

Standards for EC Funding of Eradication Programmes for Scrapie - Report of the Scientific Committee on Animal Health and Animal Welfare adopted 23 June 1998

Terms of Reference

The Committee is asked to establish minimum criteria which should be met by scrapie eradication programmes in order to be eligible for Community funding.

The criteria should be such that progress in eradication programmes should be expected, with the ultimate aim of eradicating the causative agent.

Background and general comments

Clinical Scrapie is known to be a "flock" disease and therefore an eradication programme should be based on a flock based approach, which can lead to eradication on a regional or country level. In this context a flock is composed of animals of the same status in a given geographical area and therefore the term "holding" is preferably used in this report. Any eradication programme has to take into account the complexity of this specific disease. The infection is most commonly transmitted from ewe to lamb, but there is also horizontal transmission of infection between non-familial sheep which may be exposed as adults or as lambs. The hypothetical infection of sheep by the BSE agent could be included in the strategy by Veterinary Services, and therefore the working group suggested to extend the programme to all TSEs in small ruminants. However, the recommendations in this report are based on the current scientific knowledge on scrapie. Indeed, if BSE were confirmed to occur in sheep, the entire flock and in contacts should be destroyed.

The incidence of scrapie can be substantially reduced by selective culling in the female line combined with husbandry measures to limit the horizontal spread of infection. The latter is greatest when sheep are kept in close contact with each other, for example at lambing time.

The mean age of onset of clinical scrapie in Suffolk sheep is reported to be 3 1/2 years (Parry and Oppenheimer, 1983) but there is a wide range with most cases in all breeds occurring between 2 to 4 years. Because many sheep are infected when young, the age of onset of the disease probably reflects the length of the incubation period.

The biggest problem in the control of scrapie is the absence of a simple laboratory test to detect the presence of infection during the long incubation period of the disease and the absence of a validated test to allow large scale testing of tissues of the central nervous system and possibly other tissues to a common standard. However, some tests are now under development and could be included for diagnosis when fully validated and reliable data has been published. A method using immunodetection of PrP^{Sc} in lymphatic tissues such as tonsils or retropharyngeal lymph nodes in slaughtered or dead sheep, or tonsil biopsies for live sheep is under development and could be of value to detect sheep incubating scrapie (Schreuder et al., 1996). Special attention should be paid to these in vivo tests that they do not cause undue pain or distress for the animals. Other methods such as Western blot or ELISA tests that could be used on a large scale are under evaluation.

At present however, infected flocks, blood lines and individual animals can only be identified if and when infection leads to clinical disease.

The Committee suggests that the diagnostic tests used to detect TSE in sheep and goats should be reviewed in the near future.

Another problem in the eradication of scrapie is that there are circumstances in which the infection can spread "silently". One circumstance is when ewes are culled before they have had time to develop the disease. Another is when genetic

factors increase the incubation period of infected ewes beyond their commercial life span. In that respect, the Committee recommends that further developments of genotyping and the role in persistent infectivity in sheep population should be taken into consideration (Hunter et al., 1997). By the time infection in a holding has been revealed by the clinical disease in a dam, several of her ewe lambs will already be infected and may have been used for breeding in the holding of origin or in other holdings.

Because of long incubation periods, the absence of scrapie in a holding can only be assessed over long periods of observation. The degree of certainty will be in direct proportion to the time that the flock has been continuously and thoroughly monitored.

At the start of each eradication programme, the baseline of the prevalence of infection must be defined in order to make it possible to demonstrate the degree of progress during the programme. This baseline will be defined on the basis of historical data and of random sampling at regional and flock level. The method used should include each holding and the random sampling should be organised for the entire population covered by the programme.

The Committee suggests that, if the Commission considers this necessary, a working group should establish the parameters for such random sampling, taking into account different incidence levels in different holdings and regions of risk of TSE occurrence. It is noted that the higher the incidence of clinical cases, the lower the rate of random sampling will be needed in order to define the baseline.

In any submission to the Commission, Member States should demonstrate that Meat and Bone Meal bans are effectively implemented for small ruminants, taking into account the risks from cross-contamination or fraudulent use of concentrate feed. This could be done by targeted sampling of sheep concentrate feed for meat and bone meal e.g. by ELISA or other effective method.

Programmes should be conceived in such a manner that the farmer perceives an advantage in reporting the disease and co-operating with the authorities, in the short and the long term.

The Committee underlines that an effective passive surveillance demands that sheep and goat farmers and veterinarians are acquainted with the clinical signs of scrapie in a visual way. To this end a video programme on scrapie in sheep and goats was prepared several years ago via the Scientific Veterinary Committee with the assistance of the UK MAFF, other Member States and Iceland but for technical reasons, was not made freely available. It is recommended that this be urgently distributed, in appropriate language versions, to the State Veterinary Services in Member States for showing, under veterinary supervision, to sheep and goat farmers and disease control veterinarians. A scrapie video recording has also been prepared in Norway for distribution.

Documents

For the establishment of the criteria for scrapie eradication programmes, the following documents were taken into consideration:

- VI/4735/92 Report of the Scientific Veterinary committee (Animal health) on scrapie surveillance and control in the context of Council Directive 91/68/EC.
- XXIV/SVC/04/1997 Report of the Scientific Veterinary Committee on surveillance of transmissible spongiform encephalopathies (TSE)
- OIE draft International Animal Health Code/September 1996 Appendix XIII, chapter 3.3.8 "scrapie" chapter
- Council Decision 90/638/EEC of 27 November 1990 laying down Community criteria for the eradication and monitoring of certain animal diseases.

Recommendations

The following 11 criteria would be the standards for EC funding of the programmes for the eradication of scrapie. Where sheep or sheep holdings are mentioned, the criteria should be applied equally to the other species.

1. Marking by the owner within seven days of birth of all animals, indicating individual animals and the farm of origin. Animals imported from third countries should also be individually marked.

2. Recording by the owner of;

- all individual animals in a holding. Ideally computerised recording of data should be used and in a way so that female parent can be individually identified and if possible also the male, directly or via records;
- all live births;
- the parents of all animals born in the holding;
- the dates of each event and all movements into and out of the holding and identification of the holdings from which animals were brought into the holding and destination of animals leaving the holding, the immediate past residence of any brought in animal, its female parent and male parent (where known).
- all temporary acquisitions including hiring of rams
- all deaths, with indication of reasons for death for all animals above 6 months of age;
- common grazing, when used.

3. Reporting by the owner to the designated veterinarian, for clinical examination, all animals with clinical signs for which scrapie cannot be excluded such as nervous disorders or pruritis. The veterinarian arrange for the suspect animals to be slaughtered for pathological examination of the central nervous system, and other tissues if appropriate.

4. Inspection of holdings by the Veterinary Service, at least once a year. The identification and clinical status of each individual animal should be inspected.

5. Auditing of the holding records by the Official Veterinary Service in order to check the accuracy of all data on which the programme is based. This is considered to be of the highest importance.

6. Inspection of all cull animals aged over 2 years by the veterinarian. All these animals must have adequate *ante mortem* inspection (either on-farm or at the slaughterhouse) at such a level that clinical signs compatible with scrapie would be detected.

The Committee considered that random sampling should be carried out in order to determine the level of occurrence of subclinical scrapie in small ruminants in a given Member State, but could not determine the specific method. It recommended a special group be set up to do this. Such a method should give a practical measurement to determine the effectiveness of the eradication programme when combined with the targeted surveillance of clinically suspected scrapie cases in sheep and goat as mentioned under 3.

7. Management of the ewe holding must be such that it is either completely closed in the female line or that breeding females and embryos originate only from holdings of equivalent or higher scrapie status. Trading between holdings should only be allowed between holdings of equivalent status or from a higher to a lower graded holding.

Under the terms of Council Directive 91/68/EEC rams and semen may come from any source.

The premises must be effectively fenced to prevent sheep from straying in and out of the holding and preventing direct or close contact with the sheep from another holding.

Common grazing could be permitted provided that no part of the land was used for over-wintering sheep for lambing, or for any other purpose that could lead to more than casual contact between animals.

Common pasture should only be used by animals from holdings of the same scrapie status. The use of common grazing must be recorded by the farmer (see 2.)

8. Policy in case of scrapie diagnosis in a holding.

In regions with low incidence of scrapie, all animals on holdings should preferably be slaughtered. Each member State should take adequate measures to prevent spread from that holding.

In high incidence regions, options other than a total cull could be envisaged such as closing the herd until the last animal is slaughtered after its commercial lifespan with disposal of all specific risk materials.

Contacts should be put under restriction, sheep identified using special marks and surveillance measures should be applied.

Scrapie affected animals should, in all cases, be killed immediately on animal welfare grounds.

9. Information. A continuous awareness campaign for farmers and veterinarians using video recordings of clinical signs of scrapie in sheep and supported by written description is essential.

10. Compensation. In order to improve current reporting of TSE cases, 100% compensation for cases suspected by the official veterinarian should be provided.

If the normal policy includes killing of all sheep on an affected holding, 100% compensation for all slaughtered animals should be provided.

11. Diagnostic centres and methods.

Suspect cases should only be examined by specifically trained pathologists at investigation centres suitably equipped for the microscopical examination of the brains. However, cases with inconclusive results or cases with a histopathological picture indicative for scrapie should subsequently be re-examined at TSE reference centres in order to confirm or dispel the suspicion. This can be done by histopathological examination or by diagnostic techniques which base on the immunochemical detection of PrP^{Sc} in brain or other tissues. These immunochemical (Immunoblot, Immunohistochemistry, ELISA) techniques etc. should be standardised and reference tissues, antibodies and reagents etc. should be readily obtainable.

It is noted that there is no designated reference laboratory for scrapie in the EU. This would be necessary in order to ensure that test techniques are standardised. The reference laboratory must also be able to type strains of scrapie.

Summary

The Committee was asked to determine minimum criteria that should be met in order for eradication programmes for scrapie to qualify for Community funding. The Committee drew up a list of 11 criteria that should ensure that eradication programmes make progress against this disease.

These criteria may be summarised as follows;

Animal identification, movement recording, disease reporting, inspection of holdings, auditing of records, checking of cull animals, effective farm management, action on farm when scrapie confirmed, publicity about the disease, compensation payments and adequate diagnostic resources.,

The Committee also notes that the development of a welfare friendly, in vivo test for scrapie would be an important advance. Research into this should be strongly encouraged.

References

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