Commentary on non-compliant results for 2015

Residue Surveillance

European law requires all Member States to monitor residues of veterinary drugs and prohibited substances in food products of animal origin. This is implemented in the UK by the National Residues Control Plan (NRCP). The number and type of samples taken is determined on a UK wide basis according to output, with NI taking a proportionate share of the samples. The Meat Inspection Scheme also operates in Northern Ireland on a statutory basis. This scheme focuses on testing suspect animals in abattoirs, mainly cattle, for a range of antibiotics and hormones. DARD inspectors select animals for sampling on the basis of treatment history, information received, and ante and post mortem inspection.

In addition to statutory testing, the Pig Testing Scheme; designed to control the abuse of in-feed antibiotics in the pig sector, and the Residues in Sheep and Cattle Scheme; which targets higher risk animals, were undertaken in NI in the early part of 2015. During the year these schemes were replaced by a risk based programme (RISK) which covers sheep, cattle pigs, poultry, eggs and milk. EU law provides Member States with the flexibility to undertake additional discretionary testing in situations where further investigation is necessary or a survey is considered appropriate.

A non-compliant result from any of the testing schemes will trigger follow-up action which may include on-farm investigations and sampling, and possible targeted sampling of animals from the farm in question when presented for slaughter.

Compliance with EU residues surveillance legislation is an essential requirement for the export of Northern Ireland produce. Both domestic and export markets increasingly demand high quality products, with safety as a key element. An efficient and effective residues surveillance programme is vital in meeting this requirement. The additional testing makes an important contribution to product safety and provides added assurance to existing and potential customers.

1. NATIONAL SURVEILLANCE SCHEME

Samples collected under the UK National Surveillance Scheme may be taken at abattoirs or on-farm, and provide retrospective surveillance data. As a consequence, carcases are not detained pending the laboratory result.

a) Prohibited and unauthorised substances

1. **Clenbuterol.** This is a β-agonist which is licensed only for use at calving in cattle and has a MRL of 0.5 µg/kg. Clenbuterol can also be used as a growth promoter but it is not licensed for this purpose. Clenbuterol was found in the liver of one bovine. On-farm investigations showed the animal to be 27 months old with no progeny hence legal use of the drug was not a possibility. The animal was purchased 63 days prior to slaughter. No reasons for the presence of clenbuterol residues were determined.

2. A number of samples tested non-compliant for a range of illegal growth-promoting hormones and for thiouracil, a thyrostat that promotes growth by increasing water retention. However, all these compounds can occur naturally because of dietary-, pregnancy- and injury related factors, etc. In all cases no evidence of misuse was uncovered and no penalties were applied.

b) Veterinary medicines

1. **Dihydrostreptomycin**. This is an aminoglycoside antibiotic licensed for use in cattle, sheep and pigs. Residues of dihydrostreptomycin above the Maximum Residue Limit were found in the kidney of a bovine. On-farm investigation revealed that the animal had been treated with Pen & Strep and that the recommended withdrawal period had been exceeded. The investigation also highlighted a possible kidney problem with this animal which may have affected the excretion of the drug. The herd was flagged for follow up sampling at slaughter. DVO to write to herd keeper. SMR 4 breach reported. Three follow up samples were taken 08/06/15 and were all compliant.

2. **Florfenicol.** This is an amphenicol antibiotic licensed for use in a range of species. Residues of florfenicol above the Maximum Residue Limit were found in the kidney of a bovine. Investigation concluded that although the withdrawal period had be adhered to the injection had not be perfomed according to the datasheet.

3. **Ivermectin.** Ivermectin is a broad-spectrum antiparasitic agent. Residues were detected in a bovine milk sample. On-farm investigations provided no explanation for the non compliance.

4. **Closantel.** This is an antiparasitic drug, active against liver fluke, that is licensed for use in cattle and sheep. Residues were detected in four ovine liver samples in excess of the Maximum Residue Limits. On-farm investigations revealed that residues were as a result of failure to complete drug withdrawal in one instance while in the remaining cases the problem was less clear particularly due to problems with sheep identification.

5. A number of samples tested non-compliant for a range of compounds, mainly α-boldenone, α-nortestosterone (illegal growth-promoting hormones) and thiouracil (a thyrostat that promotes growth by increasing water retention). However, all these compounds can occur naturally because of dietary, pregnancy and injury related factors, etc. In all cases no evidence of misuse was uncovered and no penalties were applied.

c) Organophosphates

6. **Diazinon**. This is an organophosphate insecticide and acaricide. Residues of diazinon above the Maximum Residue Limit were found in the kidney fat of a sheep. Subsequent investigation found that the animal had been treated with the compound as a dip however the flock keeper had adhered to the withdrawal period

d) Contaminants

1. **Cadmium.** Cadmium was found in a bovine kidney. Cadmium is a metallic environmental contaminant that accumulates in kidney, with increasing age of the animal. In the EU, a Maximum Permitted Limit of 1.0 mg/kg has been established for this heavy metal. At an on-farm investigation, no obvious cadmium sources were identified.

2. MEAT INSPECTION SCHEME

Under this Scheme, the carcase is detained at sampling, and excluded from the food chain if a non-compliant result is obtained.

a) Prohibited and unauthorised substances

1. None detected

b) Veterinary medicines

1. **Oxytetracycline.** This is an antibiotic that is licensed for use in a wide range of animal species. Residues of oxytetracycline above the Maximum Residue Limit were found in the kidney of one bovine and one ovine. Subsequent investigation showed that the bovine animal had been purchased by herd keeper 21 days prior to slaughter and that the herd keeper had not treated the animal. As such it was concluded that the animal may have been treated by previous owner and that the new keeper was not advised of this treatment. The sheep had been overdosed in error and multi injection sites were not used as instructed.

2. Amoxicillin. This is a β-Lactam antibiotic that is licensed for use in a wide range of animal species. Residues above the Maximum Residue Limit were found in the kidney of one bovine. Follow up investigation showed amoxicillin had been administered at almost two times the recommended dose in error. Although the withdrawal period (18 days) had been exceeded the overdose is likely to affect the withdrawal period required.

3. Dihydrostreptomycin. This is an aminoglycoside antibiotic licensed for use in cattle sheep and pigs. Residues of dihydrostreptomycin above the Maximum Residue Limit were found in the kidney of one bovine. On-farm investigations showed that administration of the drug (pen & strep) was not carried out according to the instructions on the data sheet ie multiple injection sites were not used.

4. Penicillin G. This is a narrow spectrum β-Lactam antibiotic that is licensed for use in a wide range of animal species. Residues of penicillin G above the Maximum Residue Limit were found in the kidneys of four cattle. On-farm investigation failed to adequately explain the causes of these residues with the exception of one case where the wrong route of administration was used.

5. Marbofloxacin. This is a fluoroquinolone antibiotic. Residues of marbofloxacin were found in the kidneys of two cattle. On-farm investigations showed error by herd keeper in one instance and failed to provide an explanation in the second case.

6. Nalidixic Acid. This is a quinolone antibiotic. Residues of nalidixic acid were found in the kidney of one bovine. Follow up investigation failed to determine the reasons for the non compliance.

7. Sulphamethazine. A member of the sulphonamide class of antibiotics. Residues of sulphamethazine were found in the kidneys of one bovine. On-farm investigation showed this animal had been treated orally on with a proprietary scour treatment produced by a PVP. The label stated a 7 day withdrawal period. The animal was slaughtered 6 days post treatment. The PVP has since withdrawn the product.

8**. Nitroynil.** This is an antiparasitic drug licensed for use in cattle & sheep, which is active against immature and adult liver fluke and some gastro-intestinal roundworms. Residues were detected in a cattle liver sample in excess of the Maximum Residue Limit. The animal had been bought in 18 days before slaughter, the current owner had not treated the animal.

9. Ivermectin. This is a broad-spectrum antiparasitic agent. Residues were detected in a cattle liver sample in excess of the Maximum Residue Limit. This animal was an on-farm emergency slaughter (OFES). The animal had been treated 12 days before the slaughter date while the formulation used has a 28 day withdrawal.

3.PIG TESTING SCHEME

At Phase 1, the carcase is not detained at sampling, but if found to contain non compliant residues, the producer is allocated to Phase 2 intensified sampling with carcase detention. Non-compliant carcases at Phase 2 are condemned. (After 3 consecutive, clear rounds of Phase 2 sampling, the producer is returned to Phase 1 sampling).

a) Prohibited and unauthorised substances

No testing for these substances was performed.

b) Veterinary medicines

1. Dihydrostreptomycin. This is an aminoglycoside antibiotic licensed for use in cattle sheep and pigs. Residues of dihydrostreptomycin above the Maximum Residue Limit were found in the kidney of one pig. On-farm investigations found that the animal had been given approximately twice the recommended dose.

2. Sulphadiazine. This is an antibimicrobial that is licensed for use in a wide range of animal species. Residues of sulphadiazine, above the MRL, were detected in the kidney of one pig. On-farm investigations found that the animal had been treated with sulphadiazine and that the withdrawal period had been completed a significant period before slaughter. As such the cause of residue detection was unknown.

4. RESIDUES IN SHEEP & CATTLE & RISK SCHEMES

Residues in Sheep & Cattle (RISC) samples are taken at abattoirs, and are designed to provide risk-based surveillance data. Carcases are not detained pending the laboratory result. The RISK scheme samples are taken at abattoirs (sheep, cattle, pig and poultry samples) while milk samples are taken from bulk tanks on-farm and egg samples from packing stations.

a) Prohibited and unauthorised substances

1. Phenylbutazone. This non-steroidal anti-inflammatory painkiller is licensed only for use in horses that are not intended to be slaughtered for human consumption. It is not licensed for use in cattle. Residues of phenylbutazone were detected in a bovine plasma sample. This animal was a direct import from the Republic of Ireland. The competent authority in ROI has been notified by DARD.

b) Veterinary medicines

1. Closantel. This is an antiparasitic drug, active against liver fluke, that is licensed for use in cattle and sheep. Residues were detected in twelve ovine liver samples in excess of the Maximum Residue Limits. On-farm investigations failed to reveal the cause of the residue in a number of cases while a range of reasons were determined for the remainder. In some cases the animals had been on-farm for only a few days prior to slaughter; in one case the animal had not being held for the correct period after treatment before slaughter and in another the animal had been overdosed.

2. Fenbendazole. This is an antiparasitic drug licensed for use in cattle & sheep for the treatment of mature and immature forms of gastro-intestinal roundworms, lungworms, tapeworms and nematode eggs. On-farm investigations found that the animal had been purchased at a livestock market only 5 days prior to slaughter. The flock keeper stated that no drugs had been administered to this animal during the time it was on his farm - it seems likely that this animal has been treated prior to purchase.