



New Zealand National Chemical Residues Programme Report

Results for 1 July 2015 – 30 June 2016 for bovine, ovine, caprine, cervine, equine, porcine and wild animals, and ostriches, honey, farmed salmon, fish, poultry, turkeys, and ducks

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ACRONYMS

ACVM	means the Agricultural Compounds and Veterinary Medicines (ACVM) Act 1997
APA	means the Animal Products Act 1999
ML	means maximum level as specified in the Australia New Zealand Food Standards Code – Schedule 19: Maximum levels of contaminants and natural toxins
MPI	means the Ministry for Primary Industries
MPL	means maximum permissible level as specified by Animal Products Notice: Contaminant Specifications
MRL	means maximum residue level as specified Food Notice: Maximum Residue Levels for Agricultural Compounds
NAIT	means the National Animal Identification and Tracing Act 2012
NCRP	means the National Chemical Residues Programme
NZ	means New Zealand
PAH	means polycyclic aromatic hydrocarbon
PCB	means polychlorinated biphenyl
RFID	means radio frequency identification tag

1 EXECUTIVE 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.

Samples are collected by persons authorised to do so and procedures are in place to ensure that traceability, security and quality management are maintained from collection through to analysis and storage.

Samples are analysed at laboratories contracted by MPI to do so. Contracted laboratories have ISO/IEC 17025 and International Accreditation New Zealand accreditation and are approved under the MPI Recognised Laboratory Programme.

Over 3 000 samples were collected and tested for hundreds of agricultural compounds, veterinary medicines and environmental contaminants. Over 211 000 test results were obtained with just 5 non-compliant results. This represents a compliance rate in New Zealand of 99.998%. No food safety issues were identified. The reported results from the NCRP confirm that 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 website¹ and full texts are available at the New Zealand Legislation website².

2.1 LEGISLATION RELEVANT TO NCRP

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 randomly selected 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 hormonal growth promotants treated animals		Animal Products Notice: Regulated Control Scheme for Hormonal Growth Promotants	The legal basis for the identification and management of hormonal growth promotants 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 – Verification of Contaminants 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.

¹ <http://www.mpi.govt.nz/>

² <http://www.parliament.nz/en-nz/>

Primary Legislation (Act)	Activity	Secondary Legislation (Regulations)	Tertiary Legislation (Specifications or Notices)	Description
	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.
	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 / FSANZ	MRLs		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.
	MLs		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 RFID 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 hormonal growth promotants 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 NON-COMPLIANT

3.1 NON-COMPLIANCE DEFINED

Residue non-compliances occur when the test results exceed the thresholds specified in applicable legislation.

Exported animal material or animal products must comply with:

- Animal Products Notice: Contaminant Specifications, 27 July 2016.
- General Requirement for Export: 08/035 Contaminant Requirements for Bee Products for Export.
- Any Notice issued under Section 60A of the APA.

Domestically-produced food sold in New Zealand must comply with:

- The New Zealand (Maximum Residue Limits of Agricultural Substances) Food Standards (the MRL Standards). These standards list the MRLs for a range of agricultural substances, but also include a provision for residues of up to 0.1 mg/kg for agricultural substance/food combinations not specifically listed.
- The Australia New Zealand Food Standards Code, Standard 1.4.1: Contaminants and natural toxicants. This standard lists the maximum levels for metal contaminants in food.

3.2 CORRECTIVE ACTIONS

When non-complying residues are identified, a traceback is initiated and the residue finding investigated.

The most common regulatory action taken against the suppliers of animals from which non-complying residues 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 regulatory limit in supplied animals as well as acceptable measures have been put in place to prevent reoccurrence of the non-compliance.

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 2015 / 2016	157	6 010
Farmed Salmon 2015 / 2016	140	1 472
Fish 2015 / 2016	37	476
Meat 2015 / 2016	2 597	192 812
Ostriches + Emu's 2015 / 2016	1	501
Poultry 2015 / 2016	102	10 134
Total	3 034	211 405

5 RESULTS OF THE MONITORING, SURVEILLANCE & SPECIES VERIFICATION PROGRAMMES

5.1 LIVE CATTLE

Substances	Planned	Completed	Positive > NZ Standards ³
Stilbenes, steroids and RALs	50	44*	0
Thyrostatic agents	25	35*	0
Beta-agonists	50	44*	0
Phenicol	50	44*	0
NSAIDs	50	34*	0

* In 2015 / 2016 some randomly allocated samples were not able to be collected. Additional samples will be collected in 2016 / 2017 to make up the deficit.

5.2 SLAUGHTERED CATTLE

Substances	Planned	Completed	Positive > NZ Standards ³
Stilbenes, steroids and RALs	75	75	0
Thyrostatic agents	25	25	0
Hormonal Growth Promotants	75	33*	0
Beta-agonists	75	81	0
Phenicol	75	81	0
Nitrofurans	100	102	0
Antibiotics	100	109	0
Ceftiofur	25	25	0
Sulphonamides	60	60	0
Anticoccidials	100	108	0
Anthelmintics	100	106	0
Pesticides	150	158	0
NSAIDs	25	29	0
1080	15	24	0
Heavy metals	50	49	0
Anticoagulants	15	18	0

* In 2015 / 2016 some randomly allocated samples were not able to be collected. Additional samples will be collected in 2016 / 2017 to make up the deficit.

³ Animal Products Notice: Contaminant Specifications, 27 July 2016

5.3 SHEEP

Substances	Planned	Completed	Positive > NZ Standards ³
Stilbenes, steroids and RALs	75	74*	0
Thyrostatic agents	25	25	0
Beta-agonists	75	81	0
Phenicol	75	83	0
Nitrofurans	100	100	0
Antibiotics	75	76	0
Anticoccidials	25	23*	0
Anthelmintics	100	100	1(a)
Pesticides	50	49*	1(b)
1080	15	15	0
Heavy metals	50	48	0
Anticoagulants	15	18	0

(a) One detection of closantel above New Zealand standards³.

(b) One detection of diflufenican above New Zealand standards³.

* In 2015 / 2016 some randomly allocated samples were not able to be collected. Additional samples will be collected in 2016 / 2017 to make up the deficit.

5.4 GOATS

Substances	Planned	Completed	Positive > NZ Standards ³
Stilbenes, steroids and RALs	25	24*	0
Thyrostatic agents	25	27	0
Beta-agonists	25	24*	0
Phenicol	25	25	0
Nitrofurans	25	25	0
Antibiotics	25	25	0
Anticoccidials	25	25	0
Anthelmintics	25	25	0
Pesticides	25	25	0
1080	15	18	0
Heavy metals	25	25	0
Anticoagulants	15	20	0

* In 2015 / 2016 some randomly allocated samples were not able to be collected. Additional samples will be collected in 2016 / 2017 to make up the deficit.

5.5 DEER

Substances	Planned	Completed	Positive > NZ Standards ³
Stilbenes, steroids and RALs	75	74*	0
Thyrostatic agents	25	23*	0
Beta-agonists	75	77	0
Phenicol	75	77	0
Nitrofurans	75	75	0
Antibiotics	75	79	0
Anticoccidials	25	23*	0
Anthelmintics	75	76	0
Pesticides	75	73*	0
NSAIDs	25	26	0
1080	15	11*	0
Heavy metals	25	25	0
Anticoagulants	15	14*	0

* In 2015 / 2016 some randomly allocated samples were not able to be collected. Additional samples will be collected in 2016 / 2017 to make up the deficit.

5.6 HORSE

Substances	Planned	Completed	Positive > NZ Standards ³
Stilbenes, steroids and RALs	50	50	0
Thyrostatic agents	25	25	0
Beta-agonists	50	50	0
Phenicol	50	50	0
Nitrofurans	50	50	0
Nitroimidazoles	25	25	0
Antibiotics	25	24*	0
Virginiamycin	25	25	0
Anthelmintics	25	25	0
NSAIDs	25	25	0

* In 2015 / 2016 some randomly allocated samples were not able to be collected. Additional samples will be collected in 2016 / 2017 to make up the deficit.

5.7 WILD ANIMALS

Substances	Planned	Completed	Positive > NZ Standards ³
1080	20	21	0
Anticoagulants	30	30	0
Heavy metals	20	20	0

5.8 FARMED SALMON

Substances	Planned	Completed	Positive > NZ Standards ³
Stilbenes, steroids and RALs	10	10	0
Phenolics	10	10	0
Nitrofurans	10	10	0
Nitroimidazoles	10	10	0
Antibiotics	20	20	0
Anthelmintics	10	10	0
Pesticides	20	20	0
Isoeugenol	20	20	0
Heavy metals	10	10	0
Dyes	20	20	0

5.9 OSTRICHES

Substances	Planned	Completed	Positive > NZ Standards ³
Beta-agonists	1	1	0
Nitrofurans	1	1	0
Nitroimidazoles	1	1	0
Anthelmintics	1	1	0
Pesticides	1	1	0

5.10 PIGS

Substances	Planned	Completed	Positive > NZ Standards ³
Beta-agonists	25	28	0
Nitrofurans	25	25	0
Nitroimidazoles	25	28	0
Antibiotics	25	28	0
Carbadox	25	25	0
Anticoccidials	25	25	0
Pesticides	25	28	2(a)
Anticoagulants	10	11	0

(a) Two detections of pirimiphos-methyl above New Zealand standards³.

5.11 POULTRY, TURKEYS & DUCKS

Substances	Planned	Completed	Positive > NZ Standards ³
Stilbenes, steroids and RALs	20	20	0
Nitrofurans	20	21	0
Antibiotics	20	20	0
Anticoccidials	20	22	0
Pesticides	20	20	0

5.12 HONEY

Substances	Planned	Completed	Positive > NZ Standards ⁴
Phenolics	8	7*	0
Nitrofurans	8	8	1(a)
Antibiotics	80	80	0
Pesticides + neonicotinoids	25	26	0
Heavy metals	16	16	0
Amitraz	20	20	0

(a) One detection of semicarbazide above New Zealand export standards⁴.

* In 2015 / 2016 some randomly allocated samples were not able to be collected. Additional samples will be collected in 2016 / 2017 to make up the deficit.

5.13 ALPACA

A small number of alpacas are slaughtered for domestic consumption on a one-off basis. One sample was tested for pesticides and anthelmintics and no results above the New Zealand MPL were detected.

5.14 FISH

5.14.1 Wild caught sea fish and crustaceans

Substances	Planned	Completed	Positive > NZ Standards ³
Heavy metals	25	25	0

5.14.2 Fresh water eels

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

* In 2015 / 2016 some randomly allocated samples were not able to be collected. Additional samples will be collected in 2016 / 2017 to make up the deficit.

5.15 SURVEILLANCE PROGRAMME

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

5.15.1 Results of the Surveillance Programme

Substances	Cattle	Goat	Honey	Sheep	Pig	Farmed Salmon
Anthelmintics		1(d)				
Heavy Metals	1(a)					
Pesticide	1(b) 1(c)			3(f) 8(g)		

⁴ Animal Products General Requirements for Export - 08/035 Contaminant Requirements for Bee Products for Export

Substances	Cattle	Goat	Honey	Sheep	Pig	Farmed Salmon
Amitraz			5(e)			
Dyes						46(i)
Antibiotics					3(h)	

- (a) One sample from one supplier on the MPI surveillance list (lead) were tested in 2015 / 2016. The results were compliant with the NZ standards³.
- (b) One sample from one supplier on the MPI surveillance list (chlorpyrifos) was tested in 2015 / 2016. The results were compliant with the NZ standards³.
- (c) One sample from one supplier on the MPI surveillance list (diflufenican) was tested in 2015 / 2016. The results were compliant with the NZ standards³.
- (d) One sample from one suppliers on the MPI surveillance list (moxidectin) was tested in 2015 / 2016. The results were compliant with the NZ standards³.
- (e) Five samples from two suppliers on the MPI surveillance list (amitraz) was tested in 2015 / 2016. The results were compliant with the NZ standards³.
- (f) Three samples from one supplier on the MPI surveillance list (diflufenican) was tested in 2015 / 2016. The results were compliant with the NZ standards³.
- (g) One sample from one suppliers on the MPI surveillance list (closantel) was tested in 2015 / 2016. The results were compliant with the NZ standards³.
- (h) Three samples from one suppliers on the MPI surveillance list (oxytetracycline) was tested in 2015 / 2016. The results were compliant with the NZ standards³.
- (i) 46 samples from one supplier on the MPI surveillance list (leucomalachite green) was tested in 2015 / 2016. The results were compliant with the NZ standards³.

5.16 SPECIES VERIFICATION PROGRAMME

The test results verified there was no species substitution.

5.16.1 Results of the Species Verification Programme

Planned	Completed	Tested true to label
300	297*	297

*Additional samples will be collected in 2016 / 2017 to make up for a small deficit in samples collected in 2015 / 2016

6 RESULTS WHICH EXCEEDED REGULATORY LIMITS

Five results exceeded the New Zealand standards for either maximum permissible levels of contaminants as specified in the Animal Products Notice: Contaminant Specifications, or Animal Products General Requirements for Export - 08/035 Contaminant Requirements for Bee Products for Export.

Substance and amount detected (mg/kg)	Animal or animal product sampled	NZ Standard (mg/kg)	Codex Standard (mg/kg)
Meat programme			
Closantel – 6.5	Sheep (liver)	1.5 ³	1.5 ⁵
Diflufenican – 0.30	Sheep (fat)	0.01 ³	-. ⁶
Pirimiphos-methyl – 0.012	Pig (fat)	0.01 ³	0.01 ⁶
Pirimiphos-methyl – 0.017	Pig (fat)	0.01 ³	0.01 ⁶
Honey programme			
Semicarbazide – 0.0008	Honey	0.0001 ⁴	-. ⁵

* Semicarbazide is used as a marker for nitrofurazone, which is listed as a prohibited substance.

⁵ FAO/WHO Codex Alimentarius International Food Standards – Maximum Residue Limits (MRLs) and Risk Management Recommendations (RMRs) For Residues Of Veterinary Drugs In Foods CAC/MRL 2-2015 Updated as at the 38th Session of the Codex Alimentarius Commission (July 2015)

⁶ FAO/WHO Codex Alimentarius International Food Standards – Maximum Residue Limits (MRLs) for Pesticides CAC/MRL 1

6.1 MPI ACTIONS FOR NON-COMPLYING TEST RESULTS

6.1.1 Meat programme

6.1.1.1 Closantel

One closantel residue was detected in a sheep above the New Zealand standard³ and the Codex standard⁴. The amount of closantel residue found did not pose a food safety risk.

Examination of the supplier declaration with respect to withholding period and treatments, a telephone interview with the supplier, and an on-farm audit was conducted. The farm records showed the animal had been presented for primary processing outside of the withholding period following the last treatment with the registered agricultural compound. The on-farm audit found winter flooding had damaged some fencing on the property. In addition, the supplier reported significant facial eczema problems on the property. Facial eczema causes hepatotoxicity which negatively impacts hepatic-based residue elimination. It was concluded that either, or both events could have led to the residue finding.

The on-farm audit showed good agricultural practices in evidence. Fencing repair work was viewed during the audit. In addition, the supplier undertook to discontinue the use of the closantel product until the fencing repair work was complete.

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

MPI will continue to undertake random monitoring for closantel in the 2016 / 2017 sampling programme.

6.1.1.2 Diflufenican

One diflufenican residue was detected in a sheep above the New Zealand standard³. The amount of diflufenican residue found did not pose a food safety risk.

Examination of the supplier declaration with respect to withholding period and treatments, a telephone interview with the supplier, and an on-farm audit was conducted. The on-farm audit found the animals had been presented as part of a large mob for primary processing, only for the processor to return part of the mob due to a logistical delay later that day. When the animals were returned, the farm manager put the sheep onto pasture that had been treated with diflufenican, because no grazing withholding period was stated on the product label. Otherwise, the on-farm audit showed good agricultural practices in evidence.

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

MPI will continue to undertake random monitoring for diflufenican in the 2016 / 2017 sampling programme.

6.1.1.3 Pirimiphos-methyl

Two pirimiphos-methyl residues were detected in pigs above the New Zealand standard³ and the Codex standard⁴. The amount of pirimiphos-methyl found did not pose a food safety risk.

Examination of the supplier declaration with respect to withholding periods and treatments, and a telephone interview with the supplier was conducted. The cause was identified as likely

resulting from grain feed treated with pirimiphos-methyl fumigant. Pirimiphos-methyl has a registered use as a fumigant in grain silos to manage pests.

MPI will continue to undertake random monitoring for pirimiphos-methyl in the 2016 / 2017 sampling programme.

6.1.2 Bee programme

6.1.2.1 Semicarbazide

One semicarbazide residue was detected in *Weinmannia racemose* (kāmahi) honey above the New Zealand standard⁴. The amount of semicarbazide found did not pose a food safety risk.

Semicarbazide has previously been reported⁷ in kāmahi honey. The UK Food and Environment Research Agency (FERA) reported⁸ finding semicarbazide present in heather honey and described potential pathways for its natural formation from amino acids such as arginine and creatinine. It is also described as occurring naturally in shellfish seaweed, eggs and crustaceans. As well as resulting from anthropogenic processes, including blowing agent in plastic sealing gaskets, flour treatment agent (dough-improver), hypochlorite cleaning processes and whey protein purification. Evidence of its wide spread presence in many manufactured food products was published by the Nestle Research Centre, Switzerland⁹.

Semicarbazide is not considered of concern for human health at the concentrations encountered in food¹⁰, but it is used as a marker for nitrofurazone, which is listed as a prohibited substance in the European Union. The sample was tested for parent nitrofurazone and no residues were detected.

MPI will continue to undertake random monitoring for semicarbazide in the 2016 / 2017 sampling programme.

6.2 OTHER INVESTIGATIONS

6.2.1 Farmed salmon programme

6.2.1.1 Leucomalachite Green

Six leucomalachite green residues were detected in farmed salmon below the New Zealand standard³. Leucomalachite green is a metabolite of malachite green. The amount of leucomalachite green found did not pose a food safety risk.

The supplier was placed on the national surveillance list and further testing found the presence of malachite green at levels below the New Zealand standard³ across the supplier's production system.

An investigation was conducted to determine the cause of the leucomalachite green residues. Numerous potential causes were examined and it was found that a recently introduced of brand of imported feed contained residues of leucomalachite green. Tracing-back the use of this feed

⁷ New Zealand National Chemical Residues Programme Report. Results for July 1 2011 – June 30 2012 and proposed programme for July 1 2012 – June 30 2013 for Red Meat (including Ostrich & Emus and Wild Game), Honey, Farmed Salmon, Turkeys, Broilers and Ducks. December 2012

⁸ Crews, C., Potential natural sources of semicarbazide in honey – Report for the Food Standards Agency in Scotland – Project code FS241065. The Food and Environment Research Agency. 3rd July 2012

⁹ Stadler R.H., Verzegnassi L., Seefelder W., Racault L. Why semicarbazide (SEM) is not an appropriate marker for the usage of nitrofurazone on agricultural animals. Food Addit. Contam. Part A. Chem. Anal. Control Expo. Risk Assess. 2015; 32(11):1842-50.

¹⁰ Opinion of the Scientific Panel on Food Additives, Flavourings, Processing Aids and Materials in Contact with Food on a request from the Commission related to semicarbazide in food. The EFSA Journal (2005) 219, 1-36.

it was able to be shown that where this feed was used, fish contained leucomalachite green residues. Where the feed was not used, fish did not contain residues of leucomalachite green.

The supplier undertook to establish a quality assurance regime for imported feed lots to mitigate the risk of producing fish with leucomalachite green residues.

MPI will continue to undertake random monitoring for malachite green in the 2016 / 2017 sampling programme.