

# Young pig euthanasia – facilitation of a “good death”.

9<sup>th</sup> Animal Welfare RD&E Strategy Forum  
Wednesday 6 November

Robert Hewitt



# The Situation

- Australian pig industry produces ~ 5.4 million head per year<sup>1</sup>.
- There is another ~ 0.6 million head that die after farrowing<sup>2</sup>.
- Much of this is associated with the young pig prior to weaning.
- How many of these pigs are euthanised is not clear, but farm records would suggest it may be up to 35 % of pre-weaning mortality.

# Euthanasia

- Unpleasant but necessary husbandry practice to ensure suffering is not prolonged and animal welfare is not compromised.
- Administering euthanasia demonstrates compassion and reduces the incidence of poor welfare outcomes<sup>1</sup>.
- Humane and painless death, rapid loss of consciousness followed by brain death, respiration loss and cardiac arrest<sup>2</sup>.

# Methods of Euthanasia

- Large volume of research has investigated the suitability of methods of euthanasia for different classes of pigs.
- American Veterinary Medical Association have published guidelines for euthanasia<sup>1</sup>, 92 of the 97 pages relate to euthanasia methods.
- Different methods of euthanasia – blunt trauma, captive bolt pistol, gunshot, electrocution, gas inhalation and anaesthetic overdose, have been reviewed, highlighting advantages and disadvantages<sup>2</sup>.

# Impacts of Euthanasia on Stockpeople

- There is knowledge about the effects of euthanasia methods on the welfare of the animal.
- There is less knowledge around the role of stockpeople in the conduct of euthanasia, or its impact on the stockperson.
- Studies have shown that euthanasia, comprising both the decision and the act, can adversely affect stockpeople<sup>1</sup>.
- The interaction between stockpeople and the animals under their care is often highlighted when euthanasia is poorly conducted.

<sup>1</sup>Rault *et al.* 2017

# The basics.

- *Who* – the compromised pig
- *What* – a good death
- *Why* – to relieve suffering
- *How* – the various euthanasia methods
- *Where* – potentially of concern
- *When* – the judgement call



# How – the various euthanasia methods

	Suckling pig (up to 12 lbs)	Nursery pig (up to 70 lbs)	Grower - Finisher pig (up to market weight)	Mature pig, sow or boar
Carbon dioxide (CO <sub>2</sub> )	Yes	Yes	Yes, but not practical†	Yes, but not practical†
Gunshot	No	Yes	Yes	Yes
Penetrating captive bolt	No	Yes	Yes	Yes
Non-penetrating captive bolt	Yes	Yes with secondary step	No	No
Electrocution, head-to-heart	Only for pigs over 10 lbs	Yes	Yes	Yes
Electrocution, head-only	Only for pigs over 10 lbs	Yes, with secondary step	Yes, with secondary step	Yes, with secondary step
Veterinarian administered anesthetic overdose	Yes	Yes	Yes	Yes
Blunt trauma	Yes	No	No	No

†This method is an acceptable form of euthanasia for this size of pig but may not be practical for individual pig euthanasia on-farm due to lack of equipment suitable for this size.

	PIGLETS <3 WEEKS OLD	NURSERY PIG < 10 WEEKS	GROWING PIG	FINISHING PIG	MATURE
	Birth – 6 kg	6-30 kg	30-75 kg	75 kg +	
Carbon Dioxide	YES	YES	Not Practical	Not Practical	Not Practical
Gunshot	NO	YES (above 15 kg)	YES	YES	YES
Penetrative Captive bolt	NO	YES (above 15 kg)	YES	YES	YES
Blunt trauma	YES	NO (pigs less than 15 kg may be EUTHANISED using blunt trauma)	NO	NO	NO
<b>FOR VETERINARIANS USE ONLY</b>					
Anaesthetic overdose	YES	YES	YES	YES	YES

APL 2011

NPB 2008

# How – an alternative to blunt trauma

- manual blow to the head, causes severe concussion and brain damage, immediate unconsciousness and death within minutes
- authors reported, all piglets immediately lost consciousness: they collapsed instantly, did not vocalize and their pupils were dilated<sup>1</sup>
- all piglets were immediately unconscious and none showed a return to sensibility<sup>2</sup>
- but...

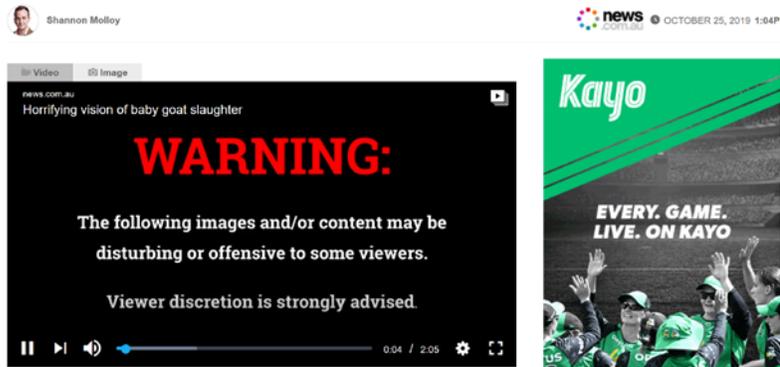
<sup>1</sup>Chevillon *et al.* 2004 <sup>2</sup>Widowski *et al.* 2008

# How – an alternative to blunt trauma

technology science > animals

## Horrific video of baby animal slaughter implicates Australian supermodel Miranda Kerr

Supermodel Miranda Kerr has been embroiled in an animal cruelty campaign after the release of hidden camera footage.  
Warning: Graphic



- blunt trauma may not be consistent depending on the force the handler applies<sup>1</sup>
- given that this method may be unpleasant for some handlers to perform, it may result in a delay in euthanasia of compromised piglets<sup>2</sup>
- this method may be objectionable to the public and emotionally difficult for the stockperson<sup>1</sup>

<sup>1</sup>Gonyou *et al.* 2012 <sup>2</sup>Widowski *et al.* 2008

# How – an alternative to blunt trauma

- Non-penetrating captive bolt – TED
- Delivers a concussive force without breaking the skin
- Offers the same identical force every time the trigger
- WHS compliant, the bolt head is contained and there are no loose projectiles involved.
- User experience – not enough force, poll better than frontal



# How – an alternative to blunt trauma

- Alternative gas euthanasia – Nitrogen
- How do you create hypoxia when air is 78.1 % Nitrogen?
- Nitrogen filled high expansion foam
- Effective, but labour intensive (new version)
- User experience - vocalisation is lower, movement and associated noise still detectable, messy



# When

- Making a call on when an animal should be euthanised is less well defined.
- AVMA<sup>1</sup> approach to when is based on “humane disposition”

*Euthanasia as a matter of humane disposition occurs when death is a welcome event and continued existence is not an attractive option for the animal as perceived by the owner and veterinarian. When animals are plagued by disease that produces insurmountable suffering, it can be argued that continuing to live is worse for the animal than death or that the animal no longer has an interest in living. The humane disposition is to act for the sake of the animal or its interests, because the animal will not be harmed by the loss of life. Instead, there is consensus that the animal will be relieved of an unbearable burden.*

- This approach places full responsibility of the judgement of an animal’s existence on the perception of a particular person

<sup>1</sup>Leary *et al.* 2013

# When

- Barriers to good euthanasia practice were partly knowledge based, also linked to work environment, as well as attitude and empathy<sup>1</sup>
- Without guidance, the continued existence of an animal will be dependent on attitudes and empathy
- Attitudes and empathy are a reflection of your environment
- Differences within ethnic groups<sup>2</sup> 45 vs 87 % wanting additional training, and education level<sup>2</sup> 86 vs 54 %

<sup>1</sup>Rault *et al.* 2017 <sup>2</sup>Matthis 2004

# When

- Those who perform euthanasia need the tools available to determine which pigs need to be euthanised
- Euthanising a sick pig is less stressful than euthanising a pig that does not appear sick
- Step-by-step protocols should be developed for each class of pig
- Makes the determination of “too sick to recover” a more objective decision, not the sole responsibility of a particular person

# When – US CFIA Objective<sup>1</sup>

*Animals that have no prospect for improvement or not responding to care and treatment after two days of intensive care must be humanely euthanized unless otherwise recommended by a veterinarian. The caretaker's past experiences with similar conditions should be used to make informed decisions about the likelihood of recovery.*

*Severely injured or non-ambulatory pigs with the inability to recover are euthanized immediately.*

*An animal is considered non-ambulatory if it cannot get up or if it can stand with support but is unable to bear weight on two of its legs.*

*Any animal that is non-ambulatory with a body condition score of 1 must be euthanized immediately.*

*Pigs with hernias that are perforated must be euthanized. Pigs with hernias that are ulcerated and necrotic must be euthanized. Pigs with large hernias that touch the ground while standing and cause--- difficulty walking and are ulcerated must be euthanized.*

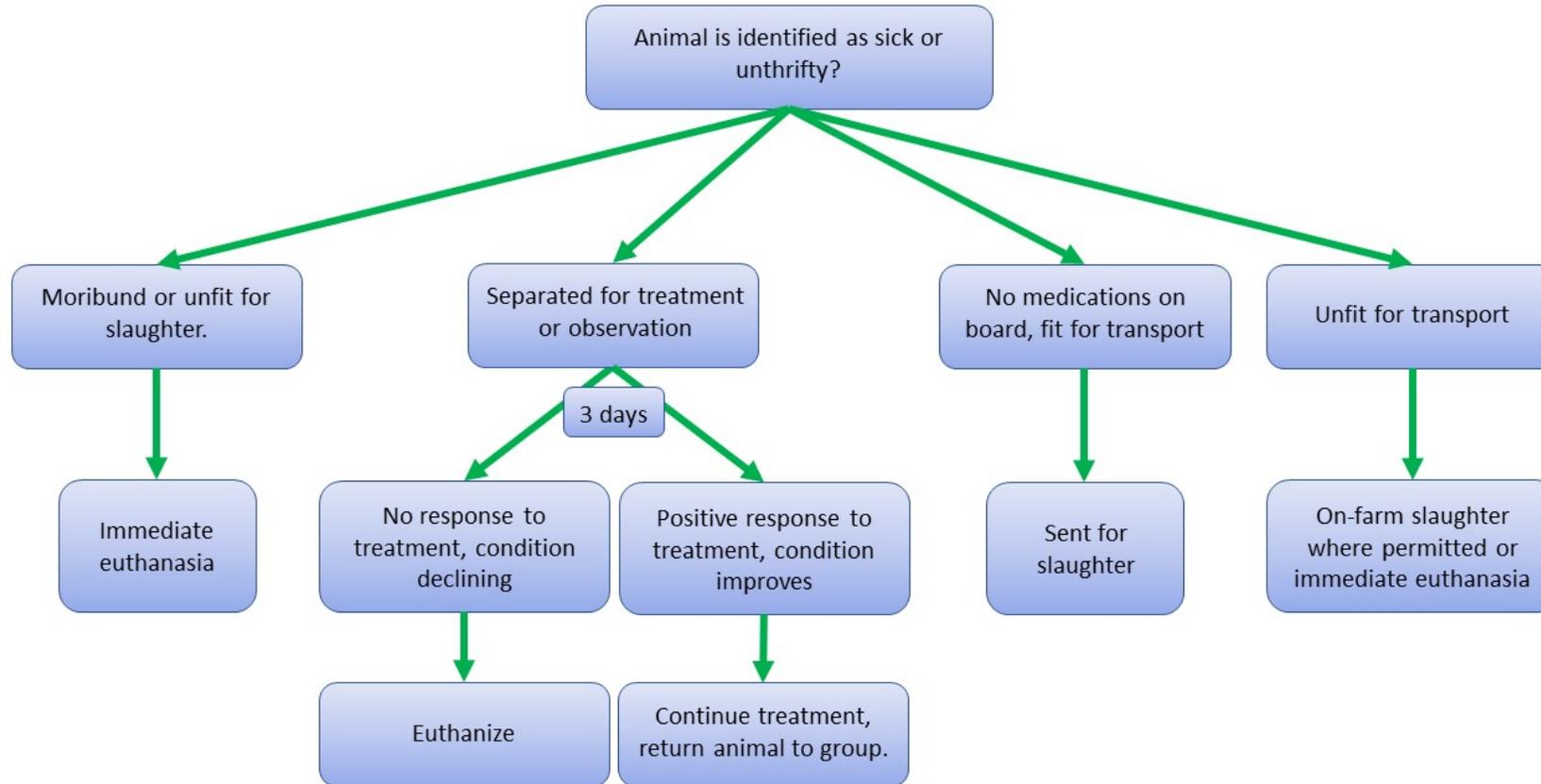
*Any pig with an untreated prolapse that has become necrotic must be euthanized. Uterine prolapses must be euthanized immediately.*

# When – Decision tree<sup>1</sup>

- Takes as input an object or situation described by a set of attributes and returns a decision.
- Contains a set of structured guidelines which help classify situations
- Decision trees can reduce the subjectivity involved in making euthanasia decisions and facilitate the decision-making process

<sup>1</sup>Kingsford and Salzberg 2008

# When – Decision tree<sup>1</sup>

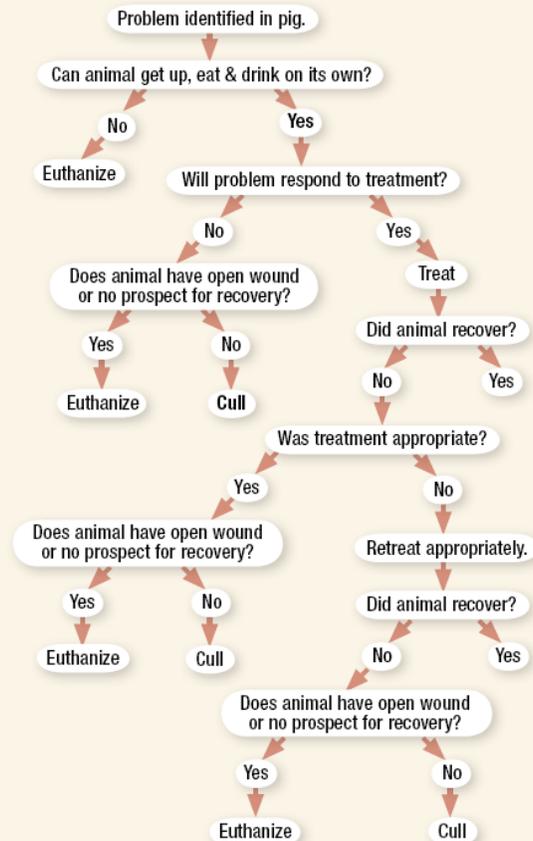


<sup>1</sup>Turner and Donovan 2010

# When – Decision tree<sup>1</sup>

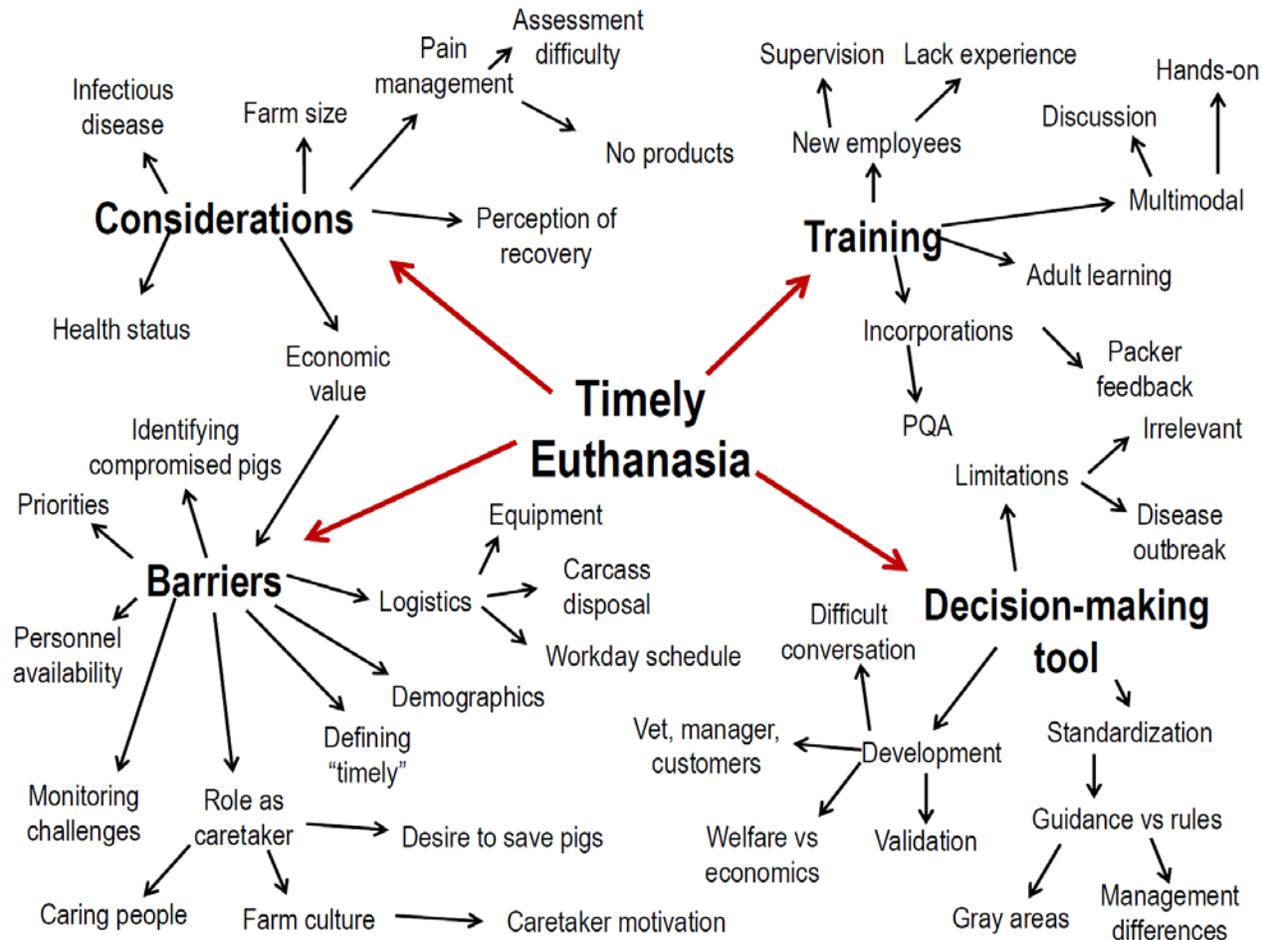
Figure 1. Guiding Principles and Euthanasia Decision Tree

1. Animals that cannot get up to eat or drink on their own should be immediately euthanized.
2. Animals that have open wounds and no prospect for recovery should be euthanized.
3. Humane euthanasia is timely and effective.
4. Only trained persons should euthanize swine; observe safety protocols.



Source: Circle H Headquarters, LLC

# Summary



# Summary

- Unpleasant but necessary husbandry practice to ensure suffering is not prolonged and animal welfare is not compromised.
- Large volume of research has investigated the suitability of methods of euthanasia for different classes of pigs.
- There is less knowledge around the role of stockpeople in the conduct of euthanasia, or its impact on the stockperson.
- Alternatives to blunt trauma do exist, but issues still exist for use and adoption.
- We need to support workers in making these decisions.