct. 27
May 31	June 21	Oct. 28

JUNE

IF DOE IN HEAT	RETURN TO HEAT	BRED (?) WILL KID
June 1	June 22	Oct. 28
June 2	June 23	Oct. 29
June 3	June 24	Oct. 30
June 4	June 25	Oct. 31
June 5	June 26	Nov. 1
June 6	June 27	Nov. 2
June 7	June 28	Nov. 3
June 8	June 29	Nov. 4
June 9	June 30	Nov. 5
June 10	July 1	Nov. 6
June 11	July 2	Nov. 7
June 12	July 3	Nov. 8
June 13	July 4	Nov. 9
June 14	July 5	Nov. 10
June 15	July 6	Nov. 11
June 16	July 7	Nov. 12
June 17	July 8	Nov. 13
June 18	July 9	Nov. 14
June 19	July 10	Nov. 15
June 20	July 11	Nov. 16
June 21	July 12	Nov. 17
June 22	July 13	Nov. 18
June 23	July 14	Nov. 19
June 24	July 15	Nov. 20
June 25	July 16	Nov. 21
June 26	July 17	Nov. 22
June 27	July 18	Nov. 23
June 28	July 19	Nov. 24
June 29	July 20	Nov. 25
June 30	July 21	Nov. 26

JULY

IF DOE IN HEAT	RETURN TO HEAT	BRED (?) WILL KID
July 1	July 22	Nov. 27
July 2	July 23	Nov. 28
July 3	July 24	Nov. 29
July 4	July 25	Nov. 30
July 5	July 26	Dec. 1
July 6	July 27	Dec. 2
July 7	July 28	Dec. 3
July 8	July 29	Dec. 4
July 9	July 30	Dec. 5
July 10	July 31	Dec. 6
July 11	Aug. 1	Dec. 7
July 12	Aug. 2	Dec. 8
July 13	Aug. 3	Dec. 9
July 14	Aug. 4	Dec. 10
July 15	Aug. 5	Dec. 11
July 16	Aug. 6	Dec. 12
July 17	Aug. 7	Dec. 13
July 18	Aug. 8	Dec. 14
July 19	Aug. 9	Dec. 15
July 20	Aug. 10	Dec. 16
July 21	Aug. 11	Dec. 17
July 22	Aug. 12	Dec. 18
July 23	Aug. 13	Dec. 19
July 24	Aug. 14	Dec. 20
July 25	Aug. 15	Dec. 21
July 26	Aug. 16	Dec. 22
July 27	Aug. 17	Dec. 23
July 28	Aug. 18	Dec. 24
July 29	Aug. 19	Dec. 25
July 30	Aug. 20	Dec. 26
July 31	Aug. 21	Dec. 27

AUGUST

IF DOE IN HEAT	RETURN TO HEAT	BRED (?) WILL KID
Aug. 1	Aug. 22	Dec. 28
Aug. 2	Aug. 23	Dec. 29
Aug. 3	Aug. 24	Dec. 30
Aug. 4	Aug. 25	Dec. 31
Aug. 5	Aug. 26	Jan. 1
Aug. 6	Aug. 27	Jan. 2
Aug. 7	Aug. 28	Jan. 3
Aug. 8	Aug. 29	Jan. 4
Aug. 9	Aug. 30	Jan. 5
Aug. 10	Aug. 31	Jan. 6
Aug. 11	Sep. 1	Jan. 7
Aug. 12	Sep. 2	Jan. 8
Aug. 13	Sep. 3	Jan. 9
Aug. 14	Sep. 4	Jan. 10
Aug. 15	Sep. 5	Jan. 11
Aug. 16	Sep. 6	Jan. 12
Aug. 17	Sep. 7	Jan. 13
Aug. 18	Sep. 8	Jan. 14
Aug. 19	Sep. 9	Jan. 15
Aug. 20	Sep. 10	Jan. 16
Aug. 21	Sep. 11	Jan. 17
Aug. 22	Sep. 12	Jan. 18
Aug. 23	Sep. 13	Jan. 19
Aug. 24	Sep. 14	Jan. 20
Aug. 25	Sep. 15	Jan. 21
Aug. 26	Sep. 16	Jan. 22
Aug. 27	Sep. 17	Jan. 23
Aug. 28	Sep. 18	Jan. 24
Aug. 29	Sep. 19	Jan. 25
Aug. 30	Sep. 20	Jan. 26
Aug. 31	Sep. 21	Jan. 27

SEPTEMBER

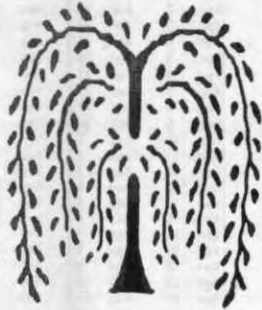
IF DOE IN HEAT	RETURN TO HEAT	BRED (?) WILL KID
Sep. 1	Sep. 22	Jan. 28
Sep. 2	Sep. 23	Jan. 29
Sep. 3	Sep. 24	Jan. 30
Sep. 4	Sep. 25	Jan. 31
Sep. 5	Sep. 26	Feb. 1
Sep. 6	Sep. 27	Feb. 2
Sep. 7	Sep. 28	Feb. 3
Sep. 8	Sep. 29	Feb. 4
Sep. 9	Sep. 30	Feb. 5
Sep. 10	Oct. 1	Feb. 6
Sep. 11	Oct. 2	Feb. 7
Sep. 12	Oct. 3	Feb. 8
Sep. 13	Oct. 4	Feb. 9
Sep. 14	Oct. 5	Feb. 10
Sep. 15	Oct. 6	Feb. 11
Sep. 16	Oct. 7	Feb. 12
Sep. 17	Oct. 8	Feb. 13
Sep. 18	Oct. 9	Feb. 14
Sep. 19	Oct. 10	Feb. 15
Sep. 20	Oct. 11	Feb. 16
Sep. 21	Oct. 12	Feb. 17
Sep. 22	Oct. 13	Feb. 18
Sep. 23	Oct. 14	Feb. 19
Sep. 24	Oct. 15	Feb. 20
Sep. 25	Oct. 16	Feb. 21
Sep. 26	Oct. 17	Feb. 22
Sep. 27	Oct. 18	Feb. 23
Sep. 28	Oct. 19	Feb. 24
Sep. 29	Oct. 20	Feb. 25
Sep. 30	Oct. 21	Feb. 26

OCTOBER

IF DOE IN HEAT	RETURN TO HEAT	BRED (?) WILL KID
Oct. 1	Oct. 22	Feb. 27
Oct. 2	Oct. 23	Feb. 28
Oct. 3	Oct. 24	Mar. 1
Oct. 4	Oct. 25	Mar. 2
Oct. 5	Oct. 26	Mar. 3
Oct. 6	Oct. 27	Mar. 4
Oct. 7	Oct. 28	Mar. 5
Oct. 8	Oct. 29	Mar. 6
Oct. 9	Oct. 30	Mar. 7
Oct. 10	Oct. 31	Mar. 8
Oct. 11	Nov. 1	Mar. 9
Oct. 12	Nov. 2	Mar. 10
Oct. 13	Nov. 3	Mar. 11
Oct. 14	Nov. 4	Mar. 12
Oct. 15	Nov. 5	Mar. 13
Oct. 16	Nov. 6	Mar. 14
Oct. 17	Nov. 7	Mar. 15
Oct. 18	Nov. 8	Mar. 16
Oct. 19	Nov. 9	Mar. 17
Oct. 20	Nov. 10	Mar. 18
Oct. 21	Nov. 11	Mar. 19
Oct. 22	Nov. 12	Mar. 20
Oct. 23	Nov. 13	Mar. 21
Oct. 24	Nov. 14	Mar. 22
Oct. 25	Nov. 15	Mar. 23
Oct. 26	Nov. 16	Mar. 24
Oct. 27	Nov. 17	Mar. 25
Oct. 28	Nov. 18	Mar. 26
Oct. 29	Nov. 19	Mar. 27
Oct. 30	Nov. 20	Mar. 28
Oct. 31	Nov. 21	Mar. 29

NOVEMBER

IF DOE IN HEAT	RETURN TO HEAT	BRED (?) WILL KID
Nov. 1	Nov. 22	Mar. 30
Nov. 2	Nov. 23	Mar. 31
Nov. 3	Nov. 24	Apr. 1
Nov. 4	Nov. 25	Apr. 2
Nov. 5	Nov. 26	Apr. 3
Nov. 6	Nov. 27	Apr. 4
Nov. 7	Nov. 28	Apr. 5
Nov. 8	Nov. 29	Apr. 6
Nov. 9	Nov. 30	Apr. 7
Nov. 10	Dec. 1	Apr. 8
Nov. 11	Dec. 2	Apr. 9
Nov. 12	Dec. 3	Apr. 10
Nov. 13	Dec. 4	Apr. 11
Nov. 14	Dec. 5	Apr. 12
Nov. 15	Dec. 6	Apr. 13
Nov. 16	Dec. 7	Apr. 14
Nov. 17	Dec. 8	Apr. 15
Nov. 18	Dec. 9	Apr. 16
Nov. 19	Dec. 10	Apr. 17
Nov. 20	Dec. 11	Apr. 18
Nov. 21	Dec. 12	Apr. 19
Nov. 22	Dec. 13	Apr. 20
Nov. 23	Dec. 14	Apr. 21
Nov. 24	Dec. 15	Apr. 22
Nov. 25	Dec. 16	Apr. 23
Nov. 26	Dec. 17	Apr. 23
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Nov. 28	Dec. 19	Apr. 25
Nov. 29	Dec. 20	Apr. 26
Nov. 30	Dec. 21	Apr. 27



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CASHMERE TERMINOLOGY

BARREN: Adult doe incapable of conception after every opportunity.

BREEDING VALUE: The breeding value of an individual is determined by the genes it transfers to its offspring. It is the additive (average effect of the genes in the combinations in which they can appear within the population from which its mates are drawn.) The relative breeding value of an individual is expressed as a percentage deviation from the average phenotypic value of the population.

CARD: Is the machine used to perform the carding process.

CARDING: Is the process of reduction of an entangled or matted mass of fibers to a filmy web by working successively between grouped units of closely spaced cylindrical and differentially moving surfaces clothed with sharp points. This process is preparatory to spinning and produces a condensed sliver for woolen spinning or a sliver for combing.

COARSE: A) Cashmere which measures, M.F.D. over 19 microns. B) A goat which is thick or heavy.

COMBING: A) removing cashmere from goats during shedding with a hand held rake or comb. Note: combing is the traditional method of harvest in Asia. B) the process of straightening and parallelizing fibers and removing short fibre and impurities by using a comb or combs assisted by knives, brushes and rollers.

DENSITY (of Cashmere) The number of secondary follicles, and hence fibers per unit area of skin. (usually one square millimeter).

DOE: a female goat

EAR MARK: A distinctive mark clipped out of the ear of a goat.

FELT: A textile (fabric) characterized by the densely matted condition of most or all of the fibers of which it is composed.

GESTATION: The period of pregnancy; average in goats approximately one hundred and fifty days (five months).

GREASY FLEECE: The total fleece in it's raw state.

HISTOGRAM: A graph which illustrates the frequency, magnitude and spread of fibre diameters in a mean test.

KIDFLEECE: The fleece shorn from a goat before it has two permanent incisors (front teeth).

OESTRUS: The period during which a doe will accept a buck's service.



Exhibiting Cashmere goats at the annual Husker Harvest Days Fall Farm Show held in Grand Island, Nebraska was Michelle Hartmann and Marvin Hartmann of Cornhusker Cashmere.



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and the U.S. Cashmere Industry

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7 month old Buckling - Tasmanian Bred,
U.S.A. Born \$2,500.00 each. 1 brown, 1 black,
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Bucks are Sold. Approximately 20 bred does
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GORGEOUS GEORGE - Pictured here in the
winter of 1989-90 at 18 months old. Yearling
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NEXT IMPORT ARRIVES FEBRUARY 8, 1990

*****BON APPETIT*****

CHEVON CASSEROLE WITH BROAD BEANS AND FRESH MINT

Reprinted with kind permission from
Australian GoatFarmer, Vol 2, No. 5

Ingredients:

2 kg of goat meat, shoulder or loin, diced
3 large sliced onions
1 cup dry vermouth
Carton of cream
1 teaspoon of dry mustard
Salt and Pepper to taste
2 bunches of fresh mint
3 cups of freshly shelled broad beans
1/4 cup of oil

Method:

Heat the oil in a heavy pot or casserole, cook the onions until transparent. Add the seasoned kid, half the mint, plus the Vermouth and simmer for 10 minutes. Add the cream but do not stir; leave to simmer on low heat for 1 1/2 hours.

Cook the beans, make a paste of the mustard using the casserole juices and add both to the pot, shred the remaining mint leaves and sprinkle them over the meat, check the seasoning and serve with lashings of mashed potatoes.

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