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NATIONAL RESIDUE CONTROL PLAN REPORT 2021

Background on the National Residue Control Plan

1. Under EU legislation (Article 19 of Regulation (EU) 2017/625[1]), each member state is required to implement a residue monitoring plan and to submit their programmes annually to the European Commission for approval. Ireland's National Residue Control Programme (NRCP) for 2021 was approved by the European Commission. Third Countries wishing to export animal products to the EU are similarly required to satisfy the European Commission that their legislation, controls and residue surveillance measures provide equivalent guarantees for EU consumers.

2. The scope of testing under the NRCP is very comprehensive, covering 8 food production systems, milk, eggs and honey and 18 distinct residue groups (each residue group is, in turn, comprised of a number of sub-groups). These residue-groups fall into four broad categories: banned substances, such as growth-promoting hormones; authorised veterinary medicines; approved animal feed additives and environmental contaminants. Implementation of the NRCP involves taking samples from food producing species at farm and primary processing/packing levels. This strategic approach reflects current scientific and analytical advice designed to maximise the effectiveness of the testing regime by sampling the most appropriate matrix for each substance.

3. Most samples (c. 93%) are taken in accordance with risk-based criteria designed to target animals or products that are more likely to contain illegal residues ('targeted sampling'). The results also reflect the outcome of sampling conducted in specific cases where the presence of illegal residues was suspected ('suspect sampling') by Department or Local Authority inspectors. This can arise, for example, on the basis of the ante or post-mortem examinations of animals at slaughterhouses or following further detailed risk analysis. In such cases, the animals/products concerned are withheld from the food chain, pending the outcome of the analysis. In the event of a positive result from routine targeted samples, where animals/products are not detained, food is withdrawn or recalled

[1] Regulation (EU) 2017/625 of the European Parliament and of the Council of 15 March 2017 on official controls and other official activities performed to ensure the application of food and feed law, rules on animal health and welfare, plant health and plant protection products, amending Regulations (EC) No 999/2001, (EC) No 396/2005, (EC) No 1069/2009, (EC) No 1107/2009, (EU) No 1151/2012, (EU) No 652/2014, (EU) 2016/429 and (EU) 2016/2031 of the European Parliament and of the Council, Council Regulations (EC) No 1/2005 and (EC) No 1099/2009 and Council Directives 98/58/EC, 1999/74/EC, 2007/43/EC, 2008/119/EC and 2008/120/EC, and repealing Regulations (EC) No 854/2004 and (EC) No 882/2004 of the European Parliament and of the Council, Council Directives 89/608/EEC, 89/662/EEC, 90/425/EEC, 91/496/EEC, 96/23/EC, 96/93/EC and 97/78/ EC and Council Decision 92/438/EEC (Official Controls Regulation

from the market, if deemed necessary in the interests of public health following a risk assessment carried out by the Food Safety Authority of Ireland (FSAI).

4. Virtually all positive results lead to a follow-up investigation at the farm of origin coordinated by the Department of Agriculture, Food and the Marine (the Department) officials. This investigation involves not just an examination of the cause of the particular breach, but also a general review of the arrangements in place on the farm in relation to veterinary medicines, including record-keeping. Follow-up measures are taken, including, where appropriate, restriction of farms and application of the appropriate penalty to the farmer's Single Payment arising from Cross-Compliance requirements. Positive results also usually result in an increased level of residue monitoring for the farmer or supplier concerned.

5. Samples are analysed at officially approved laboratories holding accreditation to the International Standard (ISO 17025) and incorporating current analytical technology. The laboratory network continuously engages in research and development of analytical methodologies in line with scientific developments under the guidance of the EU reference laboratories. This ensures improvement in analytical capability with a view to meeting current and future requirements towards enhancement of consumer protection. The fruits of this work are evidenced by the fact that laboratories are now capable of detecting residues at extremely low levels.

6. In 2021, in addition to official testing carried out by the Department and Local Authorities, primary processors in the red and white meat and milk sector carried out self-monitoring residue testing. Processors submitted annual residue monitoring plans to the Department for approval. Under this regime, processors applied a progressively increasing scale of testing to suppliers of residue positive animals or milk.

Outcome of 2021 official testing

7. In 2021, a total of 15,922 samples were taken from all 8 food production systems, as well as from milk, eggs and honey. The overall number of non-compliant samples across all substances was 18 or 0.11%. The comparable numbers for 2020 was 20, or 0.12% (20/16,196), 2019 was 53, or 0.31% (53/16,911), 2018 was 0.24% (42/17,344), 2017 was 0.3% (51/18,513).

8. An overview of the distribution of sampling across species/products and residue groups is provided in Appendix 1. An overview of all positives results is provided in Appendix 2, while more detailed information on these positives is given in Appendix 3.

9. The Department has a particular focus on laboratory findings that indicate a potential use of banned substances i.e., hormones or other growth promoters prohibited under the EU Hormone Ban (Directive 96/22/EC[2]) or otherwise banned on public health grounds (Table 2 to Commission Regulation 37/2010). During the 2021 NRCP, a targeted sample from a bovine and porcine animal at Slaughter Plant level was found to contain Zeranol and Nortestosterone respectively (both substances are prohibited for use in food-producing animals). In both cases the Department's follow up investigations concluded that there was no evidence of illegal use of either substances.

10. 2 cases of Nitrofurans (SEM) were identified in the Bovine sector in 2021. Following detailed investigations including the carrying out of additional testing, it was determined that there was no evidence of any illegal use and the contributing factor in both cases was due to the bovines ingesting foliage (seaweed – farms located close to the coast) and no further action was deemed necessary. An additional case of Nitrofurans (AOZ) was identified in the Apiculture sector. DAFM's Horticulture Division assumed responsibility for the case and have advised that the follow up investigation, including additional sampling concluded that no further action was required as the FBO was now testing negative and will be the subject of additional monitoring going forward.

11. In 2021, the substance Thiouracil was detected in 2 bovine animals. The presence of Thiouracil may potentially indicate the use of growth promoters covered by the EU Hormone Ban. In each of these 2 detected cases, the Department's investigations concluded that no illegal administration had taken place. Current national and EU scientific evidence is that given the very low levels found, it

[2] Council Directive 96/22/EC concerning the prohibition on the use in stock-farming of certain substances having a hormonal or thyrostatic action and of beta-agonists, and repealing Directives 81/602/EEC, 88/146/EEC and 88/299/EEC

is recognised that they are most likely attributable to natural/environmental or dietary factors e.g. feeding diets rich in cruciferous plants.

12. A single positive sample for lead in wild deer was also reported in 2021. The cause in this instance was most likely due to the hunting process. It was determined that no further action was required.

13. Residues of authorised veterinary medicines in excess of Maximum Residue Limits (MRLs) set for the major food-producing species under Commission Regulation 37/2010 were found in a total of 11 samples.

14. In the case of antibiotic medicines, where testing continues at levels well in excess of those required by EU obligations, the overall positive level across all species/products in 2021 was 0.02% (i.e., 1 non-compliant result for a bovine animal out of 4,719 targeted samples, this figure includes milk and honey). For suspect samples, antibiotics were found above the MRL in 1 bovine animal. The carcase had been detained on suspicion by Department veterinary inspectors in the slaughter plant and was excluded from the food chain on foot of the analytical results.

15. In the ovine and milk sectors, 7 samples (5 ovine and 2 milk) contained residues of anthelmintics (medicines for the control and treatment of parasites) which indicated that specified post-treatment withdrawal periods had not been observed or incorrect administration had occurred. Risk assessments conducted by the FSAI did not indicate an unacceptable risk to consumer health and therefore it was not necessary to recall the products. It should be noted that anthelmintic positives have decreased from 19 in 2019 to 7 for 2021.

16. In the equine sector 1 sample tested positive for Phenylbutazone and oxyphenbutazone (Non-Steroidal Anti-Inflammatory Drug (NSAIDs)). NSAIDs are prohibited for use in equines intended for human consumption. The follow up investigation determined that the carcase for this animal did not enter the food chain and was sent for destruction, and no further action was required.

17. In the aquaculture sector, the Sea Fisheries Protection Authority (SFPA), in conjunction with the Department with support from the Marine Institute (MI), are responsible for residue controls on farmed finfish under the national residue-monitoring plan. In 2021, in excess of 632 tests and a total of 1,870 determinants were carried out on 120 samples of farmed finfish for a range of residues. No non-compliant results were reported from the national monitoring programme for farmed finfish in 2021. Overall, the outcome for aquaculture remains one of consistently low occurrence of residues in farmed finfish, with no non-compliant target residues results for the periods 2006-2014

and 2017-2021. In the intervening years, there was 0.11% and 0.10% non-compliant target residues results for 2015 and 2016 respectively.

18. Separate from the NRCP and in order to monitor conformity with Community legislation, products of animal origin entering the EU through Ireland are subject to sampling and analysis for residues. Tests are carried out under monitoring plans or on suspicion of an irregularity. In 2021, 103 samples were taken from consignments imported directly into Ireland from countries outside the EU/EEA. No positive samples were identified.

APPENDIX 1

OVERVIEW OF THE NUMBER OF SAMPLES TAKEN UNDER THE DEPARTMENT OF AGRICULTURE, FOOD & THE MARINE'S RESIDUE MONITORING PROGRAMME FOR 2021

Product Category	Sampling Point	Suspect Sampling	Targeted Sampling	Total
Bovine	Farm	7	2,227	2,234
	Slaughter	996	5,489	6,485
	Total	**1,003**	**7,716**	8,719
Porcine	Farm	0	53	53
	Slaughter	86	1,932	2,018
	Total	**86**	**1,985**	2,071
Sheep	Farm	0	1	1
	Slaughter	9	1,770	1,779
	Total	**9**	**1,771**	**1,780**
Goats	Slaughter	0	4	4
	Total	**0**	**4**	4
Poultry	Farm	0	91	91
	Slaughter	0	1,235	1,235
	Total	**0**	**1,326**	1,326
Horses	Slaughter	10	142	152
	Total	**10**	**142**	152
Wild Game*	Slaughter	0	62	62
	Total	**0**	**62**	62
Milk	Farm	1	1,337	1,338
	Total	**1**	**1,337**	1,338
Eggs	Farm	0	299	299
	Total	**0**	**299**	299
Honey	Farm	0	51	51
	Total	**0**	**51**	51
Aquaculture	Farm	0	120	120
	Total	**0**	**120**	120
Total		**1,109**	**14,813**	**15,922**

*Includes 5 Farmed Game Samples

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APPENDIX 2

SUMMARY OF THE ANALYSIS OF DEPARTMENT OF AGRICULTURE, FOOD & THE MARINE'S RESIDUE MONITORING PROGRAMME FOR 2021

Group A Prohibited Substances

Substance	Bovine		Pigs		Sheep/Goats		Poultry		Milk		Horses		Aquaculture		Eggs		Farm Game/Wild		Honey	
	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.
A1	253	-	45	-	19	-	89	-	-	-	1	-	-	-	-	-	-	-	-	-
A2	278	2	40	-	18	-	13	-	-	-	1	-	-	-	-	-	-	-	-	-
A3	1835	-	287	1	99	-	58	-	52	-	7	-	52	-	-	-	-	-	-	-
A4	289	1	64	-	44	-	86	-	-	-	1	-	-	-	-	-	-	-	-	-
A5	1111	-	104	-	76	-	78	-	-	-	4	-	-	-	-	-	-	-	-	-
A6	1008	2	473	-	170	-	324	-	81	-	10	-	59	-	94	-	-	-	27	1
Total No. Analyses	**4774**	**5**	**1013**	**1**	**426**	**0**	**648**	**0**	**133**	**0**	**24**	**0**	**111**	**0**	**94**	**0**	**0**	**0**	**27**	**1**

Group B - Veterinary Drugs and Contaminants

B 1 – Antibacterial Substances

Substance	Bovine		Pigs		Sheep/Goats		Poultry		Milk		Horses		Aquaculture		Eggs		Farm Game		Honey	
	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.
B1	**3111**	**2**	**925**	**0**	**735**	**0**	**387**	**0**	**409**	**0**	**37**	**0**	**80**	**0**	**150**	**0**	**1**	**0**	**15**	**0**

B 2 - Other Veterinary Drugs

Substance	Bovine		Pigs		Sheep/Goats		Poultry		Milk		Horses		Aquaculture		Eggs		Farm Game/Wild Game		Honey	
	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.
B2a	545	-	90	-	392	5	82	-	406	2	10	-	80	-	-	-	1	-	-	-
B2b	322	-	66	-	97	-	333	-	81	-	3	-	-	-	80	-	1	-	17	-
B2c	161	-	33	-	89	-	251	-	-	-	4	-	80	-	27	-	2	-	-	-
B2d	65	-	45	-	17	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-
B2e	131	-	66	-	41	-	25	-	75	-	64	1	-	-	-	-	1	-	-	-
B2f	212	-	172	-	104	-	240	-	81	-	7	-	80	-	46	-	2	-	9	-
Total No. Analyses	**1436**	**0**	**472**	**0**	**740**	**5**	**931**	**0**	**643**	**2**	**95**	**1**	**240**	**0**	**153**	**0**	**7**	**0**	**26**	**0**

B 3 - Other Substances and Environmental Contaminants

Substance	Bovine		Pigs		Sheep/Goats		Poultry		Milk		Horses		Aquaculture		Eggs		Farm Game/Wild Game		Honey	
	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.
B3a	145	-	69	-	93	-	35	-	66	-	7	-	15	-	42	-	-	-	9	-
B3b	135	-	59	-	75	-	25	-	66	-	1	-	-	-	27	-	-	-	9	-
B3c	118	-	36	-	49	-	43	-	98	-	2	-	8	-	-	-	57	1	15	-
B3d	98	-	57	-	20	-	106	-	108	-	1	-	-	-	-	-	-	-	-	-
B3e	-	-	-	-	-	-	-	-	-	-		-	64	-	-	-	-	-	-	-
B3f	79	-	20	-	41	-	36	-	-	-	3	-	-	-	-	-	1	-	9	-
Total No. Analyses	**575**	**0**	**241**	**0**	**278**	**0**	**245**	**0**	**338**	**0**	**14**	**0**	**87**	**0**	**69**	**0**	**58**	**1**	**42**	**0**

OVERALL RESULT - TOTAL GROUP A + GROUP B

Substance	Bovine		Pigs		Sheep/Goats		Poultry		Milk		Horses		Aquaculture		Eggs		Farm Game/Wild Game		Honey	
	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.	Num.	Pos.
Overall Total Analyses	**9896**	**7**	**2651**	**1**	**2179**	**5**	**2211**	**0**	**1523**	**2**	**170**	**1**	**518**	**0**	**466**	**0**	**66**	**1**	**110**	**1**

Notes

(a) See over for key to each substance sub-group
(b) Results are from routine targeted and on suspicion testing
(c) Results reflect testing at primary processing plants and, where appropriate, on farm.
(d) It is not mandatory to test for all substances in every species/product
(e) Results for farmed game and wild game are combined
(f) The total number of samples taken in 2021 for all food-groups was 15,922 (some samples are analysed for more than one substance, including finfish).
(g) In the case of aquaculture, 120 finfish were tested in total.

Group A – (Prohibited Substances) Substances having anabolic effect and unauthorised substances

A1 - Stilbenes, stilbene derivatives, and their salts and esters
A2 - Antithyroid agents
A3 - Steroids
A4 - Resorcylic acid lactones including zeranol
A5 - Beta-agonists
A6 - Regulation 470/2009 laying down Community procedures for the establishment of residue limits of pharmacologically active substances in foodstuffs of animal origin and Commission Regulation (EU) 2019/1871 establishing reference points for action (RPAs) for certain non-allowed pharmacologically active substances present in food of animal origin

Group B - Veterinary drugs and contaminants

B1- Antibacterial substances, including sulphonamides, quinolones

B2 - Other veterinary drugs

B2a Anthelmintics
B2b Anticoccidials
B2c Carbamates and pyrethroids
B2d Sedatives
B2e Non-steroidal anti-inflammatory drugs (NSAIDs)
B2f Other pharmacologically active substances

B3 - Other substances and environmental contaminants

B3a Organochlorine compounds
B3b Organophosphorus compounds
B3c Chemical elements
B3d Mycotoxins
B3e Dyes
B3f Others

Appendix 2: Details of Non-compliant Results

Species/ Animal produce	Total No. Of Samples*	Total No. of Analyses	Total No. of Non-compliant samples*	Substance
Farmed Fish	108	645	0	N/A
Bovine	8,719	9,896	7	2 Antibiotics (1 Marbofloxacin, 1 Tulathromycin) 2 Thyrostats (Thiouracil) 2 Nitrofurans (SEM) 1 Zeranol)
Eggs	299	466	0	N/A
Equine	152	170	1	1 NSAIDs (Oxyphenbutazone & Phenylbutazone)
Farmed Game (Deer) / Wild Game	62	66	1	1 Chemical Elements (Lead)
Honey	51	110	1	1 Nitrofuran (AOZ)
Milk	1,338	1,523	2	2 Anthelmintics (2 Levamisole)
Ovine/Caprine	1,784	2,179	5	5 Anthelmintics (5 Closantel),
Porcine	2,071	2,651	1	1 Hormone (Nortestosterone)
Poultry	1,326	2,211	0	N/A
Total:	**15,910**	**19,917**	**18**	

*Numbers relate to samples taken on a routine targeted basis and on suspicion, including follow-up investigations.

Appendix 3

FOLLOW-UP ACTIONS FOR NON-COMPLIANT RESULTS IN 2021

Group A substances

Non-compliant results	**Follow-up actions**
5 non-compliant results	**Bovine**
• *Thyrostats-Thiouracil* • *Urine* • *2 non-compliant results*	2 target samples confirmed non-compliant for Thiouracil at the following levels: (1) 101.66pbb (2) 39.7pbb Investigations of Thiouracil residue positives carried out over a ten-year period at farm level did not reveal any evidence of illegal use and it was concluded that it was from dietary factors. Having consulted with the FSAI a decision was taken to only carry out on farm investigations on levels exceeding 30µg/kg[3]. Investigations were initiated at farm level in both cases >30µg/kg and no evidence of illegal use was identified. In line with scientific evidence, the Competent Authority concluded that the residues resulted from dietary factors.
• *Nitrofurans* • *Plasma* • *2 non-compliant results*	2 Nitrofuran results confirmed non-compliant for SEM at the following levels. 1. SEM 0.10 µg/kg The follow up investigation concluded that there was no evidence of the illegal use. Probable cause identified arising from the ingestion of seaweed. 2. SEM 0.27 µg/kg The follow up investigation concluded that there was no evidence of the illegal use. Probable cause identified arising from the ingestion of seaweed.
• *Zeranol* • *Urine* • *1 non-compliant result*	1 result confirmed non-complaint for Zeranol 1. Zeranol 3.66 µg/ml The follow up investigation concluded that there was no evidence of the illegal use.

1 non-compliant result	**Porcine**
• *Steroid* • *Urine* • *1 non-Compliant result*	1 target sample confirmed non-compliant for Boldenone at the following level: 1. 2.00µg/ml The follow up investigation concluded that there was no evidence of illegal use. It was not possible to confirm the gender of the sampled animal as a very large number of pigs of both sexes were submitted for slaughter. Noted that faecal contamination or dehydration may have been a contributory factor.
1 non-compliant result	**Honey**
• *Nitrofuran* • *Honey* • *1 non-Compliant result*	1 target sample confirmed non-compliant for AOZ at the following level: 1. >5.00µg/kg

	Full on-site investigations including examination of records along with further sampling was carried out. On consultation with various divisions, it was deemed no further action was required as the honey produced at the FBO is now testing negative for Nitrofurans. The results will inform risk rating going forward and the FBO will be constantly monitored. No further action was required.

[3]The approach is contingent on the potential risk posed and would consequently be reviewed in light of any new emerging data, results and or any new guidance from the EURL/European Commission

Group B substances

Non-compliant results	Follow-up actions
2 non-compliant results	**Bovine**
• *Antibiotics* • *Muscle 2 non-compliant results* • *2 non-compliant result*	**2 Antibiotics confirmed non-compliant for antibiotics at the following levels.** 1. Marbofloxacin 210.8 µg/kg The investigation found that after treatment, the withdrawal period was not observed by the herdowner before the animal was presented for slaughter. Case referred to Cross Compliance resulting in a 5% penalty being imposed. 2. Tulathromycin 467 µg/kg. The investigation in this case is ongoing.
1 non-compliant results	**Equine**
• *NSAID* • *Kidney* • *1 non-compliant result*	**1 target sample confirmed non-compliant for NSAIDs at the following level:** 1. Oxyphenbutazone 20.0 ng/kg & Phenylbutazone 15.0 ng/kg The investigation was unable to determine or confirm the ownership of the animal prior to slaughter.
2 non-compliant results	**Milk**
• *Anthelmintics* • *Milk* • *2 non-compliant results*	**2 target samples confirmed non-compliant for Anthelmintics at the following levels:** 1. Levamisole 0.53 µg/kg 2. Levamisole 0.57 µg/kg Full on farm investigations including examination of animal remedies/records along with further sampling which did not support the use of Levamisole on farm. No further action was required.
5 non-compliant results	**Ovine**
• *Anthelmintics-Closantel* • *Liver* • *5 non-Compliant results*	**5 target samples confirmed non-compliant for Closantel at the following levels:** 1. 1773 µg/kg The animal in question had been recently purchased – both herdowners were visited however it was not possible to determine cause. 2. 1986 µg/kg Final report awaited. 3. 1709 µg/kg The animal in question had been recently purchased – both herdowners were visited however it was not possible to determine cause. 4. 1927 µg/kg Final report awaited. 5. 1880 µg/kg The investigation found that after treatment, the withdrawal period was not observed by the herdowner before the animal was presented for slaughter. Case referred to Cross Compliance.

1 non-compliant results	Wild Game
• *Chemical Elements* • *Muscle* • *1 non-Compliant results*	1 target samples confirmed non-compliant for Lead at the following levels: 1. 1773 µg/kg The veterinary assessment concluded that the presence of lead was due most likely from the hunting process. No further action was deemed necessary.