



OIE Training – The – Trainer’s Workshop

Animal Welfare conditions during long distance transport by land

(chapter 7.3 of the OIE terrestrial Animal Health Code)

SESSION I

5. LOADING AND TRANSPORT

OVERVIEW

- Fitness to travel
- Design and Preparation of loading area
- Key roles and responsibilities during transport
- Space allowances
- Microclimate

FITNESS TO TRAVEL

Article 7.3.7.3

FITNESS TO TRAVEL

TO TRANSPORT OR NOT TO TRANSPORT

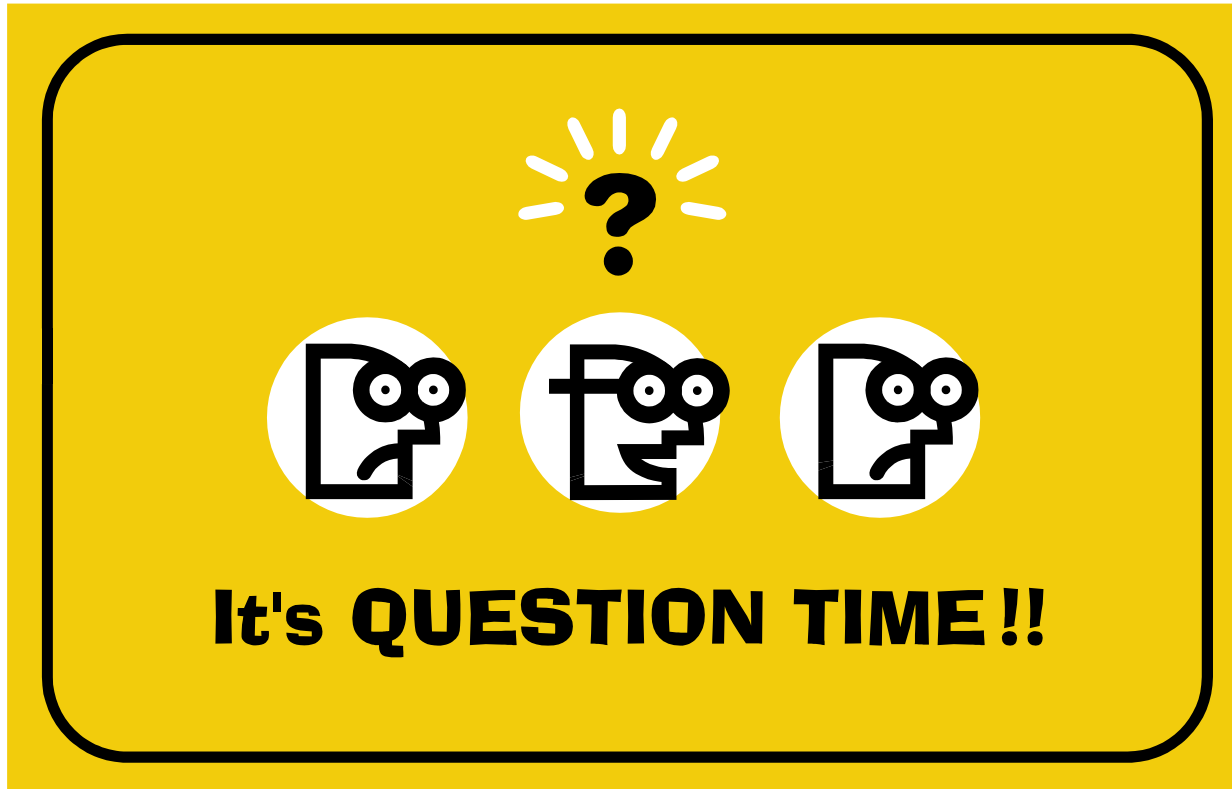
What animal is
fit to travel?

When animal is fit to
travel?

What distance is animal fit
to travel ?



WHAT ANIMALS SHOULD NOT BE TRANSPORTED



FITNESS TO TRAVEL INSPECTION PRIOR TO LOADING



ANIMALS FIT TO TRAVEL

- Attentive, responsive animal
- shiny and dry hide, well groomed
- breathing normally
- good body condition
- distributes weight evenly on all four legs during standing and walking, straight back line
- no obvious signs of pain

ANIMALS UNFIT TO TRAVEL

BASIC PRINCIPLES

- sick, injured, weak, disabled or fatigued;



Institut de l'Elevage/Pic. Didier Raboisson



Picture Karen von Holleben

ANIMALS UNFIT TO TRAVEL

BASIC PRINCIPLES

- sick, injured, weak, disabled or fatigued;



Pictures : Animal Angels

ANIMALS UNFIT TO TRAVEL

BASIC PRINCIPLES

- unable to stand unaided and bear weight on each leg;



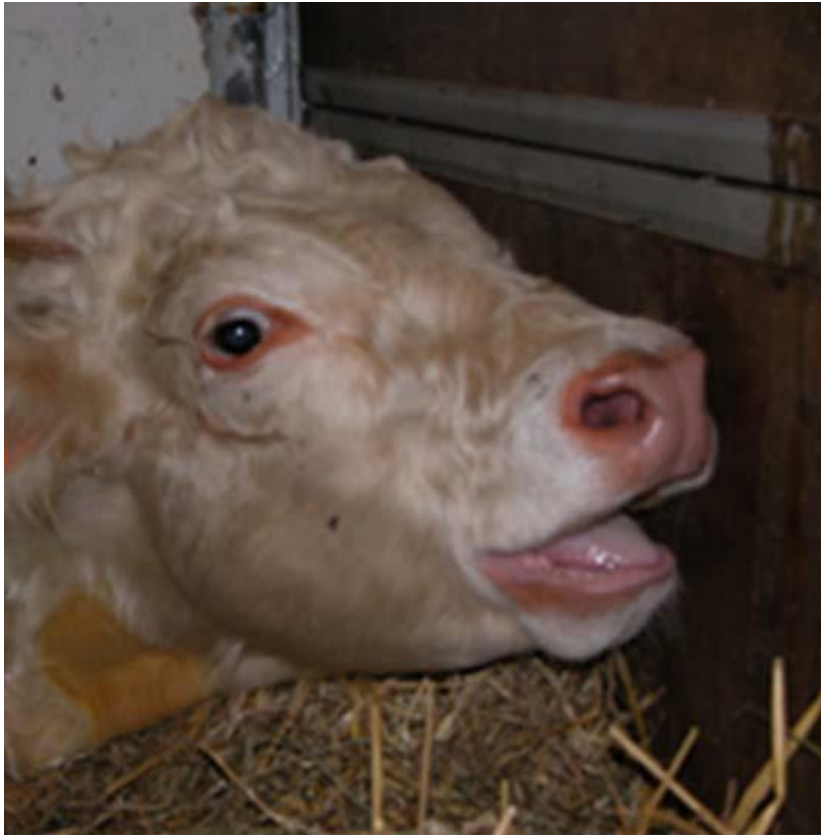
Picture Didier Rabaison



Picture Yves Millemann

ANIMALS UNFIT TO TRAVEL

- blind in both eyes;



Picture2. Yves Millemann,
Animal in respiratory distress

- that cannot be moved without causing them additional suffering;

ANIMALS UNFIT TO TRAVEL

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



Picture Cecile Boss
Sunburned animal

ANIMALS UNFIT TO TRAVEL

- newborn with an **unhealed navel**;
- females travelling without young which have given birth within the **previous 48 hours**;



ANIMALS UNFIT TO TRAVEL

- pregnant animals which would be in the final 10% of their gestation period
- cattle – 270 days, sheep – 150 days, pigs – 116 days; mares between 305 and 360 days;



FITNESS TO TRANSPORT HORSES



ANIMALS UNFIT TO TRAVEL (specific conditions)

- Horses with painful lameness - unless they are being moved for treatment or diagnosis
- Laminitis, or inflammation of the soft tissue lining the horn hoof, - common in ponies
- shorn sheep should not be transported in cold weather - from November to March

If in any doubt



leave the animal out!

DESIGN OF LOADING FACILITIES

Article 7.3.8.

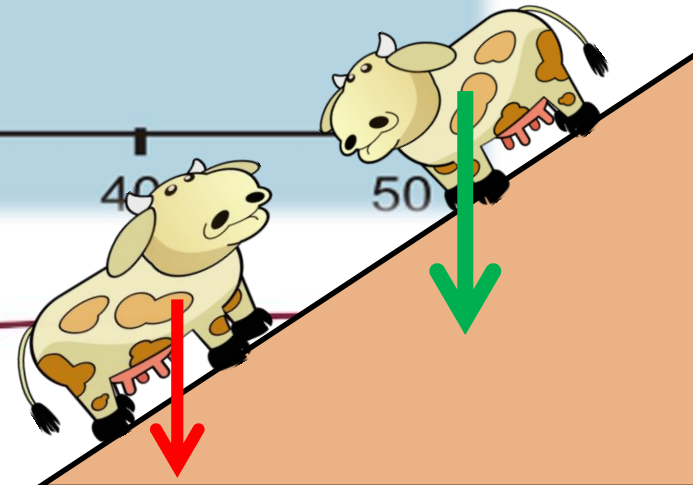
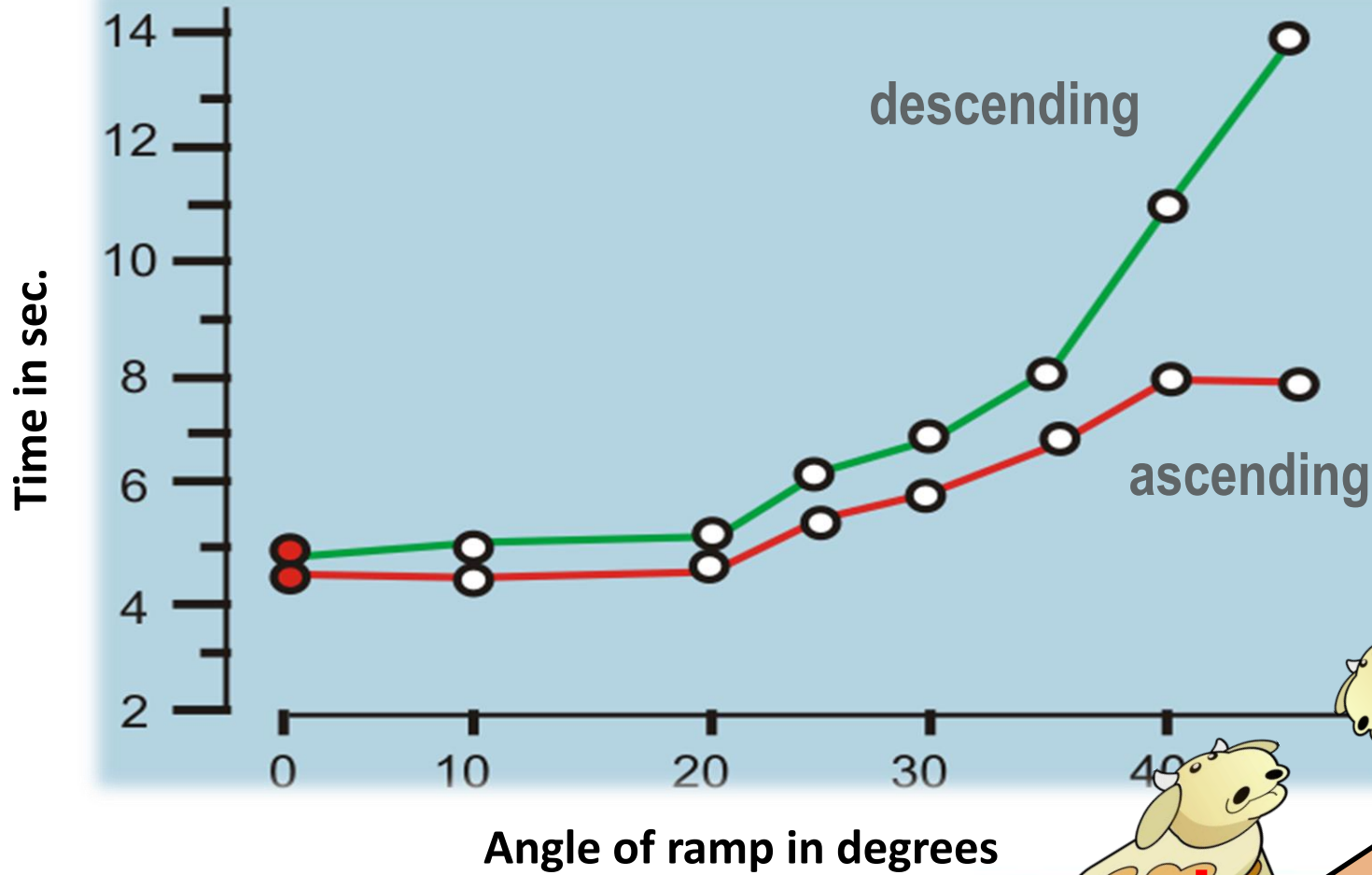
LOADING ANIMALS



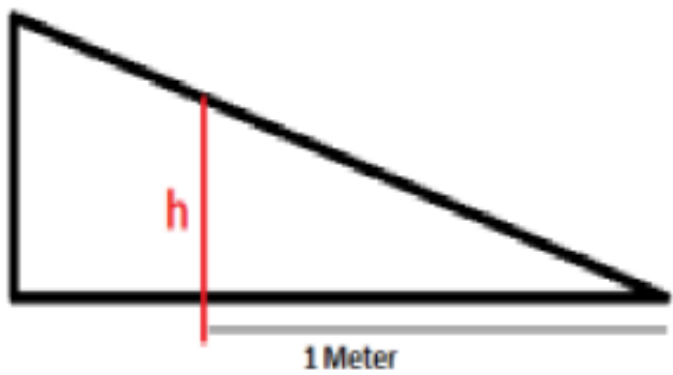
LOADING OF CATTLE



LOADING RAMPS CENTRE OF GRAVITY



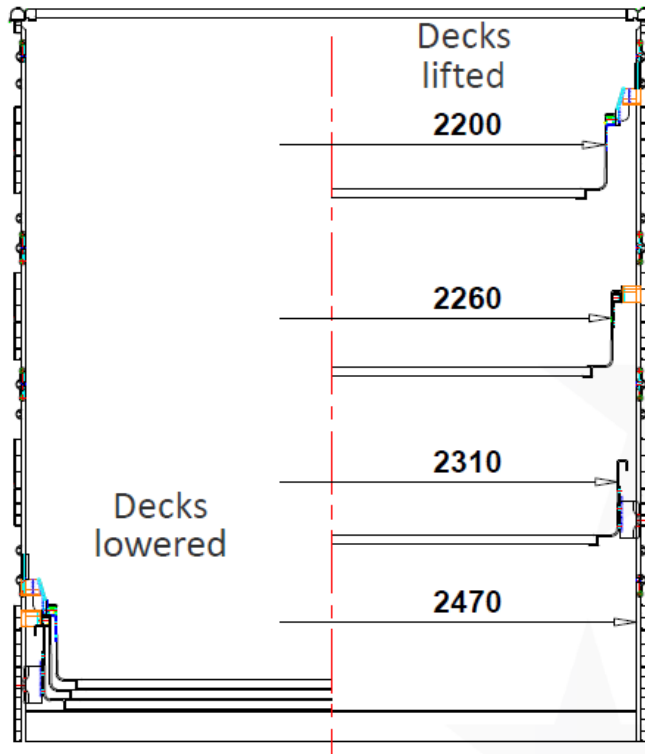
LOADING RAMPS

	Slope	Maximum height h	
Pigs	$\leq 20^\circ$	36 cm	
Calves	$\leq 20^\circ$	36 cm	
Horses	$\leq 20^\circ$	36 cm	
Sheep	$\leq 26^\circ 34'$	50 cm	
Other cattle	$\leq 26^\circ 34'$	50 cm	
All species	$> 10^\circ$	17,6 cm	

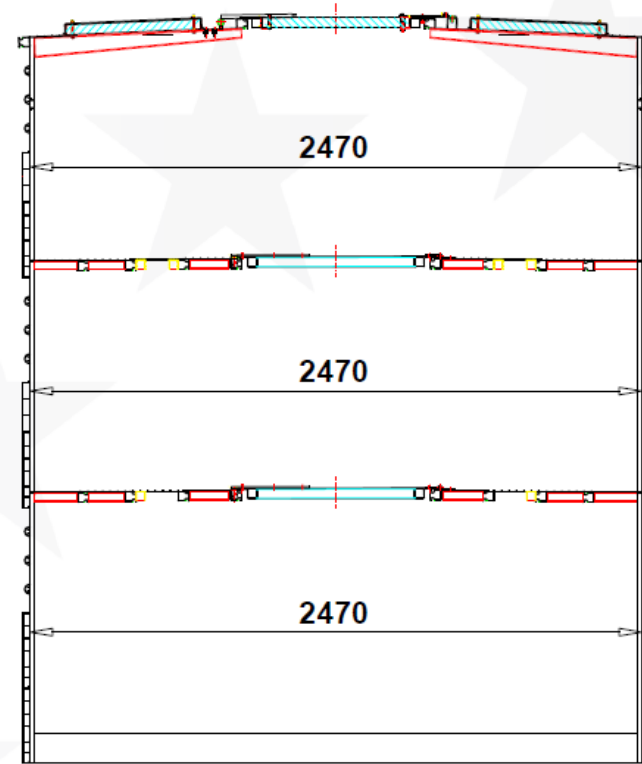
SMALL RUMINANTS/PIGS (lift system and loading ramps)



DESIGN OF FLOORS



➤ Liftable decks
with ramps
matrioshka system



➤ Fix decks
with lift load
same size floors

LOADING RUMINANTS /PIGS

- Handle animals in groups
- When handling sheep use a leader animal
- Use flight zone and point of balance principles
- Keep animals calm and quiet as much as possible at all times during handling
- Leave cattle and pigs to have enough time to observe environment and move in their own space
- Use handling tools – flags, panels and talkers
- Move from darker to lighter area
- Remove any distractions
- •Do not force animals that move slowly to move faster
- •If cattle and pigs are difficult to handle reduce the size of group

RAMP FLOORS



RAMP FLOORS - HORSES



LOADING BREEDING BULLS AND HORSES

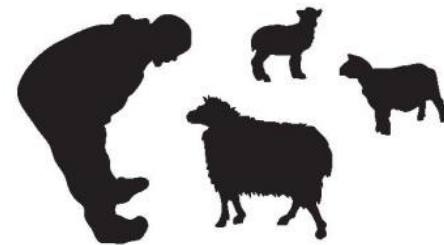
- Animals with very small or no flight zone require an individual attention
- Techniques otherwise used in handling horses
- Leading using halter or rope
- **HANDLING DANGEROUS ANIMALS**
- Blindfolding and pushing backward (animal's reaction will be to move forward)
- Blindfolding and turning around its axis 3-4 times and than lead in a desired direction.

RESPONSIBILITIES

Article 7.3.3.

RESPONSIBILTIES

the welfare of the animals during their journey is
the paramount consideration and
is the joint responsibility of all people involved
(Art. 7.3.3)



RESPONSIBILITIES

- Owners
- Handlers
- Business agents
- Transport agents
- Managers of facilities
- Competent authorities

RESPONSIBILITIES OF BUSINESS AGENTS

- Fitness of animals
- Emergencies
- Availability of suitable facilities
(ramps, holding pens) including resting

Loading



Transport

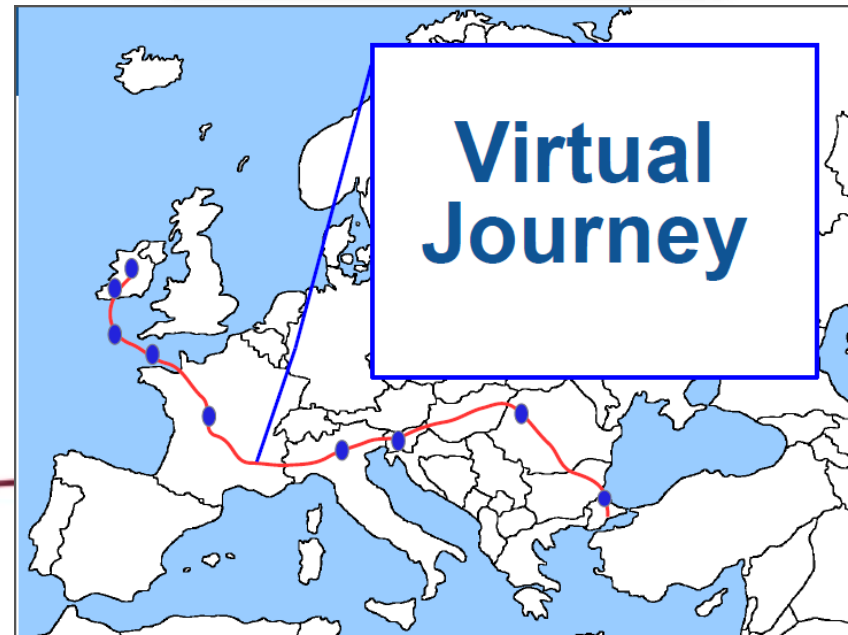


Unloading



RESPONSIBILITIES OF TRANSPORT COMPANIES

- Vehicles
- Trained drivers and handlers
- Journey plans
- Emergency plans
- Loading only fit animals
- Welfare of animals during transport



RESPONSIBILITIES OF COMPETENT AUTHORITIES

- Setting standards
 - Animal welfare and fitness to travel
 - Transport and loading facilities
 - Competencies of drivers and handlers
- Implementation of standards and monitoring effectiveness of standards
- Ensuring training for drivers
- Giving animal consignments priority at the frontiers



SPACE ALLOWANCE

Article 7.3.5.6



SPACE ALLOWANCE

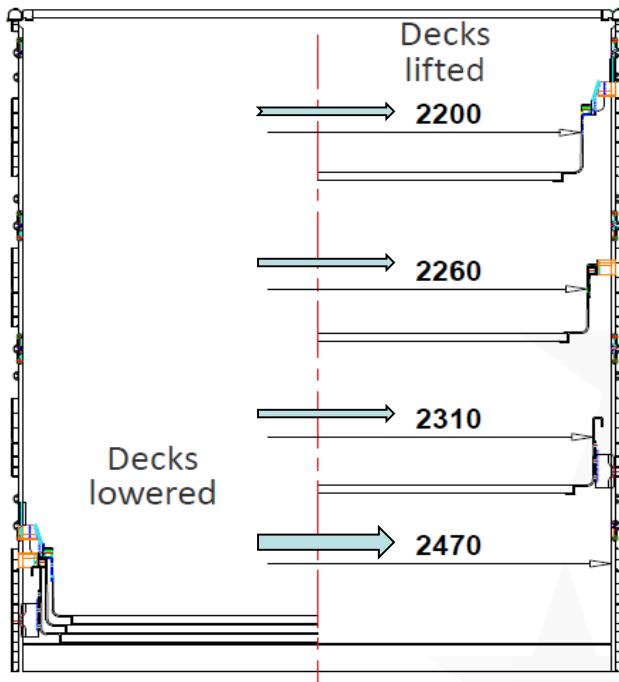
- The number of animals which should be loaded on a vehicle and their allocation to compartments should be determined before loading.
- Calculations for the space allowance for each animal should be carried out using the figures given in a relevant national or international document.

DECK SURFACE AREA

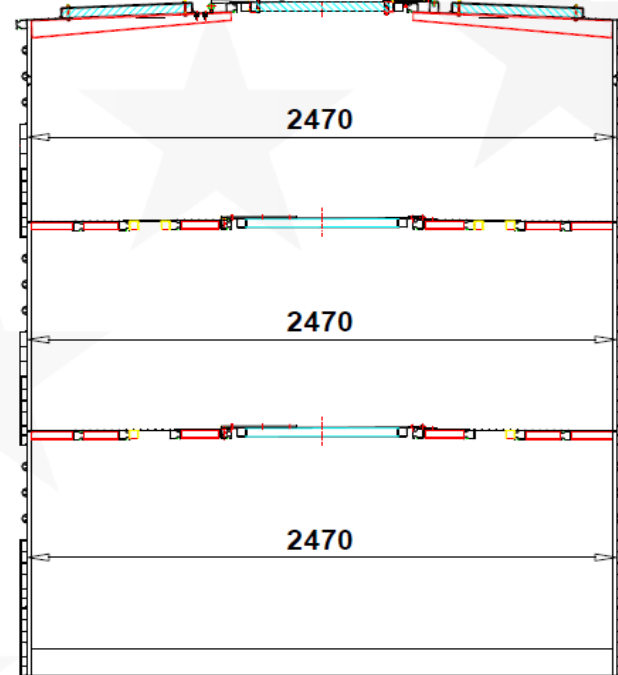
- Each lorry has surface area calculated and written on the side
- Based on the information in journey plan indicating numbers of animals (stocking density is calculated)



REMEMBER THE MATRIOSHKA SYSTEM



➤ Liftable decks
with ramps
matrioshka system



➤ Fix decks
with lifts
same size floors

24

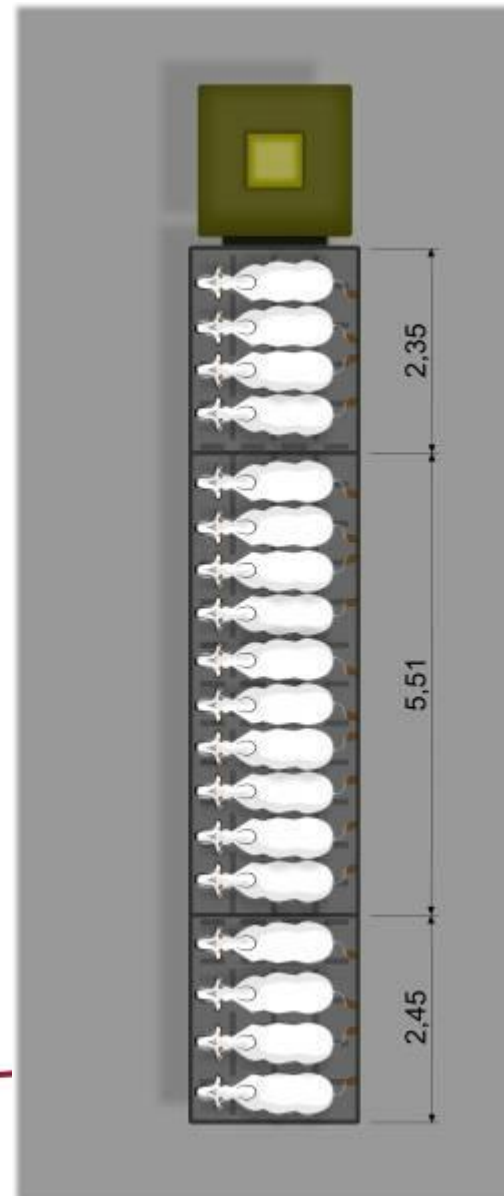
MATRIOSHKA SYSTEM

- Most common are lorries with standard loading ramps and liftable decks – therefore each such a lorry MUST have different area at each floor/deck



LOADING DENSITY

- Stand up, lie down
- Animals have to be able to step forward and backward and step asides to cope with acceleration and deceleration, turns and road conditions



LOADING DENSITY

Other considerations:

- Size of animals and breed
- Temperament and other (horned animals)
- Physical condition of animals
- Weather conditions (e.g. no overload in cold)
- Duration of journey

STOCKING DENSITIES CATTLE/EU

Category	Approximate weight (kg)	Area (m ² /animal)
Small calves	50	0.30 – 0.40
Medium sized calves	110	0.40 – 0.70
Heavy calves	200	0.70 – 0.95
Medium sized cattle	325	0.95 – 1.30
Heavy cattle	550	1.30 – 1.60
Very heavy cattle	> 700	> 1.60

STOCKING DENSITIES EQUIDAE

EC 1/2005

	[m ²]	[m]
Adult horses	1,75	0,7 × 2,5
Young horses (6 — 24 months) (for journeys of up to 48 hours)	1,20	0,6 × 2,0
Young horses (6 — 24 months) (for journeys over 48 hours)	2,40	1,2 × 2,0
Ponies (under 144 cm)	1,00	0,6 × 1,8
Foals (0 — 6 months)	1,40	1,0 × 1,4

Long journeys (over eight hours)

Horses and ponies must be transported in individual stalls, except that a mare may travel with her foal.



STOCKING DENSITIES SHEEP and GOATS

EC 1/2005

Category	Weight in kg	Area in m ² /animal
Shorn sheep and lambs of 26 kg and over	< 55	0,20 to 0,30
	> 55	> 0,30
Unshorn sheep	< 55	0,30 to 0,40
	> 55	> 0,40
Heavily pregnant ewes	< 55	0,40 to 0,50
	> 55	> 0,50
Goats	< 35	0,20 to 0,30
	35 to 55	0,30 to 0,40
	> 55	0,40 to 0,75
Heavily pregnant goats	< 55	0,40 to 0,50
	> 55	> 0,50

STOCKING DENSITY PIGS

EC 1/2005

All pigs must at least be able to lie down and stand up in their natural position.

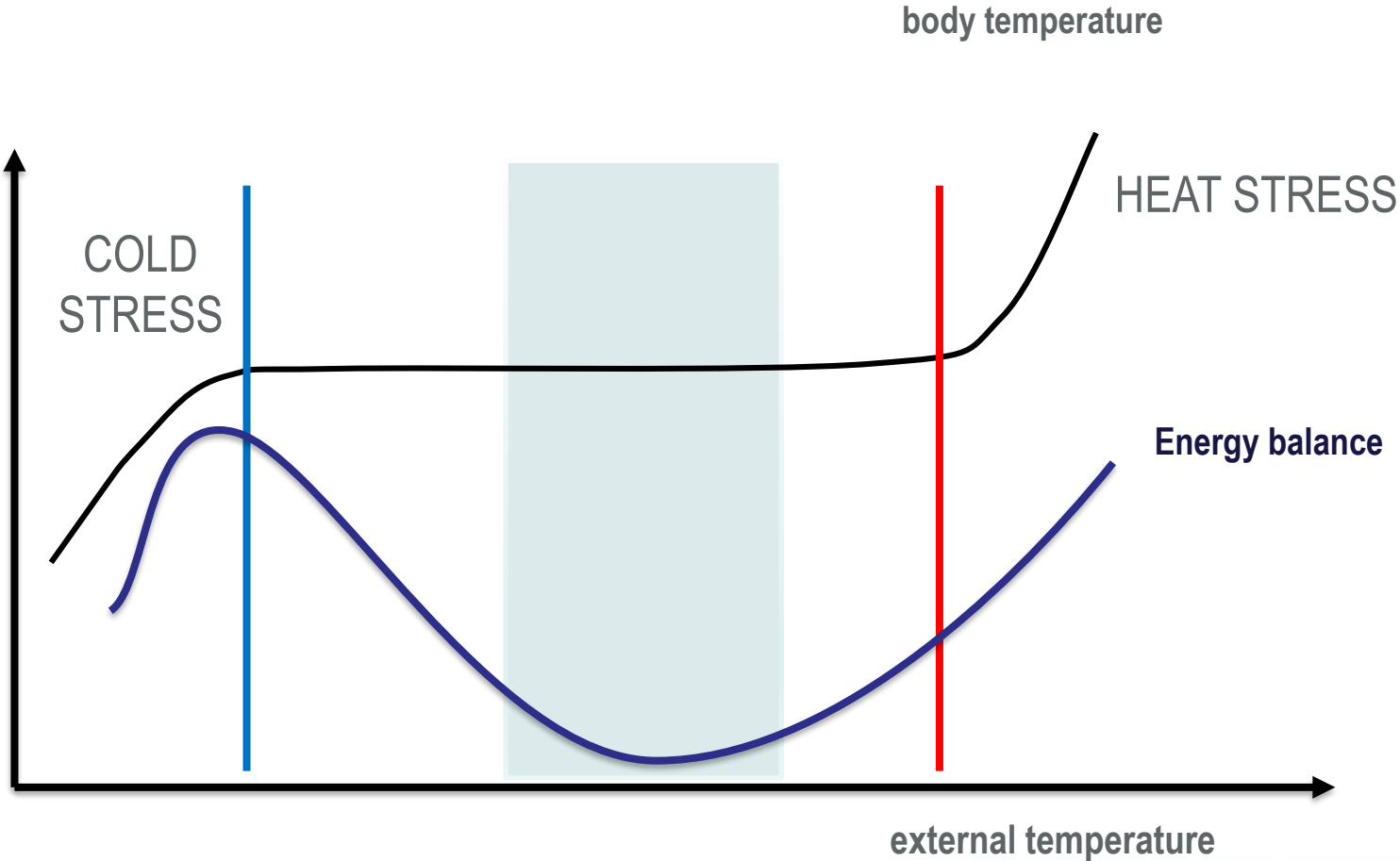
Minimum requirement of the loading density for **pigs of around 100 kg should not exceed 235 kg/m².**

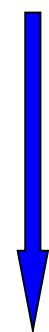
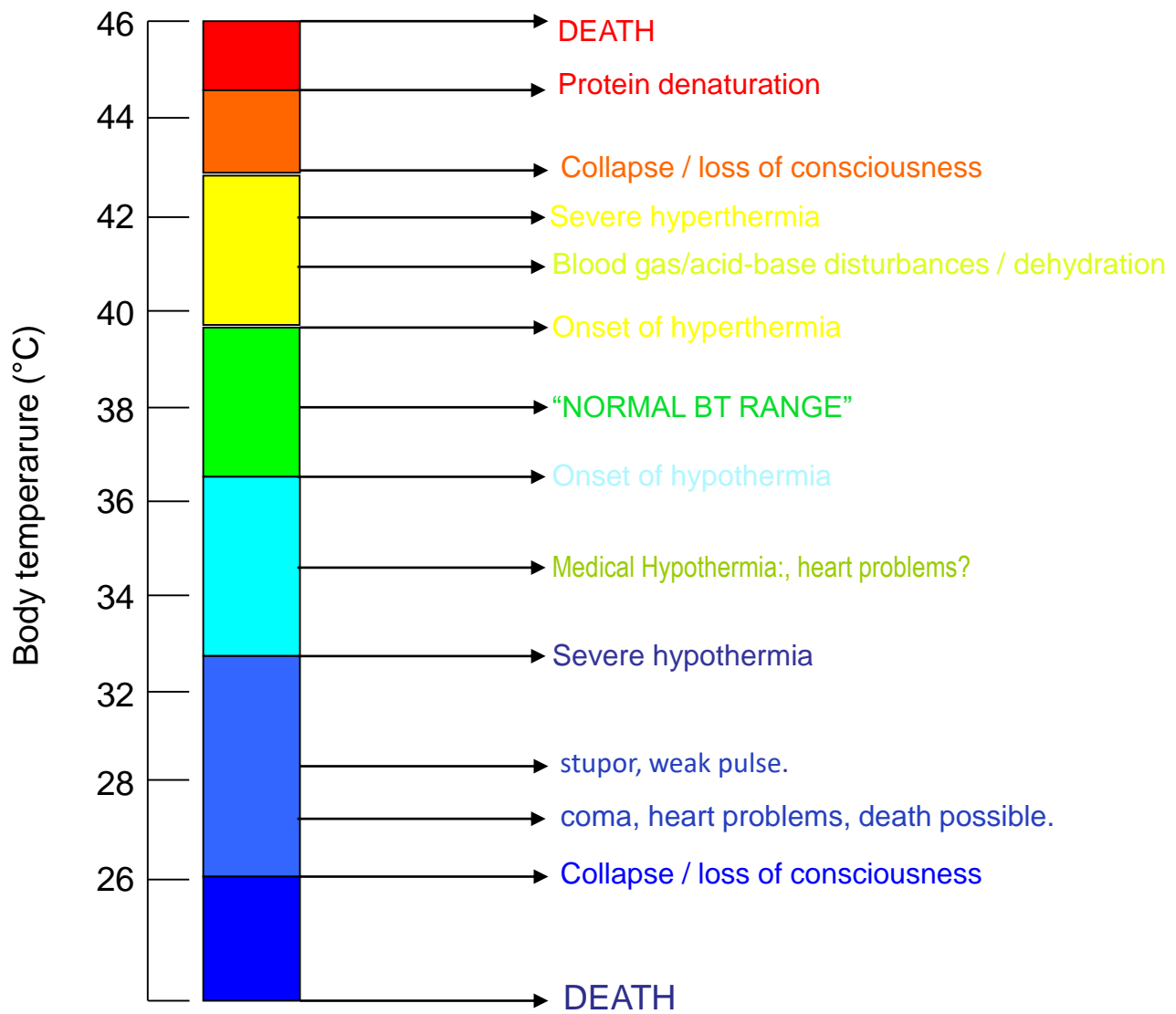
The breed, size and physical condition of the pigs may mean that the minimum required surface area given above has to be increased; a maximum increase of 20 % may also be required depending on the meteorological conditions and the journey time.

MICROCLIMATE

Cold stress and heat stress

THERMOREGULATION

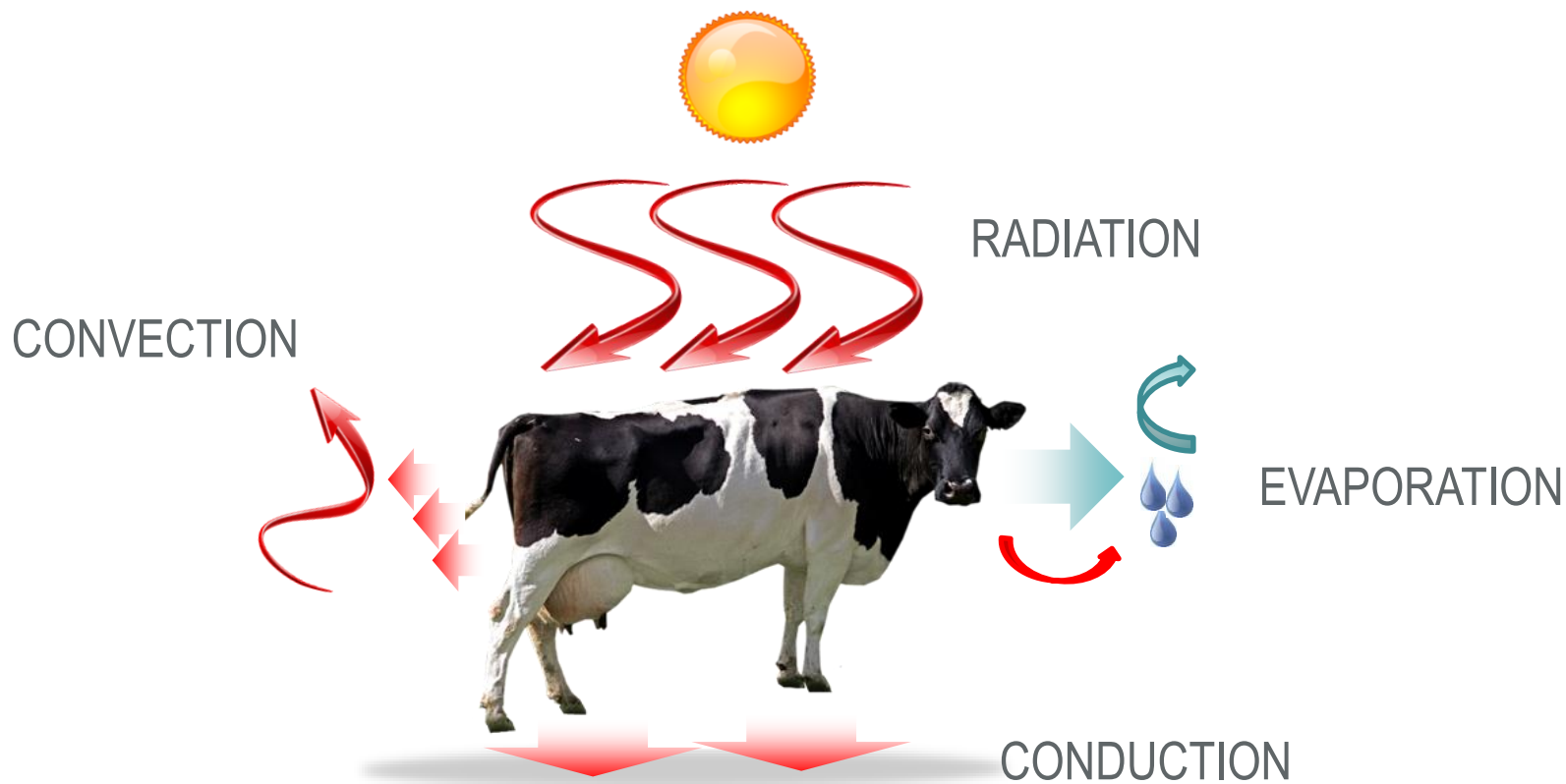




Source: M. Mitchell



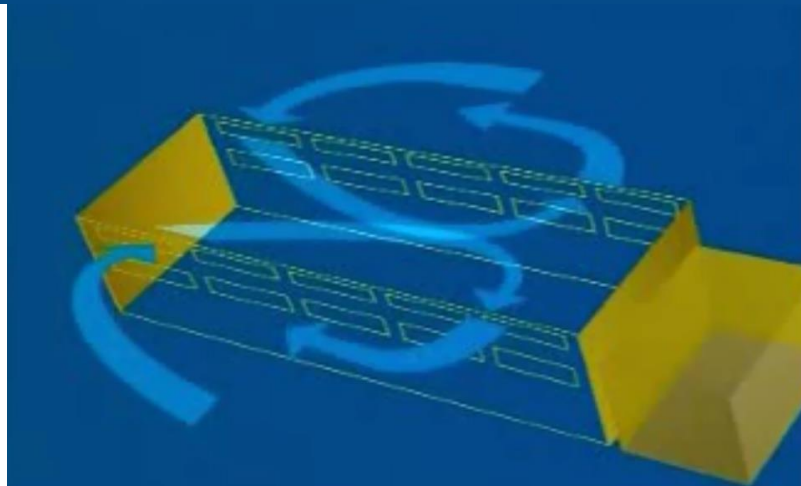
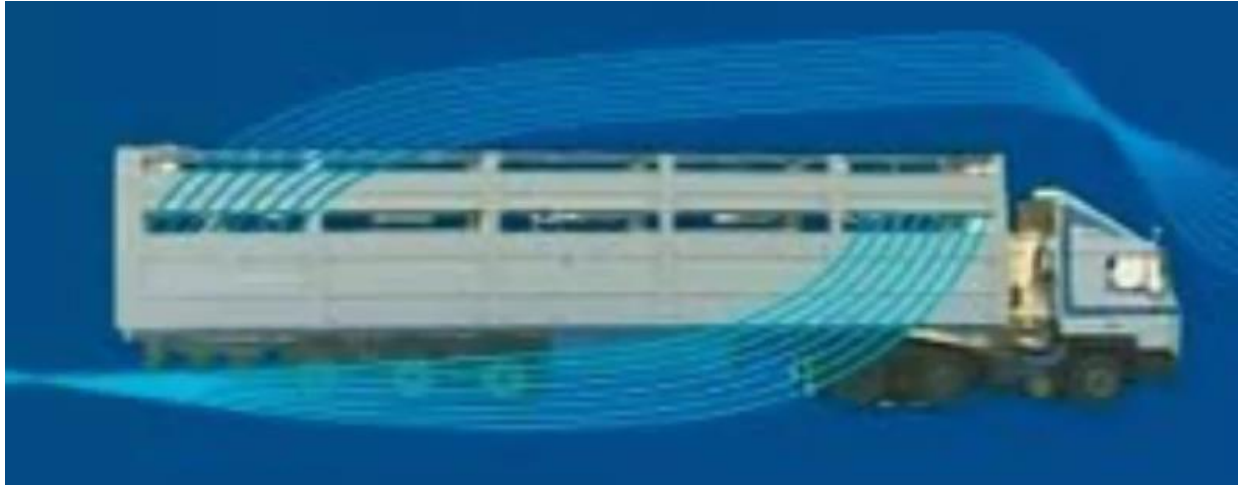
THERMOREGULATION



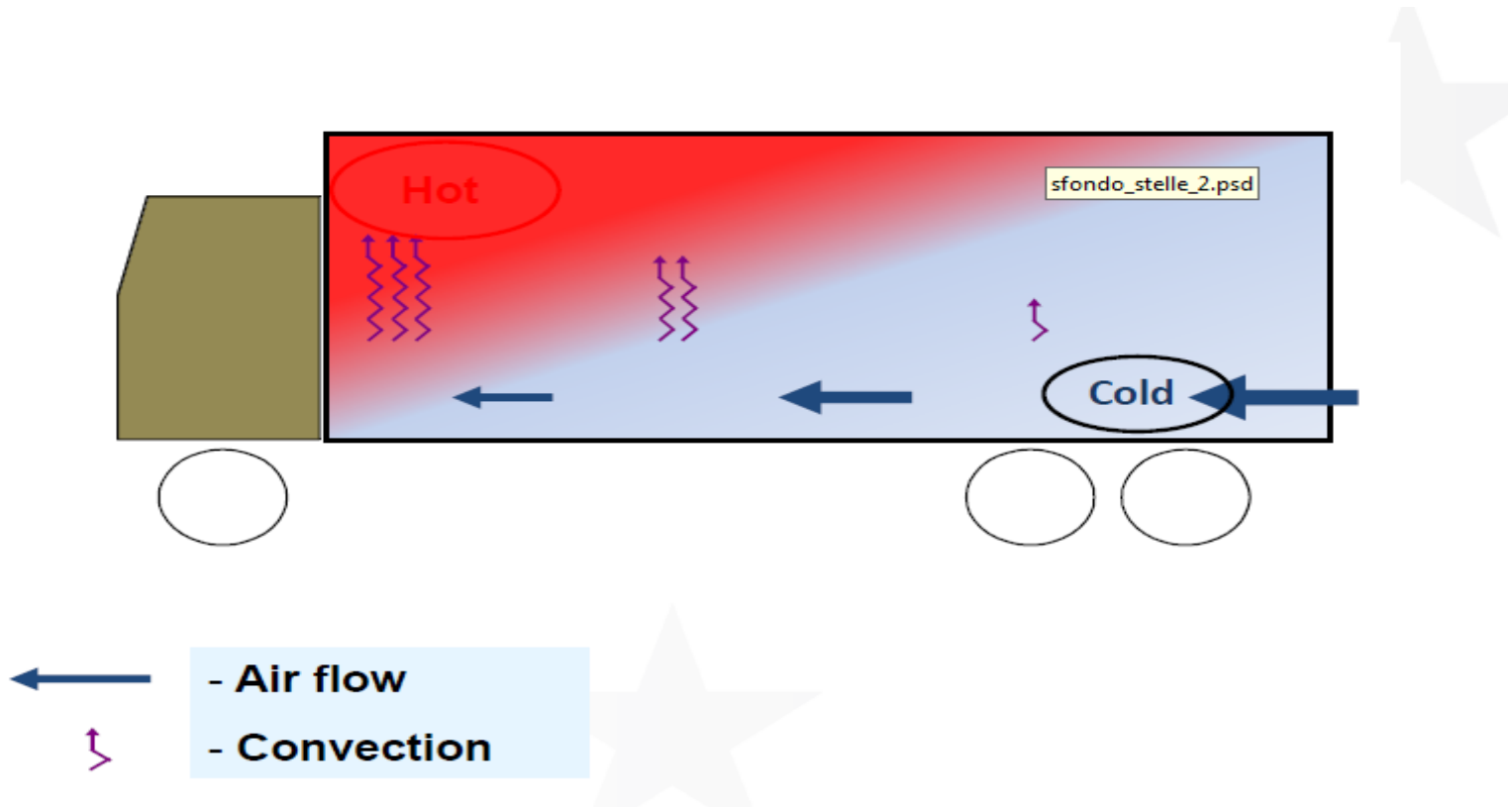
BEHAVIOURAL THERMOREGULATION



AIR FLOW



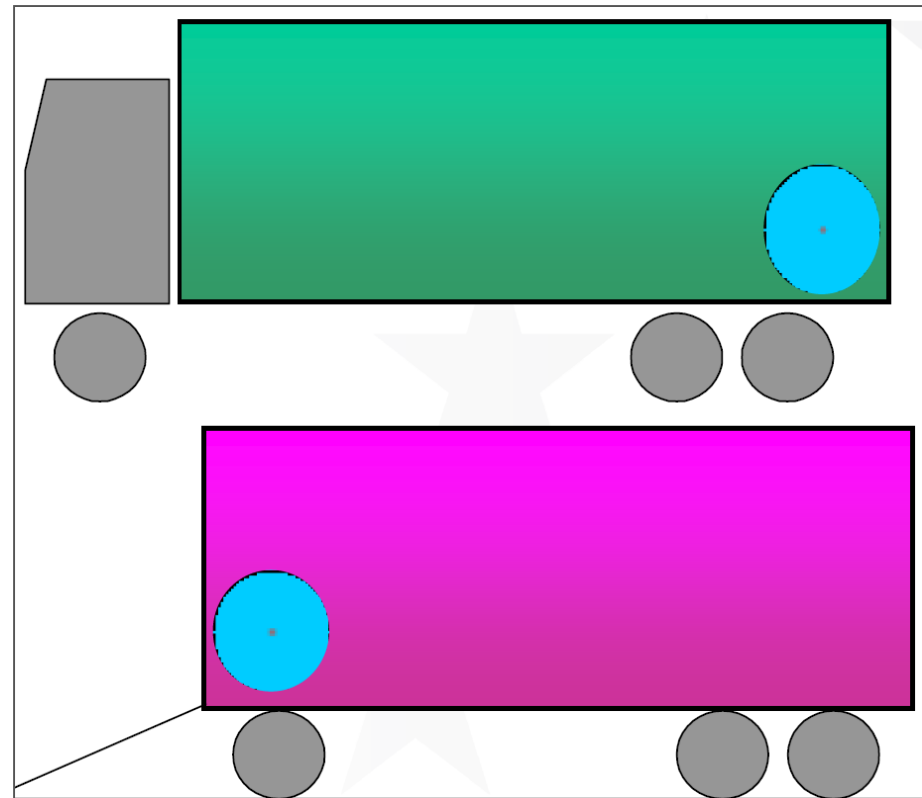
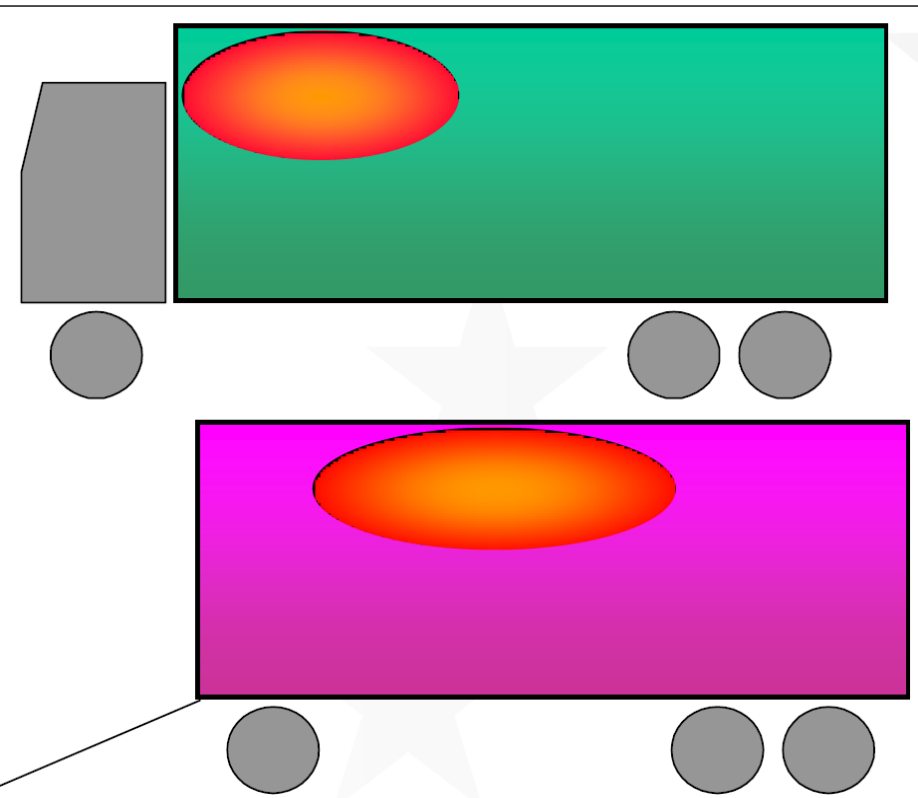
AIR FLOW – DISTRIBUTION OF TEMPERATURE – LORRY SEMI-TRAILER



Adopted from M.A.Mitchell

DISTRIBUTION OF TEMPERATURE – LORRY SEMI-TRAILER WITH TRAILER

- In compartments within hot zones – less stocking density / forced vents
- In cooler areas standard stocking density



Adopted from M.A.Mitchell

Wind speed chill effect

WIND CHILL FACTOR

Wind speed [km/h]	Actual air temperature [°C]						
	10	4	-1	-7	-12	-18	-23
8	9	2	-3	-8	-15	-21	-26
16	4	-2	-8	-15	-22	-29	-34
24	2	-5	-12	-21	-28	-34	-41
32	0	-8	-16	-23	-31	-37	-45
40	-1	-9	-18	-26	-33	-39	-48
48	-2	-11	-21	-28	-36	-42	-51
56	-3	-12	-21	-29	-37	-44	-54
64	-3	-12	-22	-29	-38	-47	-56
72	-4	-13	-22	-30	-39	-48	-57
80	-4	-13	-23	-31	-40	-48	-58

Source: Kansas State University and Livestock Conservation Institute

From: Code of Practice for the Care and Handling of Farm Animals: Transportation – NFACC Canada

Modified

SEPARATION

Article 7.3.7.2

- Animals of significantly different sizes or ages
- Sexually mature males from females.
- Animals with horns from animals without horns
- Animals hostile to each other.
- Tied animals from untied animals.
- Animals from different farms/groups

IMPACT OF TRANSPORT TIMES

- Knowles et al. (1993) studied effects of 9 and 14 hrs of road transport and recovery in lairage of hill lambs
- no measurable differences between the responses of the lambs transported 9 vs. 14 hrs
- recovery after transport, in lairage, required 24 hrs for dehydration and 96 hrs for liveweight.
- high levels of plasma beta-hydroxybutyrate, free fatty acids and urea, after the journeys, indicated that the animals were in a catabolic state.
- Knowles (1998) reported that complete recovery from 14 hrs of transport stress takes almost 5 days.

'HIDDEN' ECONOMIC LOSSES

- **Casualties**

(bruising, injuries, exhaustion – special procedures, extra time)

- **Bleedings**

(fights, mixing of unknown animals)

- **Low quality of meat**

(blood-splash, haemorrhages, acute or chronic stress, DFD meat)

- **Time, extra effort - work**

(stressed animals are more difficult to handle)

Schultz a Kaster, 1998

Thank you for your attention



WORLD ORGANISATION FOR ANIMAL HEALTH

Protecting animals, preserving our future