

Module 25

Livestock: Transport and Markets



This lecture was first developed for **World Animal Protection** by Dr David Main (University of Bristol) in 2003. It was revised by **World Animal Protection** scientific advisors in 2012 using updates provided by Dr Caroline Hewson.

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This module will teach you

The primary welfare issues in

- The transport of farm animals
- Sale at markets

How to improve the welfare of animals in transport and at markets

Introduction: the importance of good transport

Animal welfare

Economics – potential production losses

- ❖ Deaths and injuries
- ❖ Dehydration
- ❖ Disease
- ❖ Meat quality

OIE Standards for Transport by Sea and by Land (OIE, 2011)

- ❖ Member states vary in knowledge
(Stafford & Mellor, 2009)



Introduction: stages of transport 1

Pre-transport handling, e.g.

- ❖ Herding, grouping and collection; withholding food and water

Loading, e.g.

- ❖ Handling – facilities and stockmanship
- ❖ Type of vehicle



Introduction: stages of transport 2

Transport, e.g.

- ⌘ Sea vs. road (air)
- ⌘ Distance and duration
- ⌘ Type of vehicle and driver's skills
- ⌘ Road surface

Unloading at market (wet vs. dry)

- ⌘ Handling to check identification?

Holding pens (en route and at market)

Areas of welfare concern during transport (Welfare Quality® project)

Area	Criteria
1. Good feeding	Animal should not suffer from prolonged hunger
	Animal should not suffer from prolonged thirst
2. Good housing	Animal should have comfort around resting
	Animal should have enough space to allow ease of movement
	Animal should have thermal comfort
3. Good health	Animal should be free of physical injuries
	Animal should be free of disease
	Animal should not suffer pain caused by procedures
4. Appropriate behaviour	Animal should have a positive emotional state, and negative emotions should be avoided as far as possible
	Animal should be able to express normal social behaviours
	Animal should be able to express species-typical behaviours
	Promotion of good human–animal relationships

Area 1: good feeding (Grandin, 2010b)

Hunger

Thirst / dehydration

⌘ Severe problem for poultry and pigs



Area 2: good housing

Crowding

Slippery surfaces

Ramp to truck – too steep, no side barriers, structured floors

Heat / cold stress and humidity

Journey distance and times

- ✦ **Design of vehicle, compartments, floors, bedding**
- ✦ **Road surface**

Area 3: good health

Injuries and pain

- ❖ Goads / sticks ⇒ electric shocks / bruising
- ❖ twisting tail / pulling on nose ring (Aram et al., 2010)
- ❖ Fatigue and muscle weakness ⇒ falls ⇒ bruising
- ❖ Rough handling ⇒ fractures (laying hens)

Nausea (motion sickness – pigs)

Stress ⇒ increased disease susceptibility

- ❖ E.g. respiratory disease in beef cattle (e.g. *Mycoplasma bovis*); coronavirus enteritis in calves
- ❖ Increased shedding of *E. coli* 0157

Area 4: appropriate behaviour

Fear

- ❖ Of people
- ❖ Of other animals

Aggression



How to improve the welfare of livestock in transport

General principles

By species: cattle, pigs, poultry



General principles of improvement

Welfare inputs

- ❖ **Stockperson**
 - ❖ Preparation
 - ❖ Handling and loading
- ❖ **Handling facilities**
- ❖ **Design of vehicle**
- ❖ **Driver**
 - ❖ Road conditions
 - ❖ Weather and temperature
- ❖ **Genetics and past experience**

Incentives and penalties

- ❖ **Economic / legal**
- ❖ **Audits**

General principles: stockperson

(Grandin, 2010a)

Preparation

- ⌘ Training 'lead animal'
- ⌘ Colostrum for calves
- ⌘ Vaccination
- ⌘ Hay for cattle who have been on pasture

Handling

- ⌘ Habituate animals to handlers
- ⌘ Use flight zone / point of balance in handling
- ⌘ Goads / sticks
- ⌘ Prohibited practices, e.g. no throwing

General principles: handling facilities

Minimise fear

Design around species' sight, hearing, group behaviour, e.g.

- ❖ Move down curved walkways, not around corners
- ❖ No light/dark contrasts and other distractions

Non-slip floors, e.g. scored concrete, rubber mats

- ❖ Animals may have sore feet, e.g. pigs on slats; dairy cows
- ❖ Weak muscles or joints, e.g. old cows, large beef animals and pigs

General principles: vehicle design **1**

(Grandin, 2010a)

Suitable ramp and loading angle

- ⌘ Attached to the vehicle
- ⌘ Separate from vehicle: stationary (e.g. concrete, wood) or portable
- ⌘ Non-slip: concrete steps 10 cm high (8 cm for pigs) and at least 30 cm deep
- ⌘ Non-slip: bars across it, 5 cm × 5 cm (2.5 cm × 2.5 cm for pigs and sheep)
- ⌘ Angle: for cattle and pigs not more than 20 degrees

General principles: vehicle design **2**

Floor of adequate strength

Absorbent floor litter or other means of removing urine and faeces

Sufficient space and head room

Adequate ventilation

Easy to clean and escape-proof

No sharp edges or protrusions

Light

General principles: driver responsibilities 1

Understand legal / technical requirements, e.g.

- ❖ Vehicle construction and welfare law
- ❖ Load, operate and control vehicle

Understand the species

- ❖ Behaviour and requirements, e.g. journey times, rest stops, space
- ❖ Signs of stress and ill-health
- ❖ Restrictions on transporting casualties
- ❖ Euthanasia plans

General principles: driver responsibilities 2

En route

- ❖ Effect of climate – temperature and humidity
- ❖ Ventilation adjustment

Vehicle cleaning and disinfection



General principles: journey time

(Grandin, 2008)

Long-distance transport

- ❖ **E.g. between continents**
- ❖ Cumulative risks of stress, e.g. if species not adapted to climate and handling at the destination
- ❖ **Multiple journeys if there is a chain of dealers between farmer and abattoir or market**
- ❖ **Best to remove long-distance trade in livestock, if possible, e.g.**
- ❖ Educate consumers
- ❖ Encourage retailers to source meat etc., locally
- ❖ Provide more local abattoirs and markets
- ❖ Audit welfare at local abattoirs and markets

Incentives and penalties: audits (Grandin, 2010a)

Measures of welfare on-farm and during transport to the abattoir

- ❖ % of lame animals
- ❖ % of thin animals
- ❖ % of dirty animals
- ❖ % of animals with sores, bruises or lesions
- ❖ % who die before slaughter
- ❖ % morbidity (illness or injury)
- ❖ % of birds with broken wings and legs

Audits vs. legislation

Audits by retailers using such standards more effective than legal enforcement

- ❖ **E.g. prohibited practices**
- ❖ **Dropping of animals**
- ❖ **Throwing animals**
- ❖ **Crushing or breaking tails**
- ❖ **Pulling them by the ears**
- ❖ **Lifting or dragging by body parts such as tail, head, horns, ears, limbs, wool, hair or feathers**



Fitness for travel

(OIE, 2011)

Each animal should be inspected by a veterinarian or an animal handler. If fitness to travel is in doubt, the animal should be examined by a veterinarian.

Animals who are unfit for transport **1**

(OIE, 2011)

Animals who are unfit to travel include, but may not be limited to

- ❖ **The sick, injured, weak, disabled or fatigued**
- ❖ **Those unable to stand unaided and bear weight on each leg**
- ❖ **Those that are blind in both eyes**
- ❖ **Those that cannot be moved without causing them additional suffering**

Animals who are unfit for transport **2**

(OIE, 2011)

Newborns with an unhealed navel

Pregnant animals who would be in the final 10 per cent of their gestation period at the planned time of unloading

Females travelling without young, who have given birth within the previous 48 hours

Those whose body condition would result in poor welfare because of the expected climatic conditions

Animals at risk

The very large or obese

The very young or very old

Those who are excitable or aggressive

**Animals who get motion sickness
(pigs)**

Animals who are unused to humans

Females in the last third of pregnancy

Females in heavy lactation

Culled and spent animals

How to improve the welfare of livestock in transport (Grandin, 2010a)

Poultry

Cattle

Pigs



Primary issues: poultry

Area 1: good feeding

- ❖ Long journey times ⇒ no access to feed and water ⇒ hunger, thirst, dehydration

Area 2: good housing

- ❖ Heat stress in meat birds
- ❖ Cold stress in end-of-lay hens

Area 3: good health (disease, injury, pain)

Exacerbated by handling – staff paid ‘piece rates’

Area 4: appropriate behaviour

- ❖ Fear of handling

Poultry transport



Improving poultry welfare during transport **1**

(Grandin, 2010a)

Welfare inputs

- ⌘ **Stockperson**
- ⌘ Mechanised collection of birds
- ⌘ Never pick up by a single leg
- ⌘ Collection with both hands
- ⌘ Genetics
- ⌘ **Driver – journey times and heat stress**
- ⌘ Slaughter plant on the farm?
- ⌘ Vehicle and ventilation

Improving poultry welfare during transport **2**

(Grandin, 2010a)

Incentives and penalties – audits

- ❖ % broken, dislocated wings
(e.g. aim for under 1%; 0.25% in Brazil)
- ❖ % deaths
- ❖ % broken legs
- ❖ % bruised legs
- ❖ % bruised breasts



Primary issues: pigs 1

Area 1: good feeding

- ⌘ Long journey times ⇒ hunger, thirst, dehydration

Area 2: good housing

- ⌘ Heat stress
- ⌘ Muscle weakness
- ⌘ Rough roads, unsuitable vehicles

Primary issues: pigs 2

Area 3: good health (disease, injuries and pain)

- ❖ Goad use – dark places, unused to human handling
- ❖ Slippery floors
- ❖ Ramp angle and distance between cleats
- ❖ Motion sickness (retching, vomiting, frothing at mouth)
- ❖ Overcrowding and journey time: fighting, injuries, trampling



Primary issues: pigs 3

**Area 4: appropriate behaviour –
– fear at loading / unloading**

- ❖ **Not used to humans**
- ❖ **Goad use**
- ❖ **Ramp angles**
- ❖ **Dark vehicles and dark lairages at unloading**
- ❖ **Mixing**



Primary welfare issues: cattle and buffalo



Improving transport of cattle and buffalo

Design of vehicle and handling facilities

Education of stockperson and driver

Journey times and stocking density

Incentives and penalties

▣ **Audits**

Primary welfare issues: sheep and goats

Area 1: good feeding

- ⌘ Thirst and dehydration: during rest stops sheep eat first and may not drink for up to six hours

Area 2: good housing

- ⌘ Heat stress
- ⌘ Overstocking – cannot lie down
- ⌘ More space needed for unshorn and pregnant animals

Area 4: appropriate behaviour

- ⌘ Fear during loading and unloading – of dogs and people

Primary welfare issues: other species

Rabbits

- ❖ Few abattoirs – long journeys
- ❖ Container transport – no food or water

Horses

- ❖ Long journey times ⇒ hunger and exhaustion
- ❖ Injury due to shoes or falling
- ❖ Strangulation due to halters and ties
- ❖ Short ties prevent lying and feeding



Welfare of livestock at markets

Welfare problems at markets

How to improve welfare at markets

Introduction: types of market



Markets 1

Traditional role

- ❖ Large vs. small producers?
- ❖ No longer necessary?

Welfare problems

- ❖ Double loading / unloading stress
- ❖ Effect on journey times
- ❖ Mixing of animals
- ❖ Further transport of unsold stock
- ❖ Sequential / multiple presentations at markets

Markets **2**

For multiple / small producers, markets or collection centres, allow

- ❖ **One vehicle from each farm**
- ❖ **Shorter total journey to plant**
- ❖ **Time on poor roads to be minimised**

Improving welfare at markets 1

Maximum stocking densities – marked on pens

Enough pens to prevent mixing

❖ **Estimate based on throughput of animals during the day**

Raised loading / unloading bays with non-slip ramps and floors

Ready access to veterinary treatment and means for humane slaughter

Shelter if animals will be exposed for long periods

Improving welfare at markets **2**

Safe fixtures and fittings – no sharp edges or protrusions

Adequate ventilation

Sufficient isolation pens

Milking equipment

Lighting to allow inspection

Sufficient, trained personnel

Vehicle cleaning and disinfection facilities

Wet markets

**Little or no animal welfare regulation /
unhygienic conditions**

- ❖ **Transport to market**
- ❖ **Transport home with buyer**
- ❖ **Holding conditions at the market**
- ❖ **Slaughter**



Summary

Common problems

- ❖ Design of handling facilities and vehicle
- ❖ Rough handling ❖ injuries
- ❖ Long journeys on bad roads
- ❖ Inappropriate vehicles
- ❖ Mixing of animal

Primary solutions

- ❖ Educating handlers
- ❖ Auditing, and providing financial incentives and penalties to handlers, drivers and farmers
- ❖ Limiting journey times
- ❖ Improving vehicle design

Feedback:

Please let us know what you think

- ❖ How have you used this module?
- ❖ What did you like about it?
- ❖ What did you not like?
- ❖ Do you have any tips to share?

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Your feedback will help other teachers like you

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