

Report of the International Workshop on Animal Disposal Alternatives: from concept to catalyst for change

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Summary

The principle of animal depopulation and animal disposal has been a fundamental approach of veterinary and regulatory interventions for the effective biological containment and eradication of contagious diseases since the science and art of veterinary medicine began. Today's world, however, is one of epidemiological globalisation, changing social values concerning the management of animal populations, and recognition of the environmental consequences associated with animal disposal, especially during animal disease emergencies. It has consequently become apparent that new approaches are required to minimise both the need for mass culling of animals in response to disease occurrences and the associated negative consequences. In addition, where a level of animal depopulation remains the only recourse, it is imperative that the undertaking be conducted in a manner which is socially and environmentally responsible.

Keywords

Animal diseases, Animal disposal, Animal welfare, Depopulation, Environment, Slaughter.

Resoconto del Workshop internazionale sulle alternative di eliminazione animale: da concetto a catalizzatore per il cambiamento

Riassunto

Il principio dello spopolamento e dell'eliminazione animale è stato un approccio fondamentale degli interventi veterinari e regolatori per l'efficace contenimento ed eradicazione biologica delle malattie contagiose dagli albori della medicina veterinaria. Il mondo d'oggi, comunque, è un insieme di globalizzazione epidemiologica, valori sociali in mutamento riguardanti la gestione delle popolazioni animali ed il riconoscimento delle conseguenze ambientali associate all'eliminazione degli animali, soprattutto durante le relative emergenze sanitarie. Di conseguenza è apparsa evidente l'esigenza di nuovi approcci per minimizzare sia la necessità di eliminare animali in risposta all'insorgenza di malattie sia le correlate conseguenze negative. Inoltre, dove un piano di spopolamento animale rimane l'unico provvedimento adottabile, è obbligatorio che l'iniziativa venga condotta in una maniera responsabile sotto il profilo sociale ed ambientale.

Parole chiave

Ambiente, Benessere animale, Eliminazione animale, Macellazione, Malattie animali, Spopolamento.

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Introduction

In June 2000, following eighteen months of planning, Canada hosted an international workshop involving representatives from Australia, Mexico, the Netherlands, New Zealand, United Kingdom, United States and the host country to consider alternatives to animal disposal.

The genesis for the workshop was the early recognition of the convergence of factors at the global level that held the potential for an unprecedented wave of animal disease events. These events could generate the need to adapt historic approaches to disease eradication, to a new construct of societal values and international standards for safe trade. The fact that the workshop was a proactive undertaking, and not the result of a perceived failure which demanded correction, is worth highlighting. The vision and anticipation of the changing reality by the organisers and participants proved to be accurate. During the period of thirty-six months that followed the workshop, the global animal and public health community saw the occurrence of a major epizootic of foot and mouth disease (FMD) in the United Kingdom, the emergence of severe acute respiratory syndrome (SARS) and highly pathogenic avian influenza (HPAI) in Asia and bovine spongiform encephalopathy (BSE) in North America.

An additional catalyst for the workshop was the identification of the challenges and opportunities for continuous improvement in preparedness and response capability for animal depopulation and disposal during a major animal or zoonotic disease event, identified through a series of simulation exercises conducted in Canada and jointly with the United States in 1998. These experiences mirrored the real-life examples encountered in the management of BSE disposal in the United Kingdom, classical swine fever (hog cholera) in the Netherlands, anthrax and Newcastle disease in Australia and Nipah virus in Malaysia during the previous several years which were incorporated into the learning programme of the workshop by those involved.

Emerging public concerns surrounding the risk factors associated with intensive animal production practices, the credibility and capacity of governments, veterinary administrations and the scientific community to effectively mitigate and manage such risks, and the growing challenges to biological security posed by epidemiological globalisation, all supported the importance and timing of the undertaking.

The challenge to comprehensively and inclusively reconsider the scientific, epidemiological, environmental, societal, international and economic elements of such fundamental options for animal disease control, might have been perceived as daunting by some. For any one administration or country it might very well have been. The synergy, collective thinking, resolve and energy of the participants, however, were critical to developing a pathway forward.

Background

The International Workshop on Animal Disposal Alternatives was organised and sponsored by the Canadian Food Inspection Agency and held at the Canadian Science Centre for Human and Animal Health laboratory complex in Winnipeg, Manitoba, in June 2000 (1). The forum was convened to address the growing issues at the national, hemispheric and global levels associated with the number of negative consequences arising from large-scale destruction and disposal of domestic animals as part of the historic stamping-out approach to disease eradication.

Fifty-seven participants from seven countries were invited to consider two primary objectives. The first was the development of new, innovative and implementable strategies to replace the large-scale depopulation of animals as part of emergency response and disease control programmes. The second was to formulate recommendations for the refinement and improvement of existing methods of animal destruction and disposal.

Process

The Workshop was structured to establish a common framework for the understanding of the drivers for change through a series of plenary session presentations by subject experts followed by their involvement in working group sessions with the participants to maximise their engagement and challenge the questions and conclusions of the working groups, to stimulate debate among the participants.

A facilitated process of reiteration and building on the foundation established in the workshop framework was followed to allow participants to cope with the complex, multi-faceted and interdependent nature of the factors being considered. This process consisted of sharing the ideas, principles and thinking of the different working groups with one another, incorporating the ideas of previous working sessions into subsequent sessions and evaluating on a continuous and horizontal basis, the ideas and principles that emerged for consistency with the developed consensus values and criteria.

Context and drivers

The keynote address, delivered by L.J. King of the United States, established three main contextual reality checks that had to be considered in addressing the challenge of animal destruction and disposal in order to have an opportunity to succeed (4).

First and foremost, it had to be acknowledged that agriculture is no longer just about farming but rather is a component of globalisation, changes in animal husbandry and production systems, changing societal values with respect to ecosystem health, biodiversity and sustainability, shifts in consumer demands and expectations, disease emergence and re-emergence including zoonoses and the application of new technologies.

Secondly, it was required that a new level of thinking be employed beyond that which had served to create a number of the problems that were identified to be addressed.

Finally, it was necessary to create a new communications framework within which to reconcile the previous independence of agricultural production with its current increased interdependence economically, socially, politically and scientifically with other elements in society.

Having described the basic operating principles in which alternatives to animal destruction and disposal should be considered, a series of drivers for change were debated and consolidated into eight primary factors that dictated new approaches were necessary. The eight factors described are listed below.

Logistical drivers

The reality of increased animal population densities, the concentration of production units in the same geographic area, the interdependency of livestock enterprises coupled with the limited means available to achieve massive animal depopulations and their biological containment and disposal in a time-frame appropriate to limit the spread of disease requires new approaches.

Societal pressures

Increased urbanisation is contributing to the disconnect between the urban human population and the rural communities which supply food. The public perception of livestock farming is undergoing significant change, as farming itself is changing. Modern communication is providing multiple sources of information that have an impact on societal beliefs and values. Issues of animal care and well being, the value of the proteins derived, as well as food safety, the ecosystem and public health impacts of agriculture production systems, are significant in shaping consumer and public trust and acceptance.

New technology and tools

The emergence of next generation vaccines, immunomodulators, genomic applications to disease resistance and the development of rapid and sensitive test methods to differentiate field strain and vaccine antibodies, provide alternative opportunities to reduce the dependence on blanket depopulation if their international acceptance can be secured.

Limitations of international standards

Many disease control approaches were recognised as being founded on the principle of country freedom from disease as the sole basis for safe trade. In certain circumstances, that interpretation of international standards, however, has served as a deterrent to investments in surveillance and disease reporting.

Animal welfare slaughter

Current disease control approaches have the potential to create significant animal welfare challenges arising from the disruption of critical food supply slaughter streams, animal movement controls and the access of commercial vehicles for feed delivery or transport. Animal depopulation is a defined animal welfare issue that would benefit from both re-evaluated and improved animal disease management strategies and the elaboration of science-based international standards for animal slaughter within disease control circumstances.

Environmental impacts

Increasingly, regulations governing the disposal of animals are becoming more restrictive and demanding to ensure environmental integrity, alternate land use, water quality and to minimise social and health consequences.

Effective resource utilisation

Current destruction and disposal approaches are not the most efficient use of available resources. Existing slaughter and rendering capacity can be re-tooled, human and equipment resources can be shared, vaccine banks could achieve a higher level of potential and communications resources could be allocated to positive outcomes.

Policy outcomes based on evidence and values

The need for a balanced approach to protect animal, public and ecosystem health from preventable risks while creating the environment in which there is a shared accountability for risk management was also viewed as an important driver. Often the actions taken are viewed as not being commensurate with the risk and therefore

create an unrealistic expectation of zero risk achievement or alternatively a conflict between expectations of what is to be done outside one's borders versus a domestic approach which fully considers consequential impacts.

Plenary session and workshop outcomes

The plenary session component of the Workshop benefited from the leadership, commitment and focus of the chairperson, N.G. Willis, Past President of the World Organisation for Animal Health (OIE: Office International des Épizooties).

The forum used four plenary sessions to mine the views of the invited subject experts and the participants on four critical issues that consistently emerge where large-scale depopulation and disposal approaches are pursued.

The first of the themes involved the subject of ethical issues in large-scale animal depopulation and disposal. To this end, consensus was developed in the subsequent working group discussions that any alternative approach developed must effectively achieve the following:

- safeguard human health
- safeguard animal health
- consider the financial consequences to the producer, the rural community and society at large
- consider social support for agriculture
- minimise, as far as possible, domestic and international market disruption
- provide for public communication, awareness and education
- increase social awareness and effect political change
- differentiate disease status between carrier, infected, non-infected and immune animals
- consider religious beliefs and other cultural values
- encourage farming methods that incorporate disease prevention and biosecurity principles.

The second of the themes involved the international context of disease outbreaks and

animal disposal approaches. In this regard, working group discussions established that any alternative approach must include the following:

- allow for preservation, development and enhancement of domestic and international market confidence in the ability to protect animal and human health
- be internationally accepted by governments
- be in compliance with science-based international standards for animal welfare
- be demonstrably as biologically effective as stamping out
- reduce the social and economic impacts of disease occurrences
- not compromise the quality or wholesomeness of products derived from animals
- not increase the risk of disease spread within or across borders
- be developed in a transparent manner
- promote early detection and reporting of disease aligned with compensation mechanisms
- demonstrate social and economic acceptability to developing countries.

The third theme focused on the environmental considerations associated with large-scale animal depopulations. The working group advocated that any alternative should, as a minimum:

- decrease waste through early detection
- effectively manage the disposal of biomass and contaminated by-products
- address the complexity of social, political and environmental concerns
- be well planned and deliverable in a manner that protects and preserves the physical environment
- involve all impacted communities and stakeholders
- provide for sharing of technology, expertise and experience internationally
- ensure on-going and retrospective assessment of the integrity of burial sites
- be founded on the need for waste minimisation and salvaging of protein
- be supported by scientific data
- not increase risk to animal and human health
- not impair or degrade the environment and provide benefit where at all possible.

The fourth and final theme covered the epidemiological principles that should underpin any alternative approach to animal destruction and disposal. The working group determined that the guiding principles to be met must:

- control the disease and prevent its spread in a timely manner
- minimise the spread to wildlife
- incorporate a surveillance component to assess effectiveness of measures over time and demonstrate containment
- include an in-depth understanding of the host, agent, environment triad
- recognise the limits of scientific understanding that may exist for the disease in question
- be based on the existence of appropriate diagnostic methods
- be transparent
- be internationally recognised and accepted.

Recommendations

The outcomes of the International Workshop on Animal Disposal Alternatives clearly identified the enormous challenge associated with effecting change to enhance the well-being of global society and the need for support on the part of the chief veterinary officers of the participating countries to make the vision a reality.

A number of specific recommendations emerged that were further developed by a core working group in May 2002 in Ottawa, under the headings of: communication; prediction; vaccination; disease control strategies; diagnostic technology; maximising utility; disposal technologies and the evolution of international standards (2). A strong desire was also expressed to move from a perception of focusing on animal disposal alternatives to one of alternatives to animal disposal.

A subsequent International Workshop held in Vancouver in April 2004 further established the transition from a shared focus on short-term deliverables in the area of available and emerging technologies, knowledge transfer and shared response capacity to managing animal emergencies, to the more strategic

concept of animal health optimisation (3). To achieve the latter, the recommendations were further refined with an emphasis on anticipation (intelligence capability with analysis and interpretation), foresight, alternative animal health strategies development, vaccination and immune enhancement, maximal utilisation of biomass, change catalyst and leadership development.

Conclusion

The investment of time and efforts in the planning and conducting of the initial International Workshop on Animal Disposal Alternatives has spawned a momentum and a commitment that has been gratifying for all concerned. Although it remains an iterative, learning and evolving process, the seeds of the thinking of the participants have taken root and some early successes have become visible.

At the international level, the OIE has adopted a number of new strategies that auger well for the future. These include international standards that have shifted the global regulatory community to the principle of commodity-based risk and the focus on biosecurity, compartmentalisation and regionalisation in lieu of country freedom from disease, as the foundation for the protection of animal and human health and for safe trade.

This strategic realignment, soundly based on science, has helped to remove the previous economic pressures on countries that served as

a powerful incentive for mass depopulation as the preferred means to animal disease control.

Furthermore, the principle of animal health optimisation has become well entrenched in the third and fourth strategic plans of the OIE, giving rise to standard setting for the humane slaughter of animals in disease control activities, as well as the establishment of an ad hoc working group of experts on animal disposal.

However, it is perhaps the emergence of a new generation of veterinarians who are driving new ways of thinking towards animal health optimisation that will prove to be the true legacy. The conducting of foresight exercises in multiple countries to consider plausible future scenarios in animal health and the backcasting to develop short, medium and longer term contingency plans, the expanded investments in alternative immune enhancement and vaccine production, delivery and application systems, the establishment of collaborative networks that work across borders to share disease modelling and response experiences in real time and to identify gaps in knowledge and establish priorities for research and the assessment of options for the non-traditional utilisation of biomass are all promising signs of future success.

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