* ANIMAL WELFARE & MEAT MARKET
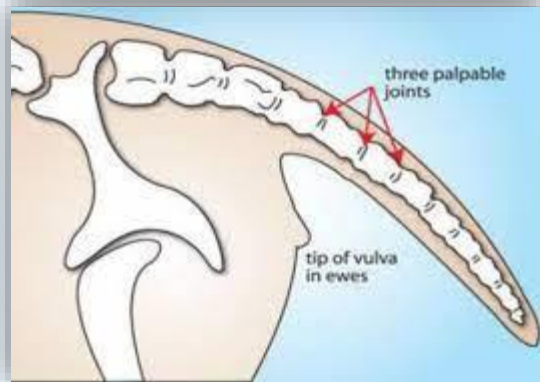
BY: Ari Wibowo, Ph.D.

2022

* Animal welfare is a concern for animal suffering and for animal satisfaction.
  Animal welfare science is the science of animal suffering and animal satisfaction.

* Neither suffering nor satisfaction can be measured directly, but the
  consequences of different causes of suffering and satisfaction can be compared in various ways

Elastrator - Ring Applicator
medical-tools.com
100 Rings
FREE
DHL Fast Shipping ✓
MEDICAL TOOLS

three palpable joints
tip of vulva in ewes

Providing pre operative NumOcaine anaesthetic

*For example, animal welfare scientists have found that it is more stressful physiologically for a lamb to have its tail docked with a knife than with a rubber ring (Lester *et al.*, 1996)

* One way of evaluating different causes of suffering is to measure the animal's stress responses.

* A *stress response* is a physiological reaction in an animal to threatening or harmful situations.

* Stress responses are normal reactions t environmental or internal perturbations and can be considered adaptive in nature. Distress occurs when stress is severe, prolonged, or both.

*
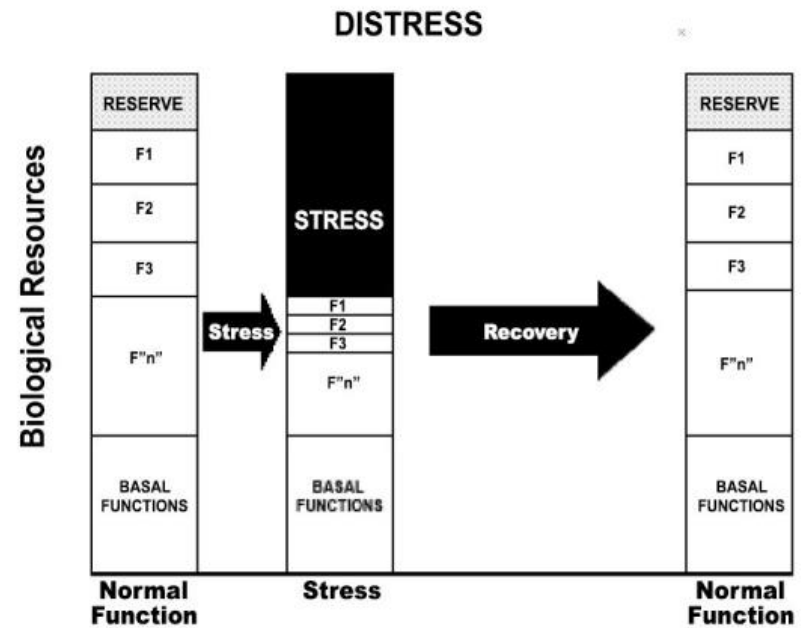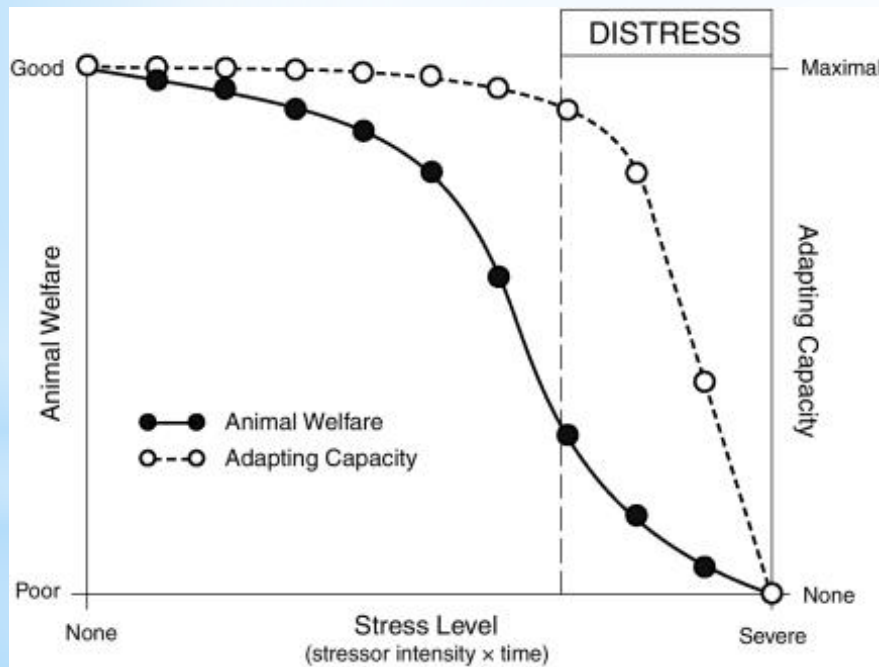
* include the fear that causes some animals to shake uncontrollably when confronted with the novel sounds and situations at an auction market or abattoir.

* *Suffering* is a less precise term. Humans suffer in many different ways, including sickness, anxiety, fear, emotional deprivation, and through cold, heat, physical discomfort, pain, extreme thirst or hunger. No doubt animals also experience these feelings, which in extreme situations cause suffering

* Not all forms of suffering are caused by humans, We have no control over the weather, although we may be in a position to try to protect animals from adverse weather. We do not have good control over all diseases, and these are a major cause of suffering in livestock.
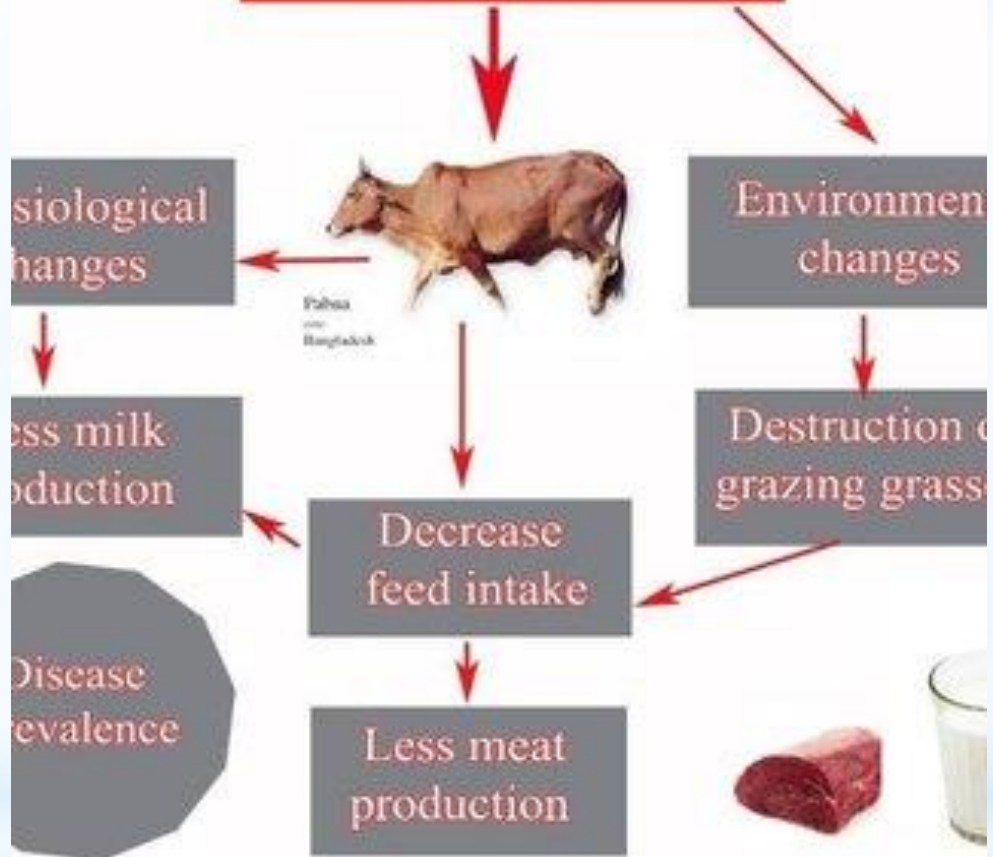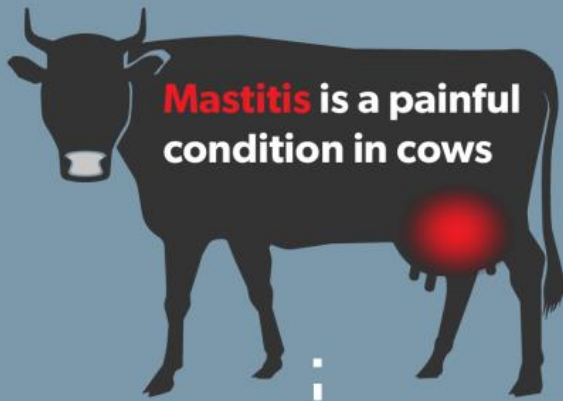
Mastitis is a painful condition in cows

It can be reduced by
Better hygiene
Better animal husbandry and milking regimes

Resulting in →

No inappropriate use of antibiotics

Waste is not contaminated

No additional treatment costs

Lower greenhouse gas emissions per litre of milk

Better milk yields
Safe milk

Better fertility

Outcomes

Antimicrobial resistance does not develop

Less human health issues

More household income

Environment not contaminated

Less contribution to climate change

Creating more opportunities to manage mastitis

*In practice there are four situations where humans have some responsibility for animal suffering, and these are known as the *Four I's*. They are:

- **Ignorance** – not knowing what to do.
- **Inexperience** – knowing what to do but not knowing how to do it.
- **Incompetence** – inability to do it.
- **Inconsideration** – not caring

* In cases of cruelty it is unwise to bring a cruelty charge against a first-time offender where the cause was ignorance, inexperience and incompetence.

* Education or guidance can help to avoid or correct ignorance and inexperience.

* Incompetence is more difficult to correct, and often there is a human tragedy behind the situation. For example, the person in charge of the animals may be unstable, taking drugs or misusing alcohol.

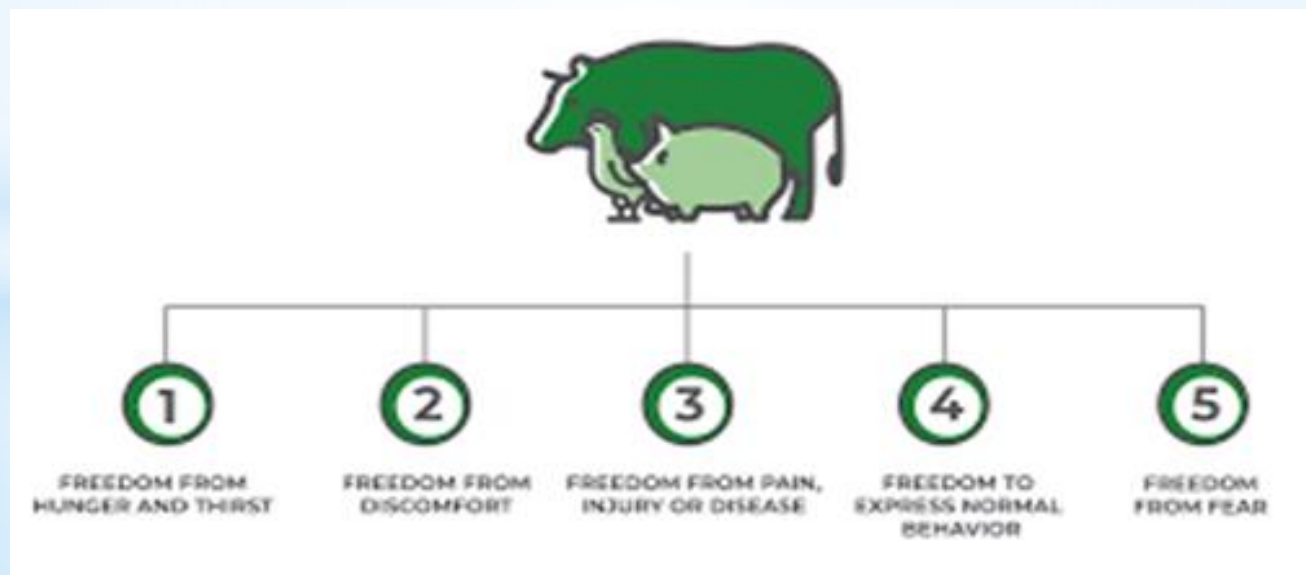*There are three *reasons for being concerned about animal welfare*:
• respect for animals and a sense of fair play;
• poor welfare can lead to poor product quality;
• risk of loss of market share for products which acquire a poor welfare image

* The first reason is a moral one, and each of us will differ in our values and outlook.
* Some feel that animals are less important than themselves or other humans and so they warrant less concern.
* Society has grown to accept that, to satisfy the world's appetite for meat, animals must be farmed intensively as well as extensively, but some hold strong views about how the animals should be kept

* As a guide to moral standards many countries have adopted the *Five Freedoms*. These are
a set of goals towards which animal owners and handlers should strive.
They are:

• freedom from thirst, hunger and malnutrition;
• the provision of appropriate comfort and shelter;
• the prevention or rapid diagnosis and treatment of injury, disease or
infestation with parasites;
• freedom from distress;
• the ability to display normal patterns of behaviour.

1 FREEDOM FROM HUNGER AND THIRST

2 FREEDOM FROM DISCOMFORT

3 FREEDOM FROM PAIN, INJURY OR DISEASE

4 FREEDOM TO EXPRESS NORMAL BEHAVIOR

5 FREEDOM FROM FEAR

Efficiency in livestock farming

In America or Europe: + 75-300kg of hay and other dry matter = 1kg of meat

In Africa: + 500kg of hay = 1kg of meat

In Ethiopia, Sudan and Somalia: + 2000kg of hay = 1kg of meat

Follow @GroIntel
www.gro-intelligence.com

© 2014 Gro Intelligence, Inc. All rights reserved.

Source: The Economist and PNAS

HEALTH & PRODUCTIVITY

NATURAL LIVING

EMOTIONAL WELL-BEING

Evaluate

Care
provided via:
animal management, enrichment, nutrition, positive reinforcement training, and veterinary services

E&E cycle

Welfare
measured via:
behavior, habitat use, hormones, and other measurables

Enhance

Join the
Cattle Welfare Group
today!

*THANK YOU FOR YOUR COMING TODAY

*2nd meeting on animal welfare Class.

* By: Ari Wibowo, Ph.D. 2021

Welfare inputs / factors

Stockman

Environment

Animal

Examples of welfare factors

- Stockman
  - Empathy, Knowledge, Observation skills
- Environment
  - Housing, Bedding, Feed quality, Water provision
- Animal
  - Suitable breed, Age and Sex for the system

Common framework for quantifying problem

- Severity

- Duration

- Number affected

Common framework for quantifying problem

- Once you have identified which aspects of the Five Freedoms have potentially been compromised you also need to consider:

- The severity of any welfare compromises

- The duration that the compromise has existed

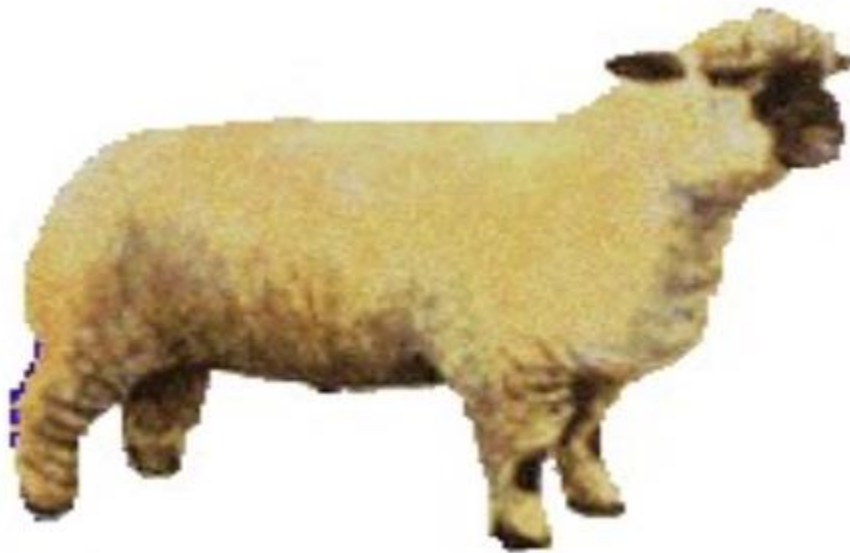- The number of animals affected.

Quantifying severity

- Behaviour
  - e.g. fearfulness
- Disease
  - e.g. lameness, pneumonia
- Production performance
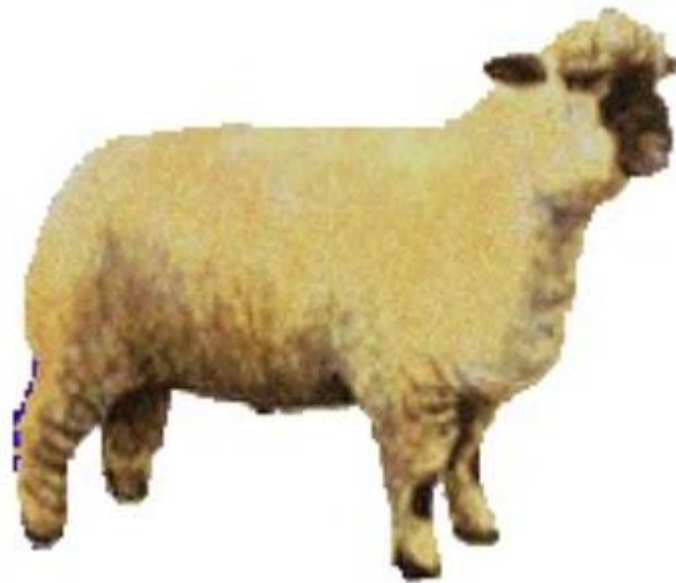 - e.g. growth rates
- Physiology
  - e.g. heart rate, cortisol

Severity example

?How severe is the social isolation of sheep

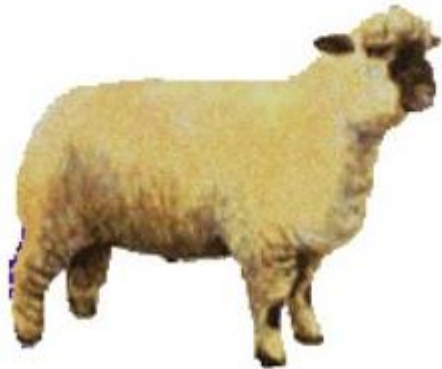# Duration example

For how long are sheep sensitive to pain after a lameness episode?

Number affected

- Example:
- At any one time, how many animals are lame ?

* 15%

22% *

SDN example: Cattle in poor condition

- **Severity:**
  - How thin are the cows (e.g. Body condition score)?

- **Duration:**
  - How long have the cows been thin?

- **Number affected:**
  - How many cattle are thin?

Behavioural indicators

- Behaviour is useful in a study of animal welfare because it gives us an indication of how animals feel:

  - Choices that the animal makes

  - Reaction to a variety of stimuli

- Behaviour assessments are, therefore, often used as indicators of welfare

Behavioural indicators

- Animal welfare scientists use behavioural indicators to identify factors that are important to animals

- We can use behavioural indicators to recognise poor welfare or good welfare

?What is animal behaviour

The choices that an animal makes as a result of analysis of environmental stimuli (often many)

These choices are influenced by:

- experience
- physiological status (e.g. age, pregnancy)
- innate responses (e.g. species, breed)

Behavioural indicators in welfare science

1. Behaviour observation
2. Choices
3. Work that an animal will do to gain what it wants or needs
4. Work that an animal will do to escape unpleasant stimuli
5. Deviations from normal behaviour

Physiological indicators of animal welfare

Mônica Serra[1]*, Carla Patricia Bejo Wolkers[2] & Elisabeth Criscuolo Urbinati[1]

[1]Centro de Aquicultura da Unesp, Universidade Estadual Paulista—UNESP, Jaboticabal, SP, Brasil.
*Corresponding author: monicaserra.bio04@gmail.com
[2]Faculdade de Ciências Integradas do Pontal, Universidade Federal de Uberlândia—UFU, Ituiutaba, MG, Brasil.

Table 1. Welfare assessment models.

MODEL	CHARACTERISTICS	DESCRIPTION
Five Domain Model[1]	Four physical/functional domains and one affective experience domain, divided in negative and positive experiences	**Physical/Functional:** **Nutrition** - Restricted water and food, and poor food quality (negative); enough water and food, and balanced and varied diet (positive) **Environment** – Uncomfortable or unpleasant physical features of environment (negative); physical environment comfortable of pleasant (positive) **Health** – Disease, injury and/or functional impairment (negative); healthy, fit and/or uninjured (positive) **Behavior** - Behavioral expression restrict (negative); able to express rewarding behaviors (positive) **Affective Experience:** **Mental state** – Thirst, hunger, malnutrition malaise, chilling/overheating hearing discomfort, breathlessness, pain, debility, weakness, nausea, sickness, dizziness, anger, frustration, boredom, helplessness, loneliness, depression, anxiety, fearfulness, panic, exhaustion (negative); drinking, taste and chewing pleasures, satiety, physical comforts, vigor of good, health and fitness, reward, goal-directed, engagement, calmness, affectionate sociability, maternally reward, excited playfulness sexually gratified (positive)
European Welfare Quality (WQ*)[2]	Four principles and twelve criteria	**Principles:** **Good feeding** - absence of prolonged hunger and thirst **Good housing** - Comfort around resting; thermal comfort, easy movement **Good health** - Absence of injuries, disease and pain **Appropriate behavior** - Expression of social behaviors and others, good-human relationship, positive emotional state

AJAS

Asian-Australasian Journal of Animal Sciences

Farm to abattoir conditions, animal factors and their subsequent effects on cattle behavioural responses and beef quality — A review

Yonela Zifikile Njisane[1] and Voster Muchenje[1,*]

Table 1. Some qualitative and quantitative descriptors to consider in examining animal response behaviour

Qualitative behaviour		Quantitative behaviour
Positive	**Negative**	
Active,	Fearful	Standing immobile, approaching person, in contact with person, sniffing person, vocalising, sniffing the environment and moving away from person; flight zone, exit speed, stepping and/or kicking
Relaxed	Agitated	
Calm	Irritable	
Playful	Uneasy	
Lively	Avoidance	
Inquisitive	Restless	
Un-phased	Vocalization	

Modified from: Bourguet et al [22], Dodzi and Muchenje [42], Mounier [56], Wemels-felder et al [108], Waiblinger et al [109], Minero et al [110], Stockman et al [111].
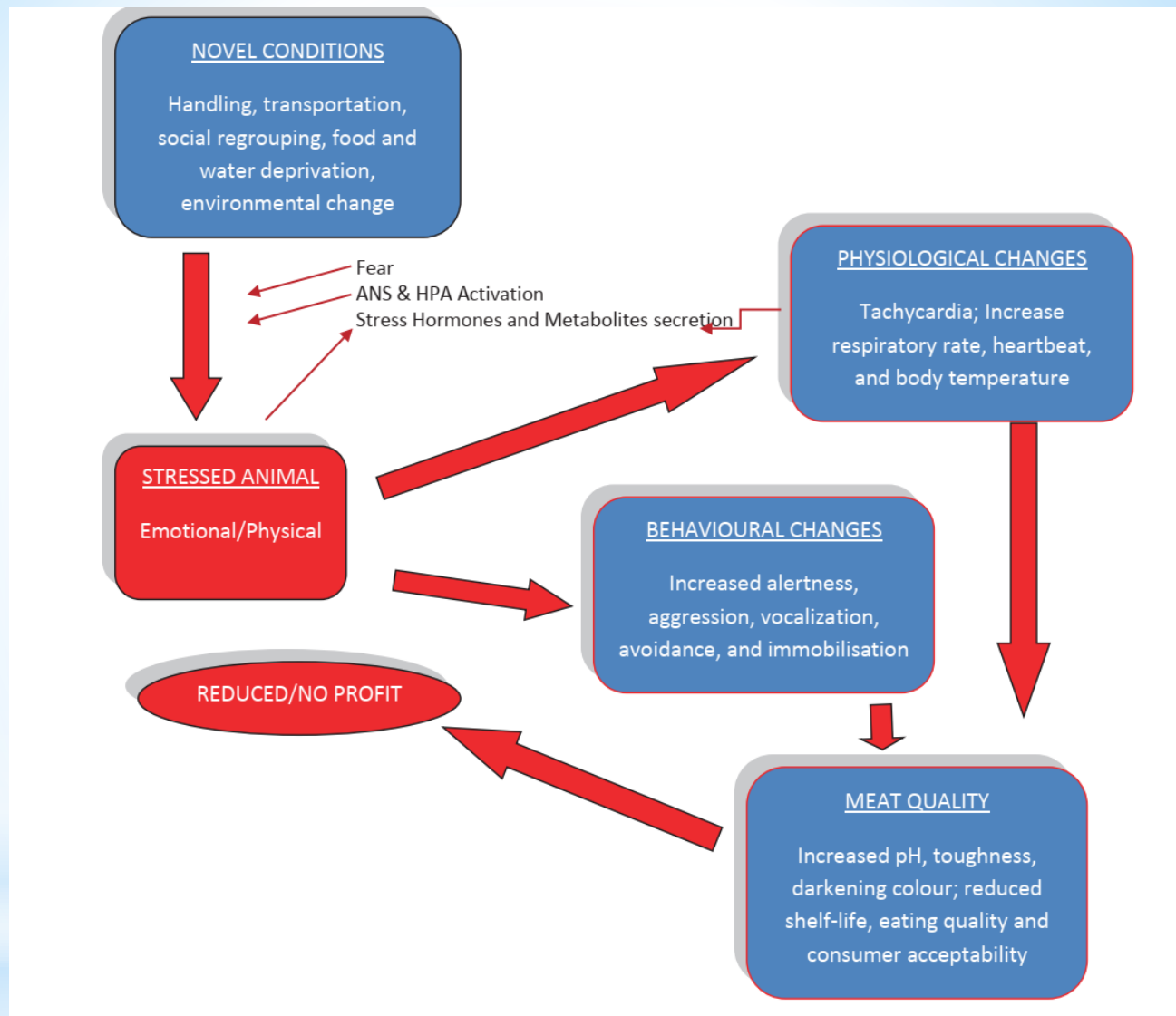
Figure 1. Diagram showing a detailed summary of the effects of the pre and slaughter process on the animals and the quality of meat, as described in literature. ANS, autonomic nervous system; HPA, hypothalamic pituitary adrenal.

Table 2. Some proposed methods to improve the welfare of slaughter animals

Recommendation	Description	Reference
Supplementation with:		
1. Magnesium	1. Stress reduction and improves meat quality	Ferguson and Warner [7]
2. Tryptophan	2. Minimize stress	
3. Electrolytes	3. Increases carcass yields	
Nutrition modulation and electrolyte therapy	Reduction of stress during transportation and handling thus improving meat quality	Schaefer et al [65]
Use of proper facilities and handling techniques	Allows good management and improved welfare and production	Grandin [3], Ferguson and Warner [7], Petherick [112]
Stockmanship improvement	A good relationship between farm animals and humans reduces animals fear and allows ease during handling	Grandin [3], Ndou et al [6], Hemsworth et al [20], Waiblinger et al [109],
Practise early life animal-human interactions	Encourages good relationship even at the later stage thus good production	Probst et al [58,4]
Selection for temperament	Use of less aggressive breeds thus improved handling and meat quality	Ferguson and Warner [7]

Table 1. Continuation.

5-Step® Animal Welfare Program'[3]	Three components	**Components:**
		Health & Productivity – raising animals so that they're healthy and productive with good quality feed and water, shelter, and free from disease, illness and injury (but treating any animals that get sick).
		Natural Living – raising animals in environments that allow them to express their natural behaviors effectively – both indoors and out-doors
		Emotional Well Being – raising animals in environments that provide them the ability to be inquisitive, happy and playful and minimize boredom, frustration, fear, stress and pain, as much as possible.

[1]Mellor & Reid, 1994; [2]Veissier et al., 2011; [3]Global Animal Partnership, 2008

Table 2. Welfare paradigms: Freedoms, Provisions and Animal Welfare Aims.

FREEDOMS[1]	PROVISIONS[1]	ANIMAL WELFARE AIMS[2]
Freedom from thirst, hunger and malnutrition	Provide ready access to fresh water and a diet to maintain full health and vigor	Minimize thirst and hunger and enable eating to be a pleasurable experience
Freedom from discomfort	Provide shade/shelter or suitable housing, good air quality and comfortable resting areas	Minimize discomfort and exposure and promote thermal, physical and other comforts.
Freedom from pain, injury and disease	Prevent or rapidly diagnose and treat disease and injury, and foster good muscle tone, posture and cardiorespiratory function	Minimize breathlessness, nausea, pain and other aversive experiences and promote the pleasures of robustness, vigor, strength and well coordinated physical activity.
Freedom from express normal behavior	Provide sufficient space, proper facilities, congenial company and appropriately varied conditions.	Minimize threats and unpleasant restrictions on behavior and promote engagement in rewarding activities.
Freedom from fear and distress	Provide safe, congenial and species-appropriate opportunities to have pleasurable experiences.	Promote various forms of comfort, pleasure, interest, confidence and a sense of control

[1] FARM ANIMAL WELFARE COUNCIL, 1993 apud WEBSTER, 2001, p.233; [2] MELLOR (2016B).

Table 3. Quality of Life (QoL) scale.

CATEGORY	DESCRIPTION
A good life	The balance of salient positive and negative experiences is strongly positive. Achieved by full compliance with best practice advice well above the minimum requirements of codes of practice or welfare
A life worth living	The balance of salient positive and negative experiences is favorable, but less so. Achieved by full compliance with the minimum requirements of code of practice or welfare that include elements which promote some positive experience.
Point of balance	The neutral point where salient positive and negative experiences are equally balanced.
A life worth avoiding	The balance of salient positive and negative experiences is unfavorable, but can be remedied rapidly by veterinary treatment or a change in husbandry practices.

*NEXT MEETING (THE THIRD WEEK0

*THANK YOU