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Livestock guard dogs, llamas, and donkeys for reducing livestock losses to predators

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Quick Facts

Guard dogs are an effective method to reduce predation on livestock. Guard llamas and donkeys also appear to reduce losses but appear less effective than guard dogs.

Guard dogs can be used in farm flock/pasture operations, on open range, and in feedlots. Llamas and donkeys are most effective in fenced pastures less than 300 acres.

Raise guard dogs with sheep and treat them as working dogs. Introduce llamas and donkeys to sheep in small pens.

Livestock Guard Dogs

Guard dogs can be used effectively to protect sheep from predation by coyotes (*Canis latrans*), dogs, black bears (*Ursus americanus*), and mountain lions (*Felis concolor*). They can be used to protect small or large flocks in fenced pastures, on open range and in feedlots.

Characteristics

Most guard dogs are large and imposing, weigh 75 to over 100 pounds and stand 25 inches or more at the shoulder. Most have long white hair, although some are brown or gray.

Guard dogs do not herd or chase sheep. They work independently of a shepherd and can be left unattended with a flock. Their normal behavior is calm and placid, and most spend much of their time dozing or walking with their flocks. However,

all breeds are wary of intruders, and fierce and fearless when provoked.

Successful guard dogs are **trustworthy** (will not harm sheep), **attentive** to the sheep, and **aggressive** toward predators. These traits are instinctive and develop in most dogs with proper handling and minor training.

Purchasing a Guard Dog

Visit one or more reputable breeders that raise dogs for predator control instead of show. They can be found through farm magazine advertisements or by consulting the Colorado State University Cooperative Extension wildlife damage-control specialist or USDA/APHIS/ADC. The Akbash and Great Pyrenees are the most popular breeds, although the Anatolian Shepherd, Komondor, Maremma, and Shar Planinetz are also used in Colorado.

Buy a pup between 6 and 8 weeks old, or an older dog that was raised with sheep. Examine the pup and parents if possible. Adults should have sound shoulders, legs, and feet and be certified or guaranteed free of hip dysplasia. Be sure that neither parent exhibits excessive aggressiveness or shyness. These traits are likely to show up later in the pup. Look for sound muscle and bone structure in the pups, including well-shaped heads, jaws, and teeth. The teeth should meet, or preferably overlap in a scissors bite. Check the eyes and ears

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for discharges. The pup should be confident, outgoing and friendly. Avoid a pup that seems overly shy or dominates all of its littermates because it may later try to dominate you.

Rearing and Training

Treat your dog like a working partner in the operation from day one. Most troubles occur because the owners forget that the dogs are workers not pets. Do not let the dogs play with children or herd dogs or hang around the house.

Put the dog with sheep and leave it there. The best companions for a small pup are a few head of bum lambs in a small pen, preferably in a barn or isolated away from the flock. Place the pups with lambs at 8 weeks old, when pups develop a strong bond with sheep.

If the pup is very young, put a chickenwire fence between it and the lambs. This gives it regular contact with the lambs but protects it from being trampled. Even when the pup is old enough to be with lambs, it is a good idea to provide a place where it can get away to rest, eat and be alone. A low fence or a creep with a few extra slats works fine. During this early exposure, check the pup regularly and ensure that it adjusts to being with lambs.

As the pup gets older, integrate it into the working operation. Introduce it to equipment, machinery, other livestock (horses, cattle, chickens), and herding dog(s) so later it will not guard the sheep from them. It is important to spend time with the pup so it is not afraid of you and will allow you to catch it later. However, always return it to the lambs after a short time and praise it when it goes into the pen and greets the lambs. Do not pet or reward the dog when it wanders away from the sheep.

Begin the dog in obedience training ("come", "no") during its early exposure to sheep. Supervise the dog when it is first introduced to newborn lambs and reprimand it if it chases sheep. Remember, the dog is a working partner in your operation and cannot perform this role if it does not understand its job.

As the dog gets older, give it more opportunities to make decisions and take responsibilities. Move it from a small pen to a larger pen to a pasture, and from a few head of lambs to the flock it eventually will guard. Observe the dog carefully, especially after each move or change in routine. Make sure it adjusts properly, and correct any undesirable behaviors early. It is especially important that the dog remains with the sheep. Return the dog to the flock any time it tries to leave. Always praise the dog when it stays with the flock.

Raise the pup with lambs that you intend to incorporate into the main flock. Once one group of sheep accepts the dog, other sheep unaccustomed to guard dogs tend to accept it more quickly. If your sheep are spooky of a new dog, it may be best to introduce them in a small corral.

Routine worming, vaccination, and examination of your dog are essential for good health and performance. Regularly check ear canals, eyes, mouth and feet. Keep nails and hair on feet and under tail clipped, if needed. Look for cuts and

scratches that can become infected or abscessed. You may need to shear or brush the dog's coat during hot weather. Provide high-quality dog food in a self-feeder near the sheep at all times. Put a barrier around the feeder to exclude the sheep, or the dog may remain near the feeder, guarding it from the sheep.

How Do Guard Dogs Work?

Rearing guard dogs with sheep creates an attachment or bond between the dog and the sheep. As the dog matures, it spends much of its time near the sheep and repels other animals that enter its personal space. This aggressiveness is limited by a decreased tendency to chase, a product of generations of selection for dogs that do not chase sheep. Even if the dog chases an intruding coyote away, it soon stops the chase and returns to the flock.

Signs of a Working Dog

When your dog matures and begins to work it will stay with the sheep willingly and its barking and scent-marking with urine will increase. These behaviors notify coyotes that a dog is present and help deter them from approaching the sheep. Coyotes usually remain in the area but are prevented from killing sheep.

Some Akbash and Great Pyrenees begin working at 6 months of age, whereas Komondors usually start later. Most dogs become more effective as they age. Once they learn their job is to guard the sheep, they usually work out the details without training. This may even mean coming back to the barn or farm yard during the day if the sheep are kept close to the house. The important thing is that they are with the sheep when the danger from predators is highest.

How Many Guard Dogs Are Needed?

Most producers that have less than 200 sheep, or graze sheep in less than 200-acre fields, usually use one or two guard dogs. Producers that graze 1,000 ewes and their lambs on open range often use two to five (usually three) dogs. The number of dogs used usually depends on the extent of predation, dispersion of sheep, and amount of brushy cover on the range.

Costs

Great Pyrenees pups cost \$150 to \$350, whereas Akbash pups cost \$300 to \$500. Adult Great Pyrenees usually cost \$300 to over \$500 and adult Akbash are \$500 to over \$1,000. Prices vary with the breeders reputation, age of dog, registration, guarantees, and supply and demand. Annual maintenance costs (feeding, health care) average around \$250, but vary widely.

Assuming a livestock producer buys an adult Great Pyrenees for \$500, with average annual costs of \$250, the cost of using the dog (depreciated over five years) is about \$350 per year. A dog needs to save only six lambs or less per year to "earn its keep." There also are indirect benefits of the dog (eg., no need to confine sheep at night, increased efficiency of pasture usage, increased flock size) that are difficult to estimate in dollars and are not

included in these figures. Colorado producers indicate that dogs older than 9 months save more time in sheep management than the amount of time spent feeding and working with each dog.

Effectiveness of Guard Dogs

Guard dogs significantly reduced coyote predation on domestic sheep in Colorado during 1986. Producers with guard dogs lost an average of 0.4 percent of their ewes and 1.2 percent of their lambs to coyotes, whereas producers without guard dogs lost 0.8 percent to 1.5 percent of their ewes and 4.7 percent to 9.6 percent of their lambs.

The number of Colorado sheep producers using guard dogs increased from about 25 in 1986 to over 161 in 1993. The percentage of sheep with dogs in fenced pastures and on open range increased from about 7 percent in 1986 to about 65 percent in 1993. A total of 129 of these producers estimated that their 401 dogs reduced predation losses by \$914,000 in 1993.

Of 180 producers using guard dogs in Colorado between 1990 and 1993, 153 (85 percent) rated their dogs' overall predator control performance as excellent or good, 12 percent as fair, and 3 percent as poor. The number of producers rating their dogs as excellent or good at reducing predation by specific predators was: 160 of 180 (89 percent) for coyotes, 48 of 67 (72 percent) for black bears, 34 of 46 (74 percent) for mountain lions and 95 of 122 (78 percent) for domestic dogs. A total of 174 of 182 producers (96 percent) would recommend use of guard dogs to other producers. Fourteen of 21 producers in Colorado and 15 of 17 producers in Kansas indicated that guard dogs reduced their reliance on other predator control techniques.

Dr. Jeff Green and Roger Woodruff reported that the success rate in protecting livestock did not vary between Great Pyrenees, Komondors, Akbash, Anatolian Shepherds, Maremma, and hybrids, nor did the rate of success differ between males and females or intact and neutered dogs. However, neutering may decrease wandering. Dogs reared with livestock from less than 2 months old had a significantly higher rate of success than dogs that were greater than 2 months old when placed with livestock.

Advantages and Disadvantages

The major advantages of using guard dogs include: decreases or eliminates predation, reduced labor to confine sheep at night, more efficient use of pastures for grazing, reduced reliance on other predator control techniques, and greater peace of mind.

Major disadvantages of guarding dogs include: some dogs harass, injure or kill sheep; some dogs do not stay with sheep; some dogs are aggressive toward people; and the dogs can be subject to injury and premature death. Few owners experience all the problems or all the benefits. Many of the disadvantages are relatively uncommon. Most producers surveyed feel strongly that the advantages of their dog(s) far outweigh the disadvantages.

Guard dogs are not compatible with toxicants to control predators. Some producers train dogs to avoid M-44s by allowing them to set off M-44s

loaded with pepper. However, any mistakes by the dog are likely fatal. Dogs that have been tied probably will not die if captured in a snare. Most dogs probably will not be injured in traps if removed in reasonable time. The principal causes of premature death are accidents (dogs hit on the road) and shooting. Contact neighbors and tell them about the dog and post a notice about the dog near public roads.

Komondors appear more aggressive toward people than Akbash, Great Pyrenees, and Anatolians. In areas where encounters between guard dogs and humans are likely, such as on public lands, consider less aggressive breeds.

Guard dogs are not a cure-all for the predator problem. Their effectiveness is influenced by a variety of factors and their use requires a strong commitment by the owners. The use and effectiveness of guard dogs has increased with additional research and experience, but some livestock producers continue to require other animal damage-control measures in addition to their dogs.

Llamas

During 1990, Iowa State University researchers surveyed 145 producers, primarily in Montana, Wyoming, Colorado, California, and Oregon, to determine the effectiveness of llamas (*Llama glama*) for reducing coyote and dog predation on sheep. Producers reported that they lost an average of 21 percent of their ewes and lambs annually before acquiring a llama and 7 percent afterwards. An average annual savings of \$1,253 was reported by 87 of the producers. Eighty percent of the producers rated their guard llamas as effective or very effective.

Llamas are naturally aggressive toward coyotes and dogs. Typical responses of llamas to coyotes and dogs are: being alert, alarm calling, walking to or running toward the predator, chasing, kicking, or pawing the predator, herding the sheep, or positioning themselves between the sheep and predator.

The average producer used one gelded male llama for 250 to 300 sheep in 250 to 300 acre pastures. One llama was more effective than multiple llamas. The effectiveness of gelded males, intact males, and females was similar. However, more intact males (25 percent of 61) than gelded males (5 percent of 135) attempted to breed ewes. Some llamas were aggressive toward the sheep.

Nearly all llamas in the Iowa survey were not raised with sheep and were not trained to guard sheep. The adjustment period for the llamas and sheep lasted only a few hours for half the llamas, and nearly 80 percent adjusted within a week. Llamas introduced to sheep in corrals were apparently more effective guardians initially than those introduced in pastures, but in time losses were similar. Otherwise, the llamas' success was not related to age of llama when introduced, age of llama (after 1 or 2 years old) when guarding, if lambs were present or absent when the llama was introduced, or between open and covered (forested, shrublands, gullies, ravines, etc.) habitat.

Gelded males cost \$700 to \$800 and intact males about \$100 less. Most producers reported

that daily care for llamas was the same as for sheep and no special feeds were provided. Average annual expense was \$90 for feed (not including pasture) and \$15 for veterinary costs. A 250-pound gelded llama consumes 7 to 10 pounds of good grass hay per day. Depending on the area, llamas need to be dewormed two to four times per year. If food is provided for llamas, place it in a feeder high enough to be out of reach of sheep.

For information on llamas or names of breeders, contact: International Llama Association, P.O. Box 370505, Denver, Colorado, 80237, (303) 756-9004; or Rocky Mountain Llama and Alpaca Association, 593 19-3/4 Road, Grand Junction, Colorado, 81503, (303) 241-7921.

Donkeys

Donkeys (*Equus assinus*) have recently been used with sheep and goats in an attempt to deter predation by coyotes and dogs. About 1,000 to 1,800 of 11,000 Texas sheep and goat producers used guard donkeys in 1989. Donkeys apparently have an inherent dislike for dogs and other canids. They will bray, bare their teeth, run and chase, and attempt to bite and kick an intruder.

In Texas, 59 percent of producers rated donkeys as good or fair for deterring predation (primarily by coyotes) in one survey. In another survey, twenty percent rated their donkeys as excellent or good.

Researchers recommend using only one jenny (female) or gelded jack (male) per pasture; intact jacks are too aggressive, and two or more donkeys might stay together instead of being with the sheep. They also recommend about a four to six-week period for the donkey to bond with the sheep. Remove donkeys during lambing because they might trample lambs or disrupt the ewe-lamb bond. Challenge a new donkey with a dog to test its response to canids. Do not use donkeys that are not aggressive. Donkeys are apparently most effective in small, open pastures or where sheep are cohesive and graze together. Feeds containing anabolic agents, such as monensin (Rumensin) and lasalacid (Bovatec), apparently are poisonous to donkeys.

Donkeys can be obtained from the Bureau of Land Management or U.S. Forest Service under the Wild Free-Roaming Horse and Burro Act for \$75 each. They also can be obtained at stockyard auctions and from breeders for \$20 to \$250.

Relative Effectiveness of Guard Dogs, Llamas, and Donkeys

Guard dogs effectively deter coyote and dog predation in fenced pastures and on open range, whereas llamas and donkeys appear best suited to fenced pastures of less than 300 acres. Producers using guard dogs reported a lower percent sheep loss than producers using llamas. Several producers indicate guard dogs can effectively deter bear and mountain lion predation, whereas llamas and donkeys apparently are afraid of mountain lions, and their effectiveness in deterring bear predation is unknown. Donkeys were rated less successful than guard dogs and llamas, however these comparisons are inconclusive because all three species were not rated in the same surveys or under the same conditions.

Compared to guard dogs, llamas and donkeys appear less prone to accidental death, are long-lived, do not require special feeds, stay in the same pasture as sheep, do not need to be raised with sheep, and are less susceptible to traps, snares, M-44s, and toxic collars.

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