
Lowering Stress in Transported Goats

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Transportation can cause emotional and physical stress in goats that can affect their well-being. Everyone who handles goats, from the time they are gathered for transportation until they are settled at their final destination, has a responsibility for the goats' well-being.

Transportation stress factors are of two kinds. The "short-acting" factors tend to have emotional effects on animals and the "long-acting" factors have physical effects and may accumulate over time. There are some minor cross-over effects between the two factors as well.

Rapid and short-acting factors include:

- Fear because their standing position is being disturbed
- Unfamiliar surroundings
- Unstable footing on the floor of the moving vehicle
- Being deprived of sure footing on the ground

Goats' response to being transported starts at the beginning of the ride with a startle reaction to the novelty of "being moved". Vehicles start moving and they scramble trying to regain their normal standing posture. A rough start causes hormones and blood components to fluctuate and may increase heart rates up to twice the normal rate. Controlling the goats' reaction at the start of transportation will reduce the stress response.

- Load the goats with care.
- Do not lift them by the head, horns, ears, hair or legs.
- If lifted onto vehicle, grasp them around the body supporting the chest and abdomen.
- Supply adequate bedding over a non-skid floor in the vehicle (or spread sand over the floor before putting in the bedding).
- Plan the loading dock so vehicles may back into it or drive away from it with minimal turns or stops and starts.
- When accelerating the vehicle do so slowly and smoothly.

The way the vehicle is driven greatly affects a goat's stability and balance while being transported. Goats change their orientation in moving vehicles frequently suggesting they are restless. The orientation helps them maintain their body balance in the moving vehicle.

- Driving events cause goats to fall down during transportation.
- Braking and cornering cause 75% of falls.
- Crossing bumps and acceleration account for 25% of falls.

Goats are more social than sheep. The longer they remain in isolation, the greater the emotional stress they experience.

- Goats in isolation on trucks do more rearing and vocalizing than when isolated in their home pens.
- Handling facilities at slaughtering plants that allow animals to have constant visual contact with the animal in front will make handling easier and reduce the animal's stress prior to slaughter.
- All the benefits of low stress loading and transport will be lost if goats are exposed to stressors minutes before slaughter.
- Pre-slaughter stress in goats greatly affects muscle metabolism and may reduce meat quality.

Slow and long-acting factors include:

- Noise
- Vibration
- Forceful contact with vehicle and/or other animals
- Lack of exercise
- Prolonged standing
- Insufficient consumption of water and feed
- Environmental temperature and humidity

The noise level in livestock trailers is often high and does not vary much with speed or type of road traveled. Noise has a greater effect on releasing stress related hormones than motion does.

- Noise is created by the rattling of loose metal fittings and flooring in the trailer.
- Loose and rattling portable loading chutes and partitions in vehicles can be wrapped with rubber to reduce the noise they cause during movement.

Forceful contact with vehicle and/or other animals causes bruising. A goat may fall or be knocked against projections in the vehicle such as hinges, latches or supports.

- Horn hooking and bunting are the most frequently observed behaviours during clashes. Bruising increases when horned goats are placed in crowded conditions.
- In close confinement, the aggressive behaviour of dominant goats can increase, leading to more attacks and possible injuries.
- Heavier goats may more than double their attacks when they are placed with lighter goats.
- Partition larger goats or other species of livestock away from smaller goats on vehicles.

Pre-slaughter fasting helps reduce carcass contamination with gut contents during slaughter. The new environment during pre-slaughter holding and social isolation may be stronger stressors than feed deprivation for goats.

- Withholding of feed coupled with dehydration can cause liveweight shrinkage as high as 10% in the summer.
- Give goats access to water up to the time of loading for transport, they very rarely drink water during the pre-slaughter holding period.
- Extended fasting due to prolonged holding of goats, especially during hot weather, increases stress in goats and can produce muscle damage that affects meat quality.

- Prolonged exercise or stress burns up additional energy in muscles. Slaughtering before or during the restorative phase when muscles are replenishing the energy can cause dark-cutting meat.

Ensure that all animals intended for transport are fit to be transported. Sick, weak or extremely thin goats should not be transported.

- Use a safe vehicle that has no known physical features that could cause injury to an animal.
- Prevent engine exhaust from entering the area occupied by the goats.
- Stop and check on the goats after the first hour of the trip and every 2-3 hours afterward.

Avoid cold stress during transportation. Goats, kids in particular, are susceptible to frostbite and loss of body heat.

- Keep goats dry.
- Cover openings to protect goats from freezing rain and cold winds. Wind chill lowers the environmental temperature.
- Goats packed in too tightly are predisposed to frostbite because individual animals can not reposition themselves in the vehicle (move away from the wind chill).
- Increase bedding in cold weather.

Check for signs of animal discomfort (Cold Stress) during transportation (e.g., wet goats, eating of available bedding or fluids frozen to the face or nostrils).

In hot, and particularly, humid weather take precautions to avoid heat stress.

- Upper limit of heat tolerance for goats is 35 to 40 degrees C (95 to 104°F).
- Overcrowding creates severe heat build-up.
- Reduce the loading density by 15% from normal on hot/humid days.
- Schedule transportation for night or early in the morning.
- Avoid times and places with intense traffic congestion.
- Keep the frequency and length of stops to a minimum to prevent rapid build-up of heat inside the vehicle.
- Do not park a loaded vehicle in direct sunlight.

Signs of animal discomfort (Heat Stress/Overcrowding) during transportation:

- Overcrowded goats may mill around and not settle in one place for the trip.
- Goats continue to scramble for footing and the load continues to be noisy for prolonged periods of time.
- Goats involuntarily lie down and may not be able to get up.
- Goats pant when overheated. Animals standing with neck extended and with open-mouthed breathing indicate severe heat stress.
- **Gently** run cold water over the back of the head of an overheated goat.

Postmortem examinations show goats become susceptible to respiratory infections after prolonged trips under adverse weather conditions. Physical stress responses begin decreasing within 3 hours after the end of transportation. However blood tests show transportation stress may have a prolonged effect on goats that could affect their immune system.

Conclusion

Stressful transportation can affect the carcass quality and health of goats. Everyone in the transport/marketing chain has a responsibility to reduce or eliminate potential stressors in their part of the chain. Plan and build animal friendly low stress loading and holding facilities. Use facilities and vehicles that are appropriate and safe for the type of animal being transported. Ensure driving habits will provide the goats with a safe and comfortable ride.

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