11. Other livestock

Introduction

11.1 This chapter outlines those features of sheep, pig and poultry production that interacted with cattle farming, including general feeding practices, during the period covered by this Report.

Relevant aspects of UK sheep production

Structure of the industry

11.2 Although there was an overall increase in the number of sheep and lambs in the UK between 1986 and 1995 (from 37 million on 85,000 holdings to 42.7 million on 82,800 holdings), sheep numbers actually peaked in 1992 at 44 million. Sheep numbers had grown steadily since 1980, when there were 31.5 million.\(^{218}\) This growth was mainly attributable to the introduction of the EU sheep meat regime in 1980, which resulted in the introduction of the Variable Premium Scheme in the UK, and partly due to the imposition of milk quotas, which encouraged dairy farmers to diversify their operations.

11.3 There are about 40 native breeds of sheep and many crossbred sheep kept primarily for meat production, with wool an important secondary product. Throughout the period 1986–95 about 70 per cent of sheep farms also raised cattle, and the combined farms accounted for about 81 per cent of sheep and half of the cattle farmed in England and Wales.\(^{219}\)

11.4 Sheep production in the UK is based on a stratified breeding system. Of the 20 million or so breeding ewes maintained in the UK during 1986–95, 6 million were kept in the hills and were specialised breeds well adapted to harsh conditions in these areas. Surplus female lambs from these hill ewes were sold to farmers in the upland areas, where they were mated with longwool breeds. Crossbred female offspring from these matings were sold to lowland farmers to be mated with lowland breeds to produce quality lamb carcasses demanded by the market.\(^{220}\)

11.5 The sheep industry is characterised by extensive buying, selling and movement,\(^ {221}\) not only as a consequence of the stratified breeding system, but also in response to price differentials across different regions. Furthermore, the expansion of sheep production during the 1980s and early 1990s itself led to the movement of larger numbers of sheep around the UK.

\(^{220}\) MLC, Sheep Yearbook, 1993, p. 76
\(^{221}\) Journal of the American Veterinary Association, vol. 199, no. 11, 1 December 1991, p. 1556
Sheep diet

11.6 The sheep diet is based on grass, supplemented by purchased feeds when necessary. At the time BSE emerged, most sheep farmers supplemented the diets of their stock with concentrates. However, the diet would vary according to whether the sheep were kept in the hills, the uplands or the lowlands, and according to the time of year lambing took place. Whereas hill flocks were rarely given concentrates, sheep kept in the uplands and lowlands were offered them, particularly the early lambing flock, which required winter housing and thus supplementary feed. Lambs born in winter would also require supplementary feed.222

11.7 Concentrates were likely to contain some level of MBM, though the extent to which it was included cannot be ascertained with precision. However, inclusion rates were lower for sheep feed than cattle feed, and the per capita exposure to MBM would have been significantly lower for sheep than for cattle.223 The feeding of MBM to sheep was prohibited by the ruminant feed ban that came into force in June 1988.224

Scrapie

11.8 Scrapie is a transmissible spongiform encephalopathy mainly affecting sheep, though goats are also susceptible. It was first recorded in Britain around 1732, and by the time BSE emerged it was widely recognised by farmers and vets. The symptoms are incoordination and intense itching – hence the name – leading to the fleece being rubbed off against fences, posts and trees. Transmission occurs naturally between sheep, though precise routes are unknown. One route may be infected placentae. It is believed to spread between sheep in pastures and particularly in spaces where sheep are congregated, such as lambing pens and paddocks.

11.9 Vol. 2: Science provides details of the research undertaken since the 1960s to find out how scrapie is transmitted and what measures can be taken to control it. This body of knowledge became the basis for judgements in the Southwood Report on BSE (see vol. 4: The Southwood Working Party, 1988–89 for further details).

11.10 Farmers try to rid their flocks of scrapie by ensuring that scrapie-suspected animals are removed at the earliest opportunity. Selective breeding has also been used in an attempt to prevent scrapie from entering the flock by vertical transmission. For example, since scrapie was made a notifiable disease on 1 January 1993, the Meat and Livestock Commission has recommended that farmers implement a closed flock policy, with purchases only from scrapie-free flocks of preferably older ewes less likely to develop the disease.225

11.11 When scrapie was made notifiable, there were no powers of compulsory slaughter. A compulsory slaughter and compensation scheme was not implemented until July 1998. However, agreement was normally reached with the farmer for submission of the head to a Veterinary Investigation Centre to allow a laboratory diagnosis. In general, only the first case reported in a flock and subsequently

222 SEAC31 tab 1
223 SEAC31 tab 1; T78 p. 144
224 The Bovine Spongiform Encephalopathy Order 1988 (L2 tab 1)
225 MLC, Sheep Yearbook, 1997, p. 24
confirmed in a two-year period was sent for laboratory examination. Second and subsequent cases were confirmed on clinical grounds only.\textsuperscript{226}

11.12 It is accepted that before scrapie was made notifiable, official scrapie statistics (based on cases sent to Veterinary Investigation Centres for diagnosis) did not represent the true national incidence, since many farmers could identify scrapie themselves, and therefore would not call in the vet. In 1988, on the basis of a voluntary survey, it was estimated that a third of British flocks were affected, scattered throughout the UK. As discussed in more detail in vol. 2: Science, the incidence of clinical cases of scrapie in affected flocks of 100 or more sheep, estimated from the survey, was either 0.5 or 1.1 cases per 100 sheep per year. Extrapolation of these data to develop a picture of the national incidence of scrapie would not provide a robust assessment given some of the problems with the survey, not least the low sample size. But if such extrapolations were made they would indicate (albeit approximately) a much higher incidence of scrapie in the national breeding flock than suggested by the number of confirmed cases per year since scrapie was made notifiable (328 in 1993, 235 in 1994 and 254 in 1995). This suggests that either the incidence of scrapie has drastically fallen (since the survey results in 1988), or a robust assessment of its incidence is not yet available.\textsuperscript{227}

Relevant aspects of UK pig and poultry production

Structure of the industries

11.13 Pig and poultry production have received less support than other livestock sectors under the CAP. The EU makes no attempt to maintain a particular market price for products from either industry, and there is no intervention buying.

Pig industry

11.14 In 1986, 819,000 breeding pigs were kept on 16,600 holdings in the UK, and 4,794,000 fattening pigs were kept on 16,300 holdings. By 1995 there were 742,000 breeding pigs on 9,700 holdings, and 4,626,000 fattening pigs on 10,300 holdings.\textsuperscript{228}

11.15 Pig production occurs in most areas but is prevalent in eastern and northern England to take advantage of cereal production, which forms the basis of pig diets. The cereal diet is supplemented with protein from vegetable and animal sources, including MBM (up until the ban implemented on 29 March 1996), and with minerals and vitamins. Pig producers feed their pigs home-mixed rations prepared on farm or purchased from a feed compounder. Antibiotics are frequently included in commercial pig feed. This, and the high proportion of MBM used before 1996, made pig feed unsuitable for cattle, since cattle will tolerate only a low proportion of MBM in their feed.

226 DM01 tab 29 p.10
227 SEAC31 tab 1; Veterinary Record vol. 127, 13 October 1990, pp. 373–6; MAFF, Bovine Spongiform Encephalopathy in Great Britain, A Progress Report, December 1998. It should be noted that since scrapie was made notifiable, statistics have been calculated on the basis of samples sent to VICs. Further, usually only the first case reported in a flock in a two-year period was sent for laboratory examination. Additional data on the incidence of scrapie are in vol. 16: Reference Material
228 MAFF, Agriculture in the UK 1987 and 1996
11.16 Since the mid-1980s there has been a trend towards concentration of pigs into specialist units and larger herds, separate from other animal rearing systems. For example, the average size of a pig-breeding herd was 49 in 1986, but by 1995 had increased to about 82.229

11.17 The age at slaughter depends on the type of meat being produced, but can vary from 14 to 18 weeks for lean and tender pork, and from 22 to 34 weeks for bacon, ham and inferior pork.230 The majority of UK pigs are finished indoors in buildings designed for intensive production, but in recent years outdoor herds have also grown, partly in response to new welfare legislation which prohibits the tethering of sows. The average weight of slaughter pigs has progressively increased over the last decade, which has seen pigmeat production increase accordingly.

Poultry industry

11.18 In 1986 there were 63,296,000 broiler fowls (used for meat production) on 2,000 holdings, and 37,827,000 laying fowls on 44,600 holdings. By 1995 there were 76,577,000 broiler fowls on 2,300 holdings, and 31,507,000 laying fowls on 27,800 holdings.231

11.19 Poultry production has expanded enormously since the 1970s, with an increase in output of over a third between 1975 and 1986. However, as with pig enterprises, the increase in production was achieved with fewer total holdings, indicating greater specialisation and intensification of production processes.232

11.20 A particular feature of the poultry industry, setting it apart from other livestock industries in the UK, is its vertical integration. Around 85 per cent of poultry meat producers and 66 per cent of egg producers are ‘integrated’. This means that they control all stages of production from birth to slaughter of broilers or layers, including breeding, fattening, and the production of animal feed for their livestock.233

MBM in pig and poultry feed

11.21 An aspect of pig and poultry production particularly relevant to the BSE story is the use of MBM in pig and poultry feed. At the time BSE emerged, pig and poultry feed contained MBM, and the pigs and poultry were exposed to this throughout their whole life span.234

11.22 Indeed, the pig and poultry industries were the major users of MBM in the UK prior to the ruminant feed ban. At the time of the ban’s introduction, one MBM supplier estimated that only 12 to 15 per cent of its MBM went into ruminant feed, meaning that 85 per cent went primarily to poultry, and secondly to pig feed. The poultry industry has long been a major user of MBM, because of its high value as a nutrient source.235

230 M43 tab 13 p. 16
231 MAFF, Agriculture in the UK 1991 and 1996
232 MAFF, Agriculture in the UK 1988
233 Report of the Expert Group on Feeding Stuffs (Lamming Committee), 1992, p. 34
235 T20 pp. 110–11 and 125
11.23 It remained legal to feed ruminant MBM to non-ruminants such as pigs and poultry up to March 1996. Accordingly, compound feed manufacturers supplying cattle, sheep, pig and poultry farms were permitted to use ruminant MBM in compound feed for pigs and poultry. This posed a risk of cross-contamination between batches of compound feed in the manufacturing process at feed mills producing the full range of feeds.

11.24 Consequently, after the ruminant feed ban was imposed in 1988, it was feasible for ruminant MBM to find its way into cattle feed through cross-contamination at the feed mill, or in transit in the delivery lorry (see vol. 5: Animal Health, 1989–96). Cross-contamination with MBM could also occur during preparation and storage of home-mixed rations on farms, in particular where cattle and sheep units were managed alongside pig and poultry units – in 1988 there were 34,421 holdings with both cattle and pigs or poultry, and 23,573 in 1995.

Pig and poultry waste in cattle feed

11.25 A large amount of pig waste from abattoirs entered rendering plants, and was used to produce MBM. The renderers could have responded to the 1988 ruminant feed ban by producing MBM containing porcine material only. Though theoretically possible, this was not done because of the complexity of the task and the difficulty in keeping porcine waste separate from ruminant waste. The inclusion of porcine material in ruminant feed was banned in November 1994, following the implementation of the Spongiform Encephalopathy (Miscellaneous Amendments) Order 1994.

11.26 At the time BSE emerged, poultry protein – produced in poultry meal production plants as opposed to general rendering plants – was also included in cattle feed in small amounts. The product was derived from material not entering the human food chain, such as heads, feet, manure and the carcass once it had been stripped of meat. Another source of poultry protein for use in animal feed was hydrolysed feather meal, produced by chemically converting feathers into a digestible protein form.

11.27 The inclusion of poultry-derived protein in ruminant feed was relatively limited, since MBM was the cheaper option. In theory, this poultry protein can still be fed to ruminants. However, those within the rendering and feed industries suggest its use is virtually non-existent owing to a voluntary ban on using any animal protein in ruminant feed.

Pigs and transmissible spongiform encephalopathies

11.28 Although BSE has never been discovered naturally occurring in pigs in the industry, MAFF reported the successful experimental transmission of BSE to a pig in August 1990 through intracerebral injection. Thus far there have been no reports...

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236 T12 p. 141; see revisions proposed in S17A Almond
237 Statistics obtained from MAFF
238 T60 pp. 63–4
239 L2 tab 11
240 T60 pp. 69–70; T18 p. 84
241 T60 pp. 69–70
242 T60 pp. 67–8
of pigs having contracted BSE via oral ingestion or by any other non-experimental route of infection (see vol. 2: *Science*).