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Please Note: Abstracts are published as received from authors and are not subject to editing.
P1 - The role of tuberculin assays on naturally infected cattle in the Irish eradication programme.

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The Irish Bovine Tuberculosis (bTB) eradication programme includes annual Single Intradermal Comparative Tuberculin Test (SICTT) screening of all herds. The SICTT is conducted by comparing the separate cell-mediated immune responses to an intradermal injection of avian and bovine PPD tuberculins in each animal. Tuberculin PPD standardisation is necessary in order to ensure sufficient diagnostic strength for eradication and also to guarantee animal status for international trade. The potency of a tuberculin is estimated by comparing the size of the reactions, elicited by an intradermal inoculation, to the size of the reactions of a 'standard' tuberculin of known potency. OIE recommends that tuberculins are assayed in the population of animals in which the eradication programme is to be carried out, but due to practical difficulties in performing potency assays in cattle they are usually assayed in guinea pigs. However, ever since inadvertently using sub-potent tuberculin many years ago the routine assay of tuberculins in naturally infected cattle is regarded as imperative to the assurance of potency of tuberculins used in the Irish bovine tuberculosis eradication programme. The purpose of this presentation is to give an account of the procedures, and outline the role of assays, carried out on naturally infected cattle in the quality control on the Irish Bovine Eradication Programme. Ireland is perhaps unique in that it is one of the few, if not the only country conducting routine tuberculin assay in naturally infected bovines as part of the quality control of the national bTB eradication programme.

Topics: Disease eradication and contingency planning
Keywords: Bovine TB, Intradermal Tuberculin Test, Tuberculin, Potency.

P2 - Analysis of the ECDC/EFSA/EMA first joint report on consumption of antimicrobial.

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The European Centre of Disease Control (ECDC) and the European Food Safety Authority (EFSA) and the European Medicine Agency (EMA) published a joint report on the associations between consumption of antimicrobials in humans and food-producing animals, and antimicrobial resistance in bacteria from humans and food-producing animals, using 2011 and 2012 data currently available from their relevant five EU monitoring networks, which included the EU member states (MS’s), Iceland, Norway, Croatia and in some cases Switzerland.

Key Points:

Comparison of antimicrobial consumption data in animals and humans in 2012, both expressed in milligrams per kilogram of estimated biomass, revealed that overall antimicrobial consumption was higher in animals (144.0 mg/kg [range 3.9-396.5 mg/kg]) than in humans (116.4mg/kg [range 56.7-175.8 mg/kg]), although contrasting situations were observed between countries.

1 - The consumption of several antimicrobials extensively used in animal husbandry was higher in animals than in humans, while consumption of antimicrobials critically important for human medicine (such as fluoroquinolones and 3rd- and 4th-generation cephalosporins) was higher in humans.

2 - A positive association was also found between antimicrobial consumption in animals and resistance in bacteria from humans. In particular in relation to indicator E. coli, positive associations were also noted for Salmonella spp., and Campylobacter spp.

Key Points for Ireland:

In the case of fluoroquinolone resistance in S. Typhimurium, the five countries reporting the highest occurrence of fluoroquinolone resistance were the United Kingdom (4.3 %), the Netherlands (4.0 %), Denmark (2.6 %), Romania (1.9 %) and Ireland (1.7 %).

Human medicine use of fluoroquinolones was 1.4 tonnes of active ingredient, compared to penicillin 29.7 tonnes. In mainly food producing animal’s consumption of fluoroquinolones was 1.0 tonne compared to penicillin 21.7 tonnes.

While important baseline data was generated in this report, these results should be interpreted with caution owing to current data limitations. The recommendation is of course – the responsible use of antimicrobials in both humans and animals should be promoted.


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P3 - The impact of meteorology on the occurrence of waterborne outbreaks of Vero cytotoxin producing Escherichia coli (VTEC): a Logistic Regression approach.
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The relationship between meteorological phenomena and outbreaks of waterborne transmitted vero cytotoxin producing Escherichia coli (VTEC) in the Republic of Ireland, over an eight year period (2005-2012) was analysed. Data pertaining to the notification of waterborne VTEC outbreaks were extracted from the Computerised Infectious Disease Reporting system, administered through the national Health Protection Surveillance Centre as part of the Health Service Executive. Rainfall and temperature data were obtained from the national meteorological office and categorised as Cumulative Rainfall, Heavy Rainfall Events, in the previous seven days and Mean Monthly Temperature. Regression analysis was performed using Binary Logistic Regression. The Logistic Regression model was significant (p = <0.001), correctly classifying 94.7% of cases with all independent variables: Cumulative Rainfall (p = <0.001), Heavy Rainfall (p = <0.001) and Mean Temperature (p = 0.005) making a statistically significant contribution to the model. The study has found that Heavy Rainfall in the preceding 7 days of an outbreak is a strong statistical indicator of a waterborne outbreak (Odds Ratio: 22.890). Mean Monthly Temperature was also demonstrated to be a predictor of waterborne VTEC outbreaks, with the probability of an outbreak increasing by 1.370 for every 1°C rise in temperature. The results offer useful insight into the links between waterborne disease and meteorology; important discoveries, as waterborne diseases are predicted to increase in relation to future climate change scenarios.


Topics: Veterinary Microbiology & Parasitology, Other
Keywords: meteorology, VTEC, waterborne diseases, climate change.

P4 - Antimicrobial Resistance Trends Among Escherichia coli Isolates Obtained from Clinical Bovine Submissions in the Mid-West Region of Ireland, 2010-2014.
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Monitoring trends in antibiotic susceptibility is an important public and animal’s health function. It enables determination of the development of resistance and allows for planning targeted interventions. The objectives of this study were thus to describe the antimicrobial status of E. coli isolates obtained from clinical bovine submissions and to identify trends in resistance to selected antimicrobial agents over time using logistic regression models. Data was collected during the study period January 2010 and December 2014 for all E. coli clinical bovine isolates that were obtained from samples submitted to the Regional Veterinary Laboratory (RVL), Knockalisheen, Limerick. Antimicrobial susceptibility testing was performed on 310 bovine E. coli isolates. Resistance to individual antimicrobial agents ranged from 3% (cefpodoxime) to 57% (amoxycillin & clavulanate) of all isolates tested. More than 50% of isolates were also resistant to the agent’s neomycin and streptomycin. There was evidence of a significantly increasing trend in prevalence of resistance to amoxycillin & clavulanate, cephalexin & kanamycin and neomycin. Resistance to some drugs remained constantly high during the study period; this is a key area of concern.

Topics: Veterinary Microbiology & Parasitology, Disease Surveillance
Keywords: Antimicrobial Resistance, Temporal Trends, E. coli.

P5 - The risk of Bovine Tuberculosis test failure in cattle post movement.
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The aim was to estimate the effect of inter-herd animal movement on likelihood of positive bovine Tuberculosis (bTB) skin test. Data were gathered from the Animal Identification and Movement System (AIMS) database corresponding to cattle movements (n = 402,365) into herds that subsequently had a bTB breakdown. A backwards stepwise multivariable logistic model was utilised to develop models to evaluate the independent factors, test-type, year, interval from movement to breakdown, accounting for herd structure, on the risk of becoming positive to the skin test. Only 0.44 % of animals moved into herds that subsequently breakdown with
bTB (are skin test positive) within two months. While, 0.95% of animals that moved herds within the past year subsequently test positive to the bTB skin test. The odds ratio for bTB positive skin test increased (P > 0.01) with increasing length of time in herd, with animals 6.9 (confidence interval; CI 5.1 to 9.3) times greater risk of positive skin test one year after movement compared with those tested within 60 days of movement (referent category). Test-types categorised as risk category 2 and risk category 3 were 4.4 (CI 3.2 to 6.1) and 3.8 (CI 2.4 to 6.2) times, respectively, more likely to have positive skin test compared with lower risk test-types. In conclusion, the risk of bTB was greater the longer the moved animal is in the new herd and the higher risk category the next test type scheduled for that herd. Based on our findings, in excess of 2.6 million individual pre-movement tests would be required to find an additional 1000 skin test positive animals in each given year.

Topics: Disease eradication and contingency planning  
Keywords: Bovine Tuberculosis, Cattle, Movements.

P6 - Establishment of six large-scale vaccine intervention areas: opportunities for badger (Meles meles) ecological research.  
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European badgers are the principal wildlife host species for bovine tuberculosis (caused by Mycobacterium bovis) in Ireland. Vaccination of badgers with Bacille Calmette Guerin (BCG), as an alternative to continued culling, may aid in disease eradication efforts within the national cattle herd population. The feasibility, and effects, of using injectable BCG in captured wild badgers will be assessed during a non-inferiority observational study in six areas (mean extent: 400km²; total: 2797 km²) in Ireland over a minimum of three years. During these studies, badgers will be captured, vaccinated and permanently marked, facilitating mark-recapture approaches to estimate relative abundance, apparent survival and movement metrics. Sett (burrows) surveys will also be undertaken and activity levels recorded. Here we present the extent and geographic characteristics of the proposed study areas. This project will provide an unprecedented opportunity to study badger populations at landscape scales.

Topics: Disease eradication and contingency planning, Disease Surveillance  
Keywords: Badger, Wildlife host, vaccine, BCG.

P7 - Investigating candidate factors influencing bovine spongiform encephalopathy brainstem sample quality in a beef abattoir.  
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Obtaining the appropriate sample is critical to ensure bovine spongiform encephalopathy (BSE) test result integrity. For BSE, this is the brainstem at the level of the obex - the area where abnormal prion protein (PrP) is most consistently deposited and fortuitously first detectable. Occasionally suboptimal samples (SO) occur where the obex is absent or unidentifiable, in which case negative results are questionable. The relationship between SO occurrence and factors such as animal age, breed category [dairy, beef breeds native to the British Isles and Continental beef breeds], gender, skinning method (upward or downward) and sampler identity (n = 13) was investigated. A stepwise logistic regression model was applied to a dataset containing records of 23,646 animals sampled at the abattoir over a 2-year-period. Details relating to SO occurrence were obtained from laboratory reports. Details relating to the animal's age and date of slaughter, gender and breed were obtained from the Animal Identification and Movement (AIM) database (Department of Agriculture, Food and the Marine, Ireland). Skinning method changed mid study. SO incidence was 0.26%. Results indicate that three individual samplers, bulls and native and continental beef breeds had a significant positive effect on SO occurrence (p < 0.05). Age and skinning method were found not to have any significant effect. The results inform a basis for risk profiling animals prior to sampling. The importance of sampler training and motivation is also indicated. It is recommended that samplers perfect their technique by sampling animals younger than the statutory prescribed age prior to taking official samples.


Topics: TSEs and Animal by-products  
Keywords: BSE, suboptimal sample, dataset, risk profiling, training and motivation.
P8 - An assessment of chemical treatments to reduce bacterial populations on fresh chicken meat.
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The purpose of this study was to investigate the effectiveness of chemical treatments applied in an immersion system to reduce bacterial contamination on broiler carcasses. The ability of a number of chemical compounds (acetic acid (AA), citric acid, (CA) lactic acid (LA), sodium decanoate (SD) and trisodium phosphate (TSP)) were assessed to reduce microbial populations (total viable count, Campylobacter jejuni, E. coli, Salmonella Typhimurium and Listeria monocytogenes) on raw chicken meat. Experiments were carried out to identify optimal concentrations for each chemical (3 & 5% for AA, CA, LA, SD and 10 & 12% for TSP). Chemicals were applied individually and in combination in order to assess possible synergistic effects. Overall, chemical treatments at all concentrations resulted in significant reductions in microbial populations when compared to untreated controls (P<0.01) apart from TSP treated samples which did not significantly reduce TVC levels. Furthermore, with the exception of Listeria, no significant differences in microbial reductions were observed when high and low concentrations were compared (P>0.01). Combinations of two chemical treatments resulted in significantly greater reductions than individual treatments for both Salmonella and Listeria (P<0.01).

Topics: Veterinary Public Health
Keywords: food safety, organic acids, microbial decontamination, chicken meat

P9 - Exploratory Social Network Analysis of animals positive for Johne’s disease (JD) in Munster.
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Networks can be used to represent patterns of connectivity of populations and describe aspects of disease transmission. Social network analysis provides a formal methodology for the analysis and illustration of the relationship between movements of animals and transmission of a contagious pathogen associated with those movements. The aim of this study is to describe the network of confirmed JD positive animals in Munster by linking their movements through different premises throughout their productive life. Networks were constructed by linking a dataset of historical laboratory records of JD culture positive animals with the Animal Identification and Movement System (AIMS) database. The dataset was exported to Pajek32 and organised in an adjacency matrix consisted of a collection of nodes (premises) and an array of arcs (directed movements) linking the nodes. The nodes were categorised (attributes) and graphed in an arbitrary space for visual assessment. The out-degree centrality of each node, structural attribute which represents its potential to disease spread, was calculated. The study addresses the relationship between animal movements and disease detection. It identifies those premises more likely to facilitate the spread of JD via animal movements, and provides an evidence-based approach to the development of risk-based surveillance and disease prevention programs.

Topics: Veterinary Epidemiology & Economics, Disease Surveillance
Keywords: Johne’s disease, Social Network Analysis, disease surveillance, animal movements.

P10 - A novel technique to decontaminate fresh fish using high-power ultrasonication.
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Fish starts to spoil from the moment of catching, mainly due to the activities of enzymes or bacteria naturally present. However a number of factors can accelerate the rate of spoilage such as elevated storage temperatures or poor hygiene practices. Due to the economic costs associated with spoilage, the seafood industry is continually looking for new strategies to preserve fresh fish. Non-thermal processing technologies such as Ultrasonication (US) could offer an alternative for the microbial decontamination of fish. US uses sound waves at frequencies from 20 kHz to 10 MHz, which can produce a cavitation phenomenon, and have been applied previously for cleaning and microbial inactivation. The current study evaluated the ability of US treatments to decontaminate the natural flora on Salmon (Salmo salar) and Cod (Gadus morhua). Samples were treated in a low frequency US bath (40 kHz, 200 W) with a continuous flow of potable water (rate: ~ 46 ml/s) maintaining a constant volume and a temperature below 14°C. Mesophilic viable counts (MVC) were obtained after plating on Plate Count Agar (PCA) + 1% NaCl at 30°C for 48 h.

Reductions of up to ~98% of MVC on salmon and around 80% on cod were achieved as compared to untreated controls. Reductions were also compared to samples immersed in water but without US and differences of
approximately 1 Log10 CFU/g were observed for salmon while no significant differences were observed for cod. These findings suggest that washing with ultrasonication are a suitable technology for the decontamination of fresh fish.

**Keywords:** Ultrasonication, fish, decontamination, low frequency, ultrasounds, seafood, cod, salmon, natural flora

**P11 - Epidemiology of Human VTEC Infections in the Mid West 2013.**

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During 2013 there were 702 cases of human VTEC infection notified in Ireland, of which 151 occurred in the Mid West area (Clare, Limerick and North Tipperary). Almost half the cases were children aged less than five years of age, four of whom developed Haemolytic Uraemic Syndrome (anaemia, thrombocytopenia and renal failure). The peak months for infection were May and October. The commonest serogroup was O26 (53 cases) followed by O157 (28 cases). Serogroup was not identified in 43 cases. At least one risk factor was identified in 77% cases, including contact with another case (44%), direct contact with farm animals (29%), drinking untreated water (30%) and consuming unpasteurised dairy products (3%). Fifty eight cases were in groups considered at increased risk of infecting others; 49 children being minded in a child care facility, 8 health care workers and 1 food handler. In those with symptoms the median interval between onset and laboratory diagnosis was 14.5 days.

**Topics:** Disease Surveillance

**Keywords:** VTEC, human, epidemiology, Mid-West

**P12 - Warm versus cold packing of beef tripe - a comparative microbiological analysis.**

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Regulation (EC) 854/2004 stipulates that food business operators must ensure that offal is maintained at <3°C during processing. However, provision is made for meat to be cut at >3°C when the cutting rooms and slaughterhouse share the same site. Immediately post cutting and packaging, the meat must be chilled to <3°C. This study compares the microbiological quality of beef tripe chilled to <3°C prior to cutting / packing (cold tripe) with tripe cut at >3°C and chilled to <3°C after packing (warm tripe). For both sets of conditions, 50 x 25 g samples of beef tripe were taken 24 hours after packaging. Total Viable Counts (TVC) and Enterobacteriaceae (TEC) were enumerated using standard methods. The Log_{TVC} (=x+1/2(ln10.s^{x})) for cold and warm tripe were 4.88 log_{10}CFU/g and 4.04 log_{10}CFU/g respectively. These values were found to differ significantly (p<0.05). Log_{TEC} (calculated by summing the counts in each set and obtaining the log of the sum) and %Neg_{TEC} (those samples with counts less than the detection limit) for cold tripe were 2.48/g and 82% respectively whilst those for warm tripe were 2.90/g and 70% respectively. The results indicate the superior microbial quality of cold tripe with implications for its shelf-life and safety. Chilling of tripe prior to packaging must be considered best practice.

**Topics:** Veterinary Public Health, Veterinary Microbiology & Parasitology

**Keywords:** Tripe, chilling, total viable counts, Enterobacteriaceae

**P13 - Assessment of the impact of biosecurity on Campylobacter prevalence in Irish broilers at first and final thin.**

**Shaun Andrew Smith\textsuperscript{1,} Kevina McGill\textsuperscript{1,} Joseph Meade\textsuperscript{1,} James Gibbons\textsuperscript{1,} Declan Bolton\textsuperscript{2,} Paul Whyte\textsuperscript{1}\textsuperscript{1}\textsuperscript{School of Veterinary Medicine, University College Dublin; }\textsuperscript{2}\textsuperscript{Teagasc Ashtown Food Research Centre; shaun.smith@ucdconnect.ie

The European Food Safety Authority (EFSA) have reported that human Campylobacter infections are the leading cause of bacterial foodborne illness in the European Union and that a significant proportion of cases can be attributed to the handling or consumption of contaminated broiler meat (EFSA, 2012). Irish broiler flocks and carcasses had the 4th (83%) and 2nd (98%) highest levels of Campylobacter contamination respectively in the EU (HPSC, 2012, EFSA, 2010). This presents a potentially serious risk to both human health and to the image of the Irish poultry industry which is valued annually at €350 million to the national economy. Given the high levels of Campylobacter at farm level, a strong focus on biosecurity could reduce Campylobacter prevalence’s in flocks with associated food safety benefits along the food processing chain. For our study multiple farms were evaluated for a range of biosecurity criteria. Twelve farms with high and 12 with poor standards of biosecurity were identified and caecal samples were collected at first and final thin to evaluate if biosecurity impacted Campylobacter prevalence over the course of one year. Provisional results to date indicate that biosecurity can
significantly impact on the Campylobacter status of flocks up to the point of first thinning, with little difference between both groups of farms by time of final thinning.

Topics: Veterinary Public Health, Veterinary Microbiology & Parasitology, Veterinary Epidemiology & Economics, Disease eradication and contingency planning, Animal Welfare, Disease Surveillance, Risk Analysis
Keywords: Campylobacter, Biosecurity, Thinning, Food Safety, Animal Welfare

P14 - Badgers and their interaction with cattle and farmyards – data from remote satellite tracking in the Republic of Ireland.

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The proximity of badgers (Meles meles) to cattle, their use of farmyards and pastures containing cattle, is of fundamental importance in understanding transmission possibilities for Mycobacterium bovis between a wildlife reservoir and cattle on farms. A study of free-ranging badgers carrying Global Positioning System (GPS) collars which allowed their movements to be tracked provided data on their use of farmyards over a three year period and their use of a series of paddocks with and without cattle present over a three month period. The data on badger movements were plotted against the location and type of farmyard in the study area, and the grazing records on a farm, allowing comparison of the badger usage of each paddock when it had and when it had not cattle present. This study demonstrated that badgers in this area, generally avoided all types of farmyards but particularly those where cattle were present and further established convincingly for the first time that free ranging badgers avoid entering paddocks containing cattle. Direct contact between individuals is unlikely to be a major route of M. bovis transmission between these species. It therefore suggests that alternative strategies for controlling cross-infection between badgers and cattle might focus on other likely routes of transmission such as possible abnormal behaviour of badgers with advanced generalised TB, and indirect routes of transmission.

Topics: Veterinary Microbiology & Parasitology, Veterinary Epidemiology & Economics, Disease eradication and contingency planning
Keywords: European badger Meles meles, cattle, Mycobacterium bovis, GPS collars, TB transmission, farmyards, pasture

P15 - Horsemeat Food Fraud 2013. Knowledge, Attitudes and Risk Perception of Environmental Health Officers and Consumers one year on.

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In 2013, equine DNA was detected in processed beef products in Ireland. Subsequent testing revealed that although food safety was not at risk a European-wide problem of sophisticated food fraud existed. The aim of this study was to compare the knowledge, attitudes and risk perception of Environmental Health Officers (EHOs) and consumers in Ireland in relation to food fraud and the Horsemeat Incident one year on. Data were collected through online and face-to-face questionnaires. Results suggest there are significant differences between the knowledge, attitudes and risk perception of the two groups. Data obtained from the study indicated high levels of awareness from both groups with EHOs showing greater knowledge in relation to the type of incident and meaning of food fraud. Significant attitudinal differences were present between the groups. Consumers cited a lack of regulatory control as one of the main causes of the incident. Results also indicated that consumers do not have confidence in the robustness of legislation, believe food fraud is widespread in Ireland and their trust in regulatory authorities fell significantly as a result of the horsemeat incident. In contrast, EHOs showed confidence in the legislation and their ability to investigate food fraud and while they do not believe food fraud is widespread in Ireland, they do agree there is a need for the establishment of a specialist taskforce to tackle food fraud in Ireland. While there was general agreement that the horsemeat incident posed a low risk to health, consumers disagreed that time had lessened their perception of any risk involved.

Topics: Risk Analysis
Keywords: Food analysis, Horsemeat, Environmental Health Officer, Consumer

P16 - Badger home ranges are porous and plastic in a medium density population.

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Knowledge of the movement patterns of animals is crucial for understanding the epidemiology and potential transmission routes of diseases they carry. As European badgers (*Meles meles*), are wildlife vectors of bovine tuberculosis, their ranging behaviour can have a significant economic impact on cattle farmers. The current information on territory use and ranging behaviour of badgers is largely based on bait-marking of social groups and radio-telemetry of individuals over relatively short periods of time. In this four-year study, using collars fitted with GPS (Global Positioning System) units, the positions of badgers were recorded up to eight times a night. Analysis of these data revealed a detailed picture of the ranging behaviour of the study animals.

The ranging behaviour of the European badgers in County Wicklow, Ireland, varied enormously throughout the year. Badgers had very small ranges in winter and much larger ranges in summer. Generally, males had larger home ranges than females, but there were seasonal and age-related variations to this trend. Both sexes made excursions outside their “regular” home ranges throughout the year. While individuals of the same social group shared large parts of their home ranges, they also used considerable areas which other members of their group did not use. In addition the area used by any one badger changed markedly from year to year.

The ranging behaviour of the individuals and social groups in our study demonstrated plasticity and porosity in contrast to the classic notion of a territory as an area shared and defended by the social group.

**P17 - Factors associated with the financial performance of spring-calving pasture-based dairy farms.**
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Many have heralded quota removal as an opportunity to improve their lot. However, questions have been asked as to who the beneficiaries will be following this policy change. The question remains how best to maximise the cow’s productive potential - through feed supplementation or not? This study aims to establish how well grass rich or grass poor dairy farms perform from a production and financial viewpoint. Teagasc’s Profit Monitor database for over 1500 farms was reviewed over the period 2008 to 2011. Using information on purchased concentrates and forage and comparing it with total demand the percentage of home grown grass used in the diet was calculated. Farms were categorised into four systems. System 1 and 2 used >90% grass and 80-90% grass in the cow’s diet respectively and is termed ‘grass rich’. Systems 3 and 4 used 70-80% and <70% grass in the cow’s diet respectively and is termed ‘grass poor’. Results indicate that supplementation of grazing systems reduces grass utilisation (at a rate of 60%) as purchased feed is substituted into the herd’s diet in place of home grown / grazed forage. Despite increasing milk production per hectare, farms that use more purchased feeds have lower home grown forage utilisation, a shorter grazing season and reduced profitability per cow, per litre and per hectare. For every additional €1 increase in feed supplementation costs, milk production costs increased by €1.60 due to infrastructural and mechanisation costs amongst others. While the results of the study in no way suggest that farmers in less grass rich systems cannot make a reasonable margin, the study does however prompt farmers to focus on increasing the proportion of grazed grass in their cow’s diet without incurring additional costs. This can be achieved by actively monitoring grass growth, attaining optimal lime status and P and K indices, addressing underperforming paddocks particularly on out farms amongst others.

**P18 - Would screening with a Single Intradermal bTB Test work in Ireland?**
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The Single Intradermal Comparative Tuberculin Test (SICTT) is used in Ireland to screen for bovine Tuberculosis (bTB). To determine the effectiveness of utilising a Single Intradermal Test (SIT) for bTB screening testing records of herds from 3 separate years (127 herds Officially TB Free (OTF) for a minimum 5-years prior plus 2 years post 2008; from 2009 and 2012 respectively 21,007 and 16,832 SICTT negative herds) were analysed. A backward-stepwise multivariable logistic regression analysis was utilised to determine the effect of factors including test-type, tester (official or private veterinarian), herd size, mean age, region risk of TB infection and significant interactions on the risk of an animal having a bovine injection site skin thickness increase of 3 mm or greater (inconclusive/responder) or 4 mm or greater (positive / responder). A herd revisit would have been required to herds with positive or inconclusive reactions i.e. 43%, 42% and 47% of all herds in 2008, 2009 and
Emergency Slaughter (ES) is the slaughter of an otherwise healthy animal, for salvage, which has suffered an accident that has prevented its transport to the slaughterhouse for animal welfare reasons. The procedure provides an alternative to Casualty Slaughter (CS) which is the transport of injured animals to slaughterhouses that have been deemed fit for transport under Veterinary Certification (VC). A study conducted in Ireland between 2006 and 2008 demonstrated that of bovine cases consigned under VC for four large slaughterhouses, over 60% of the animals could have been designated ES if the procedure was available (Cullinane et al 2010).

The aim of this study was to analyse the operation of ES in Ireland since its introduction in 2009 and establish if current attitudes and behaviours amongst stakeholders towards ES, where practised, safeguard consumer protection, animal health and welfare, while allowing farmers to salvage otherwise healthy animals. The methods were data was obtained from the Animal Identification and Movement (AIM) computer system of Department of Agriculture, Food and Marine (DAFM). Data from 6 plants that operated ES in Ireland during the period 2011 – 2013 were collected via questionnaire. Two structured questionnaires, one applicable to Official Veterinarians (OVs) working in meat plants and the other applicable to Private Veterinary Practitioners (PVPs) working in food animal practice in Ireland were designed and administered online via Survey Monkey. Results showed ES is neither widely available nor used in Ireland. However, where ES is available as in Mayo, (3 plants provide the service), it is used. Data collected from the 6 plants indicated that the DAFM Veterinary Procedural Notices (VPNs) and Local Authority (LA) Standard Operating Procedures (SOPs) are being adhered to with small variations in policies and procedures. OVs however do have different acceptance criteria for the types of condition they accept for ES. Some OVs will accept open fractures while others do not, some accept downer animals and some require a consultation between the PVP and prior to acceptance. The OV survey also revealed that Food Business Operators (FBOs) considered that the facilitation of ES would be detrimental to their business. 80% of OVs perceived an increased risk to consumers from the consumption of meat from ES animals. The PVP survey revealed 77% of PVPs were willing to certify animals for ES. 50% felt the criteria too restrictive and many are willing to certify animals which OVs consider are in the high risk category. 64% were willing to certify the transport of animals for CS. In conclusion results suggest that the risk assessment of criteria associated with ES should be reconsidered, a review of systems and their implementation undertaken, including level of quality and training, with a view to making the procedure more widely available.

Emergency Slaughter of Bovine Animals in Ireland, Northern Ireland and The Netherlands.

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Emergency Slaughter (ES) is the slaughter of an otherwise healthy animal, for salvage, which has suffered an accident that has prevented its transport to the slaughterhouse for animal welfare reasons. The procedure provides an alternative to Casualty Slaughter (CS) which is the transport of injured animals to slaughterhouses that have been deemed fit for transport under Veterinary Certification (VC). The aim of the study was to examine the low rate of uptake of ES in Ireland compared to Northern Ireland and the Netherlands. This warranted a comparison between the three countries and an investigation into the factors preventing uptake of the procedure for acutely injured animals in Ireland. The methods were data was obtained from the Animal Identification and Movement (AIM) computer system of Department of Agriculture, Food and Marine (DAFM). Data were also obtained from Northern Ireland Department of Agriculture and Rural Development (DARD) and the Netherlands Food and Consumer Safety Authority (NVWA). Results from AIMS showed that in the Republic of Ireland between the years 2011, 2012 and 2013 0.003% of the total cattle population were ES and 5% of slaughterhouses provided the service. The figures in Mayo were 0.013% where 16% of slaughter plants provide the service. Figures obtained from DARD indicate that 0.11% of bovine animals were ES and in the Netherlands...
the figure is 0.905%, 0.9% are non veal animals, i.e. animals over 1 year old. In Northern Ireland Private Veterinary Practitioners (PVPs) perform the majority of ES and the farmer arranges for the transport of the carcass to the abattoir. In Ireland only 2% of ES are performed by a PVP, most ES is performed by the abattoir providing the service and they arrange for the transport of the carcass. In the Netherlands farmers and transporter are severely punished if they transport animals not fit to travel to a slaughterhouse. In conclusion ES is provided in very few slaughterhouses and in a limited geographical area in Ireland, only one slaughterhouse provides the service in Cork and it killed only one animal in 2012. The Food Business Operator (FBO) is the person that makes the decision whether they will process ES animals. FBOs perceive there are issues around negative perception of their business and quality of product. OVs perceive that there are issues of risk to the consumer. PVPs are willing to certify animals for ES if the procedure is available as in Mayo. For ES to become more widely used it will be necessary to increase engagement with all stakeholders so as to make the procedure more widely available. Following this a more robust enforcement of the rules governing the transport of welfare compromised animals should be undertaken as is the case in the Netherlands.

**Topics:** Animal Welfare  
**Keywords:** Emergency Slaughter, Ireland, Mayo, Northern Ireland, The Netherlands.

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**P21 - Results of Residue and Contaminant Monitoring at the VPHRL 2011 – 2013.**  
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Monitoring of residues of veterinary medicinal products, banned substances and contaminants is carried out in live animals and their products in the European Union in accordance with Council Directive 96/23/EC. As National Reference Laboratory for 6 substance groups the Veterinary Public Health Regulatory Laboratory is responsible for carrying out a large proportion of this testing using a wide range of analytical technologies for screening and confirmatory analysis (LC-MS/MS, ICP-MS, GC-ECD, AAS, RIA and microbiological inhibition assays). For the period studied more than 30,000 samples were tested at the VPHRL across 8 food-producing species as well as milk, eggs and honey for antithyroid agents, steroids, zeranol, beta-agonists, chloramphenicol, dapsone, antibacterials, carboxax and chemical elements with the percentage of non-compliant samples reported as 0.21%, 0.23% and 0.28%, for 2011, 2012 and 2013, respectively. The majority of non-compliant samples were identified for antithyroid agents (thiouracil) in bovines, antibacterials (tetracyclines, penicillins, sulphonamides and quinolones) in bovines and pigs and chemical elements (lead) in wild game and honey. Overall these consistently low levels of positive samples reflect the trend both across the entire residue testing programme and over a number of years.

**Topics:** Veterinary Public Health, Veterinary Medicines & Toxicology  
**Keywords:** Residue, Contaminant, Monitoring, Animal and animal products

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**Incidence of human zoonotic diseases in HSE-MW 2009 to 2014*  
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Zoonotic diseases are infectious diseases that can be naturally transmitted between animals and humans. They are common diseases that are caused by bacteria, viruses, parasites and fungi. The most common human zoonoses include Salmonellosis, Campylobacteriosis, Cryptosporidiosis, Shigellosis and verotoxigenic Escherichia coli (VTEC) infection. Such diseases cause acute gastroenteritis characterised by diarrhoea and vomiting, abdominal pain, fever and nausea which can be more serious in young children, older people or those with an underlying disease. Such diseases pose a public health threat with significant health and social costs.

There is a statutory obligation to notify zoonotic diseases under the Infectious Diseases Regulation of 1981 (as amended). Data is collected through the national Computerised Infectious Disease Reporting (CIDR) System. Demographic data including age, gender and county of residence is available. Enhanced surveillance data to help identify the mode of transmission including possible food and/or water sources, information on animal contact and travel associated history is also collated.

This paper describes the epidemiology of the zoonoses Campylobacter, Salmonella, Shigella, Cryptosporidiosis and VTEC in HSE-MW: Limerick, Clare and North Tipperary from 2009 to 2014*. Data was extracted from CIDR. Over two hundred cases of Campylobacter were reported each year in HSE-MW, with one third of these cases occurring in children four years and younger. The number of Cryptosporidiosis cases identified in HSE-MW has decreased since 2012, thirty four cases were reported in 2014 compared to eighty five cases in 2012. The number of cases of Salmonella in HSE-MW varies each year, up to one third of cases were travel associated. Serotyping of all isolates is carried out by The National Salmonella, Shigella and Listeria Reference Laboratory (NSSRL). The most common serotypes isolated were Salmonella enteritidis and Salmonella typhimurium. Low
numbers of Shigella cases are reported in HSE-MW, an increase in cases was noted in 2013 due to family outbreaks. The most common serotypes isolated by the NSSRL were Shigella sonnei and Shigella flexneri. The number of VTEC cases in HSE-MW increased from forty cases in 2009 to one hundred and fifty-one cases in 2013, decreasing to one hundred and eleven cases in 2014.

The numbers of cases of human zoonoses reported yearly remains high and represent a significant burden of disease and challenge to public health. Promoting effective means for the prevention of zoonotic diseases, including hand washing and safe food preparation, can reduce the incidence and global spread of zoonotic pathogens. Continued surveillance and a multidisciplinary approach including human, animal and environmental health practitioners should be strengthened to address the threat of zoonotic infections in humans and emerging zoonoses.

*2014 data is provisional and subject to change.

Topics: Disease Surveillance
Keywords: Zoonoses, public health, epidemiology, surveillance