



## ANIMAL WELFARE

National Animal Ethics Advisory Committee

# Annual Report 1 January to 31 December 2012

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

**NAEAC**  
National Animal Ethics Advisory Committee



# **National Animal Ethics Advisory Committee**

## **Mission Statement**

To provide independent, high quality advice and recommendations to the Minister for Primary Industries, the Director-General for Primary Industries and animal ethics committees on all matters relating to the use of animals in research, testing and teaching.

**National Animal Ethics Advisory Committee  
C/- Ministry for Primary Industries  
P O Box 2526  
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New Zealand**

**October 2013**

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## 1 From the Chair

My role as Chair of the National Animal Ethics Advisory Committee (NAEAC) is made so much easier by the quality of the contribution of both my fellow members and the staff at MPI Animal Welfare Standards. Their efforts are so important in ensuring NAEAC's effectiveness in overseeing the integrity of the regulatory system governing the use of animals in research, testing and teaching (RTT) in New Zealand, and I do thank them for their efforts during 2012.

Thanks particularly to Deputy Chair Dave Morgan, who has given sterling service to NAEAC. The contributions over six years of both Dave and Allison Dodds ended in October, with new members Terry Burrell and Bruce Warburton welcomed onto the committee at that time. We were sorry to lose Ian Buchanan, whose appointment as a Commissioner on the Environment Court meant he was unable to fulfil his NAEAC commitments.



NAEAC held the fifth of its biennial workshops for AEC members in November, organised in large part by Peter Larsen and Paula Lemow. Well attended and well received, these workshops are a major cornerstone in NAEAC's role of providing advice to and improving decision-making by animal ethics committees. The 2012 Three Rs award, sponsored by the Royal New Zealand SPCA, was presented during the workshop. NAEAC was disappointed that the institution whose researchers won the award chose not to be identified. The committee has decided that, in future, applications will be limited to those who are happy to have their work, and the award, publicised, as we see this as important for promoting humane research, underpinned by the concept of the Three Rs.

This report contains, as appendices, the Ministry for Primary Industries (MPI) statistics detailing animal use in RTT during 2012. There was a 7.6 percent decrease in the number of animals reported as used in RTT in 2012 (that is, 301 964 compared to 326 770 in 2011). The eagle-eyed amongst you may detect that the 2011 total given here differs from that published in the *2011 Annual Report*, where it was given as 327 674. The error resulted from some reporting mistakes made by a single institution which were discovered as their numbers for the 2012 statistics were being collated. While this year's overall numbers are down, the rolling three-year average was marginally up, reflecting the three-year reporting cycle.

Once again the emphasis on agricultural research is apparent with close to half of all reported animals being used in either veterinary or animal husbandry research, and production animals (cattle, sheep, deer, goats and pigs) making up 55.9 percent of the total numbers. In contrast, the United Kingdom figures for 2012 show that only two percent of research procedures were carried out on "other mammals", a category that includes all domestic and farm animals. The generally less invasive nature of New Zealand's agricultural research is reflected in the low numbers – 2.5 percent – that are euthanased following the work. Given NAEAC's focus on the Three Rs, it's pleasing to see the lowest number of animals since 2006 in the "high impact" or "very high impact" categories.

Once again, I must thank Linda Carsons and Paula Lemow from MPI Animal Welfare Standards, who contribute so much to the efficient and effective functioning of the committee.

Virginia Williams  
Chair

## 2 New Zealand Animal Welfare Infrastructure

### 2.1 The Animal Welfare Act 1999

The use of animals in RTT 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.

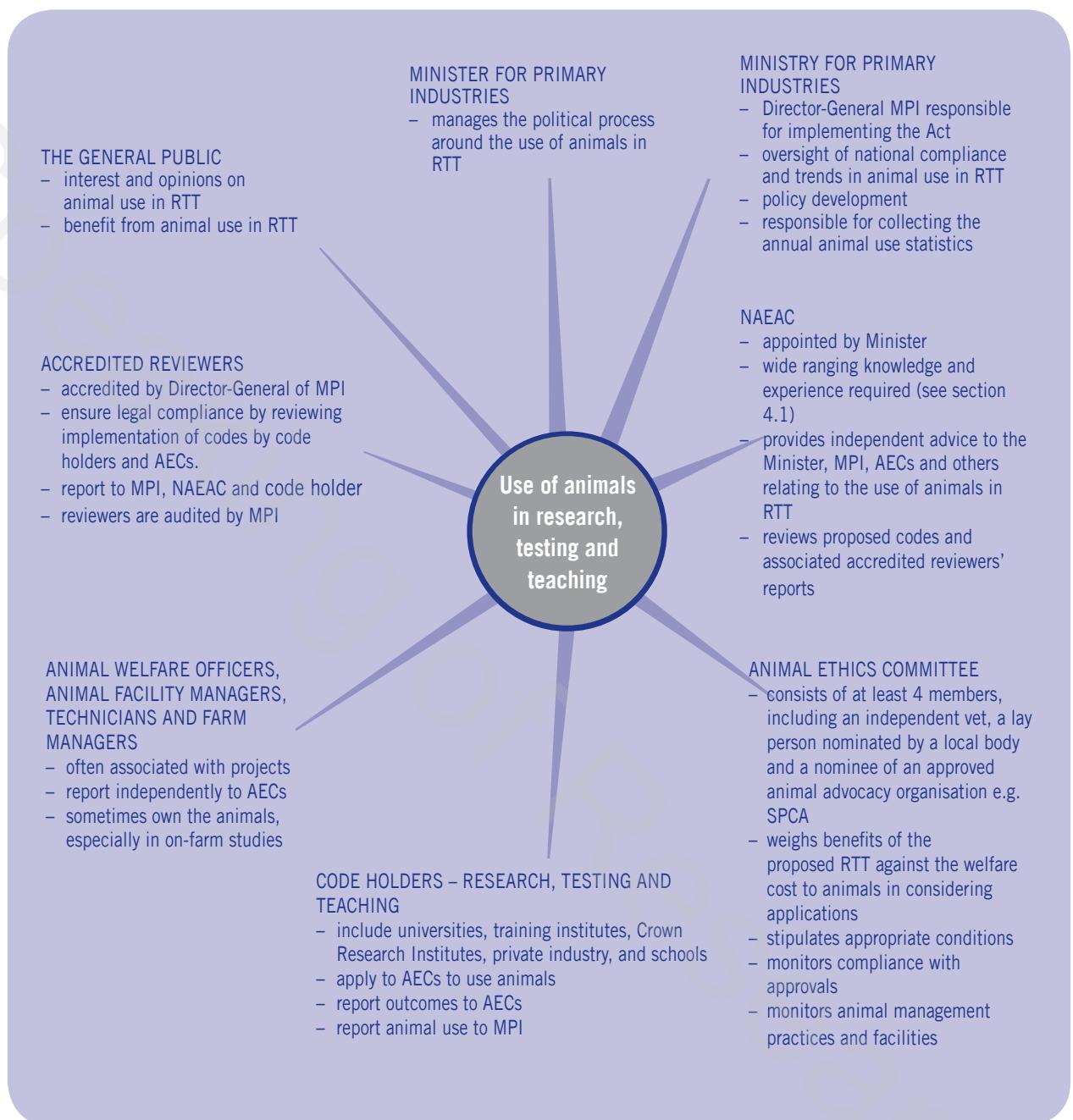
AECs are also responsible for monitoring compliance with the conditions of project approvals and the animal management practices and facilities of the institution. The Act requires that AECs have at least four members. Three of these must come from outside the organisation and include a veterinarian 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 two years of first obtaining approval of a code, and every five years thereafter (outlined in sections 105 to 108 of the Act). Moreover, the Minister for Primary Industries 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 for Primary Industries 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 the Ministry for Primary Industries (MPI) regularly (clause 9 of schedule 2 of the Animal Welfare Act).

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

## Use of animals in research, testing and teaching diagram

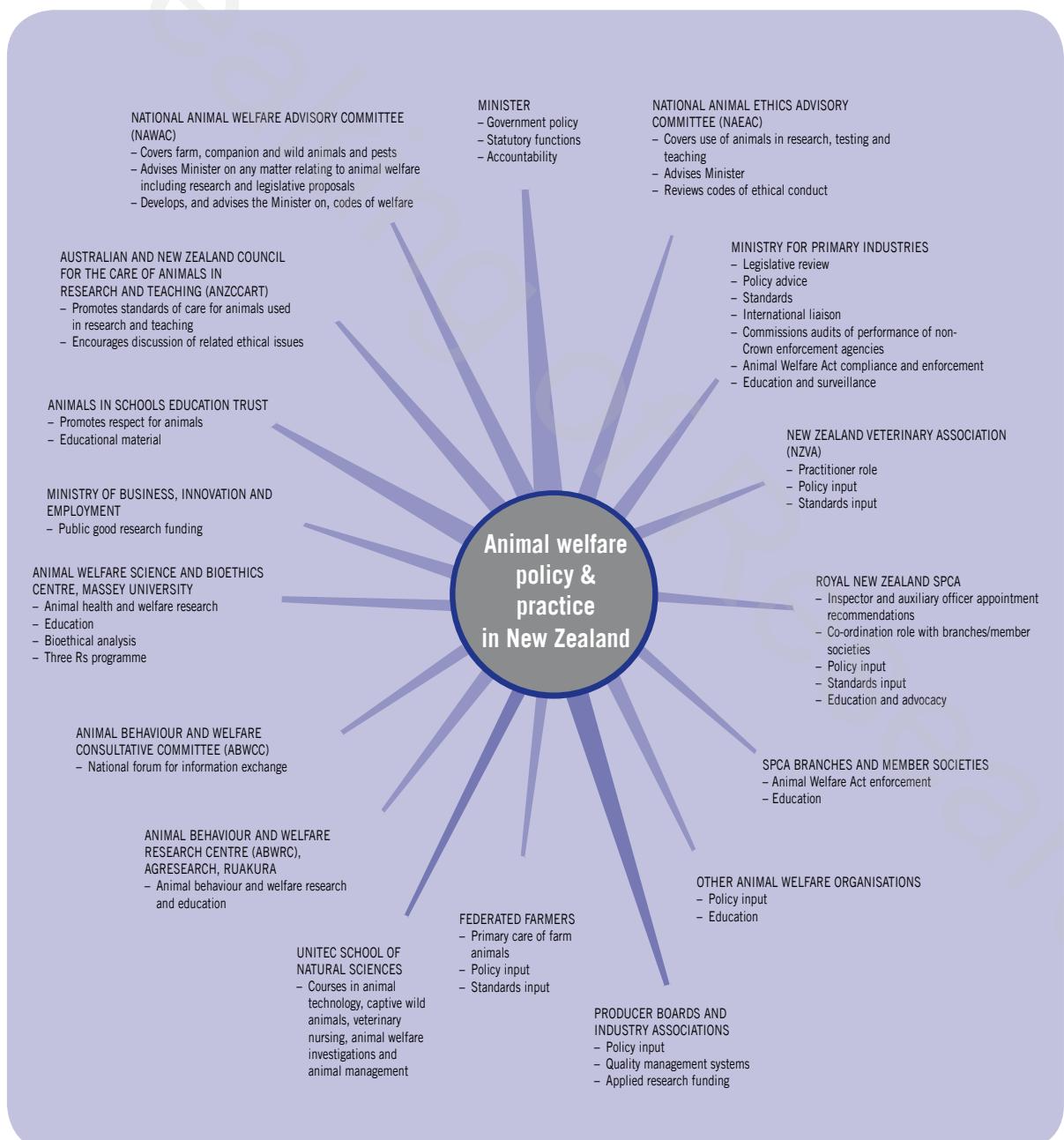


## 2.2 Legal Status of NAEAC

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 for Primary Industries 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 2012.

Members	Expiry of Appointment
<b>Dr Virginia M Williams</b> BVSc, MACVSc, Dip Prof Ethics, Animal Welfare Consultant (Independent Chairperson)	31.10.15
<b>Dr Karen Booth</b> BSc BVSc CertVR MACVSc, Manager Regulatory Affairs, Pfizer Animal Health (nominated by Agcarm Inc)	31.10.13
<b>Mr Ian M Buchanan</b> BSc (Hons), Company Director (nominated by Local Government New Zealand)	31.10.14
<b>Ms Therese (Terry) M Burrell</b> BSc(Hons), Dip Tchg, Learning Area Leader, Science, Onslow College (nominated by the Ministry of Education)	31.10.15
<b>Ms Allison L Dodds</b> MSc (Hons), Dip Tchg, Teacher in Charge of Biology, Animal Welfare Officer, Queens High School (nominated by the Ministry of Education)	31.10.12
<b>Dr Martin A Kennedy</b> BSc (Hons), PhD, Professor, Department of Pathology, University of Otago, Christchurch (nominated by the Health Research Council of New Zealand)	31.10.13
<b>Hon Robyn J Kippenberger</b> Dip Home Science, Dip Tchg, National Chief Executive, Royal New Zealand Society for the Prevention of Cruelty to Animals (nominated by RNZSPCA)	31.10.14
<b>Dr Peter D Larsen</b> BSc (Hons), PhD, Associate Professor, Department of Surgery and Anaesthesia, University of Otago, Wellington (nominated by the Royal Society of New Zealand)	31.10.15
<b>Dr David R Morgan</b> BSc (Hons), MSc, PhD, Scientist (nominated by Landcare Research New Zealand Ltd)	31.10.12
<b>Dr Justine H Stewart</b> BVSc, Technical Manager, Auckland Meat Processors	31.10.13
<b>Mr Bruce Warburton</b> MSc, Scientist (nominated by Landcare Research New Zealand Ltd)	31.10.15

Allison Dodds and David Morgan retired from the committee at the end of their terms and were replaced by Terry Burrell and Bruce Warburton respectively.

## 4.3 Secretariat

The Animal Welfare Team within MPI 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 MPI's Principal Adviser. Paula Lemow, the committee's secretary, is invaluable to the work of the committee.

## 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 Dave Morgan was elected to fulfil this role in 2012. Following the ending of his term in October, Dr Martin Kennedy agreed to fill the role until the legally required election at the first meeting of each year.

## 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 2012 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 2012.

Member	Fees paid during 2012 (gross)
V Williams	\$15 675.00
K Booth <sup>1</sup>	\$0.00
I Buchanan	\$3 000.00
T Burrell	\$1 200.00
A Dodds	\$3 600.00
M Kennedy	\$4 400.00
P Larsen	\$2 600.00
D Morgan <sup>2</sup>	\$2 600.00
J Stewart	\$3 800.00
B Warburton <sup>2</sup>	\$1 000.00

<sup>1</sup> Pfizer Animal Health (now Zoetis) 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.

<sup>2</sup> 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 2012, and held one teleconference.

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.

Member	23/02/10	21/05/10	12/08/10	25/11/10	17/02/11	19/05/11	12/09/11	27/10/11	7/02/12	9/05/12	14/08/12	16– 17/10/12	15/11/12
V Williams	•	•	•	•	•	•	•	•	•	•	•	•	•
I Buchanan	–	–	–	–	–	–	–	–	•	•	•	•	•
A Dodds	•	•	•	•	•	•	•	•	•	•	•	•	–
K Booth	–	–	–	–	–	–	•	x	•	•	x	•	•
T Burrell	–	–	–	–	–	–	–	–	–	–	–	–	•
R Dempster	–	–	–	•	–	–	–	–	–	–	–	–	–
M Kennedy	x	•	•	•	•	x	•	•	•	•	•	•	•
R Kippenberger	–	–	–	–	–	–	–	–	•	•	•	x	•
P Larsen	•	•	•	•	•	x	•	x	•	•	x	•	•
R Marchant	x	•	•	•	–	–	–	–	–	–	–	–	–
P Mason	•	•	x	•	•	•	x	•	–	–	–	–	–
D Morgan	•	•	•	•	•	•	•	•	•	•	•	•	–
D Peart	•	•	•	•	•	•	x	•	–	–	–	–	–
J Stewart	•	•	•	•	•	•	•	x	•	•	•	•	•
B Warburton	–	–	–	–	–	–	–	–	–	–	–	–	•

• Present, x Absent, – Not applicable

### 4.6.2 Strategic and operational plans

The committee's strategic plan is reviewed every year. Operational plans are developed each year based on the strategic plan. Progress against the 2012 operational plan was reviewed at each quarterly meeting.

### 4.6.3 Performance review

The committee carries out an internal performance review at the end of each year, providing members with an opportunity to reflect on the way the committee has operated over the previous 12 months. In this, as in other reviews, the committee expresses its appreciation for the excellent support it receives from the MPI Animal Welfare Standards staff. Two areas were noted for further focus:

- *Support and promotion of acceptance and implementation of validated alternatives to animal-based regulatory testing.* The committee is aware that the Agricultural Compounds and Veterinary Medicines (ACVM) Group has been carrying out a review of the requirements around regulatory

testing, and that this review has carried over into 2013. The committee plans a mini-tutorial with the ACVM Group on this topic as soon as the review is complete.

- *More proactive work towards improving AEC outcomes.* The committee agreed that members would actively seek to engage more with AECs, including attending AEC meetings as appropriate.

#### **4.6.4 Annual reports**

Since 2000, NAEAC has been required by law to provide the Minister for Primary Industries with an annual report. In practice, the committee had been doing so for many years, beginning with a report that covered the years 1989 to 1991. A list of these reports and other relevant publications can be found in Appendix 3.

#### **4.6.5 Policy review**

NAEAC completed a review of its policies in 2011, and will review them on a regular basis, but at least every five years. A list of current policies can be found in Appendix 4.

#### **4.6.6 Conferences attended**

NAEAC members, and members of NAEAC's secretariat and support staff, attended – and in many cases gave presentations at – the following conferences and meetings in 2012:

- RSPCA Australia Scientific Seminar, Canberra, February.
- Australian Veterinary Association Conference, Canberra, May.
- ANZCCART conference, '*Thinking Outside the Cage – a different point of view*', Perth, Australia, July.
- International Society for Applied Ethology Australasia/Africa regional meeting, Melbourne, October.
- Australasian Wildlife Management Conference, Adelaide, November.
- 3rd OIE Global Animal Welfare Conference, Kuala Lumpur, November.
- National Animal Ethics Advisory Committee Workshop for animal ethics committee members, Wellington, November.

## 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 MPI.

### 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 MPI, 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 the parties concerned to reach an agreement and for MPI to be notified of the arrangement, in writing, before any manipulations take place. Termination of the arrangement should also be notified to MPI. Such arrangements, or terminations thereof, are not published in the *Gazette*.

In addition, while major amendments to codes must be approved by MPI, code holders may make minor amendments. However, MPI 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 2012

The table below outlines the applications processed and notifications made during 2011 and 2012.

	2012	2011
Approval of new code	8	2
Notification of arrangement to use existing code	28	11
Approval of amendments to code	2	0
Notification of minor amendments to code	1	3
Termination of notified arrangement to use existing code	7	1
Code suspended at request of code holder	1	0
Code revoked	1	0
Code expired and not renewed	0	0
Arrangement to use existing code lapsed	1	1

Code holders wishing to apply for a new code, and those code holders with codes approved in 2007, had mandatory independent reviews completed during 2012 (see section 6.2 for more detail).

During 2012, eight institutions had their new codes approved following successful reviews. Twenty-eight organisations made arrangements to utilise existing codes and seven organisations terminated existing arrangements. Organisations that utilise existing codes that expire have 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 2011 and 2012.

Number of:	2012	2011
organisations using an approved code	114	115
approvals in force <sup>1</sup>	117	118
organisations with a code <sup>2</sup>	29	30
animal ethics committees established <sup>3</sup>	33	34
organisations using another organisation's AEC	85	85

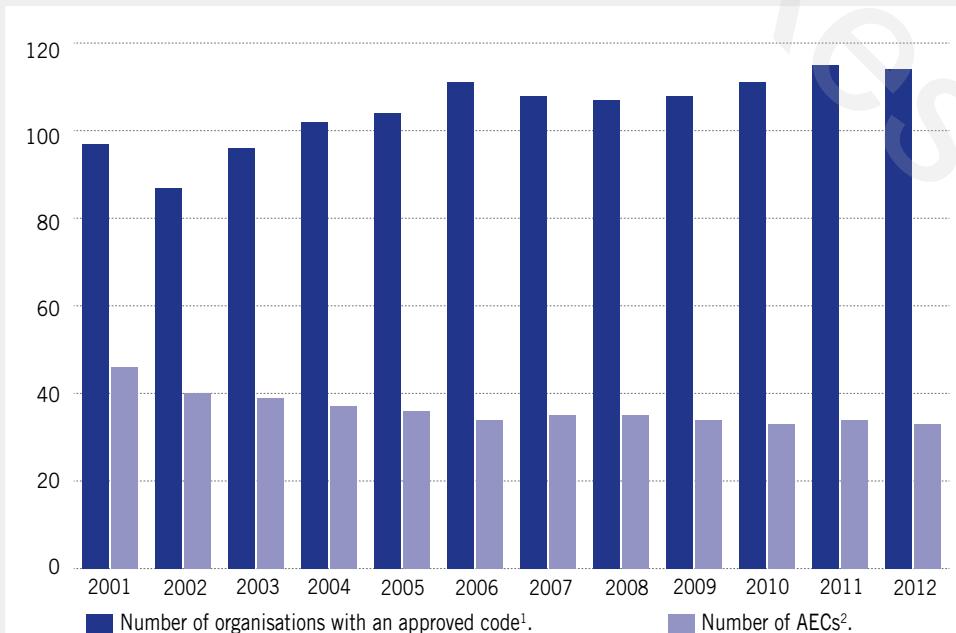
<sup>1</sup> One organisation has four approvals in force as it uses a different AEC for work in different locations.

<sup>2</sup> One organisation's code has been suspended at the request of the code holder.

<sup>3</sup> Two organisations each have three animal ethics committees to facilitate work carried out at more than one campus/location.

As shown graphically below, while the number of organisations with a approved code has steadily risen, the number of AECs has gradually fallen.

**Number of codes and AECs**



<sup>1</sup> Some organisations may have more than one approval.

<sup>2</sup> 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 2012 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 MPI. 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 hominids<sup>1</sup> for the purposes of RTT unless it is carried out with the approval of the Director-General of MPI 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 RTT 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 2012.

### 5.4.2 Research or testing in the national interest

The Minister for Primary Industries 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.

<sup>1</sup> "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

It is NAEAC's policy to hold one meeting a year outside Wellington, enabling the committee to meet with AEC members in regional areas. In 2012, the committee held its May meeting in Timaru, and visited South Pacific Sera's farm, where horses, cattle, sheep and goats are bled to produce top quality donor animal blood, serum and protein products for use in therapeutic, cell culture, microbiology and immunology applications.

#### 6.1.2 AEC Newsletters

NAEAC sends occasional newsletters to AECs from the NAEAC Chair as a means of maintaining contact with the committees, giving them news from NAEAC meetings as well as the committee's responses to queries from AECs on various issues for which clarification is sought. Three newsletters were sent out during 2012.

#### 6.1.3 Welfare Pulse

The MPI publication *Welfare Pulse* was started in 2009, successfully combining a number of smaller existing publications, including *NAEAC News*, and extending the content to ensure all stakeholders are kept informed of key domestic and international animal welfare issues, developments and trends. It is now produced electronically and is available at <http://www.biosecurity.govt.nz/regs/animal-welfare/pubs/welfare-pulse>

Each issue contains items pertaining to NAEAC and RTT activities, and their inclusion in a general welfare magazine ensures a wider audience for information on the use of animals in science.

Three issues of *Welfare Pulse* were produced in 2012; issue 10 in March, issue 11 in June and issue 12 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 who may not have access to scientific publications. This is achieved by the publication of 'occasional papers'. Two new papers were printed in 2012, numbers 8 and 9.

The following papers have been published:

- 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) 2008, reprinted with permission from the authors and the organisers of the 6<sup>th</sup> World Congress of Alternatives and Animal Use in 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) 2009.
- 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) 2009.
- Occasional Paper No. 4 – *Compliance monitoring: The University of Auckland approach* (J Stewart) 2009.

- Occasional Paper No. 5 – *Monitoring methods for animal ethics committees* (D Morgan). This had its origins in a paper presented to ANZCCART's 2009 conference in Australia.
- Occasional Paper No. 6 – *Planning for refinement and reduction* (D Fry, RG Das, R Preziosi and M Hudson) 2011, reprinted with permission from the authors and organisers of the 7<sup>th</sup> World Congress on Alternatives and Animal Use in Life Sciences, Rome 2009.
- Occasional Paper No. 7 – *Avoiding duplication of research involving animals* (D Morgan) 2011.
- Occasional Paper No. 8 – *Research on Vertebrate Pesticides and Traps: Do Wild Animals Benefit?* (B Warburton and C O'Connor) August 2012.
- Occasional Paper No. 9 – *Ensuring regulatory compliance in the use of animals in science in New Zealand – the review process* (V Williams and L Carsons) August 2012, reprinted with permission from the authors and organisers of the 8<sup>th</sup> World Congress on Alternatives and Animal Use in Life Sciences, Montreal 2012.

The occasional papers are available from the MPI website: <http://www.biosecurity.govt.nz/regs/animal-welfare/naeac/occasional-paper>.

### **6.1.5 AEC Workshop**

NAEAC held the fifth of its biennial workshops in November. The committee sees these events as the most valuable of its activities in terms of supporting the work of AECs and individual AEC members. The format of the workshop, including a number of different breakout sessions, allowed for discussion around areas of difficulty, exemplified in 2012 by sessions on dealing with and learning from events that result in negative impacts on animals, and on issues in study design.

### **6.1.6 Reference material for code holders and AECs**

The resource package of published material collated by NAEAC for new AEC members is reviewed and updated annually.

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 Papers;
- Animal Use Statistics – Guidance for Completing Statistical Returns;
- Animal Research Benefits Us – And 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;
- *Animals and Society* (Royal Society of New Zealand Beta publication);
- *NAEAC annual report*.

## 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 MPI 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 stood at six during 2012 (see Appendix 5). Because there were very few reviews during 2011, the teleconference, which is usually held early the following year and includes NAEAC members, MPI staff and independent reviewers and which aims to identify any points arising from reviews in the previous year, was not held in 2012.

During 2012, eight expiry reviews were carried out. Two organisations had amendments to their codes approved after consultation with NAEAC and one organisation notified a minor amendment to its code. Both NAEAC and the Director-General of MPI 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 MPI'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 Activities

### 7.1 NAEAC's commitment to the Three Rs

The principles of the Three Rs i.e. the reduction, refinement and replacement of the use of animals in RTT, 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 MPI 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 7.1).

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

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

### 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.

The 2012 award, sponsored by the Royal New Zealand SPCA, was presented to three researchers from an institution which chose not to be identified. Because both NAEAC and award sponsors the SPCA see the publicising of this award as an important part of promoting the Three Rs, future applicants will be limited to those who are happy to have their commendable efforts to minimise the animal welfare impact of their research publicised.

### 7.3 NAEAC AEC Service Awards

AECs can nominate committee members for NAEAC AEC Service Awards in recognition of meritorious service for at least five years. NAEAC received no nominations for these awards in 2012.

## 7.4 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. Towards the end of 2012, the committee began a review of its priorities, with the focus being widened to include research into how AECs assess protocols, with an intended outcome of assisting AECs to make good decisions.

## 7.5 Review of the Animal Welfare Act

NAEAC has continued to work closely with MPI on amendments to the Animal Welfare Act, currently under review. Members participated in workshops held by MPI around the country, and the committee provided a substantial submission to the MPI discussion document *Animal Welfare Matters* on proposals for an animal welfare strategy for New Zealand and amendments to the Animal Welfare Act.

## 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 work. 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 MPI 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 MPI Communications staff on opportunities to increase public awareness of Part 6 of the Animal Welfare Act. During 2012, in recognition of the growing importance of electronic media as a means of communicating information, NAEAC created a Wikipedia page describing the regulatory system governing the use of animals in RTT in New Zealand (See [http://en.wikipedia.org/wiki/Regulation\\_of\\_animal\\_research\\_in\\_New\\_Zealand](http://en.wikipedia.org/wiki/Regulation_of_animal_research_in_New_Zealand)).

## 7.7 Mini-tutorials

In order to keep members up to date with relevant issues and to ensure good committee processes, NAEAC includes mini-tutorials at meetings whenever time permits. During 2012, topics included:

- MAF's strategy for 2030: an overview of the strategy to grow and protect New Zealand (Julie Collins, MPI);
- New and emerging technologies (Martin Kennedy, NAEAC member);
- Challenges for the future: a personal perspective (Mark Fisher, MPI).

## 7.8 Liaison with Other Bodies

### 7.8.1 National Animal Welfare Advisory Committee

NAEAC maintains a close association with the activities of the NAWAC. NAEAC's chairperson, being an *ex officio* member of NAWAC, facilitates this inter-committee liaison.

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

NAEAC continues to work closely with 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. NAEAC and ANZCCART held a joint meeting in August 2012.

## Appendix 1

### Organisations with an Approved Code of Ethical Conduct or with Notified Arrangements to Use an Approved Code (As at 31 December 2012)

\*Use another organisation's animal ethics committee

*Abacus Biotech Ltd P O Box 5585 DUNEDIN 9058	*Ancrum Consultancies 134 Wild Road RD 5 CHRISTCHURCH 7675	Auckland Zoological Park Private Bag Grey Lynn AUCKLAND 1245
AgResearch Ltd (3 AECs) Ruakura Research Centre Private Bag 3115 Waikato Mail Centre HAMILTON 3240	*Anderson, Peter V A The Vet Centre Marlborough Ltd 7 Redwood Street BLENHEIM 7201	Bay of Plenty Polytechnic Private Bag 12001 TAURANGA 3143
*AgriHealth NZ Ltd PO Box 46135 Herne Bay AUCKLAND 1147	*Androgenix Ltd University of Auckland Private Bag 92019 Victoria Street West AUCKLAND 1142	*Bayer New Zealand Ltd P O Box 2825 Shortland Street AUCKLAND 1140
*AgriScience Consulting 28/7 Knox Street HAMILTON 3204	*Animal Breeding Services (2007) Ltd 3680 State Highway 3 RD 2 HAMILTON 3282	*Biocell Corporation Ltd PO Box 23610 Hunters Corner AUCKLAND 2155
Agrivet Services Ltd PO Box 8734 HAVELOCK NORTH 4157	*Animal Health Research Ltd PO Box 39491 Howick AUCKLAND 2145	*Caledonian Holdings Ltd PO Box 82 TAKANINI 2245
*Agvet NZ Ltd 702/9 Hopetoun Street Freemans Bay AUCKLAND 1011	*Aoraki Polytechnic Private Bag 902 TIMARU 7940	*Carne Technologies Ltd PO Box 740 CAMBRIDGE 3450
*Airway Ltd 21A Ranui Road Remuera AUCKLAND 1050	*Argenta Manufacturing Ltd P O Box 75340 Manurewa AUCKLAND 2243	*Cawthon Institute Private Bag 2 Nelson Mail Centre NELSON 7042
Alleva Animal Health Ltd PO Box 34032 Birkenhead AUCKLAND 0746	*AsureQuality NZ Ltd Private Bag 14946 Panmure AUCKLAND 1741	Christchurch Polytechnic Institute of Technology P O Box 540 CHRISTCHURCH 8140
Ancare Scientific Ltd P O Box 36240 Northcote AUCKLAND 0748	*Auckland University of Technology Private Bag 92006 Victoria Street West AUCKLAND 1142	*Cognosco, Anexa Animal Health P O Box 21 MORRINSVILLE 3340

*Connovation Ltd PO Box 58613 Botany AUCKLAND 2163	*Elanco Animal Health PO Box 259354 Botany AUCKLAND 2163	*Kahne Ltd 55 Shortland Street Auckland Central AUCKLAND 1010
*Cook, Trevor George Totally Vets Ltd 25 Manchester Street FEILDING 4702	*ES Plastics Ltd PO Box 5682 Frankton HAMILTON 3242	*Karori Sanctuary Trust P O Box 9267 Marion Square WELLINGTON 6141
*Cropmark Seeds Ltd PO Box 16574 Hornby CHRISTCHURCH 8441	Estendart Ltd Massey University Private Bag 11222 Manawatu Mail Centre PALMERSTON NORTH 4442	*Kotare Bioethics Ltd 9B Atua Street Johnsonville WELLINGTON 6037
*CRV Ltd P O Box 176 Waikato Mail Centre HAMILTON 3240	*FIL (New Zealand) Ltd PO Box 4144 Mt Maunganui South MT MAUNGANUI 3149	Landcare Research NZ Ltd P O Box 40 LINCOLN 7640
*DairyNZ Ltd Private Bag 3221 Waikato Mail Centre HAMILTON 3240	*Grace, Neville 26Williams Road RD 4 PALMERSTON NORTH 4474	*Lawrence, David 374 Livingstone Road RD 1 WINTON 9781
*Dairy Production Systems Ltd P O Box 24132 Abels HAMILTON 3253	*Gribbles Veterinary (Hamilton) PO Box 195 Waikato Mail Centre HAMILTON 3240	*Life Technologies NZ Ltd P O Box 12502 Penrose AUCKLAND 1642
*Deer Improvement Ltd 270 Ardlussa Road RD 6 GORE 9776	*Hillcrest High School P O Box 11020 Hillcrest HAMILTON 3251	Lincoln University P O Box 84 Lincoln University LINCOLN 7647
Department of Conservation P O Box 10420 The Terrace WELLINGTON 6143	*ImmunoEthical Associates (NZ) Ltd 4 Marshs Road Islington CHRISTCHURCH 8042	*Lind, Jeremy J JL Vets Ltd 3/88 Grey Street PALMERSTON NORTH 4410
*Duijs NZ Ltd P O Box 959 Waikato Mail Centre HAMILTON 3240	*Institute of Environmental Science and Research Ltd P O Box 29181 Fendalton CHRISTCHURCH 8540	*Livestock Improvement Corporation Ltd Private Bag 3016 Waikato Mail Centre HAMILTON 3240
Eastern Institute of Technology Private Bag 1201 Hawkes Bay Mail Centre NAPIER 4142	*Jurox Pty Ltd 85 Gardiner Road Rutherford NSW 2320 AUSTRALIA	Living Cell Technologies NZ Ltd P O Box 23566 Hunters Corner AUCKLAND 2155
		*LWT Animal Nutrition Ltd PO Box 119 FEILDING 4740

*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) P O Box 8094 Hokowhitu PALMERSTON NORTH 4446	*PGG Wrightson Seeds P O Box 939 CHRISTCHURCH 8140
Massey University Private Bag 11222 Manawatu Mail Centre PALMERSTON NORTH 4442	*Novartis New Zealand Ltd Private Bag 65904 Mairangi Bay AUCKLAND 0754	PharmVet Solutions P O Box 78037 Grey Lynn AUCKLAND 1245
*Merial NZ Ltd P O Box 76211 Manukau City AUCKLAND 2241	*Oamaru Veterinary Centre 311 Thames Street OAMARU 7910	*Quantec Ltd PO Box 9466 Waikato Mail Centre HAMILTON 3240
*MetriKlenz Ltd PO Box 2 WINTON 9741	*On-Farm Research Ltd P O Box 1142 HASTINGS 4156	*Rotorua District Veterinary Club P O Box 340 ROTORUA 3040
*MPI Investigation and Diagnostic Centre P O Box 40742 UPPER HUTT 5140	*Otago Polytechnic Private Bag 1910 DUNEDIN 9054	*SCEC Pty Ltd PO Box 211 Northbridge NSW 1560 AUSTRALIA
National Institute of Water & Atmospheric Research Ltd P O Box 8602 Riccarton CHRISTCHURCH 8440	*Parnell Corporate Services Pty Ltd 4/476 Gardeners Road Alexandria NSW 2015 AUSTRALIA	Schering-Plough Animal Health Ltd Private Bag 908 UPPER HUTT 5140
Nelson Marlborough Institute of Technology Private Bag 19 Nelson Mail Centre NELSON 7042	*Pest Control Research Ltd P O Box 7223 Sydenham CHRISTCHURCH 8240	*SciLactis Ltd Waikato Innovation Park Ruakura Road HAMILTON 3240
New Zealand Association of Science Educators PO Box 10122 The Terrace WELLINGTON 6143	*Pest-Tech Ltd 233 Branch Drain Road RD LEESTON 7682	*Silver Fern Farms Ltd PO Box 940 HASTINGS 4156
*New Zealand Forest Research Institute Ltd P O Box 3020 Rotorua Mail Centre ROTORUA 3046	*Pfizer Pty Ltd 14 Normanby Road Mt Eden AUCKLAND 1024	South Pacific Sera Ltd P O Box 2117 TIMARU 7941
		Southern Institute of Technology Private Bag 90114 INVERCARGILL 9840

*Stemvet New Zealand Ltd 25 Karewa Parade Papamoa Beach PAPAMOA 3188	University of Otago (3 AECs) P O Box 913 DUNEDIN 9054	*Virbac New Zealand Ltd 30 Stonedon Drive East Tamaki AUCKLAND 2013
*Synlait Milk Ltd 1028 Heslerton Road RD 13 RAKAIA 7783	University of Waikato Private Bag 3105 Waikato Mail Centre HAMILTON 3240	Waikato Institute of Technology Private Bag 3036 Waikato Mail Centre HAMILTON 3240
*The New Zealand Merino Company Ltd PO Box 25160 Victoria Street CHRISTCHURCH 8144	Valley Animal Research Centre <sup>1</sup> PO Box 2648 Stortford Lodge HASTINGS 4153	*Wakefield Gastroenterology Research Trust Private Bag 7909 Newtown WELLINGTON 6242
Thermo Fisher Scientific Inc P O Box 658 Seventh Avenue TAURANGA 3140	*Vet Nurse Plus PO Box 217106 Botany Junction AUCKLAND 2164	*Wanganui Veterinary Services Ltd PO Box 911 Wanganui Mail Centre WANGANUI 4540
*Towers Consulting 27 Mansel Avenue Hillcrest HAMILTON 3216	*Vet Resource Ltd 316 Pokuru Road RD 5 TE AWAMUTU 3875	*Wellington Institute of Technology Private Bag 39803 Wellington Mail Centre LOWER HUTT 5045
*Trinity Bioactives Ltd PO Box 29015 Ngaio WELLINGTON 6443	*Veterinary Enterprises Group PO Box 83 TE AWAMUTU 3840	*Veterinary Health Research Pty Ltd PO Box 9466 Waikato Mail Centre HAMILTON 3240
*Unitec Institute of Technology Private Bag 92025 Victoria Street West AUCKLAND 1142	*VetSouth Ltd P O Box 12 WINTON 9741	*ViaLactia BioSciences Ltd PO Box 109185 Newmarket AUCKLAND 1149
*Universal College of Learning Private Bag 11022 Manawatu Mail Centre PALMERSTON NORTH 4442	Victoria University of Wellington P O Box 600 WELLINGTON 6140	Victoria University of Wellington P O Box 600 WELLINGTON 6140
University of Auckland Private Bag 92019 Victoria Street West AUCKLAND 1142		
University of Canterbury Private Bag 4800 CHRISTCHURCH 8140		

<sup>1</sup> Code suspended at request of code holder.

## Appendix 2

### Codes of Ethical Conduct Revoked and Notified Arrangements Terminated

(As at 31 December 2012)

Agri-Feeds Ltd	Department of Education
Agriculture New Zealand Ltd	Diverse Animal Holdings
Agrimm Biologicals Ltd	Ecology Division, DSIR
AgVax Developments Ltd	Embrionics Ltd
Agvet Consultants Ltd	Equine Fertility Services Ltd
Alexander and Associates	Ethical Agents Ltd
AM <sup>2</sup> and Associates	Falkirk Scientific Foundation Ltd
Animal Control Products Ltd	Feral R & D Ltd
Animal Health Advisory	Fonterra Innovation
Animal Health Services Centre	Fort Dodge NZ Ltd
Animalz Napier Ltd	Four Rings Enterprises Ltd
Arthur Webster (New Zealand) Pty Ltd	Geneco Ltd
Aspiring Animal Services Ltd	Genesis Research and Development Corporation Ltd
Auckland Area Health Board (formerly Auckland Hospital Board)	Get Real Productions
Autogenous Vaccines	Grasslands Division, DSIR
Baker, Allan J	Green Lane & National Women's Hospitals
Baldock, Anne K	Health Waikato
BioLogic Scientific Consulting Ltd	Hutt Hospital
Bioscience Corporation Ltd	ICPbio Ltd
Biotechnology Division, DSIR	Impian Technologies Ltd
Bishop Viard College	Innate Therapeutics Ltd
Bomac Research Ltd	Info-Brok
Canesis Network Ltd	InterAg
Captec (NZ) Ltd	Intervet NZ Ltd
Central Institute of Technology	IVP International New Zealand Ltd
Chemeq Ltd	Johnson & Johnson (New Zealand) Ltd
Cooks Laboratories	Kelly Tarlton's Antarctic Encounter and Underwater World
Coopers Animal Health New Zealand Ltd	KODE Biotech Ltd
Crown Research Institutes Palmerston North Campus	Kristin School
Crusader Meats NZ Ltd	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  
Pharma Pacifica  
Photonz Corporation Ltd  
Plade Holdings Ltd  
PPL Therapeutics (NZ) Ltd  
Protomix 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  
Tegel Foods Ltd  
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  
Ward, Christopher G  
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 MPI's website at <http://www.mpi.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
- 2009 Annual Report
- 2010 Annual Report
- 2011 Annual Report

#### Newsletters (NAEAC News)

Twenty-nine issues of *NAEAC News* were published between August 1991 and 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 (June 2010).
- 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 (February 2012).
- 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).
5. Monitoring methods for animal ethics committees (October 2010).
6. Planning for refinement and reduction (January 2011).
7. Avoiding duplication of research involving animals (March 2011).
8. Research on Vertebrate Pesticides and Traps: Do Wild Animals Benefit? (August 2012).
9. Ensuring regulatory compliance in the use of animals in science in New Zealand – the review process (August 2012) .

### **Availability**

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

<http://www.biosecurity.govt.nz/regs/animal-welfare/pubs/animals-used-in-research>

or by contacting:

Animal Welfare  
Ministry for Primary Industries  
PO Box 2526  
Wellington 6140  
New Zealand

Phone **0800 00 83 33** or email: [animalwelfare@mpi.govt.nz](mailto:animalwelfare@mpi.govt.nz)

## Appendix 4

### NAEAC Policies and Guidelines

- Guidelines for animal ethics committees on adequate monitoring
- Guidelines for avoiding needless duplication of animal use in research
- Guidelines on application templates used by animal ethics committees
- Site visit guidelines
- Commercial cloning
- Conflict of interest
- Interpretation of 'scientific community' in relation to appointment of lay members
- Killing as a manipulation as it relates to Part 6 of the Animal Welfare Act
- Providing assistance to new animal ethics committees
- Production of genetically-modified animals
- Which animal ethics committee should assume the approval role?

## Appendix 5

### Accredited Reviewers

(Pursuant to section 109 of the Animal Welfare Act 1999)

**Dr Wendy R COOK**  
AsureQuality Ltd  
Private Bag 3080  
Waikato Mail Centre  
HAMILTON 3240  
Phone: 07-8502825  
Fax: 07-8502801  
Email: [wendy.cook@asurequality.com](mailto:wendy.cook@asurequality.com)

**Dr David R MORGAN**  
Landcare Research NZ Ltd  
PO Box 40  
LINCOLN 7640  
Phone: 03-3219750  
Fax: 03-3252418  
Email: [morgand@landcareresearch.co.nz](mailto:morgand@landcareresearch.co.nz)

**Dr Michael D GRANT**  
AsureQuality Ltd  
PO Box 307  
PUKEKOHE 2340  
Phone: 09-2371801  
Fax: 09-2383757  
Email: [michael.grant@asurequality.com](mailto:michael.grant@asurequality.com)

**Dr Keith D PATERSON**  
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24 Plateau Heights  
MOUNT MAUNGANUI 3116  
Phone: 07-5752635  
Email: [keith.paterson@asurequality.com](mailto:keith.paterson@asurequality.com)

**Dr G Lester LAUGHTON**  
AsureQuality Ltd  
PO Box 644  
INVERCARGILL 9840  
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Fax: 03-2146760  
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**Dr Alan B MACLEOD**  
72 Evans Street  
Opoho  
DUNEDIN 9010  
Phone: 022 130 1273  
Email: [alanbmacleod@yahoo.com](mailto:alanbmacleod@yahoo.com)

## Appendix 6

### 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 prenatal, 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 7

### Ministry for Primary Industries Animal Use 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 MPI by 28 February each year. In addition, the regulations empower the Director-General of MPI or any inspector appointed under the Animal Welfare Act 1999 to obtain copies of records or details from them at any time. The regulations provide penalties for non-compliance, including late submission of returns or supplying false or misleading figures.

Records of the number of animals used in long-term projects are not reported annually to MPI 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 MPI.

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

**N.B. The 2011 total noted in this report (326 770) differs from that published in the 2011 Annual Report, where it was given as 327 674. The error lay in some mistakes reported by a single institution which were discovered as their numbers for the 2012 statistics were being collated. Comparisons between 2011 and 2012 in this report have been made against the amended 2011 figures.**

#### App 7.1 Summary of 2012 Animal Use Statistics

A total of 301 964 animals used in research, testing and teaching were reported in 2012, a 7.6 percent decrease over the previous year. The rolling 3-year average was marginally up.

The most commonly reported species in 2012, as it was in 2011, was cattle, making up 73.8 percent of the farm animals used, and 41.3 percent of the total number. As in 2011, the second and third most common species used were mice and sheep, 18.5 percent and 12.8 percent of the total respectively. Fish replaced birds as the fourth most common species in 2012, making up 9.3 percent of the total numbers. In terms of species groupings, production animals (cattle, sheep, deer, goats and pigs) made up 55.9 percent of the total, with rodents and rabbits together accounting for 23.2 percent and fish a further 9.3 percent. Numbers of all species reported fell except for cattle, amphibia, fish, marine mammals, possums, reptiles and horses.

Veterinary research (59.0 percent), animal husbandry research (21.7 percent) and basic biological research (10.4 percent) were the main reasons for using production animals, accounting for 153 827 animals (91.1 percent of the total for these species). Another 3.7 percent were used for teaching purposes. Just over 87 percent of the rodents were used in testing the safety and efficacy of animal health products, medical research, and basic biological research. The majority of birds were used for animal husbandry research (68.0 percent) and species conservation research (14.7 percent).

Over 80 percent of animals were exposed to manipulations which had no, virtually no, or little impact on the animals’ welfare. A total of 16 767 animals (5.6 percent of the total) experienced manipulations

of “high impact” or “very high impact”, 880 fewer than in 2011, and the lowest number in this category since 2006. The species that experienced a ‘very high’ impact were rodents, fish, pest species, pigs (3) and cephalopod/crustacea (3).

New Zealand’s usage of animals classified as transgenic/chimera is low by world standards, with only 8783 such animals used in 2012. This was 7178 fewer than in 2011.

More than 70 percent of animals returned to their normal environment following their use in manipulations. More than 97 percent of production animals remained alive following use. However, more than 97 percent of rabbits and rodents were ‘dead or euthanased’ following manipulation.

Sheep, fish and mice were used in work aimed at developing methods to replace or reduce the use of live animals in research, testing and teaching.

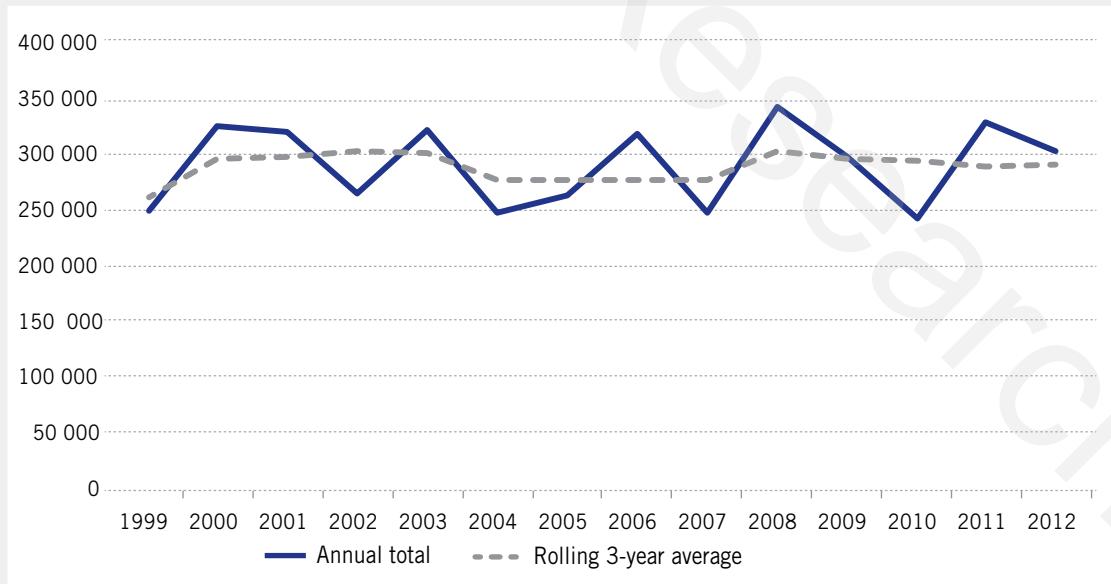
## App 7.2 Animal Usage

During 2012, a total of 301 964 animals<sup>2</sup> were reported as manipulated<sup>3</sup> in research, testing and teaching<sup>4</sup>. This was a decrease of 7.6 percent compared to 2011, when 326 770<sup>5</sup> animals were reported.

Much of the annual variability in the statistics can be attributed to the three-yearly cycle of reporting of long-term projects. Reports for animals used in long-term projects are not required annually but rather every three years when the project is completed or AEC approval of the project expires, whichever comes first. In both 2009 and 2010, the numbers fell, and the increase in 2011 was predicted on the likelihood that a number of long-term studies would be reported. That increase has been followed by the 2012 fall.

Although the 2012 numbers were lower than in the previous year, the three-year rolling average, a truer reflection of overall use, rose slightly. 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 to 2012 rolling averages have ranged from 288 677 to 302 225.

### Animals manipulated between 1999 and 2012



2 As defined in section 2(1) of the Animal Welfare Act 1999. This definition is set out in Appendix 6 of this report.

3 As defined in section 3 of the Animal Welfare Act. 1999 This definition is set out in Appendix 6 of this report.

4 As defined in section 5 of the Animal Welfare Act. 1999 This definition is set out in Appendix 6 of this report.

5 The discrepancy in the 2011 figures between this report and the previous one are due to an error in the 2011 reporting by one institution.

Those species most commonly reported in 2012 were (in order) cattle, mice, sheep, and fish, which collectively accounted for 81.8 percent of the total animals manipulated for RTT. Mice, sheep and cattle have all been included in the four most commonly used animals since 1989. This year, fish replaced birds as one of the four most commonly used animals.

For all species except cattle, amphibia, fish, marine mammals, possums, reptiles and horses, the numbers declined. The largest decrease was recorded in the number of chickens (- 22 746, a 71.3 percent decrease), followed by mice (- 18 263, a 24.6 percent decrease), deer (- 12 852, a 76.6 percent decrease), sheep (- 4027, a 9.5 percent decrease), other birds (- 3479, a 39.7 decrease), cephalopod/crustacea (- 964, an 18.8 percent decrease), pigs, (- 545, a 67.4 decrease), goats (- 415, 20.9 percent decrease), rabbits (- 402, a 20.9 percent decrease), guinea pigs (- 304, a 12.7 percent decrease), cats (- 283, a 28.9 percent decrease), "other" species (- 198, a 44.7 percent decrease), rats (- 151, a 1.4 percent decrease), dogs (- 133, 12.7 percent decrease and pigeons (- 74, a 25.7 percent decrease). Once again, the biggest numerical increase was reported for cattle (+ 17 981), a 16.9 percent rise. The other species with higher numbers were fish (+ 12 418, an 80.0 percent rise), possums (+ 3941, a 242.0 percent rise), reptiles (+ 3685, a rise of 221.5 percent), amphibia (+ 1415, a rise of 233.5 percent), marine mammals (+ 491, a 168.2 percent rise) and horses (+ 99, a 15.0 percent rise).

Overall, the use of agricultural livestock increased by less than one percent (+ 142), the rise in cattle numbers being offset by falls in all the other agricultural species. Cattle made up 73.8 percent of agricultural livestock, with the majority, 77.1 percent, reported as used for veterinary research. The fall in deer numbers was largely attributable to fewer animals being used in veterinary research (- 11 272) and animal husbandry (- 1248). Fewer sheep were used for veterinary research (- 4229) and teaching (- 1759), although more (+ 2597) were used for animal husbandry research.

Rodent use fell by 21.5 percent (- 18 718), mainly due to decreased use in testing (- 12 596), basic biological research (- 5320) and animal husbandry research (- 1856). This was offset to some extent by increased numbers for the development of alternatives (+ 946), teaching (+ 606), environmental management (+ 397) and medical research (+ 383).

The increase in fish numbers in 2012 was largely due to the reporting of 18 942 fish (67.8 percent of the total) for basic biological research, an increase of 73.9 percent over the previous year. The other main areas where fish were used were for teaching (4 577) and environmental management (3 758).

Bird use fell steeply from 40 937 in 2011 to 14 638 in 2012. This was mainly due to a drop in animal husbandry research from 24 915 to zero as well as a drop of 8 327 in numbers used in veterinary research. This was partially offset by a near doubling in numbers to 9 949 used in basic biological research, three quarters of them chickens, 23.6 percent "other birds" and the remainder pigeons.

The significant increase in numbers of possums reported in 2012 was largely due to a rise of 4222 in use for basic biological research, partially offset by a drop in numbers for environmental management (- 254), veterinary research (- 89) and animal husbandry (- 72). The 221.5 percent rise in the use of reptiles was mainly due to an increase for species conservation purposes (+ 1836) and basic biological research (+ 1817). The rise in the number of amphibia used was largely due to an increase of 1255 in the numbers used for basic biological research. The increase in numbers of marine mammals was for the purposes of species conservation (+ 292), teaching (+ 187) and basic biological research (+ 12). The drop in numbers of cephalopod/crustacea was due to 3278 fewer being used for basic biological research, offset in part by an increase (+ 2451) in those used for teaching.

The majority of dogs were used for veterinary research (54.5 percent) and teaching (31.3 percent). Dogs were also used for "other" purposes (6.6 percent), species conservation (4.7 percent), medical research (2.3 percent) and animal husbandry research (0.7 percent). Teaching (46.3 percent) and veterinary research (52.4 percent) were also the major uses for cats, although this species was also manipulated for

basic biological research purposes (1.3 percent). As in 2012, most horses were used in the production of biological agents (58.0 percent). Fewer (- 118) were used for teaching purposes, but a 15 percent increase in horse numbers overall was largely due to 223 more being used in veterinary research.

In 2012, 245 animals were reported in the “miscellaneous species” category, down from 443 in 2011. They included 96 mustelids (stoats, ferrets and weasels) used for environmental management, basic biological research, teaching and species conservation; 77 bats for basic biological research; 49 hedgehogs for species conservation, basic biological research and teaching; 16 alpaca and 6 chinchillas for teaching purposes and one donkey for basic biological research.

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.

### App 7.3 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	2012	2011
	%	%
Farms	54.3	47.2
Breeding units	23.1	23.3
Captured	13.0	7.4
Commercial sources	4.0	13.3
Born during project	3.8	7.6
Public sources	1.6	1.0
Imported	0.1	0.3

The number of animals sourced from farms in 2012 increased by 9884 animals, or 6.4 percent, reflecting the higher cattle numbers. The number of animals captured rose by 14 924 (+ 61.7 percent) and included fish (16 439), possums (5465), other birds (4938), reptiles (4704), cephalopod/crustacea (3895), amphibia (1715), marine mammals (771), mice (755), 213 “other” species (bats, ferrets, hedgehogs, stoats and weasels), rats (203), pigeons (10) and one cat. More animals were obtained from public sources (+ 56.1 percent), while 72.0 percent fewer animals were sourced from commercial enterprises and 53.5 percent fewer animals were born during projects. The number of animals sourced from breeding units fell 8.5 percent to 69 689 while 48.0 percent fewer animals were imported into New Zealand.

In 2012, 95.1 percent of farm animals were sourced from farms or commercial organisations, with a further 4.6 percent - 7254 sheep and 471 cattle – born during projects, a drop of 1272 from the previous year. Farm animals, reflecting New Zealand’s focus on agricultural research, were used by 58 organisations or individuals (hereafter referred to as organisations), were also sourced from breeding units (0.3 percent) and public sources (<0.1 percent).

The majority of rodents (94.3 percent) (used by 36 organisations) and rabbits (79.9 percent) (used by 17 organisations) came from breeding units, and together accounted for 94.4 percent of all animals from that

source in 2012. Rodents were also born during projects (2.9 percent), captured (1.4 percent), imported (0.6 percent), obtained from commercial sources (0.5 percent), and obtained from public sources or farms (0.2 percent). Rabbits were also obtained from commercial sources (15.1 percent), obtained from public sources (2.8 percent) and imported (2.1 percent). One rabbit, from a polytechnic, was born during a project.

The majority of fish, used by 15 organisations, were captured (58.8 percent) a rise of 10 958 over the previous year. Others were obtained from farms (11.0 percent), from breeding units (9.4 percent), from public sources (9.1 percent), from commercial organisations (7.0 percent) or born during projects (4.7 percent). Most of the marine mammals (used by 2 organisations) were classified as “captured” (98.5 percent), with remaining 12 classified as “obtained from public sources”.

The majority of chickens, which made up 62.4 percent of total birds used, were obtained from farms (82.4 percent) or commercial sources (15.2 percent) and were used by 13 organisations. “Other birds” (excluding chickens and pigeons) made up 36.2 percent of total birds used, with the majority (93.3 percent) being captured. Pigeons were used by 5 organisations and “other” birds were used by 20 organisations.

The amphibia (used by 3 organisations), cephalopods/crustaceans (7 organisations), possums (9 organisations), and reptiles (13 organisations) were mostly captured. Dogs (17 organisations) were mostly obtained from public sources (95.7 percent) or breeding units (3.2 percent). Cats (used by 13 organisations) also came from public sources (77.3 percent) and breeding units (22.4 percent), with one captured and one born during a project. Horses were used by a total of 11 organisations and supplied from farms, public sources and commercial organisations.

#### **App 7.4 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	2012	2011
	%	%
Normal/conventional	89.2	87.6
SPF/germ-free	3.9	2.4
Transgenic/chimera	2.9	4.9
Protected species	2.9	1.7
Unborn/pre-hatched	1.0	2.9
Diseased	<0.1	0.5
Other	<0.1	<0.1

As in previous years, the majority (89.2 percent) of animals manipulated in RTT in New Zealand in 2012 were classified as normal, healthy, conventional animals.

More animals manipulated for RTT had a specific pathogen-free (SPF) or germ-free status than in 2011 (+ 4025). Most of these animals were rodents (99.7 percent), but also included 32 rabbits and 5 goats.

More animals with protected species status were manipulated in 2012 (+ 3096). The rise was mostly due to an increase in the number of reptiles (+ 3733). Protected birds (2615), marine mammals (584), fish (63) and amphibia (57) were also reported as manipulated for RTT in 2012.

The number of animals classified as transgenic/chimera fell by 7178 or 45 percent from 2011, when the largest number in this category since records have been kept was recorded. The majority of these were mice (74.8 percent) and fish (23.8 percent), with cattle (0.6 percent), rats (0.6 percent) and amphibia (0.2 percent) making up the total. Four organisations used transgenic/chimera in 2012 compared to six in 2011. Reflecting our relatively small biomedical research industry, New Zealand's usage of this category of animal is low by world standards.

The large fall from 2011 in the numbers of animals in the unborn/pre-hatched category (- 6421) was mainly due to no chicken eggs, used for surveillance for avian influenza and other bird pathogens, being reported in 2012. A total of 3000 fish eggs were used for teaching purposes. Unborn sheep (94) made up the total.

Only 165 animals with a "diseased"<sup>6</sup> status were used in 2012, compared to 1636 the previous year. These included sheep (107), cattle (27), amphibia (20), dogs (5), horses (3) and birds (3).

### **App 7.5 Outcome**

Appendix 8 shows the five-year summary of the animals used (by species) and the percentages that died or were euthanased during, or after, manipulations. 70.5 percent of animals remained alive after use, the highest proportion in the period that records have been kept (1987 to 2012). Of these 73.8 percent were returned to owners, 14.5 percent were released to the wild, 9.0 percent were retained by the institution, and 2.7 percent were disposed of to others. The majority of animals released to the wild were fish (44.4 percent), birds (16.8 percent) and reptiles (15.7 percent).

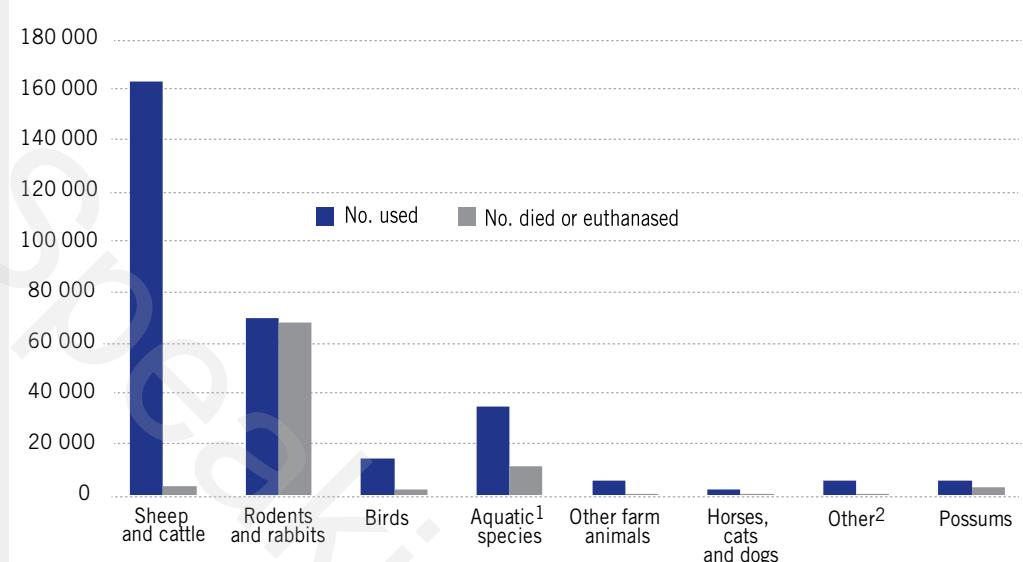
The number of animals that died or were euthanased during, or after, manipulations in 2012, fell by 32 797 to 88 995, a drop of 26.9 percent from 2011.

The high survival rates (97.5 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. On the other hand, only 2.6 percent of rodents and rabbits remained alive following projects.

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 2012



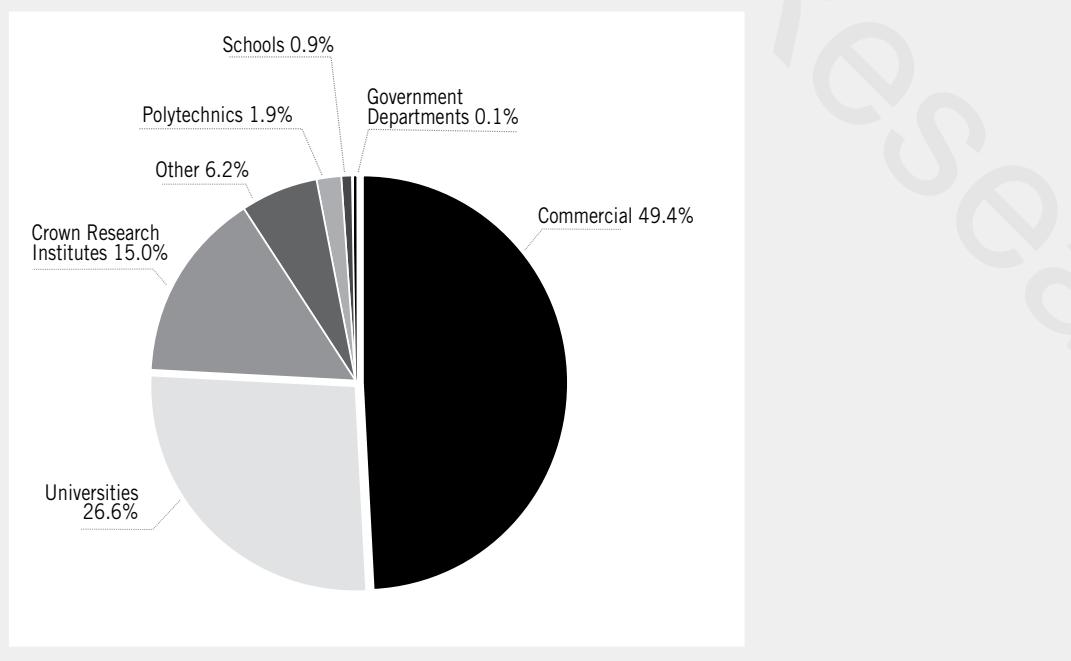
1 'Aquatic species' includes amphibia, fish, marine mammals and cephalopods/crustaceans.

2 'Other' includes reptiles and miscellaneous species as described in section 7.2 of this report.

## App 7.6 Organisation Type

Appendix 9 tabulates animal usage by organisation type over the past five years. The pie chart below shows the 2012 information graphically. The top three user groups in 2012 were (in order) commercial organisations, universities and CRIs, the same as in the previous five years.

### Animal usage by organisation type



Commercial organisations used 4197 fewer animals than in 2011. Commercial organisations used more animals in veterinary research (+ 48 581), basic biological research (+ 4037), development of alternatives (+ 946) and medical research (+ 342) than in 2011. Fewer animals were manipulated for teaching (- 30 448), animal husbandry research (- 15 189), testing (- 11 324) and production of biological agents (- 533).

Universities reported 16 111 fewer animals in 2012. Fewer animals were used for animal husbandry (- 20 901) and medical research (- 6274). More animals were used in basic biological research (+ 6355), environmental management (+ 2904) and species conservation (+2326). Animals were also used for teaching (5850), veterinary research (4167), testing (35) and “other purposes” (493).

CRIs' animal use fell by 2.8 percent to 45 213 in 2012. The one major increase - in the number of animals used for basic biological research (+ 9498) - was offset mainly by decreases in those used for animal husbandry research (- 5296), environmental management (- 3236) and veterinary research (- 2302). Animals were also used for testing (771), species conservation (488), “other purposes” (469), teaching (270), medical research (269) and production of biological agents (88). Six sheep were used in the development of alternatives.

Government departments reported the use of only 195 animals in 2012, compared to 9632 in 2011, when 8690 birds were used for veterinary research, specifically, for investigation and surveillance of exotic avian diseases. No animals were used for veterinary research in 2012, but 126 animals were used for species conservation research, 50 for basic biological research and 19 for teaching.

Organisations in the ‘other’ category include non-university medical research institutes, zoos/wildlife parks and individuals. The number of animals reported from this sector rose 57.2 percent to 18 723 in 2012. The vast majority of these (94.3 percent) were rodents used for medical research. Other animals were used for veterinary research (762) and testing (188), with development of alternatives (75), environmental management (21) and species conservation (7) making up the remaining numbers.

Polytechnics and institutes of technology reported a 34.7 percent fall (- 3008) in the number of animals manipulated in 2012 compared with 2011. The wide variety of animals manipulated by this sector were nearly all (99.5 percent) used for teaching, usually for low impact animal husbandry / veterinary nursing or similar training. The remaining thirty animals (fish) were used for species conservation.

The use of animals in RTT in schools rose from 319 reported in 2011 to 2777 in 2012. The wide range of animals, including cephalopods/crustaceans (2606), sheep (60), chickens and other birds (55), mice (22), dogs (17), horses (11), fish (4), plus one cow and one cat were all used for teaching purposes.

### **App 7.7 Animal Reuse**

In 2012, 10.1 percent of animals were used more than once for RTT. This the highest proportion of re-use since 2000 when 17 percent of animals had been used more than once. The average rate of re-use since 1999 when this measure was first recorded is 6.6 percent. Domestic animals (including livestock) made up 71.1 percent of the animals that were reused, with 30.9 percent of reptiles and 21.6 percent of fish also being re-used. With the exception of pigs and marine mammals, numbers of every animal species were reported as being used more than once in 2012.

## App 7.8 Purpose of Manipulation

Organisations are required to provide information on the purpose of manipulations (in broad categories).

The table below shows the breakdown and compares the 2012 figures with those reported in 2011.

Descriptions of the “purpose of manipulation” categories are outlined in Appendix 9.

Purpose of manipulation	% of animals used	
	2012	2011
Veterinary research	34.2	19.9
Basic biological research	23.5	15.6
Animal husbandry	12.4	24.2
Medical research	9.4	8.7
Testing	7.6	10.3
Teaching	6.3	15.3
Environmental management	2.1	2.2
Production of biological agents	1.9	1.9
Species conservation	1.9	1.1
Development of alternatives	0.5	0.2
Other	0.4	0.5

The highest proportion of animals were manipulated for the purposes of veterinary research in 2012, with numbers increasing from 64 899 in 2011 to 103 171. This was to a large part due to the reporting of 96 025 (+ 63 212) cattle in this category, with three organisations involved in major projects as follows:

- The first organisation used 16 530 cattle to complete a field trial to provide data for the full registration of a new Bovine Tuberculin;
- The second organisation used nearly 60 000 cattle in two relatively large studies:
  - The first assessed the efficacy of a veterinarian-lead reproduction management programme (InCalf). In this study herds were assigned to either follow their routine reproductive management or to an active reproductive management programme (i.e. InCalf). To assess the effect of the programme subsets of cows in each herd were body condition scored before calving and before breeding, some heifers were weighed and a subset of cows pregnancy tested. The study demonstrated that involvement in InCalf resulted in a higher proportion of cows pregnant by 6 weeks into the seasonal breeding programme.
  - The second study involved location and treatment of cows with subclinical mastitis associated with *Staphylococcus aureus*. Large numbers of cows needed to be screened by somatic cell count and bacteriology to locate appropriate cases.
- The third organisation carried out a major artificial insemination programme using over 11 000 cows, to test the performance of sexed semen when it first came to New Zealand.

Numbers of all other farm animals except pigs (from zero to 84) fell in this category. More dogs (+ 224), horses (+ 223), cats (+ 148) and rabbits (+ 75) were used for veterinary research, while numbers for birds (- 8327), rodents (- 808), fish (- 244), amphibia (- 121, falling to zero) and possums (- 89) fell. Veterinary research was undertaken by commercial organisations (93.5 percent), universities (4.0 percent), CRIs (1.7 percent) and “other” organisations (0.7 percent).

The proportion of animals used in basic biological research rose 39 percent in 2012, with 71 053 animals used in this category. The rise was mainly due to increased use of fish (+ 11 482), chickens (+ 7259) and cattle (+ 4152) in this category. The number of possums (+ 4222), reptiles (+ 1817), amphibia (+ 1255), “other” species (+ 147), guinea pigs (+ 67), rabbits (+ 36), deer (+ 14), marine mammals (+ 12) and goats (+ 8) also increased, while the number of mice (- 4438), cephalopod/crustacea (- 3278), rats (- 949), sheep (- 892), birds other than chickens (- 649) and cats (- 65) fell. No dogs or horses were reported used for basic biological research in 2012, compared with 26 and 15 respectively in 2011. Universities (54.6 percent), CRIs (30.4 percent), commercial organisations (14.9 percent) conducted the bulk of this research, with “other” organisations and government departments using only 68 of the 71 053 animals altogether in this category.

A total of 37 348 animals were reported as used for animal husbandry research in 2012, a drop of 41 835 from the previous year. Farm animals made up 98.2 percent of this category – 24 497 sheep, 9248 cattle, 2925 deer and 20 goats. Other species reported in 2012 as manipulated for animal husbandry include mice (570), fish (76), dogs (6) and horses (6). Only CRIs (49.3 percent), universities (30.0 percent) and commercial organisations (20.7 percent), reported manipulating animals for animal husbandry purposes in 2012.

The number of animals reported as being manipulated for medical research fell slightly from 28 537 in 2011 to 28 258 in 2012. Rabbits and rodents made up 96.8 percent of the total, with a rise in numbers of 478 over 2011. Other animals manipulated in this category included 569 sheep, 254 fish, 60 pigs and 21 dogs. Medical research was undertaken by “other” organisations (62.5 percent), universities (34.3 percent), commercial organisations (2.3 percent) and CRIs (1.0 percent).

The number of animals manipulated for the purposes of testing fell from 33 769 reported in 2011 to 22 823 in 2012, a 32.4 percent drop. The decrease can largely be attributed to a fall in the number of rodents (- 12 596). While rabbits and rodents accounted for the majority (79.7 percent) of the animals used in this category, this proportion dropped from 94.2 percent in 2011, mainly due to an 85.6% increase in the number of farm animals in this category, with 2591 sheep and 766 cattle being used for testing. Other animals used for testing included fish (188) and birds (15). Commercial organisations carried out 95.6 percent of the testing reported in 2012, with the remainder done by CRIs (3.4 percent), “other” organisations (0.8 percent), and universities (0.2 percent).

The number of animals reported as used in teaching fell 62.2 percent in 2012 to 18 889. This was mainly due to a substantial fall in the numbers of farm animals, particularly cattle (- 32 871), after a large teaching programme involving the training of technicians in the artificial insemination of cows was reported in the previous year. All species except deer were used for teaching purposes. Universities reported most animal use in teaching in 2012, accounting for 31.0 percent of the total compared to 12.3 percent in 2011. Other organisations involved in teaching were polytechnics (29.8 percent), commercial organisations (23.0 percent), schools (14.7 percent) and CRIs (1.4 percent).

Environmental management research used 6268 animals in 2012, 833 fewer than in 2011. The main species used in this category was fish (3758), followed by possums (942), mice (620), cephalopod/crustacea (415), rats (258), cattle (177), other species (29), reptiles (21), sheep (20), rabbits (12), pigs (10) and birds (6). Universities (80.3 percent), CRIs (16.8 percent), commercial organisations (2.6 percent) and “other organisations” (0.3 percent) all undertook environmental research.

The number of animals reported utilised in the production of biological agents fell 8.0 percent to 5704 in 2011. Farm animals (cattle, goats and sheep) made up 68.1 percent of the animals in this category, with mice (1216), horses (440) and guinea pigs (162) making up the remainder. Commercial organisations carried out 98.5 percent of this work, with CRIs carrying out the rest.

Animal numbers reported for species conservation in 2012 rose 60.3 percent to 5670. Numbers for reptiles (2499), birds (2111), marine mammals (584), amphibia (282), dogs (43), chickens (35), and mice (20) all rose. Numbers fell for fish (44), rats (40) and “other” species (12). No cats were used for species conservation in 2012 compared to 115 in 2011. The majority of work in this area was undertaken by universities (88.5 percent), CRIs (8.6 percent) and government departments (2.2 percent), with the remainder of animals used for this purpose by polytechnics (0.5 percent) and “other” organisations (0.1 percent).

Animal numbers for the development of alternatives rose by 1016 to 1641 in 2012. Animals used in the development of alternatives included mice (1560), fish (75) and sheep (6). Details of these projects are given in section 7.10.

### App 7.9 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 in 2008 to better reflect the overall estimate of the impact or invasiveness of each animal use. 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.

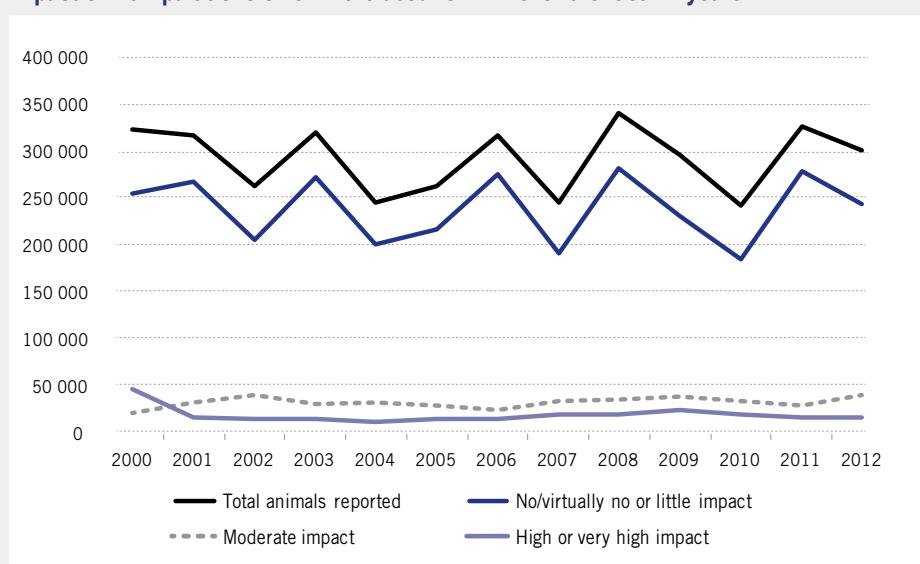
A more comprehensive description of the grading system has been published in the MPI publication *Animal Use Statistics* and is available on the website <http://www.biosecurity.govt.nz/files/regs/animal-welfare/pubs/naeac/2010-animal-use-statistics-web.pdf>

Appendix 11 summarises the impact grade allocated to animals manipulated for RTT and reported in 2012.

#### App 7.9.1 Long-term trends of the impact of RTT on the animals used in New Zealand

The percentage of animals that experience “no/virtually no” or “little impact” has averaged 81.9 percent over the last ten years with a range from 76.4 percent to 87.0 percent. In 2012, 80.8 percent (244 079) of animals were exposed to manipulations in these categories.

#### Impact of manipulations on animals used for RTT over the last 12 years



The percentage of animals that experience “moderate impact” has averaged 11.7 percent over the last ten years with a range from 7.9 percent to 14.6 percent. In 2012, 13.6 percent (41 118) of animals were classified in this category.

The percentage of animals that experience “high impact” or “very high impact” has averaged 6.4 percent over the last ten years with a range from 4.8 percent to 8.7 percent. In 2012, a total of 16 767 animals (5.6 percent of the total) experienced manipulations in these categories, the lowest number in this category since 2006.

### App 7.9.2 Manipulation grading of animals reported in 2012

The decrease in the number of animals manipulated for RTT in 2012 was reflected mainly in those experiencing “no or virtually no impact”, where numbers fell from 154 219 (47.2 percent of the total) in 2011 to 93 010 (30.8 percent of the total) in 2012. Numbers also fell in the “very high impact” category from 15 396 (4.7 percent of the total) in 2011 to 9968 (3.3 percent of the total) in 2012. Numbers in the other three categories rose – “high impact” by 4548 to 2.3 percent of the total, “moderate impact” by 11 617 to 13.6 percent of the total and “little impact” by 25 622 to 50.0 percent of the total.

Over 98 percent of farm animals fell into the “no/virtually no” or “little impact” category, as did 96.4 percent of other domestic mammals (cats, dogs and horses) and 97.4 percent of rabbits. The largest groups represented in the “moderate impact” category were “other species” (40.8 percent of their total) and rodents (43.3 percent of their total). Details of animals recorded in the “high” or “very high impact” category are shown below.

#### Summary of impact of manipulations in animals used for RTT in 2012

2012 summary	Total reported	No/virtually no impact	Little impact	Moderate impact	High impact	Very high impact
Rodents and rabbits	70 002	3 193	24 264	29 717	3 225	9 603
Sheep and cattle	163 126	65 027	94 972	2 994	133	0
Aquatic species <sup>1</sup>	34 909	13 870	18 678	2 146	150	63
Other domestic species	8 127	2 045	5 880	196	3	3
Birds	14 638	8 220	3 468	1 145	1 805	0
Possums	5 570	562	279	3 847	615	267
Other <sup>2</sup>	5 592	93	3 528	1 073	868	32
<b>Grade totals</b>	<b>301 964</b>	<b>93 010</b>	<b>151 069</b>	<b>41 118</b>	<b>6 799</b>	<b>9 968</b>
<b>Grade percentages</b>		<b>30.8%</b>	<b>50.0%</b>	<b>13.6%</b>	<b>2.3%</b>	<b>3.3%</b>

<sup>1</sup> ‘Aquatic species’ includes amphibians, fish, marine mammals and cephalopods/crustaceans.

<sup>2</sup> ‘Other’ includes reptiles and miscellaneous species as described in section 8.2.

Animals featuring in the “very high” impact group were rodents, fish, pest species, pigs (3) and cephalopod/crustacea (3).

Animals in this and the “high” impact grades were manipulated in the following ways.

- Fish were used to validate a tool to accurately predict stress and mortality under a variety of fishing conditions. Fish were also used in behavioural studies of pest species.
- Chickens were used in research on coccidiosis control.
- Most birds were used in projects that required their capture and sampling, deemed very stressful despite their subsequent release. Some birds were used to test the efficacy of traps for Indian Mynahs, and in a study on the effects of human feeding on urban bird species.
- Cattle were used in research into facial eczema and body condition score. Sixteen cows were graded “high impact” because of the need for them to be confined in metabolism stalls for eight days at a time to allow accurate measurement of dry matter intake and faecal and urinary output.
- Possums were used in research into vaccination against and natural transmission of tuberculosis.
- Pigs, possums, rats, mice, ferrets and weasels were used in various studies designed to improve pest control methods.
- Guinea pigs were used in batch release testing for animal vaccines. This is a regulatory requirement to demonstrate potency.
- Mice were used:
  - in testing antigens and animal vaccines mandated by regulation;
  - in veterinary research;
  - in medical research, specifically cancer and tuberculosis research;
  - in production and evaluation of biological reagents;
  - in the development of alternatives to animal use; and
  - in researching the efficacy of novel treatment in a disease model.
- Reptiles were used to teach basic research techniques.
- Cephalopod/crustacea were used in research to explore possible issues arising from culturing spiny lobster.

### App 7.10 The Three Rs

Projects recorded as using animals in the development of alternatives included:

- Seventy-five fish were used in research to establish the zebrafish fish embryo toxicity (FET) test methodology. This method is an ethically acceptable alternative to the acute fish toxicity test used for regulatory impact assessments of waste effluents and chemicals. The research is ongoing to assess the ability of the FET to predict toxicity in New Zealand native fish species.
- Six sheep were used to test portable equipment for measuring methane production from sheep. The animals are tested directly off pasture for a period of one hour as opposed to the current method, which requires the animals to undergo a two week acclimatisation period being fed indoors on a pelleted diet; followed by 48 hours in respiration chambers. The length of time the animals are tested and acclimatised is therefore significantly reduced. As well as minimising the manipulation of individual animals, the portable unit enables screening of the large numbers that are required for genetic analyses in order to find DNA markers for low methane producing animals.
- Mice (1560) were used for a study *‘Investigation into Alternative Reagent Preparation Methods for in vivo tests’*. This work was specifically aimed at improving test robustness, and therefore reducing future animal use.

## Appendix 8

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

	2012		2011		2010		2009		2008	
	No. used	% died or euthanased								
<b>Amphibia</b>	2021	64	606	13	811	7	2378	14	264	5
<b>Birds</b>	14 638	15	40 937	35	7492	33	49 023	78	31 053	23
<b>Cats</b>	695	<1	978	10	554	1	1132	12	804	4
<b>Cattle</b>	124 582	<1	106 601	<1	42 341	2	24 763	3	69 564	1
<b>Cephalopods/crustaceans</b>	4154	27	5118	86	3107	7	N/A	N/A	N/A	N/A
<b>Deer</b>	3927	8	16 779	<1	9 094	1	5967	3	2951	6
<b>Dogs</b>	915	2	1048	12	814	7	690	7	792	5
<b>Fish</b>	27 949	32	15 531	64	15 611	15	23 736	46	41 057	44
<b>Goats</b>	1568	<1	1983	<1	1161	5	3231	6	1374	1
<b>Guinea pigs</b>	2090	96	2394	97	2316	96	4061	99	3075	98
<b>Horses/donkeys</b>	758	<1	659	3	840	2	709	1	525	1
<b>Marine mammals</b>	783	0	292	0	212	0	651	0	1535	0
<b>Mice</b>	55 870	99	74 133	98	84 620	94	90 982	91	87 154	98
<b>Pigs</b>	264	58	809	54	513	69	995	24	417	58
<b>Possums</b>	5570	54	1629	84	1223	76	4797	63	1644	80
<b>Rabbits</b>	1519	95	1921	94	1846	95	2018	97	2049	96
<b>Rats</b>	10 523	92	10 674	93	11 166	96	17 333	82	13 960	95
<b>Reptiles</b>	5349	<1	1664	1	1686	14	7422	1	2327	1
<b>Sheep</b>	38 544	7	42 571	6	55 859	5	45 991	9	78 093	4
<b>Misc. species</b>	245	28	443	10	883	31	11 232	13	2882	13
<b>Total no. used</b>	301 964		326 770		242 149		297 111		341 520	
<b>Yearly %</b>		29%		37%		43%		55%		40%

## Appendix 9

### 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	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
	2010	26 388	13 694	7 551	6 170	12 817	3 373	69 993
	2011	36 085	12 348	2 399	31 533	7 279	6 770	96 414
	<b>2012</b>	<b>25 261</b>	<b>14 301</b>	<b>1 373</b>	<b>6 343</b>	<b>22 729</b>	<b>10 296</b>	<b>80 303</b>
Commercial organisations	2008	47 551	97 601	723	3 728	-	27	149 630
	2009	62 351	41 188	757	77	-	317	104 690
	2010	49 032	38 142	520	4	2	278	87 978
	2011	37 994	102 589	12 426	107	1	175	153 292
	<b>2012</b>	<b>24 319</b>	<b>123 849</b>	<b>755</b>	<b>32</b>	<b>23</b>	<b>117</b>	<b>149 095</b>
Crown research institutes	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
	2010	4 162	42 261	3 055	1 014	977	1 057	52 526
	2011	3 407	31 157	4 522	294	5 026	2 131	46 537
	<b>2012</b>	<b>2 586</b>	<b>24 168</b>	<b>3 648</b>	<b>7 951</b>	<b>1 838</b>	<b>5 022</b>	<b>45 213</b>
Polytechnics	2008	203	2 065	500	89	66	15	2 938
	2009	215	2 779	1 403	74	16	70	4 557
	2010	172	4 030	636	130	109	188	5 265
	2011	121	4 612	589	116	3 158	70	8 666
	<b>2012</b>	<b>152</b>	<b>1 715</b>	<b>549</b>	<b>116</b>	<b>3 092</b>	<b>34</b>	<b>5 658</b>
Government departments	2008	13	300	-	369	1	2 552	3 235
	2009	19	-	256	42 572	-	419	43 266
	2010	51	-	8	91	-	140	290
	2011	167	-	122	8 824	60	459	9 632
	<b>2012</b>	-	-	<b>43</b>	<b>133</b>	-	<b>19</b>	<b>195</b>
Other	2008	2 120	-	-	15	-	53	2 188
	2009	9 686	-	-	108	332	25	10 151
	2010	20 062	1 152	-	24	1 600	5	22 843
	2011	11 292	449	162	7	-	-	11 910
	<b>2012</b>	<b>17 662</b>	<b>600</b>	<b>162</b>	<b>8</b>	<b>263</b>	<b>28</b>	<b>18 723</b>
Schools	2008	203	623	112	38	62	1 170	2 208
	2009	88	298	32	30	24	1	473
	2010	81	82	45	59	106	2 881	3 254
	2011	56	-	53	56	7	147	319
	<b>2012</b>	<b>22</b>	<b>61</b>	<b>29</b>	<b>55</b>	<b>4</b>	<b>2 606</b>	<b>2 777</b>
TOTAL	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
	2010	99 948	99 361	11 815	7 492	15 611	7 922	242 149
	2011	89 122	151 155	20 273	40 937	15 531	9 752	326 770
	<b>2012</b>	<b>70 002</b>	<b>164 694</b>	<b>6 559</b>	<b>14 638</b>	<b>27 949</b>	<b>18 122</b>	<b>301 964</b>

## Appendix 10

### “Purpose of Manipulation” Categories

Category	Description
<b>Teaching</b>	Animals used for teaching or instruction, at any level.
<b>Species conservation</b>	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.
<b>Environmental management</b>	Environmental management, including the control of animal pests and research into methods of reducing production of greenhouse gases.
<b>Animal husbandry</b>	Animal husbandry, including reproduction, nutrition, growth and production.
<b>Basic biological research</b>	Basic biological research.
<b>Medical research</b>	Research aimed at improving the health and welfare of humans, but not research on human subjects.
<b>Veterinary research</b>	Research aimed at improving the health and welfare of production and companion animals.
<b>Testing</b>	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.
<b>Production of biological agents</b>	Animals used for raising antibodies or for the supply of blood products.
<b>Development of alternatives</b>	Work aimed at developing methods to replace or reduce the use of live animals in research, testing and teaching.
<b>Other</b>	Manipulations for purposes other than those listed above.

## Appendix 11

### Summary of the impact grade allocated by species in 2012

Species	No impact	Little impact	Moderate impact	High impact	Very High impact	Total
<b>Amphibians</b>	262	1 163	596	-	-	2 021
<b>Birds</b>	8 220	3 468	1 145	1 805	-	14 638
<b>Cats</b>	316	318	61	-	-	695
<b>Cattle</b>	44 433	79 556	460	133	-	124 582
<b>Cephalopods/crustacea</b>	2 750	1 383	18	-	3	4 154
<b>Deer</b>	664	3 163	100	-	-	3 927
<b>Dogs</b>	752	144	19	-	-	915
<b>Fish</b>	10 262	15 945	1 532	150	60	27 949
<b>Goats</b>	20	1 538	10	-	-	1 568
<b>Guinea pigs</b>	33	427	-	978	652	2 090
<b>Horses</b>	254	498	6	-	-	758
<b>Marine mammals</b>	596	187	-	-	-	783
<b>Mice</b>	1 889	16 702	26 295	2 159	8 825	55 870
<b>Pigs</b>	39	219	-	3	3	264
<b>Possums</b>	562	279	3 847	615	267	5 570
<b>Rabbits</b>	107	1 372	40	-	-	1 519
<b>Rats</b>	1 164	5 763	3 382	88	126	10 523
<b>Reptiles</b>	21	3 489	973	866	-	5 349
<b>Sheep</b>	20 594	15 416	2 534	-	-	38 544
<b>Misc. species</b>	72	39	100	2	32	245
<b>TOTAL</b>	93 010	151 069	41 118	6 799	9 968	301 964

# Speaking of Research

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