The application of humane slaughterhouse practices to large-scale culling

A. Gavinelli (1), T. Kennedy (1, 2) & D. Simonin (1)*

(1) Animal Welfare Unit, Directorate-General for Health and Consumers, European Commission, Brussels, Belgium
(2) Veterinary Public Health Inspection Service, Department of Agriculture, Food and the Marine, Kildare Street, Dublin, Ireland
*Corresponding author: denis.simonin@ec.europa.eu

Summary
Mass culling is a strategy used in the management of infectious disease outbreaks. The risk of disease spread due to animal transportation often precludes the use of slaughterhouses for this purpose, though they have been used on occasion. Consequently, culling takes place in the less-than-standardised environment on the farm. Regardless of where the cull occurs, the methods chosen to handle and kill the animals must preserve their welfare. This paper attempts to apply the best welfare practices from the controlled environment of the slaughterhouse to the mass culling of ruminants, pigs and poultry. It investigates the key welfare challenges and identifies astute planning executed by competent personnel as a crucial success factor. The urgency; capacity; species, type and age of the animal; personnel; and availability of equipment determine the restraint and killing methods used. The use of good on-farm restraining facilities and mobile killing devices can reasonably be expected to maintain welfare standards for ruminants and poultry. The pig's anatomy, natural behaviour, wide age range and housing types present additional challenges. Objective monitoring throughout the operation is vital for implementing immediate corrective measures whilst also informing procedural reviews. The authors suggest a monitoring tool based on a system currently used in abattoirs, but its limitations must first be validated.

Keywords

Introduction
A key part of any strategy to eradicate an infectious disease that threatens the national herd is the restriction of movements and the targeted culling of the infected animals and those in close contact (1).

Disease control by mass culling is a worldwide concern. There are many regulations and guidelines at different levels that cover welfare at the time of culling. At the global level, the World Organisation for Animal Health (OIE) has issued a specific chapter on this subject within its Terrestrial Animal Health Code (2). The chapter is prescriptive in its emphasis on key roles and responsibilities – especially those of Governments and official veterinarians – and outlines various killing methods for such circumstances, as well as advising on biosecurity and the monitoring of animal welfare, among other matters.

Mass culling is not confined to disease control: non-infected animals may be killed as a market-support mechanism or on welfare grounds, due to deteriorating husbandry conditions on farms under quarantine (3). Experience from the Dutch 1997/1998 classical swine fever outbreak and the 2001 United Kingdom foot and mouth disease (FMD) outbreak has shown that the number of animals killed on infected and in-contact farms may be modest, in comparison to the number culled to mitigate welfare problems, due to overcrowding on farms within a region where restrictions on animal movement and markets are in force (4, 5). The animal suffering caused by deteriorating circumstances on
farms subject to animal movement restrictions is a separate risk from the welfare risk to animals subject to mass culling on farms (3). This paper focuses on the latter, and attempts to apply best welfare practices from the more controlled slaughterhouse environment to the mass killing of animals for disease control purposes.

Challenges to best animal welfare practices during culling

The impetus for the immediate, in situ killing of large numbers of animals is to prevent causal agent multiplication and the spread of disease caused by their movement between farms or the movement of equipment or humans that have been in contact with infected animals. The decision to cull is made at the government level and usually based on economic considerations, to maintain animal and public health and to minimise trade restrictions (6). However, the cost of eradication and the societal and ethical issues concerned are the subject of much debate. Societal concerns include (3, 6):

- an aversion to killing healthy animals
- the possible use of alternative control measures, e.g. vaccination
- the welfare of animals on holdings subject to quarantine
- food waste
- environmental concerns about carcass disposal
- ensuring that animals are humanely killed (3).

The operational demands of carrying out culling over a short period of time put animal welfare at risk due to (6):

- inexperienced personnel
- outbreaks being unpredictable and the conditions under which culling takes place being far from standardised
- human safety concerns from working with animals carrying zoonoses.

Acknowledging that parallel priorities of animal health, welfare and human health coexist during disease control, national contingency and emergency plans must take into account the need to ensure a humane death similar to that required at slaughter (2, 3, 6, 7). European Union (EU) regulations allow authorities, where compelling reasons exist, to apply exceptions that prioritise human or animal health concerns over those of animal welfare. Such exceptional provisions (derogations) must not be used as a substitute for proper planning to safeguard animal welfare during culls (8).

Planning is critical

Disease control can be unpredictable, particularly if working from a limited range of expectations. The 2001 United Kingdom FMD contingency plan dealt with the most likely scenario of ten simultaneous outbreaks involving cattle and pigs. Despite its effective implementation at the outset, the unprecedented nature of the outbreak overstretched the anticipated resources (9). Scenario planning is a method of preparing for plausible future events during an outbreak (10, 11). It allows planners to anticipate the problems, re-evaluate their assumptions and reflect on the consequences of alternatives when developing more resilient strategies (10, 12).

Animal welfare impacts to be considered during scenario planning include (1, 2, 6, 7, 8, 9):

- disease prevalence and severity
- location
- number and size of outbreaks
- animal housing and farm environments
- availability of killing methods and competent personnel
- responsiveness of all stakeholders, including contractors and volunteers
- human safety and environmental risks
- available disposal routes
- risk of outbreaks occurring simultaneously in neighbouring jurisdictions.

Scenario planning must include (2, 6, 7, 8):

- the prior engagement of all stakeholders
- deciding the key competencies necessary
- identifying key people and organising them into strategic, tactical and operational teams
- assigning specific roles
- documented procedures
- training.

Three control points have been identified when monitoring on-farm killing (6):

- live animal handling
- stun/kill efficacy and humaneness
- confirmation of death.
When preparing the on-farm plan, planners must ensure that these control points can be effectively monitored and, if required, corrective actions taken. To achieve this it is important to assess the farm, in particular (2, 6, 7):

- its size and location
- the species and age(s) of animals present
- the handling facilities available
- accessibility and potential obstructions.

When choosing the killing method, key considerations are (1, 6, 7):

- its capacity to kill the animals in a timely and controlled manner
- its compatibility with restraint facilities
- the location where it is being used
- its required services, e.g. electrical supply
- the attitudes of the general public, animal welfare activists and owners, bearing in mind that some animals may be kept as companion animals (e.g. pot-bellied pigs), some herds have been built up over many years of careful selective breeding, and some animals are rare and expensive.

Slaughterhouses as an option

Conducting mass culling at a slaughterhouse has many advantages, due to the availability of:

- competent personnel
- handling facilities and stunning equipment
- measures to maintain biosecurity

In addition, the psychological trauma of killing animals in large numbers is less significant at a slaughterhouse.

Despite these advantages, the requirement for exemplary planning remains. Planning involves the organisation of animal transport and lairage capacities with slaughterhouse throughput, the availability of personnel, and disposal capacities to ensure that backlogs are not created that would compromise welfare.

The suitability of the slaughterhouse for disease control depends on the nature of the causal agent and the location of other susceptible animals in its vicinity. For example, the urgency and biosecurity imperatives when managing an FMD case are very different from those in a bovine spongiform encephalopathy (BSE) outbreak (7). In Ireland, slaughterhouses were used for culling during the 2008 dioxin crisis (13), the BSE herd depopulations (14) and during the 2001 FMD outbreak (15).

Barriers against using slaughterhouses do exist. The disease may be so infectious that any movement from the farm poses an unacceptable risk. Furthermore, it may be so debilitating that humane transportation is impossible. Operators and companies are aware of the public concerns that surround culling and, in the interests of maintaining good business relations, may not wish to be associated with it. Assurances that culled products will not enter the food chain are a further consideration. Identifying a slaughterhouse that can accommodate multiple susceptible species or animals of different ages is also a challenge.

The rationalisation of the slaughter industry over the past 20 years has resulted in fewer slaughterhouses. This reduction will restrict options for their use in mass culling. When developing long-term disease control strategies, particularly in areas with high population densities, maintaining abattoirs that are positioned to readily supply necessary services at short notice should be investigated. The challenges to such a strategy are the continuing costs of facility upkeep and the payment of retainer fees to operators to secure their participation in mass killing, when required.

Competent personnel

During mass culling, the standard activities of gathering, corraling, restraining, stunning and killing are broadly the same as in the equivalent slaughterhouse operation. For mass culling, competent personnel can be sourced from within the slaughter industry since, for instance, regulation (EC) No. 1099/2009 on the protection of animals at the time of killing requires all personnel who handle animals within the slaughterhouse to possess a certificate of competence for the task, specific to the species and to the equipment used (8). Certificates are recognised across the EU. This presents an opportunity to create a database of competent personnel, so that if requirements exceed capacity in one country the recruitment of personnel from another would be made much easier.

Farmers can provide specific knowledge of their animals which can greatly assist the culling team (7), but this cannot be exploited so readily within the slaughterhouse. Farmers may be disinclined to attend a slaughterhouse to assist in and witness the culling of their own animals. Secondly, the environment and conditions within the slaughterhouse differ so much from those on the farm that the farmer's expertise may no longer apply.
Competency development can be achieved through the European Commission’s Better Training for Safer Food programme. This training initiative, directed at officials from Member States and Third Countries, is essential to improve knowledge and awareness of EU legislation and to promote a harmonised approach to national control systems. An E-learning module on animal welfare at the time of killing is currently under development. The advantages of the E-learning tool are:

– wider dissemination
– reduced cost
– accessibility at times and in places that are convenient for the participant
– the content is readily available for future reference.

Killing on the farm

For the purpose of this paper three assumptions are made:

– for biosecurity reasons, exsanguination is not an option

– pithing, i.e. destruction of the brain and spinal cord with a device inserted through a hole in the skull made by a penetrating captive bolt stunner represents a lesser risk

– brain tissue is not required for evaluation.

Cattle

Cattle are killed by penetrative captive bolt followed by pithing. The penetrative captive bolt’s modus operandi is described elsewhere (7). When used correctly, it causes the immediate onset of a sustained period of unconsciousness. Rapid pithing is dependent on the operators gaining access to the animal’s head after stunning (Fig. 1). Post-stun convulsions may also make this task difficult. The primary disadvantage of the penetrative captive bolt is that misfiring results in poor welfare. Consequently, the following conditions are crucial to ensure good welfare when this method is being employed:

– operator competency
– correct placement of the device
– frequent cleaning and maintenance
– use of the appropriate calibre bullet for the animal being stunned
– animal restraint.

Transportability is a key advantage. During intensive activity, penetrative captive bolt stunners may get very hot; additional captive bolt devices that are in good order must therefore be present and used in rotation.

Animals that are acclimatised to people are easier to handle. The fear associated with the unfamiliar slaughterhouse environment is absent on the farm (16). Well-maintained on-farm handling facilities and those in a slaughterhouse share similar features and may achieve common objectives. For example, farm housing and the race with a head-restraining gate may serve the same functions, respectively, as the lairage and the stunbox (Fig. 1). Animals likely to harm each other should be penned separately. Normal husbandry and feeding should continue up to the point of killing. Failure to remove distractions that cause the animal to baulk increases the likelihood of having to use sticks unnecessarily, to encourage the animals to move forwards. Once restrained, the animal should immediately be stunned and pithed. Death should be systematically verified before disposal (6). A side gate to the race facilitates carcass removal (Fig. 1).

Farm races are designed to handle adult cattle and are unsuitable for young calves. Calves are often fed from communal troughs where it is possible to stall and restrain them while feeding. Excessive movement is minimised during restraint, allowing for accurate stunning and rapid pithing.

Neonatal, sick and infirm animals must be prioritised, restrained individually and killed in situ.

Poultry

During the 2003 Dutch avian influenza outbreak, more than 30 million birds were culled, using many techniques, including mobile electrocution lines. The apparatus was
similar to that found in slaughterhouses and consisted of a water bath and a closed-loop earthed shackling line (17). Key advantages of the system are ease of adjustment, its transportability, ease of sanitation and appropriateness for sites where gassing is not feasible. When sufficiently high currents are applied, death is immediate. Its drawbacks are its reduced capacity when compared to whole-house gassing and the need for live birds to be caught, handled and shackled – a process that may result in severe injuries. Handling also increases human exposure to the infectious agent. Further considerations include (17):

- the shackle width must be appropriate to the bird’s size
- birds may lift their heads above the waterline and remain conscious.

Monitoring the birds is therefore crucial. An alternative method, such as a non-penetrative captive bolt, must be available to deal with these conscious birds.

Whole-house or containerised gas systems using carbon dioxide (CO₂) are more appropriate for culling young chicks, but these systems also have welfare and logistical limitations. With whole-house gassing, large numbers of birds may be killed in situ with small numbers of personnel. But this method is not suitable for all house types or all species. Recently, whole-house treatments have been the focus of much research, which has led to an evolution in technology to improve welfare, for example:

- providing devices that monitor gas levels and bird behaviour during treatment to establish concentrations that induce unconsciousness and death
- using foam technologies as a killing agent.

Containerised systems have the advantage of being mobile, easily adjusted and applicable to all situations. However, they require greater personnel inputs, higher gas concentrations and bird handling and they have lower throughputs than whole-house methods. Containers can be highly sophisticated units with monitoring devices or they can be extremely basic (18). The successful euthanasia of day-old pheasant chicks, using a simple metal box with CO₂ administered through an opening in the lid, has been described (19).

The use of CO₂ raises some concerns (20):

- birds find it aversive
- it induces hypothermia and atmospheric drying
- when birds are introduced into prefilled gas containers, they may physically displace the gas which can disperse into the environment, raising safety concerns for the workers in its vicinity.

In Denmark, a mobile system consisting of a CO₂ stunner that humanely kills birds and immediately minces them to a pulp for mink feed is used to dispose of spent hens (21). The system is fully integrated and fabricated from stainless steel, allowing effective sanitising, and has been recommended for use in mass killing exercises. The Danish method, developed for its mink-feed market, is a good example of a dual-use system, i.e. a commercial operation that can be opportunistically redeployed at times of disease control without any special or additional investment. In the absence of a similar market, however, mobile electrocution or whole-house gassing methods have no practical application between uses and represent a significant investment for authorities. Consequently, culling is often subcontracted to private companies that possess the technical skills and equipment, though this is not without cost as retainer fees may be payable. To manage costs, sharing infrastructure between authorities is justified. However, scenario planning must address the possibility of simultaneous outbreaks occurring in cooperating jurisdictions.

Pigs

The intensive rearing of pigs and their lack of individual handling by humans, in comparison with ruminants, makes their management more difficult during culling. A further challenge when culling pigs is their variation in age at any given time.

Pigs are difficult animals to stun with a penetrative captive bolt because (22, 23):

- the target area is small
- the forehead is dish shaped
- the brain lies deep to a mass of sinuses
- the bony ridge on the foreheads of boars precludes the accurate placement of the captive bolt stunner.

Adequate restraint is paramount. However, pigs are difficult to approach individually, further hindering the task. Penetrative captive bolt use should largely be confined to emergency or back-up situations (23). For adult pigs, it is recommended that electrical methods be the preferred choice.

Containerised or house gassing can only be used to kill neonates (2, 7). The limitations associated with the gaseous killing of poultry are equally applicable to neonatal pigs. If better welfare outcomes can be achieved with a non-penetrative captive bolt, blunt force trauma, or lethal injection combined with individual animal restraint, then these methods must be considered (24). Highly trained personnel are required to administer lethal injections to restrained animals and legal requirements may only allow
Electrical stunning is performed either by a single application, the head-only stun, or by the head-to-body stun, which can be either a single or a two-stage process. Head-only stunning requires exsanguination to induce death and, for biosecurity reasons, is not considered appropriate for disease control.

Two-stage or single application head-to-body stunning is effective to kill pigs over one week old (7). The device consists of hand-held tongs, with one electrode on each arm. The two-stage application involves placing one electrode between the pig’s eye and ear on either side of the head to span the brain for a minimum of three seconds to induce unconsciousness (7, 22). A second operator repositions the stunned pig, so that the electrodes can be reapplied to span the heart for another three seconds to induce cardiac arrest (7). The single application simultaneously stuns the animal and fibrillates the heart, inducing cardiac arrest. The procedure involves a single operator applying the electrodes mounted on a handset in a position that spans both the brain and the heart. Insufficient electrical power is detrimental to animal welfare. Electro-immobilisation of the animals must be avoided, so careful attention must be given to the frequency of the current – 50 Hz (7), voltage – 250 volts (7) and amperage – 1.3 A (8).

Electrical methods have the advantages of non-invasiveness and few biosecurity concerns. The system requires (2, 7, 8, 22):

- careful electrode placement to ensure good electrical contact (discharging the stunner before good contact is made results in painful shocks to the animal)
- pigs to be pre-selected, based on their size, and the electrode placement on the handset must be modified accordingly
- specialised equipment to prevent operators from receiving shocks
- regular maintenance, calibration and checks to ensure optimum current delivery, animal welfare and human safety
- animal restraint.

Pen-killing is simple, requires minimal restraint and is commonly practised in medium-sized abattoirs. The system is flexible in terms of animal size and space requirements, specialised equipment is not needed and animals can be passively restrained. Thirty to 60 pigs can be slaughtered per hour using this method (22). To expedite matters, multiple units may be used. If pens are accessible and the removal of dead pigs is possible, portable units will allow pigs to be killed in their own pens. If this is not possible, killing must take place in dedicated pens.

Pigs should not be moved from their home pens to the killing pen until they are ready to be killed. They should be moved as calmly as possible, and allowed to progress freely together. Boards may be used to guide them. Distractions causing them to balk must be removed, and the pen should be sufficiently lit to attract them towards it. Multiple pens should be assigned to each killing unit to allow concurrent filling, killing and emptying.

The manner of post-kill handling is critical for pigs less than 5 kg. Forceful impacts could resuscitate the heart (7, 22). The more pens in use, the less urgency to have them emptied. This reduces the risk of cardiac resuscitation during hasty post-mortem handling.

Individual killing requires more sophisticated facilities involving the use of an integrated V-restrainer. Crowding pens are set up, which shunt the pigs into a race and ultimately into the restrainer, where the head-to-body electrodes are applied. V-restraint can be stressful, particularly if the belts on either side move at different velocities (16, 22). Animals exiting the restrainer are tipped into a receptacle where death should be confirmed. The tipping activity may cause cardiac resuscitation in younger pigs. The limited availability and portability of V-restrainers are major obstacles to their use on farms.

**Sheep**

Penetrative captive bolt stunning in combination with pithing or head-to-body stunning are suitable methods for killing sheep (7). Strong flocking behaviours make sheep easier to handle compared to other livestock, provided such aspects are taken into account. Sheep are also herded for husbandry procedures, so the handling facilities on the farm may be sufficient to ensure their welfare during culling. Remote holding may require the use of a portable system, using interlocking gates to create a temporary pen, with a funnel-shaped crowding area leading to a race (Fig. 2). The funnel should be designed to prevent animals from becoming jammed for longer than two seconds (25). A crate may be modified to restrain individual sheep so that the penetrative captive bolt stunner or the head-to-body stunner may be correctly applied (Fig. 3).
Welfare assessment during culling

During culling, systems must be in place to evaluate the welfare of the animals. Evaluation makes it easier to carry out timely corrective actions when needed (26). Competent Authorities must provide those in charge with the necessary tools, checklists and authority to demand that corrective action be taken. The limitations of the methods must be acknowledged and respected. Considering the number of animals involved, assessment is based on sampling or audit methodologies. Instructions must include:

– details of the sampling site
– the sampling methodology and frequency
– the sample size
– acceptability criteria.

Training is vital for uniform assessments.

Experience from culls is crucial for continuous improvement. After the operation, the Competent Authority must devise a reflective report outlining the reasons for depopulation, the species type and number, the killing methods used, the derogations (regulatory exceptions) required, if applicable, and a description of any difficulties encountered and their respective solutions (2, 6, 8).

Until now, evaluation systems have largely relied on measuring the resources supplied to animals. While easy to define, resource-based measures do not always guarantee welfare. Welfare is a condition of the individual animal, determined by its genetics, temperament and experiences. Assessment systems should place the emphasis on animal-based measures. Resource-based measures should only be taken into account to complement animal-based measures, or as a substitute when the latter cannot be accurately assessed; for example, electrical parameter readings during water-bath stunning of poultry (27). Equivalent outcomes rather than identical systems are the basis for comparing standards.

In contrast to commercial slaughter, there are very few pre-designed assurance schemes covering on-farm mass culling (6). Monitoring systems in slaughterhouses have been described (6, 22, 25, 26, 28). These may be used, where applicable, to monitor welfare during culling. One process suggests the use of the hazard analysis critical control point (HACCP) system as a monitoring tool (26, 28). This method uses animal-based measures and assigns concrete acceptability limits to each one, as indicated in Table I. The quality of cattle and pig handling can be assessed by the number of falls, vocalisations or goad uses. For example:

– animals falling during movement may indicate slippery floors
– excessive use of the goad may indicate that features that cause balking have not been designed out of the system
– in poultry, limb fractures provide information on the quality of handling and shackling.

Over time, HACCP systems have been refined through the development of stringent but attainable limits (26, 28). Their key advantage is that they leave no room for

Fig. 2
Mobile equipment for restraining sheep
Note that the number of interlocking gates employed determines the size of the collecting pen and the width of the crowding funnel. © G. Stanley

Fig. 3
When not in use, the gates that make the pens are stored within the race
The weighing crate at the rear may be modified for additional restraint during killing. © G. Stanley
subjective assessment, and so can form the basis for welfare monitoring during culling. Farm situations are not standardised, therefore the validation of limits is necessary. While the criterion of ‘percentage of livestock that remain insensible after hanging on the bleed rail’ is not applicable to mass culling, it may be replaced by ‘percentage of animals verifiably dead before disposal’. A score of less than 100% would be deemed unsatisfactory in both situations. Death must be confirmed by the cessation of cardiac or respiratory movements (7).

### Table I
Animal-based measures of acceptability limits as part of welfare assessment during culling, using the hazard analysis critical control point system (28)

<table>
<thead>
<tr>
<th>Animal-based measure</th>
<th>Acceptability limits (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestock killed effectively on first attempt</td>
<td>&gt;95 &gt;95 &gt;95 &gt;95</td>
</tr>
<tr>
<td>Correct position of stunning electrodes</td>
<td>– &gt;99 &gt;99 –</td>
</tr>
<tr>
<td>Verifiably dead before disposal</td>
<td>100 100 100 100</td>
</tr>
<tr>
<td>Fell during handling</td>
<td>&lt;3 &lt;3 &lt;3 –</td>
</tr>
<tr>
<td>Vocalised during handling or stunning</td>
<td>&lt;3 – &lt;5 –</td>
</tr>
<tr>
<td>Vocalised due to premature energising of the electrodes</td>
<td>– – &lt;1 –</td>
</tr>
<tr>
<td>Was moved with an electric goad</td>
<td>&lt;25 &lt;25 &lt;5 –</td>
</tr>
<tr>
<td>Wilful acts of abuse</td>
<td>0 0 0 0</td>
</tr>
<tr>
<td>Broken limbs</td>
<td>– – – &lt;5</td>
</tr>
</tbody>
</table>

### Conclusion

While mass culling is a major strategic tool in the eradication of infectious disease, it has other applications as well. Conducting the operation at the slaughterhouse has distinct advantages but the risk of disease spread caused by animal movement often precludes the use of an abattoir. Competent Authorities remain responsible for maintaining the animals’ welfare during culling. In any disease control situation, it is important to realise that:

- maintaining welfare is a multifaceted challenge
- planning and preparedness are of vital importance
- key personnel with key skills are essential
- when executed correctly, culling can be quick and humane
- technological advancement has resulted in substantial improvements
- monitoring performance and reporting is critical to continually improving standards.

Disease control can have the objective of protecting public health. For example, in the case of avian influenza, it is largely a public intervention serving private interests. Food hygiene legislation places the responsibility for food hygiene onto business operators. In a similar way, farms, particularly larger enterprises, need to become autonomously able to cope with issues involving on-farm killing. For example, during the construction of new poultry houses, the inclusion of a system that effectively shuts down the ventilation and allows the quick introduction of a lethal gas should be mandatory, at the operator’s expense. Other approaches include optimising the synergies of current policies through cross-compliance, quality assurance and other promotional measures (29).
L’application lors des opérations d’abattage sanitaire à grande échelle des méthodes de mise à mort respectueuses du bien-être animal pratiquées dans les abattoirs

A. Gavinelli, T. Kennedy & D. Simonin

Résumé
L’abattage sanitaire est une stratégie utilisée dans le cadre de la gestion de foyers de maladies infectieuses. Le risque de propagation de la maladie lors des transports d’animaux interdit le plus souvent de les conduire à l’abattoir pour mener à bien l’abattage sanitaire, bien que dans certaines circonstances cette solution ait pu être retenue dans le passé. En conséquence, les opérations d’abattage sont souvent réalisées sur le site même de l’exploitation où sont élevés les animaux, c’est-à-dire dans un environnement totalement inadapté à cette fin. Quel que soit l’endroit où l’abattage est réalisé, il convient d’appliquer des méthodes de manipulation et de mise à mort respectueuses du bien-être animal. Les auteurs explorent les possibilités d’appliquer aux opérations d’abattage massif de ruminants, de porcs et de volailles, les bonnes pratiques de bien-être animal qui ont été développées dans l’environnement contrôlé de l’abattoir. Ils analysent les principaux enjeux liés au bien-être animal et constatent qu’une planification intelligente et l’intervention de personnels compétents constituent deux facteurs essentiels de réussite. Les modalités de contention et de mise à mort sont fonction du caractère d’urgence, des moyens disponibles, des espèces concernées, du type et de l’âge des animaux, et des disponibilités en personnel et en équipement. S’agissant des ruminants et des volailles, l’existence de locaux de contention adaptés sur le lieu même de l’exploitation et le recours à des dispositifs de mise à mort portables sont des conditions dont on peut penser raisonnablement qu’elles contribuent au respect du bien-être animal. En ce qui concerne les porcs, leur anatomie, leur comportement naturel, l’éventail plus large d’âges différents et les différents types de logements en élevage porcin posent des difficultés spécifiques. Un contrôle objectif de l’intégralité des opérations est indispensable afin de pouvoir mettre en place des mesures correctives immédiates, tout en recueillant les données nécessaires à un suivi documenté. Les auteurs proposent un outil de contrôle directement inspiré du système utilisé actuellement dans les abattoirs ; il convient néanmoins d’en déterminer préalablement les éventuelles limites dans d’autres contextes.

Mots-clés
Aplicación a las operaciones de eliminación a gran escala de los métodos de sacrificio incruento utilizados en matadero

A. Gavinelli, T. Kennedy & D. Simonin

Resumen
La eliminación masiva de animales es una estrategia utilizada para luchar contra brotes de enfermedades infecciosas. A menudo el riesgo de propagación de enfermedades por el transporte de animales impide utilizar los mataderos para este tipo de operaciones, aunque ocasionalmente sí se haya hecho. En tales circunstancias, el sacrificio se efectúa en la propia explotación, cuyas instalaciones no suelen reunir las condiciones requeridas para ello. Con independencia del lugar donde se proceda al sacrificio, los métodos que se elijan para manejar y sacrificar a los animales deben salvaguardar su bienestar. Los autores tratan de aplicar al sacrificio masivo de rumiantes, porcinos y aves de corral las prácticas óptimas que en materia de bienestar están definidas para las condiciones controladas de un matadero. Tras examinar los principales problemas de bienestar que ello plantea, concluyen que el factor más importante para el éxito estriba en una planificación inteligente ejecutada por personal competente. Los métodos de sujeción y sacrificio que se empleen vendrán determinados por: la urgencia; la capacidad; la especie, tipo y edad del animal; el personal; y el instrumental disponible. En el caso de los rumiantes, por el tipo de sacrificio que se elija, es razonable esperar que el uso en la explotación de instalaciones de sujeción y dispositivos móviles de sacrificio de buena calidad baste para lograr los niveles requeridos de bienestar. En el caso de los porcinos, sus características anatómicas, su comportamiento natural, la gran diversidad de clases de edad y el tipo de corrales plantean dificultades añadidas. La aplicación de un seguimiento objetivo durante toda la operación es esencial para instituir medidas correctivas inmediatas y a la vez obtener datos con los que ir revisando los procedimientos. Los autores proponen una herramienta de seguimiento basada en un sistema actualmente en uso en los mataderos, aunque antes de aplicarla es preciso validar sus limitaciones.

Palabras clave

References


