Amador, Calaveras, and El Dorado Counties

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LIVESTOCK

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INSIDE THIS ISSUE:

"The future of sheep is bright."

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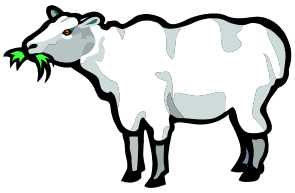
SHEEP: A SMALL-SCALE AGRICULTURE ALTERNATIVE



The relatively low investment and the natural, gradually increasing size of a flock may make sheep ideal for the beginning small and part-time farmer, according to Dr. Clair E. Terrill. An animal breeding specialist, Terrill has been watching the economics of sheep production for years. Terrill, who retired from the U.S. Department of Agriculture's (USDA) Agricultural Research Service, says "the future of sheep is bright."

There are several kinds of markets for small-scale sheep production in the United States: plain white wool, naturally colored wool, "freezer lambs," ordinary slaughter lambs, and sheep-milk products.

According to Paul Rodgers, director of producer services for the American Sheep Industry Association (ASI), the conventional approach of adding 20 to 100 ewes to a farm operation can be profitable. Other approaches require careful marketing and would be more difficult and risky. Still, they might also prove more profitable.

Experts say it takes about 2 hours of work per year to maintain one ewe and her offspring on farm pasture. Farmers caring for 20 to 100 ewes thus would add 40 to 200 more hours of work to their regular duties.

Advantages of Sheep

Where a farmer already has some beef cattle, there are economical and biological advantages to adding some sheep to the operation, Terrill says. Shared pastures can work well, he points out. Sheep tend to prefer finer plants and cattle the coarser ones.

Sheep can be fed out to market on forage alone if it is adequate, thus requiring little outlay for feed. There are many acres of idle pastureland that could be used for sheep-natural meadowland, waterways, woods, orchards, or abandoned cropland. However, the sheep must be protected from predators such as coyotes, mountain lions, and dogs. In many locations throughout the Sierra Nevada Foothills, predation of sheep and other small farm animals has

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been an issue. Precautions should be taken if these predators are in your area.

CONT. SHEEP

For small-scale entrepreneurs who prefer the conventional production of slaughter lambs and wool, the ASI is a good source of information. The Farm Flock Budget, one of the Updates that ASI sells, shows a typical budget for a flock of 104 animals -- 4 rams and 100 ewes. It shows annual costs and returns based on farm prices for slaughter lambs varying from $63 to $75 per hundredweight (cwt). At $75 per cwt, and assuming wool brings $10.10 per ewe, gross annual income per ewe can average $106.98-if 129 lambs can be marketed from 100 ewes. Variable costs, including feed and labor, range from $74.45 to $77.03 per ewe. Fixed costs, including interest, average $12.77 per ewe. This puts total costs at about $87 to $89 per head.

A list of educational materials may be obtained by writing or telephoning ASI at 6911 S. Yosemite St., Englewood, CO 80110-1414; 303-771-3500. ASI also sells subscriptions to its Research Journal and its Sheep Production Handbook. The journal is published three times a year and sells within the United States for $30 per year. The handbook sells within the United States at $35 each for one to nine copies. Additional pricing and foreign shipment information is available by contacting ASI.

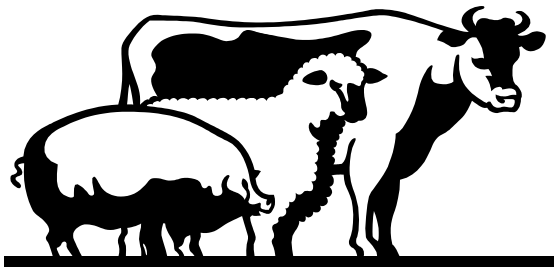
Costs of raising fewer sheep than ASI's example are detailed in Raising A Small Flock of Sheep in Ohio, Bulletin No.654, from Ohio State University and the Cooperative Extension Service (CES). Startup cost of a 30-ewe flock is estimated to range between $187.50 and $235.84 per ewe and the annual cash operating cost at about $51 each. The bulletin makes the point: "To make money with sheep, you must raise more than one lamb per ewe." Local county agricultural extension agents throughout the United States may obtain copies of the 12-page bulletin to answer public inquiries.

Freezer Lambs

Farmers supplying freezer lambs may earn more profits than the average. They may produce and sell lambs at premium prices somewhat higher than 75 cents a pound for an unbutchered lamb weighing up to about 110 pounds. Sales sometimes can be made directly to individuals of certain ethnic backgrounds. Such buyers are likely to do the butchering themselves. Slaughter can be done on the farm or at a local freezer-locker plant. Many freezer plants or slaughterhouses will have a butcher available for processing after slaughter. An ASI publication, Marketing Out of the Mainstream, explains many aspects of direct and niche marketing of lamb and wool.

Improving Earnings

An entrepreneur can increase earnings by improving flock quality. Higher quality means production of faster growing lambs and more lambs per ewe, for example. The ASI has organized the National Sheep Improvement Program (NSIP) to help producers find superior animals through a computerized evaluation system. Entrepreneurs who want to buy ewes or rams on the basis of NSIP data may do so if the producer from whom they buy keeps NSIP records. Details may be obtained from NSIP by contacting ASI.



Injection Sites in the Neck Area

By Dr. John Maas, UCCE veterinarian

Preventing losses due to injection site reactions continues to be extremely important to the beef cattle industry. Injections of drugs or vaccines into the top butt or other locations in the hind legs should be avoided whenever possible. This leaves the neck region as the preferable location for all injections and thus the anatomy of the neck region is important.

Subcutaneous (sub-Q) injections in this region are relatively easy as the skin is fairly flexible. The skin can be "tented" or pulled up with the fingers of one hand and the sub-Q injection can be administered at the base of the "tent" with the other hand directing the needle and syringe. Be careful not to inject your hand that is holding the "tent." Also, be careful not to push the needle all the way through the base of the tent through the other side, thus injecting the material onto the skin and hair (this obviously will not be effective). Normally, the maximum amount of material injected subcutaneously at a single site should be 10 cc (10 ml) or less. These sites should be about 4 inches apart. Depending on the material injected, a 16 (larger diameter) to a 20 gauge (smaller diameter) needle is preferred for sub-Q injections. For "thick" materials, such as injectable tetracyclines, a 16 or 18 gauge, 1 inch (or less than 1 inch) needles will work well for sub-Q injections in the neck. For "watery" materials, such as vaccines, a 20 gauge needle will work well.

For intramuscular (IM) injections, it is important to understand the anatomy of the neck region in some detail (see figure 1). The boundaries of the intramuscular region of the neck are:

1. The vertebrae (neck bones) running down and back from the back of the head to the point of the shoulder. These bones form the bottom of the triangle of muscle available for IM injections.

2. The shoulder blade which runs up from the point of the shoulder to the withers (top of the back line).

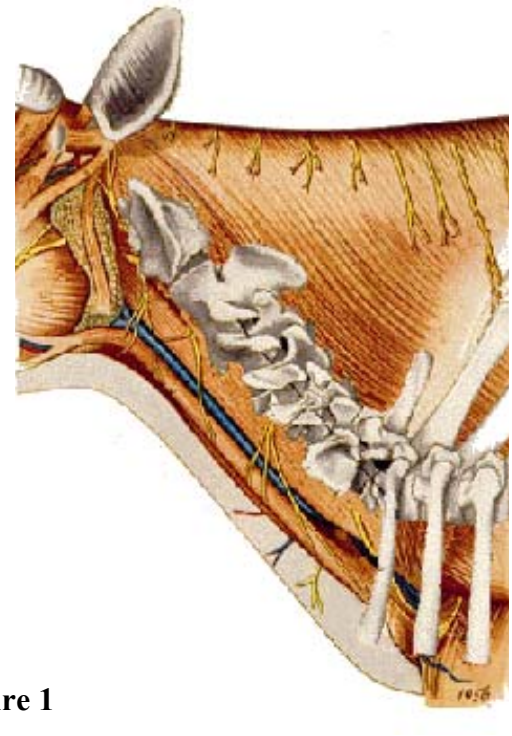


Figure 1

3. The nuchal ligament (ligamentum nuchae) which runs from the withers to the back of the neck along the back line.

The triangular region between the structures listed above is what is available for intramuscular injections. Be sure to familiarize yourself with this region on live cattle by pressing on the neck region—you can feel these structures through the skin fairly easily. If you are at all unsure, have your veterinarian go over these areas with you. The amount of material injected should be limited to 10 ml in any one spot and again, spread these sites out by about 4 inches. One to 1 ½ inch needles work well for IM injections and usually 16 or 18 gauge will be preferable.

While it is usually not possible to be sterile around the chute, you should always try to be as clean as possible. When vaccinating cattle, change needles every 10 animals or sooner. Always change as soon as a needle becomes obviously dirty. Color copies of the picture in this article are available from the CCA. These can be laminated and placed by the chute or other working areas as an easy reminder of the anatomy of the neck region of cattle.

TRANSLINE TIMING TRIAL

BY KEN CHURCHES, FARM ADVISOR UCCE CALAVERAS COUNTY

Yellow starthistle has become a common and troublesome pest in many areas. It readily forms dense infestations that rapidly deplete soil moisture, crowd out annual legumes and grasses, and create a spiny barrier for many activities. An effective long-term management plan for yellow starthistle must use an integrated approach. The best approaches are use of biological agents, mowing, properly timed grazing, and the judicious use of herbicides.

Historically, post emergence herbicides used to control yellow starthistle were limited in their effectiveness because of the weed's ability to germinate continuously throughout Winter, Spring, and into Summer whenever moisture is available. Clopyralid (Transline®) is a growth regulator herbicide that stops development of the growing points of plants. It became available in California during the Winter of 1998 for use on non-crop areas including pastures, rangeland, and wildlands. It is not expected to impact biological control agents and has been demonstrated to be very safe on grasses. Unlike other postemergence products, clopyralid also has excellent preemergence activity and is effective at very low rates. In this experiment, we compared timing of application for yellow starthistle control from before emergence through the bolting stage.

We established field trials at the Calaveras County Airport November 1998 to compare effectiveness of clopyralid when applied at the recommend label rate of 4 ounces per acre throughout the growing season and under variable weather conditions. Bivert® was the surfactant used and was applied at a rate of 8 ounces per acre. Each plot was ten feet by ten feet and all treatments were applied using a hand held pump type sprayer delivering approximately 40 gallons per acre at 10-15 pounds pressure. All treatments were replicated three times. Evaluations of all plots were made on June 8, 1999.

Results

A total of 51 plots were treated on 17 separate and randomly selected dates between November and June. In the treated plots, only one yellow starthistle plant was found. In the untreated control plots, an average of 112 yellow starthistle plants were found per plot. No difference could be detected in control based upon timing of application.

Observations

There are several advantages to using clopyralid for yellow starthistle control over other postemergence herbicides registered for rangeland, pastures, and wild areas. It has both pre- and postemergence activity at very low use rates, a low toxicology profile and no grazing restrictions. Glyphosphate (Roundup) is a more desirable material to use for late season control provided that all grasses and legumes have already gone to seed and turned brown provided the yellow starthistle plants are not drought stressed. Continued clopyralid use over many years may have a detrimental effect on legume populations. Consequently, other control options should be rotated in the overall management program.

For more information on yellow starthistle please contact your Farm Advisor's office.

Amador County:
http://ceamador.ucdavis.edu or (209) 223-6482

Calaveras County:
www.uccecalaveras.org or (209) 754-6477

El Dorado County:
http://co.el-dorado.ca.us/ucce/ or (530) 621-5502

MANURE LOADING INTO STREAMS FROM DIRECT FECAL DEPOSITS

EXTRACTED FROM RANGELAND WATERSHED PROGRAM FACT SHEET #25, U.C. DAVIS

Livestock grazing on rangelands can contribute to nonpoint source pollution in streams. Although sediment is generally considered the largest water quality problem from livestock grazing, nutrients and pathogens may also be of concern. The major nutrients coming from cattle are:

- ✓ Nitrogen (N)
- ✓ Phosphorus (P)
- ✓ Potassium (K)

The relatively benign Fecal Coliform (FC), and Fecal Streptococci (FS) bacteria are used to indicate the presence of possible pathogens.

To be considered a pollutant, nutrients and pathogens must reach a stream. Nutrients and pathogens can reach the water either by direct deposit or by overland transport during a runoff event. In most semi-arid environments runoff events are infrequent. Therefore, direct deposit of manure and urine into streams seems to be the most likely mode of nutrient or pathogen loading by livestock. The potential for this mode of contamination depends on:

- ✓ Time
- ✓ Density
- ✓ Access

The amount of time that livestock spend in or near streams can be variable as shown by studies at the San Joaquin Experimental Range (SJER) in the foothills of the Sierra Nevada Mountains in California and in Eastern Oregon (Table 1). The difference in drinking time in Table 1 may be that cattle drank from a trough at the SJER, and from streams in Eastern Oregon.

Table 1. **Amount of time beef cattle spent drinking water as recorded in studies in California and Oregon.**

Author	Drinking Time (min/cow/day)	Location
Wagnon 1963	3 to 6	SJER, California
Sneva 1970	17	Eastern Oregon
McInnis 1985	26	Eastern Oregon

In 1989, Oregon researchers observed the daily fecal deposits and amount of time spent in the creek by different classes of cattle and during different seasons in a high desert stream in Central Oregon (Table 2). They found that time spent in the creek and direct fecal deposits varied by season. This perennial stream is one to three feet wide and ½ to three feet deep. It is characterized by 100 to 300 yard wide riparian zones and bottom-land stringer meadows with slopes generally less than five percent dominated by Kentucky bluegrass with some alfalfa and clover. During the winter months some meadows were used for supplemental feeding areas. These meadows and riparian areas were part of a larger pasture that included uplands with

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10 to 40 percent slopes consisting of juniper woodlands, sagebrush, and bunch grass. These uplands were dry and relatively unpalatable by early to mid summer.

Table 2. **The amount of time 1 cattle spent in the stream and the number of defecations directly into a high desert stream in central Oregon. Time in the stream includes drinking, loafing, etc. (From Larsen 1989)**

Season	Cattle Class	# of Animals	Time Spent in Stream (min/cow/day)	Instream Fecal Deposit (def/cow/day)
Summer	Cow/calf	17	11.2	0.41
Fall	Cow/calf	18	3.0	0.19
Fall	Bull	19	2.3	0.00
Winter	Cow	109	5.6	0.20
Winter	Yearling	400		0.14
Spring	Cow/calf	116	3.9	0.17
	Average		5.2	0.19

The fecal loading rate of grazing cattle depends on the amount of time the cattle are grazing in a pasture with a stream. Using the values in Table 2 with estimates of defecation rates, nutrient content, and bacteria concentration in manure (Table 3), we estimated the potential nutrient and bacterial loading directly into the stream (Table 4).

Table 3. **The amount of manure, nitrogen (N), phosphorus (P), potassium (K), fecal coliform (FC) and fecal streptococci (FS), produced by beef cattle. Based on one 1,000 lb. beef cow.**

- ✓ 12 defecations / day
- ✓ 60 lbs manure / day (88% water)
- ✓ 5 lbs manure / defecation (88% water)
- ✓ 0.34 lb N / day
- ✓ 0.11 lb P / day
- ✓ 0.24 lb K / day
- ✓ 3.84*1010 FC / day
- ✓ 7.2*108 FS / day

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The estimates in Table 4 indicate that the amount of manure loading into a stream for any given day,

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season, or year from one cow is quite small. However, there may still be a concern about pollution. As much as 95% of deposited manure will settle to the bottom of the stream within the first 50 meters (Biskie et al. 1988). The bacteria in the sediment may remain alive for several weeks (Sherer et al. 1992). Less is known about what happens to the nutrients that enter the stream in the manure.

Therefore, daily inputs from directly deposited feces may accumulate on the stream bottom. Any disturbance, such as peak flows, can resuspend sediment, creating high concentrations of bacteria, and possibly nutrients for a short period of time. The higher the density of livestock, the higher the concentration of pollution. Any practice that reduces the amount of time cattle spend in a stream, and hence reduces the manure loading, will decrease the potential for adverse affects of water pollution from grazing livestock. It has been shown that providing a water trough as an alternative drinking source may reduce the in stream fecal deposition during the winter by as much as 90 percent (Moore et al. 1993, see Fact Sheet #20). In addition, Clawson (1993) found that summer stream use dropped from 4.7 min/cow/day to 0.9 min/cow/day and bottom land use dropped from 8.3 to 3.9 min/cow/day when a water trough was provided as an alternative water source. This indicates that substantial reductions of creek use by cattle can be achieved without fencing out the creek.

***Table 4*. Estimates of the amount of manure, fecal coliform (FC), fecal streptococci (FS), nitrogen (N), phosphorous (P), and potassium (K) getting into the stream from grazing cattle based on one 1,000 lb beef cow.**

Season	Manure		Bacteria		Nutrients		
Per Day	Wet+ (lb)	Dry (lb)	FC (no.)	FS (no.)	N (lb)	P (lb)	K (lb)
Summer	2.05++	0.25	$1.3*10^9$	$2.4*10^7$	0.012	0.004	0.008
Fall	0.95++	0.11	$6.0*10^8$	$1.1*10^7$	0.005	0.002	0.004
Winter	1.00++	0.12	$5.4*10^8$	$1.2*10^7$	0.006	0.002	0.004
Spring	085++	0.10	$5.4*10^8$	$1.0*10^7$	0.005	0.002	0.003

+88% water
++Based on non-replicated observations for a two day period within each season.

Hot Internet Sites

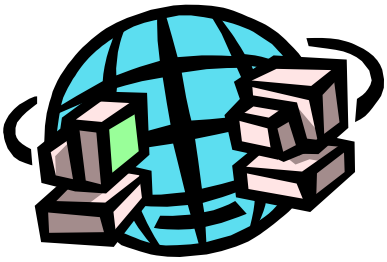
Amador County Cooperative Extension Office	http://ceamador.ucdavis.edu
Calaveras County Cooperative Extension Office	http://www.uccecalaveras.org/index.html
El Dorado County Cooperative Extension Office	http://co.el-dorado.ca.us/ucce/
UCCE Livestock and Natural Resources	http://danr.ucop.edu/uccelr/uccelr.htm
UC Davis Animal Science Extension	http://animalscience.ucdavis.edu/extension/default.htm
UC Davis Veterinary Medicine Extension	http://www.vetmed.ucdavis.edu/vetext/Home.html

UPCOMING EVENTS: MARK YOUR CALENDAR

October 8, 9, 10: Stockdog Day / Training Clinic
Hidden Oaks Ranch
Cost of the workshop is $10 / person without dogs and $50 / day with a dog. Advance registration is required and must be made by Oct. 1, 1999. Make checks payable to: UC Regents and mail to UC Cooperative Extension, 891 Mountain Ranch Rd, San Andreas CA 95249. For more information call Valerie Young at 209-754-6477.

October 26: Ranch Water Quality Shortcourse
6-9 p.m. for 5 weeks held every Tuesday in Plymouth area.
For more info call Bill Frost at 530-621-5502.

The Amador County Cooperative Extension Office is now on the World Wide Web. Our address is http://ceamador.ucdavis.edu. Please visit us and look at the wealth of information on the super highway! If you have e-mail access, send us an e-mail at sroneto@ucdavis.edu, so we can add you to our list serve for frequent updates in agriculture.



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