



*Diana Ralphs looks on as daughter Marian takes center stage at the farewell gathering.*

professionals, journalists and politicians had assembled for this weekend, attracted, certainly, by the uniqueness of the Saval project and the Chinese delegation's visit. But it was the underlying sense of stewardship for the land that they all shared that had made colleagues out of strangers and rendered the tour a success from all viewpoints. Stewardship, Jeanne Edwards would point out, is what land management and the Saval Project are all about.

*Editor's Note:* Mike Edwards, Senior Writer, National Geographic Magazine, points out some interesting facts in his letter of thanks to Jeanne Edwards.

Dear Jeanne:

I have written the following people who helped out in Elko: Rod Harris, Dave Secrist, Dick Hallman, Floyd Kinsinger, Richard Eckert, Jr., Fee Busby, Mike and Diana Ralphs, Mike Willey, Ivan McWilliams, and Jerry Magnasun.

But I realize I have overlooked one person—you. It was a great good thing you did, to have those eight Chinese at the Saval for a weekend, and a holiday weekend at that. As you know, most of the 26 days the Chinese spent in the United States they were governed by a stopwatch. But at the Saval they were able to relax, to see Americans in an informal situation, and ask questions about practical subjects without the pressure of time. I'm sure they count the Saval weekend as the great experience of their journey through America—a journey that, in all likelihood, only one or two will be able to duplicate in their lives.

I know that days and days of work went into making this visit successful—the borrowing of beds as well as the inviting of experts. From the standpoint of the Chinese, however, I'm sure every bit of that effort was deeply appreciated. I appreciated it too.

And what luxury for the Chinese to have so many experts to talk to! You may be interested in something Dr. Zhao said after reaching into his encyclopedic mind for some figures:

"You have so many scientists in the United States. You have about 3,000 counties, and in general every one has scientists. In China we have about the same number of counties. If we had as many scientists as you, we would not have to worry about our standard of living. You have about one million scientists. In China we have only one-third as many—but five times as many people."

I think he used "scientists" in a broad sense, including extension agents and other workaday advice-givers. In any case, it was a telling commentary, inspired by the presence of so many researchers and others at the Saval that snowy May weekend.

Thanks for everything. I hope one of these days we can repay the favor.

## Livestock Guarding Dogs: Economics and Predator Control

Jeffrey S. Green, Todd T. Tueller, and Roger A. Woodruff

There has been increasing interest over the past several years regarding the use of livestock guarding dogs to protect sheep and goats from predators. Reports from various producers indicate that several breeds of dogs offer acceptable protection against coyote predation. Additionally, there are currently at least three research projects in progress in the United States to document the effectiveness of the use of these dogs. Results from these projects will be of considerable interest to the sheep industry.

One question frequently asked by livestock producers concerns the economic feasibility of using this form of predator control since, on first inspection, the purchase price of a dog seems high. In this report, we examine some of the economic questions concerning the use of livestock guarding dogs.

The Komondor, a livestock guarding dog of Hungarian origin, was used in this analysis since this dog is currently being researched by the authors at the U.S. Sheep Experiment Station in Dubois, Idaho. Other guarding breeds, including the Great Pyrenees (also being studied at Dubois), the Kuvasz, the Karabash, the Shar Planinetz, and the Maremma, may equally fit the discussion, although initial purchase price will vary among breeds. Several of the latter breeds are being researched at the New England Farm Center in Amherst, Massachusetts and are difficult to obtain.

At the outset, a point to consider is the number of dogs that actually develop into effective livestock guardians. There is variability between and within breeds. One researcher reported that "my best and worst dogs were from the same litter." Therefore, it is not safe to assume that a dog will become a good livestock guardian merely because it is "this" or "that" breed or blood-line of dog. While it is true that training and proper handling may be important to bring a dog to its full potential, some dogs may never be livestock

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*Five-month old Great Pyrenees pup*



*19-month old male Komondor with range sheep*

protectors.

The purchase price of a Komondor puppy is variable depending upon age, blood-line, and breeder and may range from \$300 to \$750 or more. We elected to use a mid-range purchase price of \$500 for a 2-month old puppy. Older proven dogs, and particularly dogs that have had experience with livestock, may cost more. Other first year costs include: food (approximately 2 lb/day)—\$175; veterinary (vaccinations and miscellaneous care)—\$90; kennel facility (optional in some cases)—\$100; and miscellaneous expenses (i.e. collar, lead)—\$25, for a first year total of \$890. Subsequent yearly maintenance costs include: food—\$175; veterinary—\$75; and miscellaneous—\$25, for a total of \$275.

Depending on the management system, two dogs may be required to protect the sheep of some livestock operations. Thus, the cost for two dogs for the first year may be approximately \$1,780. A Komondor may live from 10 to 14 years and provide 6 to 10 years of productive service. Other suitable dog breeds may have a similar longevity.

At least two costs of using livestock guarding dogs are not detailed and they are each highly variable. The first is labor required to train the dog. Several owners of successful guarding dogs report that they use no training whatsoever, but rely on the dog's instincts to direct its maturation. The majority of owners teach their dog basic obedience commands and feel that such training is important. At this point in our research, we recommend some formal obedience training consisting of basic commands so that the dog can be confidently controlled. The time involved to do this work is a cost that must be realized by those who select this form of predator control.

The second cost involves sheep that may be injured or killed in the course of the dog's maturation and training process. It is not uncommon for pups to become overly playful with sheep. Some serious injuries may result. This is unacceptable dog behavior and must be rapidly corrected. Some dogs pass through this phase quickly and others may never display this behavior. Therefore, although variable, this is a possible cost that producers must be aware of.

For illustration we will examine a hypothetical range sheep

operation consisting of 1,000 ewes with a 125% lamb crop. The predation rate is assumed to be 4%. Therefore, after docking, the producer has 1,250 lambs of which 50 will be lost to predators during the year. The predation rate varies between ranches depending on type of management, degree of predator control, season of the year, and the predator population. Reports from the Intermountain West indicate that predator losses vary from 0 to over 20% among ranches.

As an example, if the guard dog is 50% effective in reducing predation, (thus saving 25 lambs), and a producer sells 100 lb market lambs at \$60/cwt, and additional income of \$1,500 would be realized. If the dog was 80% effective (thus saving 40 lambs), an additional \$2,400 income would be obtained. It is also evident that as the predation rate increases, the value of even a 50% effective dog is significant.

The degree of dog effectiveness is variable as was stated previously. As the dog matures and becomes experienced, its effectiveness should increase. In general terms, although some dogs reportedly are good flock guardians by as early as 9 months of age, others may take 1½ to 3 years before they significantly reduce predator losses. Therefore, several years of acceptable flock protection (thus, more income from sheep) may be required to recover the costs of using dogs.

While data from current research projects are not yet complete, there are dogs that currently are literally keeping people in the livestock business. Some dogs do work in some situations. This is an established fact. It is hoped that continued research will indicate how, when, and where livestock guarding dogs will be most effective.

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*Editor's Note:* Hopefully, later, the author or someone else will write about the responsibilities associated with ownership and use of guard dogs. They must be antisocial to animals (other than sheep) and human beings, and as a result their special care and control requirements must be taken into account. That topic is more related to management considerations and the pros and cons of using dogs and not strictly related to economics as this article is.