TITLE: Gwaredu BVD — bovine viral diarrhoea eradication in Wales

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JOURNAL: Livestock

PUBLISHER: MA Healthcare

PUBLICATION DATE: 13 July 2018

DOI: 10.12968/live.2018.23.4.168

Gwaredu BVD – BVD eradication in Wales

Abstract

Gwaredu BVD is an industry led programme that has tested 40% of farms in Wales for BVD. The programme is sponsoring PI hunts on farm to remove the disease from the Welsh cattle industry. More developments based on industry feedback will improve the programme.

Introduction

Bovine viral diarrhoea (BVD) is a priority disease for the Welsh Animal Health and Welfare framework group (AHWFG)(Government, 2017). This led to the development of an industry led and driven eradication programme.

Background to launch

The desire to rid the Welsh cattle industry of BVD was first articulated by the Animal Health and Welfare strategy steering group of Wales in 2011 (and carried forward by its successor the AHWFG), and a subgroup was formed to explore options for dealing with the disease in Wales. This group was constituted from farmers unions, veterinary organisations, universities, and other stakeholder groups. This group quickly defined a smaller group to do the detailed writing of an industry strategy for BVD eradication, and provided regular drafts for wider industry approval. In August 2014 the BVD subgroup presented a strategy to the Welsh Government. In order to deliver the programme it was clearly identified that a source of funding would be required in order to deliver BVD freedom for Wales. An application was submitted to the Rural Development Plan Wales 2014–2020 in January 2017. This application was approved in June 2017.

Programme structure

The programme capitalises on the minimum of an annual tuberculosis (TB) test that all farms undergo in Wales (Glossop, 2010). This provides an opportunity to conduct surveillance for diseases besides TB. The Gwaredu BVD programme sponsors the blood sampling of five animals, typically between the ages of 9–18 months, for each management group. However the selection of animals can be altered at the discretion of the official veterinarian (OV) to suit the particular circumstances of the farm. The OV can blood sample multiple management groups on each farm as required. OVs have been trained and are audited by the Animal and Plant Health Agency (APHA) for their personal biosecurity, which is important in the context of the Gwaredu BVD ambition to eradicate disease.

The blood samples are packed in a UN3733 compliant solution purchased by the project and disseminated to all TB testing OVs in Wales – the Royal mail Safebox® to get to the laboratory the next day.

Results are emailed to both the Gwaredu BVD and the submitting OVs by the laboratory so that results can be with the farmer at the same time as the TB test reading. This adds value to any biosecurity discussions being had on the farm, as both OVs and farmer will know the status of two diseases at the conclusion of the TB testing.

Each farm in Wales that holds cattle (approximately 11600 in total) are eligible for a test per year, up to 3 tests, one in each calendar year from 1st September 2017.

To ensure that OVs practicing in Wales were as well informed as possible about the programme, training sessions were organised throughout August and September 2017. The technical lead of Gwaredu BVD visited and gave this training to 95% of practices in Wales.

Persistently-infected (PI) hunt phase

Where farms are found to have evidence of BVD presence from the youngstock bleed, there is financial support from the programme. The OV can apply to the programme (in retrospect if required) for funding to conduct a PI hunt. Any farm with 1 or more positive antibody tests is eligible to claim up to £500 (£100 time +£400 testing) in order to test all animals on the farm and the subsequent calf crop for PI animals. This is claimed by the OV and any testing strategy can be used, allowing the design of a strategy that best fits the farm.

Result interpretation

The interpretation of results from the youngstock screen is relatively straightforward, and as much as possible left to the farm veterinary surgeon (although there is always support from the Gwaredu BVD technical staff). At an individual level the values for animals being positive and negative are as established by the laboratories. Gwaredu BVD works with a number of commercial laboratories to deliver testing, and the specific reference ranges can be determined from the specific laboratory documentation. The programme accepts as positive any sample that crosses the laboratory's specific threshold for entry onto the programme records. However, on interpretation of results with a consulting veterinary surgeon, the actual values will be considered and where it is only just positive, it may be worth retesting to determine the true status of that animal or herd.

Industry reception

The programme launched on the 1st of September 2017 with the first on farm testing. The submission rate is approximately 500 farms per month for all Wales. By the end of May 2017, over 5000 farms had been tested (see Figure 1). On a regional basis uptake has been good, and although there is regional variation, the percentage of farms having been tested ranges from approximately 20% to well over half the farms in a region (see Table 1).

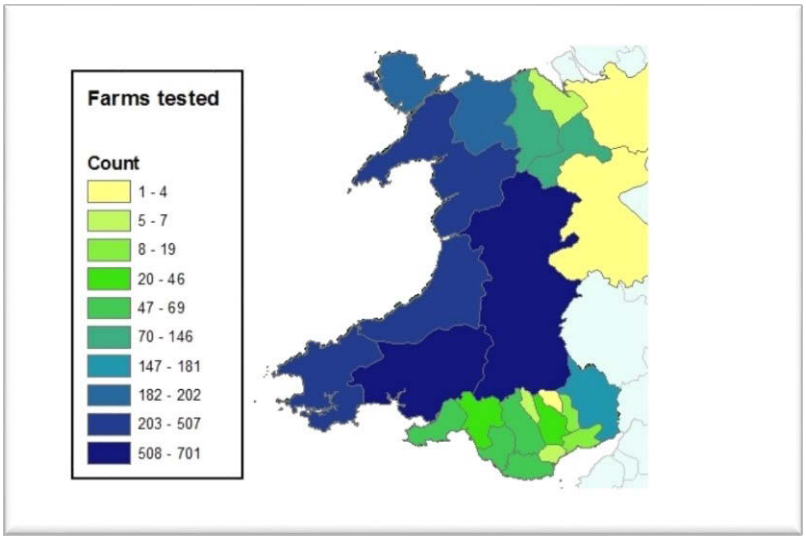

Figure 1 Distribution of farms tested by county.

Region	Percentage
North West Wales	53%
North East Wales	19%
Powys	33%
Ceredigion	48%
Pembrokeshire	35%
Carmarthenshire	32%
South Wales	42%

Table 1: Percentage of farms tested in regions. The overall percentage will not reflect the pan wales percentage due to incomplete submission forms not allowing farms to be correctly assigned to regions. These farms have been removed for the purposes of this table.

The surveillance test being used within the programme gives evidence that BVD is present on the farm. The number of infected farms in Wales is 27% - a figure that has remained stable over the duration of the project. This 27% figure is likely to be an overestimate of true infection as even a single positive young stock blood sample is included as a positive. Positives tests from colostrum transfer, transient infection and inadvertent testing of vaccinated individuals are included in the figure. This figure appears to be a constant finding across all regions.

Work was carried out in the early part of the programme to determine the outcome of farms that were initially screened as one out of five seropositive young animals. Follow up testing supported by Boehringer Ingelheim UK demonstrated a wide range of responses, and a more detailed discussion will be published in due course.

Other parameters are being monitored such as turnaround times for reporting, number of farms tested by practice in year one (see Table 2 for examples) and where targets are not being met (for example number of farms tested) then interventions, such as contacting practices to provide support, are made at the appropriate level. These can be determined down to individual veterinary surgeon level as appropriate, and in doing so it is apparent that there is a range in the practices' abilities to engage their clients in BVD eradication.

Farms tested	5000
Farms positive (estimated at 30%)	27%
Turnaround time (Target 3 days)	4
Management groups (estimated 1.2)	1.07

Table 2: An example of the parameters the programme is monitoring to ensure that BVD eradication is delivered.

PI hunting

The Gwaredu BVD project is aware of 114 farms that have had or are having PI hunts conducted on them by the end of May 2017. The structure of the programme is such that it is possible to conduct a PI hunt without contacting the programme until requesting funds. For example, if a farm is 5/5 positive for serological testing then the case OV can assume that the PI hunt will automatically be supported. Veterinarians are encouraged to discuss cases where only a few animals in the screen are positive. This is to ensure that, as far as possible, PI hunts are successful, and no farmer or veterinary surgeon puts in the significant amount of work required to conduct a PI hunt, without understanding the likelihood of finding a PI. The programme team do not want a body of farmers being disappointed in the outcome of tests when PI animals are not found on farm. All methods (milk, blood and tissue sampling) are available for veterinary surgeons to use on farms, and it appears that as no specific strategy for the PI hunt phase has been defined; bespoke designs including all methods of testing have been deployed on farms.

Once a PI animal is found on the farm, then it is up to the farmer to decide what steps to take next. Programme advice has been to cull PI animals as soon as they are found, and anecdotally this does appear to be happening. As a voluntary programme, it is not possible to enforce culling, but it is strongly advised. Once legislation is in place (it is hoped that legislation will be in place by the end of this programme in 2020), restrictions on PI animals may come into force.

Biosecurity

Biosecurity is critical to keeping the disease out of those farms that have been shown to not have disease (Azbel-Jackson, Heffernan, Gunn, & Brownlie, 2018; Moennig & Becher, 2018) or that have cleared the disease through the programme. These farms should be working with the vets to address any risks for disease entry to the farm. To aid this the Gwaredu BVD programme have commissioned an app to collect information and guide the conversations to ensure that all relevant areas are covered. This will be available on IPhone and android as well as allowing entry from a desktop computer.

Data from this application will be used to inform stakeholders about on farm biosecurity that may allow more specified messages to be delivered to the industry.

Database

In order to fully function as an eradication programme a database is needed that will allow more efficient programme management (Graham et al., 2014; Stalder et al., 2016). The specification is being developed and will be influenced by the cattle movement database changes that are proposed by the UK and Welsh Governments.

Programme ambitions include the ability for laboratories to directly upload data and farmers to determine the potential disease risk that a purchase might pose. The indicator of risk status will be the subject of industry consultation but it is likely to be as simple as possible.

Future developments

To support vets in practice working in the field an educational package is being developed in conjunction with SRUC to assist new vets in joining the Welsh veterinary workforce. This will allow a vet to understand the process from starting a test on a farm to the eradication of the disease and protection from further incursion.

Trading safely is an important part of protecting the farm (Gates, Humphry, Gunn, & Woolhouse, 2014), and the project is aiming to produce certificates showing the testing results to aid farmer sales.

The cattle industry has demonstrated a great deal of enthusiasm and determination to get to the percentage of herds tested that the programme has reached. Because of this there is a body of opinion that the flagship of Welsh agriculture, the Royal Welsh Agricultural Show, should be a BVD free event. This remains an ambition and the programme team are working with the show executives and their veterinary team to determine how this might be achieved.

The final key piece or work is the development of legislation to ensure that the progress to date, and throughout the rest of the programme, is not undone.

Lessons learned from the first months

Despite the initial uptake of herd screens being well ahead of target, there are areas where the project could have been improved. The timeframe from application approval to programme announcement, and subsequently to the beginning of on farm testing, was initially a period of about 6 months. However the application process was extended and the programme team had to decide to either delay the start of testing and miss out on a predicted peak of TB testing and therefore a prime opportunity for BVD testing in Wales, or accept that communicating with farmers would be reduced in time. This has still had an impact with some farmers still contacting unions and the programme team professing ignorance of the BVD eradication programme Gwaredu BVD.

Programme monitoring has proved more problematic than initially thought, and reflects the novelty of the programme and the volume of samples being processed. While there is a high degree of confidence in national level data, the data being used to monitor the programme at a more defined level, such as specific regions, also need careful examination to allow more robust management of the programme.

Training was carried out face to face to engage veterinary surgeons with the project as much as possible, rather than relying on emails and leaflet marketing. This was generally viewed as a positive move, but supporting literature was lacking so it was difficult for trained veterinary surgeons to review what they had learned during the Gwaredu BVD training session, after the programme team had left.

Conclusion

The Gwaredu BVD programme has reached a significant milestone of testing 5000 farms, and the overall programme appears to be well received by the industry. The programme will continue to develop over time and deliver BVD eradication in Wales.

Further information can be found at https://businesswales.gov.wales/farmingconnect/gwaredu-bvd

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