An_Hand_Ep 367261103

Understanding Ropes Used to Handle Horses

Our topics for this week are

- **Natural fiber ropes**
- **Synthetic fiber ropes**
- **Twisted and braided ropes**

Ropes are essential tools for working safely with animals, particularly livestock and horses. They can save a handler's life or endanger it depending on the skill exercised in using them. Quick knot cutting in an emergency is critical when animals become bound in ropes and struggle. All good handlers who use ropes carry a sharp, easily accessible knife for this purpose.

Definition of Terms

Ropes are more than 5/12 inches in diameter. Smaller fiber diameters are referred to as cord twine, string, or thread. Ropes are made of natural fiber or synthetic fibers. A rope that is used to handle or restraint livestock and horses is called a lariat. A lariat may have a running noose for catching animals or no noose for tying (tethering, picketing) animals.

Natural Fiber Rope

Among natural fibers, manila and hemp are strongest plant fibers for ropes. Hemp is the oldest rope fiber, but its use declined approximately 200 years ago due to preference for the stronger manila rope. Until World War II, manila rope, from the leaves of Musa textilis, a member of the banana family was widely used. Most manila rope came from the Philippines, and it derives its name from the capital of the Philippines. Cotton and flax (both soft) are more manageable but will stretch and rot. Cotton continues to be widely used for lead ropes and is the preferred type of rope for restraining animal legs.

Leather was used by Spanish and Mexican vaqueros to plait 4 to 12 strands of leather into 3/8 inch diameter rope called a reata (riata is an Americanized spelling of reata) of 50 to 65 feet in length. The average nylon rope for catching cattle is 30 to 40 feet long. Leather reatas are strong, flexible, and thin but with sufficient weight for long throwing. However, they require frequent treatment with tallow to prevent sunlight or water damage. They are also about 10 times more expensive than other ropes. The word lasso comes from the Spanish word "lazo" meaning noose or snare.

Maguey ropes (from fibers of the maquey plant) are hand-made 4 stranded ropes, 3/8 inches in diameter from the maguey plant in Mexico. These have a smooth surface and are relatively firm, which aids in forming loops. They are the preferred rope of Mexican charros. The use of natural fiber ropes (made from hemp, abaca, or yucca plants) spread from Mexico into North America. Reatas and maquey ropes should be dallied (wrapped around an object) rather than tied due to the risk of breaking if jerked with much weight.

The advantages of natural fiber ropes are a hairy-like rough surface that provides better traction and easier grip. Horses may respect the roughness (fiber ends that stick out are called "staples") more than smooth, soft ropes. Mecates are vaquero (Spanish-style) reins for training horses that were originally made of horsehair for its strength and prickliness. The disadvantages of natural fiber ropes are that they absorb water and swell, making knots difficult to untie. They can support mildew and rot, and they become brittle from strong sunlight or salt.

Natural fiber rope is always twisted (also called laid) to increase strength from alternate twisting ("laying up") of components. Prior to World War II, all rope was twisted. Fibers are twisted commonly to the right to form yarn. Three yarns are twisted to the left to form strands. Three strands are twisted to the right. Rope with strands twisted to the right are Z-laid; S-laid is twisted to the left. Ropes have 8 to 22 twists per foot. Hard twisted rope has more twists per foot and are stiffer. Three stranded rope is plain, also called hawser-laid rope. More than 3 strand rope is weaker than 3 strand of the same diameter. Four stranded rope is smoother than 3 stranded rope but harder to grip. Synthetic fiber rope is occasionally twisted. Twisted rope, with its lumpy surface, holds knots and hitches better than single cord rope.

A splice is interweaving sections of untwisted rope. Twisted rope can be untwisted in sections to form a loop on an end of a rope with an eye splice or to join two ropes together by a short splice of the end of each rope.

One of the disadvantages of twisted rope is that there is no protective outside layer. Every fiber twists to the outside multiple times being exposed to abrasion, moisture, and sunlight.

Synthetic Fiber Rope

Synthetic ropes vary in material and in strength. Synthetic fiber types and relative strength, in decreasing order of strength:

- Nylon (polyamide) - strongest and very elastic, but absorbs water
- Polyester - less elastic, more UV resistant, resistant to water
- Polypropylene - weaker, susceptible to UV damage, and can melt with heat from friction

Because synthetic rope is generally made of continuous fibers that run the length of a rope, synthetic ropes are stronger than natural fiber ropes. Natural fiber ropes are composed of short fibers that do not extend the length of the rope. Most ranch ropes are a nylon-polyester

combination for strength with moderate elasticity in a twisted pattern. Synthetic ropes are lighter, stronger, and less expensive than natural fiber ropes. In addition, they do not rot or become brittle. The disadvantages of synthetic fiber ropes are that heat, even friction, can cause them to melt and their smoothness can cause hand grips and knots to slip.

Synthetic fiber ropes are constructed in a variety of patterns. They may be twisted, as with natural fiber ropes, plaited in 4 to 8 stranded solid plaits, or braided in 16 or more strands (the mantle) around a core of long twisted center fibers (the kern). The mantle of braided rope protects the inner fibers while all fibers of twisted or plaited rope are exposed to the elements. Braided synthetic rope is soft, strong, and flexible with various uses. Plaited and braided rope do not hold knots and hitches as well as twisted rope.

The Shoof Vet-Rope is a marine grade polyester, oval-shaped, rope that is woven with hollow center, which causes it to flatten with tension. It is made in New Zealand. The Shoof rope is used for leg restraint of large animals and permits greater comfort to the animal and the handler, but its construction also allows it to stretch more than conventional twisted rope, which can be disadvantageous in some restraints

If you have comments or you're interested in particular animal handling subjects, contact us at CBC@BetterAnimalHandling.com

Now let's recap the key points to remember from today's episode:

1. **Synthetic (nylon) ropes are used to catch horses and cattle.**
2. **Cotton is the preferred material for lead ropes.**
3. **Twisted ropes have the best grip for hand grip and holding knots and hitches, but they are most susceptible to environmental damage and wear.**

More information on animal handling can be found in my books, ***Animal Handling and Physical Restraint***, ***Concise Textbook of Small Animal Handling, and Concise Textbook of Large Animal Handling*** all published by CRC Press and available on Amazon and from many other fine book supply sources.

Additional information is provided at: www.betteranimalhandling.com . This website has more than 350 past podcasts with notes on handling of dogs, cats, other small mammals, birds, reptiles, horses, cattle, small ruminants, swine, and poultry.

Don’t forget, serious injury or death can result from handling and restraining some animals. Safe and effective handling and restraint requires experience and continual practice. Acquisition of the needed skills should be under the supervision of an experienced animal handler.