

Species Considerations for Enclosures: Small Ruminants and Swine

Our topics for this week are:

- Proper containments for small ruminants
 - Sheep
 - Goats
 - South American camelids
- Effective, humane enclosures for swine

SMALL RUMINANTS

Pastures for sheep and goats should be woven wire with 4 inch, or smaller, square openings to prevent them from putting their heads through the fence and getting caught. Supplemental electric strands may be needed in addition to mesh fencing for goats to keep them from climbing out and serve as an additional deterrent to predators. Temporary fencing can be made with electric wire, cord, tape, or net and step-in plastic or fiberglass posts. Soft strung steel cable with electricity can also be used as temporary fencing. Corner posts for pastures should be at least 6 inches in diameter and braced. Barbed wire fence is inappropriate fencing for small ruminants.

Chicken wire can be buried on the outside to discourage dogs from digging under pen fences. One strand of electric wire at the bottom can aid in discouraging predators from entering pastures but be difficult to keep wet vegetation from touching the wire and draining the charge.

Sheep

Pasture fencing should be at least 4 feet high for sheep. Woven wire is best. Smooth wire electric fencing can be effective if at least 5 strands are used. Training to respect electric fencing requires shearing of the sheep and confining them in a training enclosure with a live strand. Low tensile aluminum wire will whistle in the wind making sheep more aware of the boundary. Sheep panels (prefab fence module) are similar to cattle panels, but shorter (34 and 40 inch high).

Goats

Fencing that is 4 ft high may be sufficient for adult does, but climbers and jumpers, particularly kid goats, may require fencing to be 6 ft. high, or more. Goats will climb on sloping braces at fence corners, so braces should be constructed outside the pen or access to the braces blocked. Water troughs in pens with kids should not have more than 14 inches of water to reduce the risk of a kid falling or jumping in and drowning. Horned and polled goats should not be penned together.

Fencing for bucks and should be 5 to 5½ ft high. An exercise mound of dirt should be provided in the center of the enclosure at least 8 ft way from fencing. The mound should be 5 to 6 ft high.

Exercise yards for goats should be 25 square feet per goat to prevent overcrowding. The best fence for goats is woven wire with a barrier strand of electric fence on the inside at goat nose height. Horned goats often get their horns caught in large square mesh fencing, becoming

susceptible to injury from their struggling, other goats, and predators. Portable electric net fencing is good for moving dehorned adult goats to new areas of containment, but horned goats and kid goats can get caught in the mesh and should not be contained in electric net fencing. Similarly, hay nets should not be used for feeding hay to kids or horned goats.

Smooth wire fencing for goats should have at least 5 to 7 strands. Lower strands should be 9 inches from the ground and 9 inches from each other. Higher strands can be up to 12 inches apart. Electric fence should have hot lines about 12, 24, and 42 inches high.

Trees must be protected from small ruminants, especially goats. Goats prefer to nibble on the tops of plants and low tree limbs. This helps them reduce the risk of ingesting parasite larvae. Goats will learn to walk on their hind legs and eat all the leaves, limbs, and bark as high as they can reach. If lower limbs are low enough, goats will even climb trees. At least 3 fence posts and mesh wire should be used to create a triangular fence at least 6 inches away from the trunk of young trees in a goat enclosure. Sheep do less browsing, concentrating on grass and low weeds, but they will browse taller plants occasionally.

Tethering goats for containment put them at risk for strangling; injured legs, ears, and eyes; attack by predators; and teasing by malicious adults or children. Kid goats should never be tethered for containment, and tethered adult goats should never be left alone. Tethering by a lead to a stake or a running tether on a long line can be done for short periods if supervised and protected from predators. Water, shade, and shelter from adverse weather must be provided. Tethering is appropriate for emergency situations and to periodically permit grazing an area that is not enclosed.

South American Camelids

Fencing for camelids (llamas and alpacas) should prevent camelids from jumping over a fence, putting their heads through openings, and predators from entering. Although camelids that are well fed, not lonely, nor chased by dogs, can be contained by 4 ft fencing, safer fences should be 5 ft high, 2 X 4 inch mesh or V-mesh, woven wire. Fences and gates to contain adult male llamas should be at least 5.5 ft high. Barbed wire is dangerous to camelids and should be strictly avoided.

Woven wire should also cover or be incorporated in gates to aid in preventing dogs from harassing or killing camelids and young camelids (crias) from crawling underneath. Horizontal sight boards are not needed since llamas do not bolt and run into fences as horses will. The visibility of a sight board may entice some llamas to jump a fence.

Seven or more strands of high tensile, electrified wire can be effective. Gaps between wires should be less than 10 inches, preferably 3 to 6 inches especially if cria (baby camelids) are enclosed, to prevent camelids from sticking their heads through the gaps. Ribbon or masking tape tags should be put on new electric fence to entice camelids to touch the fence with their nose to learn respect for the fence. Touching an electric strand to other parts of their body is not very effective since their hair is a highly effective insulator. If board or rail fencing is used, an electric strand of wire is needed below the lowest rail to discourage dogs from entering the enclosure.

SWINE

Swine are the only mammalian livestock in the U.S. commonly kept entirely indoors on concrete. Their movements are more restricted in this environment more than the allowed movements of

any other mammalian livestock. Other options to total indoor confinement on concrete exist, such as hoop barns or sheds with open sides and deep litter flooring for groups and free range on pasture with wallows and huts.

Indoor Confinement on Concrete

Without significant modifications, close confinement on concrete is psychologically sterile. Excessive confinement without mental enrichment can lead to stress, mutilation, and cannibalism, such as pigs chewing other pigs' tails off. Chains are often hung in enclosures to replace rooting for mental enrichment, although this is insufficient by itself. Straw bedding for hogs to root and chew provides the best mental enrichment and also provides more natural bedding. However, straw bedding is more labor intensive and adds to biological waste. Indoor confinement for swine should include regular monitoring of ammonia levels and stereotypic behavior.

Behavior scores that involve percent of time lying, standing, dog-like sitting, and total postural changes can indicate the degree of stress. Frequency of sows sniffing piglets and piglets resting in contact with the sow indicates maternal acceptance and occurs more frequently in sows kept in farrowing pens as compared to individual crates.

Confinement for hogs should provide a reasonable room for normal interactions with other hogs. Open door pens that permit sows to enter and exit freely reduce stereotypic behavior compared to individual crates.

Hoop Barns

Hoop barns are tent-like, low-cost housing that are an alternative to total indoor, concrete confinement. Deep bedding with straw is used and natural airflow is provided with hoop barns. They have 4-foot-high sidewalls and are covered by tubular steel arches covered with an opaque UV-resistant polypropylene tarp. Concrete slabs are provided at feeders and water sources. Hoop barns can hold 75 to 250 hogs which fight less than group raised pigs raised on concrete in close confinement.

Pastures

Pasture fencing for hogs includes woven wire 26 to 34 inches tall, attached to wooden or steel posts. If the woven wire is strung 4 inches off the ground a string of barbed wire can be used underneath to discourage rooting the fence up. Two or more strings of barbed wire can be strung above the woven wire if hogs predisposed to attempt jump over the fence are to be contained.

Electric fence is comparatively inexpensive, but it the least secure for containing hogs. Hogs may be trained to respect the fence in a small secure lot. One electric line strung through the pen and near food will ensure that the hog encounters the strand and learns what it is without a risk of the hog escaping in reaction to touching the electric strain. A hog trained this way will not challenge an electric strand of fence again if it is on. If the fence charge is lost, some hogs may soon challenge the fence. A charger for electric fencing for hogs should deliver at least 2,000 volts on the fence line. The lowest strand should be 6, or less, inches from the ground. A total of 3 or more evenly spaced strands should be used, with the highest strand at least as high as the tallest hog's nose. More strands and a lower bottom strand are necessary if piglets are to be enclosed in the fencing.

Moveable fencing for hogs is preferable for rotating lots. Electric strands, steel mesh

panels, or wooden gates may be used. Electric fences can be 2 strands: 4 inches above the ground for pigs up to 80 pounds and 12 inches above the ground for pigs weighing more than 80 lb. Steel mesh panels for hogs are 34 inches high and 16 feet long. They can be moved by one person and placed using 5 ft steel T-posts. The bottom of the fence is most vulnerable. Hogs may root, dig, and lift the fence up to go under it.

Gates in hog pens should be used only for moving hogs in and out. Handlers entering a pen should climb over since hogs can escape with speed and force if the gate is unlatched for a handler to enter.

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

- **Adequate fencing is much more challenging for containing goats than containing sheep.**
- **Small square mesh fencing should be used to enclose South American camelids and keep dogs out.**
- **Swine are the only mammalian species that are commonly raised on concrete and barred from natural behaviors such as rooting for food and mental enrichment.**

More information on animal handling is available in my book, *Animal Handling and Physical Restraint* published by CRC Press. It is also available on Amazon and from many other fine book supply sources.

Additional information is available at www.betteranimalhandling.com

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.