SID update
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The Livestock Protection Collar

The Livestock Protection Collar (LP Collar or toxic collar) is a newly registered method for killing coyotes that prey on sheep and goats. Collars are placed on livestock that are pastured where coyotes are likely to attack. Attacking coyotes usually puncture the collars and are poisoned. This update tells how collars are used, what restrictions apply, and what additional governmental actions are needed before collars can be used by ranchers.

Description and Use

LP Collars come in two sizes — small (for lambs and kids up to 50 pounds) and large (for animals over 50 pounds).* Each collar consists of a rubber bladder (2 compartments) with velcro or elastic neck straps. Each collar holds up to 30 milliliters (small collar) or 60 ml (large collar) of Compound 1080 solution. One small collar contains up to 300 milligrams of 1080, and a large collar up to 600 mg.

LP Collars deliver toxic liquid to coyotes that attack collared sheep or goats and bite into the collars. Collars do not attract coyotes, but because of their design and position on the throat where coyotes normally attack, most attacking coyotes will puncture them. LP Collars are ineffective against any predator that does not attack the throat. The Collar is registered only for use against coyotes, and may be placed only on sheep and goats.

When collars are used properly, coyotes will puncture them in about 75 percent of attacks on collared sheep and goats. A 100-percent puncture rate cannot be expected because coyotes sometimes attack body sites other than the throat. Based on results of 15 pen tests, every coyote that punctures a 1080 collar will die. Attacking coyotes usually kill and feed on collared animals just as they would on uncollared livestock. With 1080, coyotes die 2 to 7 hours after puncturing the collars. Most poisoned coyotes are not found — they may travel up to 2½ miles or more away from the point of attack before they die.

The LP Collar is only one of many techniques for protecting livestock from predators. Most predator control experts regard the collar as a supplement to other methods and not as a replacement for them. In general, livestock producers should consider all methods, both lethal and nonlethal, and use collars only where cheaper or easier techniques prove impractical or ineffective. LP Collars are particularly useful against coyotes that kill repeatedly in a specific pasture, and that have eluded other controls such as fences, guard dogs, traps, snares, cyanide guns, or aerial hunting.

The LP Collar is as much a livestock husbandry practice as it is a lethal coyote control method. Collar use requires that coyote attacks be directed or targeted to collared livestock. Targeting usually involves placing a "target" flock (50 to 100 animals, of which 20 to 50 have collars) in a high-risk pasture while other sheep and goats in the vicinity are moved away or penned at night.

Each rancher considering the use of collars should decide whether or not effective targeting can be achieved in his or her operation. In research studies where the collar technique appeared to have been ineffective, the common cause of failure was poor or ineffective targeting. Frequently, effective targeting could not be planned because coyotes did not attack consistently enough. On most ranches, only a high frequency of predation (at least 1 attack per week) will justify spending the time and money needed to become trained and certified, purchase collars, and use them properly. Persons who are experienced with this technique usually can evaluate local conditions quickly and decide whether or not collars will be useful. Collar targeting techniques are in their infancy, and the ability of ranchers to use this tool is expected to improve with experience.

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*Currently, only the small collar is registered. Additional studies of large collars were required by EPA prior to approval. Results of these studies will be reported to EPA in March 1986.

The outstanding advantage of the LP Collar is its selectivity for individual coyotes that are causing damage. Disadvantages include the cost of collars (approximately $17 each) and livestock that must be sacrificed, hazards inherent in the use of this toxic pesticide, and the costs or inconvenience of complying with use restrictions including requirements for training, certification, and record keeping.

Training and certification, collar distribution, and monitoring plans have not yet been established in most states, although the Environmental Protection Agency (EPA) soon is expected to approve Wyoming's certification plan. EPA also has announced that it will certify users in Colorado and Nebraska.

The use of LP Collars is subject to 18 use restrictions that are detailed in the EPA-approved technical bulletin and label. Persons considering the use of collars should consult these sources, as well as the Texas Agricultural Extension Service "Applicator Manual for Compound 1080 in Livestock Protection Collars."

History and Registration Status

The LP Collar was invented by Roy McBride (Ranchers Supply, Alpine, Texas) and patented in his name by the U.S. Government in 1974. After years of research and development, the U.S. Department of the Interior, Fish and Wildlife Service (FWS) applied in 1981 for EPA registration of the Compound 1080 Livestock Protection Collar. The State of Wyoming and Ranchers Supply, Alpine, Texas also applied for registration. EPA granted a registration to FWS in July 1985 but has not yet approved the other applications.

The FWS registration provides that LP Collars may be used only by trained, certified applicators or by persons under their direct supervision. Since FWS is not a pesticide regulatory agency, it has no program to train and certify collar users. Before collars can be used in any state, the state regulatory agency for pesticides (usually the State Department of Agriculture) must develop a program to train and certify collar applicators, a distribution plan to provide collars to users, and provisions to monitor collar use. These must be approved by EPA before collar use can begin. As indicated above, several states are in the process of gaining EPA approval for collar use. Currently, there is no provision for collar use in any state unless the appropriate state regulatory agency assumes responsibility for certification of collar applicators, distribution of collars, and regulation of collar use.

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Livestock Protection Collar Q & A

The U.S. Fish and Wildlife Service (FWS) received a conditional registration for the Compound 1080 Livestock Protection Collar (LP Collar) in July 1985, but collars can't be used until each state develops an EPA-approved plan to train and certify collar applicators, provide collars, and monitor collar use. In addition, each state where collars are to be used must receive a registration from EPA.

The following questions and answers should be helpful to livestock producers who may be interested in using LP Collars.

Q. Who can use LP Collars?

A. Collars may be used only by certified Livestock Protection Collar applicators or persons under their direct supervision.

Q. As a rancher, how can I become certified to use collars?

A. You will take a short training course, probably followed by a written examination. Certification will be handled by the agency that regulates pesticide uses in your state. In most states, this is the State Department of Agriculture.

As of March 1986, no state yet has its registration and certification program in place, so collars are not being used anywhere in the U.S. Wyoming's certification program is expected to be approved soon, and EPA action is pending on its registration. EPA has announced plans to train collar applicators in Colorado and Nebraska, but neither state has applied for registration.

Q. Will there be a certification fee?

A. This will be decided by each state.

Q. What happens if my state decides not to seek registration or certify collar users?

A. LP Collars will not be used in your state.

Q. Once I have been certified, where do I get collars?

A. Each state will decide how to distribute collars, and will inform you, during training, where to get them. Some states may authorize certified applicators to buy collars directly from the manufacturer (Ranchers Supply, Alpine, Texas). Other states may elect to have collars distributed by their pesticide regulatory agency or by designated distributors. Either way, applicators will only receive filled collars. Applicators will not be authorized to fill collars or to remove toxicant from them.

Q. How much do collars cost?

A. The manufacturer's price for unloaded collars is approximately $17 each. Prices paid by ranchers may differ from one state to another, because each state that distributes collars will set its own price.

Q. How long do collars last?

A. Up to 2 years unless they are punctured sooner. Once punctured or ruptured, collars must be disposed of.

Q. Will the collars freeze?

A. Collars on unshorn sheep in Idaho did not freeze at temperatures as cold as 0 (Fahrenheit). Collars stored in unheated buildings will freeze, and the effects of freezing on collars and their contents have not been studied.

Q. What records will collar users have to keep?

A. Required records include:
- numbers of collars attached on livestock
- the pasture(s) where collared livestock were placed
- dates of each collar attachment, inspection, and removal
- numbers and locations of livestock found with ruptured or punctured collars
- numbers, dates, and approximate location of collars lost
- species, locations and dates of all suspected poisonings of humans, domestic animals, or nontarget wild animals resulting from collar use.

Q. How often must collared livestock be inspected?

A. All collared livestock must be checked at least once every 7 days, and collars adjusted if needed.

Q. What if collared animals are missing?

A. Each collared animal will be marked to permit individual identification (probably by numbered ear tags). If any collared animal is missing on 2 consecutive checks, an intensive search for it must be made. In addition, if more than 3 collared animals are missing at any check, an intensive search for these animals is required.

Q. Where can LP Collars be used?

A. Collars can be used only in fenced pastures up to 2,560 acres in size (up to 10,000 acres under certain conditions). Collars cannot be used on unfenced, open range, or in any pasture where the applicator cannot monitor them properly.

Q. What other use restrictions must I consider?

A. The complete list of 18 restrictions is given in the EPA-approved technical bulletin (that is, the FWS registration has 18 restrictions. State registrations may have more or less than 18 use restrictions. These Q & A are based on the FWS registration). Some important restrictions are:
- bilingual (English/Spanish) warning signs must be posted.
- damaged, punctured, or leaking collars must be disposed of by deep burial, or as directed in state regulations.
- when not in use, collars must be stored under lock and key.
- no more than 20 collars can be used in any 100-acre (or smaller) pasture, nor more than 50 collars in any pasture between 100 and 640 acres in size.
- no contaminated animal will be used for food or feed.

Q. What provisions have been made to protect endangered wildlife?

A. Parts of California are closed to the use of LP Collars due to possible hazards to the California condor. Written approval from a FWS Endangered Species Office is required before collars are used in certain areas where San Joaquin kit fox, black-footed ferret, northern Rocky Mountain wolf, eastern timber wolf, or grizzly bears may be present. (A complete list of counties where this regulation applies is given in the technical bulletin.) Any poisoning of any threatened or endangered species must be reported to EPA.

Q. Can I put LP Collars on calves?

A. No. They may be used only on sheep and goats.

Q. Will LP Collars work on my ranch?

A. Collars will work wherever you can get coyotes to attack collared sheep or goats. It isn't feasible to collar all livestock on most ranches, so a "targeting" strategy must be used. Targeting consists of placing a target flock (50 to 100 head, of which 20 to 50 have collars) where coyotes will attack them. Successful targeting usually requires that uncollared sheep and goats be moved away from the trouble zone or penned at night, so that only the target flock is available to coyotes. If you can determine how to direct coyotes to a target flock on your ranch, you probably can use collars effectively.

Q. What other factors should I consider in deciding whether or not to use LP Collars?

A. You should be positive that your predation problem is due to coyotes, rather than some other species of predator. Collars are not recommended and are not legal for use against any other species. Each ranch should employ whatever combination of lethal and nonlethal controls is most cost effective. If other methods are doing the job, collars aren't recommended.

Ranchers most likely to benefit from collar use are those who:
(1) have at least 1 coyote kill each week,
(2) haven't been able to stop the predation by other methods, and
(3) have fences and management conditions that will permit effective targeting of coyotes to collared sheep or goats.

Q. Why is Compound 1080 used in LP Collars? Why not some other toxicant?

A. Many other toxicants were tried experimentally — the list includes sodium cyanide, diphacinone, methomyl, carbofuran, and ethylene glycol. Of all chemicals tested, Compound 1080 was best in terms of effectiveness, safety, and least hazard to man and nontarget animals.

Q. How dangerous are LP Collars to humans?

A. Each collar contains enough toxicant to kill several adult persons, but collar contents are not toxic unless taken internally. A person could be poisoned only by deliberately swallowing liquid from a collar. Experienced users consider LP Collars to be very safe, compared to ordinary farm hazards such as are inherent in using motor vehicles or farm machinery, for example.

Q. Are LP Collars hazardous to livestock?

A. An adult sheep could be fatally poisoned by eating forage contaminated with as little as 1 milliliter (1cc) of collar contents. However, no such fatalities were seen during 5 years of experimental use. Collar use restrictions include provision for disposal of contaminated forage.

Q. Are LP Collars hazardous to stock dogs?

A. If your dog punctures a collar by biting at the neck of a collared sheep or goat, it probably would be poisoned. Otherwise, the hazard appears to be minimal. No rancher participating in experimental testing of LP Collars reported problems, either with herding dogs or guard dogs. Dogs should not be allowed to scavenge contaminated livestock carcasses, or to roam at large where they are likely to attack collared livestock.

Q. What is the future of the LP Collar?

A. The collar is just now reaching the point where it can succeed or fail on its own merits. The future of this technique will be established by the collective experience of collar users. If a substantial number of ranchers find the collar superior to other methods where coyote damage control is difficult, the collar will be a success. But if most users have poor results, the collar will fall by the wayside. The important thing is to give it a fair trial.