

Kidding Around in the Laboratory Animal Facility— Goat Enrichment



Goat enrichment can be incredibly rewarding, not only for the goat, but for personnel as well. In our facility, we often refer to goat enrichment tasks as technician (or vet!) enrichment. Somewhere in the evolutionary development of *Capra hircus*, curiosity and play drive emerged as positive forces for survival, and this is in evidence in the domesticated laboratory animal as well as in wild goats.

Goats used in laboratory animal medicine are most commonly meat or milk breeds, often culled from livestock herds, and not usually bred specifically for research.

As a result, their individual behavior in response to humans will most often reflect handling practices within the herd of origin.

However, much of the behavior of the domestic goat reflects that of the wild goat. Goats flee to escape predators, and will flee from human contact if feeling threatened. Goats are browsers in nature, and investigate their world through oral contact, mouthing what they can, and subsequently eating or rejecting items. Smell is also an important sensory input to goats, and a goat may sniff a food item and reject it without mouthing.

Goats will greet each other by sniffing mouths and noses, and frequently attempt to interact with humans the same way. Due to the potential for zoonotic transmission of pox virus (soremouth), this should be discouraged. (No kissing the goats.)

As befits browsers, goats are excellent climbers, and explore their environment on more than one level, also using height advantage to establish dominance. Goats are hierarchical herd animals, establishing structure through familial relationships in a herd, and play and fighting, and will engage in social grooming. Fighting behavior, or head butting, can be intense in close confines. Goats of higher status will bully others, and not hesitate to pursue and head butt lower status animals to control movements and access to feed within a herd. But the social nature of goats truly demands that they not be kept alone. Goats require housing with other animals—if not in a herd, then within sight and sound of other goats or sheep. Domestication has resulted in animals who are generally very tame, amenable to handling, very trainable and who enjoy being groomed.

Expect goats to mouth all objects put into their pens or stalls. Multiple species enjoy toys, and goats are no exception. Plan to move toys on a weekly or biweekly basis to stimulate investigative behavior, and

use toys made from hard metals and unbreakable plastics materials to avoid consumption of pieces of toys. For auditory and oral sensory stimulation, try hanging unbreakable metal toys or hard rubber dog/pig toys from pen doors or walls to provide opportunities for mouthing and noise making. Many goats will shake toys, banging them against surface, often rubbing the toys up and down on bars and flipping them around with their noses to produce quite a racket. Metal bucket handles can be removed from the bucket and attached to fences to provide more items to bang—but be certain to use handles that the goats cannot get their heads through. Empty paper bedding bags (staples removed) and cardboard boxes will be mouthed, torn, stepped on, laid upon, hidden behind, and dragged around. Watch carefully to ensure that goats do not eat paper items—some animals will, though small amounts are generally tolerated well.

Dog and horse toys, specifically designed to stimulate foraging behavior with slowly released treats, can be used with goats as well. But foraging toys can also be very cheaply made. PVC pipe pieces drilled with holes to insert food objects are popular with some goats. Large clean plastic jugs (such as used laundry detergent bottles) can be substituted, and, even without

food treats inside them, will be batted around for hours. If possible, put toys at all different height levels. Goats will stand on their hind legs to investigate bottles hung on ropes from the ceiling, or get down on their knees to work on items attached to gates and walls at low levels. Toys do not have to be attached to anything to be useful: clean empty water cooler bottles or milk jugs with small amounts of grain, crumbled gingersnaps, peanuts (in the shell, unsalted) or other small pieces of fruits and vegetables are a favorite. Goats learn to tip and roll them to obtain treats—and then may continue to throw around and try to climb on the empty containers for hours at a time. Try placing small amounts of hay in hay nets hung from walls at or above head level on all sides of the pen to encourage browsing like feeding behavior. Similarly, for goats who destroy hay nets, try stuffing hay in 'squirrel proof' type cylinders or spheres used to surround bird feeders—the small holes will encourage the goats to work at pulling out the hay for hours. A bale of hay or straw bound with a nontoxic twine placed into the pen will stimulate feeding behavior as the goats try to break it apart. And, the goats will spend a great deal of time jumping on and off the bales. Because dominant animals will guard attractive

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food sources, be certain to provide multiple enrichment items at a time for group housed animals to avoid increasing social stress.

A healthy goat is an active goat. It is important to provide ample opportunity for exercise. Give as much room to the animals as possible, and, if possible, house goats with access to outdoor enclosures. Group housed animals will play king of the mountain and fight over milking stands, plastic stools or steps placed into enclosures. In small pens, try placing a half-barrel or upside down bucket in the pen. Wooden packing crates and wire spools make inexpensive toys as well, although there is the potential for toxic materials to remain in the wood. A simply made balance beam—an untreated, but disinfected 6 foot long 2x4 placed in between two bales of hay or concrete blocks provides an inexpensive climbing structure. Better yet, old childrens' plastic play huts, play houses, teeter totters, or slides (all of which can be easily disinfected) will be used regularly. If space is limited, take goats for walks in hallways on a daily basis to encourage activity and condition animals to human contact.

The use of 'furniture' in the pen is not limited to exercise. By breaking up the spaces in the pen with visual barriers, social structure can be influenced. Bullying behavior is often decreased, with lower ranked animals given an opportunity to escape others behind pen furniture.

Shy animals will hide behind or place furniture in between themselves and humans to decrease anxiety when approached, or when cleaning occurs. Furniture provides opportunity for grooming as well. Hang clean plastic scrub brushes, broom heads (some goats will try to eat these), or specially made 'scratch boards' (hard plastic boards with short bristles, marketed for horses and livestock) from walls and gates to encourage goats to engage in comfort behaviors of scratching and self-grooming.

Contact with humans can be a very valuable form of enrichment. Goats are easily trained with positive reinforcement. This can take the form of a food reward (we use cereal, cookies, nuts and grapes) or grooming reward. Just as with pigs, dogs or monkeys, shaping behaviors through positive reinforcement decreases stress, increases productivity and ease of performing procedures on animals, and reinforces ethical animal treatment. For example, training goats to run to a scale and jump on for weekly weights with gingersnaps, or to jump onto a milking stand for blood draws by providing a bucket of grain, is easily accomplished in just a few training sessions in most cases. Two zoos have recently even taught goats to paint using positive reinforcement techniques. And, the positive reinforcement provided by interaction with a healthy, normally behaving goat is good for technicians and scientists alike.

References

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