



TECHNICAL BULLETIN No.38

Sheep and goat transport



ESGPIP

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Foreword

This Technical Bulletin titled “*Sheep and goat transport*” is the 38th produced by the Ethiopia Sheep and Goat Productivity Improvement Program (ESGPIP). The ESGPIP is a USAID funded Project with the objective of improving the productivity of Ethiopia’s sheep and goats.

Sheep and goat are transported from place to place through various means of transport mainly trekking and trucking. Sheep and goats are transported for long distances without the necessary care and precautions. This results in weight loss, injuries and even death. This can have serious consequences on the income of the producer and the country at large. Poor transport of sheep and goats can also have animal welfare implications that affect export earnings the country is intending to pursue extensively.

This technical bulletin presents the methods and procedures of improved sheep and goat transport by trekking and trucking. Most of the methods described are simple and can be implemented easily. The benefits can be far reaching. It is believed that the information contained in this bulletin is useful for development agents as a reference to create awareness and convince all those involved in transporting sheep and goats to understand and implement the better practices. Much of the information is also relevant for the transport of animals other than sheep and goats.

At this juncture, I would like to thank all those involved in the preparation and review of this technical bulletin.

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Sheep and goat transport

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1. Background

Sheep and goats are transported from place to place for various reasons including marketing, slaughter, re-stocking / destocking and from drought-affected areas to better grazing sites. In Ethiopia and many other African countries, sheep and goats are traditionally transported on the hoof (trekking). With increasing urbanization and commercialization, transport by road is becoming increasingly frequent and more important. Rail transport was also used when it was functional to transport animals to Addis Ababa from areas adjoining the railway line and to the port of Djibouti for export to the Middle East. Major animal losses and damage resulted from inadequate care during the transport of sheep and goats using all three means of transport (hoof, road, rail).

Appropriate transport of animals is important to maintain the quality of animals and animal products, uphold animal welfare and fulfill increasingly stringent international standards on animals and products for export. Providing high quality products to the consumer leads to greater satisfaction of buyers and an increase in local and export market share. Poor quality animals and animal products as a result of improper transportation could mean a loss of revenue from the export of animals and meat. Poor transportation practices in Ethiopia are partly due to a lack of awareness and knowledge. This technical bulletin describes the current situation of animal transport, losses sustained, and improvement measures that can be implemented.

2. Animal transport in Ethiopia

The majority of animals sold to small traders (collectors) in the primary markets (producers) are usually transported to secondary markets by trekking. Trekking is usually carried out by contracted drovers (persons who move animals over long distances). Almost all livestock trekking routes in the country are traditional and do not have facilities where animals are provided rest, feed and water. Vehicles are increasingly used for long distance transportation of sheep and goats to abattoirs, large terminal markets and central loading sites for the export market. Though the import of livestock transport trucks to the country started more than three decades ago, the delivery of such transport service in the country has not yet developed. The truck transport of live animals in Ethiopia is still limited to trucking by ordinary non-livestock transport vehicles. None of the live animal exporters have dedicated trucks for live animal transport. Two of the existing export abattoirs have a total of 9 operational dedicated trucks with capacity to transport 6,750 head of sheep and goats per trip (Belachew and Dugasa, 2006). This is insignificant compared to the very large number of sheep and goats transported.

3. Problems of sheep and goat transport in Ethiopia

3.1. General:

- 3.1.1. Until recently, there were no laws or guidelines governing animal transport. Now, the Ministry of Agriculture and Rural Development (MoARD) has issued guidelines on animal transport. However, implementation and enforcement of the guidelines is lacking.
- 3.1.2. Absence of rules and regulations that prohibit transporting animals by ordinary trucks coupled with the shortage of dedicated animal transportation vehicles has encouraged animal transporters, live animal traders and exporters to continue the use of ordinary trucks.
- 3.1.3. Lack of awareness on the extent of losses incurred during transport by producers, transporters, etc. has delayed action to curb the problem.

3.2. Problems related to trekking:

- 3.2.1. **Absence of holding points:** Almost all livestock trekking routes in the country do not have facilities where animals are provided rest, feed and water. Therefore, the animals are forced to travel long distance without rest, feed and water.
- 3.2.2. **Untrained drovers:** Generally, drovers have not received training on proper handling of animals during trekking. They do not, thus, have the skills required to handle problem situations that arise during travel.

3.3. Problems related to trucking:

- 3.3.1. **Types of vehicles used:** In most instances, ordinary trucks (non-livestock transport vehicles) not convenient for loading and unloading as well as transporting animals are used. In most instances, animals on these trucks are moved long distances without rest, feed and water until they arrive at their destination. These trucks are not suitable for easy offloading of animals for rest, feed, water and veterinary services and for subsequent reloading.
- 3.3.2. **Unavailability of holding grounds:** In many cases, sheep and goats are hauled in lorries and pick-up trucks for hundreds of kilometers over several days without rest for feed and water.
- 3.3.3. **Untrained truck drivers and animal handlers:** Truck drivers and handlers have no training in animal handling during transport; their interventions to avoid stress and injuries is, therefore, very minimal.
- 3.3.4. **Improper loading/unloading:** Loading is usually carried out without a loading ramp and is carried out by workers who have no training in preparing animals for loading and transport. In many cases, sheep and goats are beaten, prodded, and mistreated while being loaded on trucks. The animals sometimes jump down from the truck after being loaded (Figure 1).

		
1a. Improperly loaded sheep	1b. Loading by grabbing the skin (hair in case of sheep) bruises the carcass	1c. Poor offloading results in injuries from mishandling of animals
Figure 1. Examples of faulty loading and unloading of sheep and goats		

3.3.5. Congestion: Transport vehicles are often overloaded with animals. The animals are too congested during transport and some arrive at the destination with broken body parts, being very weak or even dead from being trampled on (Figure 2).

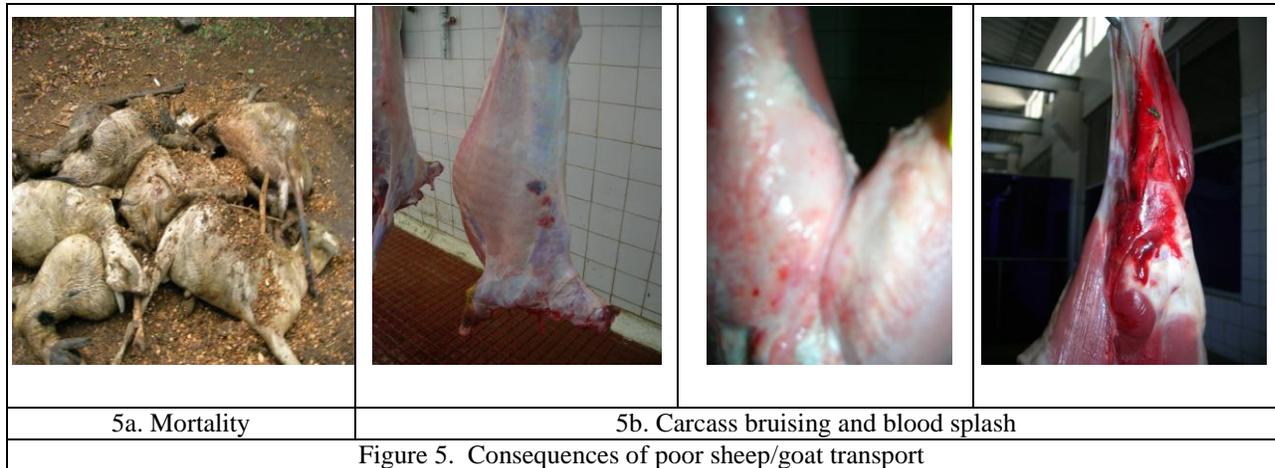
	
2a. Truck overloaded with goats	2b. Goats trampled as a result of overcrowding
Figure 2. Congested loading of goats	

4. Consequences of poor sheep and goat transport

Poor transportation can have serious effects on the welfare of animals. It can also lead to significant loss of meat quality and production. Main losses as a result of inappropriate sheep and goat transport include:

- **Body weight loss (Shrinkage):** Significant loss of body weight can result from transporting animals under the circumstances described under 3 and 4. Some animals may even subsequently die due to dehydration and exhaustion.

- **Physical injury:** Injury will cause loss of meat quality and subsequent rejection. The following are the main forms of injury:
 - **Bruising** - bruising is the most serious and significant production loss as bruised, off-color meat must be wasted.
 - **Trampling** - this occurs when animals fall down due to slippery floors or overcrowding. Animals may also suffocate as a result and even die if not helped (Figure 2b).
 - **Other forms of Injury** - broken legs, horns etc.(Figure 3)



- **Loss of product quality:** Prolonged feed withdrawal and injuries during transportation can cause carcass shrinkage and negatively affect carcass or meat quality (Figure 5b).
- **Mortality loss:** Animals can die on route (Figure 5a) due mainly to:
 - Dehydration and exhaustion;
 - Pasteurellosis;
 - Breakdown of resistance to endoparasites;
 - Predator attack - animals trekked under inadequate guarding may be attacked by wild animals;
 - Bloat - restraining or tying the feet of sheep and goats while trucking (Figure 1a) without turning them can cause bloating and subsequent death
 - Poisoning- animals can die from plant poisoning during trekking or due to exhaust fumes from transport vehicles
- **The possibility of spreading animal diseases:** Animals, especially those that are trekked, can be infected or they can spread diseases along the trekking route.

5. Appropriate sheep and goat transport

5.1. General: The transportation of animals should be governed by appropriate laws and legislations. The new guidelines of the Ministry of Agriculture and Rural Development must be taught to all people concerned and must be enforced.

5.2. Trekking: Trekking will remain the main transport mode for the immediate and medium term future. The following are some recommendations that can be implemented to minimize losses during and as a result of trekking sheep and goats.

- The journey should be planned, paying attention to the distance to be traveled, opportunities for grazing, watering and overnight rest.
- The sheep/goats should be trekked during the cooler times of the day and arrive with sufficient time to be rested and watered before loading onto vehicles.
- The recommended maximum trekking distances for sheep and goats should not exceed 24km/day. The distance they travel should not exceed 16km/day for subsequent days.
- Improvements in holding facilities for watering, feeding and rest along the trek routes will reduce weight and mortality losses.

5.3. Transporting sheep and goats using vehicles: Ideally, sheep and goats should be transported using trucks manufactured for livestock transport (Figure 6). It is, however, not feasible to transport all sheep and goats using such vehicles in the near term. Ordinary trucks can be modified to serve the purpose.

5.3.1. Requirements for a vehicle for sheep and goat transport: The following conditions should be fulfilled by both dedicated and modified vehicles used for the transport of sheep and goats:

- **Ventilation:** In order to provide adequate ventilation, animal transport vehicles should never be totally enclosed. The free flow of air at floor level is important to facilitate removal of ammonia from urine and exhaust fumes in road vehicles that may cause poisoning. Poor ventilation can cause undue stress, poisoning and suffocation especially under warm weather conditions. Sheep are particularly susceptible to problems from poor ventilation and often die *en route*.



Figure 6. Double-deck trucks for transporting sheep/goats

- **Floors:** Sheep and goat transport vehicles should have non-slip floors to reduce the risk of animals slipping. Welding small bars or aluminum mesh on the floor or a grid of cross slating made from wood or metal is suitable to reduce slipping. The common practice of covering the floor surface with grass, sawdust or similar materials is not suitable to reduce slipping. There should be no gaps through which a leg might protrude and be broken (Figure. 3).
- **Floor space:** Sheep/goats require adequate floor space during transport to allow them to stand freely and in a normal posture. Overcrowding results in injuries or even death. Animals should not be packed too loosely or too tightly. Aim to minimize injury and allow any fallen animals room to rise. Allow an average floor area of 0.4 m² / sheep or goat. Allowances should be made for body size and physiological state like pregnancy. If the floor area is too large for the number of animals, it is advisable to use temporary partitions to avoid animals being thrown about during transport. Loading densities/floor space should be assessed on a per-pen basis rather than a per-truck basis. The following table shows the advisable space allowance guide for sheep/goats of different body weights and physiological states.

Table 1. Recommended floor space allowance guide for sheep/goats of different body weights and physiological states

Category	Approximate weight (kg)	Area (m ² /animal)
Weight category	<20	0.14
	<35	0.20 – 0.30
	35 – 55	0.30 – 0.40
	>55	0.40 – 0.75
Heavily pregnant sheep/goats	<55	0.40 – 0.50
	>55	>0.50

- **Sides:** The sides of vehicles should be high enough to prevent animals from jumping out. The inside could also be padded at hip level to reduce bruising. Old tires can, for example, be used to cushion the sides.
- **Roof:** A roof is not necessary on a sheep and goat transport vehicle provided the animals are not exposed to the hot sun for long hours.
- **Loading/Unloading ramps:** Vehicle floors should be level with loading/unloading ramps/platforms, otherwise animals will injure themselves during loading and unloading when jumping into or out of transport vehicles. Vehicles should be fitted with a portable ramp to facilitate emergency offloading in case of prolonged breakdowns along the route.

5.3.2. The transport operation

- **Pre-loading precautions:** There are a number of simple procedures that can be implemented prior to the loading of livestock, which will considerably reduce the risk of injury and stress.
 - Check transport vehicles for safety and adequacy. Vehicles should also be clean. It is advisable to fit the vehicles with a portable ramp to facilitate emergency offloading in case of prolonged breakdowns.
 - Feeding and watering animals before transport has a settling effect.
 - Do not mix horned and hornless animals in the vehicles. This causes bruising and injury. Different species should also not be mixed; however, sheep, goats and calves under 6 months can be mixed.
 - Individual animals can be transported in a loose sack tied at the animal's neck. In this case, feet should not be tied and they should be turned every 30 minutes or so.
 - Diseased, injured and emaciated animals are unfit to be transported as they cannot withstand the stress of transport.
 - Heavily pregnant animals within four and preferably six weeks prior to lambing should not be transported long distances.
- **Loading Animals:** The following should be noted regarding the loading of sheep and goats.
 - Align vehicle floor with the loading race while loading.
 - Limbs and heads must not protrude outside the sides and tops of the vehicle.
 - Separate animals by size and age.
 - Always treat animals humanely.
- **The journey:** A number of factors should be taken into account during the journey in order that animals do not suffer, become injured or die.
 - It is good to transport sheep and goats during the cooler periods of the day, i.e., mornings, evenings or even at night. This is especially true for areas with high environmental temperatures.
 - Time in transit should be planned. Any one journey should not exceed 24 hours unless the entire journey can be completed in less than 30 hours. Journeys should, whenever possible, be planned to be short and direct, without any stops. Sheep/goats should be offloaded after 24 hours for feed, water, rest and exercise if the journey is to take longer than 30 hours.
 - Vehicles should be driven smoothly, without jerks or sudden stops. Corners should be taken slowly and gently. A second person should be in attendance to spot animals that may fall down so that the vehicle can be stopped and the animal lifted.

- The body temperature of wet animals transported in cold weather is considerably reduced when wind blows on them because of a factor known as wind chill. This can result in severe stress or deaths. It is, therefore, advisable to protect animals from heat, wind and cold by providing a cover over the truck and/or avoiding transporting them during unfavorable weather.
 - Feeding during transport: Mature animals must not be without food for more than 24 hours and young animals for not more than 12 hours. A simple guide to an adequate amount of feed is 2.5% of the animal's liveweight as hay in kilograms per day, e.g., a 20 Kg sheep would require 0.5 Kg (500 grams) of hay /day.
 - Watering during transport: Provide water at least every 8 hours for lactating or young animals and every 12 hours for mature non-lactating animals. Allow at least 4 liters/head/day for sheep and goats. If animals are lactating, stressed or in hot conditions, water requirements will be higher. Water supply should at least be doubled where temperatures are greater than 40°C.
- **After the Journey**
 - Transported sheep/goats should have access to clean water immediately after unloading.
 - Feed should be readily available immediately after unloading. Provide ample good quality hay.
 - It is better for sheep/goats to reach their destination during daylight so that they can start grazing in the new and unfamiliar ecology. Care should be taken introducing hungry sheep to grazing areas with toxic plants.

6. References

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