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SOCIETY**

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Dr. Randall Cutlip Retires

— *Noted USDA Researcher* —

Randall C. Cutlip, longtime Research Leader of the Respiratory and Neurologic Disease Research Unit at USDA's National Animal Disease Center in Ames, Iowa, retired on January 1, 2000. Widely known among sheep producers for his pioneering work with OPP, Dr. Cutlip was more recently involved in research of transmissible spongiform encephalopathies, including scrapie and BSE.

Though the respiratory form of OPP was first reported in Montana more than 75 years ago, it was not until Cutlip's research — beginning in the mid '70s — that producers finally had an option beyond just "culling the lungers." Dr. Cutlip and his colleagues standardized the agar gel immunodiffusion blood test (AGID), developed earlier in Holland, which made it possible to detect infected animals before symptoms appear.

After further research with the new test, Cutlip began an experimental program in which sheep producers interested in eradicating OPP from their flocks — and willing to follow his protocol — submitted blood serum for AGID testing. That program continued through the '80s, ending when the test was licensed by USDA in 1990. This important diagnostic tool then became widely available through state laboratories and schools of veterinary medicine.

The OPP Society is honored to have Dr. Randall Cutlip as an active member, always willing to share his insight and answer our questions. We wish for him and his wife, Margaret, continued success and an enjoyable retirement.

Dr. Marie Bulgin's Presentation Well Received

— **OPP AWARENESS UP** —

Thanks to Dr. Marie Bulgin's talk at the Wisconsin Sheep Industry Conference last April, and Bob Black's pre-conference newsletter publicity, the OPP Concerned Sheep Breeders Society entered its 10th year with a running start. Secretary Annette Bader reports a steady stream of information requests — and new members (see enclosed update) — ever since the conference in Oconomowoc.

Dr. Bulgin, of the University of Idaho, opened with a talk on ewe lactation problems and lamb starvation. She caught the audience's attention with a photograph that had once graced the cover of a major sheep publication. Though an attractive photo at first glance — a range ewe standing watch over her newborn lamb — a closer look revealed a dam so emaciated that the lamb most likely starved to death. Though in full fleece, the ewe's spine and hipbones were clearly discernible. One listener recalled hearing oldtimers refer to such a ewe as having "fishback."

While a severely malnourished ewe will not produce adequate milk, mastitis is another cause of lamb starvation. Dr. Bulgin explained the difference between common bacterial mastitis and the "hardbag" mastitis common to OPP. She provided an excellent graphic to illustrate how OPP-caused fibrosis in the udder can severely restrict the amount of nourishment available to the lamb, even in an udder that appears to be full of milk. This was a revelation to several in the audience.

Moving on to her OPP presentation, Dr. Bulgin noted that while most producers are aware of the pneumonia form of OPP — "lunger ewes" — other manifestations of the virus have only recently been discovered (1984 and later) and are not widely known. In addition to the lungs, she explained that OPP can affect the udder as mentioned above; the joints, causing swollen knees and hocks; and the brain, causing rear limb

... *Bulgin, continued on next page*

OPP CONCERNED SHEEP BREEDERS SOCIETY

Recap: April 9, 1999 Annual Meeting, Oconomowoc, WI

Things started off with a bang when we realized that the crumbs and empty pitchers in the back of the room were all that remained of our refreshments (delivered early and no doubt appreciated by those in the previous session). The upside was that we didn't have to pay for the cookies and drinks.

With our secretary recently resigned, the business session was short and informal. We announced the appointment of Annette Bader to replace Mary Jarvis, and welcomed Dr. Bob Leder as he returned to the board. There being no other nominations, Brian Magee continues as a director. A brief financial overview was presented. It was noted that we are in the black but spending money as fast as it comes in.

Presentations earlier in the day by veterinarians Dr. Marie Bulgin and Dr. Cleon Kimberling helped to generate interest in our meeting. With so many new faces in the room and limited time available — we gave up one of our two scheduled hours to accommodate the programming — the meeting soon morphed into a general information session on OPP.

Bill Duffield then addressed the group, describing his experience as the first producer to enroll in Ontario's new health certification program (see related article). Dr. Paula Menzies, of the University of Guelph, had faxed the final draft of that program to us the day before our meeting. Copies of the Ontario draft, as well as numerous other papers, were available for those in attendance.

A short discussion followed re: how the Society should address the topic of breed susceptibility to the OPP virus, with concern voiced that we take special care not to divert attention from the fact that differences do exist between breeds. It was also suggested that the Society consider distribution of basic literature on other chronic sheep health concerns in addition to OPP (see related articles).

Following a short question/answer period, many stayed on to visit. All in all it was a good session in the midst of a marathon day of presentations on various health issues.

Bulgin, continued from cover . . .

weakness and weight loss with scrapie-like symptoms. Bulgin feels that the biggest economic impact of OPP is probably due to hardbag mastitis and the resulting need for premature culling of ewes. She further pointed out that OPP can negatively impact milk production levels for the two lactations immediately preceding development of hardbag mastitis.

Diagnosis by blood testing for viral antibodies was discussed, along with methods for eradication and/or control of OPP. Dr. Bulgin recommends using the USDA licensed AGID test offered by laboratories associated with schools of veterinary medicine. She stressed the importance of careful record keeping and positive identification of individual animals.

We sincerely appreciate the excellent publicity given to us by Bob Black and the conference committee, as well as Dr. Marie Bulgin's willingness to fit Wisconsin into her busy schedule. Due in part to their generosity, the OPP Society is on a roll.

GREEN DOT ON YOUR ADDRESS LABEL?

As an enrolled producer in the VSFCP, we know you're concerned about ovine health issues. We hope you enjoy this newsletter and will consider joining us in our mission to build awareness and learn from each other.

SOCIETY TO DISTRIBUTE INFO ON OTHER ISSUES

An acute need for producer-oriented information on health issues other than OPP was a recurring theme during last year's Wisconsin Conference, and all eyes turned toward us. To no one's surprise, this subject (which has been mentioned numerous times over the years) was raised again at our annual meeting and your board agrees that it's time to act.

Without shifting our focus from OPP, and with a distribution system already in place, it will be relatively easy for us to make information available on other chronic health issues in addition to OPP — such as scrapie, caseous lymphadenitis, footrot, and Johnes — as well as some basics for beginners (think Mary Gessert's excellent articles in *The Shepherd*).

Though our OPP literature will continue to be distributed free of charge, other information will be made available at cost to our members (double cost for non-members). We'll offer introductory pieces as well as more technical papers for members to share with their veterinarians. An order list is now being assembled and will be included with the next OPP newsletter as well as with every info packet that Annette mails out.

BULGIN TALK AVAILABLE ON VIDEO

Couldn't make the Wisconsin Conference last year? Thanks to Kathy Lavengood, who turned up with a camcorder, members may order a video of Dr. Marie Bulgin's OPP presentation for just \$10 postpaid (\$15 non-members). Be forewarned — this was taped in the dark and is not a professional production. The audio, however, is excellent and you do get an occasional glimpse of Marie. The Society is grateful to Dr. Bulgin, who graciously agreed to be taped and declined royalties. The video may be ordered from OPP Secretary Annette Bader.

BREED ASSOCIATIONS AND THE OPP SOCIETY

We welcome the Icelandic Sheep Breeders of North America as a new association member and happily announce the return of the American Border Leicester Association. These join the Finnsheep and Clun Forest groups, both of which have been with us since the beginning.

Breed association dues are \$10, the same as individuals. Groups wishing to assist further are invited to donate 2¢ per animal registered in the previous year. All breed association monies received supplement our limited advertising budget.

Many of you are leaders within your respective breed associations and we know that a lot of good discussion is being generated. A few have also placed OPP Society ads in their respective breed newsletters. Your help is much appreciated!

OPP SOCIETY ANNUAL MEETING
Wisconsin Sheep Industry Conference
APRIL 8 & 9, 2000 (Saturday/Sunday)

This year's Annual Meeting of the OPP Concerned Sheep Breeders Society will again be held in conjunction with the Wisconsin Sheep Industry Conference. We hope you can join us from 3-5 p.m. on Saturday, April 8th, at the Chula Vista Resort in the beautiful Wisconsin Dells area.

Heading up the Conference will be Dr. Joe Rook of Michigan State University (production system design, feedlot health and mortality, grazing turnips and rape); Guy Flora, *The Shepherd* editor, ASI secretary/treasurer, Ohio producer (201 funds arriving in your mailbox?); Larry & Deb Mrozinski, nutritionist, showing judge, Indiana producer (showing ethics and tomorrow's sheep industry, feeding management); and Mary Falk of LoveTree Farm, organic lamb and cheese operation in Wisconsin (developing a market, sustainable production).

And that's only a beginning! Numerous other speakers include OPP Society directors/veterinarians/producers Bob Leder (feeder lamb production), and Holly Neaton (flock biosecurity). This is the nation's largest producer symposium, and a real bargain at only \$40 (\$45 family). For a complete program and registration information, contact conference chair, Bob Black, at 920-623-3536 (phone/fax) or rblack@powercom.net

The Chula Vista Resort is located 50 minutes north of Madison (2 hours from Milwaukee; 3 hours from Chicago; 3 1/2 hours from Minneapolis/St. Paul). Make your reservations today. Call 1-800-388-4782, or e-mail: chula@dellsnet.com
 Web site <http://www.wisdells.com/chulavista>

BREED SUSCEPTIBILITY DISCUSSION UNDERWAY

A quick survey of OPP Society membership verifies that *all* breeds are susceptible to infection with the virus causing OPP (30 of more than 40 breeds listed in our directory report at least some level of infection, either past or present). While accurate, the labeling of some breeds as "more susceptible" naturally puts many on the defensive, and the ensuing denial can cause serious repercussions among breed groups. Also, since susceptibility to *infection* is not always differentiated from susceptibility to clinical *disease*, another unfortunate consequence is the false sense of security felt by some when their breed is *not* included on the "susceptible" list.

The OPP Society board is in the process of reviewing the available literature on breed differences and would also like to hear from more of our members — we already have data from a few — especially those of you with test results and records for flocks consisting of multiple pure breeds. We hope to gather enough information, from the field as well as from the literature, to come up with a convincing though non-threatening position paper on breed susceptibility relative to OPP. Hopefully, this will be a useful tool in helping breed associations work their way through the OPP issue.

We hope you will join in this discussion at Wisconsin or Maryland. If you can't make either meeting, please let us hear from you by mail, phone or e-mail. Your input is essential!

OPENING ON BOARD OF DIRECTORS

Have you ever considered serving on the OPP Society Board? We're always on the lookout for good people willing to work and this is one place where experience with OPP is a plus! Contrary to what you may perceive, residence in Minnesota or Wisconsin is *not* a prerequisite — we'd love to see more regions represented. Our by-laws do require, however, that one be a member in good standing for a minimum of two years prior to running for election.

There is currently an open slot on the Board. If you would be interested in serving, either now or in the future, please contact any director. We look forward to hearing from you!

MARYLAND SHEEP & WOOL FESTIVAL

OPP Society Returning in 2000

Last May, at the suggestion of new member Bev Pearsall, the OPP Society traveled to the Maryland Sheep & Wool Festival where Dr. Will Hueston, Associate Dean of the Virginia-Maryland Regional College of Veterinary Medicine, made our literature available during his seminar on sheep diseases. On the following day, thanks to excellent advance promotion by Bev and her husband, Sherm, our own presentation was met with enthusiasm by a standing-room-only crowd. The group had lots of questions and we were inundated after the session as new members signed on and others gathered OPP informational materials to take home.

We'll be at Maryland again this year and look forward to meeting more of our East Coast members. The OPP Society is scheduled from 4-5 p.m. on Saturday, May 6th, in the new barn just opposite the main exhibition hall. Please join us — and bring a friend!

OPP DIRECTOR HOLLY NEATON RECOGNIZED

On Friday, February 4th, 2000, Dr. Holly Neaton was awarded the Distinguished Service Award from the Minnesota Veterinary Medical Association. This award is given to one veterinarian yearly in recognition of outstanding service and leadership in the profession and in the community. Dr. Neaton is a past president of the MVMA, has served on numerous committees within the organization, and most recently planned the small ruminant section of the annual meeting, where she received the award. She has been an associate professor of large animal clinical sciences with the University of Minnesota, and has been a mentor to countless veterinary students.

Dr. Neaton now holds an industry position, having sold her partnership in a mixed animal practice after 19 years in the field. She and her husband Paul, along with their three sons, farm land that has been in Paul's family for over 100 years. In addition to her professional service, Holly is a frequent volunteer at school, their church, and in community events.

Thanks to Dr. Joni C. Scheffel, Watertown Veterinary Clinic, for submitting the above press release.

Producers Start Down The Path Toward A NATIONAL FLOCK HEALTH VERIFICATION PROGRAM

by Mary E. Gessert, DVM

Sheep producers from across the Midwest attended a planning session moderated by Dr. Cleon Kimberling and held at the Wisconsin Sheep Conference last April. The topic was the development of a voluntary national program for the verification of flock health status. Producers have been searching for a way of identifying flocks from which to purchase healthy breeding stock. This program will standardize the way in which participating flocks are categorized for disease risk and allow producers to match replacement animals with the existing flock status.

The Wisconsin Sheep Industry Conference chairman, Bob Black, kindly agreed to host this planning session in conjunction with the conference. The Wisconsin Conference has always emphasized producer input and education, which are also major components of the health program.

The obvious leader for the program, Dr. Cleon Kimberling is the state extension veterinarian for Colorado and immediate past-chair of the sheep committee of the United States Animal Health Association. Dr. Kimberling has been a proponent of economic efficiency through improved flock health for more than thirty years. He headed up the development of a sheep flock health program by the health committee of the American Sheep Industry Association in the early nineties. While the association chose not to back the program at that time, enough producers were interested that he has agreed to continue to spearhead the effort.

The two-hour session began with the administration of a sheep flock health pretest. The questionnaire asked producers to consider the effects of disease in their own flocks. For example, one section addressed a common problem in adult animals: *"The thin ewe syndrome can have many different causes. How many ewes do you cull yearly for this problem? Which causes have been identified in your sheep?"* The topics addressed included viral and bacterial diseases as well as management issues such as parasite control and neonatal mortality. The information was later used in a breakout session to prioritize flock health problems.

The group, numbering approximately forty attendees, was then divided into smaller committees and assigned topics to consider. Categories included the organization of program participation levels, which diseases to target, how to fund the program, and methods of education for interested producers. The committees then reported back to the group on their considerations. Plenty of spirited discussion and debate resulted in the rapid passage of the scheduled two hours with much work left to do. Dr. Kimberling ended the session with a challenge to sheep producers to take up where the session left off in order to develop a program that will suit the needs of the producers. He graciously offered to act as an information clearing house using his Colorado State University web page: http://www.cvmbbs.colostate.edu/dlab/webdoc/ext_vet/cleon

Dr. Kimberling may also be reached at 970-491-1281 (phone), 970-491-0320 (fax), or by e-mail: ckimberl@vth.colostate.edu. Interested sheep producers may also contact Judy Lewman at 612-472-4524 (e-mail: jl6250@aol.com), or Mary E. Gessert DVM at 920-795-4835 (e-mail: mgessert@thesurf.com).

ONTARIO SHEEP HEALTH PROGRAM

by Bill Duffield, OSHP Producer #001

The Society asked me to write about what is going on in Ontario. The Ontario Sheep Health Program (OSHP) is up and running. I know there are already over 14 farms on this program. The yearly cost of being on the program is \$75. A person must have Level 1 certified by the Ontario Sheep Marketing Agency (OSMA) before going to Level 2.

Level 1 has four main sections which are *Health Management, Quality Assurance, Biosecurity, and Flock Productivity*. All four of these are checked out and each page is signed by a veterinarian. This took three hours and cost me \$135 for the veterinarian's time and included a complete sheep check.

Some questions to give you an idea: *Do sheep travel to shows and displays? New genetics by AI only? Is water dispensed from bowls, or elevated troughs, or nipples? Do you routinely change needles between injections? Questions on lambing. Do you have a chain to stop people from driving right up to the barn?* There are lots of questions on drugs. Thank goodness I had EweByte in order to completely fill out everything in the Flock Productivity section, and that was good because I learned more about the EweByte program.

Okay: the veterinarian keeps a copy, the breeder keeps a copy, and certain parts go to OSMA. I am still waiting to see if I am certified. (All the information went into OSMA in August of 1999.) This is a yearly visit by the veterinarian, but should be quicker next time. Some items I did so as to comply are coveralls for visitors, plastic boot covers, a new small refrigerator for sheep drugs, a list of the drugs I have on hand with all the information on the drugs.

Level 2 is *Low Risk for Maedi Visna* (OPP). This section I haven't been able to start but appears to take two years to become Low Risk. Since I've been waiting to find out my results on Level 1, I had a veterinarian draw samples on 10% of my flock so I can continue keeping data on Codan Suffolks. I realize when I start this program that all the sheep and lambs over 180 days must be tested twice.

There will be classes on the use of drugs, proper injection sites, etc. for sheep. This is similar to the pesticide course, so if you don't pass you cannot administer or buy drugs for sheep. They say we must comply by 2003 but the course is not yet finalized.

DO WE KNOW YOUR E-MAIL ADDRESS?

Do you have an e-mail address we don't know about? If so, please remember to include it when you return the enclosed membership update. And if you aren't online yet, we hope you'll consider it soon. Occasionally the Society will send e-mail notifications to members. In addition, many of our informational materials — for OPP as well as for other sheep health issues — are available free of charge over the Internet.

No computer at home? Check with your local library. Many offer e-mail and Internet access. Too old to learn new tricks? Think again. Our favorite hacker purchased his first 'puter at age 85 and recently updated to a faster model at 88!

TESTING LARGER FLOCKS — OK TO POOL SAMPLES?

No, says Colorado veterinarian Dr. Joan Bowen. The following dialogue appeared on the AASRP-List (American Ass'n of Small Ruminant Practitioners) and is printed with permission.

Question sent to the list:

I have a client who has several hundred ewes. She would like to bleed all of her older (3 years and up) ewes (100 head or so), then mix and submit serum for AGID testing from groups of 10 sheep. This way she would only have to pay for testing 10 samples instead of 100. She felt that, since she could collect the blood herself, this would be an inexpensive way of screening the entire mature ewe population each year. Could someone please tell me if this would give accurate results? For example, if one sheep in a group of 10 was positive for OPP, would mixing serum with 9 others dilute the sample so much that the batch would show up as a negative test result?

Dr. Bowen's response:

Regarding pooling samples for AGID testing: I contacted Jane Carman at the CSU Veterinary Diagnostic Laboratory for her opinion. Jane runs literally thousands of OPP AGIDs each year so, although she is not a veterinarian, she has more experience with this sensitivity on a single sample, and she felt that there would likely be cross reactions between the antibodies in the variety of samples when one mixes samples from 10 animals. From my perspective, I can't imagine what good one would be doing to pool samples from several animals for a disease in which the positive animal is permanently infected.

Due to the method of transmission, the owner might go through the flock and select one or two matriarchs from each blood line, any sheep that are thin without reason, those that lag behind when the flock is moved, or any with hard udders. I would rather see the owner select 10 animals for logical reasons than pool samples and dilute out any positives. At \$5 or less per sample, the owner could test at least a third of the flock for just the price of a few lambs. Since there has been good research to demonstrate that OPP positive sheep are less productive, and USMARC research indicates that positive sheep cost the US flock \$11 per head per year, why not test all and cull?

As a side note, some of my clients started OPP test and prevention programs several years ago. When my other clients see how well those flocks perform and find out how much more the OPP negative lambs are worth as breeding stock, many of them have jumped on the OPP negative bandwagon.

RECOMMENDATIONS FOR PARTIAL FLOCK TESTING

The following, from the Scottish Agricultural College, is based on a 95% confidence of detecting a seroprevalence of 2%. This is used in the UK Maedi Visna Accreditation Scheme:

# of Animals	Sample Size	# of Animals	Sample Size	# of Animals	Sample Size
1-50	All	120	85	350	120
60	55	140	90	400	125
65	60	160	95	500	130
70	65	180	100	700	135
80	70	200	105	900	140
90	75	250	110	1000	145
100	80	300	115	1000+	150

RANDOM SAMPLING — HOW MANY TO TEST?

Again, from the AASRP-List, Dr. Paula Menzies of the University of Guelph, Ontario, offers the following:

The numbers (worked out by those intelligent epi types) for a 100 ewe flock would be:

Number of sheep to be sampled to detect disease at:
 >25% prevalence = 10 >10% prevalence = 25
 >20% prevalence = 13 >5% prevalence = 43
 >15% prevalence = 17 >2% prevalence = 78

This means that testing at this intensity will find at least 1 seropositive sheep with a 95% confidence if the disease is present in the flock at that prevalence. So, if you sample 10 randomly selected ewes from 100, and 1 is positive, then the prevalence is 25% or greater. If you find no positives, then the prevalence is something less than 25%.

PCR TEST NOW AVAILABLE AT COLORADO STATE

The Colorado State University Veterinary Diagnostic Laboratory now offers a commercial polymerase chain reaction (PCR) test for OPP, as well as for the related CAE virus in goats. While first made available through CSU 10 months ago, the PCR has been used for years in research and differs significantly from the more commonly used AGID. While the AGID tells us whether or not an animal has developed antibodies to the OPP virus, which may not occur until several months following infection, the PCR detects the actual presence of the virus.

Done in the microbiology lab and involving DNA extraction, the PCR zeroes in on the gene for the major core protein of the virus. This test is extremely labor-intensive and therefore relatively expensive. At \$22 (roughly 1/4 of what one research lab quoted a few years back), most would reserve the PCR for those occasional animals for which a definite AGID reading cannot be determined, or for those already test-negative on AGID. The AGID remains the test-of-choice for initial whole-flock screening.

While no silver bullet — like any test, the PCR is not infallible — this test will be of special interest to those who have had difficulty with attempts to eradicate since the PCR has been proven to detect very early infection. One study done on goats compared AGID and ELISA with the PCR.* (Note that, unlike OPP, an excellent ELISA for CAE in goats has been commercially available in the U.S. for several years.) Of 108 yearling does, 27 were test-positive on ELISA (AGID picked up 21 of the 27). Of the remaining 81 seronegative goats, 20 had positive PCR tests. Over the next 7-8 months, ten of the 20 PCR test-positive does seroconverted on the ELISA (3 after 3 mo., 3 after 5 mo., 2 after 6 mo., 1 after 7 mo., and 1 after 8 mo.).

CSU technician, Jane Carman, requests at least 5 ml of whole blood for the PCR test. Samples should be collected in lavender top (EDTA) tubes, clearly identified, and shipped on ice along with payment to: CSU Diagnostic Lab, Fort Collins, CO 80523. Turnaround time is one week and results can be phoned, faxed or e-mailed. Questions should be directed to Jane Carman at 970-491-1281 (jcarman@vth.colostate.edu)

*Rimstad N, East NE, Torten M, et al. *Delayed seroconversion following naturally acquired caprine arthritis-encephalitis virus infection in goats.* Am J Vet Res 1993; 54:1858-1862.

SCRAPIE & ITS CONTROL

The Voluntary Scrapie Flock Certification Program

by Robert Leder, DVM

Scrapie is a fatal, slow incubation neurologic disease of sheep. It has recently come into the forefront of concern because it is in the same family of diseases as "Mad Cow" disease in England. Scrapie is a transmissible spongiform encephalopathy; meaning that it causes tiny holes in the brain, and that it can be transmitted from one animal to another. It is caused by what is now called a "prion"; a small infectious particle of protein that is very resistant to destruction. The prion does its damage without a measurable response from the affected animal's immune system. Only recently has there been development of a third eyelid test to detect the "prion" before the animal develops clinical signs of scrapie.

How do we control a disease that has all the aforementioned qualities? When there is a limited-use live animal test, in combination with a long incubation period, it's a difficult situation. Scrapie can only be controlled by cooperation of all sheep producers.

First and foremost, sheep producers should become familiar with the disease and its clinical signs. The disease is spread by an infected ewe to newborn lambs, and to commingled ewes, at the time of lambing through contact with the placenta and birthing fluids. Because of the long incubation period, clinical signs do not appear until the animal is 2-5 years old.

The name scrapie comes from a clinical sign; scratching and rubbing on fixed objects, apparently to relieve itching. Other signs include biting of itself, loss of weight despite retention of a good appetite, and loss of coordination. The incoordination may be displayed as prancing on the forelegs, hopping like a rabbit, or swaying of the back end. The affected sheep may become hypersensitive to loud unexpected noises. Such animals may tremble or fall down in a convulsive-like state when stimulated by a sudden noise. All the signs that an affected sheep displays are because the brain is not working properly. The behavior changes may be subtle to begin with, but can become dramatic as the disease progresses. Not all animals will show all the aforementioned signs. Other diseases that could cause signs similar to scrapie include external parasites, listeria, rabies, poliоencephalomalacia, OPP, abscessation within the brain, and the deer meningeal worm. If you are suspicious that you might have an affected animal, consult with a veterinarian to make an accurate diagnosis.

Secondly, we need to employ the trace-back system that we already have. The Voluntary Scrapie Flock Certification Program is just that, a good trace-back system, but not very widely used. The VSFCP is a simple inventory program, whereby the cooperating producer has an annual flock inspection to account for all sheep in the flock. They are identified permanently with either tattoos, electronic chips, or tamper proof eartags; the latter being the easiest to use. The inspection is done by state or federal veterinarians at no cost to the producer. All sales and deaths must be accounted for. Any sheep that die with symptoms similar to scrapie need to be autopsied. Enrolled flocks do not have to be closed. The purchase of rams does not affect your status date, but the purchase of ewes does. If your flock is in good standing as a completely monitored flock for 5 years you achieve a "Certified" status.

The VSFCP has been revised from its original format to a more user-friendly program. Critics say that loopholes exist that could allow for the hiding of scrapie. While it is possible for a "cooperating" producer to hide the incidence of scrapie by making dishonest reports of deaths in his/her flock, the truth will eventually come out through the tracing back of animals to the flock of origin. I believe that most producers are honest. If everyone is cooperating with the control and tracing of scrapie infected animals, the unscrupulous breeders will be exposed. We need *EVERYONE* working together, doing their part, to eradicate scrapie.

Our industry's adjustment plan, presented to the International Trade Commission earlier this year, stated that a sheep identification program will be instituted so sheep can be tracked from farm to farm. The plan also made mention of the new third eyelid test for preclinical animals. It further stated: "*With several years to use the new scrapie testing technologies and improve identification of infected flocks, the U.S. sheep industry should be able to eradicate scrapie...*" If we are serious about this goal, then we have to embrace the idea of accountability. We have to be serious about tracing animals.

We need to have a much higher enrollment in the VSFCP; consider enrolling, it's really not much more work or records that any good breeder doesn't already keep. Buy replacement ewes and rams from enrolled flocks. We need to have the ability to trace more sheep back to the flocks of origin. And doesn't enrollment in the VSFCP say something about the integrity of the shepherd of the flock of origin? Lastly, learn about the clinical signs of scrapie. We need everybody's eyes working together on this disease.

RAISING HEALTHY SHEEP

Book authored by Kimberling, Gessert and Marsh

Written as a guide for those involved in Third World development, Raising Healthy Sheep would be a helpful addition to any shepherd's library. This primer is one of a series on animal husbandry published by the *Christian Veterinary Mission*. Veterinarians Cleon Kimberling and Mary Gessert, along with Kimberling's CSU associate, Deborah Marsh, manage to cover all the basics and then some. Concise and down-to-earth, the book offers advice on selection, nutrition, reproduction, health, various management systems, financial considerations and more. Numerous black & white photos.

The CVM books, written as a labor of love and service to people in need, are used as basic teaching materials by farmers, technicians and development workers throughout the world. Raising Healthy Sheep is \$10 postpaid from CVM, 19303 Fremont Ave N, Seattle, WA 98133 (206-546-7569, or RKF@crista.org). For more information, including a list of available titles, check out: <http://www.vetmission.org>

Dr. Cleon Kimberling has worked with shepherds in East Africa, South America and the Mediterranean region. Dr. Mary Gessert has served in North Africa, eastern Europe and South America. Deborah Marsh, MS, works primarily with range operations in the western U.S.