2020 Annual Report

The State Laboratory
An tSaotharlann Stáit

CONTENT

INTRODUCTION

I am very pleased to present this annual report on the work of the State Laboratory for 2020. The Covid-19 pandemic presented many challenges but with the support of a fulltime Health & Safety Manager, the Laboratory adapted quickly and remained open throughout 2020. Many new work practices were introduced to maintain output and provide essential testing services to clients, whilst keeping everyone safe when staff were required to be on-site to carry out essential laboratory based activities.

The Laboratory did this by introducing split-shift and blended work patterns and by facilitating as much remote working as possible. New health and safety protocols were introduced for staff and essential visitors (e.g. service engineers) and for deliveries of client samples and supplies to the Laboratory. Management implement a No Close Contact policy for staff working on-site, which successfully prevented workplace transmission of the Covid-19 virus throughout 2020 and into early 2021 when community transmission of the virus was particularly high.

The ICT team facilitated many new ways of working that will endure into the future. Secure remote access to the Laboratory's network was provided to all staff, both for office work and analytical data processing and reporting activities and on-line meeting facilities were set up. Prior to the pandemic, these options were not available, but the move away from paper based systems streamlined processes and significantly improved efficiencies for the long-term. A project to streamline the workflow and reporting of results for post-mortem samples was successfully completed in mid-2020 which enabled the increased level of testing to be carried out for the Coroners Service without additional staff resources.

In a staff survey conducted in May on the measures introduced to mitigate against the spread of Covid-19, staff feedback was very good.

It was the first year of the Laboratory's new statement of strategy and I am happy to report that the Laboratory achieved most of its strategic objectives for the year and in spite of the pandemic, it continued to provide a high quality, efficient and timely analytical chemistry and expert scientific advisory service to its clients.

There was a high level of innovation maintained and many new test methods were developed to meet client requirements. Expansion of the Laboratory's scope of accreditation was limited as it was not possible to add new test methods under fixed scope due to the pandemic and the necessity for a remote INAB assessment visit in April 2020. However, a number of new analytes were added under flexible scope.

There continued to be a lot of staff changes throughout 2020. A number of staff retired or resigned from the Laboratory and the resultant vacancies were filled via recruitment and promotion competitions. From March 2020 onwards, all interviews were conducted remotely. Staff training and development activities continued throughout 2020 to ensure that the Laboratory has in place the highly skilled and expert workforce needed to deliver its services. Many European and International meetings and workshops moved on line which facilitated more staff attending and gaining valuable knowledge and experience.

Full details of the work of the State Laboratory and its achievements in 2020 are presented in this annual report. Overall, I am very proud of the way the Laboratory and its staff responded to the challenges presented by the Covid-19 pandemic. A strong spirit of public service and a commitment to doing whatever it took to keep the Laboratory operating safely was demonstrated by all our staff. For this and for all their hard work and support throughout a very difficult year, I would like to express my sincere thanks and appreciation.

Ita Kinahan

State Chemist

OVERVIEW

The State Laboratory is the Government's principal analytical chemistry laboratory and it is a scheduled office under the aegis of the Department of Public Expenditure and Reform. Its high level objective is to provide an accredited, high quality and timely chemical analysis and advisory service to Government Departments and Offices, which supports their policies, regulatory programmes and strategic objectives, particularly in the areas of food and feed safety; revenue collection; fraud prevention; public health and environment protection. It also provides centralised forensic toxicology services to the Coroners and other public sector clients.

In 2020, the State Laboratory was considered an essential service and remained open throughout the Covid-19 pandemic. Although the number of food and feed samples submitted for testing dropped significantly during April and early May, the shortfall was made up during the remaining months of the year. There was a 33% reduction in the overall number of customs and excise samples submitted as Revenue officials were doing less on-site inspections and in the Coroners area, sample numbers actually increased by 6% during the year. Overall, 13,481 samples were received in 2020, a reduction of 5% on 2019 and just 4% less than the target of 14,000.

Analytical chemistry is a continually evolving science and staff of the Laboratory keep abreast of technological changes and take advantage of the opportunities offered by new technology to improve the quality and efficiency of the service provided to our clients. EU and Irish legislation is updated regularly to reflect technological developments and the Laboratory must continually update and improve its methods of analysis. In 2020, new methods of analysis were developed and existing methods were extended so that 54 new tests were introduced, using a variety of analytical techniques.

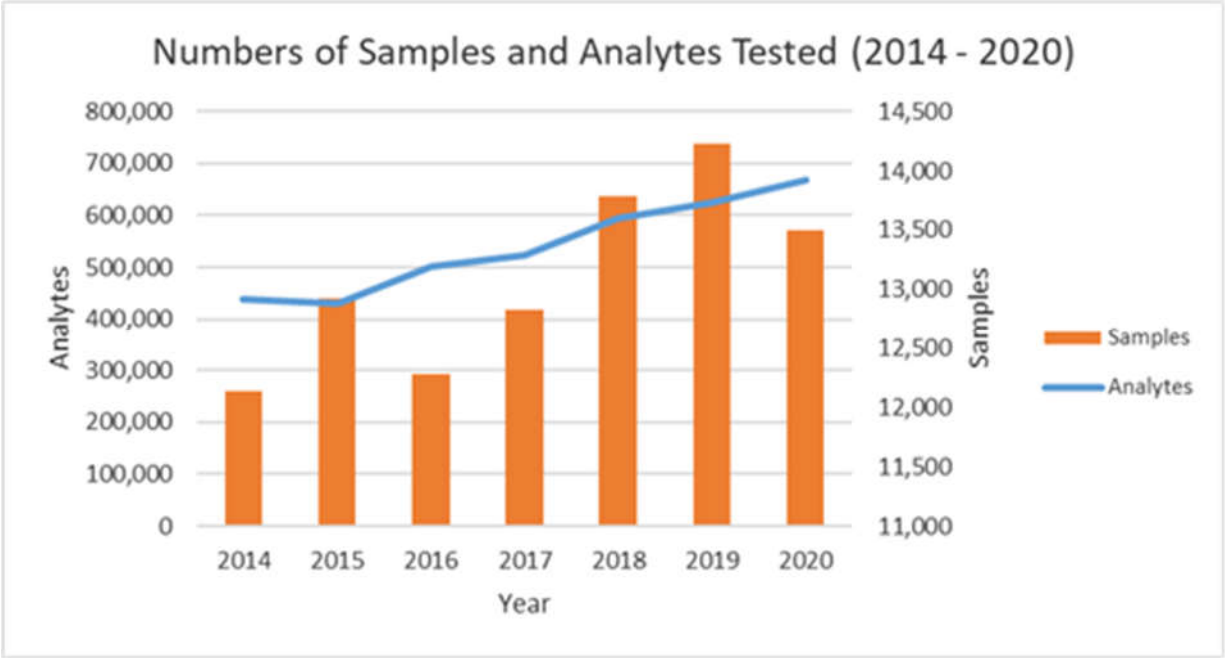
The Laboratory has an important advisory function, particularly in the Customs and Excise area, and its staff act as the Irish representatives at EU scientific committees and technical Working Groups on behalf of Revenue and the Department of Business, Enterprise and Innovation (DBEI). Laboratory staff also actively participate and represent Ireland as national experts in international standardization bodies such as Codex Alimentarius, the European Committee for Standardisation (CEN) and the Consultative Committee on the Amount of Substance (CCQM).

The Laboratory has also been designated by the Department of Health for the purposes of carrying out testing under the Tobacco Products Directive. During 2020, a new smoking machine was installed but commissioning and training on the instrument was delayed due to the Covid-19 pandemic. The Laboratory also supported the Health Service Executive (HSE) by continuing to develop methods of analysis to test e-cigarettes and e-liquids for nicotine and other constituents.

This annual report details the implementation of the State Laboratory's Strategy Statement for 2020 and highlights the Laboratory's main activities and achievements under each Strategic Goal.

OVERVIEW – NUMBER OF SAMPLES

Strategic Goal	No. of Samples Tested	No. of Analytes Tested For
Food, Feed and Fertilisers	4,901	43,911
Revenue Collection and Fraud Prevention	1,361	5,682
Analytical Toxicology Services	7,048	618,230
Public Health and Protection	171	241
Overall Total	13,481	667,823



STRATEGIC GOAL 1

Support Official Food, Feed and Fertiliser Controls

As Ireland is a major food exporter, monitoring and controlling aspects of food and animal feed safety is a high priority.

The State Laboratory assists the Department of Agriculture, Food and the Marine (DAFM) and the Food Safety Authority of Ireland (FSAI) to ensure the quality and safety of Irish food by monitoring compliance with European and National legislation governing the production, distribution and sale of animal feedstuffs and by testing a wide range of foods for veterinary residues and other contaminants. The Laboratory also supports DAFM inspections to check that fertilisers and liming materials placed on the market comply with regulations.

STRATEGIC GOAL 1 — FOOD, FEED and FERTILISER CONTROLS

The Official Controls Regulation, (EU) 625/2017 provides the overarching legislative framework and legal basis for enforcing food legislation and covers official controls across the whole agri-food chain. It affects about 50% of the work of the State Laboratory as it applies to all the testing carried out on feed and food to ensure the quality and safety of food and protect the consumer. It requires that all test methods used for official control purposes are accredited to ISO 17025 and that Official Laboratories and National Reference Laboratories are designated by the relevant Competent Authority to carry out testing. The role of National Reference Laboratories involves having oversight of all testing performed by Official Laboratories in their area of competence.

Animal Feedingstuffs

Animal feed is one of the most important components of the production chain of food of animal origin. In economic terms, animal feed accounts for up to 70% of the total costs of animal production and has an impact on animal health and productivity as well as on food safety and quality.

The Department of Agriculture is the central Competent Authority responsible for the enforcement of EU feedingstuffs legislation and the aim of animal feed controls is to ensure that feedingstuffs are of good quality and do not constitute a hazard to human or animal health. The controls are implemented through risk-based inspections and sampling of feedingstuffs at all stages of the feed chain, including importation, storage, manufacture, trade and use at farm level.

The State Laboratory is the principal laboratory responsible for feedingstuffs analysis in Ireland. Samples of feed materials, feed additives, mineral mixtures and compound feeds are routinely tested to ensure that they contain the declared nutrients (protein, fat, starch and minerals), micro-nutrients (trace elements, vitamins), ash, fibre and moisture contents and do not contain elevated levels of toxic components (dioxins, mycotoxins, heavy metals, fluorine, melamine).

During 2020, work was completed on the development of a new LC-MS/MS method for zilpaterol. The need for this method arose because of an announcement by the French horse racing authority, France Galop, that five racehorses had tested positive for Zilpaterol at the Prix de l'Arc de Triomphe race meeting in October.

Zilpaterol is a beta-agonist drug used as a feed additive to increase muscle mass in beef cattle. It can also improve lung function. It is banned in the EU for use in food producing animals and it is also a banned substance on the Equine Prohibited Substances List for competition horses.

The substance appeared to have derived from the ingestion of contaminated feed linked to an Irish feed manufacturer and the company advised its customers not to feed the company's products to their animals until further investigations were completed.

The State Laboratory supported the Department of Agriculture's investigation into the source of the contamination by rapidly developing a suitable method of analysis to detect low levels of zilpaterol in equine feed samples and feed materials, in particular molasses.

A thorough investigation and trace back of all feed ingredient sources indicated that the problem arose with a contaminated batch of molasses from South Africa, where zilpaterol is authorised as a feed ingredient and is incorporated into animal feed via molasses. In all, the State Laboratory tested 113 samples within rapid turnaround times to complete this investigation. Fortunately, there were no food safety implications associated with this incident due to the low levels of zilpaterol detected in the molasses.

A number of other priority or unusual samples submitted for analysis in 2020 were as follows:

In March, eight compound feed samples were submitted for heavy metal testing following a number of cattle deaths on farm.

STRATEGIC GOAL 1 — FOOD, FEED and FERTILISER CONTROLS

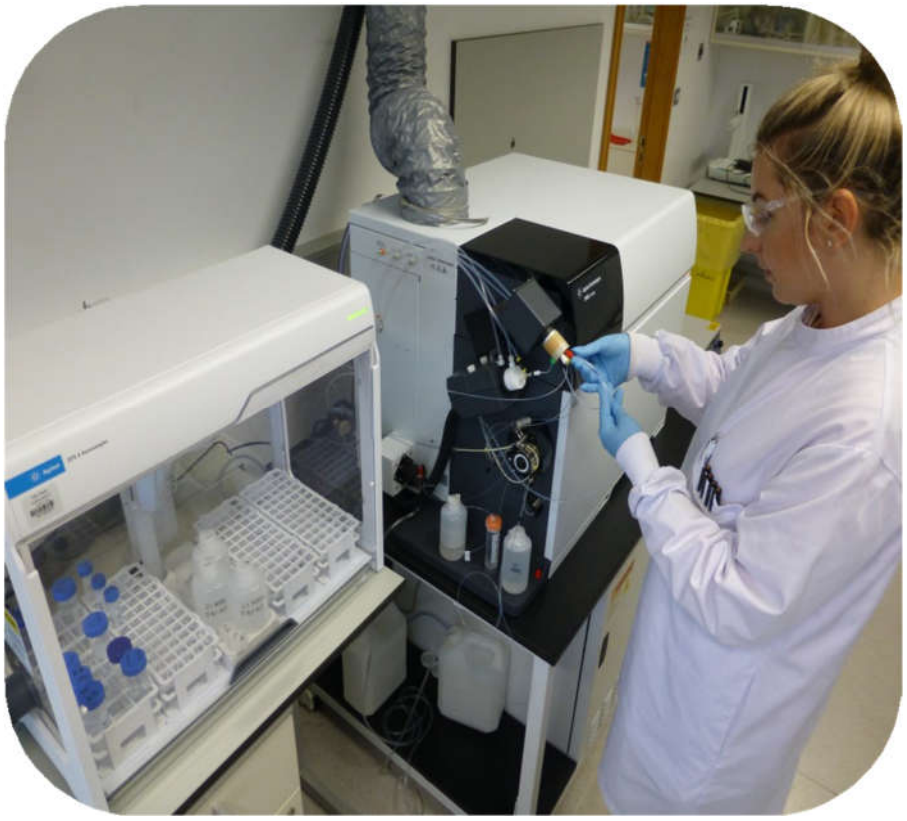
In June, four samples of feed were tested for selenium content following an incident on a farm where high levels of selenium were detected in post-mortem samples.

In July, six samples of soya bean meal and soya bean hulls from Argentina, which had been found to contain pesticide residue (paraquat) when tested at loading, were tested for dioxins, mycotoxins and heavy metals to determine if the feed materials contained any other undesirable contaminants.

To facilitate a trade agreement with China, samples of a rumen buffer product, made in Ireland from calcareous marine algae, were tested for fluoride, heavy metals and melamine in February and July.

In August, September and November, eight samples of seaweed meal were submitted for priority heavy metal analysis, as follow up to earlier findings of high levels of lead in imported samples from the same source.

In December, eight feed and silage samples were submitted for analysis following a lead poisoning incident on a farm.



STRATEGIC GOAL 1 – FOOD, FEED and FERTILISER CONTROLS

Medicated Feed

Medicated feed is an important route for administering veterinary medicinal products to animals, in particular to animals intended for food production. Two-thirds of veterinary anti-microbials used in Ireland are formulated as pre-mixes or oral remedies. These formulations are used mainly for administering a veterinary drug to animals reared in large groups such as a flock of birds or a group of pigs, where many animals need to be treated at the same time.

EU legislation specifies the list of antimicrobials that can be used in medicated feed and lays down the tolerances that apply where the composition of a medicated feed is found to deviate from the amount of an antimicrobial active substance indicated on the label.

Ireland has strict regulations surrounding antimicrobial usage in food producing animals with defined withdrawal periods in place and the correct dosage rate is important to prevent a build-up of antibiotic resistance. At a feed manufacturing facility, it is possible that what is termed an "unintended and unavoidable" presence of low levels of certain veterinary drugs can be found in the feed after a batch of medicated feed has been produced using the same facility.

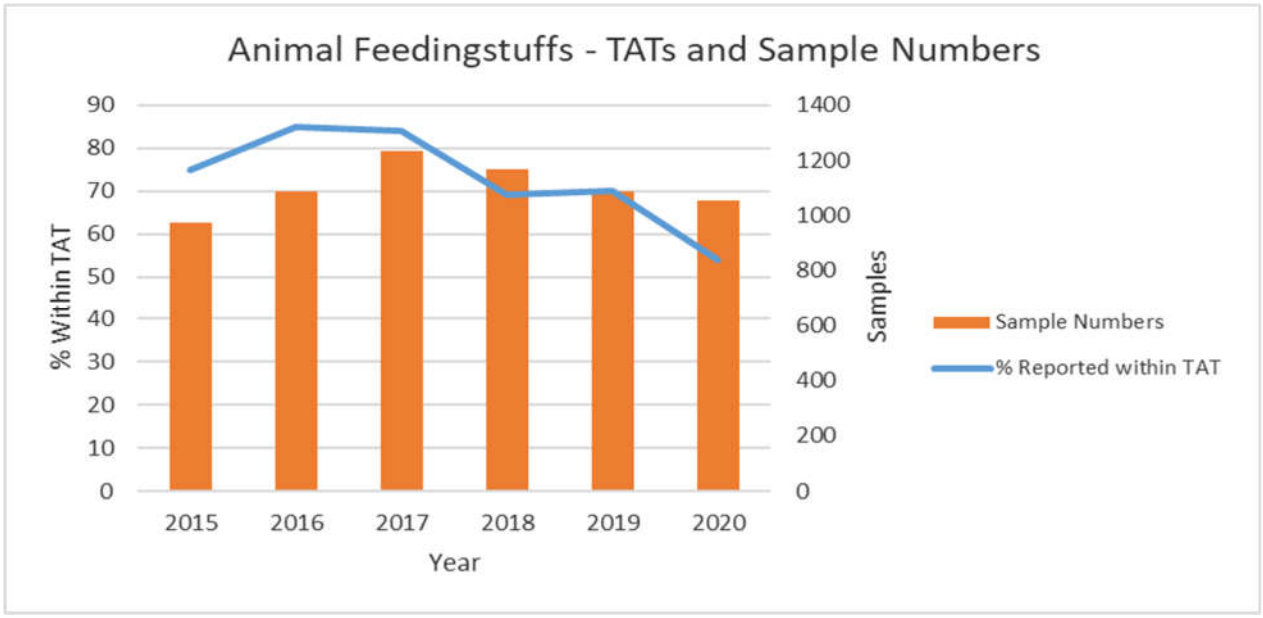
The State Laboratory tests feed samples for authorised veterinary medicines and coccidiostats (feed additives used to prevent coccidiosis, a major disease in poultry and other farm animals) to ensure that the correct therapeutic levels are present.

The Laboratory also tests for carryover levels of 11 coccidiostats in rations destined for non-target species and for the presence of low levels of 14 banned or prescription only antibiotics in a range of feeds. Validation of a new LCMS/MS method to test for cross-contamination levels of authorised antibiotics in feed was delayed in 2020 due to the pandemic and the requirement to carry out a necessary investigation into potential cross-contamination of non-medicated feeds at the grinding stage in the laboratory. This led to additional precautions being introduced including a separate area for the grinding of premixes and additional cleaning procedures between samples.

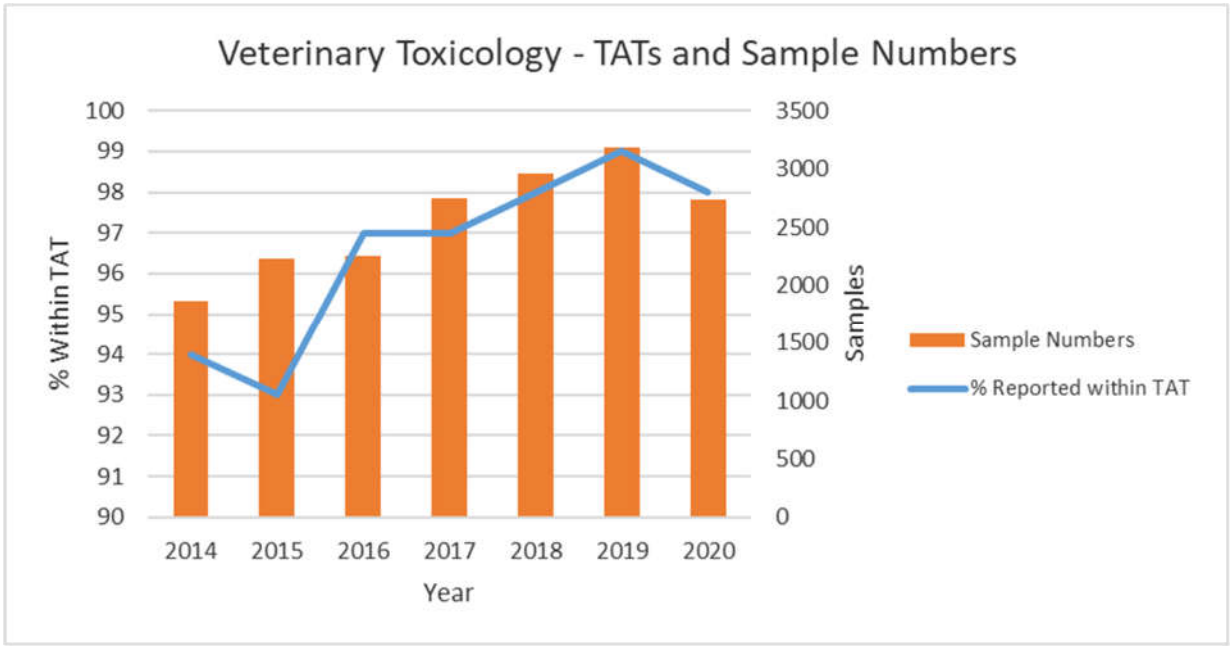
Food Safety

To ensure that food produced in Ireland is of the highest standard, the FSAI and DAFM work together to implement comprehensive multi-annual control plans to monitor the production of food at all stages of the food chain and ensure compliance with national and international standards of food safety. The State Laboratory has Service Level Agreements in place with all DAFM divisions to which it provides analytical and advisory services and an overarching Service Contract Agreement with the FSAI.

The State Laboratory has developed a high level of expertise in the analysis of veterinary drug residues and other chemical contaminants such as dioxins and mycotoxins in food and it is continually developing new methods of analysis to expand its range of testing.



STRATEGIC GOAL 1 — FOOD, FEED and FERTILISER CONTROLS



Veterinary Drug Residues

The presence of unauthorised substances, residues of veterinary medicinal products or chemical contaminants in food may pose a risk to public health. In line with EU legislation, DAFM administers a National Residues Monitoring Plan (NRMP), which is designed to safeguard consumers from harmful residues in food of animal origin. Animal categories and food products covered include cattle, pigs, sheep and goats, horses, deer, poultry, milk, eggs and honey. Nine different matrices are tested including blood, serum/ plasma, urine, kidney, liver and fat depending on the analytes being tested for.

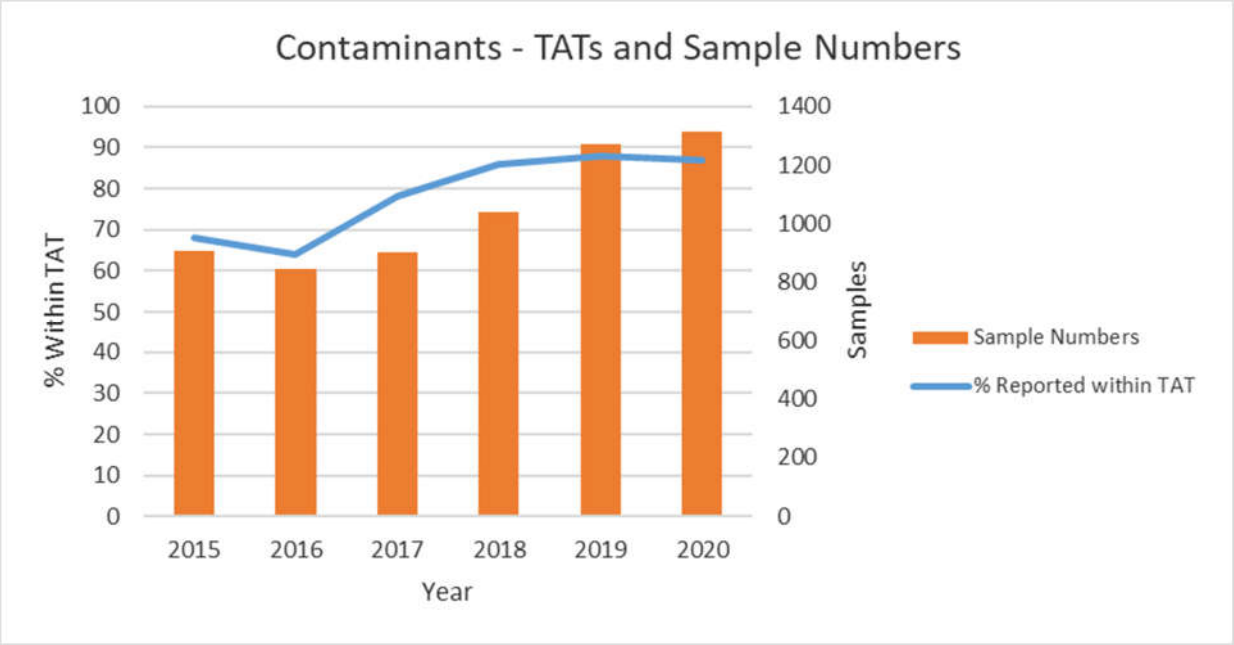
There was a 14% decrease in the number of samples tested for veterinary drug residues in 2020, mainly due to a decreased level of sampling during the early months of the pandemic. The average time taken to report results was 12 days and >99% of samples were reported within 30 days.

The problem of illegal horsemeat continued during 2020. In June, Gardaí arrested five men in connection with an investigation into how illegal horsemeat made its way into the food chain. The men were arrested on suspicion of participation in a criminal organisation and the investigation was conducted in cooperation with the DAFM and the FSAI. The fraud involved tampering with identification passports and microchips of horses presented for slaughter.

The main problem associated with these horses is the potential for phenylbutazone (also known as 'Bute') being detected in the meat. This drug is prescribed for use in sport horses but they must subsequently be excluded from the food chain. In 2020, 64 equine kidney samples were submitted for analysis. This number was reduced due to a decrease in the number of horses slaughtered in Ireland in 2020.

The Laboratory prioritised this testing, and provided results within an average turnaround time of three working days. This short turnaround time is necessary to protect Ireland's reputation as a major exporter of high quality fresh meat and meat products.

STRATEGIC GOAL 1 — FOOD, FEED and FERTILISER CONTROLS



Monitoring of Persistent Organic Pollutants

Persistent organic pollutants (POPs) are a group of chemicals that are not easily degraded and so can accumulate and persist for long periods, not only in the environment but also in several fat-containing foods. They include dioxins and polychlorinated biphenyls (PCBs), which are highly toxic environmental contaminants that are formed during the combustion of chlorine-containing materials and must be excluded from the food chain. Approximately 90% of human exposure to dioxins results from the consumption of contaminated food such as dairy produce, meat and fish.

The State Laboratory tests a wide range of feedingstuffs (including recycled foods used for animal feeding) for dioxins and PCBs, in addition to infant formula samples and foods such as milk and vegetable oils used in the dairy industry. Other matrices tested for dioxins include fat and liver samples under the National Residue Monitoring Plan, fish and egg samples for the FSAI and milk samples for the Environmental Protection Agency.

Other POPs include brominated flame-retardants (BFRs) and per- and polyfluoroalkylated substances (PFAS), which are used in firefighting foams and to provide stain and dirt repellence in carpets and clothing. Work began on developing a method to test for four BFRs (α, β and γ-HBCDs and TBBPA) in milk and egg samples in 2020 by LC-MS/MS.

PFAS are man-made pollutants that are also known as "forever chemicals" that can be found in drinking water and food of animal origin. Recent medical research has shown these chemicals to have adverse health implications e.g. liver damage, decreased fertility and to cause cancer. A European Food Safety Agency (EFSA) opinion in September 2020 set a new safety threshold for the four main PFAS of concern.

The State Laboratory is an active member of the Core Working Group for PFAS, which is coordinated by the European Union Reference Laboratory in this area. A LC-MS/MS method of analysis to test for 14 of the most common PFAS in fish was validated for routine use during 2020 and following successful participation in two proficiency test schemes, it will be submitted for accreditation in 2021.

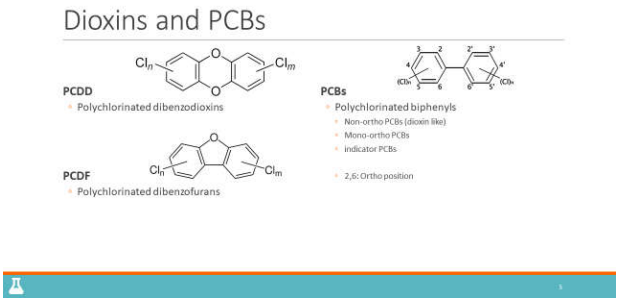
STRATEGIC GOAL 1 – FOOD, FEED and FERTILISER CONTROLS

Collaboration with FSAI to establish Fish Species Consumption Advice

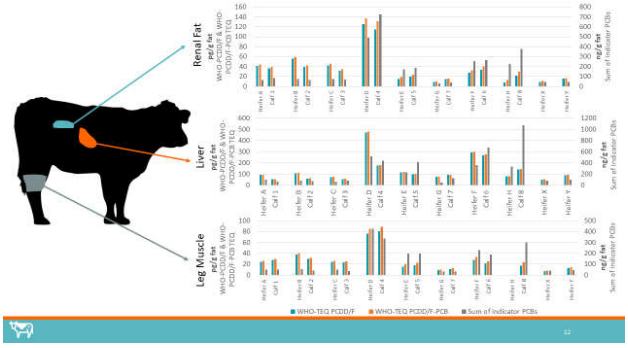
The FSAI is establishing fish species-specific consumption advice for consumers, based on the risks associated with exposure to dioxins and mercury in seafood. Good datasets are available for the presence of dioxins and mercury in fresh fish, however data on processed fish, and in particular canned fish, is limited. In 2020, the State Laboratory analysed a variety of different canned fish samples from various sources to determine the levels of dioxins in commonly consumed foods available to the Irish consumer. In total 48 samples were analysed and no elevated levels of dioxins were detected.

Collaboration with FSAI to establish a National Dioxin Reference Database

The FSAI in collaboration with DAFM and the State Laboratory are in the process of establishing a national dioxin reference database. This database will provide information on species-specific background contamination patterns typically seen in Ireland.



The aim of the project is to identify atypical contamination patterns and to assist the decision making process in the event of a food incident involving elevated dioxin levels in meat producing animals. Information on the distribution of dioxins between different types of tissue and organs from the same animal is currently lacking, and the existing dataset does not allow for extrapolation from concentration in one specific tissue to another (e.g. concentration in liver versus concentration in muscle meat).



In 2020, the project involved testing samples of meat, fat and liver from the same animal for dioxins with samples taken from cattle, sheep and pigs. The Local Authority Veterinary Service facilitated the taking of 106 samples at Local Authority abattoirs. One porcine fat sample, which was found to have elevated dioxin levels, resulted in a small-scale investigation into the source of the dioxins, which involved the analysis of feed, soil and paint samples.

STRATEGIC GOAL 1 – FOOD, FEED and FERTILISER CONTROLS

Mycotoxins

Mycotoxins are substances naturally produced by moulds and fungi that can be present on a crop in the field or can affect stored grain. Many mycotoxin-producing fungi are able to produce more than one type of mycotoxin and several types of fungi can affect a single crop leading to the presence of multiple mycotoxins. Mycotoxins can cause severe symptoms of toxicity at high doses and they enter the food chain via contaminated animal feedingstuffs.

The State Laboratory uses a multi-analyte LCMS/MS method capable of detecting 16 mycotoxins in feed (12 quantitatively, 4 qualitatively) for routine testing of feed samples. There was a 17% increase in the number of feed samples tested for mycotoxins in 2020 due to the increasing risk of mycotoxin contamination in imported feed arising from climate change.

Food samples of animal origin are also tested under the National Residue Monitoring Plan with samples of milk and liver tested for aflatoxin M1 and ochratoxin A respectively. Samples of infant formula were tested for aflatoxin M1 and melamine for the DAFM Dairy Certification and Controls Division.

Patulin

Patulin is a mycotoxin produced by moulds commonly found on apples and the amount of patulin in apple products indicates the quality of the apples used in the production of apple juice. An accredited HPLC method was used to determine patulin levels in 25 samples of apple juice to assist DAFM to monitor the quality of apple juices produced in Ireland.

One sample was found to contain an elevated level of patulin, which resulted in a recall of a batch of organic apple juice in December 2020.

Nitrates

There is concern at EU level regarding the possible health risks associated with high dietary intakes of nitrates and since leafy vegetables are the main source of dietary nitrate, maximum levels have been established for nitrate content in lettuce and spinach and samples taken by DAFM are analysed by the State Laboratory on a regular basis.

STRATEGIC GOAL 1 – FOOD, FEED and FERTILISER CONTROLS

Fertilisers and Liming Materials

The State Laboratory is Ireland's approved laboratory for checking that fertilisers placed on the market comply with EU legislation. Fertilisers and liming materials play an essential role in supporting plant growth and animal production. Fertilisers supply the nutrients required to produce forage and crops, and liming materials ensure that soil pH is optimised to support plant growth. In May 2019, the EU adopted new rules for placing fertiliser products on the EU market. This regulation covers all types of fertilisers (mineral, organic, soil improvers, growing media etc.) and sets harmonised limits for a range of contaminants, such as cadmium, in mineral fertilisers.

The Laboratory's current suite of tests covers nutrients such as nitrogen, phosphorous, potassium and sulphur and minerals such as magnesium and sodium in mineral fertilisers. An ICP OES method is used to measure the water-soluble trace element (K, Mg, Na, P and S) contents. New methods of analysis are needed for cadmium and other contaminants in both mineral and organic fertilisers and in products such as soil improvers and growing media. The validation of a new ICP/MS method for cadmium was delayed in 2020 and it is hoped to validate this for routine use in 2021.

The Laboratory has also been requested to develop methods to test for fertiliser additives such as urease and nitrification inhibitors. These additives, which have the potential to reduce emissions of greenhouse gases (ammonia and nitrogen dioxide), are increasingly being added to fertilisers to protect the environment.

However, there is a question over the stability of these products during storage and thus there is a need to be able to monitor the levels present in fertilisers on the market. A method to test for NBPT was developed in 2020 but the validation work was interrupted by the pandemic. The Laboratory is also sourcing NPPT reference material, which also needs to be tested for

Liming materials are monitored for particle size, total neutralising value (TNV) and moisture content. This testing is particularly important when new limestone quarries are opened.

Where limestone samples submitted for new licence applications are to be evaluated under EU legislation, the fineness of the liming materials has to be determined using a wet sieving procedure and also for these samples total calcium, total magnesium and TNV expressed as CaO values have to be determined.

In 2020, two fertiliser samples were submitted for priority analysis. These related to a product that a company was importing for the first time, and DAFM held the shipment until analysis for N, P and heavy metals was completed.

Food and Feed Safety - New Methods Developed

Test Method	Analytical Technique	No. of Analytes
Zilpaterol in animal feed	LCMS/MS	1
Per- and polyfluoroalkylated substances (PFAS) in fish	LCMS/MS	12
Total		13

STRATEGIC GOAL 1 – FOOD, FEED and FERTILISER CONTROLS

National Reference Laboratory Responsibilities

Under the Official Controls Regulation (EU) 625/2017, the State Laboratory is a designated National Reference Laboratory (NRL) in the following areas:

- residues of veterinary medicinal products (steroids, corticosteroids, non-steroidal anti-inflammatories (NSAIDs), nitroimidazoles and sedatives) in food of animal origin;
- additives for use in animal nutrition;
- halogenated persistent organic pollutants (POPs) in food and feed;
- mycotoxins and plant toxins in animal feed and food of animal origin; and
- heavy metals and nitrogenous compounds in feed.

The requirements applicable to NRLs under this regulation demands that the Laboratory is appropriately equipped in terms of infrastructure, laboratory instrumentation and staffing, in particular where an NRL has an oversight role in relation to official laboratories carrying out screening analyses. As the NRL for steroids, the State Laboratory oversees three official laboratories, the Irish Equine Centre, the Agri-Food and Biosciences Institute (AFBI) and FERA Science in the UK, which carry out screening analyses under contract to DAFM.

State Laboratory staff collaborate with the relevant European Union Reference Laboratories (EURLs) on analytical test methods and oversee the performance of screening methods in official laboratories. Where necessary they provide technical assistance and advice to the official laboratories and DAFM as the Competent Authority.

During 2020, the Laboratory provided technical advice to the DAFM Veterinary Medicines Unit during the updating of EU legislation on the validation of methods of analysis used to detect veterinary drug residues in food of animal origin. Advice was also provided on the Minimum Method Performance Requirements (MMPRs) for methods used to detect prohibited substances. This new legislation will require further method development to meet lower detection levels for some analytes from late 2022 and all methods will need to be revalidated during the five-year transition period provided for under the legislation.

The Laboratory provided advice to DAFM on a Veterinary Chemistry Test Certificate from a self-monitoring programme. Advice was also provided on technical aspects of the procurement of outsourced testing services and on the impact of Brexit on the procurement of outsourced services in the UK for EU official control purposes.

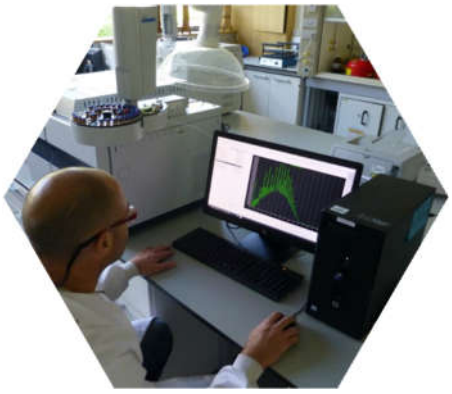
Food and Feed Safety - Numbers of Samples Tested

Category of Sample	No. of Samples	No. of Analytes Tested For
Veterinary Drug Residues in Food	2,532	15,247
Dioxins, Melamine, PFAS in Food	465	11,012
Mycotoxins in Food	234	253
Nutrients / Trace Elements in Feed	813	4,240
Mycotoxins in Feed	379	3,045
Dioxins in Feed	196	9,345
Nitrate in Vegetables	41	41
Fertilisers/Liming Materials	241	728
Totals	4,901	43,911

STRATEGIC GOAL 2

Support Revenue Collection and Fraud Prevention

The State Laboratory advises the Office of the Revenue Commissioners on the classification of goods and on the application of appropriate excise duties on hydrocarbon oil products and alcoholic beverages and provides an analytical and advisory service in relation to mineral oils, alcoholic beverages and non-potable alcohol-containing products. The Laboratory also supports Revenue, FSAI and DAFM on the Geographical Indication Scheme for Irish Spirits.



STRATEGIC GOAL 2—REVENUE COLLECTION and FRAUD PREVENTION

Customs Samples

The decision of the UK to leave the EU had a significant impact on the work of the State Laboratory in 2020, especially since the UK decided to leave the single market and the EU customs union. Due to the volume of trade between Ireland and the UK, the number of samples submitted in the Customs area increased by 30% in 2020 with an 88% increase in the number of analytes tested.

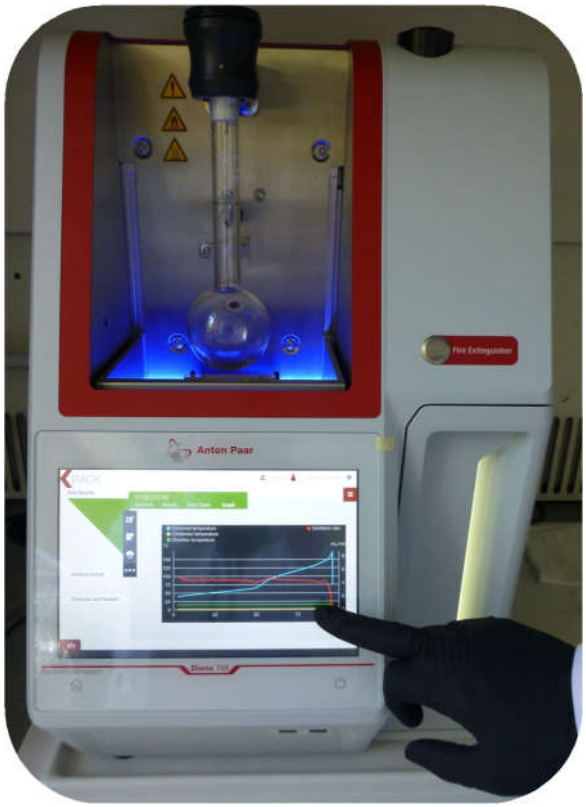
All traded goods such as chemicals, foods, medicaments and plastics imported into or exported from the EU must be classified for Customs purposes and each separate product is assigned a particular classification code. State Laboratory staff have a high level of expertise in this area, which enables them to advise Revenue on tariff classification of samples that require chemical analysis to support classification decisions.

An important aspect of this work is attendance at meetings of Technical Committees of both the European Union and the World Customs Organisation where issues relating to the interpretation of tariff headings are discussed and decisions made on the classification of products. In 2020, tariff classification advice was provided for 287 samples, a 26% increase on the previous year.

The State Laboratory also provided support to Revenue's Detection Technologies Unit to procure suitable Raman hand-held detection devices to be used by Customs Officers at ports and airports to identify illegal substances in a safe, non-destructive manner.

Duty Suspensions

Technical advice was provided to the Inward Investment division of the Department of Business, Enterprise and Innovation (DBEI) on the processing of 11 applications for suspension of Customs duty. This involved liaising with applicants for duty suspensions and deputising for DBEI staff at relevant EU meetings.



STRATEGIC GOAL 2—REVENUE COLLECTION and FRAUD PREVENTION

Excise Samples

The State Laboratory provides an analytical and advisory service to Revenue in relation to mineral oils, alcoholic beverages and non-potable alcohol-containing products to assist them in determining the appropriate duties applicable and in prosecuting fraud where attempts are made to evade such duties. There was a reduction in sample numbers for oils and alcoholic beverage samples in 2020 due to the impact of the Covid-19 pandemic during which Revenue officials reduced their level on on-site inspections.

Mineral Oil Testing

Tackling fuel fraud continues to be a key priority for Revenue. The State Laboratory analyses samples of fuel for the presence/absence of oil markers and provides analytical evidence and expert advice to facilitate court prosecutions. Rebated (lower-taxed) fuel for off-road use (agriculture/home heating) is marked with dyes or chemical markers so that its use for any other purpose or illegal sale can be identified. From January 2020, the use of green diesel for pleasure boats was banned.

Although its National Random Sampling Programme was curtailed, following the introduction of public health restrictions in March 2020, Revenue recorded eight commercial seizures and seized 51 vehicles in relation to auto and marked fuel oil in 2020. Overall, 12,038 litres of illicit fuel were seized.

Another major illicit activity in relation to mineral oil is the laundering of marked fuel to remove these markers. This has been a persistent problem for many years as fuel laundering poses a serious threat to the Exchequer, to legitimate trade and, because of the processes used in laundering, to the environment.

There were two fuel-laundering plants detected by Revenue in 2020 and 48,500 litres of illicit mineral oil seized. However, there was a significant decrease in the number of sludge samples (illegally dumped and toxic fuel laundering waste) submitted for analysis.

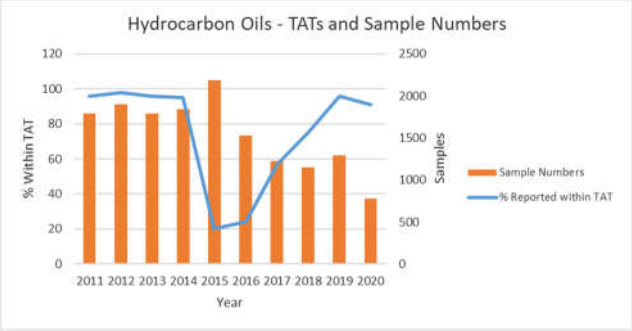
Agreed turnaround time targets were achieved throughout 2020 and seven samples, identified as priority and requiring urgent analysis, were analysed on the day of receipt.

Advice was given to the Customs Investigation Unit on three suspected designer fuel samples in 2020 and Revenue anticipates that there will be an increase in the number of designer fuel samples submitted for analysis in the future. These are fraudulent, non-standard fuels, which may not show a marker but have been stretched or otherwise altered. They are composed mostly of mineral oil and a relatively small amount of ester compound. Often, the mineral oil component is a mix of base oil and gas oil. These fuels show physical properties very similar to gas oil, which makes them difficult to detect with the official methods. The State Laboratory hopes to develop new methods of analysis that will help to identify such products and the likely processes used to produce them.

Preparation for and attendance at Court cases can take a significant amount of laboratory staff time. Three staff were required to attend and give evidence at one court case in December 2020, which was successfully prosecuted.

Court statements and certificates of analysis are provided for prosecution samples and 361 court statements were provided in 2020.

A technical assessment report was prepared and advice was provided to the Department of Communications, Climate Action and Environment (DCCAE) on a European Commission Study on transport fuel quality parameters.



STRATEGIC GOAL 2—REVENUE COLLECTION and FRAUD PREVENTION

Revenue Collection and Fraud Prevention - Numbers of Samples Tested		
Category of Sample	**No. of Samples**	**No. of Analytes Tested For**
Customs	306	216
Excise - Mineral Oils	752	3,908
Excise - Alcoholic Beverages	234	1,215
FSAI – Fermented Teas	24	119
Total	1,316	5,458

Revenue Collection and Fraud Prevention - New Methods Developed		
Test Method	**Analytical Technique**	**No. of Analytes**
Volatile congeners in Irish Spirits	GC/MS	9

Alcohol Beverages

For excise purposes, alcoholic beverages are classified as beers, wines, ciders or spirits and duty is based on the alcohol content. Counterfeit spirits are illegally produced alcoholic drinks, which are often sold to consumers as legitimate product.

Revenue officers target the supply and sale of illegal and counterfeit alcohol. Illicit trade in alcohol occurs through smuggling from countries with lower excise tax rates, illegally diverting untaxed alcohol onto the market, or the production of counterfeit alcohol. Vodka is the most commonly counterfeited alcohol and often contains high quantities of poisonous chemicals such as methanol and isopropyl alcohol.

The State Laboratory assists Revenue to determine the excise duty payable on alcohol-containing products, monitor compliance and combat excise duty fraud and the production and distribution of counterfeit spirits. In 2020, Customs Officers seized 764,174 litres of alcohol with an estimated value of €4.2 million.

Most samples are tested for alcohol content and, where required, congener profiling and testing for authenticity indicators is carried out. A small number of samples containing non-potable alcohol are tested for denaturants.

GI Irish Spirits

Revenue also works in partnership with the Department of Agriculture, Food and the Marine (DAFM) and the Food Safety Authority of Ireland (FSAI) on the Geographical Indication Scheme for Irish Whiskey and Irish Poteen. Geographical indication (GI) confers a type of intellectual property protection on a product, which the European Commission seeks to protect in International trade agreements. On 29 January 2016, the European Commission agreed to include Irish Whiskey and Irish Poteen as products to be protected by GI status. This means that only whiskey and poteen produced on the island of Ireland, and manufactured in accordance with the strict technical specifications agreed by DAFM and the European Commission, can be labelled and sold as Irish Whiskey and Irish Poteen.

The State Laboratory signed a Service Level Agreement with DAFM, as the controlling authority, to provide an analytical testing service to support GI authentication of alcoholic spirits from 2020 onwards. A new GCMS method of analysis to determine nine congeners in Irish Spirits samples was developed and validated in 2020. This method will be submitted for accreditation in 2021 and further methods will be developed to support GI authentication in the future.

STRATEGIC GOAL 3

Provide Centralised Analytical Toxicology Services to the State

The State Laboratory provides a forensic toxicology service to assist Coroners and the State Pathologist to investigate the causes of unexpected death by analysing post mortem samples to confirm the presence or absence of ethanol, legal and illegal drugs and other toxic substances. Staff attend and give evidence on their findings in legal proceedings and Coroners' inquests as required.

The Laboratory also provides a toxicant testing service to DAFM and the National Parks and Wildlife Service (NPWS) to assist investigations into suspected poisonings of birds of prey or into cases of suspected farm or companion animal poisonings.

STRATEGIC GOAL 3—PROVIDE ANALYTICAL TOXICOLOGY SERVICES

Forensic Toxicology Service

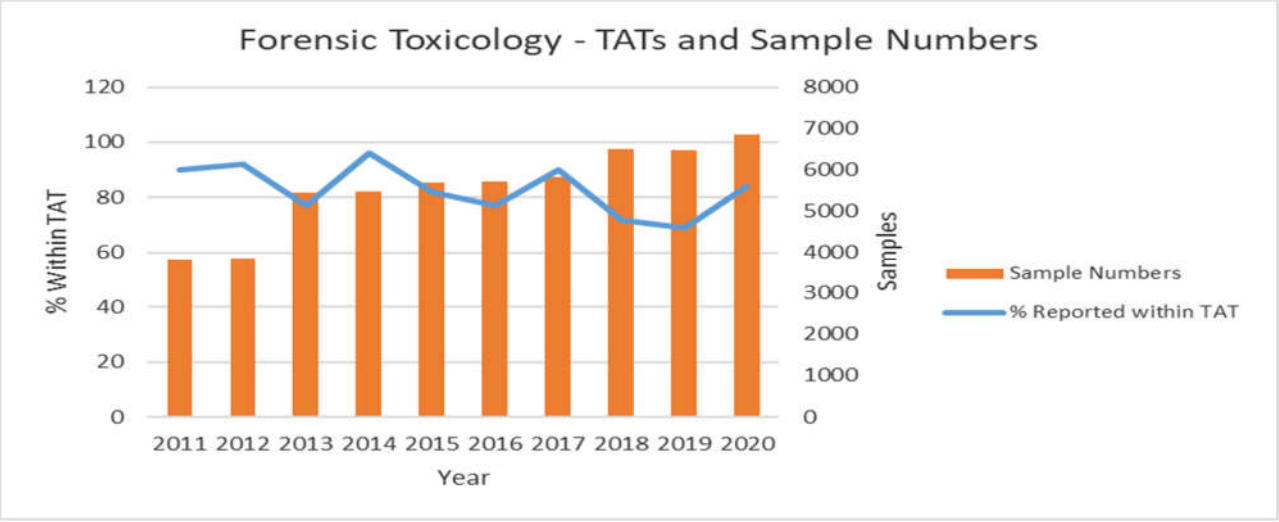
A constant challenge in post-mortem toxicology is the balance between satisfying the clients' demand for a sufficiently complex and timely service whilst ensuring the scope of testing adequately reflects the current drug market. According to the latest drug-related death figures from the Health Research Board, 376 people died in 2017 from overdose (poisoning deaths) and cocktails of drugs contribute to three in five poisoning deaths. There was an increase of cocaine poisoning deaths, but alcohol continues to be the main drug implicated in deaths, alone or with other drugs. Prescription drugs were implicated in two in every three poisoning deaths, of which benzodiazepines were the most common prescription drug group, implicated in 139 individual poisoning deaths.

State Laboratory staff are pro-active about using their wide network of contacts to keep abreast of the latest drugs of abuse in circulation and where possible they extend the scope of the methods of analysis to include these new compounds as soon as reference standards become available. The Laboratory is also represented on the Irish national early warning system, which is instrumental in identifying new drugs, monitoring trends and making recommendations that ultimately support national harm reduction initiatives.

All post-mortem samples nationwide are submitted to the State Laboratory for both screening and confirmatory analysis and the Laboratory continues to streamline and expand the service provided. During 2020, the Laboratory developed six additional tests to detect prescribed drugs and drugs of abuse in post-mortem samples, which means that for 2021, all samples submitted will be screened for 172 different drugs. Where a drug is detected during a screening analysis, the level of substance present is confirmed and quantified in a separate analysis. Additional optimisation work was carried out on the LCMS/MS confirmatory methods to improve the accuracy of quantitative information and one new drug was added.

Novel psychoactive substances (NPS), more commonly known as designer drugs, pose a particular analytical challenge because of the rapidly evolving nature of this drug market. Traditionally samples are screened for a defined cohort of prescribed and illicit drugs but now new drug products are easy to access online, often have very similar chemical structures and can be highly toxic in small amounts. Designer drugs are generally 'invisible' in traditional toxicology screens and are not available in commercially purchased databases.

The State Laboratory has developed and implemented an analytical strategy, using high-resolution mass spectrometry (HRLCMS), which allows post-mortem toxicology samples to be screened for previously 'invisible' designer drugs outside the laboratory's traditional defined scope of testing. This novel analytical approach is now in routine use with suspect samples being screened for all national and European NPS alerts. By the end of 2020, 77 new drugs had been added to this database bringing the total number to 327. This approach also allows for retrospective analysis of data without physical sample reanalysis, which can assist the Coroners to solve cause of death investigations that previously could not have been satisfactorily concluded.



STRATEGIC GOAL 3—PROVIDE ANALYTICAL TOXICOLOGY SERVICES

The main challenge for the Laboratory for 2020 was maintaining the service to Coroners during the Covid-19 pandemic and reporting results within agreed turnaround times whilst responding to a 6% increase in samples. This was achieved by further streamlining the analysis and reporting procedures in 2020 and thanks to the dedication of all staff involved, the Laboratory reported 84% of samples within 93 days, almost meeting the agreed turnaround target of 90% of samples being reported within 3 months. The average turnaround time was 80 days.

Veterinary Toxicology Service

The RAPTOR (Recording and Addressing Persecution and Threats to Our Raptors) protocol is a collaborative approach between the National Parks and Wildlife Service (NPWS), DAFM Regional Veterinary Laboratories, and the State Laboratory, to systematically determine the extent to which anthropogenic non-habitat related impacts (for example poisoning, persecution, disturbance, collisions, etc.) are threats to Ireland's native birds of prey.

The State Laboratory provides a toxicant testing service under this protocol to DAFM and the NPWS, to assist investigations into suspected poisonings of birds of prey. These include the re-introduced golden eagles, white tailed sea eagles, red kites and other highly vulnerable species (peregrine falcons, buzzards, kestrels and owls). Support is also provided to DAFM investigations into cases of suspected farm or companion animal poisonings.

In early 2020, following a report from a concerned land owner in West Cork, NPWS field staff collected 12 dead buzzards, which the landowner had come across in his fields. Subsequent searches of the general area by the NPWS located a further 11 dead buzzards. Toxicology tests carried out by the State Laboratory confirmed that all had died due to ingesting the highly toxic and banned substance Carbofuran.

Buzzards are fully protected in Ireland under the EU Birds Directive and, under the national Wildlife Act 1976, to kill or injure one is a criminal offence. After this mass poisoning event, conservationists called for stronger legislation and the establishment of a 'wildlife crime unit' to investigate such incidents effectively and enforce the Wildlife Act.

Overall, the number of samples submitted in 2020 was similar to previous years. Many of the samples taken from dead birds were found to contain a range of rodenticides such as brodifacoum, flocoumafen, difenacoum and bromadiolone. While the use of these second-generation anticoagulant rodenticides is important for the effective control of rodents on farms and other food premises, these products need to be used correctly to prevent other wildlife species being accidentally exposed to these products.

STRATEGIC GOAL 3—PROVIDE ANALYTICAL TOXICOLOGY SERVICES

Analytical Toxicology Service - Numbers of Samples Tested		
Category of Sample	**No. of Samples**	**No. of Analytes Tested**
Forensic Toxicology	6,844	615,130
Veterinary Toxicology	204	3,100
Total	7,048	618,230

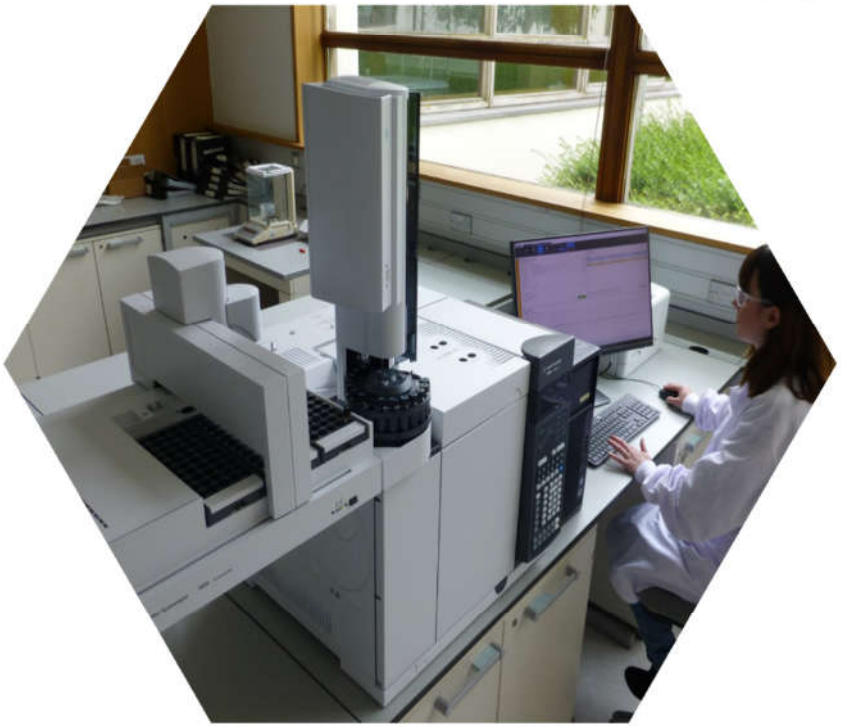
Analytical Toxicology Service - New Methods Developed		
Test Method	**Analytical Technique**	**No. of Analytes**
Screening method for drugs in urine extended to include additional drugs	HRLC/MS/MS	6
Screening method for drugs in blood extended to include additional drugs	HRLC/MS/MS	6
Confirmatory method for drugs in blood extended to include additional drugs quantitatively	LC/MS/MS	1
Total		13

STRATEGIC GOAL 4

Support Public Health Protection Initiatives

The State Laboratory assists the Health Products Regulatory Authority (HPRA) and DAFM to control the use of unlicensed human and veterinary medicines by analysing seized pharmaceutical and herbal products for the presence of pharmaceutically active compounds and scientific staff provide expert testimony in subsequent court prosecutions.

The Laboratory supports the FSAI and other agencies by testing food supplements for the presence of unauthorised substances that could pose a risk to consumers and as the designated testing laboratory for Ireland under the Tobacco Products Directive, it provides analytical support to the Department of Health and the HSE.



STRATEGIC GOAL 4—SUPPORT PUBLIC HEALTH PROTECTION

Pharmaceutical Products / Food Supplements

The State Laboratory assists the Health Products Regulatory Authority (HPRA) to control the use of falsified and illegal medicines by analysing seized pharmaceutical and herbal products for the presence of pharmaceutically active compounds. Many of these products are sold via illicit online suppliers. State Laboratory scientific staff provide expert testimony in court prosecutions, which are taken where the HPRA considers that there is a significant risk to public health or where there are persistent non-compliances. The HPRA initiated three prosecution cases in 2020 and issued eleven voluntary formal cautions. All three prosecution cases related to the unauthorised supply of anabolic steroids.

The samples submitted to the State Laboratory for testing in 2020 were found to contain a range of drugs including sedatives, erectile dysfunction drugs, anabolic steroids and analgesics. Six new tests were developed and four of these were accredited under flexible scope, including miconazole, alprazolam, stanozolol and a zopiclone impurity.

The State Laboratory provides a testing service to the FSAI for products sold as dietary supplements that could contain pharmaceutically active ingredients. A new quantitative LCMS/MS method was developed to test for yohimbine in a botanical weight loss supplement.

Veterinary Products

The Laboratory analyses veterinary medicinal products seized for enforcement purposes by DAFM Investigations Division. Sample numbers were reduced in 2020 and the majority were tested for steroids, corticosteroids or antibiotics. There were eight new methods of analysis developed, five of which were accredited under flexible scope.

Staff supported one court case in 2020 where a farmer was fined for procurement and possession of an animal medicine without the approval of a veterinary practitioner.

Hemp and Cannabidiol (CBD) Products

Hemp crops can only be grown in Ireland under license from the Health Products Regulatory Authority and there is a requirement to inspect 30% of the area sown and ensure that the tetrahydrocannabinol (THC) content of eligible varieties does not exceed 0.2%. The State Laboratory tests samples of hemp plants for THC content for DAFM BPS Division using a quantitative GC method laid down in Regulation (EC) No. 796/2004. The area sown with hemp has increased in recent years with a consequent increase in the number of samples submitted for analysis.

A new method of analysis was developed to test for THC, CBD and cannabinol (CBN) in a range of CBD products and samples of gummies, cookies and tinctures, submitted by Revenue and Garda personnel, were tested during 2020.

Public Health Protection - Numbers of Samples Tested

Category of Sample	No. of Samples	No. of Analytes Tested For
Medicinal Products	63	73
Veterinary Products	53	51
Food Supplements	3	9
THC in Hemp	15	30
CBD Products	19	32
Tobacco and Nicotine Products	16	42
Total	169	237

STRATEGIC GOAL 4—SUPPORT PUBLIC HEALTH PROTECTION

Tobacco Products Analysis

The State Laboratory has been designated by the Department of Health as the testing laboratory for Ireland, for the purposes of carrying out testing on tobacco products as set out in the European Union (Manufacture, Presentation and Sale of Tobacco and Related Products) Regulations 2016.

During 2020, the Laboratory continued the upgrade to one of its laboratories to provide the necessary controlled temperature and humidity environment required for the correct operation of a smoking machine. The smoking machine was also installed but final commissioning and training on the instrument was delayed due to the Covid-19 pandemic.

The HSE is the competent authority for the enforcement of the regulation and it is also the market surveillance authority for e-cigarettes and refill containers. Funding for a staff resource was allocated to the State Laboratory for 2021 to provide an analytical service in relation to testing these products for the HSE. A method of analysis for nicotine, propylene glycol and glycerol content was fully validated and will be submitted for accreditation in 2021. A new test method for Vitamin E, which is an illegal additive linked to deaths in the United States, was developed in 2020.

The initial sampling programme will focus on testing e-liquids but ultimately the vapours produced during use may need to be tested and this would require a specialist 'vaping' machine.

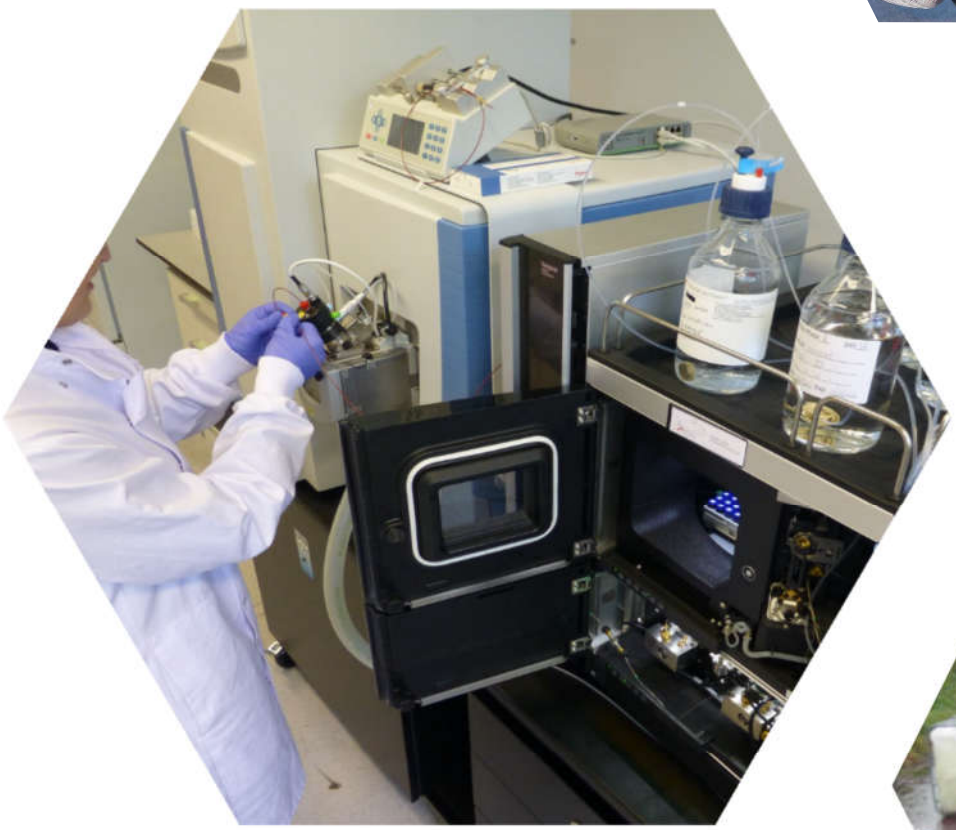
During 2020, State Laboratory staff represented Ireland at meetings of the WHO Tobacco Laboratory Network (TobLabNet), the EU Joint Action on Tobacco Control (JATC), ISO/TC 126 Tobacco and tobacco products and CEN/TC 437 WGs 1, 3 & 4 – requirements and test methods for e-liquids and emissions.

Public Health Protection - New Methods Developed		
Test Method	**Analytical Technique**	**No. of Analytes**
Drugs in medicinal / veterinary products	HPLC/DAD	2
Drugs in medicinal / veterinary products	QTOF LCMS	7
Drugs in medicinal / veterinary products	LCMS/MS	5
Yohimbine in botanical supplements	LCMS/MS	1
Cannabinoids in CBD products	LCMS/MS	3
Vitamin E in e-liquids	HPLC	1
Total		19

STRATEGIC GOAL 5

Provide Specialised Chemical Analysis and Advisory Services

As a centre of excellence for chemical analysis, the State Laboratory can provide scientific support and advice to Government departments and agencies on an occasional basis or as the need arises.



STRATEGIC GOAL 5—SPECIALSED ANALYSIS AND ADVISORY SERVICES

Environment Protection

The Environmental Protection Agency (EPA) carries out on-going monitoring on the levels of certain POPs, including dioxins and dioxin-like PCBs in the environment based on the sampling and analysis of cows' milk. Cows tend to graze over relatively large areas with the likelihood they will ingest POPs deposited from the atmosphere onto grass and so these programmes provide indications of the levels of the POPs in air. Samples are taken during summer months and these annual surveys show that concentrations of dioxins and similar pollutants remain at a consistently low level in the Irish environment.

In 2020, the State Laboratory tested 39 milk samples for the EPA and 18 samples of fish were tested for dioxins and dioxin-like PCBs as part of an EPA biota monitoring programme for priority substances in inland surface waters. These sample numbers are included in the relevant food section on page 14 of this report.

Toxic Waste

Mineral oil sludges are a by-product of fuel laundering processes and this toxic waste is dumped illegally in rural Ireland, causing a major environmental hazard. Revenue and the Local Authorities responsible for the safe disposal of this waste submitted 28 sludge samples which required extensive work-up and analysis in 2020.

Plastic Bag Levy

Analytical support and advice was provided to the Department of Communications, Climate Action and the Environment in relation to composition and 'thickness' of plastic bags, arising from proposed changes to the plastic bag levy.

Heritage Protection

The State Laboratory provides scientific assistance on request to the National Museum of Ireland, the National Gallery, the Office of Public Works and other bodies responsible for the conservation of Ireland's heritage.

Textiles

Scientific and technical information in relation to the fibre composition of textile products was reviewed for the Competition and Consumer Policy section of the Department of Business, Enterprise and Innovation (DBEI) and State Laboratory staff provided representation for DBEI at EU textile labelling expert group meetings.

Dual Use Goods / Chemical Weapons

Technical support is provided on request to the Trade Licensing and Control Unit of DBEI, in relation to applications for export licences, or claims for exemptions from licensing requirements in respect of exports of sensitive goods.

The Laboratory also has a Service Level Agreement with the Department of Foreign Affairs and Trade (DFAT), to provide technical advice on request, in relation to the Chemical Weapons Convention (CWC).

Specialised Analytical Services - Numbers of Samples Tested

Category of Sample	No. of Samples	No. of Analytes Tested For
Sludge from fuel laundering	28	207
Plastic bags	17	17
Heritage protection	2	4
Total	47	228

ADMINISTRATION

Staffing

In 2020, there continued to be an emphasis on recruitment and filling vacancies due to retirements, resignations and other staff movements that occurred during the year.

At the end of December 2020, the Laboratory had 103 staff, 101.4 Whole Time Equivalents (WTE). This compares with 98.3 WTEs at the end of 2019.

Two staff members retired during the year - Aengus O'Briain (Senior Laboratory Analyst) and Dennis Ryan (Laboratory Analyst). Seven staff left the Laboratory to take up employment elsewhere and one staff member availed of a career break. Five internal promotion competitions were held and six staff were appointed from these competitions.

Fifteen staff joined the Laboratory during 2020. Five Chemists and eight Laboratory Analysts were recruited following open competitions undertaken by the Public Appointments Service (PAS). One Laboratory Attendant was recruited from an open competition undertaken with the assistance of a recruitment agency. A Higher Executive Officer was appointed from an external panel and one Temporary Clerical Officer (ICT) joined the Laboratory.

Overall, 71% of staff have changed role in the past five years through recruitment, promotion or mobility.

Sick Leave

In 2020 the Laboratory's Lost Time Rate was 3.0%, down 0.49% from 2019. The average working days lost per fulltime employee was 6.9 days.

Flexible Working Arrangements

State Laboratory staff can avail of flexi-time, work-sharing, parental leave, shorter working year and parents leave.

Diversity, Equality and Inclusion

The State Laboratory facilitates the employment of people with disabilities and exceeded the 3% minimum employment requirement with a level of 3.9% in 2020. It also supports the Willing Able Mentoring (WAM) programme. Two WAM participants joined the Laboratory in 2020 and the Laboratory received a WAM Leaders Award for participating in the programme in 2019.

The gender breakdown for each grade at the end of 2020 is shown in the adjacent table.

Gender Breakdown in The State Laboratory

Grade	Female	Male
State Chemist	1	0
Principal Chemist	2	0
Senior Chemist	5	2
Assistant Principal Officer	1	1
Technical Information Manager	0	1
Chemist Grade II	8	5
Chemist	16	12
Higher Executive Officer	1	2
Administrative Officer	1	0
Senior Laboratory Analyst	7	3
Laboratory Analyst	10	11
Executive Officer	2	2
Clerical Officer	4	0
Head Laboratory Attendant	0	0
Storekeeper	0	1
Laboratory Attendant	2	3
Total	60	43

Family Friendly Policies

Scheme	% Staff availing of scheme in 2020
Work-sharing	8%
Parental Leave	12%
Career Breaks	2%
Shorter Working Year	9%
Parents Leave	0%

ADMINISTRATION

Covid-19 Response

The State Laboratory Management Board convened a Covid-19 Crisis Management Team on 12 March 2020, consisting of members of the Management Board, the Health & Safety, ICT, Corporate Services and HR managers. This group met on a weekly basis or more frequently if necessary throughout 2020 and a Forsa Lead Worker Representative joined the forum later in the year. As an essential service, the Laboratory remained open and continued to provide an analytical testing service to its clients throughout the pandemic whilst maintaining a safe workplace for all staff and essential visitors.

Covid-19 Contingency Plans were developed for all sections and work areas, prevention and control measures were introduced, many new policies, procedures and guidance notes were developed for staff, ICT and ergonomic supports were put in place to facilitate remote working to the maximum extent possible and split shifts and blended working arrangements were introduced for staff performing laboratory or other work that could only be carried out on-site.

There were regular co-ordination meetings with other Government laboratories (DAFM, EPA and Forensic Science Ireland) to share information and best practice protocols. The Laboratory's Covid-19 Response Plan was based on guidance from the Government's 'Return to Work Safety Protocol' and Public Health advice and guidance documents and checklists published by the Health and Safety Authority.

An online Pulse Check staff survey was conducted in May 2020 to obtain feedback from staff on the challenges they faced and seeking suggestions for improvements. There was an 84% response rate and responses were mainly positive. A large majority of respondents agreed that the measures introduced were working well, management was considerate of their well-being and safety, information provided was helpful and communications were satisfactory. Suggestions received were acted on, including provisions of a Wellbeing for Managers course.

The State Laboratory is fortunate to have a spacious, well-ventilated building which facilitates social distancing and this allowed management to adopt a 'No Close Contact' policy for the approximately 50% of staff who needed to work on-site most of the time. This meant that necessary close contacts, for work or essential training purposes, needed to be approved in advance and protected using fit-tested FFP3 masks.

The Health and Safety manager performed a gap analysis against the National Return to Work and Safety at Work Protocols in November 2020 and across 158 audited areas, 157 were compliant (99.4%). There were 33 instances of restricted movement or self-isolation during 2020, all arising from community transmission. There were no instances of workplace transmission in the Laboratory during 2020, which highlighted the effectiveness of the pandemic response measures.

Student Placement Programme

Unfortunately, the Laboratory's student placement programme was curtailed in 2020 due to the pandemic. The work placements are normally a compulsory part of the students' four-year honours degree course and must be completed before the students begin their final year. The placements are confined to students whose degree courses are relevant to the work of the Laboratory.

A number of students commenced their placements in early 2020 but only two were able to complete their placements. These were in the Human Toxicology and ICT sections. Four students assisted DAFM and the NVRL with Covid-19 testing for a period after their placement was terminated.

Civil Service Employee Engagement Survey 2020

The third CSEES circulated to staff working in the Civil Service in September 2020.The survey was previously issued in 2015 and 2017 and provided an opportunity for all staff to have their say in relation to their work, the Laboratory and the Civil Service. Following the publication of the results of the 2017 survey, an Action Plan was developed and implemented to address the lowest scoring themes. The aim of this action plan was to foster staff engagement, encourage high levels of performance and improve internal communications.

The response rate for the 2020 survey was 74%, which was an excellent response and compares to 65% for the Civil Service overall.

ADMINISTRATION

Learning and Development

All OneLearning courses were suspended from March to September 2020, until new on-line courses were developed. Subsequently, staff attended eight courses remotely and a number of new line managers availed of a Managing People and Performance course. Dignity at Work training sessions were provided to most staff prior to the pandemic and one course was held remotely in September for remaining staff. A number of staff completed free online courses through e-college and the feedback on these was positive. Essential on-the-job laboratory training was provided by staff internally using appropriate ICT solutions where possible and PPE as necessary to protect all staff involved.

Wellness at Work

In line with its strategy to promote a positive work environment and the well-being of its staff, the State Laboratory continued its wellness at work programme in 2020 to the maximum extent possible. An in-house personal resilience course was organised for staff in January and an online course was available later in the year. A coffee morning in aid of Irish Guide Dogs was held in early March. This raised over €2,000, which was used to support a puppy sponsored by the Laboratory for 6 months.

In July, 'wellness bags' were issued to all staff and a variety of mini-events were organised by the Wellness at Work and Sports and Social teams to support staff throughout the year. A virtual Christmas event was held in December.

Health and Safety

The State Laboratory has a legal obligation to provide a safe work environment for all its staff and visitors. Managing laboratory safety correctly and mitigating the hazards associated with working with potentially dangerous chemicals is a high priority for the Laboratory's Management Board. A Principal Chemist holds the role of Safety Officer and is supported by a fulltime Health & Safety manager and a Safety Working Group.

During 2020, much of the Health and Safety manager's time was taken up with supporting the pandemic response across the laboratory and developing systems of safe work to mitigate against the risk of contracting Covid-19 in the workplace. Good progress was made with implementing a comprehensive Safety Programme, especially with staff who were required to work from home during the pandemic completing test method and chemical risk assessments. Arising from these risk assessments, a new ventilated balance enclosure was purchased to improve the safety of staff when hazardous chemicals need to be weighed.

Level 2 safety audits were completed across the analytical sections to provide an in-depth safety audit of higher risk tasks within the laboratory. Actions arising from these audits were integrated into the Safety Programme.

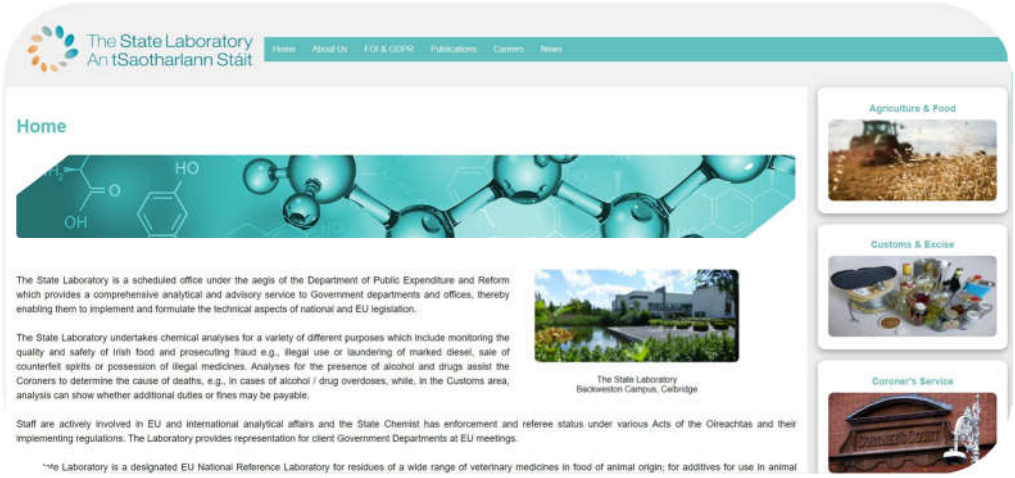
ADMINISTRATION

ICT Developments

In line with its strategy to maintain robust and secure ICT systems and maximize the use of IT solutions to improve efficiencies, very good progress was made with providing a high standard of ICT services to State Laboratory staff in 2020. Shortly after the pandemic hit, the ICT Unit provided secure remote access for staff to the Laboratory's IT network including the Laboratory's information and management system (LIMS), the document management system (Paradigm), the financial management system and specific instrument software packages for remote data processing. These initiatives along with provision of virtual meeting options, facilitated social distancing in the workplace and enabled remote work to the maximum possible extent.

In addition, a number of important IT projects were completed including a hardware upgrade to the core network and the disaster recovery site, introduction of a new IT Service Desk System using an OGCIO product, introduction of managed print services and the deployment of Windows 10 to all office PCs and laptops. A Communication Hub was implemented to facilitate remote collaboration and social distancing. To ensure the security of the IT network, two rounds of penetration tests were carried out and issues found were addressed. A new suite of User Awareness Training was rolled out to all staff for completion on a quarterly basis.

The LIMS Team completed 316 change requests in an average time of 6 days. A number of bigger projects were completed with the support of the LIMS provider. Some internal training for LIMS administrators was provided by the LIMS manager but less than was planned due to the Covid-19 restrictions.



Innovation

The Laboratory has consciously adopted a modernising approach to work practices, securing efficiencies and savings wherever possible, mainly through the application of new and improved technologies. The Laboratory's key outputs have increased very significantly in the period 2010 – 2020 with a >300% increase in the number of analytes tested for. The Laboratory adapted very quickly in response to the Covid-19 pandemic and remained open throughout 2020. Many new work practices were introduced to maintain output and provide essential testing services to clients, whilst keeping staff safe when they were required to be on-site to carryout sample preparation and analysis activities.

A project to streamline the workflow and reporting of results for post-mortem samples was successfully completed in mid-2020 which enabled the increased level of testing to be carried out for the Coroners Service without additional staff resources.

The Laboratory continued to be very customer focused in 2020 and updated many of its procedures and methods of analysis to improve the range of services it provides to clients. A total of 54 new tests were developed, which increased the range of testing provided to clients.

GOVERNANCE

Quality System / Accreditation

The quality of analytical work from the State Laboratory is enhanced by having a documented quality system in place and national and international acceptance of results of analyses requires the Laboratory to be accredited to ISO/IEC 17025 (General requirements for the competence of testing and calibration laboratories) by the Irish National Accreditation Board (INAB Reg. No. 146T) This is particularly so in the case of official controls of food and feed and to ensure successful court prosecutions.

The 2020 INAB assessment visit took place remotely in April and the Laboratory was successful in maintaining accreditation for its existing scope. No new test methods could be added to the scope due to the pandemic but a number of new analytes were added under flexible scope. At the end of 2020, the Laboratory was accredited for 52 test methods covering 533 individual analytes.

Customer Satisfaction Survey

The Laboratory has always been conscious of recording the effectiveness of its service delivery to client departments and offices. The results of the 2020 Customer Satisfaction survey once again showed that the most important attribute of the service that the laboratory provides is Quality. This reflects the fact that as a regulatory laboratory, the analytical results and advice the State Laboratory provides are used to inform important decision-making and implement legislation and to support court prosecutions and Coroners inquests.

It was therefore very positive to note that 100% of clients indicated that they were very satisfied with the Quality of the service provided in 2019 and the helpfulness of staff. The other results of the survey were as follows:

- 100% of clients expressed satisfaction with the scientific advice given;
- 98% were satisfied with the range of the service provided; and
- 92% expressed satisfaction with the timeliness of the service.

The response for timeliness was a significant improvement on the 73% satisfaction rating for the previous year. This was mainly due to the clearing of a large backlog of post-mortem samples in mid-2019.

Audit Committee

The State Laboratory's Audit Committee is part of the Laboratory's governance framework, tasked with providing independent advice to the State Chemist (as Accounting Officer) regarding the suitability and robustness of the Laboratory's internal control systems and procedures.

The Committee met three times in 2020, all remotely, and reviewed the reports of the internal audits conducted during the year. A joint Integrated Audit of Overpayments was carried out in April with the NSSO and a Procurement and Inventory Audit was completed in September. The System of Internal Control was also reviewed and progress on implementing corrective actions recommended in the course of previous audits was tracked.

The Internal Audit Charter was reviewed and approved in July and a new 2-year internal audit plan was approved in November. Review of risk management is a standing agenda item for Audit Committee meetings. The Laboratory's Risk Management Policy was reviewed in November and either the top ten risks or the full list of risks is reviewed at each meeting.

Risk Management

The Laboratory's Risk Register was updated three times during 2020. Risks are identified at sectional level during business planning meetings and these are reviewed by the Senior Management team and the register of risks updated accordingly on a biannual basis. The Risk Register was separately reviewed and updated by the Laboratory's Management Board in March 2020 to include new risks that arose as a result of the Covid-19 pandemic.

System of Internal Financial Control

The State Chemist's Statement on Internal Financial Control, which can be found at Appendix I, was submitted to the Office of the Comptroller and Auditor General along with the State Laboratory's 2020 Appropriation Account in March 2021.

The C&AG's Office carried out their annual audit of the Appropriation Account mainly off-site and the Account was certified early with no findings.

GOVERNANCE

Financial Information

The following table summarises the State Laboratory's financial expenditure in 2020, with figures for 2019 provided for comparative purposes.

Gross Expenditure	2020 €000	2019 €000
A1. Salaries, Wages & Allowances	6,030	5,646
A2. Travel and Subsistence	8	39
A3. Training and Development & Incidental Expenses	278	288
A4. Postal & Telecommunications Services	52	49
A5. Apparatus & Chemical Equipment	2,997	3,239
A6. Office Premises Expenses	1,671	1,507
A7. Consultancy Services (Internal Audit)	25	63
Gross Total	11,061	10,831

Prompt Payments

In 2020, the Laboratory made eight late payments to the value of €693.89, which included compensation costs of €40 per late payment.

Freedom of Information

The State Laboratory received three non-personal Freedom of Information requests in 2020.

Protected Disclosures

No protected disclosures were received in the reporting period up to 31 December 2020.

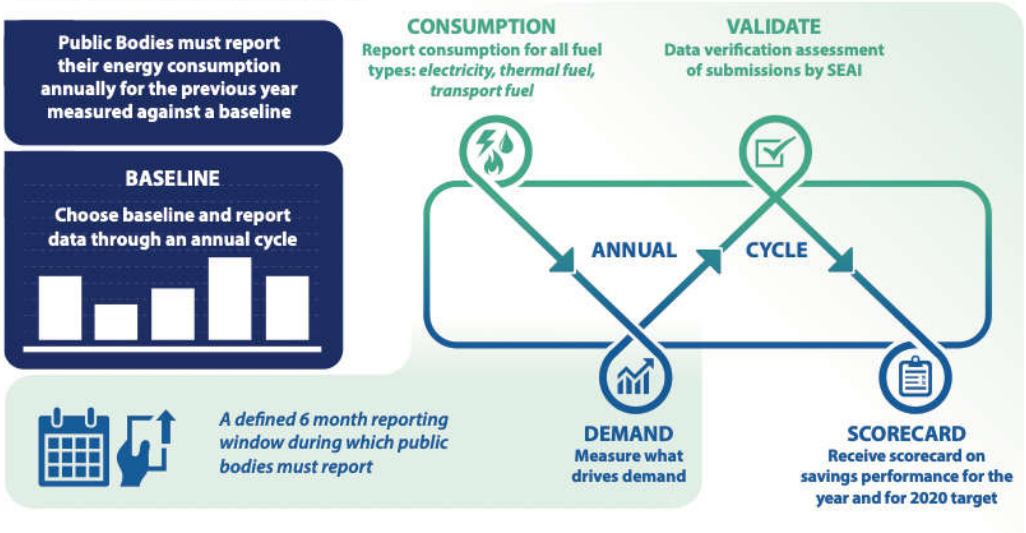
Energy Use Statement

In 2020, the gross energy consumption by the State Laboratory was as follows:

- Electricity 2,256,018 kWh
- Gas 2,737,918 kWh
- Total 4,995,936 kWh

This is a reduction of >30% on the total energy used in 2019, which can mainly be attributed to a decreased requirement for heating during the Covid-19 pandemic. The predicted energy performance indicator (EnPI) for 2020 is 79.6% better than baseline and greatly exceeded the 2020 public sector target of improving energy efficiency by 33% by the end of 2020.

FIG. 2: HOW PUBLIC BODIES REPORT



APPENDIX I STATEMENT BY THE ACCOUNTING OFFICER ON INTERNAL FINANCIAL CONTROL

Responsibility for system of internal financial control

As Accounting Officer, I acknowledge my responsibility for ensuring that an effective system of internal financial control is maintained and operated by the State Laboratory.

This responsibility is exercised in the context of the resources available to me and my other obligations as State Chemist. Also, any system of internal financial control can provide only reasonable and not absolute assurance that assets are safeguarded, transactions authorised and properly recorded, and that material errors or irregularities are either prevented or would be detected in a timely manner. Maintaining the system of internal financial controls is a continuous process and the system and its effectiveness are kept under ongoing review.

Shared services

I have fulfilled my responsibilities in relation to the requirements of the service management agreement between the State Laboratory and the National Shared Service Office for the provision of payroll shared services and human resource shared services.

I rely on a letter of assurance from the Accounting Officer of the National Shared Services Office that the appropriate controls are exercised in the provision of shared services to the State Laboratory.

The position in regard to the financial control environment, the framework of administrative procedures, management reporting and internal audit is as follows

Financial control environment

I confirm that a control environment containing the following elements is in place.

- Financial responsibilities have been assigned at management level with corresponding accountability.
- Reporting arrangements have been established at all levels where responsibility for financial management has been assigned.
- Formal procedures have been established for reporting significant control failures and ensuring appropriate corrective action.
- There is an Audit Committee to advise me in discharging my responsibilities for the internal financial control system.
- Procedures for all key business processes have been documented.
- There are systems in place to safeguard the assets.

Administrative controls and management reporting

I confirm that a framework of administrative procedures and regular management reporting is in place, including segregation of duties and a system of delegation and accountability, and in particular, that

- there is an appropriate budgeting system with an annual budget which is kept under review by senior management
- there are regular reviews by senior management of periodic and annual financial reports which indicate financial performance against forecasts
- a risk management system operates within the State Laboratory
- there are systems aimed at ensuring the security of the ICT systems
- there are appropriate capital investment control guidelines and formal project management disciplines
- the State Laboratory ensures that there is an appropriate focus on good practice in purchasing and that procedures are in place to ensure compliance with all relevant guidelines.

APPENDIX I STATEMENT BY THE ACCOUNTING OFFICER ON INTERNAL FINANCIAL CONTROL

Internal audit and Audit Committee

I confirm that the State Laboratory has an internal audit function with appropriately trained personnel, which operates in accordance with a written charter which I have approved. Its work is informed by analysis of the financial risks to which the State Laboratory is exposed and its annual internal audit plans, approved by me, are based on this analysis. These plans aim to cover the key controls on a rolling basis over a reasonable period. The internal audit function is reviewed periodically by me and by the Audit Committee. I have put procedures in place to ensure that the reports of the internal audit function are followed up.

Non-compliance with procurement rules

I confirm that the State Laboratory ensures that there is an appropriate focus on good practice in purchasing and that procedures are in place to ensure compliance with all relevant guidelines.

The State Laboratory complied with the guidelines. The State Laboratory has provided details of three non-competitive contracts in the annual return in respect of Circular 40/2002 to the Comptroller and Auditor General and the Department of Public Expenditure and Reform

Risk and control framework

The State Laboratory has implemented a risk management system which identifies and reports key risks and the management actions being taken to address and, to the extent possible, to mitigate those risks.

A risk register is in place which identifies the key risks facing the laboratory and these have been identified, evaluated and graded according to their significance. The register is reviewed and updated by the Management Board on a bi-annual basis. The outcome of these assessments is used to plan and allocate resources to ensure risks are managed to an acceptable level.

The risk register details the controls and actions needed to mitigate risks and responsibility for operation of controls assigned to specific staff.

Ongoing monitoring and review

Formal procedures have been established for monitoring control processes and control deficiencies are communicated to those responsible for taking corrective action and to management and the Management Board, where relevant, in a timely way. I confirm that key risks and related controls have been identified and processes have been put in place to monitor the operation of those key controls and report any identified deficiencies.

Review of effectiveness

I confirm that the State Laboratory has procedures to monitor the effectiveness of its risk management and control procedures. The department's monitoring and review of the effectiveness of the system of internal financial control is informed by the work of the internal and external auditors and the senior management within the laboratory responsible for the development and maintenance of the internal financial control framework.

Covid-19 pandemic

Assessments of the impact of Covid-19 were carried out and the results confirmed that all controls continued to operate during the Covid-19 restrictions as the State Laboratory remained open throughout the pandemic.

Internal Financial Control Issues

No weaknesses in internal control were identified in relation to 2020 that resulted in, or may result in, a material loss.

Ita Kinahan
Accounting Officer
State Laboratory

31 March 2021

APPENDIX II MEETINGS AND CONFERENCES ATTENDED BY STATE LABORATORY STAFF

The State Laboratory services EU and other international committee at the request of its client Departments. Laboratory personnel also participate in the work of other international expert scientific bodies and conferences. The following list indicates the range of committee work undertaken by State Laboratory personnel and the meetings and conferences attended during 2020. From March 2020, all meetings were attended remotely.

- Codex Alimentarius Committee on Methods of Analysis and Sampling (CCMAS) working group webinars
- Eurachem General Assembly
- Two meetings of the Eurachem Method Validation WG, Rome and remotely
- 26th Meeting of the Consultative Committee on Quantity of Material: Metrology in Chemistry (CCQM)
- Two EU Meetings on the revision of Commission Regulation (EC) 152/2009, Brussels and remotely
- CEN (European Committee for Standardization)
  - Plenary meeting of CEN Technical Committee (TC) 327 - Animal Feedingstuffs
  - Plenary meeting of CEN Technical Committee (TC) 260 - Fertilisers and Liming Materials
  - Meeting of CEN/TC 327 WG4 on Heavy Metals, Trace Elements and Minerals in Animal Feed
  - Meeting of CEN/TC 327 WG5 Natural Toxins in Animal Feed
  - Meeting of CEN/TC 260 WG7 Chemical Analysis of Fertilisers
  - Meetings of CEN/TC 437 (Electronic Cigarettes and E-liquids) WG1, WG3 and WG4 (Requirements and test methods for e-liquids and emissions)
- Meetings of European Union Reference Laboratories (EURL) and National Reference Laboratories (NRLs) networks
  - EURL Workshop—Metals and Nitrogenous Compounds in Feed
  - EURL workshop– Mycotoxins and plant toxins
  - EURL Brominated Flame Retardants (BFRs) Core Working Group meeting
  - Two EURL meetings on Persistent Organic Pollutants (POPs) in Food and Feed
  - EURL PFAS Core Working Group meeting
  - EURL/NRL workshop on steroids, corticosteroids and sedatives
  - EURL/NRL workshop on nitroimidazoles and NSAIDs
- EU Working Group meeting on Veterinary Drug Residues in Food of Animal Origin in Brussels
- Meeting of ISO/TC 126 Tobacco and Tobacco Products
- Meeting of WHO Tobacco Laboratory Network (TobLabNet)
- Meeting of EU Joint Action on Tobacco Control (JATC)

APPENDIX II MEETINGS AND CONFERENCES ATTENDED BY STATE LABORATORY STAFF

Attended on behalf of Revenue and Department of Business, Enterprise and Innovation

- Two meeting of the Scientific Sub-Committee of the World Customs Organisation, Brussels and remotely
- 22nd Customs Laboratories European Network Plenary meeting, Brussels
- Meeting of the European Commission DG Taxation and Customs Union Economic Tariff Questions Group
- Three meetings of the Customs Code Committee, Agri-Chemical Sector - one in Brussels and two remotely
- Meeting of the European Commission Expert Group on Textiles Names and Labelling
- One Project Group meeting dealing with the Food & Chemical Chapters of HS/CN in Brussels
- Duty Suspensions meeting
- Customs Laboratories European Network (CLEN) Meeting on Cannabis and Cannabinoids
- 1st Joint Conference of CLEN and the Official Medicines Control Laboratories (OMCL) Falsified Medicines Working Group
- 7th nanoSAFE International Conference on Health and Safety Issues relating to Nanomaterials

Conference & Seminar Presentations by State Laboratory staff

- Presentation on 'Cannabis and Products containing Cannabinoids receive the State Laboratory and other Departments and Offices in Ireland' at the CLEN Meeting on Cannabis and Cannabinoids
- Presentation on 'Assessing a National Nanotechnology Infrastructure for Enforcing Nano-safety in Consumer Foods' at the nanoSAFE International Conference
- Presentation on 'The Invisible Killer: Identifying New Designer Drugs in Postmortem Forensic Toxicology' at the Virtual EMEA LC-MS Users' Meeting
- Presentation on 'Method used by the State Laboratory to test for SARMs in Urine' at EURL/NRL Network meeting
- Presentation on 'The Use of High Resolution Accurate Mass Techniques' at EURL/NRL Network meeting

Conferences and Workshops organised by State Laboratory staff

- None in 2020

Publications by State Laboratory staff

- Contributions from two staff members included in a paper on "Propofol Misuse in Ireland – Two Case reports and Review of Literature" published by the Office of the State Pathologist and the Dublin District Coroner

APPENDIX III IRISH NATIONAL ACCREDITATION BOARD – SUMMARY OF SCHEDULE OF ACCREDITATION (Edition 3: 16/07/2020)*

Matrix	Measurand	Test Method	Method ID
Animal Feedstuffs	Crude Protein	EN ISO 16634-1:2008. Nitrogen content by the Dumas Principle.	LSD A032
Animal Feedstuffs	Crude Oils and Fats	EU Commission Regulation 152/2009 Annex III (H).	LSD A023
Animal Feedstuffs	Crude Oils and Fats	NIR Spectroscopy.	LSD A031
Animal Feedstuffs	Crude Fibre	EU Commission Regulation 152/2009 Annex III (I).	LSD A024
Animal Feedstuffs	Crude Fibre	NIR Spectroscopy Screening Method.	LSD A031
Animal Feedstuffs	Crude Ash	In house method based on EU Commission Regulation 152/2009 Annex III	LSD A026
Animal Feedstuffs	Crude Ash	Gravimetric method using a Microwave Furnace.	LSD A030
Animal Feedstuffs	Ash Insoluble in HCl	EU Commission Regulation 152/2009 Annex III (N).	LSD A034
Animal Feedstuffs	Moisture	EU Commission Regulation 152/2009 Annex III (A).	LSD A027
Animal Feedstuffs	Macro and Trace Elements (8)	EN 15621:2012. ICP OES with Microwave Digestion.	LSD A060
Animal Feedstuffs	Macro and Trace Elements (15)	ICPMS with microwave digestion, based of EN 17056 (2018)	LSD A067
Animal Feedstuffs	Heavy Metals (6)	ICPMS with Microwave Digestion.	LSD A062
Animal Feedstuffs	Nicarbazin	In House HPLC method with DAD, based on IS EN 15782:2009.	LSD A050
Animal Feedstuffs	Monensin, Narasin and Salinomycin	EN ISO 14183: HPLC with post column derivatisation.	LSD A051
Animal Feedstuffs	Coccidiostats (11)	In house LCMSMS Method	LSD A052
Animal Feedstuffs	Antibiotics (14)	In house method using Q Trap LC-MSMS	LSD A095
Animal Feedstuffs	Chlortetracycline	In House HPLC method with DAD	LSD A072
Animal Feedstuffs	Sulphadiazine	In House HPLC method with DAD	LSD A076
Fertilisers	Nitrogen Content	Nitrogen content by Dumas in-house method based on AOAC official method 993.13.	LSD A036
Animal Feedstuffs	Iodine	In house ICPMS method based on EN: 17050 (2017)	LSD A066
Animal Feedstuffs	Theobromine	In house method using HPLC UV/PDA	LSD A077
Animal Feedstuffs	Fluoride	In house method using ion-selective electrode based on EN 16279:2012	LSD A099
Animal Feedstuffs	Aflatoxin B1	In-house method using IA column cleanup and RP HPLC with FLD	LSD M124
Animal Feedstuffs	Mycotoxins (11)	In-house LCMS/MS method	LSD M138
Liver	Ochratoxin A	In-house method using IA column cleanup and RP HPLC with FLD	LSD M126
Milk (liquid, powder and infant formula)	Aflatoxin M1	Based on ISO 14501 – IA column cleanup and RP HPLC with FLD	LSD M125
Animal feed and foodstuffs	Dioxins, furans and dioxin-like PCBs (35)	In-house GC/HRMS method	LSD M252
Fruit juices	Patulin	In-house HPLC UV method	LSD M067

* For further details, see schedule of accreditation (Reg. No. 146T) on the INAB website (www.inab.ie).

APPENDIX III IRISH NATIONAL ACCREDITATION BOARD – SUMMARY OF SCHEDULE OF ACCREDITATION (Edition 3: 16/07/2020)*

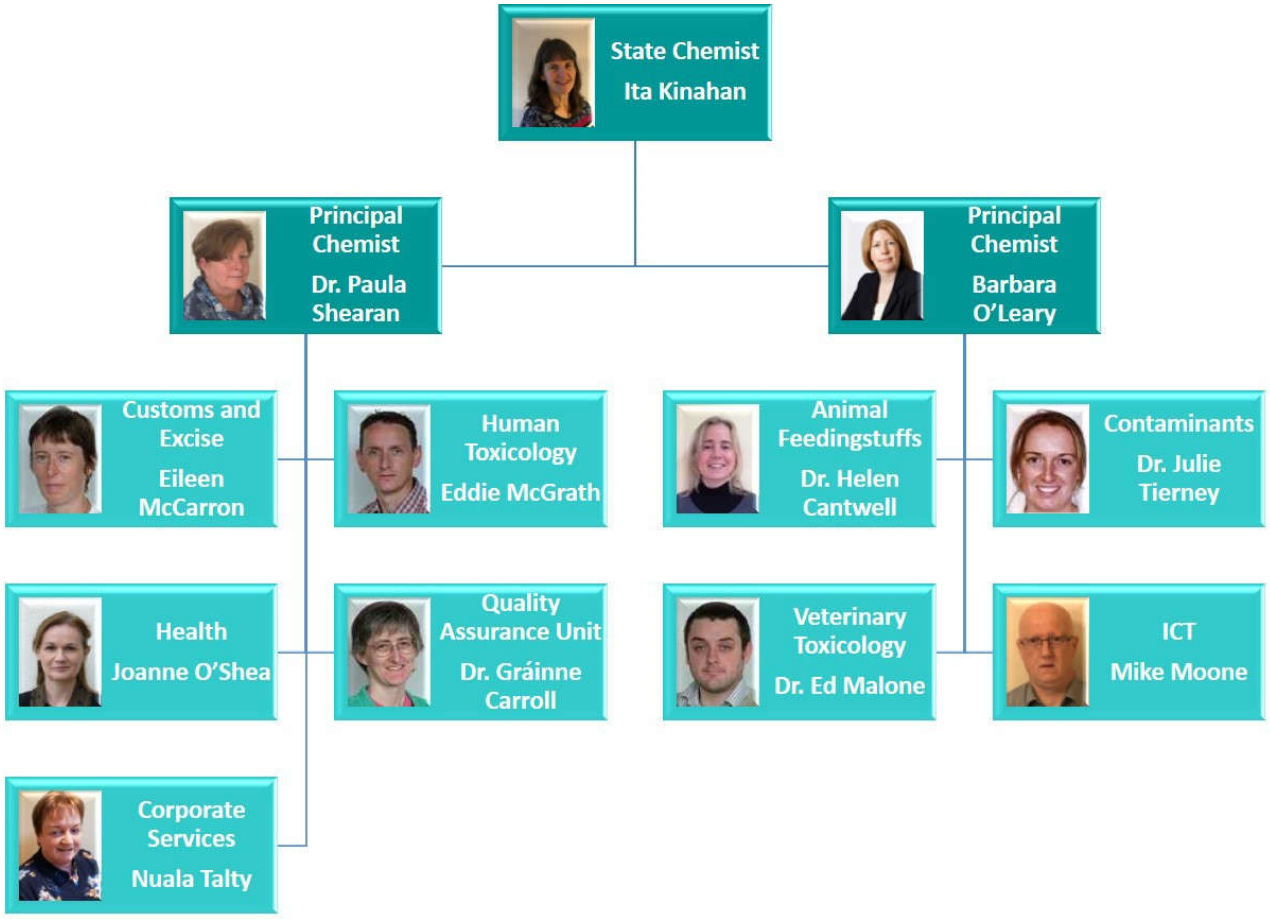
Matrix	Measurand	Test Method	Method ID
Drugs	Flexible Scope (analyte and range) Identification and Quantification of pharmaceuticals samples	In-house method using HPLC–DAD. Complies with relevant requirements of OJEC 2002/657/EC, ICH guideline Q2 (R1}, Q2B and Q6A and monographs from British, European and US Pharmacopoeia.	LSD J014
Drugs	Flexible Scope (analyte and range) Identification of pharmaceutical samples	In-house QTOF LCMS method based on the requirements of Commission Decision 2002/657/EC, ICH guideline Q2 (R1}, Q6A and monographs from British, European and US Pharmacopoeia.	LSD J044
Lettuce, Spinach and Cabbage	Nitrates	In-house method based on EN12014-2:1997-04 Anion exchange chromatography following extraction and clean-up.	LSD M062
Alcoholic Drinks	Alcoholic Strength by Volume	In-house method using a density meter following distillation.	LSD B010
Gas Oil	C.I. Solvent Yellow 124	In-house HPLC method.	LSD H009
Liquid Fuels	Accutrace S10 fuel marker in Hydrocarbon Oil	In-house GCMS method	LSD H046
Blood, Urine and Vitreous	Ethanol	In-house headspace GC/FID method with I.S. quantitation.	LSD T003
Animal Urine	Flexible Scope (matrices, residues and ranges) Steroids (18)	In house method by LCMSMS meeting requirements of Council Directive 96/23/EC (2002/657/EC)	LSD V031
Animal Serum	Flexible Scope (matrices, residues and ranges) Steroids (14}	In house method by LCMSMS meeting requirements of Council Directive 96/23/EC (2002/657/EC)	LSD V046
Poultry Liver	Flexible Scope (matrices, residues and ranges) Steroids (11)	In house method by LCMSMS requirements of Council Directive 96/23/EC (2002/657/EC)	LSDV061
Animal Serum	Flexible Scope (matrices, residues and ranges) Nitroimidazoles (7), Chloramphenicol	In house method by LCMSMS requirements of Council Directive 96/23/EC (2002/657/EC)	LSDV038
Eggs	Flexible Scope (matrices, residues and ranges} Nitroimidazoles (7), Chloramphenicol	In house method by LCMSMS meeting requirements of Council Directive 96/23/EC (2002/657/EC)	LSD V049

APPENDIX III IRISH NATIONAL ACCREDITATION BOARD – SUMMARY OF SCHEDULE OF ACCREDITATION (Edition 3: 16/07/2020)*

Matrix	Measurand	Test Method	Method ID
Honey	Flexible Scope (matrices, residues and ranges) Nitroimidazoles (7), Chloramphenicol	In house method by LCMSMS meeting requirements of Council Directive 96/23/EC (2002/657/EC)	LSD V063
Milk	Flexible Scope (matrices, residues and ranges) Nitroimidazoles (7), Chloramphenicol	In house method by LCMSMS meeting requirements of Council Directive 96/23/EC (2002/657/EC)	LSD V064
Animal Plasma	Flexible Scope (matrices, residues and ranges) Non-steroidal anti-inflammatory drugs (10)	In house method by LCMSMS meeting requirements of Council Directive 96/23/EC (2002/657/EC)	LSD V039
Animal Kidney	Flexible Scope (matrices, residues and ranges) Non-steroidal anti-inflammatory drugs (12)	In house method by LCMSMS meeting requirements of Council Directive 96/23/EC (2002/657/EC)	LSD V068
Animal Kidney Fat	Flexible Scope (matrices, residues and ranges) Gestagens (5)	In-house method by LCMSMS meeting requirements of Council Directive 96/23/EC (2002/657/EC)	LSD V033
Urine	Flexible Scope (matrices, residues and ranges) Corticosteroids (5)	In-house method by LCMSMS meeting requirements of Council Directive 96/23/EC (2002/657/EC)	LSD V058
Animal Kidney	Flexible Scope (matrices, residues and ranges) Sedatives (8)	In-house method by LCMSMS meeting requirements of Council Directive 96/23/EC (2002/657/EC)	LSD V067
Animal Liver	Flexible Scope (matrices, residues and ranges) Toxicants (20)	In house method by LCMSMS	LSD V077
Milk	Flexible Scope (matrices, residues and ranges) Corticosteroids (6)	In house method by LCMSMS meeting requirements of Council Directive 96/23/EC (2002/657/EC)	LSD V078
Animal Milk	Flexible Scope (matrices, residues and ranges) Non-steroidal anti-inflammatory drugs (14, 7)	In house method by LCMSMS meeting requirements of Council Directive 96/23/EC (2002/657/EC)	LSD V091

* For further details, see our schedule of accreditation (Reg. No. 146T} on the INAB website (www.inab.ie).

APPENDIX IV ORGANISATION CHART (As of 31-DEC-2020)



APPENDIX V STAFF LIST—BY GRADE (As of 31-DEC-2020)

State Chemist			
Ita Kinahan			
Principal Chemist			
Barbara O' Leary	Dr. Paula Shearan		
Senior Chemist			
Dr. Helen Cantwell Dr. Grainne Carroll	Dr. Ed Malone Eddie McGrath	Eileen McCarron Joanne O'Shea	Dr. Julie Tierney
Chemist Grade II			
Dr. Jonathan Carroll Dr. Eleanor Dixon Dr. Pierrick Fevrier	Dr. John Fields Niamh Fitzgerald Lynda Harman	Myra Keogh Dr. Sean McGowan Audrey Nugent	Dr Colmán O'Ríordáin Ruth Reilly Claire Timbs Mairead Webster
Chemist			
Sinead Bermingham Ann Marie Bragason Dr. Helen Burke David Canny Paula Clarke Dr. Mark Cronly Michael Doyle	Sinead Dunlop Joe Fitzsimons Aisling Geoghegan Veronica Gubarkova Margarete Houlihan John Judge Ray Kelly	Shonagh Masterson Vicky MacEoin Una McArdle Ruth McDonagh Dr. Mark McDonald Damien Mooney Dr. Amy Nagle	Conor Noone Olivia O'Connor John Reilly Dr. Hannah Smith Patrick Saunders Emma Smith Niall Stanford
Health and Safety and Facilities Liaison Manager			
Michael Butler			
Senior Laboratory Analyst			
Laura Flynn Fiona Gallagher Marella Gallagher	Madeleine Gibbons Bernard Hanratty Tom Harbison	Ciara Keane Sheila Martin Cathy McElligott	Dennis Sheehan
Laboratory Analyst			
Joseph Brereton Susan Callinan Patricia Carter Leona Cashman Colin Caverly Simon Daly Laura Dowling	Klaudia Dyrda Ryan Geoghegan Emma Kelly Stephen Leech Michael Lillis Ivan Milovanovic Alan Murphy	Patrick McNamara Niamh O'Shea Colm Reid Sinead Ryan Emma Jane Walsh Fiona White Gavan White	
Laboratory Attendant			
Tom Gaule Doris Lee Flynn Caroline Manning		Anthony McEvoy John McCormack	
Corporate Services			
Nuala Talty - Assistant Principal Dr. Michael O' Gorman - (TI Manager Grade II) Margaret Harney - Administrative Officer Mary Quine - Higher Executive Officer Phyllis Barry - Executive Officer Damien Duffy - Executive Officer		Ann Timlin - Executive Officer Angelina O'Shea - Clerical Officer Geraldine Gaffney - Clerical Officer Sharon McEvoy - Clerical Officer Miriam Kavanagh - Clerical Officer Declan Powell - Storekeeper	
ICT			
Mike Moone – Assistant Principal	Gerard O' Brien - Higher Executive Officer	Seán Leaney (WAM Placement)