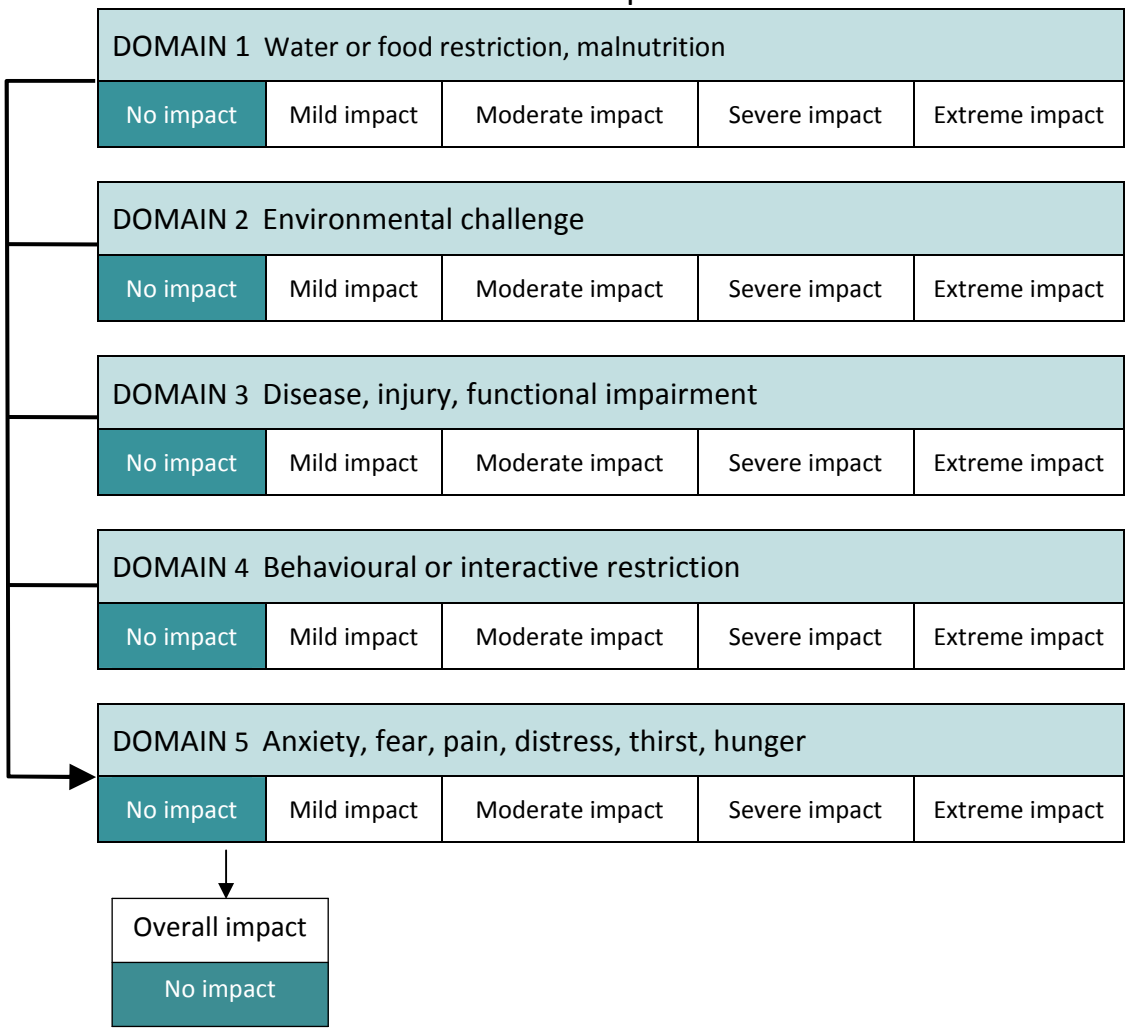
Control method: Baiting of feral pigs with warfarin

Assumptions:	• This is not considered an acceptable method therefore there is no standard operating procedure. • Warfarin has previously been trialled for use with feral pigs under an experimental permit however it is considered inhumane and its use is being phased out in all states and territories.

PART A: assessment of overall welfare impact



DURATION OF IMPACT				
Immediate to seconds	Minutes	Hours	Days	Weeks

SCORE FOR PART A:	**1**
Summary of evidence:	Note that Part A of the assessment examines the 'impact on the animal prior to the action that causes death'. Part B then looks at the 'actual mode of death' and the 'extent and duration of suffering caused'. With ingestion of lethal toxic baits there is usually little or no impact in Part A.
Domain 1	No impact in this domain.
Domain 2	No impact in this domain.
Domain 3	No impact in this domain.
Domain 4	No impact in this domain.
Domain 5	No impact in this domain.

PART B: assessment of mode of death

Time to insensibility (minus any lag time)				
Very rapid	Minutes	Hours	**Days**	Weeks
Level of suffering (after application of the method that causes death but before insensibility)				
No suffering	Mild suffering	Moderate suffering	Severe suffering	**Extreme suffering**

SCORE FOR PART B:	**G-H**
Summary of evidence:	
Duration –	With anticoagulant poisoning, the onset of clinical signs and time to death can be highly variable and are dependent on factors such as dose rate, number of doses and the site of haemorrhaging. Signs of warfarin poisoning in feral pigs are not usually apparent until 1–3 days after ingestion[1]. In some animals there may be massive haemorrhage into body cavities or the brain resulting in sudden death before or soon after the appearance of initial signs. In other cases the onset of clinical signs will be more gradual with pigs typically taking around 7 to 9 days to die after the initial dose[1, 2].
Suffering –	Animals with gradual onset of clinical signs may experience depression/lethargy and anorexia followed by manifestations of haemorrhage including anaemia, laboured breathing, pale mucous membranes and weakness. Bleeding may be visible around the nose, mouth, eyes and anus and animals may pass bloody faeces and urine[3, 4]. In pigs, bleeding into weight-bearing joints is common[1, 2]. The resulting swollen, tender joints cause lameness, recumbency and reluctance to move, which prevents the animal from accessing its normal feeding grounds. The discomfort and pain from haemorrhages in internal organs, muscles and joints can typically last for several days before death.

Summary

CONTROL METHOD:	**Baiting of feral pigs with warfarin**
OVERALL HUMANENESS SCORE:	**1G-H**

Comments

Warfarin is a first generation anticoagulant and is considerably less potent than second generation anticoagulants such as brodifacoum. Anticoagulants act by interfering with vitamin K-1 metabolism and the production of prothrombin in the liver, hence the clotting time of the blood is prolonged. The normal daily damage to blood vessels is then no longer repaired and animals die from blood loss and its sequelae[5, 4.]

Warfarin poisoning in humans causes pain and distress when there is bleeding in muscle, joints, abdomen, lungs, kidneys, spinal cord, orbits of eyes and gonads. It is not the bleeding *per se* that is painful but the accumulation of blood in enclosed spaces[5, 6].

An account of warfarin poisoning in feral pigs is given by O'Brien and Lukins[1]:
"For 1-3 days after poisoning no signs were apparent, with pigs feeding and moving normally. Approximately 3 days after intoxication, pigs began to become lame, depressed and lethargic. Animals moved only if approached closely and spent most time lying in shelter. Food consumption decreased. Frank blood was commonly observed in faeces. Some animals died before or soon after showing signs of intoxication. Others were moribund for many days (up to 31) and demonstrated progressive weakness. External evidence of anticoagulant toxicity was rare but, where present, consisted of bloody rectal or nasal discharge or frank blood, or of prolonged bleeding from trivial trauma, typically small lacerations inflicted during fighting. Extensive haemorrhages into stomach, small and large intestine were the most common signs of anticoagulant pathology, with somatic muscle, peritoneum and weight-bearing joints other common sites of haemorrhage. Pigs that survived anticoagulant poisoning and were examined at post-mortem 14 or 30 days later showed no gross pathological changes, except for one pig with extensive adhesions between liver and stomach, which may have been sequelae of poisoning".

Bibliography

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