

National Animal Ethics Advisory Committee

Annual Report

1 January to 31 December 2009

(incorporating statistics collected by MAF under the
Animal Welfare (Records and Statistics) Regulations 1999)

NAEAC

National Animal Ethics Advisory Committee

National Animal Ethics Advisory Committee
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New Zealand

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1 From the Chair

This is the tenth annual report since the Animal Welfare Act 1999 (the Act) came into force a decade ago – a decade in which the regulatory system for the use of animals in research, testing and teaching (RTT) has proved its effectiveness and earned international respect for its even-handed and yet comprehensive approach. While New Zealand's framework for regulating the use of animals in RTT is essentially a devolved system, with decisions on approval, modification, suspension or rejection of individual protocols made by animal ethics committee (AEC) members, the National Animal Ethics Advisory Committee (NAEAC) plays a major role in overseeing the system as well as acting in an advisory capacity to both the Minister of Agriculture under whose jurisdiction the Act falls, and to the "frontline" AECs.



As Chair of the committee since November 2009, I must pay tribute to my predecessor, John Martin, who ably led NAEAC through the past four years, including the one covered in this report. John has been a thoughtful and active leader, and NAEAC has prospered under his chairmanship. Deputy Chair Dr Ian LeGrice also retired from the committee in November, having made a valuable contribution over his two terms.

I must also highlight the quality of the contribution that MAF staff make to the committee, in both an advisory and administrative capacity, and thank Joanna Tuckwell for her excellent service as secretary over many years. NAEAC welcomed new member Dr Peter Larsen, and new secretary Paula Lemow, also in November.

2009 was a busy year for NAEAC, with a total of nine codes of ethical conduct requiring review. It is one of the strengths of the regulatory system that any institution using animals in RTT must regularly "renew" their code of ethical conduct following a visit from an independent reviewer. It is NAEAC's role to ensure renewed codes of ethical conduct fulfil all requirements under the Act – a painstaking and time-consuming task.

NAEAC also places great emphasis on its role as an advisory committee. Although it only meets four or five times annually, it traditionally holds one of those meetings outside Wellington in an area where it can visit institutions using animals in RTT in one capacity or another, and meet with AEC members. In 2009, the venue was Christchurch, with visits to Canterbury University, Landcare Research and Lincoln University.

The MAF statistics for the year are always a focus of attention. While this year the numbers dropped by 44 409 to just under 300 000 (13 percent down on the previous year), the rolling three year average, a truer reflection of animal use, remains steady. The influence that a particular project can have on the annual statistics is ably demonstrated by the reporting of a study involving the importation of 37 440 fertile, germ-free chicken eggs to investigate and monitor exotic avian influenza and other pathogens in wild bird species. This one project was largely responsible for an increase of over 80 percent in the number of animals manipulated for testing purposes as well as a significant rise in the proportion of animals killed or euthanased at the end of the testing process.

We never like to see a rise in the proportion of animals experiencing "high" or "very high" impact manipulations. However, once again this can be dependent on the three-year reporting system. The fact remains that most of these animals are used in areas where such tests are required by law to ensure public health (for example, testing for marine biotoxins) or animal health (safety and efficacy of animal health products such as vaccines and drenches).

The Act requires animal users to demonstrate a commitment to the “Three Rs” – refinement, replacement and reduction. While refinement covers the minimisation of impact on animals, and replacement seeks ways of answering questions without the use of animals, reduction looks at how to minimise the number of animals within any experiment to the lowest number possible to achieve a result. Too few animals, and results may be meaningless and the study and animals wasted, while too many again leads to waste. NAEAC encourages the use of biostatisticians to ensure studies are appropriately designed to use only the number of animals necessary.

Finally I'd like to thank current members and MAF staff who have helped make my introduction to NAEAC as smooth as possible – their level of commitment and dedication to ensuring the integrity of the regulatory system for animal use in RTT in New Zealand is admirable.

Virginia Williams
Chair



Outgoing NAEAC Chairperson, Mr John Martin meeting with Hon. David Carter, Minister of Agriculture, during the committee's October meeting.

2 New Zealand Animal Welfare Infrastructure

2.1 The Animal Welfare Act 1999

The use of animals in research, testing and teaching in New Zealand is tightly regulated through Part 6 of the Animal Welfare Act. The Act requires that any person using animals in RTT holds an approved code of ethical conduct, works for a person who holds an approved code or has an arrangement to use another person's approved code. In this context, the term "person" includes corporations and bodies of persons whether corporate or unincorporated. Section 88 of the Act specifies the contents of a code of ethical conduct.

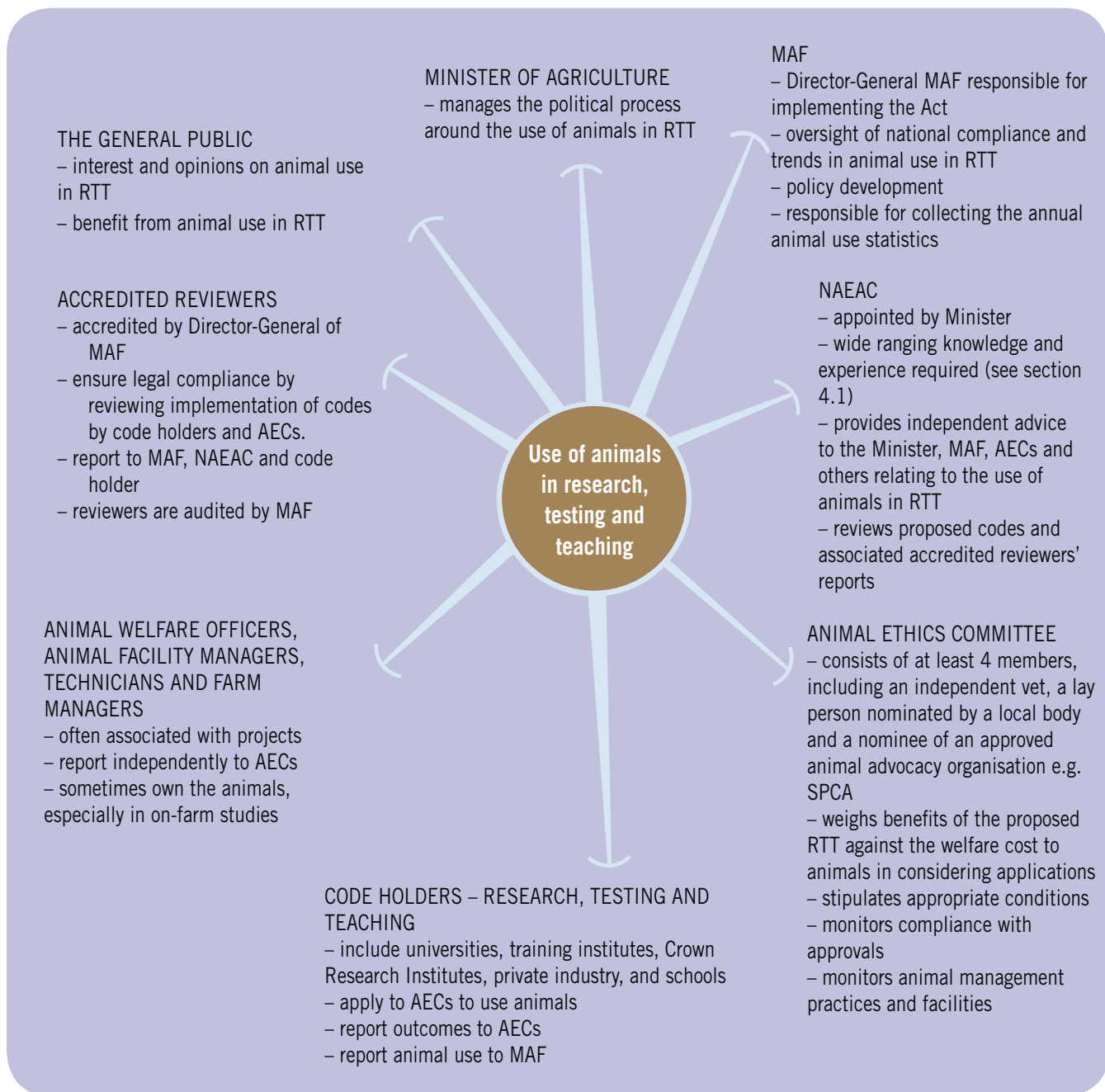
Crucial to the integrity of the regulatory framework is the role of the AECs in approving, modifying, or declining proposals for RTT involving the use of live animals. No project may be carried out without the approval of an AEC. When considering project applications, an AEC must be satisfied that the benefits that arise from using the animals outweigh the likely harm to the animals.

AECs are also responsible for monitoring compliance with the conditions of project approvals and the animal management practices and facilities of the institution. The Act requires that AECs have at least four members. Three of these must come from outside the organisation and include a veterinarian nominated by the New Zealand Veterinary Association, a nominee from an approved organisation (for example, the SPCA) and a person nominated by a local authority. Sections 98 to 104 of the Act detail the functions and powers of AECs, their procedures and the criteria they must take into account when considering applications.

Code holders and AECs have an independent review undertaken within 2 years of first obtaining approval of a code, and every 5 years thereafter (outlined in sections 105 to 108 of the Act). Moreover, the Minister of Agriculture also has the power to commission a review of any code holder and/or AEC if necessary (section 117 of the Animal Welfare Act).

The Director-General of Agriculture and Forestry is responsible for accrediting independent reviewers (section 109) who must, amongst other things, prove that they have the appropriate character and competencies to undertake comprehensive reviews, as set out in sections 110 to 113 of the Act. Any individual may apply to become an accredited reviewer. Accredited reviewers are audited by MAF regularly (clause 9 of schedule 2 of the Animal Welfare Act).

The accompanying diagram illustrates the framework regulating the use of animals in RTT.



2.2 Legal Status of NAEAC

The Animal Welfare Act 1999 came into effect on 1 January 2000. At that date NAEAC became a statutory committee with its functions and membership set in law. Prior to that, NAEAC had existed since 1984 as a committee that the Minister of Agriculture was required by the Animals Protection Act 1960 to establish, using powers under the Ministry of Agriculture and Fisheries Act 1953 and later the Ministries of Agriculture and Forestry (Restructuring) Act 1997.

2.3 Infrastructure

The diagram below illustrates New Zealand's animal welfare infrastructure and NAEAC's role within that framework.



3 Functions

Section 63 of the Animal Welfare Act 1999 prescribes the following functions for NAEAC:

- advising the Minister on ethical and animal welfare issues arising from RTT;
- providing advice and information on the development and review of codes of ethical conduct;
- making recommendations about the approval, amendment, suspension or revocation of codes of ethical conduct;
- making recommendations concerning the setting of standards and policies for codes of ethical conduct;
- providing information and advice to AECs;
- making recommendations on the appointment of accredited reviewers;
- considering the reports of independent reviews of code holders and AECs;
- making recommendations about declaring procedures not to be manipulations (under section 3(3));
- making recommendations about the manipulation of non-human hominids (under section 85);
- making recommendations on the approval of research or testing in the national interest (under section 118(3)).

4 The Committee

4.1 Selection of Members

NAEAC members are appointed by the Minister of Agriculture in accordance with sections 64 and 65 of the Animal Welfare Act 1999. The committee has a maximum of ten members, and a member's term of office may not exceed three years, although members may be reappointed. Appointments are normally for a maximum of two terms, except in exceptional circumstances.

While the Minister has the authority to appoint members, in recent years it has been the policy of successive governments to require appointments to statutory committees to be considered by the Cabinet Appointments and Honours Committee and the Cabinet.

In selecting members (other than the chairperson) the Minister is required to have regard to the following factors:

- the public interest in relation to the use of animals in RTT;
- the need for balance between those involved in RTT and those who are not; and
- the need for the committee to possess knowledge and experience in the following areas:
 - veterinary science;
 - medical science;
 - biological science;
 - the commercial use of animals in research and testing;
 - ethical standards and conduct in respect of animals;
 - education issues, including the use of animals in schools;
 - environmental and conservation management;
 - animal welfare advocacy;
 - public interest in respect of animals;
 - any other area the Minister considers relevant.

4.2 Members

The table below lists members of the committee during 2009:

Members	Expiry of Appointment
Mr John R Martin QSO, MA (Hons), Consultant (Independent Chairperson)	31.10.09
Dr Virginia Williams BVSc, MACVSc, Dip Prof Ethics, Animal Welfare Consultant (Independent Chairperson)	31.10.12
Ms Allison L Dodds MSc (Hons), Dip Tchg, Teacher in Charge of Biology, Animal Welfare Officer, Queens High School (nominated by the Ministry of Education)	31.10.12
Dr Martin A Kennedy BSc (Hons), PhD, Professor, Department of Pathology, University of Otago, Christchurch (nominated by the Health Research Council of New Zealand)	31.10.10

Dr Peter D Larsen PhD, Senior Lecturer, Department of Surgery and Anaesthesia, University of Otago, Wellington (nominated by the Royal Society of New Zealand)	31.10.12
Dr Ian J LeGrice BE, Dip TP, BHB, MBChB, PhD, Associate Professor, Department of Physiology and Bioengineering Institute, University of Auckland (nominated by the Royal Society of New Zealand)	31.10.09
Dr Roger M Marchant BSc, BVSc, Veterinary Adviser, Schering-Plough Animal Health Ltd (nominated by AGCARM)	31.10.10
Mr Peter W Mason BCA, National President, Royal New Zealand Society for the Prevention of Cruelty to Animals, Executive Director of Wellington Society for the Prevention of Cruelty to Animals, Secretary to the International Board of the World Society for the Protection of Animals (nominated by the Royal New Zealand SPCA)	31.10.11
Dr David R Morgan BSc (Hons), MSc, PhD, Scientist (nominated by Landcare Research New Zealand Ltd)	31.10.12
Mr David J M Peart MNZM, JP (nominated by Local Government New Zealand)	31.10.11
Dr Justine H Stewart BVSc, Animal Welfare Officer, University of Auckland	31.10.10

The committee wishes to acknowledge, and pay tribute to the leadership skills of Mr Martin as Chairperson of NAEAC over the last 4 years. His work ethic on NAEAC, and as a member of the National Animal Welfare Advisory Committee was very highly valued. Dr Virginia Williams replaced Mr Martin in November 2009.

Dr Ian LeGrice retired from the committee in October 2009 having served two terms. The committee wishes to record its appreciation of the contribution Dr LeGrice made, particularly in matters associated with the animal use statistics and over the last 2 years as deputy chair. Dr Peter Larsen was appointed to fill the vacancy. Ms Allison Dodds and Dr David Morgan were reappointed for a further term.

4.3 Secretariat

The Animal Welfare Directorate within MAF Biosecurity New Zealand continued to provide high quality support to NAEAC during the year. The committee is grateful for the guidance of Linda Carsons who attended meetings as MAF Biosecurity New Zealand's Principal Adviser. Joanna Tuckwell, the committee's secretary, Dr Kate Littin, Kirsty Grant, Margaret Handscomb and Paula Lemow all made valuable contributions to the work of the committee. Ms Lemow replaced Ms Tuckwell as the committee's secretary in November.

4.4 Deputy Chairperson

The Animal Welfare Act 1999 requires the committee to elect a deputy chairperson at the first meeting of each year. Dr Ian LeGrice was elected to fulfil this role in 2009.

4.5 Fees

Government policy requires disclosure of fees paid to members of statutory boards and committees. The daily fee paid to committee members during 2009 was \$400 for members and \$550 for the chairperson.

Members are paid the fee for attending meetings, with an allowance for preparation time. Members are also reimbursed for travelling expenses. In addition, the chairperson and, on occasion, other members may be paid additional fees for representing the committee at other meetings or for carrying out significant extra work on the committee's behalf.

The table below lists the fees paid during 2009.

Member	Fees paid during 2009 (gross)
J Martin	\$5,225.00
V Williams	\$3,575.00
A Dodds	\$4,400.00
M Kennedy	\$3,200.00
P Larsen	\$800.00
I LeGrice	\$2,600.00
R Marchant ¹	Nil
P Mason	\$3,800.00
D Morgan ²	\$8,800.00
D Peart	\$4,400.00
J Stewart	\$3,600.00

- 1 Schering-Plough Animal Health Ltd employees forgo acceptance of meeting fees in accordance with company policy to act as a good corporate citizen and materially assist public good operations where practicable.
- 2 Fees are paid direct to the member's employer to recompense them for time lost from the member's primary employment.

4.6 Operations

4.6.1 Meetings

NAEAC met five times in 2009. Four of these meetings were general meetings. The remaining meeting was convened to review applications for codes of ethical conduct which were due to expire at the end of the year.

Temporary working groups were formed to deal with specific issues where necessary. Visitors to the meetings assisted the committee with their special expertise or kept the committee informed of significant current developments.

4.6.2 Strategic and operational plans

The committee's strategic plan, which is reviewed every three years, was last reviewed in 2007. Operational plans are developed each year based on the strategic plan. Progress against the 2009 operational plan was reviewed at each quarterly meeting.

4.6.3 Performance review

The committee regularly reviews its performance. The system provides members with an opportunity for considered reflection and debate on the way the committee operates. In reviewing its performance in 2009, the committee again paid tribute to the excellent support it receives from all the Animal Welfare Directorate staff of MAF Biosecurity New Zealand. NAEAC members also reaffirmed their commitment

to raising public awareness of the robustness of the regulatory system encompassing the use of animals in RTT, particularly in reference to AEC monitoring of approved projects and spearheading Three Rs research priorities.

4.6.4 Annual reports

Since 2000, NAEAC has been required by law to provide the Minister of Agriculture with an annual report. In practice, the committee has been doing so for many years. A list of these reports and other relevant publications can be found in Appendix 3.

5 Codes of Ethical Conduct

All organisations or individuals that manipulate live animals for the purposes of RTT are required to do so in accordance with a code of ethical conduct recommended by NAEAC and approved by the Director-General of MAF.

5.1 Requirements of the Animal Welfare Act 1999

Under the Animal Welfare Act 1999, codes of ethical conduct must be approved by the Director-General of MAF, as must amendments, suspensions or revocations of approvals. Except in the case of suspension or revocation at the request of the code holder, NAEAC must be consulted before a decision is made. Notice of the Director-General's decision is published in the *Gazette*.

For those wanting to use another organisation's code and AEC, the statute requires that the parties concerned reach an agreement and for MAF to be notified of the arrangement, in writing, before any manipulations take place. Termination of the arrangement should also be notified to MAF. Such arrangements, or terminations thereof, are not published in the *Gazette*.

In addition, while major amendments to codes must be approved by MAF, code holders may make minor amendments. However, MAF must be provided with written details of the amendments as soon as practicable after the end of the calendar year in which they were made (and no later than 31 March of the succeeding year). Minor amendments are described in the Animal Welfare Act 1999 as ones "that would not materially affect the purposes of the code".

5.2 Activity During 2009

The table below outlines the applications processed and notifications made during 2008 and 2009.

	2009	2008
Approval of new code	9	9
Notification of arrangement to use existing code	10	45
Approval of amendments to code	0	0
Notification of minor amendments to code	2	5
Termination of notified arrangement to use existing code	2	5
Code expired and not renewed	2	1
Arrangement to use existing code lapsed	2	4

The codes of ethical conduct in force prior to the Animal Welfare Act 1999 were systematically brought into line with, and approved under, the Act between 2002 and 2004. Code holders wishing to apply for a new code, and those code holders with codes approved in 2004, had mandatory independent reviews completed during 2009 (see section 6.2 for more detail).

During 2009, nine new codes were approved which is comparable to 2008. There were 10 organisations which made arrangements to utilise existing codes and two organisations which terminated their arrangements. All those organisations using codes that expired in 2009 had to renew their arrangements with the same code holder, make a new arrangement with another code holder or make a decision to allow their arrangement to lapse. Experience shows that some organisations make short-term arrangements,

lasting for only one or two years to cover one or a small series of research projects for which they need AEC approval. Other activities which impact on these figures include the sale of a business, mergers and/or takeovers (see section 93 of the Animal Welfare Act 1999).

Details of all codes approved or revoked and arrangements notified or terminated are published regularly in *Welfare Pulse*.

5.3 Approvals in Force

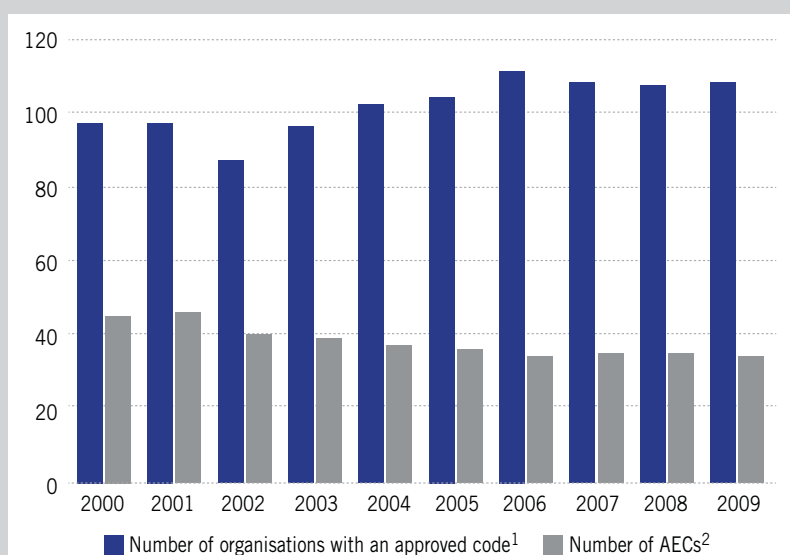
The following table gives details of the number of approvals in force as at 31 December 2008 and 2009.

Number of:	2009	2008
organisations using an approved code	108	107
approvals in force ^{1,2}	111	110
organisations with a code	30	31
established AECs ³	34	35
organisations using another organisation's AEC	78	76

- 1 One organisation has two approvals in force. This organisation uses different AECs, and therefore a different organisation's approved code, for different types of projects.
- 2 One organisation has three approvals in force as it uses a different AEC for work in different locations.
- 3 Two organisations each have three animal ethics committees to facilitate work carried out at more than one campus/location.

The number of organisations/individuals using an approved code (their own or another organisation's) have remained relatively steady over the last 4 years – the 108 in existence in 2009 sit between the all time high of 111 in 2006 and 107 in 2008. Over the same time period, 34 (in 2006 and 2009) or 35 (in 2007 and 2008) AECs have been established to deal with projects from all those organisations. Changes that have occurred over the last decade are shown graphically below.

Number of codes and AECs



- 1 Some organisations may have more than one approval.
- 2 Excludes AECs set up from time to time under the Department of Education code (prior to 2003).

Appendix 1 lists the organisations with an approved code as at 31 December 2009 and indicates those that use another organisation's AEC. Appendix 2 lists those organisations whose codes of ethical conduct have expired or have been revoked or whose arrangements have terminated, most commonly because their activities no longer necessitate a code, or as a result of company/organisational mergers where both parties previously had a code.

It is important to note that the Animal Welfare Act 1999 contains a provision (section 93) that approval of a code is personal to the code holder and not transferable without the consent of the Director-General of MAF. Thus, if a company changes its name as a result of a sale or merges with another entity, this has the effect of revoking the code of ethical conduct approval unless the change is effected with the Director-General's consent.

5.4 Approvals Not Made by AECs

5.4.1 Non-human hominids

The Animal Welfare Act 1999 precludes the use of non-human hominids¹ for the purposes of RTT unless it is carried out with the approval of the Director-General of MAF and in accordance with any conditions imposed by the Director-General (section 85 of the Act).

The Director-General is required to consult NAEAC before exercising the powers under these provisions. Furthermore, the Director-General may not approve such research, testing or teaching unless satisfied that the use of the non-human hominid is in its best interests or in the interests of its species and that the benefits to be derived outweigh any likely harm to the individual animal.

The Director-General approved no research or testing involving the use of non-human hominids in 2009.

5.4.2 Research or testing in the national interest

The Minister of Agriculture may authorise research or testing without the approval of an AEC where the Minister is satisfied that such research or testing is necessary in the national interest.

In reaching a decision, the Minister is required to take into account whether the research or testing:

- is necessary to protect New Zealand's biosecurity interests;
- relates to matters that affect or are likely to affect New Zealand's international obligations;
- is necessary to protect human or animal health.

Unless exercising emergency powers under other statutes, the Minister is required to consult NAEAC before making a decision.

The Minister approved no research or testing in the national interest during the year.

¹ "Non-human hominid" means any non-human member of the family Hominidae, being a gorilla, chimpanzee, bonobo or orangutan (section 2(1) of the Animal Welfare Act 1999).

6 Animal Ethics Committees

6.1 Communication with AECs

6.1.1 Visits

NAEAC generally schedules some of its meetings to coincide with visits to code holding institutions. In 2009, it visited Canterbury University, Landcare Research and Lincoln University in conjunction with the May meeting. NAEAC members value the opportunity to meet with those involved in RTT and those serving on, or administering, AECs.

NAEAC visits to code holders in Canterbury

A visit to Lincoln University's research farm brought the members face to face with some magnificent red deer that are used in research on reproduction, and milk and velvet production. Handling these large,



flighty animals requires a great deal of skill, as was ably demonstrated by the senior technician, Martin Ridgway. Martin was awarded the 2009 ANZCCART New Zealand Animal Technician's Award for his wide contribution to research and teaching. During the visit he demonstrated the use of a CAT scanner for assessing bone density in deer during antler growth. Under sedation, respiration rate drops to 3–4 breaths per minute, and this is monitored very simply by mounting a sheet of paper in front of the deer's nose to indicate air being exhaled. Martin spoke of the welfare issues involved in removing stags' antlers for velvet, and how the stags are handled safely for both the animals and the operator.



The group visited the outdoor and indoor animal facilities operated by Landcare Research close to Lincoln. Here the emphasis is on developing humane, environmentally-benign ways of controlling vertebrate pests. Possums, being the foremost vertebrate pest in New Zealand, are the focus of much research, and underpinning husbandry procedures are well-developed. For example, hessian sacks suspended in a shelter offer a warm and dry environment for sleeping possums. The sacks make health checks and

transporting possums between pens easy, and minimise stress for the animals, and the handler. During the visit, technicians working on a study of reproductive control were observed anaesthetising possums with isofluorane, and then taking blood samples from the tail vein. The possums had previously been vaccinated with a protein similar to those on the coating of the possum ovum, and the blood samples are analysed for antibodies that bind with the ovum preventing fertilisation.



During the visit

to the University of Canterbury, researchers explained the use of rats and pigeons in work that aims to better understand the neural and behavioural mechanisms of timing, memory and decision-making, through to more complex abilities like counting, and knowing what another individual knows. This type of work has application towards rehabilitation of human patients with brain-damage or neurodegenerative disorders.

Other work concerns the short-term effects, and longer-term developmental consequences of exposure to drugs and toxins. For example, a recent study showed that certain party pills, legal until recently in New Zealand, affect the development of brains in adolescent rats with consequential effects on behaviour.

A well-attended evening function was held after the field visits for NAEAC and local AEC members to meet and share experiences.



NAEAC members and MAF Animal Welfare Directorate staff visiting the animal facilities jointly operated by Lincoln University and Landcare Research.

6.1.2 National workshop for AEC members

The biennial NAEAC workshop, next scheduled for late 2010, is a key feature of the relationship between AECs, MAF Biosecurity New Zealand and NAEAC. It provides an opportunity for presentations on matters of interest to those involved in the manipulation of animals for RTT; it assists NAEAC in the development of its operational plan for the period ahead; and above all, it is an occasion for AEC members to share experiences and ideas among themselves. Planning for this workshop is in progress.

6.1.3 NAEAC News moves to Welfare Pulse

Welfare Pulse has successfully combined a number of smaller existing publications, including *NAEAC News*, and extended the content to ensure all stakeholders are kept informed of key domestic and international animal welfare issues, developments and trends.

NAEAC believes that the new publication has enhanced the quality of communication among the committee, AECs and a wider audience.

The first three issues of *Welfare Pulse* were published in 2009; issue 1 in March, issue 2 in July and issue 3 in December.



6.1.4 Occasional Paper Series

NAEAC has an objective of disseminating articles that could be of relevance to those with an interest in RTT, particularly AEC members. This is achieved by the publication of “occasional papers”.

They include:

- Occasional Paper No.1 – *Underreporting of the three Rs deployment that occurs during the planning of protocols that preceded their submission to animal ethics committees*, (D J Mellor, J C Schofield and V M Williams) was published in late 2008 and was reprinted with permission from the authors and the organisers of the 6th World Congress on Alternatives and Animal Use in the Life Sciences.
- Occasional Paper No.2 – *Regulation of animal use in research, testing and teaching in New Zealand – the black, the white and the grey* (L A Carsons) was produced in April 2009. This updates an article which appeared some years ago in *Surveillance*.
- Occasional Paper No.3 – *Regulation of animal use in research, testing and teaching: Comparison of New Zealand and European legislation* (N Cross, L A Carsons and A C D Bayvel).
- Occasional Paper No.4 – *Compliance monitoring: The University of Auckland approach* (J Stewart).

The occasional papers are available from the MAFBNZ website: www.biosecurity.govt.nz/regs/animal-welfare/pubs/naeac

6.1.5 Conferences and workshops

Each year various NAEAC members, or members of the secretariat, attend conferences or workshops

of relevance to the committee's work. Invited papers were presented at several of these conferences. Information and proceedings from such conferences are circulated or their availability publicised for the benefit of NAEAC and others involved in the use of animals in RTT.

Conferences attended during 2009 were as follows:

- Conference on Global Trade and Farm Animal Welfare, Brussels, Belgium, January.
- UNITEC Animal Welfare Inspector Course – Auckland, New Zealand, February, April, June and October.
- Royal Society for the Prevention of Cruelty to Animals (RSPCA) Australia Scientific Seminar: Animals and Human Health, Canberra, Australia, February.
- Society for the Prevention of Cruelty to Animals (SPCA) Annual Conference, Christchurch, New Zealand, May.
- OIE (World Organisation for Animal Health) General Session, Paris, France, May.
- European Commission/New Zealand Animal Welfare Co-Operation Forum, Brussels, Belgium, May.
- NZ High Commission Seminar, London, England, May.
- Sheep and Beef Cattle Veterinarians Conference, Rotorua, New Zealand, May.
- 8th Meeting of the OIE Animal Welfare Working Group, Paris, France, June.
- Australian College of Veterinary Scientists – College Science Week, Brisbane, Australia, July.
- International Society of Applied Ethology, 43rd International Congress, Cairns, Australia, July.
- Australian and New Zealand Council for the Care of Animals in Research and Teaching (ANZCCART) Annual Conference, Port Douglas, Australia, July.
- Minding Animals – International Academic & Community Conference on Animals & Society, Newcastle, Australia, July.
- 3rd Meeting of the OIE Laboratory Animal ad hoc Group, Paris, France, August.
- 7th World Congress on Alternatives and Uses of Animals in the Life Sciences, Rome, Italy, August/September.
- Jackson Laboratory Mouse Workshop, Colony management: Principles and practices, San Francisco, USA, September.
- Trans-Tasman Animal Welfare Committee, Perth, Australia, September.
- Australia and New Zealand Laboratory Animals Association Conference, Wellington, New Zealand, September.
- Welfare Quality Project, Uppsala, Sweden, October.
- OIE Veterinary Education for a Safer World Conference, Paris, France, November.
- Better Training for Safer Food, Florence, Italy, November.
- American Veterinary Association and Association of American Veterinary Medical Colleges Conference – Swimming with the Tide – Veterinary Medical Animal Welfare Education and Research, Michigan, USA, November.

6.1.6 Reference material for code holders and AECs

The resource package of published material collated by NAEAC for AEC members was again reviewed and updated in 2009. More recently it has also been made available through the MAF Biosecurity New Zealand website: www.biosecurity.govt.nz/regs/animal-welfare/nz/naeac.

The list of contents includes:

- Chairperson letter
- *Guide to Part 6 of the Animal Welfare Act*
- *A Culture of Care*
- *Good Practice Guide for the Use of Animals in RTT*
- NAEAC Occasional Paper No 1

- NAEAC Occasional Paper No 2
- NAEAC Occasional Paper No 3
- NAEAC Occasional Paper No 4
- NAEAC *Guidelines for Animal Ethics Committees on Adequate Monitoring*
- *Monitoring of Compliance*
- *Animal Use Statistics* – Guidance for Completing Statistical Returns
- *Animal research has benefits for us all – and for animals too*
- *The Three Rs: Past, Present and Future*
- *The Role and Evolution of Independent Government Advisory Committees*
- *A Guide for Lay Members of AECs*
- *Welfare Pulse*

6.2 Independent Reviews of AECs

The Animal Welfare Act requires code holders and their AECs to undergo periodic independent reviews. Reviews must take place within two years of code approval for new code holders, and prior to the expiry of the code for existing code holders who wish to renew their code approval. Approved codes expire after five years.

Reviews may only be carried out by people who have been accredited by the Director-General of MAF to carry out such reviews. The Director-General is required to have regard for the person's relevant competencies, their character or reputation, and their ability to maintain an appropriate degree of impartiality and independence in conducting reviews. The pool of accredited reviewers stands at four (see Appendix 4).

During 2009, ten reviews were carried out, one less than in 2008; nine were conducted for expiry purposes and one review was conducted for a new code holder (two-year review). One follow-up review due to be undertaken in 2009 was postponed.

Both NAEAC and the Director-General of MAF are supplied with a copy of reviewers' final reports (as required by the Animal Welfare Act 1999). NAEAC's role is to take the report into account when considering the recommendation it will make to the Director-General on applications for a new code of ethical conduct. It is MAF's responsibility to determine whether or not the code holder has achieved a satisfactory degree of compliance with the code and, if not, to determine what steps the code holder must take to achieve a satisfactory level of compliance.

Reports also contain non-binding recommendations from the reviewer that code holders may find useful.

7 The Year's Issues

7.1 Accredited Reviewers and the “Moderation” Process

Since the Animal Welfare Act came into effect in 1999, NAEAC and MAF have held a teleconference annually with all accredited reviewers (see section 6.2) to discuss the reviews undertaken during the year. The reviewers and representatives from NAEAC and the Animal Welfare Directorate participated in a teleconference in March. NAEAC continues to place significant importance on maintaining consistency within the review process, discussion of issues which may have arisen in undertaking the reviews, and feedback on possible improvements to the review process.

7.2 Three Rs Award

The NAEAC Three Rs Award is a national award made to an individual, group or institution that epitomises best practice in the humane use of animals in RTT through the implementation of the Three Rs, specifically:

- **replacement** of sentient animals in experiments with non-sentient or non-living alternatives at every opportunity;
- **reduction** in numbers to the minimum possible; and
- **refinement** of experimental techniques so as to minimise or eliminate any suffering involved.

Dr Mark Oliver, a senior researcher at the University of Auckland's Liggins Institute, based at Ngapouri Research Farm Laboratory near Reporoa, was the recipient of the 2009 NAEAC Three Rs Award in recognition of his long-term work on the refinement of indoor physiological studies of sheep.

NAEAC selected Dr Oliver's work from several-high calibre nominations. The committee considered Dr Oliver's work to refine the feeding and housing of sheep to have far reaching effects, with a focus on the reduction and refinement of animal use. He has been instrumental in such innovations as the design of a specialised concentrate feed for sheep in long term indoor housing, a pre-trial programme that includes individual observation of sheep, and nutritional manipulation of pregnant sheep to measure effects on the foetus. With animals individually managed, in their own pens on a well balanced diet, under-nutrition can be managed by assessing weight change and altering feeds. This allows superior monitoring of animal welfare and the reduction of adverse complications developing in individual animals with higher dietary demands.

7.3 NAEAC Research Priorities

NAEAC, in consultation with AECs, has developed a draft list of research priorities aimed at promoting research in New Zealand into the Three Rs: replacement, reduction, and refinement. During 2009 this list was conveyed to funding bodies to provide guidance in the formulation of research funding strategies and consideration of funding proposals. NAEAC's research priorities, with their alignment with Three Rs principles and emphasis on ethical expectations, met with support from funding bodies.

The research area most widely considered to be a priority was the development of humane endpoints for animals used in research and testing. Other priorities identified include:

- under the heading of *replacement*, the validation of alternatives to animal use in regulatory testing, and the development of non-animal methods for producing antibodies;
- under the heading of *reduction* of animal use, the examination of opportunities for sharing excess animals/tissues (see below);
- under the heading of *refinement* –

- the need for understanding environmental enrichment for laboratory animals;
- improved animal husbandry;
- monitoring for pain and suffering;
- humane methods for euthanasia of laboratory animals;
- the development of humane pest control procedures.

An important step in implementing a key research strategy was taken in 2009 when MAF commissioned operational research, on behalf of NAEAC, to define the key attributes and implementation barriers of a potential national tissue sharing model which may facilitate the wider use of animal tissue sharing in New Zealand. The final report will be available from MAF and is expected in 2010.

NAEAC will continue to monitor the performance of funding bodies in giving effect to the research priorities set out above.

7.4 Suggested Amendments to the Animal Welfare Act

In recent years NAEAC has made recommendations to the Minister of Agriculture proposing that the definition of manipulation should be amended to include (a) killing for the purposes of RTT, and (b) treatment undertaken in the first half of gestation. These recommendations remain under consideration, with a review of the Act planned in 2011.

7.5 Amendments to the Animal Welfare (Records and Statistics) Regulations 1999

Since the 1990s, as made clear in successive annual reports, the number of animals used in RTT projects extending beyond one year has been reported at the end of three years or on the completion of the project, whichever is the earlier. The 1999 regulations require, however, that the number of animals should be reported annually. A consultation paper was issued by MAF in September 2008. The majority of responses supported the current practice and the regulations were amended accordingly in 2009.

7.6 Public Awareness of the Regulatory System and RTT

Advocacy for the value of animal use in RTT is a role principally for those who benefit from such RTT. NAEAC, for its part, seeks to provide assurance to the public of the integrity of the regulatory framework underpinning the use of animals in RTT. Attitudinal research, funded by MAF and undertaken in 2005 has been reported in previous annual reports. This research highlighted the lack of awareness amongst the general public of regulations surrounding this issue. NAEAC has regular discussion with MAF Communications staff on opportunities to increase public awareness of Part 6 of the Animal Welfare Act.

In November, NAEAC members met with representatives of the Animals in Schools Education Trust (Aiset) and the Education Team of the Royal Society of New Zealand (RSNZ) to discuss opportunities for raising the level of understanding of animal use in research, testing and teaching by people of school age (see also section 7.9 below).

7.7 NAEAC's commitment to the Three Rs

2009 was the fiftieth anniversary of the 1959 publication of W M S Russell and R L. Burch's book *The Principles of Humane Experimental Technique* that introduced the concept of the Three Rs i.e. the reduction, refinement and replacement of the use of animals in life sciences. The principles of the Three Rs are the foundation of Part 6 of the Act and, as this report shows, play a prominent part in almost all that NAEAC does.

A significant aspect of NAEAC's activity is its support for MAF, the New Zealand Food Safety Authority (NZFSA) and the New Zealand scientific community in their efforts to have the Three Rs embodied in international practices in the use of animals for regulatory testing. New Zealand's representatives continue to promote international harmonisation of the use of animals in regulatory testing in various intergovernmental forums under the auspices of the OIE.

New Zealand has a notable record of innovation in this area, for example in the replacement of testing that involves animals by *in vitro* testing and in new techniques for pain relief. (Such important developments have been acknowledged over the years by the NAEAC Three Rs Award (see section 7.2). The validation of alternatives to the use of animals, particularly in testing, continues, however, to be a slow process. NAEAC has, nonetheless, been encouraged by the conclusions of the 7th World Congress on the Use of Animals and Alternatives in the Life Sciences held in Rome in September 2009 and attended by a New Zealand delegation including the present chair of NAEAC. This widely representative forum, after examining developments in alternatives to the use of animals, concluded ²

“Within the next decade this approach will result in an unprecedented decrease in the use of experimental animals. It is considered the start of a worldwide process in regulatory safety testing which will likely make the use of experimental animals for safety testing totally redundant within 20 years from today.”

NAEAC continues to liaise with and support the New Zealand Three Rs Programme, a joint venture between Massey University and MAF. The programme is located at Massey and operates within the Animal Welfare Science and Bioethics Centre (AWSBC). The purposes of the programme are:

- to profile New Zealand's continuing Three Rs contribution;
- to promote understanding, application and development of the Three Rs;
- to monitor and liaise with other Three Rs centres internationally to ensure that New Zealand keeps abreast of major advances in the field;
- to critically assess Three Rs developments nationally and internationally.

7.8 Use of Animals in Schools

NAEAC continues to assist the promotion of understanding of animal use in research and testing among people of school age. During the year NAEAC met with representatives of the Royal Society of New Zealand (RSNZ), the Animals in Schools Education Trust (Aiset), and the Animal Ethics Committee of the New Zealand Association of Science Educators (NZASE) to explore the scope for building on the activities already in place.

The role of the NZASE animal ethics committee is of particular importance. All projects in schools involving the use of animals, including participation in science fairs, require the approval of the committee. At the same time the AEC promotes a greater awareness among the science teaching and learning community of the need for care of animals used in projects – often family pets or animals on family farms.

The Royal Society promotes a number of programmes that emphasise the importance of humane care of animals in science. NAEAC welcomes the initiative taken by ANZCCART in producing a DVD to be used in schools explaining the purpose of, and procedural requirements for the use of animals. Aiset (which includes representation from a wide range of organisations with an interest in animals) focuses on the availability of appropriate resources in schools and to that end has co-sponsored several publications.

2 Press Release *Milestone animal welfare achievements at the World Congress on the Use of Animals and Alternatives in the Life Sciences*, Rome, Italy. 3 September 2009

7.9 Internet Search Engines for Methods Applying the Three Rs

Internationally, there has been a rapid acceleration of effort towards applying the Three Rs in animal-based research in recent years. A number of organisations with this focus have developed excellent websites with search engines designed to help researchers to easily familiarise themselves with the 'state of the art' of Three Rs application in their own particular field. NAEAC has reviewed some of these sites and believes they may be very helpful in enabling researchers to meet their personal ethical responsibilities (i.e. "how can I apply the Three Rs to this study?") in a transparent manner. In turn, this will demonstrate to animal ethics committees and the wider community that this ethical aspect of proposed work has been fully considered. NAEAC therefore encourages AECs to consider the relevance of such sites to the types of research applications that they receive, and to inform researchers of sites of likely value.

One site in particular that should help AECs find the most appropriate search engines is **Altweb.jhsph.edu**. Developed and hosted by the Johns Hopkins Centre for Alternatives to Animal Testing (CAAT), this site describes itself as 'the global clearing house for alternatives to animal testing'. The website is, indeed, a very comprehensive collation of **information on all aspects** of the Three Rs from around the world, and is therefore a very good starting point when seeking any information on the Three Rs. Some of the major topics included, each with an international focus, are:

- databases on Three Rs methods – 12 website links are given;
- reduction (experimental design, statistical analysis);
- refinement (housing, handling, husbandry);
- replacement (in vitro methods, computer simulations, manikins, and models);
- animal welfare science;
- funding Three Rs science;
- journals;
- laboratory animal welfare;
- legislation;
- non-mammalian models;
- relevant research and government organisations (including ANZCCART);
- animal use in education;
- animal use statistics.

Two of the websites that the CAAT site links to are:

The **Go3R.org** search engine was developed by the German company, Transinsight. The database underlying the search engine comprises a vast collation of biomedical literature that has been screened to identify where Three Rs methods are being applied (although the Three Rs may not necessarily be mentioned) in a wide range of biomedical research areas. To achieve this, the search engine uses "**semantic searching**", a relatively new and very powerful way of compiling information during searching. Rather than simply searching on the basis of key words alone, semantic searching improves the accuracy and relevance of search results by assessing the context in which key words appear, and also by automatically using alternative search terms that the system has 'learned' from similar past searches. Although the system requires a little more effort to master, it is considerably more powerful and specific, thereby (eventually) reducing the time needed to find relevant information.

AltTox.org is a website dedicated to advancing non-animal methods of **toxicity testing**, and the site is supported through a collaboration of the Procter & Gamble Company (P&G) and The Humane Society of the United States (HSUS). The *Existing Alternatives* sections of AltTox provide a readily accessible list of non-animal toxicity test methods and protocols that have been judged to be scientifically valid by the European Centre for the Validation of Alternative Methods (ECVAM) and other similar organisations. The section on *Emerging Technologies and Approaches* describes emerging technologies for new *in vitro* test

methods or *in silico* (i.e. by computer simulation) approaches. These technologies include:

3-dimensional physiologically-based cell and tissue models; new types of testing platforms and detection methods, including high-throughput and high-content screening methods; and structure-activity relationship and predictive computational models.

7.10 Liaison with Other Bodies

7.10.1 National Animal Welfare Advisory Committee

NAEAC maintains a close association with the activities of the National Animal Welfare Advisory Committee (NAWAC). NAEAC's chairperson, being an *ex officio* member of NAWAC, facilitates this inter-committee liaison.

7.10.2 Australian and New Zealand Council for the Care of Animals in Research and Teaching

NAEAC continues to work closely with the Australian and New Zealand Council for the Care of Animals in Research and Testing (ANZCCART). Both organisations have an interest in promoting the awareness of regulatory requirements surrounding the use of animals in RTT, particularly in the education sector.

8 Statistics

All code holders are required to keep records as specified in the Animal Welfare (Records and Statistics) Regulations 1999 in a readily accessible manner. (For record keeping purposes, the term “code holder” includes any person or organisation that has made arrangements to use an existing code and AEC, as well as anyone with an approval to use non-human hominids.)

The records must be retained for a period of five years after the year to which they relate, and an annual return of the figures for the previous calendar year must be submitted to MAF by 28 February each year. In addition, the regulations empower the Director-General of MAF or any inspector appointed under the Animal Welfare Act 1999 to obtain copies of records or details from them at any time.

Records of the number of animals used in long-term projects are not reported annually to MAF but every three years or at the end of the year in which the project is completed (if less than three years). Hence annual animal usage detailed below reflects the numbers of animals used in studies that were completed during the year and reported to MAF.

The regulations provide penalties for non-compliance, including late submission of returns or supplying false or misleading figures.

NAEAC, while not responsible for the collection or publication of the statistics, takes an active involvement in their integrity.

8.1 Summary of 2009 Animal Use Statistics

A total of 297 111 animals used in research, testing and teaching were reported in 2009.

Rodents made up 37.8 percent of this total. Just over 45 percent of the rodents were used in testing the safety and efficacy of animal health products to meet regulatory requirements, veterinary research to develop new animal vaccines, or the monitoring of shellfish toxins for public health purposes. Nearly half (45.8 percent) of the rodents used for these purposes made up 91.8 percent of the animals which experienced manipulations that caused a “high” or “very high” impact on the animal. Large numbers of rodents were also used for medical, veterinary and basic biological research.

Production animals (farm animals) made up 27.2 percent of all animals reported in 2009. Nearly all of the animals (97.5 percent) experienced manipulations regarded as having minimal impact, largely with the aim of improving or maintaining the wellbeing and/or efficiency of production in that species.

Just over three-quarters of the birds, which made up 16.5 percent of total, were unborn chickens used to investigate suspected cases of exotic avian disease and for ongoing disease surveillance. These tests had little impact on the chicks. Other birds (11.9 percent) captured for veterinary research and species conservation purposes mostly experienced little impact as a result of manipulations.

Fish made up 8 percent of the animals reported in RTT and were used for basic biological research, teaching, and environmental management in manipulations mostly of little impact on the animal.

8.2 Animal Usage

During 2009 a total of 297 111 animals³ were reported as manipulated⁴ in research, testing and teaching⁵; a reduction of thirteen percent compared to 2008 when 341 520 animals were reported.

Much of the annual variability in the statistics can be attributed to the three-yearly cycle of reporting of

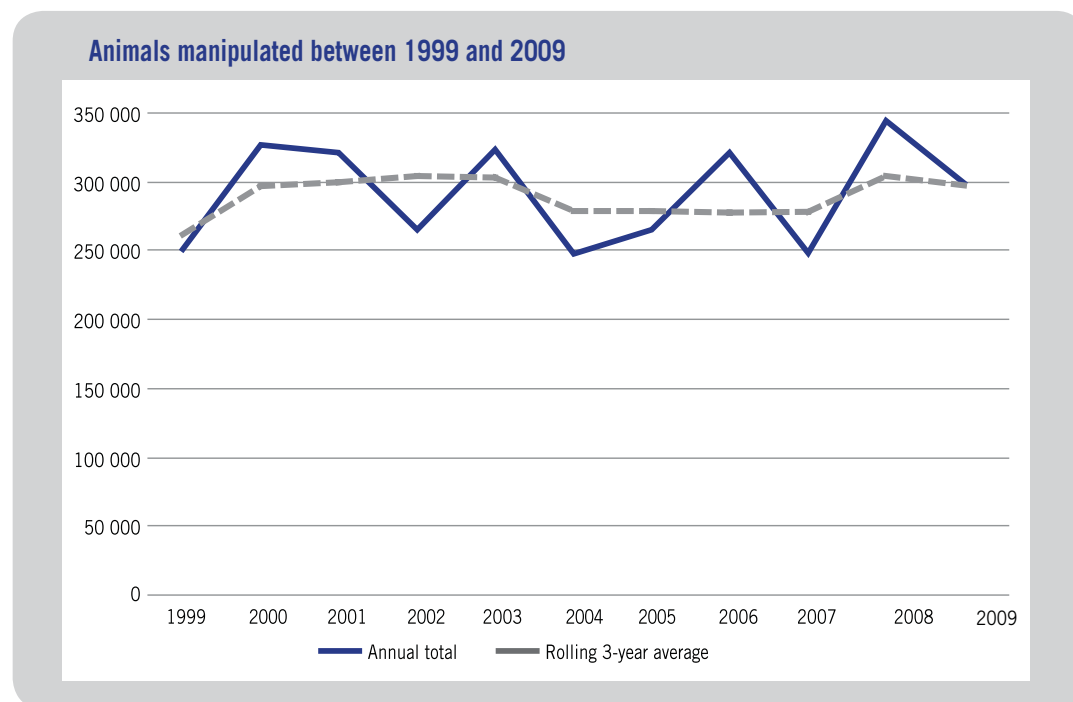
³ As defined in section 2(1) of the Animal Welfare Act 1999. This definition is set out in appendix 5 of this report.

⁴ As defined in section 3 of the Animal Welfare Act. 1999 This definition is set out in appendix 5 of this report.

⁵ As defined in section 5 of the Animal Welfare Act. 1999 This definition is set out in appendix 5 of this report.

long-term projects. Reports for animals used in long-term projects are not required every year but every three years when the project is completed or AEC approval of the project expires, whichever comes first. In 2008, a number of studies that used large numbers of animals in each of four species were reported by several institutions, and these data had a major impact on the overall figures. There was one such study this year.

To illustrate the influence of the three-yearly reporting cycle, the accompanying graph shows the rolling three-year average compared with the annual totals. Between 2000 and 2003 the rolling average was around 300 000 (294 801 to 302 221), between 2004 and 2007 it was nearer 275 000 (275 942 to 276 906). The 2008 and 2009 rolling averages are similar to the early 2000s, at 302 225 and 295 099 respectively.



Those species most commonly reported in 2009 were (in order) mice, birds, sheep and cattle, and collectively accounted for 70.9 percent of the total animals manipulated for RTT. This is well down from the previous 3 years when the 4 most commonly used species represented between 80.3 and 84.3 percent of all animals manipulated. Mice, sheep and cattle have all been included in the four most commonly used animals since 1989. Birds displaced fish on the list to become the second most used species in 2009. The last time birds featured was in 2006 when they were ranked third.

The largest decreases were recorded in the number of cattle (–44 801), sheep (–32 102) and fish (–17 321) manipulated for RTT compared to the respective numbers reported in 2008. This equates to a 64.4 percent, 41.1 percent and 42.2 percent decline for each species respectively. Marine mammals (–884), dogs (–102) and rabbits (–31) were the only other species to show reductions in overall usage. The biggest increase was reported for birds (+17 970) of 57.9 percent. There was also an increase in the use of rodents (guinea pigs, mice and rats; +8187) and cephalopods/crustaceans (+7593) of 7.9 and 322.0 percent respectively. Other farm animals (deer, goats and pigs; +5451), reptiles (+5095), possums (+3153) amphibia (+2114), miscellaneous species (+757), cats (+328) and horses (+184) round out the list of species reported in RTT in 2009. See Appendix 6 for further detail.

Overall, the use of agricultural livestock declined by 46.9% (–71 452). The majority of this reduction can be attributed to fewer cattle being used for teaching (–31 986), veterinary research (–8885) and animal husbandry (–7123), and to sheep used for animal husbandry (–20 170), veterinary research (–8898)

and medical research (–3045) purposes. The 2008 NAEAC Annual Report provides a detailed list of the research undertaken on most of the sheep and cattle reported in that year.

The use of fish reported in RTT declined by 17 321 in 2009. Over 97 percent of the fish were used for basic biological research, teaching or environmental management; work mostly undertaken by universities (91.7 percent) and crown research institutes (CRIs) (4.1 percent).

The number of birds manipulated for RTT and reported in 2009 increased to 49 023, up from 31 053 in 2008 and 5907 in 2007. In 2008 three, 3-year studies reported just over 21 400 chickens to evaluate feedstuffs and another study used approximately 3500 chickens to compare the welfare of layer hens in cages, barn and free range systems in New Zealand. One, very large long-term study was reported in 2009. Nearly 37 500 fertile, germ-free chicken eggs were imported to investigate suspected cases of exotic avian disease and for ongoing surveillance for avian influenza and other pathogens in wild bird species. More captured birds (+5370) were also manipulated; mainly for veterinary research and species conservation.

Changes in rodent use were most evident in basic biological research (–9573), medical research (+8948) and veterinary research (+8823) in 2009. Large percentage increases were also reported for the following species; cephalopods/crustaceans for teaching (+8050) and basic biological research (+444); reptiles for species conservation (+5997); and amphibia for species conservation (+1222) and basic biological research (+481).

In 2009, 1281 animals were reported in the “miscellaneous species” category, up from 524 in 2008. They included 810 mustelids (stoats, ferrets and weasels) for species conservation, basic biological research and environmental management; 395 bats for species conservation; 62 alpaca for teaching; 7 rhinoceros and 7 hedgehogs for environmental management.

Wherever it appears, the category “cats” includes feral cats. Likewise, wild rats and mice are included in the “rats” and “mice” categories and feral pigs in the “pigs” category.

8.3 Source of Animals

Code holders are required to report on the source of the animals manipulated according to specified categories. The table below shows the percentage of animals that came from each source in the past two years.

Source of animals	2009 %	2008 %
Breeding units	35.9	29.8
Farms	22.7	45.3
Captured	18.5	6.1
Imported	12.8	0.2
Commercial sources	4.7	10.5
Born during project	4.6	7.4
Public sources	1.0	0.8

The total number of animals sourced from breeding units in 2009 increased by less than 5000 animals, or 4.9 percent. Much larger changes were evident in all the other source categories except public sources (+265). Fewer animals were sourced from farms (-87 277), commercial sources (-21 947) or born during projects (-11 775) compared to 2008, while the importation (+37 139) and capture (+34 230) of animals increased.

In 2009, 63.2 percent of the animals were sourced from farms, breeding units or commercial organisations, which was well down on the previous four years when between 77.7 and 86.5 percent had been obtained from one of these three sources. Most of the farm animals, which were used by 44 organisations or individuals (hereafter referred to as organisations) and rabbits, which were used by 16 organisations, were obtained from these sources. Just over 9 percent of farm animals (mostly sheep) were “born” during projects.

Rodents (used by 34 organisations) came from breeding units (91.6 percent). Rodents were also captured (4.9 percent), born during projects (1.5 percent), obtained from commercial sources (1.4 percent), imported (0.3 percent) or from public sources (0.2 percent).

Chickens (used by 13 organisations) were mostly imported (94.7 percent) or from commercial sources (3.2 percent) with less than one percent from each of breeding units, public sources and farms. The other birds (used by 18 organisations) were mainly captured (95.4 percent) with the remainder spread across all the other sources except importation.

Fish, which were used by a total of 13 organisations, were obtained from all sources except importation, but most were captured (65.9 percent), from commercial sources (15.8 percent) or born during projects (13.7 percent). All the marine mammals (used by 3 organisations) were captured.

The amphibia (used by 5 organisations), cephalopods/crustaceans (6 organisations), possums (7 organisations), reptiles (10 organisations) and mustelids (5 organisations) were mostly captured. Cats (used by 16 organisations) and dogs (17 organisations) were obtained from breeding units or public sources. Some cats (171) were captured (feral). Horses were used by a total of 13 organisations and mostly supplied from farms and public sources.

8.4 Status of Animals

Code holders are required to categorise the status of the animals they use. The following table breaks down the animal status for the past two years.

Status of animals	2009 %	2008 %
Normal/conventional	77.3	88.4
Unborn/pre-hatched	12.9	0.2
SPF/germ-free	4.6	4.5
Transgenic/chimera	2.4	4.7
Protected species	2.0	1.9
Diseased	0.7	0.1
Other	<0.05	0.2

The majority (77.3 percent) of animals manipulated in RTT in New Zealand are classified as normal, healthy, conventional animals. In 2009, 229 723 animals were reported in this category, a 23.9 percent decrease (–72 304) on 2008 numbers.

For the first time, unborn/pre-hatched animals ranked second in the “status” category. Almost all (97.8 percent) were the fertile, germ-free chicken eggs imported to investigate suspected cases of exotic avian disease and for ongoing surveillance for avian influenza and other pathogens in wild bird species. The only other species in this category were rodents.

While a larger portion of the animals manipulated for RTT had a specific pathogen-free (SPF) or germ-free status, fewer animals (–1462) were manipulated in this category than in 2008. Most of these animals were rodents (99.4 percent), but also included dogs (33), sheep (25) and rabbits (24).

The use of transgenic animals decreased from 16 085 in 2008 to 7221 in 2009 and was made up of mice (97.9 percent) and amphibia.

A similar number of animals with protected species status were manipulated in 2009 and 2008 (5813 cf 6546). Protected birds (2552), reptiles (1890), marine mammals (651), amphibia (325) and bats (395) were manipulated for RTT in 2009.

Sheep (1366) and deer (700) made up 96.0 percent of the animals used with a “diseased”⁶ status. Cats (45), horses (28) and amphibia (12) made up the difference.

8.5 Outcome

Appendix 6 shows the five-year summary of the animals used (by species) and the percentages that died or were euthanased during, or after, manipulations. At 54.8 percent, this year’s figure is higher than reported in the previous 5 years when between 31 and 48 percent of all animals used in RTT died or were euthanased. The other 45.2 percent reported in 2009 were retained (9.6 percent), returned (53.4 percent), released to the wild (29.1 percent) or disposed of to others (7.7 percent).

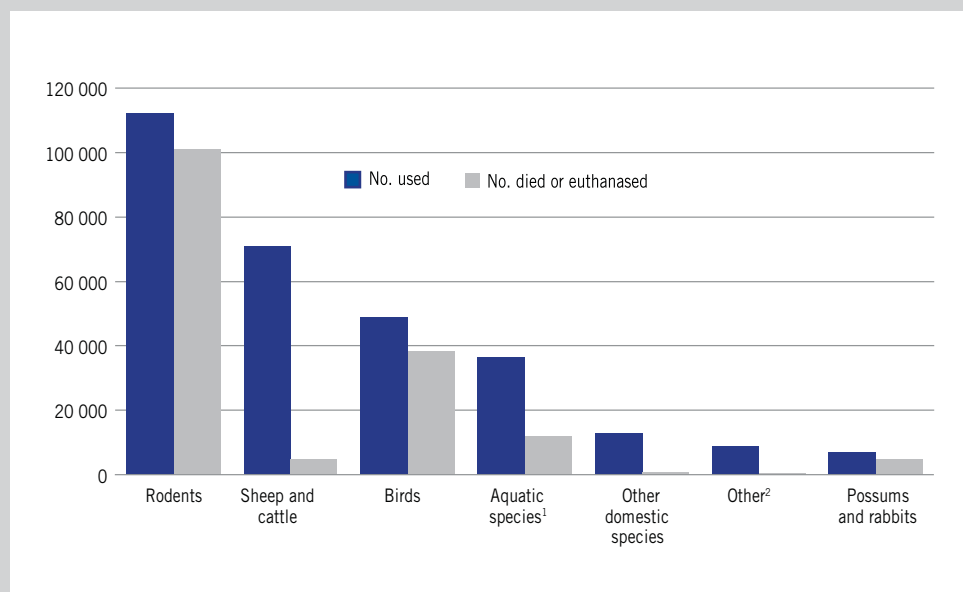
The number of animals dying or euthanased as part of the manipulation in 2009 (162 886) was well above that for 2008 (135 120 animals). The increase in the number of chickens killed (+31 295), more specifically unborn chicks, account for the majority of this change. Other notable changes included increases in the number of possums (+1726) that are killed as part of RTT and “miscellaneous species” (+1046), which includes cephalopods/crustaceans and mustelids. The largest decreases in deaths were reported for fish (–7060) and mice (–2535).

The high survival rates (93.2 percent) for livestock reflect the number of trials of low invasiveness that take place while the animals remained in their normal farm environment and continued as part of the herd/flock at the conclusion of the trial.

The following histogram shows information on the proportion of animals that died or were euthanased for the major groups of species.

⁶ Animals afflicted with naturally occurring disease, the focus of study usually being the cause, effects, cure or prevention of the disease.

Animal use by species reported in 2009



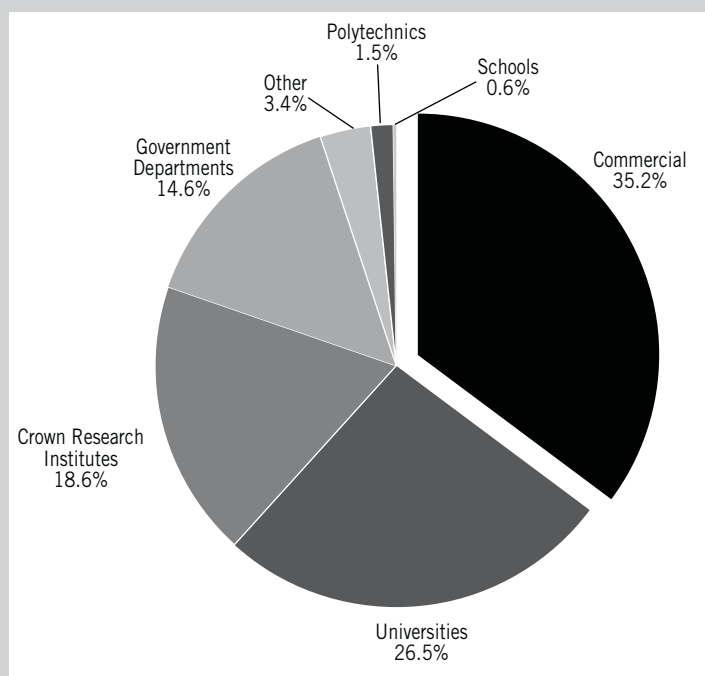
1 "Aquatic species" includes amphibians, fish, marine mammals and cephalopods/crustaceans.

2 "Other" includes reptiles and miscellaneous species as described in section 8.2.

8.6 Organisation Type

Appendix 7 tabulates animal usage by organisation type over the past five years. The pie chart below shows the 2009 information graphically. The top three user groups in 2009 were (in order) commercial organisations, universities and CRIs.

Animal usage by organisation type



The proportion of animals used by commercial organisations decreased by 8.6 percent in 2009, down from 43.8 percent in 2008. A total of 104 690 animals were reported by the sector, a decrease of 30.0 percent. Commercial organisations used more animals in medical research (+7098) and testing (+1419) in 2009. Fewer animals were manipulated for teaching (–31 197) and veterinary research (–14 404) mainly due to the effect of large 3-year studies reported in 2008. The number of animals used for animal husbandry (–7492) and basic biological research (–2028) also declined.

Universities reported 45 100 fewer animals in 2009. More animals were used for teaching purposes (+18 421) and environmental management (+6106). Again, the effect of large long-term studies reported in 2008 can be seen in 2009, with large reductions in animal husbandry (–24 675), veterinary research (–16 014), basic biological research (–12 171) and species conservation (–11 073).

CRIs' animal use has remained relatively constant over the last three years. The sector reported the use of 55 335 animals in 2009, compared to 57 582 in 2008 and 57 725 in 2007. The number of animals used for veterinary research (+11 238), basic biological research (+5111) and species conservation (+1353) increased. Decreases were reported for animal husbandry (–14 845), environmental management (–1545) and testing (–1210).

Government departments reported the use of 43 266 animals in 2009, compared to 3235 in 2008. Most (87.1 percent) were used for testing, specifically, for investigation and surveillance of exotic avian diseases and veterinary research also in birds. A smaller number were used for veterinary research (10.4%) with the remainder used for species conservation, teaching or environmental management.

Organisations in the “other” category include non-university medical research institutes, zoos/wildlife parks and individuals. In 2009, 10 151 animals were reported from this sector. More rodents (+7574) were used for medical research and aquatic species (+356) for basic biological research than in 2008.

Polytechnics and institutes of technology reported an increase (+1619) in the number of animals manipulated in 2009 compared with 2008 to 4557. The wide varieties of animals manipulated by this sector were all used for teaching, usually for low impact animal husbandry / veterinary nursing or similar training.

The use of animals in RTT in schools declined from a high of 2208 reported in 2008 to 473 in 2009. The wide range of animals, including amphibia, cats, cattle, dogs, fish, chickens, goats, horses, mice, other birds and sheep were all used for teaching purposes.

8.7 Animal Reuse

In 2009, 6.3 percent of animals were used more than once for RTT. There has consistently been between 4 percent and 8 percent of animals re-used in RTT since 2002. Domestic animals (including livestock) and aquatic species (amphibia, cephalopods/crustaceans and fish) made up 93.7 percent of the animals that were reused; rodents and rabbits made up 3.2 percent. With the exception of marine mammals, a small number of every animal species were reported as being used more than once in 2009.

8.8 Purpose of Manipulation

Organisations are required to provide information on the purpose of manipulations. The following table shows the breakdown and compares the 2009 figures with those reported in 2008. Descriptions of the “purpose of manipulation” categories are outlined in Appendix 8.

Purpose of manipulation	% of animals used	
	2009	2008
Testing	27.7	13.3
Veterinary research	20.0	18.4
Basic biological research	14.9	15.7
Teaching	11.6	13.8
Medical research	10.6	10.4
Animal husbandry	4.8	17.9
Species conservation	4.2	6.8
Environmental management	3.8	2.0
Production of biological agents	2.0	1.3
Other	0.4	0.4
Development of alternatives	0.0	0.03

The number of animals manipulated for the purposes of testing increased by 81.3 percent; from 45 420 reported in 2008 to 82 368 in 2009. The increase in animals can largely be attributed to the 37 440 chicken eggs imported to investigate suspected cases of exotic avian disease and surveillance for avian influenza and other pathogens in wild bird species. This work accounted for 45.5 percent of the animals reported in the testing category. Testing, using rabbits and rodents for the production of animal health products and rodents for public health testing, accounted for a further 50.4 percent of the animals used in this category (see section 8.9.2 for more detail). Other animals used for testing included domestic animals (2372) and fish (370). Government departments (45.8 percent), commercial organisations (44.6%), CRIs (9.5 percent) and universities (0.1 percent) reported manipulating animals for testing purposes in 2009.

Veterinary research utilised fewer animals in 2009 than reported in 2008 (59 371 cf 62 729 respectively) but made up a larger proportion of the total animals manipulated in RTT. The biggest changes were reported in farm animals (–16 935), rodents (+8823) and birds (+5770). While the majority of animals were manipulated for veterinary research purposes were farm animals (55.0 percent), rodents (32.5 percent) and birds (10.7 percent) all species except cephalopods/crustaceans, fish, reptiles and ‘miscellaneous species’ were manipulated for research in this area. Veterinary research was undertaken by commercial organisations (61.3 percent), CRIs (26.7 percent), government departments (7.6 percent) and universities (4.4 percent).

Basic biological research numbers decreased from 53 562 in 2008 to 44 200 in 2009. Fewer rodents (–9573) were manipulated for basic biological research. The number of birds also decreased (–5111), which was partially due to a major welfare study in layer hens reported in 2008. Noticeable increases were reported in the manipulation of fish (+3070) and possums (+2176) for basic biological research. Universities (52.5 percent), CRIs (41.5 percent), commercial organisations (5.2 percent) and “other” organisations (0.8 percent) conducted this research.

Teaching utilised 34 374 animals in 2009; 26.8 percent fewer than reported in 2008. The large decrease in use of farm animals for teaching in 2009 (–30 378) was associated with the reporting of 36 900 cattle for teaching artificial insemination in 2008. This reduction was partially offset by the increased use of cephalopods/crustaceans (+8050), fish (+7861) and birds (+1657) for teaching purposes. All species except marine mammals and possums were used for teaching purposes. While teaching was undertaken by all sectors, universities (64.3 percent), commercial organisations (20.0 percent) and polytechnics / institutes of technology (13.2 percent) used the most.

The number of animals reported as being manipulated for medical research declined for the second consecutive year; from 49 437 in 2007 to 35 645 in 2008 and 31 388 in 2009. The use of fish for medical research fell to zero in 2009, on the back of more than 10 000 zebrafish reported in 2008 to gain a better understanding of aspects of immunity and inflammation. There was also a noticeable reduction in the use of farm animals (–3090). More rodents (+8948) were reported in 2009, making up 97.7 percent of all animals manipulated for medical research. Rabbits (238) and dogs (42) made up the difference. Medical research was undertaken by universities (39.0 percent), “other” organisations (30.9 percent), commercial organisations (28.5 percent) and CRIs (1.6 percent).

Animal husbandry manipulations declined by 76.8 percent, from 61 297 in 2008 to 14 218 animals in 2009. No birds (–21 625) and fewer farm animals (–24 747) were used for the purposes of animal husbandry in 2009. Section 8.2 of the 2008 NAEAC report described much of the RTT undertaken for animal husbandry purposes reported in that year. Other species reported in 2009 for animal husbandry include fish (69), reptiles (40), horses (22) and mice (32). Commercial organisations (50.3 percent), CRIs (44.5 percent) and universities (5.2 percent) reported manipulating animals for animal husbandry purposes in 2009.

Animal numbers reported for species conservation in 2009 dropped by 46.0 percent or 10 676 animals to 12 548 in 2009. Fish numbers were well down on 2008 numbers (–18 046) while reptile (+5997) and amphibia (+1222) numbers increased. Birds (2004), bats (395), farm animals (89), marine mammals (589) and pest species (rodents, possums, mustelids and feral cats) were also manipulated for species conservation purposes. The majority of work in this area was undertaken by universities (76.8 percent) and CRIs (13.2 percent) with the remainder of animals used for this purpose spread across government departments, commercial organisations and “other” institutes.

Environmental management research used 69.8 percent more animals in 2009 (11 396 cf 6 710 in 2008). The increase in use of fish (+573) ensured they, at 48.6 percent of the total, remained the most used species for environmental management purposes in 2009. An increase was also reported in the use of rodents (+2105), possums (+1314) and farm animals (+858). Amphibia (315), mustelids (126), feral cats (31), hedgehogs (7), dogs (6) and rhinoceros (7) make up the difference. Universities (63.3 percent), CRIs (33.0 percent), commercial organisations (3.3 percent) and government departments (0.3 percent) all undertook environmental research.

More animals were utilised in the production of biological agents in 2009 than reported in 2008 (5923 cf. 4594 respectively). While the majority (85.2 percent) of animals used were farm animals (sheep, cattle and goats), rodents (550) and horses (325) were also used.

No animals were reported as being used in research aimed at developing methods to replace or reduce the use of live animals in research, testing and teaching in 2009.

8.9 Grading of Animal Manipulations

Animal manipulations are graded according to a five point scale as specified in the Animal Welfare (Records and Statistics) Regulations. The name and description of the scale was changed to better reflect

the overall estimate of the impact or invasiveness of each animal use in 2008. The five grades are:

- “no impact or virtually no impact” – manipulations that causes no stress or pain or virtually no stress or pain.
- “little impact” – manipulations of minor impact and short duration.
- “moderate impact” – manipulations of minor impact and long duration or moderate impact and short duration.
- “high impact” – manipulations of moderate impact and long duration or high impact and short duration.
- “very high impact” – manipulations of high impact and long duration.

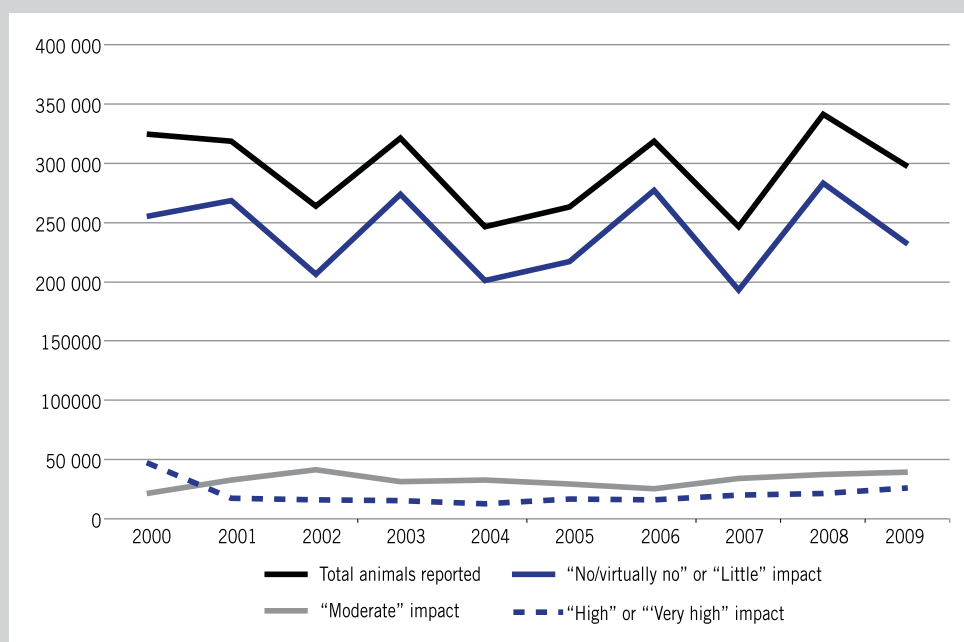
A more comprehensive description of the grading system has been published in the MAF publication *Animal Use Statistics – Guidance for Completing Statistical Returns* and is available on the website <http://www.biosecurity.govt.nz/regs/animal-welfare/nz/naeac>.

Appendix 9 summarises the impact grade allocated to animals manipulated for RTT and reported in 2009.

8.9.1 Long-term trends of the impact of RTT on the animals used in New Zealand

The number of animals that experience “no/virtually no” or “little” impact fluctuates between years. This fluctuation usually correlates with the change in total number of animals used. In the last 10 years the number of animals reported in these grades has consistently been between 78.1 percent and 87.0 percent of the total number of animals used each year. In 2009, 78.1 percent of the animals were exposed to manipulations which had no, virtually no, or little impact on the animal; down from 82.9 percent in 2008. The largest changes were recorded in the number of farm animals (–71 178) and birds (+18 832) manipulated in these grades in 2009.

Impact of manipulations on animals used for RTT over the last 10 years



The number of animals used in manipulations of “moderate impact” increased from 37 110 in 2008 to 39 463 in 2009, an increase of 2353 animals in this category. There was a notable increase in the number of rodents (+2967), possums (+647), cephalopod/crustacea (+330) and decrease in birds (–711) and reptiles (–584) allocated to this grade.

In 2009, a total of 25 738 animals experienced manipulations of “high impact” or “very high impact”. Just over 4500, or 21.2 percent more animals were allocated to these high impact grades in 2009 than in 2008. Rodents (+3633), and to a lesser extent fish (+422), possums (+283) and cephalopods/crustaceans (+84) accounted for this change. The highest numbers of animals reported in these grades were in 1999 and 2000, with 26 399 and 47 583 animals respectively.

8.9.2 Manipulation grading of animals reported in 2009

The decrease of 44 409 animals manipulated for RTT in 2009 was not spread proportionately amongst the grades which assessed the impact of the manipulation on the animal. Animals experiencing “no or virtually no impact” from the RTT manipulation fell 46.1 percent

(–43 179) and “little impact” fell 4.3 percent (–8088). Conversely, the number of animals in the “moderate impact” grade rose 6.3 percent (+2353), the “high impact” rose by 40.4 percent (from 2512 in 2008 to 3526 in 2009) and the “very high impact” grade rose by 18.6 percent (from 18 721 in 2008 to 22 212 in 2009).

Summary of impact of manipulations in animals used for RTT in 2009

2009 summary	Total reported	Number in each manipulation grade				
		No/virtually no impact	Little impact	Moderate impact	Severe impact	Very severe impact
Rodents	112 376	5 522	47 759	34 641	2 511	21 943
Sheep and cattle	70 754	29 224	40 297	1 160	65	8
Aquatic species ¹	36 716	7 062	28 256	880	483	35
Other domestic species	12 724	4 396	7 395	812	35	86
Birds	49 023	1 257	47 346	420	0	0
Possums and rabbits	6 815	2 147	2 872	1 307	382	107
Other ²	8 703	914	7 463	243	50	33
Grade totals	297 111	50 522	181 388	39 463	3 526	22 212
Grade percentages		17.0%	61.1%	13.3%	1.2%	7.5%

1 “Aquatic species” includes amphibians, fish, marine mammals and cephalopods/crustaceans.

2 “Other” includes reptiles and miscellaneous species as described in section 8.2.

The decrease in farm animals (–71 178), more specifically in sheep and cattle, reported in the low impact grades in 2009 is directly related to a number of large, long-term studies reported for these species in 2008. Many examples of RTT with low impact on farm animals were provided by AECs for the 2008 annual report. The increase in birds in these grades was mostly a result of the use of unborn chickens (37 440) for investigating suspected cases of exotic avian disease, for ongoing surveillance for avian influenza and other pathogens in wild bird species. The animals used in these long-term studies are reported to MAF every 3 years when the project approval is renewed. Other birds (9445), most of which were captured (95.7 percent), largely experienced little impact as a result of manipulations.

An increase of 2967 rodents was reported for the 'moderate impact' grade compared to 2008. Rodents made up 87.8 percent of the animals in this grade; eighty percent of which were involved in the production of animal health products. The number of possums reported in the 'moderate impact' grade also increased (+647).

Rodents also featured predominantly in both the 'high impact' and 'very high impact' grades, making up 71.2 percent and 98.8 percent of each grade respectively. All rodents in these two grades were manipulated for one of the following purposes.

- The majority (61.6 percent) were used to ensure the safety and efficacy of animal health products to meet regulatory requirements both nationally and internationally. These products prevent suffering and death in millions of other animals, both livestock and companion animals. In recent years the New Zealand industry, with support from government agencies, has promoted in vitro (test-tube) tests which have been developed in New Zealand. However, the agreement required from international regulatory agencies to replace the existing animal-based tests has not been forthcoming. Because of this, large numbers of rodents continue to be used for this purpose.
- Veterinary research used 31.7 percent of the rodents in these grades to develop new vaccines to protect animals against disease.
- Mice (3.2 percent) were used for public health testing, mainly for algal bloom-induced marine biotoxins which were first detected in New Zealand's coastal waters in the early 1990s. The biotoxins are bioaccumulated by shellfish and can cause acute illness and even death in shellfish consumers. Testing on mice (bioassay testing) ensures that shellfish are safe for New Zealand and overseas consumers to eat.
- A number of rodents were manipulated for the purposes of medical research (548), environmental management (195), species conservation (92) and basic biological research (2).

Pest species (including 489 possums, 57 pigs, 50 ferrets, 39 feral cats and 33 stoats) made up 12.5 percent of the "high" and 1.0 percent of the "very high" impact grades and were used for species conservation and environmental management purposes. These studies were designed to identify toxins and tools for pest control that are more humane and less likely to bioaccumulate. These grades also included a variety of other, non-pest species. Cattle (2) and deer (6) were manipulated to advance the registration of alternative toxic substances in New Zealand. Very low doses were administered that did not adversely affect the animals but were reported in the high impact grade because liver biopsies were performed. Seven sheep were used in field studies to determine if a deer repellent added to 1080 bait could prevent sheep from consuming the bait in aerial 1080 possum control operations.

Basic biological research undertaken on fish (429), cephalopods/crustaceans (84) and sheep (44); veterinary research undertaken on sheep (14), cattle (6) and horses (6); animal husbandry studies on deer (13) and species conservation using fish (5) were also reported in the 'high' and 'very high' impact grades in 2009.

Cats and dogs were mainly allocated to the two lowest impact grades (1711). Most of the cats and dogs allocated to the moderate impact grade were used for teaching at polytechnic level (37) or for medical research (33). As mentioned above, 39 feral cats categorised in the very high impact grade were manipulated for the purposes of species conservation. Altogether, cats and dogs were used for teaching (927), basic biological research (365), veterinary research (291), species conservation (140), environmental management (37) and for medical research (42).

8.10 The Three Rs

No animals were used in research aimed at developing methods to replace or reduce the use of live animals in research, testing and teaching in 2009.

8.11 NAEAC Comment

In considering annual animal use statistics, it is important to emphasise that every manipulation having a high negative animal welfare impact must be supported by a strong cost-benefit justification. The justification is individually assessed and approved by the appropriate institutional AEC (all of which include three independent external members) before the work may proceed. The final approval of a research proposal is often the result of a significant iterative process and every AEC benefits from the input and perspective of the external members. The AEC is then responsible for ensuring that the research is undertaken as specified in the approved application. NAEAC, as such, plays no direct role in the approval or monitoring of individual projects but provides general information and advice to AECs.

NAEAC continues to promote the concepts of humane science and the Three Rs (replacement, reduction and refinement) and to actively pursue specific initiatives that contribute to those strategic goals. These include:

- maintaining contacts with “Alternatives Centres” in Europe and North America;
- actively participating in the international Congresses on Alternatives and the Use of Animals in the Life Sciences;
- promoting the Three Rs award to raise awareness and provide additional incentive for commitment to Three Rs;
- drawing attention to state-of-the-art articles on alternatives and the Three Rs in *Welfare Pulse* and the occasional paper series;
- sponsoring AEC workshops;
- encouraging regulatory acceptance of alternative non-animal tests where and when applicable;
- encouraging the use of non-animal teaching programmes;

Although the New Zealand animal use statistics collection system is recognised as one of the most comprehensive in the world, NAEAC will continue to pursue refinements and improvements.

In NAEAC’s experience, in all projects associated with moderate, high or very high impact, all possible steps are taken to reduce or ameliorate the negative animal welfare impact. Those steps include a high level of veterinary care where practical, pre- and post-operative pain relief where necessary, and removal from the study or euthanasia immediately once the research objective is achieved.

Appendix 1

Organisations with an Approved Code of Ethical Conduct or with Notified Arrangements to Use an Approved Code

(As at 31 December 2009)

*Use another organisation's animal ethics committee

*Abacus Biotech Ltd
P O Box 5585
DUNEDIN 9058

AgResearch Ltd (3 AECs)
Ruakura Agricultural Centre
Private Bag 3123
Waikato Mail Centre
HAMILTON 3240

*AgriHealth NZ Ltd
PO Box 46135
Herne Bay
AUCKLAND 1147

AgriVet Services Ltd
PO Box 8734
HAVELOCK NORTH 4157

*AM2 and Associates
PO Box 5596
Frankton
HAMILTON 3242

*Ambreed New Zealand Ltd
P O Box 176
Waikato Mail Centre
HAMILTON 3240

Ancare Scientific Ltd
P O Box 36240
Northcote
NORTH SHORE 0748

*Ancrum Consultancies
134 Wild Road
RD 5
CHRISTCHURCH 7675

*Animal Breeding Services
(2007) Ltd
3680 State Highway 3
RD 2
HAMILTON 3282

*Animal Health Centre
P O Box 21
MORRINSVILLE 3340

*Animal Health Research Ltd
PO Box 39491
Howick
AUCKLAND 2247

*Aoraki Polytechnic
Private Bag 902
TIMARU 7940

*Argenta Manufacturing Ltd
P O Box 75340
Manurewa
MANUKAU 2243

*AsureQuality NZ Ltd
Private Bag 3080
Waikato Mail Centre
HAMILTON 3240

*Auckland University of
Technology
Private Bag 92006
Victoria Street West
AUCKLAND 1142

Auckland Zoological Park
Private Bag
Grey Lynn
AUCKLAND 1245

*Baldock, Anne K
Waikato Institute of Technology
Private Bag 3036
Waikato Mail Centre
HAMILTON 3240

Bay of Plenty Polytechnic
Private Bag 12001
TAURANGA 3143

*Bayer NZ Ltd
P O Box 2825
Shortland Street
AUCKLAND 1140

*Biocell Corporation Ltd
PO Box 23610
Hunters Corner
MANUKAU 2155

*BioLogic Scientific Consulting
Ltd
23 Union Street
PALMERSTON NORTH 4410

*Bomac Research Ltd
P O Box 76369
Manukau City
MANUKAU 2241

*Caledonian Holdings Ltd
PO Box 82
TAKANINI 2245

*Carne Technologies Ltd
PO Box 740
CAMBRIDGE 3450

*Cawthron Institute
Private Bag 2
NELSON 7042

Christchurch Polytechnic
Institute of Technology
P O Box 540
CHRISTCHURCH 8140

*Connovation Ltd
PO Box 58613
Botany
MANUKAU 2163

*Cook, Trevor George
Totally Vets Ltd
43 Manchester Street
FEILDING 4702

*DairyNZ Ltd
Private Bag 3221
Waikato Mail Centre
HAMILTON 3240

*Dairy Production Systems Ltd
P O Box 24132
HAMILTON 3253

*Deer Improvement Ltd
270 Ardlussa Road
RD 6
GORE 9776

Department of Conservation
P O Box 10420
The Terrace
WELLINGTON 6143

*Duir NZ Ltd
P O Box 959
Waikato Mail Centre
HAMILTON 3240

*Eastern Institute of Technology
Private Bag 1201
Hawkes Bay Mail Centre
NAPIER 4142

*Elanco Animal Health
PO Box 259354
Botany
MANUKAU 2163

*ES Plastics Ltd
PO Box 5682
Frankton
HAMILTON 3242

Estendart Ltd
Massey University
Private Bag 11222
PALMERSTON NORTH 4442

*Fort Dodge NZ Ltd
Private Bag 92903
Onehunga
AUCKLAND 1643

*Four Rings Enterprises Ltd
9 Hurstwood Place
Glen Innes
AUCKLAND 1072

Genesis Research &
Development Corporation Ltd
P O Box 50
Shortland Street
AUCKLAND 1140

*Gribbles Veterinary (Hamilton)
PO Box 195
Waikato Mail Centre
HAMILTON 3240

*Hillcrest High School
P O Box 11020
Hillcrest
HAMILTON 3251

*ImmunoEthical
Associates (NZ) Ltd
4 Marshs Road
Islington
CHRISTCHURCH 8042

*Intervet NZ Ltd
PO Box 40882
UPPER HUTT 5140

*Invitrogen NZ Ltd
P O Box 12502
Penrose
AUCKLAND 1642

*IVP International New Zealand
Ltd
Private Bag 23026
HAMILTON 3254

*Jurox Pty Ltd
85 Gardiner Road
Rutherford
NSW 2320
AUSTRALIA

*Kahne Ltd
109 Valley Road
Mt Eden
AUCKLAND 1024

*Karori Reservoir Wildlife
Trust Inc
P O Box 9267
Marion Square
WELLINGTON 6141

*KODE Biotech Ltd
PO Box 5965
Wellesley Street
AUCKLAND 1141

*Kotare Bioethics Ltd
P O Box 2484
Stortford Lodge
HASTINGS 4153

Landcare Research NZ Ltd P O Box 40 LINCOLN 7640	National Institute of Water & Atmospheric Research Ltd P O Box 8602 Riccarton CHRISTCHURCH 8440	*Parnell Laboratories (Aust) Pty Ltd 4/476 Gardeners Road Alexandria NSW 2015 AUSTRALIA
Lincoln University P O Box 94 Lincoln University LINCOLN 7647	Nelson Marlborough Institute of Technology Private Bag 19 NELSON 7042	*Pest Control Research Ltd P O Box 7223 CHRISTCHURCH 8240
*Livestock Improvement Corporation Ltd Private Bag 3016 Waikato Mail Centre HAMILTON 3240	New Zealand Association of Science Educators PO Box 10122 The Terrace WELLINGTON 6143	*Pest-Tech Ltd P O Box 40 LEESTON 7656
Living Cell Technologies NZ Ltd P O Box 23566 Hunters Corner MANUKAU 2155	New Zealand Forest Research Institute Ltd P O Box 3020 ROTORUA 3046	*Pfizer Pty Ltd 14 Normanby Road Mt Eden AUCKLAND 1024
*Malaghan Institute of Medical Research P O Box 7060 Newtown WELLINGTON 6242	*New Zealand Institute for Plant & Food Research Ltd Private Bag 92169 Victoria Street West AUCKLAND 1142	*PGG Wrightson Consulting PO Box 42 DANNEVIRKE 4942
*Mason Consulting 317 Dunns Crossing Road RD 8 CHRISTCHURCH 7678	*New Zealand Leather and Shoe Research Association (Inc) Private Bag 11333 PALMERSTON NORTH 4442	*PGG Wrightson Seeds P O Box 939 CHRISTCHURCH 8140
* MAF Biosecurity New Zealand Investigation and Diagnostic Centre P O Box 40742 UPPER HUTT 5140	*Novartis NZ Ltd 6 MacKelvie Street Grey Lynn AUCKLAND 1021	*Pharma Pacifica PO Box 22 ASHHURST 4440
Massey University Private Bag 11222 PALMERSTON NORTH 4442	*Oamaru Veterinary Services 311 Thames Street OAMARU 7910	PharmVet Solutions P O Box 78037 Grey Lynn AUCKLAND 1245
*Merial NZ Ltd P O Box 76211 Manukau City MANUKAU 2241	*On-Farm Research Ltd P O Box 1142 HASTINGS 4156	Schering-Plough Animal Health Ltd Private Bag 908 UPPER HUTT 5140
	*Otago Polytechnic Private Bag 1910 DUNEDIN 9054	South Pacific Sera Ltd P O Box 27 TIMARU 7940
		Southern Institute of Technology Private Bag 90114 INVERCARGILL 9840

*Synlait
1028 Heslerton Road
RD 13
RAKAIA 7783

*Tegel Foods Ltd
Private Bag 99927
Newmarket
AUCKLAND 1149

*The New Zealand Merino
Company Ltd
PO Box 25160
CHRISTCHURCH 8144

Thermo Fisher Scientific Inc
P O Box 658
TAURANGA 3140

*Towers Consulting
27 Mansel Avenue
Hillcrest
HAMILTON 3216

*Trinity Bioactives Ltd
PO Box 15135
Miramar
WELLINGTON 6243

*Unitec Institute of Technology
Private Bag 92025
Victoria Street West
AUCKLAND 1142

Universal College of Learning
Private Bag 11022
PALMERSTON NORTH 4442

University of Auckland
Private Bag 92019
Victoria Street West
AUCKLAND 1142

University of Canterbury
Private Bag 4800
CHRISTCHURCH 8140

University of Otago (3 AECs)
P O Box 913
DUNEDIN 9054

University of Waikato
Private Bag 3105
Waikato Mail Centre
HAMILTON 3240

Valley Animal Research Centre
PO Box 2648
Stortford Lodge
HASTINGS 4153

*Vet Nurse Plus
PO Box 276115
Manukau City
MANUKAU 2241

*Vet Resource
316 Pokuru Road
RD 5
TE AWAMUTU 3875

*Veterinary Enterprises Group
PO Box 83
TE AWAMUTU 3840

*Veterinary Health Research Pty
Ltd
PO Box 9466
Waikato Mail Centre
HAMILTON 3240

*VetSouth Ltd
P O Box 12
WINTON 9741

*ViaLactia BioSciences Ltd
PO Box 49
MORRINSVILLE 3340

Victoria University of
Wellington
P O Box 600
WELLINGTON 6140

*Virbac Laboratories
(New Zealand) Ltd
30 Stonedon Drive
East Tamaki
MANUKAU 2013

*Virionyx Corporation Ltd
P O Box 91806
Victoria Street West
AUCKLAND 1142

Waikato Institute of Technology
Private Bag 3036
Waikato Mail Centre
HAMILTON 3240

*Wakefield Gastroenterology
Research Trust
Private Bag 7909
Newtown
WELLINGTON 6242

*Wanganui Veterinary Services
Ltd
PO Box 911
WANGANUI 4540

* Ward, Christopher G
70B Pariri Road
RD 3
KAITAIA 0483

*Wellington Institute of
Technology
Private Bag 39803
LOWER HUTT 5045

Appendix 2

Codes of Ethical Conduct Revoked and Notified Arrangements Terminated

(As at 31 December 2009)

- Agri-Feeds Ltd
- Agriculture New Zealand Ltd
- Agrimm Biologicals Ltd
- AgVax Developments Ltd
- Agvet Consultants Ltd
- Alexander and Associates
- Animal Control Products Ltd
- Animal Health Advisory
- Animal Health Services Centre
- Animalz Napier Ltd
- Arthur Webster (New Zealand) Pty Ltd
- Aspiring Animal Services Ltd
- Auckland Area Health Board (formerly Auckland Hospital Board)
- Autogenous Vaccines
- Baker, Allan J
- Bioscience Corporation Ltd
- Biotechnology Division, DSIR
- Bishop Viard College
- Canesis Network Ltd
- Captec (NZ) Ltd
- Central Institute of Technology
- Chemeq Ltd
- Cooks Laboratories
- Coopers Animal Health New Zealand Ltd
- Crown Research Institutes Palmerston North Campus
- Crusader Meats NZ Ltd
- Department of Education
- Diverse Animal Holdings
- Ecology Division, DSIR
- Embrionics Ltd
- Equine Fertility Services Ltd
- Ethical Agents Ltd
- Falkirk Scientific Foundation Ltd
- Feral R & D Ltd
- Fonterra Innovation
- Geneco Ltd
- Get Real Productions
- Grasslands Division, DSIR
- Green Lane & National Women's Hospitals
- Health Waikato

- Hutt Hospital
- ICPbio Ltd
- Impian Technologies Ltd
- Institute of Environmental Science & Research Ltd
- Info-Brok
- InterAg
- Johnson & Johnson (New Zealand) Ltd
- Kelly Tarlton's Antarctic Encounter and Underwater World
- Kristin School
- Lakeland Vets Ltd
- Longburn Adventist College
- Lowe Walker Hawera Ltd
- Marlborough Regional Science & Technology Fair Committee
- McGuire, Paul (Calf Collection Services)
- Meat Industry Research Institute of New Zealand
- Medlab Hamilton
- Ministry of Forestry
- Mulvaney, Christopher John
- National College of Security Personnel and Technology
- Nelson Hospital
- Neuren Pharmaceuticals Ltd
- New Zealand Aluminium Smelters Ltd
- New Zealand Institute of Advanced Laparoscopic Surgery
- New Zealand Sheepac Ltd
- New Zealand Trade and Enterprise (formerly Industry New Zealand)
- New Zealand Water Management Ltd
- New Zealand Wildlife Rehabilitation Trust
- Newall, Michael Douglas
- Orana Park Wildlife Trust
- P A Biologicals NZ
- Palmerston North Campus, DSIR
- Palmerston North Hospital Board (later known as Manawatu-Wanganui Area Health Board)
- Parkway College
- Paxarms
- Photonz Corporation Ltd
- Plade Holdings Ltd
- PPL Therapeutics (NZ) Ltd
- Protemix Corporation Ltd
- Queen Margaret College
- Rhône-Poulenc (NZ) Ltd
- RisqA Veterinary Consulting
- Robbins, Lloyd
- Roche Products NZ Ltd
- Saint Mary's College
- Salmond Smith Biolab Ltd
- Samuel Marsden Collegiate School
- Scots College
- Shell Chemicals New Zealand Ltd

- Slacek, Brigitte
- Smith, Catherine H
- Smith Kline Beecham (New Zealand) Ltd (formerly Smith Kline & French NZ Ltd)
- South Auckland Health
- South Greta Farms Ltd
- Sovereign Feeds Ltd
- Stockguard Laboratories (NZ) Ltd
- Suta Export Ltd
- Tatua Co-operative Dairy Company Ltd
- Tauhara Furs Partnership
- The New Zealand King Salmon Company Ltd
- Tompkins, Daniel M
- Travenol Laboratories (New Zealand) Ltd (later known as Baxter Healthcare Ltd)
- Van Wijk, Niek
- Venous Supplies 1990 Ltd
- Veterinary Enterprises Ltd
- Waikato Science Teachers' Association
- WatPa Enterprises Ltd
- Wellington High School and Community Institute
- Wellington Polytechnic
- Woodland Goats Ltd
- Wrightson Breeding Services Ltd
- Xcluder Pest Proof Fencing Company Ltd
- Young's Animal Health (NZ) Ltd
- Zenith Technology Corporation Ltd

Appendix 3

Publications

Guides to the Animal Welfare Act 1999

- *Guide to the Animal Welfare Act 1999*, policy information paper no. 27
- *The Use of Animals in Research, Testing and Teaching – Users Guide to Part 6 of the Animal Welfare Act 1999*, policy information paper no. 33

These documents are available on MAF's website at <http://www.maf.govt.nz>

Annual Reports

- Report for the Period August 1984 – 30 June 1989
- Report for the Period 1 July 1989 – 31 December 1991
- Report for the Period 1 January 1992 – 31 December 1993
- 1994 Annual Report
- 1995 Annual Report
- 1996 Annual Report
- 1997 Annual Report
- 1998 Annual Report
- 1999 Annual Report
- 2000 Annual Report
- 2001 Annual Report
- 2002 Annual Report
- 2003 Annual Report
- 2004 Annual Report
- 2005 Annual Report
- 2006 Annual Report
- 2007 Annual Report
- 2008 Annual Report

Newsletters (NAEAC News)

- Issue 1 – August 1991
- Issue 2 – May 1992
- Issue 3 – August 1993
- Issue 4 – October 1994
- Issue 5 – March 1995
- Issue 6 – December 1995
- Issue 7 – May 1996
- Issue 8 – October 1996
- Issue 9 – April 1997
- Issue 10 – November 1997
- Issue 11 – June 1998
- Issue 12 – December 1998
- Issue 13 – July 1999

- Issue 14 – March 2000
- Issue 15 – September 2000
- Issue 16 – March 2001
- Issue 17 – January 2002
- Issue 18 – July 2002
- Issue 19 – May 2003
- Issue 20 – December 2003
- Issue 21 – August 2004
- Issue 22 – May 2005
- Issue 23 – December 2005
- Issue 24 – August 2006
- Issue 25 – January 2007
- Issue 26 – August 2007
- Issue 27 – January 2008
- Issue 28 – August 2008
- Issue 29 – December 2008

From 2009, the content of NAEAC News was merged with that of other publications and became *Welfare Pulse*.

NAEAC Guides

- *Good Practice Guide for the Use of Animals in Research, Testing and Teaching* (September 2002)
- *A Culture of Care: A Guide for People Working with Animals In Research, Testing and Teaching* (October 2002)
- *Guide to the Preparation of Codes of Ethical Conduct* (September 2006)
- *A Guide for Lay Members of Animal Ethics Committees* (March 2007)
- *Guidelines for the Welfare of Livestock from which Blood is Harvested for Commercial and Research Purposes* (March 2009)

NAEAC Occasional Papers

- 1 *Underreporting of the Three Rs deployment that occurs during the planning of protocols the precedes submission to animal ethics committees* (September 2008)
- 2 *Regulation of animal use in research, testing and teaching in New Zealand – the black, the white and the grey* (April 2009)
- 3 *Regulation of animal use in research, testing and teaching: Comparison of New Zealand and European legislation* (October 2009)
- 4 *Compliance monitoring: The University of Auckland approach* (October 2009)

Availability

These publications are available on the Internet at the following address:

<http://www.biosecurity.govt.nz/regs/animal-welfare/pubs/naeac>

or by contacting:

Animal Welfare Directorate
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PO Box 2526
Wellington 6140
New Zealand

Phone 0800 008333, fax 04 894 0747, email: animalwelfare@maf.govt.nz

Appendix 4

Accredited Reviewers

Reviewers Accredited Pursuant to Section 109 of the Animal Welfare Act 1999

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Appendix 5

Definitions from the Animal Welfare Act 1999

EXCERPT FROM SECTION 2(1)

“Animal” –

- (a) Means any live member of the animal kingdom that is–
 - (i) A mammal; or
 - (ii) A bird; or
 - (iii) A reptile; or
 - (iv) An amphibian; or
 - (v) A fish (bony or cartilaginous); or
 - (vi) Any octopus, squid, crab, lobster, or crayfish (including freshwater crayfish); or
 - (vii) Any other member of the animal kingdom which is declared from time to time by the Governor-General, by Order in Council, to be an animal for the purposes of this Act; and
- (b) Includes any mammalian foetus, or any avian or reptilian pre-hatched young, that is in the last half of its period of gestation or development; and
- (c) Includes any marsupial pouch young; but
- (d) Does not include–
 - (i) A human being; or
 - (ii) Except as provided in paragraph (b) or paragraph (c) of this definition, any animal in the pre-natal, pre-hatched, larval, or other such developmental stage:

3 DEFINITION OF “MANIPULATION”-

- (1) In this Act, unless the context otherwise requires, the term “manipulation”, in relation to an animal, means, subject to subsections (2) and (3), interfering with the normal physiological, behavioural, or anatomical integrity of the animal by deliberately–
 - (a) Subjecting it to a procedure which is unusual or abnormal when compared with that to which animals of that type would be subjected under normal management or practice and which involves–
 - (i) Exposing the animal to any parasite, micro-organism, drug, chemical, biological product, radiation, electrical stimulation, or environmental condition; or
 - (ii) Enforced activity, restraint, nutrition, or surgical intervention; or
 - (b) Depriving the animal of usual care;-and “manipulating” has a corresponding meaning.
- (2) The term defined by subsection (1) does not include–
 - (a) Any therapy or prophylaxis necessary or desirable for the welfare of an animal; or
 - (b) The killing of an animal by the owner or person in charge as the end point of research, testing, or teaching if the animal is killed in such a manner that the animal does not suffer unreasonable or unnecessary pain or distress; or
 - (c) The killing of an animal in order to undertake research, testing, or teaching on the dead animal or on

- prenatal or developmental tissue of the animal if the animal is killed in such a manner that the animal does not suffer unreasonable or unnecessary pain or distress; or
- (d) The hunting or killing of any animal in a wild state by a method that is not an experimental method; or
- (e) Any procedure that the Minister declares, under subsection (3), not to be a manipulation for the purposes of this Act.
- (3) The Minister may from time to time, after consultation with the National Animal Welfare Advisory Committee and the National Animal Ethics Advisory Committee, declare any procedure, by notice in the Gazette, not to be a manipulation for the purposes of this Act.
- (4) The Minister must, in deciding whether to publish a notice under subsection (3) in relation to a procedure, have regard to the following matters:
- (a) The nature of the procedure; and
 - (b) The effect that the performance of the procedure will or may have on an animal's welfare; and
 - (c) The purpose of the procedure; and
 - (d) The extent (if any) to which the procedure is established in New Zealand in relation to the production of animals or commercial products; and
 - (e) The likelihood of managing the procedure adequately by the use of codes of welfare or other instruments under this Act or any other Act; and
 - (f) The consultation conducted under subsection (3); and
 - (g) Any other matter considered relevant by the Minister.

5 DEFINITION OF “RESEARCH, TESTING, AND TEACHING”-

- (1) In this Act, unless the context otherwise requires, the term “research, testing, and teaching” means, subject to subsections (2) to (4),-
- (a) Any work (being investigative work or experimental work or diagnostic work or toxicity testing work or potency testing work) that involves the manipulation of any animal; or
 - (b) Any work that-
 - (i) Is carried out for the purpose of producing antisera or other biological products; and
 - (ii) Involves the manipulation of any animal; or
 - (c) Any teaching that involves the manipulation of any animal.
- (2) The term defined by subsection (1) does not include any manipulation that is carried out on any animal that is in the immediate care of a veterinarian, if-
- (a) The veterinarian believes on reasonable grounds that the manipulation will not cause the animal unreasonable or unnecessary pain or distress, or lasting harm; and
 - (b) The manipulation is-
 - (i) For clinical purposes in order to diagnose any disease in the animal or any associated animal; or
 - (ii) For clinical purposes in order to assess the effectiveness of a proposed treatment regime for the animal or any associated animal; or
 - (iii) For the purposes of assessing the characteristics of the animal with a view to maximising the productivity of the animal or any associated animal.
- (3) The term defined by subsection (1) does not include any manipulation of an animal-

- (a) Which is carried out with the principal objective of-
 - (i) Assisting the breeding, marking, capturing, translocation, or trapping of animals of that type; or
 - (ii) Weighing or taking measurements from the animal; or
 - (iii) Assessing the characteristics of animals of that type; and
 - (b) Which is a manipulation of an animal that-
 - (i) Is carried out routinely; or
 - (ii) Is a minor modification of a manipulation that is carried out routinely; and
 - (c) Which is used to fulfill responsibilities and functions under-
 - (i) The Conservation Act 1987; or
 - (ii) Any Act listed in the First Schedule of the Conservation Act 1987; or
 - (iii) Any other Act or regulations under which the Minister of Conservation or the Director-General of Conservation or the Department of Conservation has responsibilities or functions; or
 - (iv) The Fisheries Act 1996.
- (4) For the purposes of this section, an animal is in the immediate care of a veterinarian if the veterinarian-
- (a) Has accepted responsibility for the health and welfare of the animal; and
 - (b) Is providing the animal with direct and continuing care.
- (5) In the other sections of this Act (except section 57(a)(i)), -
- (a) The term “research” means any research work that comes within the term defined by subsection (1); and
 - (b) The term “testing” means any testing work that comes within the term defined by subsection (1); and
 - (c) The term “teaching” means any teaching that comes within the term defined by subsection (1).

Appendix 6

Animal Usage Report: Five-year summary of the number of animals used and the percentage that died or were euthanased (by species)

	2009		2008		2007		2006		2005	
	No used	% died or euthanased	No used	% died or euthanased	No used	% died or euthanased	No used	% died or euthanased	No used	% died or euthanased
Amphibia	2378	14	264	5	272	9	968	10	104	40
Birds	49 023	78	31 053	23	5 907	18	59 404	18	37 000	12
Cats	1 132	12	804	4	663	13	757	2	765	12
Cattle	24 763	3	69 564	1	30 030	2	41 748	2	28 656	1
Deer	5 967	3	2 951	6	4 242	12	8 062	2	2 020	–
Dogs	690	7	792	5	1 071	–	682	1	697	28
Fish	23 736	46	41 057	44	14 218	31	8 804	64	11 593	29
Goats	3 231	6	1 374	1	2 025	0	900	14	717	10
Guinea pigs	4 061	99	3 075	98	3 374	97	3 041	97	2 392	98
Horses/ donkeys	709	1	525	1	540	1	390	1	609	2
Marine mammals	651	0	1 535	0	82	–	156	–	1 870	–
Mice	90 982	91	87 154	98	94 714	86	59 936	82	67 699	98
Pigs	995	24	417	58	1 159	20	807	28	577	95
Possums	4 797	63	1 644	80	1 263	79	5 009	50	4 478	96
Rabbits	2 018	97	2 049	96	1 950	92	1 702	97	1 575	95
Rats	17 333	82	13 960	95	20 488	97	17 208	95	17 804	97
Reptiles	7 422	1	2 327	1	345	26	12 118	3	3 231	3
Sheep	45 991	9	78 093	4	62 657	5	94 532	8	79 883	4
Misc. species	11 232	13	2 882	13	1 667	22	2 265	18	1 544	31
Total no. used	297 111		341 520		246 667		318 489		263 214	
Yearly %		55%		40%		48%		31%		40%

Appendix 7

Animal Usage Report: Five-year summary of animal usage (by organisation type)

Group	Year	Rats, mice guinea pigs, rabbits	Sheep, cattle, goats	Other domestic animals	Birds	Fish	All other species	Total
Universities	2005	34 229	20 775	3 377	34 771	8 052	5 018	106 222
	2006	29 484	26 533	7 624	4 938	7 545	9 501	85 625
	2007	38 332	10 939	1 862	4 820	12 166	1 456	69 575
	2008	43 323	13 543	3 442	26 437	34 118	2 876	123 739
	2009	26 709	3 502	2 795	3 335	22 004	20 294	78 639
Commercial organisations	2005	39 436	59 021	682	2	–	153	99 294
	2006	32 617	48 346	1 121	26	–	272	82 382
	2007	41 593	45 265	1 407	142	–	261	88 668
	2008	47 551	97 601	723	3 728	–	27	149 630
	2009	62 351	41 188	757	77	–	317	104 690
Crown research institutes	2005	15 477	29 186	202	2 096	2 248	5 300	54 509
	2006	14 822	60 507	1 180	45 672	1 019	9 476	132 676
	2007	17 980	33 152	3 447	218	1 750	1 178	57 725
	2008	12 825	34 899	712	377	6 810	1 959	57 582
	2009	15 326	26 218	4 250	2 827	1 360	5 354	55 335
Polytechnics	2005	107	232	396	44	1 293	9	2 081
	2006	184	501	728	117	240	12	1 782
	2007	261	1 745	882	219	275	18	3 400
	2008	203	2 065	500	89	66	15	2 938
	2009	215	2 779	1 403	74	16	70	4 557
Government departments	2005	–	–	–	18	–	741	759
	2006	–	664	–	8 618	–	617	9 899
	2007	143	–	55	454	–	76	728
	2008	13	300	–	369	1	2 552	3 235
	2009	19	–	256	42 572	–	419	43 266
Other	2005	148	4	9	19	–	6	186
	2006	4 644	389	–	18	–	29	5 080
	2007	22 184	3 552	–	54	–	15	25 805
	2008	2 120	–	–	15	–	53	2 188
	2009	9 686	–	–	108	332	25	10 151
Schools	2005	73	38	2	50	–	–	163
	2006	136	240	45	15	–	609	1 045
	2007	33	59	22	–	27	625	766
	2008	203	623	112	38	62	1 170	2 208
	2009	88	298	32	30	24	1	473
TOTAL	2005	89 470	109 256	4 668	37 000	11 593	11 227	263 214
	2006	81 887	137 180	10 698	59 404	8 804	20 516	318 489
	2007	120 526	94 712	7 675	5 907	14 218	3 629	246 667
	2008	106 238	149 031	5 489	31 053	41 057	8 652	341 520
	2009	114 394	73 985	9 493	49 023	23 736	26 480	297 111

Appendix 8

'Purpose of Manipulation' Categories

Category	Description
Teaching	Animals used for teaching or instruction, at any level.
Species conservation	Work directed towards species conservation. The species to be conserved may or may not be directly involved, e.g. nutrition studies using more common species can benefit an endangered species.
Environmental management	Environmental management, including the control of animal pests and research into methods of reducing production of greenhouse gases.
Animal husbandry	Animal husbandry, including reproduction, nutrition, growth and production.
Basic biological research	Basic biological research.
Medical research	Research aimed at improving the health and welfare of humans, but not research on human subjects.
Veterinary research	Research aimed at improving the health and welfare of production and companion animals.
Testing	Animals used for public health testing or to ensure the safety, efficacy or quality of products to meet regulatory requirements for human or animal products, either in New Zealand or internationally.
Production of biological agents	Animals used for raising antibodies or for the supply of blood products.
Development of alternatives	Work aimed at developing methods to replace or reduce the use of live animals in research, testing and teaching.
Other	Manipulations for purposes other than those listed above.

Appendix 9

Summary of the impact grade allocated by species in 2009

Species	No impact	Little impact	Moderate impact	High impact	Very high impact	Total
Amphibians	1 403	975	–	–	–	2 378
Birds	1 257	47 346	420	–	–	49 023
Cats	344	712	37	–	39	1 132
Cattle	6 539	17 937	279	8	–	24 763
Deer	3 277	1 931	740	19	–	5 967
Dogs	422	233	35	–	–	690
Fish	5 419	17 333	550	399	35	23 736
Goats	31	3 200	–	–	–	3 231
Guinea pigs	368	939	48	1 624	1 082	4 061
Horses	322	381	–	6	–	709
Marine mammals	–	651	–	–	–	651
Mice	2 886	37 144	29 877	244	20 831	90 982
Pigs	–	938	–	10	47	995
Possums	2 073	1 045	1 190	382	107	4 797
Rabbits	74	1 827	117	–	–	2 018
Rats	2 268	9 676	4 716	643	30	17 333
Reptiles	32	7 147	243	–	–	7 422
Sheep	22 685	22 360	881	57	8	45 991
Misc. species	1 122	9 613	330	134	33	11 232
TOTAL	50 522	181 388	39 463	3 526	22 212	297 111

