

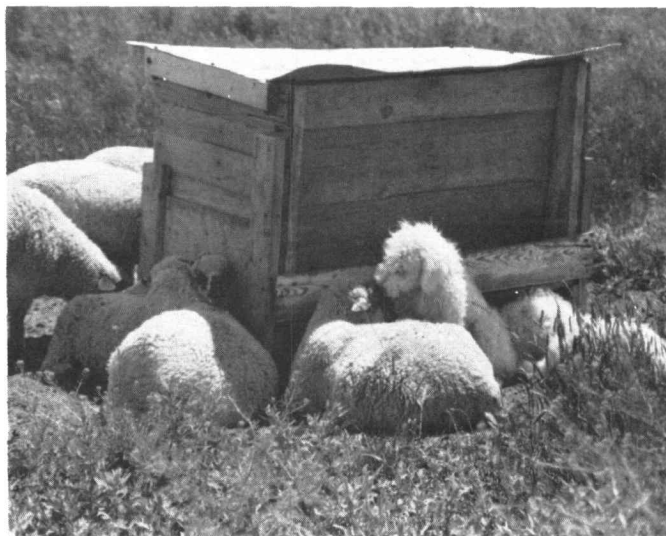
Is Predator Control Going to the Dogs?

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Although dogs were routinely used for centuries in Europe and Asia to protect livestock from predators, this method of predator control is relatively new in this country. Historically, livestock producers in the United States and Canada have relied upon trapping, snaring, denning, poisoning, aerial gunning and sport hunting to reduce losses of their stock to predators. When poisoning, a reportedly effective control technique, was removed from this arsenal by a Presidential order, the search for alternative, effective, and acceptable methods of predator control intensified. Non-lethal control techniques such as aversive agents, repellents, scare devices, anti-fertility agents, and electric fencing became the vogue for researchers.

In the mid 1970's, several Hungarian Komondor and Great Pyrenees dogs were put to work protecting livestock. The apparent success of some of these dogs in reducing predation led to the establishment of at least four research projects in the United States to evaluate the usefulness of dogs for predator control and to define the procedure required to produce acceptable stock guardians. Although one project was completed (Linhart et al. 1979), the others are continuing. There are currently two centers for livestock guarding dog research, one under the direction of the Science and Education Administration, U.S. Department of Agriculture, in Dubois, Idaho and the other at the New England Farm Center in Amherst, Massachusetts.

ing dog questionnaire to more than 120 people who were reportedly using dogs to protect sheep and/or goats. Questionnaires were sent to 63 owners of Great Pyrenees in 25



Two Komondor pups (4 months old) with sheep. Dogs are property of USDA-SEA.

states and 1 Canadian province and to 54 owners of Komondorok (plural) in 12 states and 4 Canadian provinces.

The apparent wider distribution of working Pyrenees may be due to the fact that they are more numerous than Komondorok in this country (currently, approximately 800 to 1,200 Komondorok and 12,000 to 14,000 Great Pyrenees are in the United States. Estimates were derived from American Kennel Club records).

We obviously did not contact all owners of working livestock guarding dogs, nor even necessarily a significant proportion of them, but we feel that the results obtained are representative of this form of predator control. Approximately 61% of the questionnaire recipients responded and they collectively owned a total of 78 Komondorok and 39 Great Pyrenees dogs.

It would be unwise to generalize excessively from this sample, but several points merit attention. The majority of owners who use their Komondorok or Great Pyrenees for protection of livestock rate them as good to excellent and feel that the dogs reduce or eliminate predation of their stock. The average time the dogs have been working is 2 years, a relatively short time.

Our research at the Sheep Station involves both Komondorok and Great Pyrenees, the only two traditional livestock guarding breeds that occur in appreciable numbers in this country. (The Navajo Indians in Arizona reportedly use mongrel dogs to successfully protect their stock.) Some preliminary results of research closely correspond to the questionnaire results and warrant emphasis:

1) Dogs that are continually exposed to livestock and the sights, sounds, and smells of the ranching operation at an early age, appear to have less of a problem adjusting to strange circumstances and may have a greater tendency to remain with livestock. (The average age of



Nine-months old male Great Pyrenees with range sheep. Dog is property of USDA-SEA.

Among the questions being researched are: (1) what breeds of dog will protect livestock, (2) at what age are the dogs effective, (3) what training of the dogs is required, (4) how do the dogs protect livestock, and (5) how many dogs are needed to protect various numbers of livestock under different grazing systems. Research at the U.S. Sheep Experiment Station is directed toward examining the feasibility of using guarding dogs to protect bands of range sheep.

A part of our research involved sending a livestock guard-

the dogs in the survey at first exposure to livestock was 6 months, with over 60% of the dogs being exposed younger than 6 months old.)

2) Some basic obedience training is desirable. In general terms it is advantageous to be able to control the dog (when sheep are moved, etc).

3) Be swift to correct any bad behavior of the dog, especially as it relates to playing with or harassing livestock. Although this generally occurs in the context of a play behavior, the dog must know that harassing the stock is unacceptable. (This was the most common problem mentioned by responders to the questionnaire.)

4) Be patient. The large breeds of dogs may not mature until they reach 2 or more years of age. Both Komondorok and Great Pyrenees are intelligent and may often totally disregard a command. In certain cases, the judgment of the dog may be best.

5) In general terms, physical abuse of dogs is unnecessary and may be detrimental by causing a dog to become shy or cowardly.

6) The guarding trait may largely be instinctive in at least the breeds under study at the Sheep Station. Indeed, it is probable that the inherent typical response to a strange intruder (barking, chasing, scent marking) keeps many potential canid predators from preying on the stock. However, the dogs likely need to be directed in their behavior (where they are to guard and what they are to guard).

7) There is a variety of opinion as to the degree of affection that should be given the guarding dog. On the one hand some say, "Love the dog and it will guard whatever is yours," and on the other hand one responder advocated having a stranger beat the dog to instill within it a hate or distrust for anything strange. The best approach may well be a median one—give the dog affec-

The results in Table 1 are not intended to be viewed as a government endorsement of correct or incorrect dog-handling procedures nor an endorsement of any particular breed of dog.

Table 1. Selected results of the livestock guarding dog questionnaire.

	Komondor		Great Pyrenees			Komondor		Great Pyrenees	
		%		%			%		%
Number of owners contacted	54		63		Are you aware of encounters between your dog and predators?				
Number of owners that responded (some answered only selected questions)	36	(67)	36	(57)	Yes (but rarely has a physical encounter been observed)	16/24	(67)	18/22	(82)
How much prior experience with guarding dogs?					No	8	(33)	4	(18)
None	23/29	(79)	24/33	(73)	Has your dog ever killed a predator?				
What type of stock is your dog protecting?					No	9/13	(69)	15/17	(88)
Sheep	18/29	(62)	21/24	(88)	Yes	3	(23)		
Goats	8	(28)	4	(17)	How does your dog react to livestock dogs?				
Poultry, cattle or combination of above	9	(31)	7	(29)	Aggressive	4/19	(21)	6/20	(30)
At what approximate age did your dog first begin to guard effectively?					Passive	2	(11)	7	(35)
less than 6 months			3/17	(18)	Friendly	8	(42)	6	(30)
6-12 months	9/13	(69)	9	(53)	Variable	5		1	
12-24 months	2	(15)	5	(29)	How does your dog react to strange people?				
Do you teach your dog basic obedience commands?					Aggressive	18/23	(78)	5/23	(22)
Yes	31/33	(94)	24/28	(86)	Passive			3	(13)
How much time do you spend training your dog?					Friendly	5	(22)	8	(35)
A lot	5/23	(22)	2/24	(8)	Variable			7	(30)
Some	9	(39)	10	(42)	Has your dog learned from experience to be aggressive to predators or is it mostly instinctive?				
None or very little	8	(35)	11	(46)	Experience & instinct	2/13	(15)	2/17	(12)
Who can work with your dog?					Instinctive	8	(62)	15	(88)
Generally 1 or 2; only family members	Majority		Majority		Don't know	3	(23)		
How long has your dog been working for you?					How has your dog affected the number of predator losses you have had?				
Range	2 mo-7 yr		4 mo-4½ yr		Eliminated or reduced losses	10/13	(77)	13/17	(76)
Average	2.2 yr		1.9 yr		No response	3		4	
Where does your dog work?					How do you rate the overall performance of your dog?				
Fenced pasture (size)	21/23 (22-500 acres)	(91)	22/24 (10-96 acres)	(92)	Excellent	9/23	(39)	13/22	(59)
Rangeland	2		2		Good	12	(52)	8	(36)
					Poor	2	(9)	1	(5)

tion when it is where it is supposed to be and when it is doing what it is supposed to be doing. This positive reinforcement will produce better results than physical abuse.

8) Although the Komondor and Great Pyrenees are similar in many aspects of temperament, behavioral characteristics and working ability, at least two traits appear different between the breeds. More owners of Komondorok than owners of Great Pyrenees (78% vs 22%) rated their dogs as being aggressive to strange people. More owners of Great Pyrenees than owners of Komondorok (65% vs 15%) described their dogs as being able to quickly adapt to new environments or situations. Further research is needed to substantiate these apparent differences.

The following quotation from Connie Coppersmith of Pasco, Washington, an owner of several working Great Pyrenees dogs, is representative of the responses received to the questionnaire.

Question: In your estimation, how has your dog affected the number of predator losses you have had?

Response: Before the dogs, it was very common to see coyotes in the early morning either on the hillside beyond the corrals or actually in the yard. We live on the edge of the range land and in

the past we would always have to corral the sheep at night but this past summer our lambs stayed out in the pasture at night without one loss to coyotes. . . . We had a large range sheep operation until a few years ago when turned to farming. I wish we had known about these dogs then as our coyote losses were great.

Livestock guarding dogs are effective in reducing or eliminating predation of livestock in many situations. The use of dogs is not free from problems, however, and indeed, some people will not have the patience, inclination nor ability to rear a dog through the adolescent period which may last 18 months. Furthermore, there is no guarantee that even a dog of a recognized guarding breed will be an effective guardian when it matures.

Presently, there appears to be behavioral variation between and within breeds. Despite the problems, there is hope that current research will shed light on when and where dogs can effectively protect livestock from predators and what form and duration of training is required to bring the dog to an acceptable level of performance.

Literature Cited

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Sheep Production in Australia

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Today, Australia has the largest sheep industry in the world, and pastoralists glow with pride when they consider the key role wool has played in the development of the "great land of the south". Unlike America where the French, Spanish and British shared in colonization, the British alone were responsible for introducing livestock and establishing colonies in Australia from the earliest penal settlement at Sydney Cove in 1788.

Sheep husbandry was initially promoted for meat production since the isolation of the continent from England meant that self-sufficiency in the supply of food was essential for survival. In spite of the enthusiasm and efforts of the colonists, however, the first attempts at sheep production were disastrous with only one animal surviving from the first flock. The industry remained small and fragile for the first decade of settlement, barely able to withstand the ravages of drought, flood, and attacks by aborigines. Once self-sufficiency was attained, the potential for further increases in meat production was limited since European markets lay

beyond the feasible range of wind-powered transports.

The direction of the industry was changed through the insight and efforts of one man, John Macarthur, an enterprising captain of the British soldiery. In spite of the early setbacks to sheep production, Macarthur firmly believed that sheep would perform well in the new country. Since the wool market was booming in England and since wool was sufficiently durable to survive the long ocean voyage, he decided to breed sheep specifically for wool. In conjunction with Rev. Marsden, he imported more sheep which included some Spanish Merinos from King George's Royal flock, the only animals of their type to reach Australian shores.

In 1807, Macarthur exported his first wool clip to England, where it attracted a good price and much interest because of its quality. By 1827, the colony was successfully competing with the Saxony wool-growers, who had dominated the wool trade for centuries. Within 40 years of Macarthur's first wool exports, New South Wales was producing more wool than any other country, a factor which stimulated exploration of the vast interior of the continent.

Attractive economics of production coupled with the adaptability of Macarthur's Merino to range vegetation caused spectacular increases in sheep numbers from 20 million to 1861 to 106 million in 1895. Initially, sheep were

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