



U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division (7505C)
401 "M" St., S.W.
Washington, D.C. 20460

EPA Reg. Number:

46779-1

Date of Issuance:

JUL 1 1999

NOTICE OF PESTICIDE:
 Registration
 X Reregistration

(under FIFRA, as amended)

Term of Issuance:

Name of Pesticide Product:

SODIUM FLUOROACETATE
(COMPOUND 1080)
LIVESTOCK PROTECTION
COLLAR

Name and Address of Registrant (include ZIP Code):

Mr. Wayne Davis
Office Manager
Rancher's Supply, Inc.
P.O. Box 725
Alpine, TX 79831

~~550872~~
5559879
675/22

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

Based upon your submissions of December 20, 1998, and your prior responses to the Reregistration Eligibility Decision (RED) document issued for Sodium Fluoroacetate, EPA has reregistered the product identified above. This action is taken under the authority of §4(g)(2)(C) of the Federal Insecticide, Fungicide and Rodenticide Act, as amended. Reregistration under this section does not eliminate the need for continual reassessment of pesticides. EPA may require submission of data at any time to maintain the registration of your product.

The Confidential Statement of Formula (CSF) dated December 20, 1999, is generally acceptable. We detected two small errors. The entry for "EPA Product Mgr/Team No." (Box "5.") should read "T. Levine (PM-04)". The lower certified limit (85.44%) given for the inert ingredient "Water (Deionized)" seems to be too low considering the nominal concentration claimed. We suspect that you meant to indicate something like 95.44% for the lower certified limit for water as that figure is much closer to the nominal concentration claimed for the ingredient. Submit a revised CSF on which these corrections are made.

Signature of Approving Official:

151

Date:

JUL 1 1999

Note that although the reservoirs for the large collar have twice the capacity of those for the small collar, the amount of 1080 solution (15 ml/reservoir) to be loaded into large collars and small collars is the same.

The Technical Bulletin included with your submission of February 20, 1998, is acceptable. At your next printing of the technical bulletin, make the editorial changes indicated below.

1. Change "animals" to "animal" in the first sentence of the second paragraph of Section I.D.3. ("Monitoring collared livestock").
2. Change "collar" to "collars" in the first sentence of the sixth paragraph of Section I.D.3. ("Monitoring collared livestock").

The container label submitted for this product on February 20, 1998, is acceptable.

The label submitted for individual collars submitted on February 20, 1998, is acceptable..

There are no significant problems with the labeling elements discussed above and the documents are of printed quality. Therefore, we consider the technical bulletin submitted on December 20, 1998, and the collar and container labels submitted on February 20, 1998, to qualify as final printed labeling. You must, however, submit a new CSF revised as indicated above.

If you do not comply with these conditions, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

Stamped copies of the collar label, the container label, and the technical bulletin are enclosed for your records.

If you have any questions about this letter, you may call Dr. William W. Jacobs of my staff at 703-305-6406.

Sincerely yours,

Tina E. Levine, Ph. D.
Chief
Insecticide-Rodenticide Branch
Registration Division (7505C)

Enclosures

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND
DOMESTIC ANIMALS**

DANGER

Fatal if swallowed. Wear waterproof gloves when handling collars. Wash hands after handling collars or animals that have been contaminated with 1080 solution. Do not use contaminated animals for food or feed.

ENVIRONMENTAL HAZARDS

This product is very highly toxic to wildlife. Birds and mammals feeding on carcasses of contaminated livestock may be killed. Keep out of any body of water. Apply this product only as specified on this label.

**ENDANGERED SPECIES
CONSIDERATIONS**

NOTICE: It is a Federal offense to use any pesticide in a manner that results in the death of a member of an endangered species. The use of 1080 in the Livestock Protection Collar has been determined to pass a hazard to several endangered species.

NOTE TO PHYSICIAN

WARNING SYMPTOMS: 1080 poisoning results from the transformation of fluoroacetate into fluorocitrate within cell mitochondria. Poisoning is characterized by a symptom-free latent period of 1/2 to 2 hours or longer between ingestion and onset of symptoms (nausea, vomiting, diarrhea and hyperactive behavior leading to convulsion, coma and cyanosis). Ventricular fibrillation is commonly noted and is the primary cause of death. Early symptoms include alteration of heart sounds and premature, weak contractions.

TREATMENT: No effective antidote is known but symptomatic treatment may be effective. Establish respiration; create artificial airway if necessary. Check adequacy of tidal volume. Initiate emesis. If patient is comatose, convulsing or has lost the gag reflex, endotracheal intubation should precede gastric lavage with large bore tube. Administer activated charcoal and magnesium sulfate. Treat seizure with IV diazepam. Monitor cardiac function closely. Treatment with glyceryl monoacetate (monoacetin) may be effective, however, it is experimental and unproven in humans. **CONSULT NEAREST POISON CONTROL CENTER FOR CURRENT INFORMATION.** Symptoms of nonlethal intoxication will usually subside within 12-24 hours.

RESTRICTED USE PESTICIDE

**DUE TO ACUTE ORAL TOXICITY AND THE NEED FOR
HIGHLY SPECIALIZED APPLICATOR TRAINING**

Collars may be sold or transferred only by registrants or their agents and only to certified Livestock Protection Collar applicators. Collar may be used only by specifically certified Livestock Protection Collar applicators or by persons under their direct supervision. This product may only be used in Texas.

**SODIUM FLUOROACETATE
(COMPOUND 1080)
LIVESTOCK PROTECTION COLLAR**

For use on sheep and/or goats to
kill depredating coyotes.

ACTIVE INGREDIENT
Sodium Fluoroacetate
INERT INGREDIENTS
TOTAL

1.00%
99.00%
100.00%

KEEP OUT OF REACH OF CHILDREN

DANGER



POISON

STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED: Induce vomiting at once with emetic such as syrup of ipecac; use as directed. If emetic is not available drink 1-2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person. **PROMPT TREATMENT IS MANDATORY. GET MEDICAL ATTENTION IMMEDIATELY.**

IF ON SKIN: Wash the exposed area twice with soap and water.
IF IN EYES: Flush eyes with plenty of water. Call a physician if irritation persists.

IF ON CLOTHING: Remove contaminated clothing and wash before re-use. Dispose of all contaminated leather, including shoes, boots and gloves, according to the Pesticide Disposal section. See disposal instructions on side panel.

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

Manufactured By:

RANCHER'S SUPPLY, INC.

U.S. PAT: 3,842,806

BOX 725, ALPINE, TX 79831

4,338,886

EPA EST. NO. 46779-TX-01

NET CONTENTS:

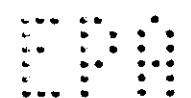
EPA REG. NO. 46779-1

30.4 grams (1.1 oz.) per collar

NOTICE

Seller makes no warranty expressed or implied concerning the use of this product other than that indicated on the label. Buyer assumes all risk of use and/or handling of this material when such use and/or handling is contrary to label instructions.

ACCEPTED
JUL 1 1988
For the Pesticide Administrator
Texas Department of Agriculture
46779-1



STORAGE AND DISPOSAL

Do not store in a place where water, food or feed by storage or disposal.

STORAGE: Livestock Protection Collars only in original container, in a dry, locked place away from food, feed, domestic animals and corrosive chemicals. Do not store in any structure occupied by humans.

When snow or frozen ground make on site disposal impractical, up to one cubic foot of wastes may be stored in a leakproof container, in a dry locked place for up to 90 days.

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of such materials is a violation of Federal law.

Dispose of collars and other wastes contaminated by 1080 (carcasses, wool, hair, vegetation, soil, leather clothing, and water) under three feet of soil, at a safe location, preferably on property owned and managed by the applicator and at least one half mile from human habitations and water supplies.

Incineration may be used instead of burial for disposal in the field (preferably on property owned or managed by the applicator) at least 1/2 mile from human habitation and water supplies. Place collars and wastes (listed above) in an incinerator or refuse hole, saturate with diesel fuel, and ignite. Attend the burn until the contaminated material is completely consumed.

Alternatively, contact your state pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in disposing of wastes at approved hazardous waste disposal facilities.

CONTAINER DISPOSAL:

Metal Containers: Triple rinse contaminated and uncontaminated containers with water. Then puncture and dispose of contaminated containers and rinse as above.

Plastic Containers: Triple rinse with water. Then puncture and dispose of container and rinse as above.

COLLAR DISPOSAL: Dispose of punctured or unserviceable collars as above, except that not more than 10 collars may be buried in any one hole. If buried in trench, groups of 10 collars must be at least 10 feet apart.

**SEE BACK PANEL AND TECHNICAL BULLETIN
FOR DIRECTIONS FOR USE**

3421

DANGER - PELIGRO
EPA REG. NO. 1080
SER. NO. 7

00001 DANGER - PELIGRO
1080 ACCEPTED

JUL 1 1989
U.S. DEPARTMENT OF AGRICULTURE
NATIONAL ANIMAL HEALTH
LABORATORY
1679-1

DANGER - PELIGRO
EPA REG. NO. 1080
SER. NO. 7

00002 DANGER - PELIGRO
1080

**TECHNICAL BULLETIN
FOR APPLICATOR USE OF THE
LIVESTOCK PROTECTION COLLAR**

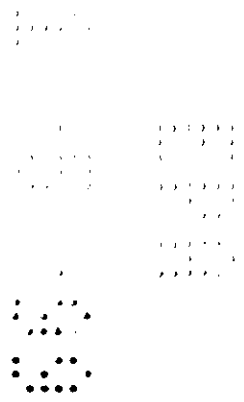
EPA Registration No. 46779-1

**ACCEPTED
with COMMENTS
in EPA Letter Dated**
JUL 1 1999
Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the Pesticides
registered under EPA Reg. No.
46779-1

RANCHER'S SUPPLY, INC.

P. O. BOX 725

ALPINE, TEXAS 79831



TECHNICAL BULLETIN FOR APPLICATOR USE OF THE LIVESTOCK PROTECTION COLLAR

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SECTION I
USER INSTRUCTIONS

A. INTRODUCTION AND THEORY

The Livestock Protection Collar, invented by Roy McBride of Alpine, Texas, exploits the coyote's habit of killing sheep and goats by bites to the throat. As described in McBride's U.S. Patent No. 3,482,806 (issued in 1974), coyotes that attack collared livestock usually bite through the collars and receive oral doses of the contents. When used with a toxicant such as sodium fluoroacetate (Compound 1080) Livestock Protection Collars killed the attacking coyotes. Collars may be used only by specifically certified Livestock Protection Collar applicators or persons under their direct supervision (See Section II.2). This publication is intended to instruct collar applicators.

Coyotes' attacking and feeding behavior do not seem to be affected by the presence of Livestock Protection Collars. Attacking coyotes usually kill and feed upon collared animals just as they would if no collar were present. Updated data from the Denver Wildlife Research Center indicates in research trials, times to death of attacking coyotes averaged 5.4 hours (range 2.4 to 9.1 hours) when one packet was bitten and 3.8 hours (range 2.6 to 6.0 hours) when both packets were punctured (Guy Connolly, 1998).

When collars are used properly, coyotes may puncture them in 75 percent or more of their attacks. A 100 percent puncture rate is unlikely to be achieved because coyotes sometimes attack body sites other than the throat.

Effective use of Livestock Protection Collars requires not only that collars be positioned correctly, but also that coyote attacks be directed or targeted to collared livestock. Targeting may be difficult or impossible under some conditions. If coyotes are killing less than once per week, the collar technique may be impractical. Collars are recommended for ranches with high rates of coyote predation and management conditions that permit effective targeting of predations to collared livestock.

Experienced persons usually can evaluate local conditions quickly to decide whether or not collars will be effective. In addition to the basic problem of targeting, other factors to consider in deciding whether or not to use collars include availability and effectiveness of other control methods; costs of collars; labor requirements to collar and monitor livestock; potential hazards of collars to humans, domestic animals including pets, and non-target wildlife; and severity of predation.

B. TOXIC PROPERTIES OF SODIUM FLUOROACETATE

Compound 1080 is highly toxic to warm-blooded animals, including man, when taken internally. Humans are not likely to be poisoned except by ingestion of collar contents. Based on available estimates of toxicity (0.7-2.1 mg/kg), one collar contains two to six lethal doses. Before using collars, read the label (Appendix A) and the Use Restrictions in this Technical Bulletin (Section II) carefully.

The toxic solution in Livestock Protection Collars contains yellow dye (tartrazine) as a safety marker. Punctured, damaged, or broken collars together with clothing, animal remains, vegetable, soil, or other materials marked by this dye must be cleaned or disposed of in accordance with the label and Sections I.D.5 and II.13.14 of this Technical Bulletin. Collars with minor damage to straps or fastenings may be repaired by applicators as long as the toxicant reservoirs have not been punctured and do not leak.

Compound 1080 is hazardous to domestic animals including livestock and pets. Dogs are particularly susceptible. In field studies, dogs have died after they attacked collared livestock and punctured the collars. As little as 0.1 ml of collar contents may be fatal to a 25-pound dog. Dogs could be poisoned by scavenging the carcasses of collared livestock. Therefore, to minimize the potential hazard to dogs, promptly dispose of all livestock carcasses as well as coyote carcasses suspected of being poisoned by Compound 1080 according to the instructions in this bulletin.

Pen studies have shown that an adult sheep can be fatally poisoned by eating forage containing as little as 1 ml 1080 of solution from Livestock Protection Collars. Although no livestock appeared to have been poisoned by eating contaminated vegetation during the five years of field testing, it could happen. Therefore, contaminated forage must be disposed of as directed on the product labeling.

C. DESCRIPTION OF COLLARS

The Livestock Protection Collar is a rubber bladder that contains a solution of Compound 1080 and has neck straps for attachment to a sheep or goat. The type of collar used most to date has two Velcro neck straps (0.75 inches wide and 22-25 inches long on new collars). Three-strap models also are available and are intended for use on goats. Two- and three- strap collars both come in two sizes: small and large. Use large-size collars on adult sheep and goats and on lambs and kids weighing over 50 pounds. Use small-size collars on lambs or kids weighing 15-50 pounds. Do not use collars on animals weighing less than 15 pounds. Each of the two toxicant reservoirs in large and small collars contains 15 ml of toxic solution, including 150 mg (0.15 grams) of sodium fluoroacetate. Each collar contains 30 ml of solution and 300 mg (0.3 grams) of sodium fluoroacetate.

D. MANAGEMENT OF COLLARS ON SHEEP AND GOATS

1. Things to do before putting collars on livestock:

- a. Be sure to have enough collars of proper size.
- b. Inspect all collars for leaks and inspect straps to be sure they are securely attached. Do not use leaking or torn collars or collars on which the straps are coming loose. Loose straps may be reattached by sewing.
- c. Check the fence around the pasture where collared animals are to be placed and repair as necessary to keep animals within the pasture.

- d. Establish locations for warning signs (Appendix B), and be sure you have enough signs.
- e. inform neighbors of your intent to use Livestock Protection Collars and advise them of the potential hazards to free-roaming dogs.
- f. If ear tags or other marks are to be used, have the tags and related equipment on hand.

Have an emetic (one-ounce bottle of syrup of ipecac) available when collars are to be handled. Also have a few good-quality plastic bags or other leak proof containers on hand for packaging damaged collars.

Select and pen the target flock (animals to be collared).

2. Attaching collars

Hold collars up to the necks of target livestock to determine the size of collars needed for each animal. The rubber portion of the collar should come up to the ear. If the collar is too small, there will be an unprotected region below each ear. This will result in a lower puncture rate than would be obtained with collars of proper size.

One person can put collars on livestock, but the task is much easier for a two-person team. One person holds each animal while the other attaches its collar. To attach a collar, hold it in position under the animal's throat. Tighten the rear strap over the animal's neck just behind the ears and fasten it temporarily. Then tighten the front strap over the head between the eyes and ears and fasten it securely. Straps should be positioned to keep the rubber part of the collar directly below the ear. On goats with horns, a collar with two straps can be used. The front strap may pass in front of both horns or in front of one horn and behind the other. If necessary, use string or twine to tie the front strap to one or both horns to keep the collar in position. If a goat collar (three straps) is used, position two of the straps on either side of ears and one in front of horns. Once the front strap is in position, readjust the rear strap if necessary and secure it. If the straps are longer than needed, a knife or scissors can be used to trim off the excess. Fasten the strap ends by stapling.

Collar straps must be tight enough to prevent collars from slipping out of position, but not so tight as to choke the animal or cause sores. Each strap should be loose enough that the applicator can insert two fingers between the strap and the animal. Collars stay in place well on animals with wool or mohair, but may be difficult to keep in position on newly shorn or slick-necked animals, particularly goats. Head and neck conformation varies among animals and it may be impossible to keep collars in place on some individuals. They should be taken out of the collared flock.

A suitable method of permanently identifying individual animals in a target flock is required to keep track of collared livestock. One such method is the use of numbered ear tags. Tags that can be read from a distance of 50 feet or more are most useful. If you are using ear tags, attach them before the animals collared. The manufacturer recommends numbering collared livestock with wool chalk for easy identification at a distance.

When the collar is in place, release the animal into a corral or other confined area and observe it carefully. Listen for labored breathing that may indicate the collar is too tight. When first released, collared sheep and goats often shake their heads, rub or make other attempts to rid themselves of the collars. This behavior will stop within a few hours if collars are not too tight. After you are satisfied that the collars are properly attached, move collared animals to the desired location.

Place warning signs at logical points of access (See Section II.10 and Appendix B).

After handling Livestock Protection Collars, wash your hands with soap and water.

3. Monitoring collared livestock.

Once collared animals are in the desired location, the pasture should be checked every seven days or more often if frequent predation is expected. During each check, try to locate each animal and observe collars to be sure they are in position. If the collar has slipped out of position, catch the animal and reposition its collar. Inspect each animal's neck for yellow dye, which could indicate a punctured or leaking collar. If the dye is seen, catch the animal and check the collar. Replace any damaged or leaking collar. See the label and Section I.D.5 and II.12 of the Technical Bulletin. Collars on small kids or lambs may require periodic adjustment to allow for growth.

When searching for collared livestock, watch for both animals carcasses and congregations of scavenging birds that could indicate the location of carcasses. Whenever you visit a pasture, record the identify of each collared animal seen. Check each warning sign weekly to ensure it is in place and is legible.

Based on experience gained in research studies, you will not see each collared animal every time you visit large, brushy pastures. Any animal not accounted for in two consecutive checks may be dead. An intensive search for it must be made. In addition, if more than three collared animals are not accounted for during any one check, an intensive search for these animals is required. Pastures must be systematically searched in their entirety or until the missing animals are located.

If more than nine collars and/or collared animals are unaccounted for during any 60-day period, remove all collars from animals and terminate their use. Seek technical advise if necessary to determine and correct the cause(s) of collar loss. Collar use may be resumed after adequate steps have been taken to prevent further, excessive loss of collars. See Section II.11.

Routine check of collared livestock are difficult if the animals are secretive or wild. Feed concentrates can be used to train animals to come to you or your vehicle. This facilitates the identification and inspection of collared livestock. It also helps to have a few tame animals in the collared flock. Binoculars may be useful for inspecting collared livestock from a distance.

Infrequently, collar may be missing from carcasses of sheep or goats killed by coyotes. In research studies, missing collars appeared to have been carried or dragged away by coyotes. Some were

found as far as half a mile away from kill sites, but about half of the missing collars were never recovered. Coyotes sometimes cache (hide or bury) them. Whenever, a collar is missing, make a reasonable effort to find it. See Section II.11.

If you see an animal that you think may have been poisoned, report it promptly to the appropriate regulatory agency. Any suspected poisoning of threatened or endangered species must be reported immediately. See Section II.6.

4. Handling collars and contaminated animal remains, vegetation, clothing, water and soil.

The toxic solution in the Livestock Protection Collar contains a yellow dye, Tartrazine, which is used as a marker for the presence of 1080 on punctured, damaged, or broken collars; on clothing, animal remains, vegetation, soil or other materials; and in water. Always use waterproof gloves when handling collars or any materials known to be contaminated by 1080.

Inspect carcasses of collared animals to determine the cause of death. When the carcasses are fresh (within 24 hours after death), coyote kills usually are obvious. Remove punctured collars carefully and examine the punctures. When collars are punctured by cactus thorns, the thorns sometimes remain in the holes. Holes made by coyote teeth usually can be distinguished from accidental punctures.

If the collar was punctured, remove it carefully to minimize leakage and place in a leak-proof plastic bag or other container. If necessary, double bag to prevent leakage. Examine the carcass for contamination as indicated by yellow dye. Cut away the contaminated parts for disposal along with the punctured collar. See Section II.12-14. Dispose of the remainder of the carcass using your normal practice. Cut or dig up contaminated forage and soil and place them in a leak-proof container for transport to the disposal site.

When predation has stopped or when collars are to be taken off for other reasons such as shearing, gather the collared flock into a corral. Hold each animal and inspect its collar for punctures. Loosen the neck straps and pull them free. Do not pull so hard that you rupture the collar. It may be necessary, particularly with Angora goats, to use a knife or scissors to free collar straps from the animals' hair. Clean unpunctured collars as necessary and return them to locked storage until you need them again.

If the collar was not punctured, the applicator can reuse it on another animal. Dispose of carcass using your normal practice. No special handling is required. If an unpunctured collar has only minor damage to straps or fasteners, the applicator may repair it.

If clothing becomes contaminated with 1080 solution, remove it promptly. Wash clothes before wearing them again. Contaminated leather clothing, including gloves and footwear, should be disposed of in the same manner as contaminated animal remains because pesticides cannot be easily cleaned from leather. See Section II.13.

5. Disposal of damaged collars and other contaminated materials.

Contaminated animal remains, vegetation, soil, water, and leather clothing must be properly disposed of. The preferred method is by deep burial under the three feet of soil in a safe field location at least one-half mile from human habitations and water supplies. For disposal on the ranch, it may be convenient to place wastes in an incinerator or refuse hole, saturate with diesel fuel, and ignite. Another alternative would be to drill several deep holes using a mechanized post hole auger, or to make a trench with a backhoe. Then, as waste materials are produced, they can be dropped into other hole or trench and covered with earth. All of the above methods should be at least 1/2 mile from human habitations and water supplies.

Alternatively, contact your State Pesticide or Environmental Control Agency or Hazard waste representative at the nearest EPA Regional Office for guidance in disposing of wastes at approved hazardous waste disposal facilities.

When snow or frozen ground make on-site disposal impractical, up to one cubic foot of wastes may be stored in a leak-proof container in a dry, locked place for up to 90 days.

E. DIRECTING COYOTE PREDATION TO COLLARED LIVESTOCK

1. General Comments

The process of directing coyote predation to collared livestock is called targeting. Knowledge of targeting is in its infancy and should improve as more people gain experience with Livestock Protection Collars. Three different approaches or targeting strategies are described here. Ranchers and predation control specialists are encouraged to apply these methods as necessary to achieve the best results in their own circumstances.

2. Targeting Strategies

a. Collar all vulnerable livestock.

Collaring all sheep and goats on a ranch would solve the targeting problem. This strategy has not been tested due to the cost of collars (\$16.50 - \$17.50 each in December, 1987) and the large number that would be required in large flocks (over 100 animals). Nevertheless, in small flocks (50 or fewer animals) it may be practical to collar all the lambs or kids. In flocks with 50 to 100 lambs or kids, it may be worthwhile to collar the smallest 20 to 50 individuals. Do not use more than 20 collars in any pasture under 100 acres, or more than 50 collars per square mile of fenced pasture.

b. Use target (collared) flocks

When coyotes are killing in particular pastures, remove all vulnerable livestock. Place 20 to 50 collared lambs or kids with their mothers in the pasture while all other vulnerable animals are penned at night or moved elsewhere. Add uncollared adult sheep or goats to the target flock to increase its total size to 50 or 100 head. If coyotes have been killing adult sheep or goats in the

area, both adults and kids in the target flock should be collared. Remove collars 30 days after predation ceases, or when the risk of predation has abated.

This was the strategy used in most filed tests and is the usual approach when collars are introduced onto a ranch where depredation is in progress. This strategy also can be employed by placing collared flocks in vacant pastures one or two months before large bands of sheep or goats arrive.

c. Collar vulnerable individuals in large flocks.

Coyotes usually prefer kids or lambs to adult goats and sheep. Experience with Angora goats has shown that if a few collared kids are placed in wether flocks (5-10 collared kids per 100 uncollared adults), coyotes will select the kids. This strategy has not been tested on and is not recommended for sheep.

3. Mistakes in Targeting

As with any new technique, one must learn how to use Livestock Protection Collars before optimum results can be expected. Following is a list of some mistakes commonly made by persons learning this technique.

a. Collars may be placed where effective targeting cannot be expected. In an example, 20 lambs were collared in an ewe-lamb flock containing hundreds of lambs. Coyotes subsequently killed the uncollared lambs. Effective targeting did not occur because collared lambs were far outnumbered by uncollared lambs that were equally attractive to coyotes.

b. Collars are placed where predation is too infrequent. In one such case, collared sheep were exposed for four weeks during which no predation occurred. The users then lost interest and remove the collars. There was no further predation on this ranch for several months. Collars cannot be used effectively where there is little or no predation.

c. Target flocks are too small. In one example, six collared lambs were left alone in a one-section pasture. Coyotes passed through the pasture without finding the collared animals and then killed sheep from a large flock in an adjacent pasture. The larger the flock, the more likely it is to attract coyotes. The optimum size for target flocks has not been determined, but pastures of 100 acres or more should probably contain at least 50 head.

d. Target flocks are not isolated sufficiently from uncollared livestock. On one small farm, a group of ewes and collared lambs was exposed while other sheep on the place were penned each night. Instead of killing in the collared flock, coyotes switched to a neighbor's unprotected flock half a mile away. With small farm flocks, adjacent landowners may have to work together to achieve effective targeting.

e. Small collars are used on large sheep or goats, leaving the throat region inadequately covered. Coyotes frequently kill these animals without puncturing the collars.

f. Collars are attached improperly or they slip out of position. Coyotes will kill these animals but are unlikely to puncture the collars.

g. Collars are placed on sick or cull animals in an effort to avoid sacrificing more valuable livestock. This may be false economy, as coyotes may not attack ill or lethargic animals. Collars should be used only on animals of the size and kind that coyotes have been killing locally.

h. Use of collars may be accompanied by increased human activity on the ranch. Coyotes often are wary of unusual activity and may temporarily stop killing because of it. Collars should be placed and monitored with a minimum of disruptive activity.

F. REFERENCE

Technical Bulletin for the Sodium Fluoroacetate (Compound 1080) Livestock Protection Collar, EPA Registration Number: 56228-22 by Guy Connolly, Wildlife Research Biologist (August, 1989, revised July, 1991, March 1993, July, 1993 and Reregistration Reprint July, 1996, revised April, 1998) U.S. Department of Agriculture, Animal and Plant Health Inspection Service Wildlife Services, 4700 River Road, Riverdale, MD 20737-1237.

SECTION II

USE RESTRICTIONS FOR TEXAS

SODIUM FLUOROACETATE (COMPOUND 1080)
LIVESTOCK PROTECTION COLLARS
(EPA Registration No. 46779-1)

1. Use of collars shall conform to all applicable Federal, State, and local regulations.
2. Collars shall be sold or transferred only by registrants or their agents and only to certified Livestock Protection Collar applicators. Collars may be used only by specifically certified Livestock Protection Collar applicators or by persons under their direct supervision.¹

The certified applicator is directly responsible for assuring that all use restrictions are met. The certified applicator will decide, in accordance with label directions, when and under what circumstances collars will be used. The certified applicator will either apply collars or be physically present where collars are applied by a non-certified applicator. However, the non-certified applicator who has received appropriate instructions from the certified applicator may store collars, check collars in the field, remove collars, repair or dispose of damaged collars in accordance with use restrictions, retrieve collars lying in the field, and properly dispose of contaminated material and animal carcasses.

3. Certification of applicators shall be performed by appropriate regularly agencies. Prior to certification, each applicator shall receive training which will include, but need not be limited to:
 - (a) Training in safe handling and attachment of collars.
 - (b) Training in disposal of punctured or leaking collars, contaminated animal remains, contaminated vegetation and soil, and contaminated clothing.
 - (c) Instructions for practical treatment of 1080 poisoning in humans and domestic animals.
 - (d) *Instructions on record keeping.*
 - (e) Training on the identification of livestock losses.
 - (f) Training on alternative controls of predation.

4. Registrants or their agents shall keep records of all collars sold or transferred at their address of record. Records shall include the name, address, and state where the Livestock Protection Collar certification was issued, certification number of each recipient, and dates and numbers of collars sold or transferred.

¹ "Direct Supervision," as described in this restriction, conforms to the requirements established under 40 CFR 171.6.

5. Each applicator shall keep records dealing with the use of Livestock Protection Collars and the results of such use on forms prescribed by the Texas Department of Agriculture. Records shall be maintained in accordance with appropriate State or Federal regulations but not for less than two years following disposal or loss of collars. Such records shall include, but need not be limited to:

- (a) The number of collars attached on livestock.
- (b) The pasture(s) where collared livestock were placed.
- (c) The dates of each attachment, inspection, and removal.
- (d) The number of locations of livestock found with ruptured or punctured collars and the apparent cause of the damage.
- (e) The number, date, and approximate location of collars lost.
- (f) The species, locations, and dates of all animals suspected to have been killed by Livestock Protection Collars.
- (g) All suspected poisoning of humans, domestic animals or non-target wild animals resulting from collar use.
- (h) Records of disposal of contaminated collars and carcasses including date and location of disposal.

6. Any suspected poisoning of threatened or endangered species must be reported immediately (within one working day) to the Texas Department of Agriculture, as will each suspected poisoning of humans, domestic animals or non-target wild animals.

7. Only the registrant is authorized to fill collars with 1080 solution. Certified applicators are not authorized to fill collars. Compound 1080 solution may not be removed from collars and used in any other way.

8. Collars shall be used only on sheep and goats to take coyotes within fenced pastures. Fenced pastures include all pastures which are enclosed by livestock fencing. In addition to wire livestock fences, these may include other man-made fences, such as rock walls, and natural barriers, such as escarpments, lakes, and large rivers, that will prevent escape of livestock. Collars shall not be used on unfenced, open range.

Use of Livestock Protection Collars shall be limited to fenced pastures no larger than 2,560 acres (4 square miles). Larger fenced pastures, up to maximum of 10,000 acres may be treated where the average annual precipitation is less than 20 inches and vegetation of the pasture is sparse, non-forested and restricted to short to mid-height grasses and scattered shrubs. Collared livestock shall not be placed in any pasture in which the applicator cannot monitor use in accordance with all other use restrictions. In no case shall collared livestock be placed in a pasture larger than 10,000 acres.

9. Collars shall be used only where losses of sheep or goats due to predation by coyotes are occurring or, based on prior experience, where coyote predation can reasonably be expected to occur.

10. Where collars are in use, each logical point of access (e.g., roads, gates, trails, etc.) shall be conspicuously posted with a bilingual (English/Spanish) warning sign not less than 8"X10" in size. Such signs shall be inspected weekly to ensure their continued presence and legibility and will be removed when collars are removed. The signs will have a minimum type size for "DANGER-POISON" of 24 points (1/4 inch). The remaining text would be at least 18 points (3/16 inch).

11. Check all collared livestock at least once every seven days and adjust collars if needed.

If any collared animal is not accounted for in two consecutive checks, an intensive search for it must be made.

In addition, if more than three collared animals are not accounted for during any one check, an intensive search for these animals is required.

If more than nine collars are unaccounted for during any 60-day period, remove all collars from animals and terminate their use. Do not resume use until adequate steps have been taken to prevent further, excessive loss of collars.

12. Damaged, punctured, or leaking collars shall be removed from the field for repair or proper disposal. Damaged collars shall be placed in leak proof containers while awaiting repair or proper disposal. Authorized collar repairs are limited to minor repairs of straps and fastenings. Leaking or punctured collars must be properly disposed. The collar's serial number must not be removed from the collar.

13. Dispose of 1080 wastes (punctured, leaking, or otherwise unrepairable damaged collars; contaminated leather clothing, animal remains, wool, hair, vegetation, water, and soil) by placing in an incinerator or refuse hole, saturating with diesel fuel, and igniting (preferably on property owned or managed by the applicator) and at least 1/2 mile from human habitations and water supplies. If more convenient, 1080 wastes (listed above) may be disposed under three feet of soil, at a safe location at least 1/2 mile from human habitations and water supplies. No more than 10 collars may be buried in any one hole. If buried in trench, separate each group of 10 collars by 10 feet of soil.

Alternately, contact the registrant or agent who sold the collar to determine if the collar can be returned or contract the Texas Department of Agriculture, the Texas Water Commission, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance to disposing facilities.

When inclement weather makes on-site disposal impractical, up to one cubic foot of wastes may be stored in a leak-proof container, in a dry, locked place for up to 90 days.

Metal Container: Triple rinse contaminated and uncontaminated containers with water. Puncture and dispose of contaminated container and rinsate under three feet of soil, at a safe location and at least 1/2 miles from human habitations and water supply.

Plastic Container: Triple rinse with water. Then puncture and dispose of container and rinsate as above.

14. All persons authorized to possess and use Livestock Protection Collars shall store them under lock and key in a dry place away from food, feed, domestic animals and corrosive chemicals and in outbuildings or in storage areas which may be attached to, but separate from human living quarters. Collars shall not be stored in human living quarters.

15. The number of collars used shall be the minimum necessary for effective livestock protection. For pastures of the following size classes, do not use more collars than the number indicated.

SIZE IN ACRES	NUMBER OF COLLARS
0-100	20
101-640	50
641 to 10,000*	100

*See Use Restriction 8.

16. Each applicator will have a one-ounce bottle of syrup of ipecac (to induce vomiting in case of accidental poisoning) available when attaching, inspecting, removing, or disposing of collars.

17. No contaminated animal will be used for food or feed.

18. Pursuant to Section 76.151 of the Texas Agriculture Code, representatives of the Texas Department of Agriculture shall have the right of entry at reasonable times on any site to ensure that use restrictions, laws, and regulations are met.

19. Each animal with a toxic collar must have a numbered ear tag or another method of marking approved or authorized by the Texas Department of Agriculture to assure the proper and ready identification of the animal as one with a collar.

20. The collar shall not be used in:

- (a) National or State Parks;
- (b) National Monuments;
- (c) Federally designated wilderness areas;
- (d) Wildlife refuge areas;
- (e) Areas within national forests or other Federal lands specifically set aside for recreational use;
- (f) Local parks or recreational areas.

21. No collar may be used by a certified Livestock Protection Applicator or persons under their direct supervision unless it was purchased by the certified Livestock Protection Collar applicator from a registrant or agent approved by the Texas Department of Agriculture in accordance with the rules of the Texas Department of Agriculture and with these use restrictions.

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND
DOMESTIC ANIMALS**

DANGER

Fatal if swallowed. Wear waterproof gloves when handling collars. Wash hands after handling collars or animals that have been contaminated with 1080 solution. Do not use contaminated animals for food or feed.

ENVIRONMENTAL HAZARDS

This product is very highly toxic to wildlife. Birds and mammals feeding on carcasses of contaminated livestock may be killed. Keep out of any body of water. Apply this product only as specified on this label.

**ENDANGERED SPECIES
CONSIDERATIONS**

NOTICE: It is a Federal offense to use any pesticide in a manner that results in the death of a member of an endangered species.

The use of 1080 in the Livestock Protection Collar has been determined to pass a hazard to several endangered species.

NOTE TO PHYSICIAN

WARNINGSYMPTOMS: 1080 poisoning results from the transformation of fluoroacetate into fluorocitrate within cell mitochondria. Poisoning is characterized by a symptom-free latent period of 1/2 to 2 hours or longer between ingestion and onset of symptoms (nausea, vomiting, diarrhea and hyperactive behavior leading to convulsion, coma and cyanosis). Ventricular fibrillation is commonly noted and is the primary cause of death. Early symptoms include alteration of heart sounds and premature, weak contractions.

TREATMENT: No effective antidote is known but symptomatic treatment may be effective. Establish respiration; create artificial airway if necessary. Check adequacy of tidal volume. Initiate emesis. If patient is comatose, convulsing or has lost the gag reflex, endotracheal intubation should precede gastric lavage with large bore tube. Administer activated charcoal and magnesium sulfate. Treat seizure with IV diazepam. Monitor cardiac function closely. Treatment with glyceryl monoacetate (monacetin) may be effective, however, it is experimental and unproven in humans. **CONSULT NEAREST POISON CONTROL CENTER FOR CURRENT INFORMATION.** Symptoms of nonlethal intoxication will usually subside within 12-24 hours.

RESTRICTED USE PESTICIDE

**DUE TO ACUTE ORAL TOXICITY AND THE NEED FOR
HIGHLY SPECIALIZED APPLICATOR TRAINING**

Collars may be sold or transferred only by registrants or their agents and only to certified Livestock Protection Collar applicators. Collars may be used only by specifically certified Livestock Protection Collar applicators or by persons under their direct supervision. This product may only be used in Texas.

**SODIUM FLUOROACETATE
(COMPOUND 1080)**

LIVESTOCK PROTECTION COLLAR

For use on sheep and/or goats to
kill depredating coyotes.

ACTIVE INGREDIENT	1.00%
Sodium Fluoroacetate	
INERT INGREDIENTS	99.00%
TOTAL	100.00%

KEEP OUT OF REACH OF CHILDREN

DANGER



POISON

STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED: Induce vomiting at once with emetic such as syrup of ipecac; use as directed. If emetic is not available drink 1-2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person. **PROMPT TREATMENT IS MANDATORY. GET MEDICAL ATTENTION IMMEDIATELY.**

IF ON SKIN: Wash the exposed area twice with soap and water. **IF IN EYES:** Flush eyes with plenty of water. Call a physician if irritation persists.

IF ON CLOTHING: Remove contaminated clothing and wash before re-use. Dispose of all contaminated leather, including shoes, boots and gloves, according to the Pesticide Disposal section. See disposal instructions on side panel.

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

Manufactured By: **RANCHER'S SUPPLY, INC.**
BOX 725, ALPINE, TX 79831
U.S. PAT: 3,842,806
4,338,886
EPA EST. NO. 46779-TX-01
EPA REG. NO. 46779-1
NET CONTENTS: 30.4 grams (1.1 oz.) per collar

NOTICE

Seller makes no warranty expressed or implied concerning the use of this product other than that indicated on the label. Buyer assumes all risk of use and/or handling of this material when such use and/or handling is contrary to label instructions.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

STORAGE: Store Livestock Protection Collars only in original container, in a dry, locked place away from food, feed, domestic animals and corrosive chemicals. Do not store in any structure occupied by humans.

When snow or frozen ground make on site disposal impractical, up to one cubic foot of wastes may be stored in a leakproof container, in a dry locked place for up to 90 days.

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of such materials is a violation of Federal law.

Dispose of collars and other wastes contaminated by 1080 (carcasses, wool, hair, vegetation, soil, leather clothing, and water) under three feet of soil, at a safe location, preferably on property owned and managed by the applicator and at least one half mile from human habitations and water supplies.

Incineration may be used instead of burial for disposal in the field (preferably on property owned or managed by the applicator) at least 1/2 mile from human habitation and water supplies. Place collars and wastes (listed above) in an incinerator or refuse hole, saturate with diesel fuel, and ignite. Attend the burn until the contaminated material is completely consumed.

Alternatively, contact your state pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in disposing of wastes at approved hazardous waste disposal facilities.



CONTAINER DISPOSAL:

Metal Containers: Triple rinse contaminated and uncontaminated containers with water. Then puncture and dispose of contaminated containers and rinse as above.

Plastic Containers: Triple rinse with water. Then puncture and dispose of container and rinse as above.



COLLAR DISPOSAL: Dispose of punctured or unserviceable collars as above, except that not more than 10 collars may be buried in any one hole. If buried in trench, groups of 10 collars must be at least 10 feet apart.

**SEE BACK PANEL AND TECHNICAL BULLETIN
FOR DIRECTIONS FOR USE**

 **DANGER — POISON** 

**TO CONTROL STOCK-KILLING COYOTES,
SHEEP OR GOATS IN THIS AREA ARE
WEARING NECK COLLARS THAT CONTAIN
A POISON, COMPOUND 1080
(SODIUM FLUOROACETATE).**

**DO NOT TOUCH COLLARED
LIVESTOCK, COLLARS, OR DEAD
ANIMALS. DO NOT RELEASE
LIVESTOCK.**

 **PELIGRO — VENENO** 

**PARA CONTROLAR COYOTES QUE ATACAN AL
GANADO, ALGUNAS OVEJAS O CABRAS
EN ESTA AREA LLEVAN COLLARES QUE
CONTIENEN VENENO, COMPUESTO 1080
(FLUROACETATO DE SODIO).**

**NO TOQUE LOS ANIMALES, LOS
COLLARES, NI LOS ANIMALES
MUERTOS, NO SUELTE A LAS
OVEJAS O CABRAS.**