

# Use of livestock guardians

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# Sheep & Goat Predation in the US



**1.8 percent of sheep inventory**  
**3.9 percent of lamb crop**  
**\$35,581,000 in losses**

**2.1 percent of goat inventory**  
**5 percent of kid crop**  
**\$15,629,000 in losses**



Sheep and lamb predator and nonpredator death, loss in the United States, 2015  
Goat and kid predator and nonpredator death loss in the United States, 2015

# Sheep & Goat Predation in Missouri



**352 sheep @ \$188: \$66,000**  
**3,442 lambs @ \$137: \$472,000**

**392 goats @ \$179: \$70,000**  
**1012 kids @ \$105: \$106,000**



# Predation on your farm ??????

- Need to document death losses
- Assign cause(s) of death
- Determine losses to predators of all types
- Learn how to identify predator losses
  - Internet Center for Wildlife Damage
  - USDA-APHIS Wildlife Services
- Even if you haven't suffered losses, what is the risk of predation on your farm?



Coyotes and domestic dogs account for about 65% of predation.

**Predator control is an important aspect of all sheep and goat farms.**

# There are various ways to control predation.

- Fencing
- Night penning
- Shed lambing
- Fall lambing/kidding
- Prompt removal of deadstock
- Noise, light, and other deterrents
- Mixed-species grazing (flerd)
- Avoidance
- Lethal: snaring, trapping, shooting, poisoning
- **Guardian animals**



**A combination of practices is usually required.**

# What is a livestock guardian?

- Any animal that, when placed with a flock/herd, represents a threat to predators.
- Protects stock against predators, while requiring minimal training, care, and maintenance.
- Stays with and does not disrupt or harm the flock/herd.
- Is cost effective.



# Three kinds of livestock guardians

There are pros and cons to each one.  
Not all make effective guardians.



**Dogs**



**Donkeys**



**Llamas**

# Livestock guardian (protection) dogs

- Origins of livestock guarding dogs goes back almost 6000 years to Turkey, Iraq, and Syria.
- Despite long-time use in Europe and Asia, didn't gain popularity in US until late 70's when guardian breeds were first imported.
- Good livestock guardian dogs bond well with stock and travel with the flock/herd.
- Livestock guardian dogs reduce predation in three ways: territorial exclusion, disruption, and confrontation.
- Traits of a good guard dog: trustworthy, attentive, and protective.





# Many breeds. More than 30 globally.



- In US, most popular breed is Great Pyrenees (France, Spain).
- Other popular breeds: Akbash (Turkey), Maremma (Italy), Anatolian Shepherd (Turkey), and Komondor (Hungary).
- Other breeds: Tibetan Mastiff (Asia), Spanish Mastiff (Spain), Polish Tatra (Poland), Kuvasz (Hungary), and Sarplaninac (Yugoslavia).
- Novel breeds: Kangal (Turkey), Karakachan (Bulgaria), and Transmontano (Portugual)

# Are there breed differences?

- Recent study showed behavior to be mostly similar among breeds.
- Only subtle differences in behavior.
- Individual probably more important than breed.
- Traditional “white dogs”
  - Great Pyrenees most popular, least aggressive, and best fit for small farms and populated areas.
  - Akbash most aggressive of white dog breeds (to predators).
  - Komondors most aggressive to people.
- Novel breeds
  - Better at keeping coyotes at bay
    - Karakachans – more vigilant
    - Kangals – more investigative
    - Transmontanos – better at detecting threats



# Are there gender differences?



- Either sex can be suitable as a livestock guardian dog; no proof that gender affects behavior.
- Spaying or neutering does not seem to alter effectiveness.
- Females tend to stay with flock, whereas males tend to roam and protect the perimeter (?)
- Neutering may reduce male wandering.
- Heat cycle and whelping can disrupt protection.
- Male + female may offer best protection (?)

# Choosing a livestock guardian dog

- Use only breeds or crossbreeds recognized as LGD breeds
- No crosses with non-LGD breeds
- No rescue dogs (generally)
- Raised on a farm with sheep/goats
- From working parents
- Healthy, 8-10 week old pups being raised with stock.
- Consider investing in a bonded dog



# Best management practices

## Livestock guardian dogs

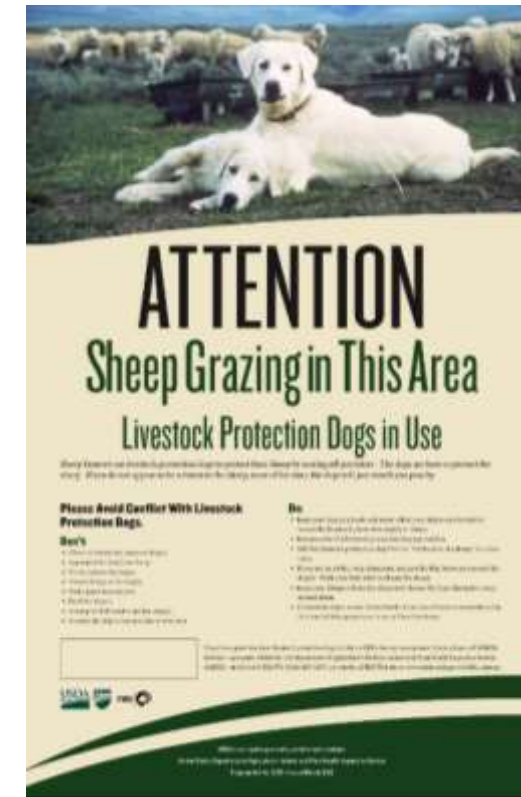
- Start them young; 8-16 weeks
- Use small bonding pens  
Pups + socialized stock
- Teach respect for boundary fence
- Teach basic commands
- Correct bad behaviors immediately.
- Socialize dogs, but avoid excessive contact (not the family pet).
- Don't leave in lambing/kidding area until you can trust them.



# Best management practices continued

## Livestock guardian dogs

- Post signs; let your neighbors know you are employing livestock guardian dog(s).
- Feed high quality dog food, especially adolescents; more food during cold weather.
- Provide proper health care, including routine vaccinations, deworming, and heartworm prevention.
- Same shelter as sheep; shelter for older dogs.
- Some dogs may require grooming to prevent matting and heat stress.
- Neuter if not breeding dogs.



# Livestock guardian dogs: challenges

- Digging
- Chewing, biting
- Chasing
- Killing stock
- Wandering
- Not staying near stock
- Feeding
- Grooming



# Livestock guardian dog research

## Past (70-80's)

1. Livestock Guard Dog Project  
Hampshire College, Massachusetts
2. USSES/Colorado State University

## Current

1. Texas A&M Agrilife Research  
GPS collaring to track movements  
Case studies evaluating white dogs
2. Utah State University/USDA-NWRC  
Simulations and case studies  
comparing white dogs to novel breeds





# Donkeys as livestock guardians

- Herding animal with natural dislike and aggressiveness towards canines.
  - Rely on sight and sound to detect predators.
  - The donkey's loud brays and quick pursuit scares predators.
  - If predators do not leave, donkey will attack them.



# Best management practices for using donkeys as livestock guardians

- Size matters: miniature donkeys may be too small.
- Choose medium to large donkeys, >44 in. at shoulder
- Make sure donkey(s) and stock are compatible.
- Initially, donkey may be aggressive towards farm dogs.
- Jenny and foal offer best protection.
- Geldings can also be effective.
- Males (jacks) are usually too aggressive.
- Best to use singly.
- Best suited to smaller flocks/herds and smaller pastures.



# Llamas as livestock guardians

- Members of South American camel family (camelid).
- Most recent guard animal to be used.
- Naturally social.
- Naturally aggressive towards members of the canid family.
  - Usually work by stomping and chasing predators.
  - Assume leadership role in flock/herd.
  - Territorial
- Immediate predator control (usually within a week after introduction).



# Best management practices for using llamas as livestock guardians

- At least 18-24 months old.
- Size matters; alpacas are probably too small.
- Females or geldings.
- No intact males.
- Use singly; multiple llamas not as effective as one.
- Introduce llama to stock in small pen or pasture first.
- Similar care and feeding as sheep/goats.



# Research on use of camelids and donkeys as livestock guardians

## CAMELIDS

- Llamas
  - Iowa State University (1990's)  
Telephone interviews  
On-site visits
- Alpacas
  - Australia (2016)  
on-farm trial (lambing)

## DONKEYS

- No research documenting their effectiveness.



# Do I need a livestock guardian?

- Have you suffered losses due to predation?
- Is there a risk of predation on your farm?
- Can you keep your livestock safe without a livestock guardian?
- Will a livestock guardian work on your farm?
- Do you want peace of mind?



# Considerations for choosing a guardian animal

- Pros and cons of each guardian
- Personal preference



- Predator pressure
- Type(s) of predators
- Flock/herd size
- Pasture size
- Terrain
- Proximity to neighbors

# Livestock guardian dogs: PROS

- Bond to livestock
- Nurturing behavior
- Protect against a variety of predators, including larger, more aggressive predators.
- More effective on larger, rougher pastures.
- Barking (alert system)
- Easy to move





# Livestock guardian dogs - CONS



- Can be too aggressive
- Can harass, injure, or kill stock.
- Wandering; require good fences
- Barking (at night, could be problematic in residential areas)
- Slow to mature
- Shorter life
- Require own food (daily)
- Premature deaths
- Higher cost

# Using donkeys as guardians - PROS

- Long life
- Don't roam, dig, or bark
- Low cost
- Low maintenance
- Mostly same diet as sheep/goats
- Cost less to feed



# Using donkeys as livestock guardians - CONS

- Can be too aggressive
- Can display overprotective behavior
- May interfere with breeding or birthing.
- May need to feed separately.
- No protection against small predators.
- Not suitable for large herds, rough terrain, or big pastures.
- Braying (noisy)



# Using llamas as livestock guardians - PROS

- Long lived
- Don't roam, dig, or bark
- Calm temperament
- Same diet as sheep/goats
- Cost less to feed
- Similar management as sheep/goats.
- Easy to handle.
- Usually accept stock readily.



# Using llamas as livestock guardians - CONS



- Vulnerable to some predators
- No protection against small predators.
- May be aggressive to farm dogs.
- May interfere with breeding.
- May need shearing.

# How many?

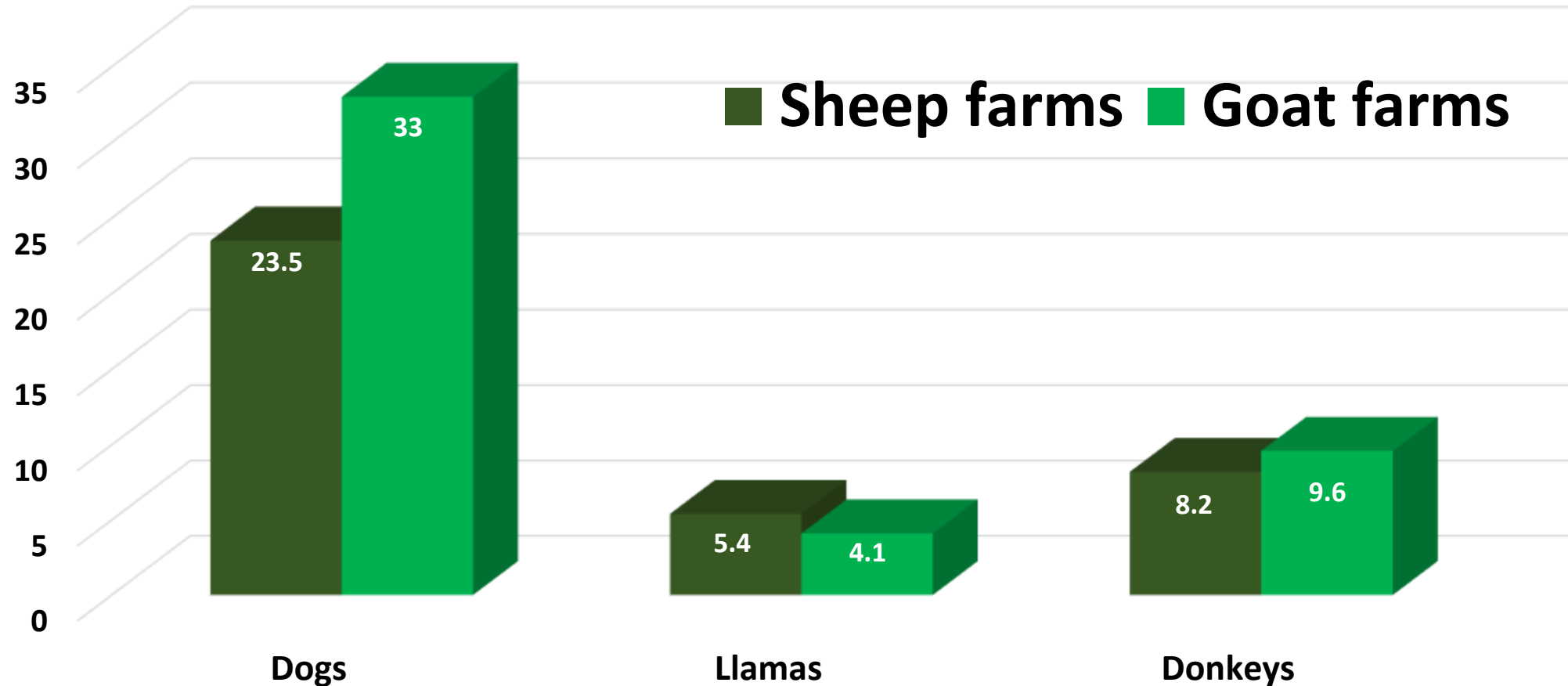
- Varies by size and terrain of pasture, number of animal groups, and flocking behavior of stock.
- Rule of thumb is 1 per 100 females.
- For small flocks, two dogs is good, in case one gets lost.
- Even age distribution with multiple dogs.
- Best to use donkeys and llamas singly on small pastures.



# Percent US farms using livestock guardians

Sheep and lamb predator and nonpredator death, loss in the United States, 2015

Goat and kid predator and nonpredator death loss in the United States, 2015



**Comments? Questions? Thank you for your attention.**



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