

GUIDELINE 05: Role of science in setting animal welfare standards

1. Introduction

Science makes a central contribution to animal welfare regulatory policy, and this is recognised in the Animal Welfare Act 1999. The Act requires that, when NAWAC considers the content of draft codes of welfare – in particular, regulations, minimum standards, and recommendations for best practice – it must, among other things, have regard to good practice, scientific knowledge, and available technology. Science is therefore expected to constitute a significant part of the evidence-base relied upon and drawn from when NAWAC seeks to define animal welfare standards.

NAWAC recognises that science is not value-free, nor always of consistent quality. The findings and interpretations drawn from studies, and their relevance to matters considered when defining animal welfare standards for New Zealand animals, will depend on the context, design, and quality of the work. Objectives and interpretation may be influenced by the framework under which the research is carried out: three common approaches – biological functioning, affective states and “natural living” – may design studies with different objectives in mind and draw different conclusions from similar findings. There are still many gaps in our scientific knowledge in the field of animal welfare.

This guideline summarises NAWAC’s approach to systematic identification, comprehensive understanding, unbiased interpretation, and treatment of uncertainty when drawing from science to make decisions on regulatory settings.

2. Type of sciences

Animal-based, as opposed to physical, sciences are clearly the most relevant to animal welfare, and these may be classified according to the recognised disciplines of, for instance, anatomy, biochemistry, genetics, nutrition, physiology, pharmacology, parasitology, pathology, microbiology, behavioural science, and clinical sciences.

Superimposed on these disciplines, and evident within each, are three orientations. They relate to whether research activity in particular is directed towards:

- (a) acquiring knowledge of biological processes simply to improve understanding (fundamental studies);
- (b) seeking solutions to practical, husbandry, clinical or other problems in the medium term by acquiring fundamental knowledge in a more directed way (strategic studies); or

- (c) seeking such solutions in the near future by using established knowledge to solve specific problems (applied studies).

Animal welfare science has emerged during the past 15 to 20 years as a recognised discipline and encompasses animal-based facets of nutritional, environmental, health, behavioural and cognitive/neural sciences. Consideration of all five areas is necessary to achieve comprehensive coverage of the different dimensions of animal welfare. Moreover, it is necessary for fundamental, strategic, and applied research to be conducted in all five of these areas. Although strategic and applied orientations are emphasised at present, fundamental studies remain imperative to advancing animal welfare. That is because it is fundamental knowledge of biological processes that provides a sound basis for understanding what animals' needs are and validates the indices used to determine the extent to which they are met.

Although current animal welfare science research has obvious welfare purposes, advances in animal welfare also occur by using knowledge from wider contexts. Much of the knowledge used now to enhance animal welfare was generated over many decades in animal production/husbandry, veterinary, wildlife and biomedical contexts without explicit animal welfare purposes in mind. This knowledge clearly had wider relevance than was originally envisaged, and adopting a similarly broad approach will continue to be beneficial in the future.

NAWAC recognizes Mātauranga Māori as a branch of indigenous experiential knowledge that has relevance to both the fundamental positioning of human animal ecosystem relationships, as well as to specific practices. NAWAC welcomes the ongoing exploration and elucidation of Mātauranga Māori and is interested in developing our understanding of and access to this knowledge. NAWAC requests the support of practitioners and knowledge-holders in achieving access and understanding relevance in our evidence base and regulatory process. NAWAC commits to treating Mātauranga Māori knowledge with the same respect and due process as science.

3. Animal sentience

The understanding that animals are sentient, that they have emotions, feelings, perceptions, and experiences that matter to them, has always been integral to NAWAC's development of codes of welfare and minimum standards. With the recognition that animals are sentient in the 2015 amendment of the Animal Welfare Act and advances in the understanding of animal sentience, the predominant approach of preventing or reducing negative experiences will be complemented by an increased focus on positive experiences when setting standards.

Science plays an important role in determining how indicators of positive experiences can be used for developing minimum standards.

4. Identifying, evaluating, and applying science

4.1 Literature search and review

The existing body of relevant science is large, and continually expanding. Maintaining a current view on the science relevant to animal welfare policy is an enormous challenge. On-line scientific archives and searching mechanisms assist the task of finding science. Systematic review processes¹ should guide assessment of relevance and transparent reporting.

Early in a Code of Welfare development or review process, NAWAC seeks to identify the most important issues through an open call with key stakeholders. Stakeholders are invited to support their early submissions with scientific evidence, as well as evidence supporting what constitutes good practices and how available technologies impact animal welfare. Literature reviews may be undertaken or commissioned with a focus on these issues to supplement the evidence presented by stakeholders and ensure as comprehensive and balanced understanding as realistically achievable.

Animal welfare regulatory policy development in overseas jurisdictions often contributes useful reviews of science that NAWAC can draw from. Notably, the European Food Safety Authority² has well developed processes for systematic scientific reviews. Similarly, the Farm Animal Welfare Committee (FAWC)³ of the United Kingdom has a strong history of balanced opinions based on systematic and transparent scientific review. While NAWAC draws from such work to assist the challenge of maintaining current understanding and interpretations, relevance to New Zealand is always carefully assessed.

4.2 Reporting, review, and application

Summaries of relevant literature serve as an important resource for NAWAC, Sub-Committees and Working Groups to draw from as they progress through Code development and review process. Establishing comprehensive and balanced summaries of the scientific evidence base early in the process is important and should occur before judgements on policy settings are formulated. As new science becomes available during a Code development or review, it too should be evaluated and assimilated into summaries. Judgements should remain open to new evidence through until the conclusion of reviews, including through consultation.

Reports presented with Code development and review processes summarise the science and other evidence that NAWAC has relied on. This allows the Codes themselves to maintain their regulatory focus. Reports should identify and highlight important gaps in scientific knowledge, and this should serve as a resource for animal welfare scientists and researchers, and regulatory agencies commissioning research.

5. Science and decisions on regulatory policy

These elements of knowledge and experience are not sufficient in and of themselves, individually or collectively, to determine precisely what are and are not acceptable

¹ [PRISMA \(prisma-statement.org\)](https://prisma-statement.org)

² [Animal welfare | EFSA \(europa.eu\)](https://www.efsa.europa.eu)

³ [Farm Animal Welfare Committee \(FAWC\) - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

minimum welfare standards. They allow the known and unknown, theoretical, and practical, workable, and unworkable facets of each problem to be evaluated, and thereby provide a basis for decision-making. In some cases, it is obvious what a standard should be, whereas in others it is less clear. In all cases, however, it is a matter of judgement, judgement undertaken collectively through the combined expertise of NAWAC members whose knowledge and experience include agricultural, animal, and veterinary sciences, the commercial use of animals, the care, breeding and management of companion animals, ethical standards and conduct in respect of animals, animal welfare advocacy, the public interest in respect of animals, and environmental and conservation management.

No such animal welfare decisions can be made on the basis of science alone, but science does underpin all of them. Judgement, broadly based and carefully exercised, is the other major element. Thus, NAWAC defines regulations and minimum standards and makes recommendations for best practice by exercising scientifically informed best judgement.

This guideline was approved by NAWAC on 14 May 2024. This guideline is not a legal interpretation of the Animal Welfare Act 1999. It is anticipated that this guideline will be updated from time to time in light of experience gained by NAWAC during its deliberations.