

Response to the BVD Consultation of the Scottish Government by the Governance of Livestock Disease (GoLD) Team, University of Warwick

*Rationale for a national Scheme*

[Note on terminology and perspective. We believe that the epidemiologically correct definition for the proposed future status of BVD and BVDV is elimination rather than eradication. The word eradication is kept for permanent reduction to zero of worldwide incidence of infection caused by a specific agent, so that intervention measures are no longer needed; whereas elimination is or infection or disease are defined as reduction to zero of the incidence in a defined geographical area, but continued intervention measures to prevent reestablishment of transmission are required (*The Eradication of Infectious Diseases*, 1998, eds. W.R. Dowdle and D.R. Hopkins, Dahlem Workshop, John Wiley). We will refer to elimination in our response. This distinction is important since the elimination of BVD (the disease) and BVDV (the infection) are not the same thing, and they both require that interventions will be required perpetually to prevent reestablishment.]

1(a) Do you agree that action to tackle BVD is necessary?

Yes.

The proposed Scheme seems to have identified major generic issues that need to be addressed prior to disease elimination. These are that (1) elimination is biologically and technically feasible; (2) elimination fetches a net economic benefit to the country implementing the programme; (3) there is public assurance (in the form of a political will to make elimination a success), that elimination will not just be unilateral but coordinated at a country level; (4) there are legal and regulatory mechanisms in place which ensure that the programme is enforced among farms failing to comply; and (5) there is a mechanism in place which ensures that trans-border trade with countries which have not eliminated infection will not compromise the effectiveness of disease elimination in the implementing country.

1(b) If so, do you agree that eradication should be the aim?

Yes, in principle, but there are practical difficulties in achieving that objective given that the UK is a single epidemiological unit. The Scheme produces a net benefit not only for Scotland but also for individual cattle keepers with the disease. This sends a reassuring message to farmers that elimination is worthwhile. However, if the Scheme is successful, it will place greater importance on continued implementation to prevent reestablishment. Successful elimination will not necessarily result in reduced costs of control, although it will result in greatly reduced costs of disease to animal health, welfare and productivity.

1(c) If you agree that eradication is desirable, should there be a compulsory Scheme?

The most effective way forward is to convince farmers and stakeholders of the benefits of such a Scheme and to ensure their cooperation, but a compulsory element may be unavoidable to prevent 'free riding' or undermining of the Scheme by a minority of farmers who are less responsible.

## *Outline of a national eradication Scheme*

### 2. What are your views on the two-stage approach to disease eradication?

The Scheme follows a gradualist approach involving two phases. This approach might have been motivated by the fact that farm management practices are steeped in habit, that they take time to adjust and that legislation which came into force with immediate effect is likely to meet with limited success. However, this gradualist approach is likely to result in lost benefit associated with a delayed elimination (i.e., lost benefit associated with delaying the implementation of Phase II). Therefore one test that can be applied by way of checking the sensitivity of the cost-benefit analysis is to include such lost benefit in the Scheme's cost stream.

There must also be a (legally binding?) commitment to implementation of Phase II before Phase I commences if the livestock industry is to believe that the Scheme will work, and that economic funding and political commitment will survive the inevitable set backs and disappointments that will occur. The SG has to maintain credibility and act as a leading authority to galvanise collective action if the Scheme is to be successful. It is appreciated that fiscal consolidation may place limits on the extent to which this is feasible.

### 3. Are there aspects of the Scheme that you feel are currently allocated to the wrong phase?

No

### 4. When should the compulsory phase start?

This is principally a matter for farmers to comment on. However, given our comment above about the time it takes to adjust farm management practices, we would support two years.

An alternative approach would be to make the switch between Phases dependent on a quantitative measure of the success of Phase I. This would have the effect of ensuring that aspects of Phase I, such as infection surveillance, were given sufficient importance, and help to develop momentum. For example, it could be that when 1000 suspected PI animals have been tested and found not to be PI animals that could then signal the switch between Phases. Such a mechanism would also have the effect of assuring the cattle industry that the "public" phase had been successful and was not passing a failed phase to the "private" sector.

## *Dealing with Persistently Infected animals*

### 5. Do you agree that there should be an initial financial incentive for prompt culling of PIs?

The provision that there be a flat rate payment for culled PIs seems to have been proposed with the view to getting around the problem of hidden information by encouraging farmers to identify and cull PIs. But the rationale for making the Scheme's Phase I voluntary in the first place was to ensure that farmers subscribed to the ideal of a Scottish stockmanship which prides itself on being among the best. One concern with introducing payment is that it carries with it the message that the ideal of the Scottish stockmanship is 'cheap talk' and thus lacks a moral imperative. This moral consideration aside, it is not clear, from an economic view point, why an otherwise healthy PI which can fetch a market value from abattoirs should receive public money. This is because cattle are only of market value at certain stages and dairy cattle have a very low value for meat. It is possible that farmers might delay selling a healthy PI until it is finished or sell on a heifer to another herd. If the PI is found to be valueless in the market and if the only way to remove it from the herd is to condemn it, then the cost of disposing of it should be borne by the animal keeper. Notwithstanding the questions of principle outlined above, there may be a pragmatic argument for a transitional payment as proposed to win acceptance of the Scheme. In terms of engineering a rapid, dramatic decrease in PI prevalence, payment of farmers for disclosure of PI animals is likely to be effective, but should only operate for a very short time because ultimately the creation and purchase of PI animals could become a profitable enterprise.

6. Do you agree that the payment should be phased out when eradication becomes compulsory?

Yes. Another approach would be to limit the number of PI animals for which payment is made, i.e. a financial commitment to pay for the first 1000 PI animals identified. This would encourage rapid disclosure and help prevent perverse behaviour.

If the elimination Scheme is to be credible, then all disclosed PI animals should be promptly culled, not within 90 days; isolation is unlikely to be 100% effective at preventing transmission, and creation of special circumstances under which culling is not required is not consistent with the stated desire to eliminate BVD from the Scottish herd. For the Scheme to have the required credibility, it must be seen to override short-term economic and logistic expediency.

#### *Designation of laboratories*

7. Should the Scottish Government designate laboratories, and should only designated laboratories be allowed under the Scheme?

Yes. The designation of a laboratory which undertakes an independent audit in keeping with ISO17025 to ensure that a screening standard is maintained and that any payment claims made for the culling of PIs are verifiable represents best practice. Such a process is operating for post-slaughter testing for BSE, and so has been proven as a sound method for assessing the health of individual cattle.

8. What are your views on aggregated test results for negative BVD infection being reported to the Scottish Government?

This would improve the stock and flow of information available to the Scottish Government and enhance effective future management of the disease.

9. Do you consider that laboratories or the customers would incur any significant additional costs as a consequence of the proposed approval system?

Our view is probably not, but other respondents may have a more informed view on this question. Laboratories would have to have some insurance or protection in law against claims made against them by livestock industry.

#### *Screening tests*

10. Do you agree that an annual screening test for BVD should become mandatory for all cattle herds in Scotland?

Yes. This provision is essential for the Scheme to work and have credibility. There might be a case for a quicker follow up for herds with a PI.

There are two complications that should be considered. First is that annual herd screening does not mean that all cattle will be screened annually. There is sufficient animal movement and slaughter that such an approach might only screen 50-80% of cattle prior to their slaughter. The BVD virus is likely to be able to persist, undetected, within the unscreened proportion of the cattle population. At least some screening / surveillance should be cattle (rather than herd or farm) based, i.e. a number of cattle are purposively sampled regardless of their location. Random screening of a number of slaughtered cattle would have a similar effect.

Second, given that cattle trade between Scotland, the United Kingdom and EU continues, there is the possibility that the BVD virus can remain persistent within Scotland. For example, an animal keeper who owns farms in England and Scotland might not be detected to have infection if annual screening only operates in Scotland and animals are sent for slaughter in England. Indeed, such farming enterprises will require special thought and could lead to further complexities in the design of the Scheme to ensure that all in contact cattle comply with the elimination programme.

Careful consideration has to be given to the ability of any screening programme to detect BVD. Failure to detect and a resultant epidemic of BVD would be a blow to the credibility of the Scheme. In essence, the Scheme proposes to turn BVD into an epidemic disease such as foot and mouth disease, in which surveillance for infection becomes a critical process to ensure freedom from infection.

#### *Vaccination*

11. Do you agree that vaccination should be voluntary?

Yes. Voluntary vaccination can be supplemented by public education that appeals to the utility of herd-level vaccination for the health of cattle at the country level.

#### *Movement of animals into herds*

12. What are your views on the restriction on the sale of PI animals other than direct to slaughter?

This step is essential to prevent the continued re-infection of herds

13. Do you agree that farmers should be required to make declarations on health status when presenting animals for sale during phase two?

Yes. There may be some lessons to be learnt from declarations of this kind used in the control of Johne's disease in Australia (our team would be pleased to provide further information based on our research in Australia). For declarations to have the necessary validity there would have to be some consequence to farmers for making false declarations.

14. Do you agree that we should require quarantine and testing?

It is recognised that trans-border trade with countries which have not eliminated BVD is one factor which will be a major challenge to implementation and execution of the Scheme. And in recognition of this fact, the proposed Scheme requires farmers who are involved in this type of trade to undertake screening and quarantining on their farms. The concern here is that, on its own, this provision might not be adequate to ensure voluntary identification of PIs and their culling during Phase I. One possible solution will be to ensure that this requirement is complemented with the requirement that a third party should be involved to verify that the screening test has been applied and that the animal is quarantined and removed if such a measure were found necessary. Nevertheless, the Scheme's position against the imposition of a protectionist policy which restricts trade with those countries is consistent with international trade rules.

A more general point should be made in response to this question. It is impossible, prior to implementation of the Scheme, to be sure that any proposed and agreed measure has the desired effect or continues to have the desired effect after a period of time. Quarantine might be effective, but the Scheme should include within its plan, provision for investigation and research to address the question of how effective it is and how its effectiveness can be increased. There will have to be modifications to the measures implemented as the Scheme progresses, and dependent on success. Whilst these measures appear sound, their effectiveness as implemented has to be demonstrated.

15. Do you agree that we should allow extended quarantine under strict veterinary control for finishing units?

Yes, but for a time limited period

#### *Farm-level biosecurity*

16. Do you agree that, in phase two, there should be a general obligation to protect neighbouring farms?

Yes. The Scheme recognises that elimination success depends on the presence of regulatory and legal mechanisms which ensure that the programme is enforced among farms which fail to comply. With this in view, it requires that, during Phase II, keepers of herds that are not BVD free take reasonable precautions to protect their neighbours and buyers of livestock through a mandatory declaration of their health status.

17. What are your views on requiring action from farms which persistently have BVD in their herds?

The Scheme invests a legal power in the vet inspector to place herds with persistent problems under movement restrictions and to serve notices requiring keepers of these herds to prevent contact between their cattle and those of neighbours. This strategy has merit as it deals directly with the 'last' farmers who might not find it in their economic interest to eliminate the disease from their herds after others have done so.

During any elimination and eradication programme, removing the last few infections takes the longest time and most resources. It is during this phase that enthusiasm wanes and there is a danger of the infection "escaping". The 2001 FMD epidemic was a good example where the epidemic was under control relatively quickly, but it took many more months to finally eliminate. There is potentially some merit in considering more purposeful and dramatic measures to remove the last remaining herds, such as compulsory whole herd slaughter. The proposals as in the consultation document give the impression that a farmer who ensured safety to other farmers could legitimately keep BVDV on his farm. However, if Scotland is to become BVD free, then such behaviour cannot be permitted. Once elimination has almost been achieved, herds that retain infection should be considered as a danger to the industry and every effort should be made to remove them.

#### *Financing an eradication Scheme*

18(a). Do you agree that there should be some financial input from the Scottish Government into the Scheme?

Yes. A modest financial input would send a signal that the Scottish Government regards this Scheme as a significant one in which not all costs would fall on stakeholders. The size of any contribution has to be placed in the context of the current climate of fiscal stringency and the funds available to the Scottish Government for animal health and more generally.

For the reasons stated in paragraph 1.4 of the consultation document, elimination will not be achieved without input from the Scottish Government. Freedom from disease is in principle a "public good" that cannot be created by individual action. As well as financial input, SG should be prepared to invest considerable time and energy in developing a collective view that the Scheme will work to ensure maximum compliance and acceptance.

18(b) If so, do you agree that support should be focused on the removal of PIs in the initial voluntary phase?

Don't know. Some attention has to be given to the situation of farms that would face disproportionate initial costs as the benefits will not be delivered until later years. Using the figures on p.20-21, this would apply particularly to the average LFA specialist beef farm (8.1 per cent of farm income in the first year) and low ground cattle and sheep farms (7.5 per cent of farm income in the first year). There may be a cause for focusing assistance on farms incurring disproportionate initial costs although it is accepted that such an arrangement might be complex to devise, difficult to apply fairly and might generate unacceptable levels of transaction costs.

18(c). What level of payment would provide a reasonable incentive for the prompt removal of PIs?

If providing incentives for PI removal is supported, then an amount which is slightly above the existing value of the PI at the age and stage it is would provide a reasonable incentive. Such a value can be elicited through choice experiments or contingent valuation which SAC have experience in. See earlier for suggestions of alternative mechanisms.

#### *Animals other than cattle*

19. Should Camelids be included in this Scheme?

The balance of arguments would seem to be against their inclusion. The numbers in Scotland are not significant and their inclusion would disproportionately increase the transaction costs of administering the Scheme. However, these are not the only factors to be taken into account. The level of contact between camelids and cattle should also be considered (this also applies to wild species).

On the other hand, if freedom from disease is the desired outcome, this will not be possible if BVDV resides within Scotland. Pragmatically, if camelids are included, it should be as the prevalence of infection in cattle is greatly reduced. Note that efficient transmission of BVDV from other species to cattle may only become apparent when the cattle population is infection free.

#### *Legislation*

20. Do you agree with the need for legislation to enforce the Scheme?

Yes. The Scheme aims to give public assurance, that farm-level elimination will not just be unilateral but coordinated at a country level. This addresses the problem of 'coordination' directly. In a situation involving a coordination problem two outcomes are possible; one which results from a farmer's belief that it may not pay to eliminate the disease unilaterally given that others have not done so and the other, a desirable one, which results from the belief that it may pay every farmer to eliminate the disease once all others have done. The political will to assure farmers that the elimination Scheme will be coordinated but not a fragmented one helps bring about the latter outcome. The legal and regulatory mechanisms also ensure this outcome is favoured.

21. Do you agree with the proposals to create legislation as outlined above?

Yes, secondary legislation on the lines proposed is proportionate and appropriate given the objectives of the Scheme.

22. Do you agree that the requirements of the Scheme, and of each phase, should apply across Scotland from the same dates?

Yes, it is difficult to see the justification for regional variations and they would increase the complexity of administration of the Scheme.

### *General*

23. Do you have any other comments about eradicating BVD?

The Scheme is cognizant of scientifically proven disease transmission mechanisms (i.e. vertical, and horizontal disease transmission mechanisms including inter-species transmission) and gives due allowance for dealing with some of them. However, the Scheme does not apply to wild ruminants and assumes that contact between wild and domestic ruminants poses only a theoretical risk and therefore that it poses no threat to elimination success. One concern here is that a theoretical risk associated with inter-species disease transmission can become a real one over time and compromise elimination success unless risk management tools are designed that work for the duration of the Scheme rather than for only when the aforementioned theoretical risk becomes real.

Consideration should be given to the potential impact of the Scheme and BVD elimination on other infections and diseases. For example, the surveillance systems and protocols and legislative structures would be appropriate for elimination of diseases such as IBR and leptospirosis.

If BVD does have an economic impact on the cattle industry of the magnitude quoted then its removal will likely have consequences for cattle management, such as changes in demographics and density. These changes will likely affect other diseases.

Timescales and outcome measures have not been declared in advance. This is pragmatically sensible. However, if there are no targets declared, then the Scheme cannot be seen to be successful. Even relative measures (E.g. halving of BVD infection incidence by 2015, doubling the number of BVDV free farms) would potentially be beneficial.

What is not fully evident from the document is that the costs of failure of this initiative would be high. It is important that there is a Scheme champion, particularly in a period of fiscal consolidation. Appropriate government arrangements need to be in place, e.g., an advisory committee overseeing it with appropriate representation of stakeholders (perhaps in an individual capacity) and experts. It is also important to acknowledge that this is a progressive process and the Scheme will have to be adapted to realised outcomes rather than assumed progress.



Consideration needs to be given to the compensation/management of farmers whose herds become re-infected and experience an epidemic that could potentially be catastrophic.

The biggest challenge for the Scheme as a whole is the willingness of farmers to accept some individual short-term pain in return for long-term gain for themselves and the industry. The extent to which farmers are characterised by medium-term or long-term decision horizons can be affected by a large number of factors. They may vary considerably from one holding to another.

### *Farm Level Impacts*

24. Are the assumptions made above realistic?

The message 'A full analysis of farm level impacts can be found on the Scottish Government website' leads nowhere online. We assume the analysis is based principally on some biological assumptions of cow milk yield for infected and infected animals and on model-predicted farm level costs. We believe that the group who undertook this work have proven competence in the field. We are not undertaking a project appraisal, but commenting on the overarching framework.

25. If your cost of production fell as a result of eradicating BVD, would you keep (a) more, (b) the same or (c) fewer animals?

We are not responding as animal keepers.