

LETTER

Badgers and bovine tuberculosis in the UK: a reappraisal needed

Sir, The Ministry of Agriculture, Fisheries and Food (MAFF) launched a new five-year badger culling scheme on December 8 1993, as part of its cattle tuberculosis (TB) eradication programme. After 23 years, there is still no real evidence that badger culling has reduced cattle TB, and a government report even seven years ago noted that culls were not cost-effective and logically should cease (Dunnet *et al* 1986). There are now plausible grounds for questioning the scientific assumptions underpinning the badger culling scheme, which are neatly epitomized by the two different situations in the UK.

Thus, badgers are regarded as the cause of the bulk of the cattle TB problem in South West England (91% of herd infections in 1992); but only the cause of 2.5% of infections (breakdowns) in Northern Ireland (MAFF 1992). The two areas have similarly high density badger populations; not dissimilar levels of cattle TB (600-700 cases a year, South West England), and an average of 1,343 cases in the five years to 1992 (Ulster; M Ancram pers comm). Admittedly, TB was nearly eradicated in Northern Ireland 25 years ago; eradication has been thwarted by a trickle of 'missed' TB cattle from Southern Ireland where there are estimated to be 65,000 cases a year (Downey 1991). However, this does not explain the claim by MAFF that only some 10% of breakdowns are attributable to other cattle, and under 1% to contiguous farm contact, whereas in Northern Ireland some 30% may be due to bought-in cattle and up to 70% to contiguous farms, eg 47% due to 'nosing' between cattle herds in 1991 (McIlroy 1986; Wilesmith 1986).

The pivotal assumption underlying the badger culling scheme is that badgers are

causing the breakdowns in cattle, and are not catching TB *from* them. This in turn is based on the belief that cattle are found and removed before they become infective (Zuckerman 1980 p 94; Dunnet *et al* 1986 para 60). The two fundamental flaws in this belief are 1) that cattle are infectious almost from the outset of catching TB, and 2) that badger TB is initially of dietary aetiology in 70% of cases and is probably acquired from eating dung beetles living on cattle faeces (which can be infectious for up to a year). However, cattle TB is almost entirely respiratory in origin and unlikely to be acquired via grazing pasture contaminated by infected badger excretory products (Hancox 1994).

Classic historical studies revealed that even cattle with only microlesions in the lungs were infectious 'open cases', and these overlooked data have been amply confirmed by recent Northern Irish work (Francis 1947; Neill 1992). The failure to recognize this level of infectiousness even in test-negative (ie 'healthy' cattle, Neill 1992), and a relatively efficient transfer *to* badgers is in keeping with the nicely graded series of TB in badgers in 25 English/Welsh/Scottish counties, and their prevalence (Cheeseman 1989). It has been suggested that MAFF has 'accidentally' demonstrated the recent spillover from cattle to badgers on 23 Exmoor farms, since up to 65% of these badgers now have TB on farms which had been clear for up to 40 years. The supposed corroboration of a badger-cattle TB density link likewise reveals a discrepancy, with the highest badger TB prevalence of 34.5% in the lowest badger density Cornish study, and prevalences ranging from 0-32% in nearby highest density Gloucestershire populations (Cheeseman 1989). Similarly, TB levels range from 36% in one Northern Irish

badger sample to 48% in Galway. The absence of infected badgers from a number of former TB cattle blackspot counties suggests that the infection dies out in badgers if not topped-up from cattle, eg in Leicestershire.

Recognition of the infectiousness of even early-case TB cattle also accounts for the apparent difference in the occurrence of contiguous farm breakdowns between Northern Ireland and England. As in a recent cluster of farms on Exmoor, these became 'badger related' instead of contiguous breakdowns, and Irish studies have reaffirmed the importance of 'nosing' cattle contacts and windborne slurry spread of TB. Rats have also been overlooked as a passive transmitter of TB between farms since they can carry the infection without showing overt lesions.

The recent upswing in TB in South West England is clearly a result of extra turnover of stock resulting from the control of the bovine spongiform encephalopathy (BSE) epidemic since 1986 (replacement of over 130,000 BSE cases). Hence there were 144 TB herds in 1992; 229 in 1993, and an expected 320 in 1994 (80 herds already in the first quarter, MAFF unpublished data). 'Mad cow disease' may hence at long last lead to accidental proof that the cattle TB problem has been due to mistested or untraced stock all along, and has spilled over into innocent badger bystanders.

References

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