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Head of Division

Bacteriology/Parasitology Division

The primary role of the Bacteriology / Parasitology Division is to provide the bacteriological / parasitological diagnostic, monitoring, and advisory service to support the Department of Agriculture and Food (DAF) in the achievement of its strategic objectives with respect to animal health, public health, trade and environment. The main focus of the Divisions work is directed towards primary production.

History

The work of the Division has evolved to mirror the changing challenges to animal health and food safety. While some diseases (e.g. Contagious Equine Metritis) no longer require significant diagnostic resources others (e.g. *Mycoplasma bovis*, Johnes's disease) have become more common following their introduction with the single market and importation of animals from continental Europe without compulsory quarantine. Whereas in the past the work of the Division was strongly focused on supporting the diagnosis of disease on individual farms today the focus is largely directed at diseases of national concern from an animal health or food safety perspective.

There have also been dramatic developments in the methods used in the surveillance and diagnosis of diseases with more traditional diagnostic methods being replaced by an array of molecular techniques.

Current Work of Division

The Bacteriology Division has a staff complement of 29 consisting of veterinarians, other scientists, and ancillary personnel.

For many years one of the primary tasks of the division was to provide bacteriological support to two major DAF disease control programmes; Tuberculosis and Brucellosis.

While bovine tuberculosis continues to be a problem in some areas requiring continued support for culture and histopathological examination of suspected animals the Division is providing increased support towards epidemiological studies and the R&D associated with the development of a vaccine for wildlife. Included in the current work of the division are;

- Culture and histopathological examination of all diagnostic samples
- Undertaking potency assays on scheme tuberculin's
- DNA fingerprinting of *M. bovis* isolates
- Evaluation of new methods for the identification of *M. bovis* in tissue samples and the typing of isolates
- Undertaking serological tests to aid diagnosis in problem herds

Similarly with Brucellosis for which significant progress has been made in its eradication the diagnostic culture support given to screening aborted animals is now matched by the increasing demand for investigation and identification of causes of false positive reactor animals.

Culturing for and typing for *Salmonella* spp. has always been a significant component of the workload of the Bacteriology Division as all official testing associated with the control programme in poultry has been undertaken by the Division. At time of writing the Division is undertaking testing for the EU baseline studies to determine the prevalence's of *Salmonella* in poultry and other food producing animals prior to implementing EU wide targets for control of zoonotic pathogens. The Division undertakes all the serological testing for the National *Salmonella* control programme in pigs.

The Division also provides a range of diagnostic tests for some animal diseases largely in support of Regional Veterinary Laboratory (RVL) service. These include:

- Culture and serology tests for Johne's disease
- Culture and serology tests for *Mycoplasma* disease
- Serological and Fluorescent antibody tests for *Leptospira* spp.
- Milk Somatic Cell Counts
- Screening tests for *Campylobacter* and *Trichomonas* spp.

The Division undertakes all the genotype testing on sheep in Scrapie-infected flocks under the National Genotyping Programme

As parasites are associated with up to over 50% of animal disease significant laboratory resources are directed towards their investigation. In addition to some routine parasitological diagnostic screening the division offers a specialised parasitological service to support the routine diagnostic service of the RVL's. Of particular concern are investigations of suspect cases of sheep scab caused by the mite *Psoroptes ovis* that is an insidious disease that can cause serious pathology, economic losses and severe welfare problems in sheep flocks. As many parasites have implications for public health including *Toxoplasma gondii* and *Cryptosporidium* spp the Division is supporting a number of R&D projects investigating their prevalence and significance.

The Division is currently upgrading its capacity to deliver on its various NRL functions including increasing the range of molecular typing methods in use. The Division is actively progressing accreditation of its key tests. The Division also has a number of research assistants and students from other institutions working on various collaborative research projects, which support strategic DAF objectives on animal health and food safety.

The Bacteriology Division acts as the National Reference Laboratory (NRL) for Salmonella. All salmonella samples found at private laboratories undertaking food safety monitoring in premises regulated by DAF are submitted for typing. The Division is also undertaking tasks associated with NRL functions for Campylobacter, E. coli, Antimicrobial Resistance and Parasites. The Division collates data on food safety monitoring undertaken by industry, which provides an additional early warning system for some food safety alerts. It also partakes in various ring trials organised by various Community Reference Laboratories and organises the annual national salmonella ring trial.

