

New Zealand National Chemical Residues Programme Report

Results for 1 July 2017 – 30 June 2018 for farmed cattle, sheep, goats, deer, pigs, ostriches, honey, salmon, poultry, and wild animals and fish.

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Acronyms

ACVM	means the Agricultural Compounds and Veterinary Medicines (ACVM) Act 1997
APA	means the Animal Products Act 1999
HGP	means hormonal growth promotants
IEC	means the International Electrotechnical Commission
ISO	means the International Organization for Standardization
MPI	means the Ministry for Primary Industries
MPL	means maximum permissible level as specified by Animal Products Notice: Contaminant Specifications
NAIT	means the National Animal Identification and Tracing Act 2012
NSAIDs	means non-steroidal anti-inflammatory drugs
NCRP	means the National Chemical Residues Programme
NZ	means New Zealand
PAH	means polycyclic aromatic hydrocarbon
PCB	means polychlorinated biphenyl
RAL	means resorcylic acid lactones

1 Summary

The Ministry for Primary Industries (MPI) has a number of residue monitoring programmes associated with the Animal Products Act (APA), the Food Act and the Agricultural Compounds and Veterinary Medicines (ACVM) Act.

The residue monitoring programmes cover the full range of primary products (meat, seafood, honey, milk and dairy products), and fresh produce intended for export and domestic consumption, as well as general food, as consumed by the average New Zealand person.

These programmes are based on ensuring that we have the confidence and requisite assurance that food is safe and good agricultural practice (GAP) is being followed. MPI regularly reviews the programmes to consider new chemicals of interest, changing use patterns, new scientific information and trade requirements.

The National Chemical Residues Programme (NCRP) of the Ministry for Primary Industries (MPI) is a risk-based sampling and testing programme.

The monitoring component of the NCRP tests samples from randomly-selected farmed and wild animals, farmed salmon, fish and honey.

The surveillance component tests samples from targeted at-risk animals, animal material or animal products.

MPI authorises persons to collect samples and has procedures in place to ensure that traceability, security and quality management are maintained from collection through to analysis and storage.

MPI contracts laboratories with ISO/IEC 17025 accreditation and MPI recognition under the Recognised Laboratory Programme to analyse samples.

Over 2 200 samples were collected and tested for agricultural compounds, veterinary medicines and environmental contaminants. Over 220 000 test results were obtained, with six results higher than maximum levels. This represents a conformance rate in New Zealand of 99.997%. No food safety issues were identified.

The reported results from the NCRP confirm that regulatory compliance is being met and good agricultural practices are being followed in the use of agricultural compounds and veterinary medicines.

The results of the species verification programme verified there was no species substitution.

2 Legal framework

The programme is mandated by and managed in accordance with wide-ranging New Zealand legislation. The principle legislation is the Animal Products Act 1999 and its subsidiary regulations and notices. Legislation is listed on the MPI website and full texts are available at the New Zealand Legislation website¹.

Primary Legislation (Act)	Activity	Secondary Legislation (Regulations)	Tertiary Legislation (Specifications or Notices)	Description
Animal Products Act 1999	Sampling regime, competent persons, testing	Animal Products (Regulated Control Scheme - Contaminant Monitoring and Surveillance) Regulations 2004	Animal Products Notice: Contaminant Monitoring and Surveillance	The legal basis for creating an operational sampling plan for animals, animal material and animal products (excluding honey) to be implemented at primary processors of meat and seafood, aquaculture farms and sale yards. This notice is renewed annually.
	Species Verification		Animal Products (Species Verification) 2014, No.2	The legal basis for sampling and testing raw boneless meat to confirm no species substitution
	MPLs (excluding honey)		Animal Products Notice: Contaminant Specifications	The legal basis for maximum (and default) permissible levels of contaminants in animals, animal material and animal products.
	Laboratory specifications		Animal Products Notice: Laboratory Specifications	Provides for MPI recognition of laboratories providing testing services.
	Identification & management of HGP treated animals		Animal Products Notice: Regulated Control Scheme for Hormonal Growth Promotants	The legal basis for the identification and management of HGP treated animals to ensure export eligibility requirements are met.
	Control of Specified Substances		Animal Products (Control of Specified Substances) Notice 2007	The legal basis for the prohibition of use of certain specified substances in food producing animals
	Sampling regime, competent persons, testing for bee products		Animal Products Notice: Regulated Control Scheme – Monitoring of Specified Substances in Bee Products for Exports	The legal basis for creating an operational sampling plan for honey to be implemented at randomly selected suppliers of honey intended for domestic and export production, under the APA.
	Export MPLs (honey)		General requirement for export: 08/035 Contaminant Requirements for Bee Products for Export	The legal basis for maximum (and default) permissible levels of contaminants in honey intended for export.
	Identification & management of buparvaquone treated animals		Animal Products Notice: Specifications for animals treated with buparvaquone	The legal basis for the identification and management of buparvaquone treated animals to ensure export eligibility requirements are met.
	Authorisation of samplers		Animal Products (Export Requirement: Inspection Agencies Ante-mortem and Post-Mortem Inspection) Notice 2009	The legal basis for the collection of samples as a task associated with ante-mortem and post-mortem inspection.
	Procurement, slaughter and processing		Animal Products Notice: Specifications For Products Intended For Human Consumption	The legal basis for the procurement, slaughter and processing of animals, animal material and animal products for human consumption.

¹ <http://www.parliament.nz/en-nz/>

Primary Legislation (Act)	Activity	Secondary Legislation (Regulations)	Tertiary Legislation (Specifications or Notices)	Description
	Recognised Agencies		Animal Products (Recognised Agencies and Persons Specifications) Notice 2015	The legal basis for agencies to provide powers for particular activities such as verification
Food Act 2014 / Australia New Zealand Food Standards Code	Maximum Residue Levels	Food Regulations 2015	Food Notice: Maximum Residue Levels for Agricultural Compounds	The legal basis for maximum (and default) residue levels of residues and contaminants (not including metals) in food intended for domestic consumption.
	Maximum levels		Australia New Zealand Food Standards Code – Schedule 19: Maximum levels of contaminants and natural toxins	The legal basis for maximum levels of metal contaminants) in food intended for domestic consumption.
Agricultural Chemicals and Veterinary Medicines Act 1997	Registration of agricultural chemicals and veterinary medicines			This Act provides for the registration and label conditions of veterinary medicines and agricultural chemicals.
Hazardous Substances and New Organisms Act 1996	Management of human and environmental exposure to substances			This Act has responsibility for imposing controls to limit exposure to a wide range of substances (including agricultural substances and veterinary medicines) to ensure public health and environmental safety
National Animal Identification and Tracing Act 2012	Identification and tracking of cattle and deer			This Act provides for the identification of cattle and deer using radio frequency identification ear tags as well as obligations that participants in the NAIT scheme must meet, for example, registering as a person in charge of animals. NAIT identification for buparvaquone and HGP treated animals is used to identify these animals at slaughter.
Veterinarians Act 2005				This Act provides for registration of veterinarians in New Zealand. Under this Act, and in accordance with their registration, veterinarians must perform to specified professional standards.

3 Actions taken when results are above maximum levels

Animal material or animal products for export need to meet the specifications set in the following regulations and notices:

- Animal Products Notice: Contaminant Specifications;
- General Requirement for Export: 08/035 Contaminant Requirements for Bee Products for Export;
- any notice issued under Section 60A of the APA;
- Food Notice: Maximum Residue Levels for Agricultural Compounds;
- Food Regulations 2015;
- Australia New Zealand Food Standards Code, Schedule 19: Contaminants and natural toxicants.

When residues greater than maximum levels are identified, a trace back is initiated and the residue finding investigated.

The most common regulatory action taken against the suppliers of animals from which residues greater than maximum levels were found is to place them on the MPI surveillance list.

Suppliers remain on the surveillance list until surveillance sampling has confirmed that there are no further residue detections which exceed the maximum level in supplied animals as well as acceptable measures have been put in place to prevent reoccurrence.

In some situations MPI gives consideration to prosecuting offenders and, where appropriate, animals may be subject to movement restrictions. Animals under movement restrictions may not be moved from a property without MPI authorisation and may require to be specially identified.

4 Samples collected and compounds tested for across all monitoring programmes

Sampling programme	Number of samples collected	Number of substances reported
Bee 2017 / 2018	148	13 401
Farmed Salmon 2017 / 2018	139	2 167
Fish 2017 / 2018	25	300
Meat 2017 / 2018	1 800	201 324
Ostriches 2017 / 2018	3	532
Poultry 2017 / 2018	96	10 027
Total	2 211	227 751

5 Results of the monitoring, surveillance and species verification programmes

5.1 MONITORING PROGRAMME

5.1.1 Live cattle

Substances	Planned	Completed	Positive > NZ Standards ²
Stilbenes, steroids and RALs	60	60	0
Thyrostats	60	60	0
Beta-agonists	60	61	0

5.1.2 Cattle

Substances	Planned	Completed	Positive > NZ Standards ²
Stilbenes, steroids and RALs	100	102	0
Beta-agonists	100	101	0
Phenicol	100	101	0
Antibiotics	160	160	0
Ceftiofur	25	25	0
Sulphonamides	60	62	0
Anticoccidials	100	103	2 (a)
Anthelmintics	100	101	0
Pesticides	100	101	0
NSAIDs	100	100	0
1080	100	102	0
Heavy metals	100	102	0
Anticoagulants	100	101	0

(a) Two detections of abamectin above New Zealand standards².

² Animal Products Notice: Contaminant Specifications, 28 July 2017

5.1.3 Sheep

Substances	Planned	Completed	Positive > NZ Standards ²
Stilbenes, steroids and RALs	100	100	0
Beta-agonists	100	101	0
Phenicol	100	101	0
Antibiotics	100	100	0
Anticoccidials	100	101	0
Anthelmintics	100	101	1 (a)
Pesticides	100	100	0
NSAIDs	100	100	0
1080	100	101	0
Heavy metals	100	100	0
Anticoagulants	100	101	0

(a) One detection of fenbendazole above New Zealand standards².

5.1.4 Goats

Substances	Planned	Completed	Positive > NZ Standards ²
Stilbenes, steroids and RALs	25	27	0
Beta-agonists	25	27	0
Phenicol	25	27	0
Antibiotics	25	26	0
Anticoccidials	25	27	0
Anthelmintics	25	27	1 (a)
Pesticides	25	25	0
NSAIDs	25	26	0
1080	25	26	0
Heavy metals	25	26	0
Anticoagulants	25	27	0

(a) One detection of moxidectin above New Zealand standards².

5.1.5 Deer

Substances	Planned	Completed	Positive > NZ Standards ²
Stilbenes, steroids and RALs	75	75	0
Beta-agonists	75	75	0
Phenolics	75	75	0
Antibiotics	75	78	0
Anticoccidials	75	75	0
Anthelmintics	75	75	0
Pesticides	75	73*	0
NSAIDs	75	78	0
1080	45	46	0
Heavy metals	45	45	0
Anticoagulants	45	45	0

* In 2017 / 2018 some randomly allocated samples were not able to be collected.

5.1.6 Wild animals

Substances	Planned	Completed	Positive > NZ Standards ²
1080	30	33	0
Anticoagulants	30	32	1(a)
Heavy metals	20	30	0

(a) One detection of brodifacoum above New Zealand standards²

5.1.7 Farmed salmon

Substances	Planned	Completed	Positive > NZ Standards ²
Stilbenes, steroids and RALs	15	15	0
Phenolics	5	4*	0
Nitrofurans	5	5	0
Nitroimidazoles	5	5	0
Antibiotics	48	48	0
Anthelmintics	20	20	0
Pesticides	20	20	0
Isoeugenol	20	21	0
Heavy metals	10	10	0
Dyes	30	31	0

* In 2017 / 2018 some randomly allocated samples were not able to be collected.

5.1.8 Ostriches

Substances	Planned	Completed	Positive > NZ Standards ²
Stilbenes, steroids and RALs	1	1	0
Nitroimidazoles	1	1	0
Antibiotics	1	1	0
Anticoccidials	1	1	0
Pesticides	1	1	0

5.1.9 Pigs

Substances	Planned	Completed	Positive > NZ Standards ²
Beta-agonists	25	25	0
Nitroimidazoles	25	25	0
Antibiotics	25	25	0
Carbadox	25	25	0
Anticoccidials	25	26	0
Pesticides	25	25	0
Anticoagulants	25	26	1(a)

(a) One detection of coumatetralyl above New Zealand standards².

5.1.10 Poultry, turkeys & ducks

Substances	Planned	Completed	Positive > NZ Standards ²
Stilbenes, steroids and RALs	19	19	0
Nitroimidazoles	19	19	0
Antibiotics	19	19	0
Anticoccidials	19	20	0
Pesticides	19	19	0

5.1.11 Honey

Substances	Planned	Completed	Positive > NZ Standards ³
Phenolics	7	7	0
Nitrofurans	7	8	0
Antibiotics	35	36	0
Pesticides + neonicotinoids	22	22	0
Heavy metals	12	12	0
Amitraz	60	61	0
Tutin	60	62	0

³ General Requirement for Export: 08/035 Contaminant Requirements for Bee Products for Export

5.1.12 Fish

5.1.12.1 Wild caught sea fish and crustaceans

Substances	Planned	Completed	Positive > NZ Standards ²
Heavy metals	25	25	0

5.1.12.2 Fresh water eels

Substances	Planned	Completed	Positive > NZ Standards ²
Polychlorinated dioxins, furans and dioxin-like PCBs	3	1*	0
Indicator PCBs	3	1*	0
Indicator PAHs	3	1*	0
Anticoagulants	3	1*	0
Organochlorine pesticides	3	1*	0

* In 2017 / 2018 some randomly allocated samples were not able to be collected.

5.2 SURVEILLANCE PROGRAMME

The surveillance programme of the NCRP tested samples from targeted animal material, animal products or animals considered to be at-risk for residues or contaminants greater than maximum levels, supplied by persons on the MPI surveillance list.

Substances	Honey	Cattle	Goat	Sheep	Pig	Wild Deer
Amitraz	8 (a)					
Anthelmintics		5 (b)	3 (e)	6 (f)		
Heavy metals		17 (c)				
Pesticides		2 (d)				5 (h)
Anticoagulants					60 (g)	11 (i)

- (a) Eight samples of honey from two suppliers on the MPI surveillance list (amitraz) were tested in 2017 / 2018. The results were compliant with the NZ standards³.
- (b) Five samples of cattle liver and muscle from two suppliers on the MPI surveillance list (abamectin) was tested in 2017 / 2018. The results were compliant with the NZ standards².
- (c) 17 samples of cattle liver, kidney and muscle from two suppliers on the MPI surveillance list (lead) were tested in 2017 / 2018. Identified risk source animal material was retained pending results and condemned until test results showed compliance with the NZ standards².
- (d) Two samples of cattle fat from two suppliers on the MPI surveillance list (diphenylamine and oxyfluorfen) was tested in 2017 / 2018. The results were compliant with the NZ standards².
- (e) Three samples from one supplier on the MPI surveillance list (moxidectin) were tested in 2017 / 2018. The results were compliant with the NZ standards².
- (f) Six samples from one supplier on the MPI surveillance list (fenbendazole) were tested in 2017 / 2018. The results were compliant with the NZ standards².
- (g) 60 samples of pig liver and muscle from one supplier on the MPI surveillance list (brodifacoum) was tested in 2017 / 2018. Identified risk source animal material was retained pending results and condemned until test results showed compliance with the NZ standards².
- (h) Five samples wild deer muscle from one supplier on the MPI surveillance list (piperonyl butoxide) was tested in 2017 / 2018. The results were compliant with the NZ standards².
- (i) Eleven samples wild deer liver and muscle from one supplier on the MPI surveillance list (brodifacoum) were tested in 2017 / 2018. Identified risk source animal material was retained pending results and condemned until test results showed compliance with the NZ standards².

5.3 SPECIES VERIFICATION PROGRAMME

The test results verified there was no species substitution.

5.3.1 Results of the Species Verification Programme

Planned	Completed	Tested true to label
300	302	302

6 Results above maximum levels

6.1 SUMMARY OF TEST RESULTS ABOVE MAXIMUM LEVELS

Six results were higher than the New Zealand standards for maximum permissible levels of contaminants as specified in the Animal Products Notice: Contaminant Specifications.

Substance and amount detected (mg/kg)	Animal and animal product sampled	NZ Standard (mg/kg)	Codex Standard (mg/kg)
Abamectin – 0.073	Cattle (liver)	0.015 ²	0.1 ⁴
Abamectin – 0.075	Cattle (liver)	0.015 ²	0.1 ⁴
Brodifacoum – 0.0043	Wild deer (liver)	0.001 ²	. ⁴
Coumatetralyl – 0.0026	Pig (liver)	0.001 ²	. ⁴
Fenbendazole – 2.8	Sheep (liver)	0.5 ²	. ⁴
Moxidectin – 0.030	Goat (liver)	0.01 ²	. ⁴

6.2 MPI ACTIONS FOR TEST RESULTS ABOVE MAXIMUM LEVELS

6.2.1 Abamectin

Two abamectin residues above the New Zealand standard² were detected in cattle. The amount of abamectin residue found did not pose a food safety risk.

MPI conducted a trace back to the suppliers. MPI examined the supplier declarations with respect to withholding period and treatments and conducted a telephone interview with the suppliers.

The farm records showed treated animals had been presented for primary processing outside of the withholding periods following the last treatment. The cause of the detections is unclear. In one case, it is suspected multiple treatments of the animal prior to the withholding period prior to slaughter contributed to the residue finding. In the other case, it is suspected the incorrect animals were drafted for slaughter.

The suppliers were placed on the national surveillance list. Further targeted testing did not show any reoccurrence of the original findings and the suppliers were removed from the national surveillance list.

MPI will continue to undertake random monitoring for abamectin in the 2018 / 2019 sampling programme.

6.2.2 Brodifacoum

One brodifacoum residue above the New Zealand standard² was detected in a deer from a game estate. The amount of brodifacoum residue found did not pose a food safety risk.

MPI conducted a trace back to the supplier. MPI examined the supplier declaration with respect to caution periods and buffer zones, conducted a telephone interview and a site visit. Records showed the animal had been presented for primary processing outside of the appropriate caution period. The cause of the detections is unclear.

The supplier was placed on the national surveillance list and affected animal product was eluded from human or animal consumption. Further targeted testing showed reoccurrences of the residues. The supplier remains on the national surveillance list and restrictions on animal product from the supplier remain in place.

MPI will continue to undertake random monitoring for brodifacoum in the 2018 / 2019 sampling programme.

⁴ FAO/WHO Food Standards Codex Alimentarius: Pesticide Residues in Food & Veterinary Drug Residues in Food

6.2.3 Coumatetralyl

One coumatetralyl residue above the New Zealand standard² was detected in a farmed pig. The amount of coumatetralyl found did not pose a food safety risk.

MPI conducted a trace back and farm visit to the supplier. The supplier was placed on the national surveillance list and further targeted testing did not show any reoccurrence of the original finding, but showed the presence of brodifacoum residues. The amount of brodifacoum found did not pose a food safety risk.

The farm records showed use of various rodenticides to manage a rodent population around the piggery. However, records did not show the use of coumatetralyl, only brodifacoum and bromodialone as the primary control measures.

The cause of the brodifacoum findings were attributed to staff using brodifacoum baits outside of bait stations, where rodents could transfer them to areas where pigs had access, or contaminated rodent faeces being assessable to the pigs. The cause of the original coumatetralyl residue finding is unclear.

The risk of rodenticide residues in pigs from the very necessary control of rodents around piggeries is a known issue⁵. Following the finding, the piggery has invested in environment control measures for rodent control and reinforced procedures with staff to maintain baits in bait stations away from pig housing.

Potentially exposed pigs were identified and were permitted for slaughter under the condition their livers were permanently excluded from human or animal consumption.

MPI will continue to undertake random monitoring for coumatetralyl and brodifacoum in the 2018 / 2019 sampling programme.

6.2.4 Fenbendazole

One fenbendazole residue above the New Zealand standard² was detected in a sheep. The amount of fenbendazole residue found did not pose a food safety risk.

MPI conducted a trace back to the supplier. An initial follow up on-farm verification found discrepancies in the supplier's record keeping which indicated that veterinary treatment withholding periods may not have been adhered to.

As a consequence, the verification outcome was unacceptable and restrictions were placed on the supplier for the supply of animals. The supplier was placed on the surveillance list and was given time to correct their farming practices. Further targeted testing did not show any reoccurrence of the original finding and a follow up on-farm verification audit found an acceptable outcome. The supplier was removed from the national surveillance list.

MPI will continue to undertake random monitoring for fenbendazole in the 2018 / 2019 sampling programme.

6.2.5 Moxidectin

One moxidectin residue above the New Zealand standard² was detected. The amount of moxidectin residue found did not pose a food safety risk.

MPI conducted a trace back to the supplier. MPI examined the supplier declaration with respect to withholding period and treatments and conducted a telephone interview with the supplier and an on-farm verification audit.

The farm records showed the goats had been treated with a product with an on-label use in sheep, but not goats. The supplier had followed the on-label withholding instructions for sheep (10 days), not the default withholding period applicable to off-label use on goats (91 days). The supplier's veterinarian has advised changing to a drench with an on-label claim for use in goats.

The on-farm verification found that the supplier's management of veterinary treatments and record keeping was acceptable. However, a number of recommendations for improvement were made.

⁵ <http://australianpork.com.au/wp-content/uploads/2013/09/Rodenticide-FAQs-9-October-2015.pdf>

The supplier was placed on the national surveillance list. Further targeted testing did not show any reoccurrence of the original finding and the supplier was removed from the national surveillance list.