requirements for staffing, inspection, record-keeping, freedom of movement, buildings, accommodation and mechanical equipment, feed and water, mutilations, and breeding procedures. The final paragraph of the Annex, paragraph 21, appears strikingly sweeping and perhaps a potentially powerful force against the use of strains with high prevalences of production diseases. It states: 'No animal shall be kept for farming purposes unless it can reasonably be expected, on the basis of its genotype or phenotype, that it can be kept without detrimental effect on its health or welfare'. Member states are required to bring the legislation, administrative provisions and sanctions necessary for compliance with the Directive into effect before 31 December 1999.

Council Directive 98/58/EC Concerning the Protection of Animals Kept for Farming Purposes (1998). *Official Journal of the European Communities L 221*: 23-27. Obtainable from Office for Official Publications of the European Communities, L-2985, Luxembourg.

Welfare of farmed fish

Following the publication in September 1996 of the Farm Animal Welfare Council's (FAWC) report on the welfare of farmed fish, the UK Government consulted interested parties and has now produced a response taking account of these views. This comprises a 4-page overview document with a 17-page Annex which: (i) outlines the points which the Government proposes for inclusion in a welfare code for farmed fish production; and (ii) lists FAWC's recommendations. Two general points are made regarding the way forward. First, since the recently adopted EU Directive on the protection of farm animals (Council Directive 98/58/EC) does not include any requirements which deal in detail with the welfare of farmed fish, the UK will continue to play an active part in the Council of Europe's negotiations to develop recommendations. Second, the Government proposes that many of FAWC's recommendations should be met by developing voluntary codes of practice with the farmed salmon and trout industries. FAWC made a number of recommendations on the need for research and the Government has prioritized these as follows. First to review commercial slaughter methods for trout and ensure that humane methods are available (Government-funded work is already underway on this). Second, if funds become available, to investigate improved methods for stunning and killing farmed salmon and setting stocking densities. Further research into environmental stimulation and interrelationships between food distribution, fish size and fish welfare is then to be pursued. Other research topics, such as the development of systems which minimize injuries to snout and fins, are viewed as matters for the industry to pursue.

Government's Response to the Farm Animal Welfare Council's Report on the Welfare of Farmed Fish. The Agriculture Departments of Great Britain (1998). Ministry of Agriculture Fisheries and Food: London. 22pp. Loose-leaf. Obtainable from the publishers, Government Buildings, Hook Rise South, Tolworth, Surbiton, Surrey KT6 7NF, UK. Free.

Towards a sustainable policy to control TB in cattle. A cull too far?

The first report by the UK Independent Scientific Group on cattle TB, chaired by Professor John Bourne, was published in July 1998, giving details of a randomized trial which will involve the extensive culling of badgers. The Group was formed to advise the UK Government on the implementation of the recommendations contained within the Krebs Report on *Bovine Tuberculosis in Cattle and Badgers*, published in 1997 (see, *Animal Welfare 7:* 217).

Responding to the Krebs Report's conclusion that : 'The sum of evidence strongly supports the view that, in Britain, badgers are a significant source of infection in cattle', and that a

randomized trial should take place to further investigate links, the Group adopted an integrated approach aimed at answering the following questions:

i) What is the quantitative contribution of badgers to TB infection in cattle and do the recommended proactive or reactive culling strategies result in a significant reduction in incidence of herd breakdowns?
ii) Might alternative badger control strategies, such as maintaining badger populations below a certain threshold, be used to control disease in cattle?
iii) Would these badger control strategies be cost-effective?
iv) Can modifications be made to farm management practices which will reduce the transmission of *Mycobacterium bovis,* the bacterium that causes TB, to cattle?
v) Could monitoring of badger population density and/or prevalence of infection in badgers be used to predict risk of infection in local cattle populations?

The recommended randomized trial will compare the effects of proactively culling badgers in areas where the incidence of TB outbreaks in cattle (termed 'herd breakdowns' in the report) has been 'historically high', with reactive culling in response to detection of TB within a herd, and with a policy of no culling. These three treatment regimens will be applied to contiguous circular areas of land, each covering 100km^2 and separated from each other by buffer zones of at least 3km. Ten such triplets are to be recruited into the trial, on a rolling basis; each triplet matched where possible in terms of breakdown histories, number of cattle and total surface area. For the duration of the study, no further culling of badgers is to occur elsewhere in the UK, unless it is part of the trial.

When the report was published two triplets had already been recruited: one on the borders of Devon and Cornwall, and the other on the borders of Gloucestershire, Hereford and Worcestershire. The Group recommend that the remaining triplets be recruited by the end of 1999. Collection of data will continue until 5 years after the recruitment of the last triplet.

The Group also call for additional work to be carried out: to develop a vaccine against *M. bovis;* to develop a more sensitive test to detect infection with *M. bovis* in live badgers than the one currently available; and to determine other potential wildlife sources of the disease.

Opponents of the trials have focused on several issues. The Mammal Society, who are critical of the trial, are 'opposed to the killing of badgers for no demonstrable disease control benefits' and feel that 'the trial is unlikely to provide clear answers'. Method of capture is another contentious area. Although the Group recommend the use of cage traps as the most humane method, they are concerned about trap-shyness, which would lead to an extension of trial period. They call for an investigation of other trapping methods, presently ruling out the use of snares. The removal of lactating females from dependent cubs underground is another area of concern. The Group have recommended a closed season for culling from 1 February to 30 April in the hope that this will avoid taking badgers at the time when it is most likely that there are dependent cubs underground. The final concern relates to the likely publication date of the report. Opponents have argued that, if the Government estimate of the time it would take to develop a vaccine against *M. bovis* (10–15 years) is correct, the results of the study and its subsequent recommendations would be irrelevant within a relatively short time. It should, however, be remembered that it is by no means clear that a vaccine can be developed nor how long this might take.

The Group have identified that the ultimate success of the trial will depend upon widespread cooperation in areas covered by the triplets and compliance within each treatment area: farmers neither culling badgers irrespective of the treatment regimen, nor interference occurring in areas where culling is occurring. Non-compliance would certainly extend the time it would take to

collect the data necessary to complete the trial, and would result in greater numbers of badgers being culled. Whether requests for compliance will be heeded remains to be seen.

Towards a Sustainable Policy to Control TB in Cattle – A Scientific Initiative. Report from the Independent Scientific Group on Cattle TB (1998). Ministry of Agriculture, Fisheries and Food: London. 45pp. Paperback. Obtainable from MAFF Publications, Admail 6000 London SW1A 2XX (Publication No PB 3881). Free. Regularly updated information about the trial is available at: http://www.maff.gov.uk/animalh/tb/default.htm.