

Appendix A

EVALUATION OF FMD STATUS OF GREAT BRITAIN**On-site visit report****OBJECTIVE:**

The objective of this evaluation was to review the FMD status of Great Britain now that the minimum ninety day waiting period after the last case as per the Office International des Epizooties (OIE) has been completed. The evaluation does not include Northern Ireland which was evaluated previously and regained FMD freedom status effective July 22, 2001. All counties in Great Britain have achieved FMD Free status as of 14 January 2002 according to Great Britain veterinary authorities. On January 21, 2002, the OIE recognized that the UK had regained its FMD-free status without vaccination.

The evaluation includes three objectives:

- 1) to verify the process that led the British veterinary authorities to conclude that the disease has been totally eradicated and was no longer present in the country;
- 2) to assess if appropriate preventive measures have been taken to reduce the risk of reintroduction of the disease and finally,
- 3) to determine if measures are in place to assure prompt detection and reporting of the disease. The period at risk for trading partners is the period when the disease is present in the country and is not yet detected.

To gather information and complete the assessment, an on-site visit was done in January 2002 in conjunction with the United States Department of Agriculture (USDA) representatives.

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ITINERARY:

- January 28 Meeting at headquarters in London, England with representatives from Department for Environment, Food and Rural Affairs (DEFRA); and from the Institute for Animal Health in Pirbright to discuss
- S Overview of eradication program
 - S Susceptible population
 - S Surveillance procedures
 - S Control measures
 - S Laboratories and testing
 - S Emergency control centre
 - S Information on the FMD outbreak
 - S Diagnostic procedures and serosurveillance
- January 29 Meeting at headquarters in London, England with representatives from DEFRA to discuss
- S Import controls
- Visit of Heathrow International Airport
- S Animal quarantine centre
 - S Import controls
 - S Border inspection posts
- January 30 Visit of Newcastle Disease Control Centre and meeting with representatives of the Animal Health Divisional Office.
- January 31 Meeting at headquarters, London, England with DEFRA representatives for further discussions and final conclusions.
- February 1 Visit at the Institute for Animal Health, Pirbright

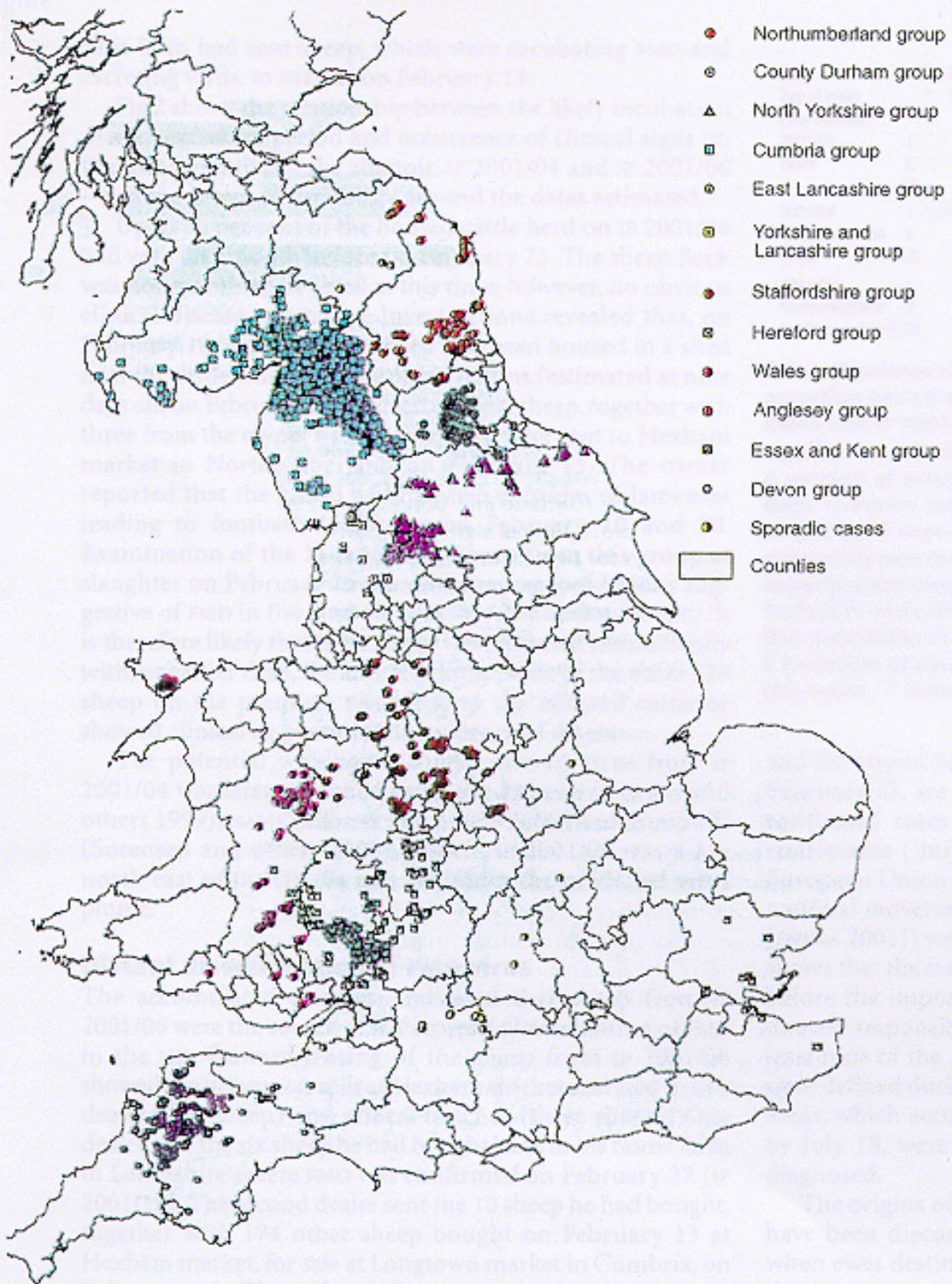


FIG 1: Location of all reported cases of foot-and-mouth disease, February 20 to July 15, 2001, and of geographic groups

EXECUTIVE SUMMARY

OIE guidelines for a country to regain disease free status without vaccination:

- S have a record of regular and prompt animal disease reporting;
- S have demonstrated that an effective system of surveillance is in operation
- S have demonstrated that all regulatory measures for the prevention and control of FMD have been implemented.

A country can regain its freedom status:

3 months after the last case where stamping out and serological surveillance are applied.

The FMD epidemic in Great Britain:

The FMD epidemic was more widespread and had many more holdings affected, than would have been predicted following the introduction of the FMD virus into Great Britain. A variety of factors have played a role in this situation:

- S The delay between the introduction of disease into the country and its notification
- S The susceptibility of sheep to the pan-Asiatic type O FMD virus strain and the difficulty of clinically detecting FMD in sheep
- S The time of year that FMD was introduced. This period coincided with one of the peaks in the number of sheep passing through livestock markets and provided weather conditions in which the virus could persist
- S The large sheep population, the marketing of sheep and high frequency of sheep movements
- S The reportedly high frequency of unrecorded sheep trading
- S The lack of individual identification of sheep

Future actions:

- 1) The 20 day standstill on movements, which was implemented during the outbreak, will be retained.
- 2) DEFRA will not permit markets for sheep, (only slaughter market will be allowed for sheep and pigs, Minister Lord Whitty, Feb 5, 2002).
- 3) The ban on swill feeding will remain.
- 4) Producers and industry representatives were informed that FMD should remain part of the differential diagnosis, specially during the lambing period with abortion signs.
- 5) On imports they are planning to do
 - S 100% checks on consignments of meat from FMD countries
 - S an increase in the level of surveillance for non declared consignments
 - S a change in legislation to give DEFRA the power to >stop and search<. Previously this power was restricted to Custom.

- S a communication strategy to increase public awareness
 - S a review in procedures for disposal of waste in ships and planes
 - S a sniffer dogs project
 - S a major risk assessment is currently underway in order to better identify risk pathways and increase efficiency of targeting
- 6) Restrictions on the last farms will be lifted by the end of May 2002.

Conclusion of objective 1:

Based on the review of control and eradication measures taken by DEFRA and results of surveillance performed so far, it was concluded that the risk of the presence of FMD virus in Great Britain at this date is negligible.

Conclusion of objective 2:

The ban on swill feeding in the UK adopted in May 2001 is a very important mitigating measure for preventing FMD. Compliance verification of this ban as well compliance verification of adequate disposal of waste food taken from ships, aircrafts or vehicles entering Britain are critical.

Although illegal imports remain an important risk factor in the UK, the work undertaken by DEFRA is a positive step in addressing this issue. On the question of legal importation of meat we can observe that some commodities imported in the EU from some trading partners and under specific requirements would not be allowed into Canada. The UK will emphasize on the 100% documentation and identity checks for meat imported from FMD countries.

Conclusion of objective 3:

Results of investigation have shown a delay between introduction of the virus in the country and reporting. The earliest date for the introduction of virus in the first infected premise has been estimated from epidemiological investigations as the 2nd February 2001. The delay between introduction of disease and its reporting constitutes a period at risk where FMD susceptible commodities could be traded. However, during the epidemic, prompt detection and recording of disease was observed in general and this level of awareness can certainly result in a higher capacity to detect and report new incursions of exotic disease in the future.

The problem of tracing capability through proper animal identification has not yet been resolved.

Following a meeting of the Disease Status Evaluation Team (DSET) of CFIA held on

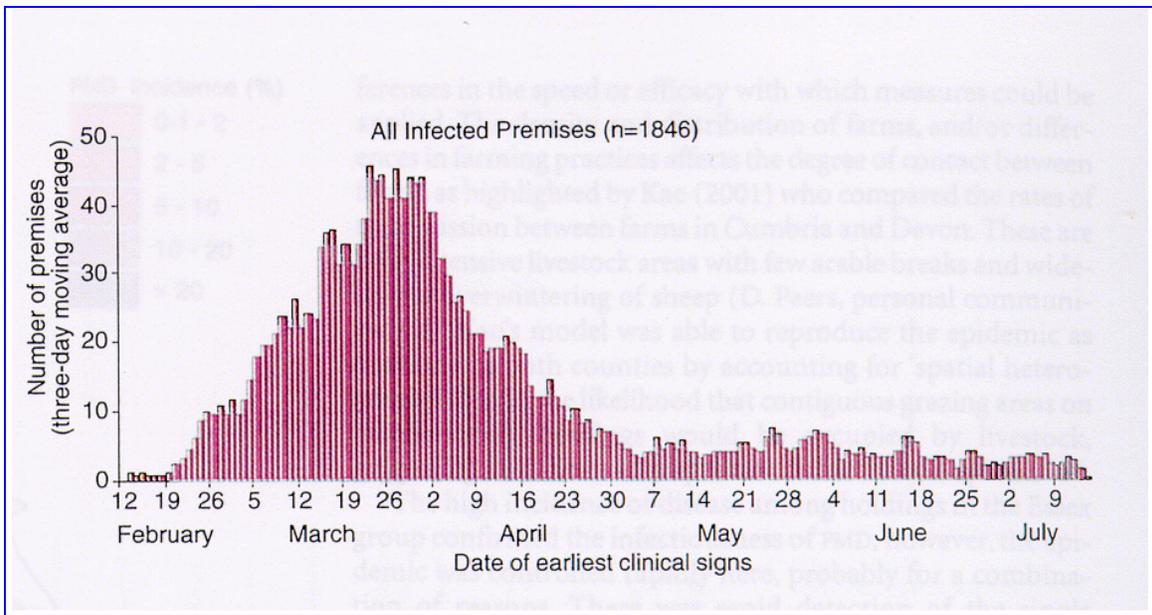
February 21, 2002, it is recommended that CFIA officially recognizes Great Britain free of FMD with no vaccination.

EVALUATION

PART 1 TO DETERMINE IF THE DISEASE IS ERADICATED

Relevant criteria:

1. EPIDEMIOLOGY OF OUTBREAK
 2. ERADICATION MEASURES
 3. SURVEILLANCE
 - I. Serology
 - II. Virology
 - III. Clinical Inspection
 - IV. Ante and post mortem inspection
 - V. Wildlife
 - VI. Laboratory capability
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1. EPIDEMIOLOGY OF OUTBREAK
 - ▶ Epidemic Curve depicting the number of new cases each day



- ▶ Number of outbreaks confirmed in Great Britain: 2 026
- ▶ 22 counties did not have cases during the outbreak; 17 counties have been free for more than 6 months; 3 for 4 months and 2 for 3 months.
- ▶ Strain: O1 Pan Asia virus
- ▶ 83% of all infected premises (IPs) had cattle; 86% had sheep and 82% kept both types of livestock. Pigs were only present on 5% of all IPs (100 holdings).
- ▶ Date of first outbreak: **20th February, 2001**
- ▶ Date of last outbreak: **20th September, 2001**

Recognition of the outbreak

- ▶ On February 19, 2001, the Official Veterinary Surgeon at an abattoir in Essex noticed lameness in 27 sows at the antemortem veterinary inspection: The veterinary surgeon reported his suspicion of the presence of a vesicular disease and all slaughtering ceased. FMD was confirmed the following day, by the Pirbright Laboratory. The oldest lesions seen were estimated to have been approximately five days old. No FMD was found in the farms of origin of the 27 sows. It was therefore concluded that infection occurred after arrival at the abattoir.
- ▶ From February 8 to 15, no infection was detected at slaughter, but it is suspected that it is the period when the virus contaminated the environment. The Essex slaughterhouse had no level of biosecurity. No disinfectant could be found on the premise (DEFRA, on site visit 2002). First case was declared on February 20.

Traceback

- ▶ The index case of FMD occurred at a swill-feeding pig-fattening unit in Northumberland. The most likely source is believed to be inadequately cooked waste food contaminated with FMD virus.
- ▶ Investigations at the Northumberland premises revealed widespread lameness among pigs. It was estimated that approximately 90% of the 527 pigs on the farm had lesions suggestive of FMD. The oldest lesions on this farm were estimated to be 12 days old when examined on February 24. The earliest date for the introduction of virus has been estimated from

epidemiological investigations as the 2nd February 2001. CFIA's team mission is of the opinion that an earlier date of introduction of virus cannot be excluded.

Initial dissemination from pigs to sheep

- ▶ A sheep market initially disseminated the disease. The sheep were incubating disease while at the market, they infected other animals and these animals were distributed around the country. At least 24 500 sheep entered the markets and could have been exposed to infection.
- ▶ Movement of infected animals (mainly sheep) before the imposition of national movement controls was directly responsible for the introduction of infection into at least nine of the 12 major geographical groups of cases that were defined during the course of the epidemic. Eight of these areas, which account for 89% of the cases diagnosed by July 15, were infected before the first case of FMD was diagnosed (Vet.Rec, Dec 2001).
- ▶ Infected abattoirs were the main source for the Anglesey, Essex and Kent and the Yorkshire and Lancashire groups of cases, and the Wiltshire cluster. Sheep dealers were the primary source of FMD for the Devon and Hereford groups (Vet.Rec, Dec 2001).
- ▶ All livestock, vehicles and personnel that passed through the market after infection was introduced were traced and holdings visited. However, due to unrecorded sales or exchange of animals after the official market, an unknown number of animal movements were not recorded. Sheep were not individually identified which meant that it was not possible to trace and cull all potentially infected sheep (Vet.Rec, Dec 2001).
- ▶ Last cases were reported during the last week of September: In Cumbria and Northumberland. In Cumbria, the cases were confirmed based on clinical signs, virology and serology were negative. In Northumberland, one case had lesions with virus and the other one had no lesion but the serology was positive.
- ▶ The greatest number of outbreaks occurred in the counties of Cumbria, Dumfries & Galloway, Northumberland, North Yorkshire, Powys and Devon; these 7 counties accounted for 80% of all the outbreaks in Great Britain.
- ▶ Spread of disease was aggravated by the presence of farms with multiple dispersed parcels of land, and consequent frequent movement of agricultural vehicles and personnel from one site to the other. Farmers travel between fields daily to tend livestock; during these visits the farmers continually cross paths making effective biosecurity virtually impossible.

- ▶ Although infected animal movements seeded the epidemic in each area, the vast majority of FMD cases in GB (78%) were attributed to local spread, i.e. spread between IPs within 3 km of each other.
- ▶ The fragmented nature of the holdings, the socializing of farmers, a relaxation of farm biosecurity after the lifting of the Infected Area and movements of animals along public roads may have all contributed to the rapid spread of virus across the Allendale valley from its initial source. The collection centre at Hexham market probably played a role in disseminating infection to local farms. This was due to potential cross-contamination of farm vehicles after the owner of one of the flocks incubating disease delivered sheep to the collection centre on 21st August.
- ▶ The vast majority of IPs were farms, however 26 dealers premises and 10 abattoirs were infected. In addition, investigations showed that at least six markets had infected animals passing through them, one of these on two occasions (Longtown), before nationwide movement restrictions prevented further markets (Vet.Rec, Dec 2001).
- ▶ Airborne spread by plumes of virus over greater distances has not been found to play a significant role (more than 3km). Such feature was expected given the minimal involvement of pigs in the 2001 outbreak (Vet.Rec, Dec 2001).

FMD in sheep and goats

- ▶ FMD generally takes a milder form in small ruminants than in cattle and pigs, and in many cases, the clinical signs may be vague.
- ▶ Incubation is commonly between 3 and 8 days
- ▶ Fever, anorexia and lassitude have been observed, and lameness occurs in the presence or absence of foot lesions.
- ▶ Oral lesions are less common than the feet lesions and have often disappeared by the time foot lesions appear.
- ▶ The disease in goats can be even milder than the disease in sheep. Lameness and agalactia are the most common signs. Mouth lesions are more likely to occur in goats than in sheep. Mortality associated with heart lesions is often seen in lambs and kids in the absence of any clinical signs .

2. ERADICATION MEASURES

- ▶ The Department of the Environment and Rural Affairs (DEFRA) was recently created in England (June 2001) by combining the previous Ministry of Agriculture, Fisheries and Food (MAFF) with the environment parts of the previous Department of the Environment, Regions and Transport and parts of the Home Office. For the purposes of local government, Great Britain is divided into 177 Counties, Metropolitan Districts and Unitary Authorities. These authorities are responsible for enforcing the provisions of national legislation in respect of animal health controls.
- ▶ A total of **2 030 outbreaks** of FMD were confirmed. Susceptible species on **7 499 premises** were killed as dangerous contacts (4 170) or because it was contiguous to an infected holding (3 329). Livestock on a further 247 holdings were killed on suspicion of disease, but not confirmed afterward.
- ▶ Over **4 million susceptible livestock were killed** because of the FMD risk, and a further 2.05 million animals were slaughtered for welfare reasons.

	FMD confirmed (-000s)	Dangerous contacts (-000s)	Slaughter on suspicion (-000s)	Total (-000s)
Cattle	304	278	13	595
Sheep	903	2 282	109	3 294
Pigs	20	120	2	142
Goats	0.9	1	0.3	2.2
Total	1 227.9	2 681	124.3	4 033.2

- ▶ Compensation for slaughtered animals was paid at the market value at the time of slaughter.
- ▶ When the extent of disease became apparent, veterinary officers were allowed to confirm disease on the basis of clinical signs. When disease was confirmed on clinical grounds alone, fluid and tissue samples were still taken from clinically affected animals and examined at the Institute for Animal Health (IAH) Pirbright. Where laboratory examination of samples failed to detect the presence of virus, the case remained confirmed and eradication measures in place (Report to the OIE).

Movements controls

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- ▶ Once FMD had been confirmed on February 20. The entire country was designated a Controlled Area for the purposes of the FMD Order 1983. The effect was to ban movements of all farmed livestock through out Great Britain including a ban on markets. **Infected Areas** were defined with a radius of at least 10 km around infected holdings and **Restricted Infected Areas** (RIAs) were created at a later stage in the epidemic to add movement control measures (Report to the OIE).
 - ▶ Twenty one day movement restrictions were applied to all permitted movements except in the case of pigs moving within closed pyramids. No susceptible livestock were permitted to move off a farm within 21 days of susceptible livestock moving on, except under licence to slaughter. Sheep and goats were only permitted to move once, other than to slaughter.

Husbandry practice

- ▶ Retrospective analysis have shown that prior to the FMD outbreak, lambs for slaughter often pass through markets and travel distances of up to 600 km; about two-thirds travel an average of 80 km and the remainder travel an average of 430 km. Fat sheep are often kept on distant lowland pastures or indoors over the winter months, after which they are fattened for a period before slaughter. In addition, producers may buy cull ewes to qualify the largest possible number of sheep to access the European Union subsidy targets on this particular time of year (Gibbens and al, 2001). Consequently, there would have been many movements at the time that FMD virus was introduced, commonly over distances greater than the 10 km radius control area imposed when disease is confirmed. This practice contributed in the dissemination of infection. The reportedly high frequency of unrecorded trading of sheep, and the lack of individual sheep identification, compromised tracing activities so there was a risk attached to all movement of fat sheep and cull ewes during the first weeks of February.

Lifting of restrictions

- ▶ The last Infected Area restrictions were lifted on 28 November 2001 following satisfactory completion of serological surveillance of all holdings with sheep and goats in the 3 km protection zones surrounding the 2 030 outbreaks of FMD. At the time of the visit, there were no infected area restrictions in place in the country.

Cleaning and disinfection

- ▶ Following the slaughter of livestock on an IP, cleansing and disinfection of the premises was required to be completed in two stages: a preliminary disinfection and a complete disinfection. The preliminary disinfection generally occurs within a few days following the diagnosis. The final disinfection could be a much more protracted event which could take several weeks or months. A final disinfection is not compulsory. In such cases a period of 12 months must elapse after preliminary disinfection before restrictions can be lifted.

Restocking procedures

- ▶ Producers have been allowed to restock with sentinel animals at any time after a period of three weeks (rest period) had elapsed since final cleansing and disinfection of the holding was undertaken. Farms that restocked with sentinel animals were subject to four inspections at weekly

intervals after the sentinel animals entered the premises. If sheep were involved, blood sampling was carried out at the fourth inspection and following the receipt of negative results a final inspection was carried out prior to lifting restrictions.

- ▶ For cattle and swine, the shortest time for the lifting of restrictions following completion of final C&D under this regime was therefore eight weeks (3 weeks Arrest period, one week restocking, four weekly inspections). When sheep were involved, the quarantine could be lifted after negative serological results were obtained (Report to the OIE).
- ▶ 153 293 sheep on 800 source flocks have been ELISA tested in connection with restocking. Of the 105 651 samples tested only 1 sample from 1 flock was seropositive: the suspicious animal was seronegative when rebled 7 days later and no further action was taken.
- ▶ Without sentinel, a period of four months must elapse before restrictions are lifted.

Status of C&D as of 25 January 2002:

Total affected premises (excludes slaughter on suspicion)	10 017
Premises which will not undergo secondary C&D	292

- ▶ The National Farmers= Union has carried out an inquiry on the foot and mouth situation: 70 farmers have responded to a questionnaire. The overwhelming view of respondents is that preliminary C&D was carried out quickly and efficiently. But there was strong criticism relative to the secondary C&D when it was carried out by outside contractors: varying levels of knowledge, expertise and standards were noticed.

3. SURVEILLANCE

Livestock Production:

- ▶ Pigs: 6 million breeding pigs mainly in three counties: Lincolnshire, Norfolk and Suffolk. No outbreaks of FMD were reported in these counties in 2001.
- ▶ Sheep: 39.3 million sheep held on 75 360 premises. Sheep for breeding, finishing or slaughter are traditionally sold through markets, with the greatest number of movements taking place in the autumn and late winter. Husbandry pattern accounts, in part, for the size of the epidemic and its geographical extent.
- ▶ Cattle: Dairy cattle are concentrated in the West Midlands and the South west of England and the South West of Scotland. Beef cattle are often found associated with sheep.

I Serological monitoring

- ▶ Serosurveillance was carried out in two distinct areas in relation to each Infected Premises (IP). AProtection zone@ (PZ) serosurveillance was carried out within a 3 km radius of each IP;

A Surveillance Zone (SZ) serosurveillance was carried in the area between 3 and 10 km from each IP.

- ▶ **Due to the number of outbreaks that had occurred in the counties of Cumbria, Northumberland, Durham, North Yorkshire, Devon, South Powys, Dumfries & Galloway and the Scottish Borders, serological surveillance additional to that described above was carried out resulting in >95% of holdings with sheep/goats in the county being serologically examined (Report to the OIE).**
- ▶ When seropositive animals were found in any Management group, the whole group was resampled 7 days later, and after each animal in the group had been individually identified. When only one seropositive animal was found in a management group after rebleeding, only that animal was killed. When >1 sheep/goats were seropositive on rebleeding, all the sheep/goats in the management group were killed. Before any seropositive sheep were killed, oropharyngeal samples (probang) were collected. If virus positive, the holding was confirmed as having disease, control measures were applied accordingly (Report to the OIE).
- ▶ Surveillance zone sampling took place on premises located more than 3-km but less than 10km from any IP. Such sampling normally took place some considerable time after PZ sampling had been completed but in any event did not occur until at least 21 days had elapsed after preliminary cleansing and disinfection had been completed on any IP within 10km of the holding (Report to the OIE).
- ▶ **Approximately 2.5 million blood samples from 27 000 premises holding sheep and/or goats were examined by ELISA as part of the serological surveillance programme. Seropositive sheep were found in 46 flocks** (31 in the 3 km protection zones, 13 in the 3-10 km Surveillance zones and 2 as a result of pre-movement inspections). In 2 of these 46 flocks FMD virus was isolated from seropositive sheep. FMD was confirmed on both premises (Report to the OIE).
- ▶ A series of conditions had to be fulfilled before lifting restrictions on a protection zone. These included: all susceptible stock on the IP had to be slaughtered; their carcasses had to be eliminated; preliminary cleansing and disinfection (C&D) had to be completed and a period of twenty-one days had to have elapsed after this C&D.
- ▶ Surveillance to establish freedom from FMD required veterinary inspection of susceptible stock on all premises within a protection zone.
- ▶ A representative random sample of animals was taken from each group tested with the aim of detecting a prevalence of 5% or more of sero-positive animals in the group with 95% level of confidence.
- ▶ The serosurveillance corresponding to a level of 95% of confidence was applied to small-ruminant holdings within the perimeter of 10 km. These holdings comprised those with small ruminants that had not been in direct contact with cattle for at least 30 days prior taking the samples. Sampling was conducted on each holding, such that if 5 or more of every 100 animals present are infected, this will be detected (i.e. to detect a minimum within-flock/herd prevalence of infection of 5% with

95% certainty). Each selected animal was clinically examined.

- ▶ The serosurveillance was completed on 22nd October demonstrated that very little undetected infection had been found in the national sheep and goat populations. More than 99.8% of flocks and more than 99.96% of animals that had been tested gave negative results, i.e. no evidence of past infection could be found in them (p2, Serosurveillance part, State Veterinary Service Epidemiology Report).
- ▶ The overall magnitude of serology testing is hard to predict, as a significant proportion of the testing required will be in support of movement licensing and restocking. However the total zonal serosurveillance (PZ plus SZ) will amount to over 1.9 million samples from over 27,000 flocks and herds. As of January 30, the number of PZ samples remaining to be taken is estimated as 40,000 and of SZ samples as 640,000. Additional serosurveillance in Ainfill@ areas between restricted zones is also taking place in areas that had a high incidence of FMD cases (p2, Serosurveillance part, State Veterinary Service Epidemiology Report).
- ▶ The serosurveillance programme utilises the facilities of five laboratories with a potential peak testing capacity of 200,000 samples a week in November. About 30% samples derived from the Autumn Movement licence applications. The remainder are from tests carried out in Protection Zones and Surveillance Zones surrounding each infected premise.
- ▶ In Hereford and Welsh borders for example there are extensive areas of hill grazing. The majority of farms in this area keep beef suckler cows with hill sheep. Some common land may hold up to 100,000 sheep. These are turned out onto the hill in May from the enclosed in-by land of approximately 150 holdings surrounding the mountains . When the first IP was declared, most flocks were still on enclosed land, although some 10,000 sheep were overwintering on the mountain common. Although a 20% prevalence of oral and coronary band lesions was reported at slaughter, all samples were negative. An extensive serological survey of 9,450 sheep from 34 farms bordering the Black Mountains common grazing and any remaining sheep removed from the mountain was undertaken in April to determine the extent of FMD virus spread. The survey failed to demonstrate serological evidence of exposure of these sheep to the virus.
- ▶ A total of 3 073 500 ELISA tests have been carried as part of the FMD control programme.

Results of serological tests carried out, and the reasons for those tests, up to 14 January 2001

Reason for testing	No. of farms tested	No. of adults on farms	No. of samples tested	No. of samples +ve	% samples sero. + ve	No. of flocks +ve	% of flocks +ve
3 km protection zone testing	10 219	1 838 920	771 308	404	0.05	31	0.30
Epidemiology	2 364	630 912	257 924	806	0.31	73	3.09
3-10 km zone testing	11 799	2 695 940	1 101 814	167	0.02	13	0.11
Pre-movement	4 190	1 528 262	585 333	69	0.01	2	0.05
Restocking	800	153 293	105 651	1	0	0	0
Other	2 811	619 764	251 470	953	0.27		
Total	32 183	7 467 091	3 073 500	2 400	0.08		

Reason for testing	Sheep/goat farms tested	Adult sheep/goats on farms	Samples tested	Positive samples (%)	Positive flocks (%)	Farms where virus was isolated following probang
3 km PZ	10 155	1 674 193	688 724	400 (0.06)	27 (0.26)	2
3-10 km SZ	7 557	1 380 172	565 400	139 (0.02)	5 (0.07)	0
Total zonal testing	17 712	3 054 365	1 254 124	539 (0.04)	32 (0.18)	2

Serosurveillance	Flock tested	% of all flocks	+ Serology	+ Virus
Devon	4407	88	13	1
Cumbria	2333	100	10	1
N. Yorkshire	3389	95	6	0
Northumberland	1489	95	8	0
Durham	2061	95	1	0
South Powys	2907	92	2	0
total	16862		40	2

- ▶ Evidence of past FMD infection has been found in 0.26% of the PZ herds and flocks tested, a total of 27 holdings. These comprised 25 holdings in which evidence of FMD was found in sheep and two holdings (both in Cumbria) where it was found in goats.

Location and action taken in respect of seropositive flocks identified after 30 September 2001

Country	Reason for testing	No. Of seropositive	Number of seropositive flocks to date (October 21, 2001)		
			Whole flock slaughter	Manage. Group slaughter	Individual sheep slaughter
Cumbria	PZ SZ	1 5	3	1	1 1
Devon	SZ	2	2		
Durham	SZ	1		1	
Lancashire	PZ SZ PREMOVEMENT	1	1		
North Yorks	PZ SZ PREMOVEMENT	3 1 1	3 1		1
Northumberland	PZ SZ PREMOVEMENT	2 2 1	1		2 1 1
Monmouthshire	PZ	1			1
Total		21	11	2	8

- ▶ Twenty one flocks of sheep and/or goats were identified as having seropositive sheep in the course of serological testing carried out in 11 452 flocks after 30 September 2001:8/569 tested in the protection zones; 11/5 893 in the surveillance zones and 2/4 190 during pre movement testing.
- ▶ Where only seropositive sheep were slaughtered, only 1 or 2 sheep had tested seropositive at both tests (initial and 7 days later). The specificity of the ELISA tests gives 2 false positive results per 1000 tests and the within flock seroprevalence was less than 1%.
- ▶ Movement of livestock from holdings in Great Britain remain subject to official control. A total of 1 528 262 sheep on 4 190 holdings have been tested as part of this requirement. Of the 585 33 samples tested, 69 were positive (0.01%) and 2 flocks (0.03%) contained seropositive sheep.

II Virology

- ▶ The holdings where virus was isolated were declared IPs. All the susceptible livestock was destroyed and new PZs and Infected Areas were established around them.

III Clinical Inspection

- ▶ In addition to the above serosurveillance, some 80 000 flocks were inspected as part of the epidemiological inquiries linked to the 2 026 confirmed FMD outbreaks and 250 457 consignments of livestock were subject to an official veterinary inspection prior to movement being licensed between 20 February and 30 September. No suspect cases of FMD were identified as a result of these pre movement inspections (Report to the OIE).

IV Ante and post mortem inspection

- ▶ Special measures have been implemented in the slaughter plants during the FMD emergency control situation. For instance, animals had to be slaughtered within 24 hours of arrival and all animals were subject to veterinary ante-mortem inspection. A detailed individual inspection is required when signs of lameness, unwillingness to move or any animal demonstrating excessive salivation are observed.
- ▶ The requirement to do mandatory post mortem inspection including inspection of the mouth of susceptible species, and random inspection of feet, was removed on August 31, 2001.

V Wildlife

- ▶ No deer farms became infected and all laboratory tests on samples from deer suspected of being infected with FMD (over 50, all wild) have proved negative (Vet.Rec, Dec 2001).
- ▶ Experiments carried out with five different species of deer in the 1970's indicated that deer do not become carriers. By analogy with sheep, the greatest risk of transmission occurs during the 7-10 days following the onset of clinical signs. Deer do not generate significant aerosol infection and have no significance as a source of airborne spread: they offer a low risk to other species (DEFRA, 2001).
- ▶ Breeding populations of feral wild boar are currently recorded as present in Great Britain, on the East Sussex/Kent border and in West Dorset. Small numbers of escaped animals may be present elsewhere around wild boar farms that are located throughout the country, but no evidence of infection has been found in this population.
- ▶ Farmed deer located in control zones were eradicated, and none tested positive.
- ▶ **Surveillance in free areas**
- ▶ During the on-site visit, the question was asked if a survey will be done outside the zones that were affected. The response was that they would need to do a lot of testing to prove freedom and most of these areas have many pigs that would show clinical signs if infected. DEFRA will rely on the state of alertness of the veterinarians. Inspection is done, for welfare reason, for movement authorization. Antemortem and postmortem inspection in slaughter plants is a form of surveillance. DEFRA has

done traced back in free areas, investigations were all negatives.

VI Laboratory capability

- ▶ The Pirbright Laboratory of the Institute of Animal Health has processed 15, 235 samples of lesion material. The samples were tested with the **double antibody sandwich (DAS) ELISA** test against the **AO** serotype of foot-and-mouth disease (FMD). The tests were conducted mostly on sheep tissues, 10, 282. Cattle (3,556) porcine, caprine and a variety of other less susceptible or non susceptible species were also tested. See page 3 of the document entitled **The role of the Institute of animal Health, Pirbright Laboratory, in the UK 2001 FMD epidemic**.
- ▶ Samples negative by the DAS ELISA were inoculated into primary calf thyroid cells, the most sensitive cell for isolating FMD virus. Positive cultures were tested by the DAS ELISA test and passaged after 48 hours. Submissions that were negative after the second passage were reported negative to the Department of Environment Food and Rural Affairs (DEFRA).
- ▶ The Pirbright Laboratory also conducted 43,842 serological tests (**liquid phase blocking antibody test (LPBAT)**), mostly on sheep (32,259) and other species. See page 3 of the Pirbright document.

Validation of the solid phase competitive ELISA test

- ▶ The LPBAT that was used initially is a two-step ELISA procedure that does not lend itself to testing a large number of serum samples. In addition, the LPBAT test gives a number of reactions that need to be confirmed with the virus neutralization test, an expensive and time consuming test. The Pirbright Laboratory (Dr. John Anderson) has converted the LPBAT into a Solid Phase Competitive (SPC) ELISA format.
- ▶ Dr. John Anderson, Head of the Virus Diagnostic group at Pirbright has validated the SPC ELISA, which is a single step procedure done under a competitive rather than a blocking protocol. The test had been used with the serotype **AO** for several years by the Danes, during their last outbreak of FMD. The SPC ELISA had also been used in South Africa against the SAT serotypes. However, the test had never been validated with the 7 serotypes, with multiple species and backed up by a formal third party quality assurance (QA) program. The QA program was provided by the Veterinary Laboratory Agency, Weybridge, UK.
- ▶ Advantages of the SPC ELISA
 - 1.- The test is performed in one plate (single step)
 - 2.- The test is more specific due to the reduction of steric hindrance produce with the blocking protocol.
- ▶ Convergent elements toward the development of the SPC ELISA test
 - 1.- The Pirbright Laboratory had the advantage of being located next to Merial, a manufacturer

of FMD vaccine and was able to purchase large lots of purified FMD antigen (140S), that was used in the SPC ELISA test.

- 2.- Mr Nigel Ferris, the Head of the Vesicular Disease Group, had prepared large lots of type-specific antisera that were made available to other testing laboratory during the outbreak.
- 3.- When it was realized that it was highly probable that the Pirbright Laboratory would be overwhelmed by the serology demands, the possibility of using other British laboratories was considered. A risk assessment was requested and it was concluded that for a post outbreak serological monitoring, the risk was manageable providing a few structural and procedural corrective measures were initiated. Dr Phil Wilkinson of the Pirbright Laboratory and a DEFRA person evaluated the biosecurity of the laboratories, recommended structural changes and implemented the protocols.

Within a few weeks, a few laboratories were approved for doing serological monitoring and other laboratories (up to 5 or 6) eventually participated to the monitoring.

▶ Quality Assurance System (QA)

The Veterinary Laboratory Agency has a solid QA and Quality Control (QC) program in place. The veterinary authorities applied the QA/QC program to the FMD outbreak. The Pirbright Laboratory provided known positive (strong and weak) and known negative samples. The QA/QC staff at VLA assembled panels of 50 samples and distributed them every fourth night to all the participating laboratory, including the Pirbright Laboratory to ensure uniformity.

A serological survey manager was visiting the testing laboratories regularly. Discrepancies were investigated and corrected and questionable tests were repeated.

Approximately 3 million sera were tested by means of the solid phase competitive ELISA test. The Specificity of the test at a 95% confidence limits was over 99% with sheep, cattle and pigs. See the Pirbright document.

▶ Electronic Data Management

Initially, it was difficult to transfer electronically the laboratory and the epidemiological data to the outbreak management headquarters at DEFRA. The difficulties were related to the fact that the various databases and other data management systems from the Institute of Animal Health, DEFRA, the Veterinary Laboratory Agency (VLA) and the State Veterinary Services could not communicate effectively with each other. Eventually, these problems were corrected or compensated for by the staff who were making the links manually or with electronic bridges.

▶ Criticisms from outsiders

During the outbreaks, criticisms were voiced from various sources suggesting that the diagnostic methods used by Pirbright were antiquated and alternative solutions were presented. Pirbright provided opportunities to test new methods. Two pieces of equipment were heralded as the solution and were tested in parallel. One of the equipment was the ASmart Cycler PCR equipment to identify

FMD nucleic acid and the other was a Hewlett Packard robotic machine for the serological tests.

When comparative tests were conducted between the Smart Cycler and the DAS ELISA, the Smart Cycler turned out to be less sensitive than the DAS ELISA and was prone to contamination, as any PCR method. The cost of the equipment was too high to consider the method applicable at the pen side (\$20,000, to be verified). The robotic instrument broke down repeatedly and at the end could not process as many samples as the ELISA readers used at Pirbright.

Conclusion Part 1:

Based on the review of control and eradication measures taken and results of surveillance performed so far, it was concluded that the risk of the presence FMD virus in Great Britain at this date is negligible.

PART 2 TO EVALUATE THE RISK OF REINTRODUCTION OF FMD**Relevant criteria**

- 1) SWILL FEEDING
- 2) IMPORT

1. SWILL FEEDING

- ▶ On February 19, 2001 an Official Veterinary Surgeon at an abattoir in Essex noticed lameness in sows at the antemortem veterinary inspection. FMD was confirmed and as a result of investigation the source of FMD was linked to a swill-feeding pig-fattening unit in Heddon-on-the-Wall, Northumberland, in North-East England. The most likely source is believed to be the feeding of improperly treated swill from infected waste food. The farm in question was licensed to feed swill to pigs. CFIA was told during its visit that proper cooking of swill had probably been neglected for a while. How the virus reached Heddon on the Wall is currently the subject of a court investigation. According to the State Veterinary Service Epidemiology Report (Four weeks ending Sunday 21st October, 2001 cases FMD 2001/1 to FMD 2001/2030, DEFRA) the earliest date for the introduction of virus has been estimated from epidemiological investigations as the 2nd February 2001.

Prior to the swill feed ban:

- ▶ 140 farmers were licensed; according to a letter from DEFRA (Sue Bolton) of March 27, 2001, ~~Feeding to livestock of by-products from the food industry: ban on swill-feeding~~, it is estimated that in 2000, there were around 82, 000 swill fed pigs in Great Britain, 1.4% of the total swine population. About 74 premises were approved for processing swill and 93 were licensed for feeding it to pigs or poultry. There were no exact figures on how many catering premises supplied swill processors.
- ▶ According to the **Legislation Fact Sheet- PIGS No2, October 2000** the following restrictions applied in the context of swill feeding :specific requirements relating to the identification of pigs moved from waste food premises; restrictions applying to the movements of pigs from waste food premises, ie pigs can only go to slaughterhouses. (Under Article 10 of the Pigs (Records, Identification and Movement) Order 1995, pigs that have been on premises which have had swill at any point in the last 3 months can only go direct to slaughter.)

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- ▶ Swill feeding was covered by the **The Animal By Products Order 1999**: The Order requires catering waste which contains, or has been in contact with, meat or products of animal origin to be processed on approved premises if it is to be fed to pigs as swill. Similarly, non-mammalian animal by-products may also be cooked on approved premises to produce swill for feeding to pigs (mammalian animal by-products are not permitted to be fed to pigs as swill). The Order sets the construction and operational standards for such premises and requires the catering waste and non-mammalian by-products to be cooked to 100 C° for at least 1 hour (or by equivalent approved process). (before CFIA banned type A permits, CFIA required 100 C° for at least 30 minutes)
 - ▶ The Order only permits swill to be consigned from the premises or fed to pigs if the Minister has granted an approval for this purpose. Records must be kept by both the sender and the receiver of all consignments of swill. The Order requires anyone who transports or receives unprocessed catering waste intended for feeding to pigs to keep records of the origin, quantity and description of the material.
 - ▶ Implementing Authority: Local Animal Health Office, State Veterinary Service, and the Local Authority. During CFIA's visit in Newcastle we were told that local authorities were responsible of the implementation of the swill feeding regulation. In Newcastle, of the 8 premises licensed in the past as swill feeders, at the time of our visit only 1 premise had animals.
 - ▶ The Order also prohibits the feeding of waste food taken from a ship, aircraft or vehicle entering Britain; such material having to be disposed of by a method agreed by the Divisional Veterinary Manager (DVM), usually by incineration or burial.
 - ▶ Compliance: subject to quarterly visits. A copy of a blank quarterly inspection report for airline caterers was provided during CFIA's visit. Licensed are renewed on an annual basis.
 - ▶ Waste food is defined in the Order as: 1- any meat, bones, blood offal or other part of the carcass of any livestock or of any poultry, or product derived therefrom or hatchery waste or eggs or eggs shells or 2- any broken or waste foodstuffs (including table or kitchen refuse, scraps or waste) which contain or have been in contact with any meat, bones, blood, offal or with any other part of the carcass of any livestock or poultry.
 - ▶ On February 28, 2001 the following was issued: Emergency Instruction (EI) 2001/10/VEXDT-28/02/01 -1) Visits to all Farms with Swill Fed Pigs & all City Farms -2) Visits to all Ports and Airports

- ▶ This EI instructed DVMs to make contact with all city farms and all premises in their Division that have fed swill pigs and to arrange for a veterinary visit ASAP in order to detect any signs of FMD. This EI also asked DVMs to arrange unannounced visits to all airports and seaports in their Division to ensure that all imported waste food was dealt with in accordance with Chapter 14 of the UK manuals.

Swill feed ban May 2001:

- ▶ ≈The industry was supportive of the UK move to ban swill feeding. Holland banned the practice many years ago. EU policy is moving this way but Germany is opposed to this move.⇒(Report on Government/Industry Mission on Foot and Mouth Disease, UK and the Netherlands, 14-18 January 2002, Dr. Sarah Kahn Jan. 21, 2002.)
- ▶ The **Animal By-Products (Amendment) (England/Scotland/Wales) Order 2001** Emergency Instruction 2001/18/VTSET of May 11, 2001 and Action note 2001/29, Chapter 14, 23 May 2001 Animal By-Products (Amendment) (England/Scotland/Wales) Order 2001 Feeding to Livestock of By-Products from the Food Industry: Ban on Swill-Feeding
- ▶ The Animal By-Product Order 1999 was amended to ban the feeding of catering waste (waste from kitchens, restaurants and some food factories) as swill to livestock. The ban includes the feeding of catering waste which contains or has been in contact with meat or meat products as swill. It applies to catering waste (other than used cooked oil) whether processed or unprocessed which (a) contains or has been in contact with animal carcasses, parts of animal carcasses (including blood) or products of animal origin (other than milk or milk products, eggs, rennet, gelatin or melted fat which have been incorporated into another product); or (b) originates from any premises where any animal carcasses, parts of animal carcasses or products of animal origin (other than the exceptions listed in (a) above) are handled or where foodstuffs containing or coming into contact with any of the same are prepared or produced. The ban includes the swill feeding of poultry slaughterhouse waste and wet fish waste. There is a specific article (20) dealing with catering waste on planes, ships, etc coming into Great Britain, i.e. International transport. This bans **all** catering waste from this source, not just that containing meat or meat products. The definition of livestock in the Order means that the ban extends to animals other than just poultry and pigs, and includes farmed fish, and all ruminants, pigs, poultry and equine animals, whether farmed or kept solely for pleasure or sport. This is consistent with BSE legislation. This amendment or Statutory Instrument was signed on May 3 and came into force on May 24, 2001 allowing a three-week phase-in period designed to ensure that animals could be safely weaned off waste food on to an alternative diet. This order was made after

consultation with the industry and other interested parties.

- ▶ Licences to process, consign and feed swill under the Animal By-Product Order 1999 are no longer valid.
- ▶ Enforcement: After May 24, 2001: DVMs should ensure follow-up unannounced visits in conjunction with Local authorities (enforcement body) in order to assess that there was no evidence of swill processing/feeding going on and assess the health of the pigs: first visit should be within 2 weeks after the ban; assuming that there are no problems, 2 further visits at monthly intervals; if these visits are also satisfactory, there should be 2 additional visits, one at 6 months after the ban and another after 12 months.
- ▶ In cases of non-compliance, prosecution may be undertaken.
- ▶ Feed sampling surveillance program as amended on September 7, 2001: (Action Note 2001/56, Chapter 25d, 7 September 2001, Changes To The National Feed Surveillance Program): Feed sampling is required to monitor compliance at establishments where, for example, food waste such as bread or vegetables continues to be fed as swill, where a waste collection round is maintained, this being added to testing of feed mills and on-farms mixers to test compliance, for instance, with the ban on feeding mammalian protein to ruminants and mammalian MBM to all farmed livestock and the ban on feeding processed animal protein including poultry meal to all food animals, and of fishmeal, dicalcium phosphate derived from bone and hydrolyzed proteins to ruminants(Processed Animal Protein Regulations 2001).
- ▶ Swill feeders (priority # 1): monthly unannounced visits and sampling. After first visit has been made to all swill feeders then feed mills (#2) and on-farms mixers (#3) are visited and sampled. On going program will be reassessed. The feed surveillance program has been given top priority by senior managers and, where a resource shortfall exists additional resources will be allocated as required for this work.
- ▶ During our visit at Newcastle, it was confirmed to us that when the ban on swill feeding came into force, compliance inspection were carried out immediately, then followed by monthly inspection and now regular visits are done. The sampling program is also done on former swill feeders.

Waste food taken from a ship, aircraft or vehicle entering Britain from abroad:

- ▶ Under the control of local authorities
- ▶ Article 4 of the Importation of Animal Products and Poultry Products Order 1980 (as amended) prohibits the landing of animal and poultry products from a place outside Great Britain except under the authority of a licence. General licenses issued under the Order lay down the conditions for the landing of waste food, which may contain imported animal or poultry products from ships, aircraft, oil rigs or gas platforms and cross channel trains. A copy of a General Import Licence was provided to CFIA during their visit. A General license is valid until it is revoked or until further notice. The conditions attached to these licences are that
 - the waste food must be transported and kept in drip-proof closed containers.
 - the waste food must be taken direct from the place of landing for disposal in accordance with arrangements approved of in writing by the DVM, with responsibility for the port or airport of landing.
 - the containers used to transport the waste must be cleansed and disinfected immediately after emptying.
- ▶ DVM must liaise with local and port authorities at ports and airports within their Division to ensure arrangements are made to enable persons landing waste food to comply with the terms of the General Licence.
- ▶ Six-monthly visits by the DVM is recommended to airports and an annual visit to landfill sites for burial according to section J, Chapter 14, Waste Food from Abroad. The preferred method of disposal is by incineration by community law.
- ▶ During our visit at Newcastle, it was explained to us that surveillance of waste material at Border Inspection Posts (BIPs), airports, seaports and other frontier posts for commercial or personal yachts was done at every 3 or 6 months depending on volume/traffic and was combined with surveillance for the rabies program.
- ▶ During CFIA's visit DEFRA emphasized the importance of adequate disposal of international garbage from ships and aircraft and in making sure that procedures are actually followed. DEFRA will perform more verifications and the program on international waste will be better harmonized.

2. IMPORTS

- ▶ Before 1967, periods of freedom from FMD outbreaks were measured in months not years because the disease was endemic throughout Europe. In 2001, the first case of FMD was the source for all others and was initiated through the swill feeding of infected waste, while in

1967/68, last major FMD epidemic in the UK, a number of farms were infected concurrently from the same source of infected frozen lamb from Establishment 1408 in Argentina. The product had been legally imported and then, legally entered the animal food chain. Since 1967-8, import controls from countries with FMD were tighten and hygiene and animal health standards were improved. There as only been a small outbreak in the Isle of Wight, 1981, due to wind borne infection from Brittany in northern France.

- ▶ UK Import/Export FMD Restrictions legislation: As of January 17, 2002 covered under the Import and Export Restrictions (Foot-and-Mouth Disease) (No.2) Regulations 2002 which extends to England and implement Commission Decision 2002/37/EC. (Commission Decision 2002/37/EC amended for the sixth time Decision 2001/740/EC concerning certain measures with regard to FMD in the UK).
- ▶ The Import and Export Restrictions (No.2) regulate for instance: the importation and exportation of live animals of species susceptible to FMD, the exportation of fresh meat, meat products, milk and milk preparations, the exportation of semen, ova or embryos and various animal products of, again, species susceptible to FMD and the exportation of equidae.

EU legislation on imports:

- ▶ The completion of the Single Market in the veterinary sector on 01 January 1993 brought about major changes to the controls on the movements of animals and animal products within, and into, the European Community. In the UK, the Veterinary Service and Port Health Authorities are responsible for conducting the required veterinary checks on live animals and animal products imported from third countries through UK Border Inspection Posts (BIPs). EC rules have a direct impact on the UK's import controls and are laid down in a number of Council Directives and Council or Commission Decisions.
- ▶ EU Intra-community trade conditions: As a general rule, in order to be eligible to enter intra-Community trade, consignments of live animals must be inspected by an official veterinarian prior to movement and certified free of infectious or contagious disease. Consignments of meat and certain other animal products must only be dispatched from premises not under restrictions for animal health reasons and which are under the control of an official veterinarian. In the case of meat and certain other animal products these premises must be approved or licensed. Official veterinarians must establish that the animals or products to be traded, as well as others on the holding of origin, are free from certain specified diseases (either by means of pre-export testing or isolation, or as a result of an ongoing official disease surveillance programme) and/or were produced according to certain standards. In practice,

many animal products, such as fresh meat and meat products, may be traded within the Community without the need for veterinary certification. Consignments of farmed game meat and rabbit meat for human consumption and canned pet food require health certification signed by a veterinary officer. Animal products for human consumption (i.e. meat, meat products, dairy products) should also bear a health mark to show that the goods have been inspected at the establishment of origin to ensure the consignment meets EU standard.

- ▶ A principle of the Single Market is that checks on goods traded between EU Member States are carried out at the point of origin. Routine border checks between Member States are not permitted. Most products of animal origin consigned to the UK from other Member states must originate in an approved establishment and be accompanied by an official health certificate or commercial document (depending on the product). Single market rules dictate that there are no routine animal or public health checks at ports of entry from other EU Member States, but random and non-discriminatory spot checks at the place of destination are permitted.
- ▶ To facilitate checks at points of destination, the ANimal MOvement (ANIMO) computer system was established. This enables the veterinary authorities in exporting Member States to provide the authorities in importing Member States with advance notification of the impending arrival of a consignment of live animals and some animal products. In addition, the Directives provide for Member States to require importers to give advance notification of their intention to import, supplying details of the consignment and its time and place of arrival. Advance notification to BIPs for imports of animal products: 6 hours for an airport and 24 hours for a sea port.
- ▶ BIPs enter messages in the ANIMO system for importation of live animals. The ANIMO system can also provide a list of imported commodities at risk in case of an outbreak of a foreign animal disease in a country from which member states have imported from.
- ▶ EU Conditions for Imports from Third Countries (commercial shipments) To export to the EU third countries must appear on list of approved countries to export to the EU, have a Decision which lays down public and animal health certification and when necessary, have a list of establishments which are approved to export to the EU. These requirements are subject to audits performed by Food and Veterinary Office (FVO).
- ▶ As for intra-Community trade, the rules applicable to imports of live animals and animal products from third countries are laid down in a series of Council Directives. These provide a framework of basic rules, leaving to the Commission, acting through the Standing Veterinary Committee, to draw up the detailed health conditions applicable to each species, commodity or

third country. As a general rule, however, live animals or animal products imported into the Community may only originate from a third country, or part of a third country, approved by the Community. Approval is considered on a country by country basis. A number of factors are considered before a country or part of a country is approved

- ▶ These are:
 - the state of health of the livestock, other domestic animals and wildlife in the third country, particular attention being paid to exotic animal diseases and to the environmental health situation in that country;
 - the regularity and rapidity of information supplied by the third country relating to the existence of infectious or contagious animal diseases in its territory;
 - the country's rules on animal disease prevention and control and its import policy;
 - the structure of the veterinary services (including laboratory services) in the country and their powers;
 - the organization and implementation of measures to prevent and control infectious or contagious animal diseases; and
 - the country's legislation on the use of substances (e.g. hormones), in particular legislation concerning the prohibition or authorization of substances, their distribution, release on to the market and their rules governing administration and inspection.

- ▶ Most live animals and animal products imported into the Community from third countries must be accompanied by health certification signed by an official veterinarian in the country of export. The precise health conditions reflect the disease situation or health risk in the exporting country. For commodities not fully harmonized within the EU, for example, blood products, research material, cervids, camelids and that are covered under the Balai Directive an import licence issued by the importing member state will be required.

- ▶ EU Imports from third countries: Veterinary Checks: With the abolition of internal border controls, it was seen as imperative that full and effective controls were exercised at the external border on live animals and animal products imported into the Community from third countries. Accordingly, the Community adopted Council Directives 97/78/EEC and 91/496/EEC. These require that live animals and animal products may only be imported into the Community through an approved Border Inspection Post (BIP) and must undergo full documentary, identity and physical checks by an Official Veterinarian Surgeon (OVS) before being permitted to enter into free circulation within the Community. Once the checks have been completed, the importer will be given a certificate of veterinary checks (CVC) which states the results of the check or in cases of live animals, a border crossing certificate.

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- ▶ There are 42 BIPs in the UK. BIPs are not owned by government.
 - ▶ **Documentary check:** A documentary check is carried out on the original paperwork which accompanies the consignment to ensure that the product is permitted from the country and establishment of origin and that the certification complies with the model laid down in Community or national rules. Photocopied or faxed health certificates are not acceptable. Every shipment is subject to a documentary check.
 - ▶ **Identity check:** An identity check is carried out to verify that the consignment is that described in the documentation. The identity check will involve the inspection of the goods to ensure that stamps, official marks and health marks identifying the country and establishment of origin conform with those on the certificate or document. All consignments are to be checked. Some containers from each consignment are to be opened unless Community import rules require them to have an official veterinary seal and they effectively have it.
 - ▶ **Physical check:** A physical check involves an inspection of the contents of the consignment to ensure that it presents no animal or public health risk. This may also involve sampling for microbiological or chemical contamination. Physical checks are performed according to frequency laid down in Commission Decision 94/360 or equivalent agreements. For example: consignments of semen or embryos (category III) are subject to a minimum of 1% to a maximum of 10%. Products from Canada: 10% of all products of animal origin except; bulk processed animal protein - 100% for the first six consignments, then 20%.

When consignments are refused, this information is faxed.

There is no electronic data base available yet on rejected consignments. For animal products the CFIA delegation was told that checks were also performed by local authorities at retail or wholesale outlets.
 - ▶ For live animals there may also be a physical check to ensure that the animals are fit to travel and are in sound health, post import checks and sampling at destination is also performed on random basis.
 - ▶ With regards to FMD, the UK only allows the importation of live susceptible species from countries that do not vaccinate and that have not experienced any outbreak in the last 2 years. The UK has no facilities in order to quarantine imported animals for FMD. Quarantine of live animals is performed, for example, for Newcastle and avian influenza in non domestic birds and for rabies in dogs and cats.
 - ▶ Safeguard measures

Veterinary checks Directives (89/662 and 90/425 for intra-community, 97/78 and 91/496 for third countries) include provisions enabling the Commission to take emergency safeguard measures in the event of an outbreak of disease or any serious threat to public or animal health in either another member State or in a third country. Safeguard measures may include the prohibition of exports to other Member States of particular species of animals or types of animal products from affected areas or of the importation of live animals or animal products into the Community from affected third countries (or parts thereof). In certain circumstances Member States themselves may also invoke the safeguard procedures and take "interim protective measures".

- ▶ When DEFRA becomes aware of an incident (e.g. an outbreak of disease) which may constitute a serious threat to animal or public health, the Minister has the power to issue a Declaration making it an offence to import specified animals and/or animal products from the affected country or region.

Personal imports and samples of products of animal origin:

- ▶ These are exempt from import checks but are subject to special arrangements that may vary between member states.
- ▶ The public may import into Great Britain or have posted to them any meat or meat products (including poultry meat and poultry meat products) from within the EC for their personal consumption. Evidence may however be required to support claims that imports in excess of 10 kilos per person are for personal use. Restrictions on imports may be imposed from time to time due to outbreaks of animal disease in the country of origin. The importation of raw (un-pasteurized) milk is prohibited. All other milk and dairy products are permitted, but if the traveler imports more than 10kg, he may be asked to provide evidence that it is only for his personal use.
- ▶ The public may only import a maximum of one kilogram of fully cooked meat products to be imported from any non EC country. These meat products (including poultry meat and poultry meat products) must be in a hermetically sealed container, and be fully cooked and must be intended for personal consumption and not for resale (EU community law allows 1 kg of fresh meat). Such consignments must be imported as part of an adult traveler's luggage or contained within a postal package sent from abroad. A traveler may bring back from a list of specific countries up to 1kg of dried milk powder for his personal use. Under certain conditions specific licences may be granted to permit imports of samples to determine potential commercial viability of a product, analysis of constituents, suitability of packaging etc. This type of specific licence

will stipulate certain conditions which must be adhered to, for example, that the sample must not exceed a specified weight or volume; be excluded from all contact with animals, must not be used for human consumption and that residues and packaging must be destroyed once examined.

- ▶ Currently a poster, (**see annex 1 pdf file**), can be seen at airports which highlights the law regarding personal imports of meat and meat products. This new initiative was established in light of the FMD situation. Also the EU is currently reviewing community rules on personal importation which could possibly in the future look more like the ones already in place in the UK.
- ▶ Conditions applied to UK exports which are returned to the UK: At the request of the exporter a specific licence permitting the return of the goods into GB may be issued. In these cases the licence will require the consignment to be accompanied by the original health certificate issued in GB and a non-manipulation certificate signed by a government official of the authorities of the country where the consignment was landed and rejected. The latter certificate normally gives details of the consignment, e.g. original certificate number and states that the consignment has not been opened or exposed to circumstances in which contamination may have occurred. Goods exported by the UK and rejected by another Member State must, if returned, be accompanied by the documentation issued at the time of export. No import licence is required, providing that the consignment has at no time left the Community.
- ▶ Shipments of animal products destined to a third country: Goods intended for a third country can be transhipped at a UK BIP providing the consignments remains within the port and are either not unloaded or are transferred from one ship to another or on aircraft to another.
- ▶ Goods may only transit the UK (i.e. move by road or rail) if they fully comply with UK import conditions.

Heathrow BIPs visited on Tuesday January 29, 2002

- ▶ Heathrow is the world's busiest international airport and is also the world's second busiest air cargo port. In 2000/01 approximately 64 million passengers were handled and there are around 1250 flights/day. Their busiest day was on July 29, 2001 where 213 000 passengers were handled. 80 million items of baggage are handled per year. The cargo section handles approximately 1.3 million tonnes of air freight per year.

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- ▶ Situated west of London, Heathrow is listed as a border inspection post (BIP) for imports of products (fit for human consumption and for non human consumption) and for live animals (ungulates, equidae and others including fish). The BIP for live animals is owned by the Corporation of London. The BIP for products is managed by a consortium of airlines. Inspections are carried out by official veterinarians (OVS) employed by local government or port authority which is recognized by DEFRA. Checks are done both for animal health and public health. According to the OVS of the BIP for products, it is difficult to obtain airline manifests and the targeting of regulated products of animal origin on them is difficult as well because often generic terms are used. It was also indicated to us that the 6 hours notification was not respected. Original documents are always required even for commodities in-transit. Document checks and identity checks are done at 100%. Physical checks are: dairy/100% because not harmonized, meat/100%, products from Canada/10% and from New Zealand/2%. Around 2-3% of products are refused for example because of missing documents, temperature problem or failed organoleptic evaluation. The OVS can also be called by Customs for issues with passengers .
 - ▶ The Food Standard Agency and DEFRA perform audits on Port Authorities as well as FVO. Other BIPs for products not for human consumption are covered directly by DEFRA. Since August 2000, we were told that DEFRA had not been able to fully audit because of lack of resources.
 - ▶ In the UK, the number of containers being imported is quite important and the CFIA delegation was told that UK Customs reported few infractions.
 - ▶ According to DEFRA officials, on the question of future measures for the importation of live animals, no change in current policies is envisaged since they are deemed appropriate (no FMD vaccinated animals and country free of FMD for 2 years). Increased measures are needed though in relation to the importation of animal products. Meat imports from FMD countries must always be submitted to 100% documentation and identity checks. In order to combat **illegal importation**, emphasize on improved and shared intelligence between countries must be emphasized. The level of targeting undeclared shipments with Customs will be increased.
 - ▶ Personal importation, for example bush meat from West Africa and fish is also problematic. Up to 2 tonne of illegal importation have been confiscated in the past on a single flight. Apart from opening bags at airports on a random basis, the recent strategy developed by DEFRA is to prevent illegal animal products from being initially brought onboard planes. To that effect, emphasis has been put on providing information and publicity to various airlines and embassies

located abroad and when travelers apply for a visa. The use of x-ray machines before loading is also under study. DEFRA is also working on a project in order to provide information to passengers on planes, for example, leaflet, video.... For the time being, posters have been installed in airports.

- ▶ Currently UK Customs officers do not ask any questions to travelers. At Heathrow, the CFIA delegation noticed some color coded posters for voluntary declaration by passengers. If a traveler has nothing to declare to Customs he has the opportunity to clear Customs more rapidly although a random check could be performed. There is no detector dog program currently in the UK but DEFRA will embark on a pilot project.
- ▶ Although UK Customs officers can stop and search, DEFRA has no such legal powers for commercial or personal imports. DEFRA relies entirely on Customs to refer. Once the BIP has been passed, DEFRA officers cannot stop a shipment unless they have valid proof of an infraction. As for prosecutions for illegal commercial imports, although fines and/or imprisonment can be imposed, it appears that it is extremely difficult to prosecute. There is no legal powers for fining on the spot travelers in situation of illegal personal importation. DEFRA will be working on a legislative change in order to give powers to DEFRA officers to stop and search.
- ▶ Finally a major risk assessment performed by the Veterinary Laboratories Agency on imports is currently underway in order to better identify risks and on ways to increase the efficiency of their targeting.

General statistics:

- ▶ According to «Transport Statistics Great Britain: 2001 Edition», UK's international passengers movements by air and sea (arrival and departures) in 2000 were: (source Civil Aviation Authority)
air: 142 153 000
sea: 28 916 000
and the volume of international air cargo handled (excluding mail and passengers luggage) for year 2000 was 1408000 tonnes.
- ▶ According to the British Ports Association (BPA) the UK ports industry is the largest of all EU member states and handled a total of 568 tonnes of traffic in 1998. Over 95% of imports and exports by volume passes through UK's ports.

Meat and offals import statistics from FMD susceptible species

- ▶ Statistics were provided by DEFRA on UK imports of FMD-related meat from November 2000 to October 2001 (source H M Customs and Excise, (**see annex 2**) and were compared with import data for Canada from October 1, 2000 to September 30, 2001 (HS code 0201, 0202, 0203, 0204, 0206 and 0210, World Trade Atlas). Although this one year comparison is based on a different system of commodity classification, meaning FMD-related meat commodities compared with roughly equivalent HS codes we can draw the following observations:
 - ▶ **UK's imports:**
 - grand total: 1 035 261 000 kg of which
 - 27% bacon, ham, etc and mainly from, by decreasing import volumes, the Netherlands, Denmark, France, Irish republic, Germany
 - 22% pork carcass meat from Denmark, the Netherlands, France, Irish Republic, Germany
 - 17% bovine carcass meat from the Irish Republic, Brazil, the Netherlands, Botswana, Namibia
 - 10% pig meat and offal preparations from France, Denmark, the Netherlands, Irish Republic, Germany
 - 10% sheep carcass meat from New Zealand, Australia, the Netherlands, Irish Republic, France
 - ▶ **Canada's imports:**
 - grand total: 316 789 773 kg of which
 - 67% beef meat fresh/frozen (HS codes 0201 and 0202) from the USA, Australia, New Zealand, Argentina, Uruguay
 - 16% pork meat fresh/frozen (HS code 0203) from the USA, Denmark, Finland
 - ▶ Overall, UK's imports represent approximately 3.26 times the Canadian import volume for roughly similar commodities.
 - ▶ **Of particular interest was also to compare some of UK's trading partners. The total volume of meat imported in the UK (Nov 2000-Oct 2001) from countries that CFIA does not recognize free of FMD is 98 722 000 kg which represents roughly 30% of Canada's above total imports. This 98 722 000 kg volume represents 9.5% of UK's grand total import volume and consists mainly of beef meat. The main countries involved are Brazil (72%), Botswana, Namibia, Zimbabwe, Poland (mainly pork) and S. Africa.**

- ▶ On the subject of importation, excerpts from various reports and a list of various committees/inquiries that have been established in light of the FMD outbreak are provided in **annex 3**.

Conclusion Part 2:

The ban on swill feeding in the UK adopted in May 2001 is a very important mitigating measure for preventing FMD. Compliance verification of this ban as well compliance verification of adequate disposal of waste food taken from ships, aircrafts or vehicles entering Britain are critical.

Although illegal imports remain an important risk factor in the UK, the work undertaken by DEFRA is a positive step in addressing this issue. On the question of legal importation of meat we can observe that some commodities imported in the EU from some trading partners, and under specific requirements, would not be allowed into Canada. The UK will emphasize on the 100% documentation and identity checks for meat imported from FMD countries.

PART 3 TO EVALUATE THE CAPABILITY OF DETECTION AND PROMPT REPORTING

Relevant criteria

- 1) PAST DETECTION AND REPORTING RECORDS
- 2) ANIMAL IDENTIFICATION

1) PAST DETECTION AND REPORTING RECORDS

- ▶ On the 32 infected premises detected In Allendale area, 12 were detected during active surveillance (post-mortem or serology)(37%), 12 were reported by the owner (37%), 5 were detected during patrol visits(15%) and 3 were found through tracing activities (9%).
- ▶ One of the three sheep flocks (FMD/2024) uncovered during the tracing activities did not contribute to the spreading of the disease to neighboring farms north of Newcastle Upon Tyne despite serological evidence suggesting that the virus might have been present for a month before the disease was diagnose. (p16, State Veterinary Service Epidemiology Report)
- ▶ The first case of a cluster of seven outbreaks straddling the Devon/Somerset border was a sheep flock with a high prevalence of lesions and seropositive animals. FMD serology results suggest the presence of longstanding infection in the flock and make it unlikely that the virus was introduced by sheep shearers. The exact source of this outbreak is unknown and the source tracings are ongoing. Poor biosecurity and a large number of movements by owners between groups of animals contributed to the lateral/local spread to other sheep and cattle holdings. (P20, State Veterinary Service Epidemiology Report).
- ▶ On 27th June new cases of 1-2 day old disease were diagnosed in dairy cattle on two premises that also raised sheep. Based on seropositive results on samples taken ante-mortem, field epidemiologists consider that FMD virus had been present in the sheep four to six weeks prior to development of clinical signs in cattle. (P35, State Veterinary Service Epidemiology Report).
- ▶ Although the first case in the cluster in Thirsk was detected on 5th July, serological test results form a group of shearlings suggest that FMD had been on the premises possibly from as far back as mid May (P38, State Veterinary Service Epidemiology Report).
- ▶ The first case in Libanus was confirmed on clinical grounds in cattle and sheep. Depopulation of

the contiguous premises identified four additional IPs by post-mortem veterinary inspection and blood testing of sheep. The high seroprevalences found on two IPs (up to 97% in some groups of in-bye sheep) suggested that sub-clinical infection had existed in the area for several weeks (since mid May) before the first case was declared on 23rd June (p46, State Veterinary Service Epidemiology Report).

- ▶ Sixty-nine per cent of holdings in which disease presented first in cattle were diagnosed within two days of its onset. In contrast almost 30 per cent of holdings where disease was detected first in sheep were discovered five days or more after clinical signs may have been apparent (Gibbens, 2001).
- ▶ In the 2001 outbreak, The delay between primary infection, first diagnosis and finding the index case (more than 20 days) allowed widespread dissemination of FMD virus, and contributed to the scale of the epidemic. In contrast, the 1967/68 outbreak was detected within four days of the onset of clinical signs on the first affected farm (Gibbens and al, 2001).
- ▶ The apparent delay in seeking veterinary advice about the high prevalence of lameness in the animals in the index case was probably the most important factor contributing to the delay to disclosing FMD infection in Great Britain. This fact suggests a need to improve both awareness and essential animal disease surveillance (Gibbens and al, 2001).
- ▶ In order to have more veterinary resources available in the context of prevention, surveillance, control and eradication of diseases, funding and expansion of DEFRA's veterinary infrastructure must be emphasized.

2) ANIMAL IDENTIFICATION

- ▶ All sheep are identified at birth, not individually but at a flock level (metal or plastic tag)
#UK6numbers
- ▶ 14 million animals to identify: large scale
- ▶ It is a problem to keep track once tagged: lots of movements
- ▶ A penalty will be applied if animals are moved before 20 days
- ▶ When moved, animals have to be marked with flock of birth mark: AS@tag, they can use as a maximum: 2 AS@tags (flock i.d.) otherwise they have to use individual i.d.

- ▶ DEFRA is waiting for an EU Decision on electronic i.d.

Conclusions Part 3:

Results of investigation have shown a delay between introduction of the virus in the country and its finding. The earliest date for the introduction of virus in the index premise has been estimated from epidemiological investigations as the 2nd February 2001. The delay between introduction of disease and its finding constitutes a period at risk where FMD infected commodities could be traded. However, during the epidemic, prompt detection and recording of disease was observed in general and this level of awareness can certainly result in a higher capacity to detect and report new incursions of exotic disease in the future.

The problem of tracing capability through proper animal identification has not yet been resolved.

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