

CLASSICAL SWINE FEVER IN GREAT BRITAIN 2000

REPORT NO 1

20 AUGUST 2000

**Ministry of Agriculture, Fisheries and Food
20 August 2000**

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1. SUMMARY

- 1.1 A suspected case of Classical Swine Fever (CSF) on a holding containing a herd of rearing pigs was reported to the Ministry of Agriculture, Fisheries and Food (MAFF)'s Animal Health Divisional Office (AHDO) at Bury St Edmunds, Suffolk, England on Friday 4 August 2000. A MAFF Veterinary Officer (VO) visited the premises the same day and after examining the pigs placed the holding under official veterinary control. All movements on to and off the premises of livestock, vehicles and people were prohibited. Samples from dead and live pigs were taken and submitted to the Veterinary Laboratories Agency, Weybridge and the Institute for Animal Health, Pirbright for laboratory examination for CSF and African Swine Fever (ASF).
- 1.2 Laboratory examinations for CSF were positive and those for ASF negative. Having established that the strain of CSF was unique and dissimilar to laboratory strains of CSF held at the VLA, an outbreak of CSF in Suffolk, Great Britain was declared on 8 August 2000. A 3-km protection zone and a 10 km surveillance zone were established around the infected holding. The herd was destroyed and the measures foreseen in Council Directive 80/217 were put in place. The EU Commission and the OIE were duly informed.
- 1.3 Following the initial report of suspect CSF, four further suspect CSF cases Essex (1), Suffolk (1) and Norfolk (2) were reported to the MAFF on 7, 8 and 9 August. All four were subsequently confirmed as CSF on 9 and 12 August. The herds were destroyed and 3-km and 10-km protection and surveillance zones were established around each of the infected holdings.
- 1.4 One of the infected herds was a breeding herd that had supplied weaned pigs to the other four herds. An epidemiological enquiry carried out on this holding suggested that infection might have been present there since mid-June. As all the infected herds were owned by or contracted to an integrated breeding/production company, the decision was taken to trace and place under official veterinary control, all rearing and fattening holding which had received pigs from the CSF infected breeding herd after 1 May. In addition, all breeding herds owned by the breeding/production company would be traced, placed under official veterinary control and tested for CSF as would the five primary breeding herds that had supplied the infected breeding herd after 1 April. These tracings were additional to the normal tracings of people, vehicles and livestock onto and off the infected holding foreseen in Council Directive 80/217.
- 1.5 As of 21 August, no further cases of CSF have been confirmed on any holding in GB. Detailed investigations into the source of the infection continue.
- 1.6 Studies at the VLA Weybridge suggest;

- a. that the virus causing each these five outbreaks is the same;
- b. that it belongs to the genotype 2.1;
- c. that it can be distinguished from the genotype 2.1 virus responsible for the 1997/98 epidemics in Germany, the Netherlands, Spain and Italy; and
- d. that it is more related to, but still not identical to, the viruses isolated from limited CSF outbreaks in Austria and Switzerland in 1993, and in Italy in 1992 and 1995.

1.7 According to the Community Reference Laboratory in Hanover, there are no reports of other recent outbreaks of CSF in Europe this year caused by genotype 2.1 strain viruses. It therefore appears unlikely that this outbreak has been caused by the introduction of a virus currently present in Europe.

3. CHRONOLOGY AND LEGAL MEASURES

Date	Action and introduction of Legal Measures
04.08.00	Suspect CSF reported on a rearing premises in Suffolk. Samples to VLA and IAH Pirbright for CSF and ASF diagnosis. Holding placed under official veterinary control
07.08.00	Suspect CSF reported from a rearing premises in Essex and a breeding premises in Norfolk Norfolk. Samples to VLA and IAH Pirbright for CSF and ASF diagnosis. Holdings placed under official veterinary control. Internal stop placed on issuing export certificates for porcine germplasm.
08.08.00	<p>CSF confirmed on rearing premises in Suffolk (Outbreak Ref.. SF 00/01).</p> <p>Suspect CSF reported on a rearing premises in Suffolk. Samples to VLA and IAH Pirbright for CSF and ASF diagnosis. Holdings placed under official veterinary control</p> <p>The Swine Fever Declaratory Order 2000/2153 made imposing 3/10 km protection and surveillance zones around infected premises SF 00/01 and banning movement of all livestock on to /off premises where pigs are kept, transporting any material (feedingstuff, manure, slurry etc) likely to be contaminated with CSF except under licence, movement of any vehicle for transporting pigs or other livestock except under licence and holding markets, fairs etc for pigs. In addition, owners of premises where pigs are dead or diseased must report the same to MAFF</p>
09.08.00	<p>CSF confirmed on breeding premises in Norfolk (Outbreak Ref.. No SF 00/02) and rearing premises in Suffolk Suffolk (Outbreak Ref. No SF 00/03).</p> <p>Further suspect CSF reported from a rearing premises in Norfolk. Samples to VLA and IAH Pirbright for CSF and ASF diagnosis. Holdings placed under official veterinary control</p> <p>The Swine Fever Declaratory (No 1) and (No 2) Orders 2000/2178 and 2000/2179 made imposing 3 and 10 km protection and surveillance zones around infected premises SF 00/02 and SF 00/03.</p> <p>All third country live pig export certificates offering country freedom from CSF and porcine germplasm export certificates placed "on hold" while SVS HQ review certificates offering country freedom from CSF. Customer Information Note CIN 2000/26 on exports of live pigs and porcine products issued to livestock producers.</p> <p>From ANIMO messages, and certificate numbers, identified live pig consignments originating from in the restricted areas and extracted details of destination of consignments.</p> <p>Confirmed no AI Centres in restricted zones.</p>
10.08.00	Pigs on holding SF 00/01 destroyed Copy of CIN 2000/26 placed on MAFF Website and ANIMO banner message placed on CENTAUR
11.08.00	Pigs on holdings SF 00/03 and SF 00/05 destroyed

	Preliminary Cleansing and disinfection on holding SF 00/01 and SF 00/03. Customer Information Note CIN 2000/28) on exports of porcine germ plasm issued to exporters
12.08.00	CSF confirmed on rearing premises in Suffolk (Outbreak Ref.. SF 00/04) and Norfolk (Outbreak Ref.. SF 00/05) The Swine Fever Declaratory (No 3) and (No 4) Orders 2000/2200 and 2000/2201 made imposing 3 and 10 km protection and surveillance zones around infected premises SF 00/04 and SF 00/05. Pigs on holding SF/00/04 destroyed.
13.08.00	Preliminary cleansing and disinfection on holdings SF 00/04 and SF 00/05
14.08.00	Commission Decision 2000/515 banning live pig exports from England Customer Information Note CIN 2000/30 issued to exporters
15.08.00	Pigs on holding SF 00/02 destroyed All exporters of porcine semen with health certificates issued in the past 40 days telephoned and advised of Decision 2000/515
16.08.00	Preliminary cleansing and disinfection on holding SF 00/02
17.08.00	CIN 2000/28 put on MAFF Website. CENTAUR banner info on porcine semen prepared.

3. OUTBREAKS OF CLASSICAL SWINE FEVER IN SUFFOLK, NORFOLK AND ESSEX

3.1 Initial Detection of disease

3.1.1. A suspected case of Classical Swine Fever (CSF) in a pig herd was reported to the Ministry of Agriculture, Fisheries and Food (MAFF)'s Animal Health Divisional Office (AHDO) at Bury St Edmunds, Suffolk, England on Friday **4 August 2000**. A MAFF Veterinary Officer (VO) visited the premises the same day and after examining the pigs placed the holding under official veterinary control and took samples from 3 dead pigs and 6 live pigs for laboratory examination for CSF and African Swine Fever (ASF).

3.1.2. The herd comprised 3600 weaned pigs accommodated in 7 houses. Illness had existed on the farm since 11 July (3 weeks earlier) when weaned pigs had been introduced from a breeding/multiplier unit. Since that time infection had spread to 4 houses and at the time of the VO visit a total of 1250 pigs were ill or unthrifty and some 200 had died. The clinical signs observed were lethargy, yellow diarrhoea, inco-ordination, fever and excessive thirst. Skin lesions were also in evidence ranging from cyanotic patches on ears and abdomen to raised, scabby lesions mainly on the legs. Pigs thereafter became moribund and died. At necropsy, gross changes indicative of chronic pneumonia and chronic peritonitis were observed together with swollen pale kidneys and enlarged, sometimes haemorrhagic, sub maxillary lymph nodes. Up to the time of the VO inspection, Post Weaning Multisystemic Wasting Syndrome (PWMS) and Porcine Dermatitis Nephropathy (PDNS) had been suspected and symptomatic treatment administered accordingly

3.2 Laboratory diagnosis of disease

3.2.1. Samples taken: Pooled samples of tonsil, spleen, maxillary lymph node, mesenteric lymph node, spleen and ileum from 3 dead pigs and clotted blood samples from 6 in contact, live pigs were submitted to the Veterinary Laboratories Agency (VLA) , Weybridge Laboratory on 4 August for examination for CSF. At the same time, samples were also submitted to the Institute for Animal Health, Pirbright for examination for African Swine Fever (ASF).

3.2.2. Laboratory tests: Fluorescent antibody tests (FAT) on cryostat sections on each tissue pool were carried out on 5 August. The results were highly suspicious for CSF virus or another pestivirus.

3.2.3. Also on 5 August, samples from three tissue pools comprising tonsil plus maxillary LN (pool A), mesenteric LN plus spleen (pool B) and ileum (pool C) put onto PK15 cultures for virus isolation. 24-hour tissue cultures were stained on 6 August using the polyclonal conjugate for pestivirus supplied by ID-LDO Lelystad. Plaques of stained cells were observed in all test cultures. Positive control cultures were positive and negative control cultures were negative. On 7

August, 48-hr cultures were utilised for discriminatory typing using monoclonal antibodies. Each of the three organ pools scored positive for pestivirus and CSF virus but negative for border disease virus and bovine viral diarrhoea. Negative control cultures scored negative.

- 3.2.4. The six sera were examined for CSF antibodies using ELISA on 7 August. One serum was strongly positive, the other 5 were negative.
- 3.2.5. As CSF had not been diagnosed in the UK since 1986 or during the 1997/98 outbreak in the Netherlands, further confirmation of CSF was sought using RT-PCR to detect CSF antigen in blood, organ and tissue culture to confirm the virus' uniqueness and dissimilarity from laboratory strains of virus. The results subsequently confirmed the CSF virus isolated was not a laboratory strain.

3.3 Analysis of viral genome

- 3.3.1 In addition to the established diagnostic tests for the CSF virus, additional tests based on molecular genetic methods were carried out by the VLA Weybridge. This involved extraction of viral nucleic acid that was then amplified by PCR. Viral genome copies were then analysed to determine their nucleic acid sequence or "fingerprint". By comparison with other CSF viruses, it might then be possible to determine epidemiological links useful in tracing the spread of disease.
- 3.3.2 Viral nucleic acids were obtained from 3 pigs in the index case (SF 00/01). Analyses of one part of the viral genome showed an identical CSFV sequence for all three pigs. Further analyses suggested that the genotype of the isolate was 2.1. This is the same genetic group that was isolated during the CSF epizootic in the Netherlands, Belgium, Italy and Spain in 1997-98.
- 3.3.3 VLA Weybridge then sequenced DNA copies of the CSFV E2 gene from two of the pigs in the index case (SF 00/02). The E2 gene encodes the major viral glycoprotein, which due to immunological selective pressure in the host animal is the most variable part of the viral structural proteins. Consequently, the E2 gene contains some of the most variable nucleic acid sequences in the whole CSFV genome. This allows finer discrimination of closely related virus strains than can be obtained by comparing sequences from the more conservative 5'-untranslated region of the viral genome.
- 3.3.4 The E2 nucleic acid sequences from the two pigs on the index farm were identical. When compared with analogous sequences from all other available 2.1 isolates, either from the EU Community Reference Laboratory, Hanover's data base or those sequenced at the VLA Weybridge during previous genotyping research, it became clear that the current UK isolate could be distinguished from the genotype 2.1 isolates that caused the 1997/98 epidemic in Germany, The Netherlands, Spain and Italy. The GB isolate is more related to, but still not identical to viruses isolated from limited CSF outbreaks in Austria and

Switzerland in 1993 and in Italy in 1992 and 1995. Other differing 2.1 CSF viruses were isolated from Germany in 1989, in Malaysia in 1986 and in The Netherlands in 1992.

- 3.3.5 According to the EU CRL in Hanover, there have been no reports of other recent outbreaks of CSF in Europe caused by genogroup 2.1. Data for this year from Europe is not complete but the latest CSF virus isolate from the Rhineland Palatinate region in Germany in July was a genotype 2.3 virus. Thus it appears unlikely that the current GBCSF outbreak has been caused by the introduction of the CSF viruses known to be present in Western Europe. In the absence of further information on where genotype 2.1 strains currently are found, the VLA cannot this time, conclude what the exact source of the GB CSF virus is. However, analogous to the limited outbreaks in Austria and Switzerland in 1993, it might be a direct introduction of an Asian virus. Genotype 2.1 is probably indigenous to Asia and has previously been introduced to Europe, on one occasion being found in infected wild boar meat from China.
- 3.3.6 The virus and VLA's sequencing data has been passed to the EU CRL for CSF at Hanover.

3.4 Action taken following confirmation of disease

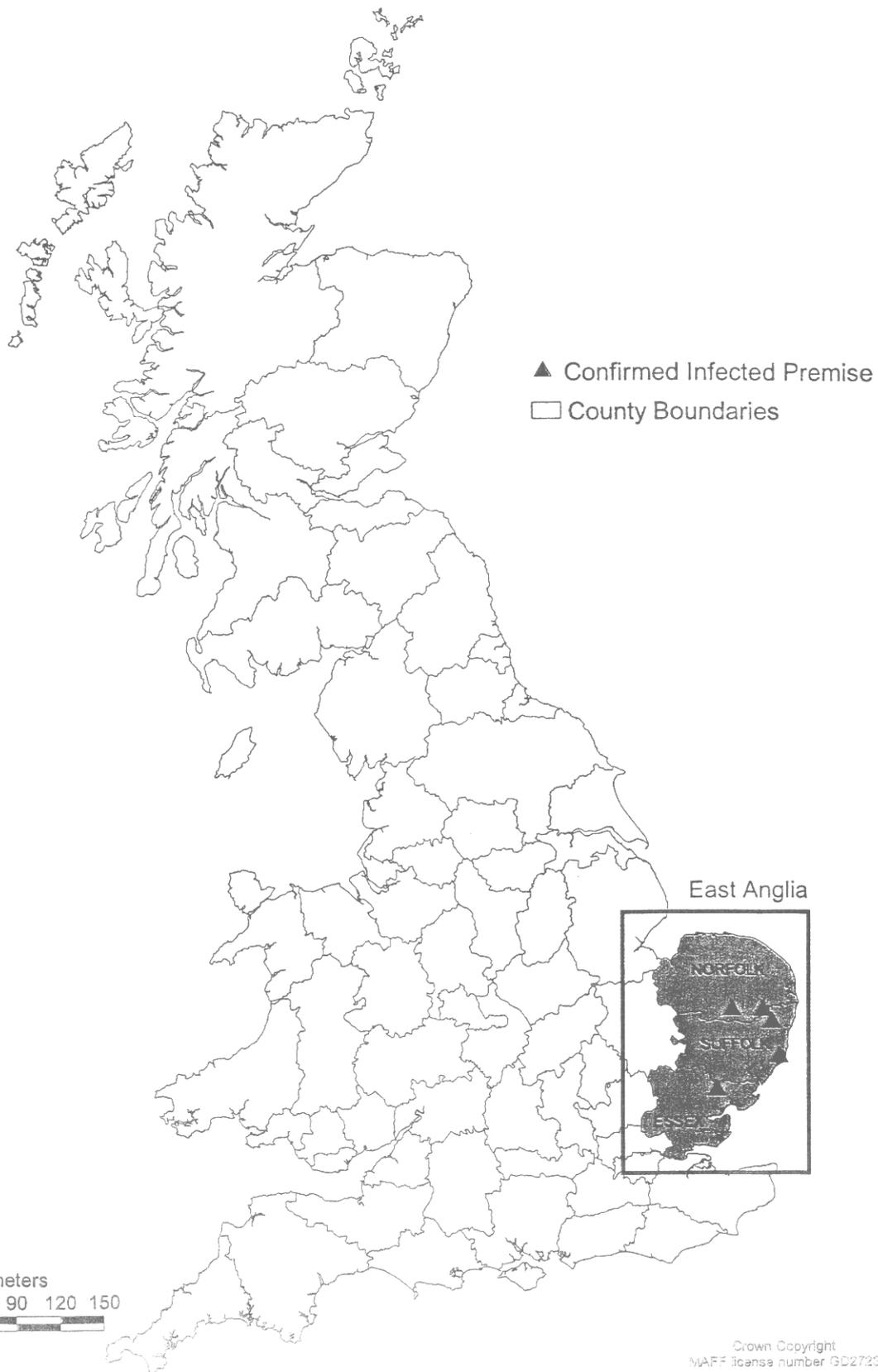
- 3.4.1 On **8 August**, an outbreak of CSF (Ref.. SF 00/01) in Great Britain was declared by the Chief Veterinary Officer, James Scudamore. The EU Commission was immediately informed by fax. National and local crisis centres were established at the headquarters of the MAFF State Veterinary Service in London and at the Bury St Edmunds AHDO, to oversee and direct subsequent action to deal with the outbreak.
- 3.4.2 **The Swine Fever Declaratory Order 2000/2153** was made on **8 August** imposing 3/10-km protection and surveillance zones around infected premises SF 00/01 and banning movement of all livestock on to/off of premises where pigs are kept, transporting any material (feedingstuff, manure, slurry etc) likely to be contaminated with CSF except under official licence, movement of any vehicle for transporting pigs or other livestock except under licence and holding markets, fairs etc for pigs. In addition, owners of premises where pigs are dead or diseased are required to report the same to MAFF. All the 3,600 pigs on the holding were killed on 10 August and their carcasses destroyed by rendering. Preliminary cleansing and disinfection of the holding was undertaken on 11 August.
- 3.4.3 Maps showing the location of infected holding in Great Britain and the protection and surveillance zones established around it, are at Figures 1 and 2. Details of the action taken in respect of this holding are provided at Section 7 of this report.

3.5 Subsequent outbreaks

- 3.5.1 Following the initial report of suspected CSF on 4 August, two further suspect cases were reported on **7 August**. One was in a herd of rearing pigs where the veterinary surgeon had diagnosed PMWS/PDNS but where the mortality was higher than normal. The second was in the breeding herd that had supplied weaned pigs to the other two suspect CSF incidents. Both herds were immediately placed under official veterinary control and tissue and blood samples sent to the VLA for laboratory examination. On the basis of positive FAT cryostat and 24 hour tissue culture results, CSF was officially confirmed in both herds on **9 August (Outbreak Ref. 00/02 breeding herd and Outbreak. 00/03 rearing herd)**. Two new **Swine Fever Declaratory Orders (Nos. 2000/2178 and 200/2179)** imposing 3-km protection zones and 10-km surveillance zones around both infected premises were made that day. The pigs from these herds were killed on 16 August (Ref. SF 00/02) and 11 August, and their carcasses destroyed by rendering. Tracing the movements of pigs, feedingstuffs, vehicles and people onto and off the premises was initiated to identify possible sources and spread of infection. Preliminary cleansing and disinfection of these premises was completed on 16 August (Ref. SF 00/02) and 11 August (Ref. SF 00/03).
- 3.5.2 Maps showing the location of these infected holdings and the protection and surveillance zones established around them shown in Figures 1 and 2. Details of the action taken in respect of this holding are provided at Section 7.
- 3.5.3 On **8 and 9 August**, further suspect cases of CSF were reported from two rearing premises Suffolk and Norfolk. Both had received weaned pigs from the infected holding Ref. 00/02. On the basis of positive FAT cryostat and 24 hour tissue culture results, CSF was officially confirmed in both herds on **12 August (Outbreak Ref. 00/04 and Outbreak Ref. 00/05)**. Two new **Swine Fever Declaratory Orders (Nos. 2000/2200 and 200/2201)** imposing 3-km protection zones and 10-km surveillance zones around both infected premises were made that day. The pigs from these herds were killed on 12 August (Ref. SF 00/04) and 11 August (Ref. SF 00/05) and 11 August, and their carcasses destroyed by rendering. Tracing the movements of pigs, feedingstuffs, vehicles and people onto and off the premises was initiated to identify possible sources and spread of infection. Preliminary cleansing and disinfection on both premises was completed on 13 August.
- 3.5.4 Maps showing the location of these infected holdings and the protection and surveillance zones established around them shown in Figures 1 and 2. Details of the action taken in respect of these holdings is provided at Section 7 of this report.

Location of CSF Outbreak in Great Britain

Date: 21/08/00



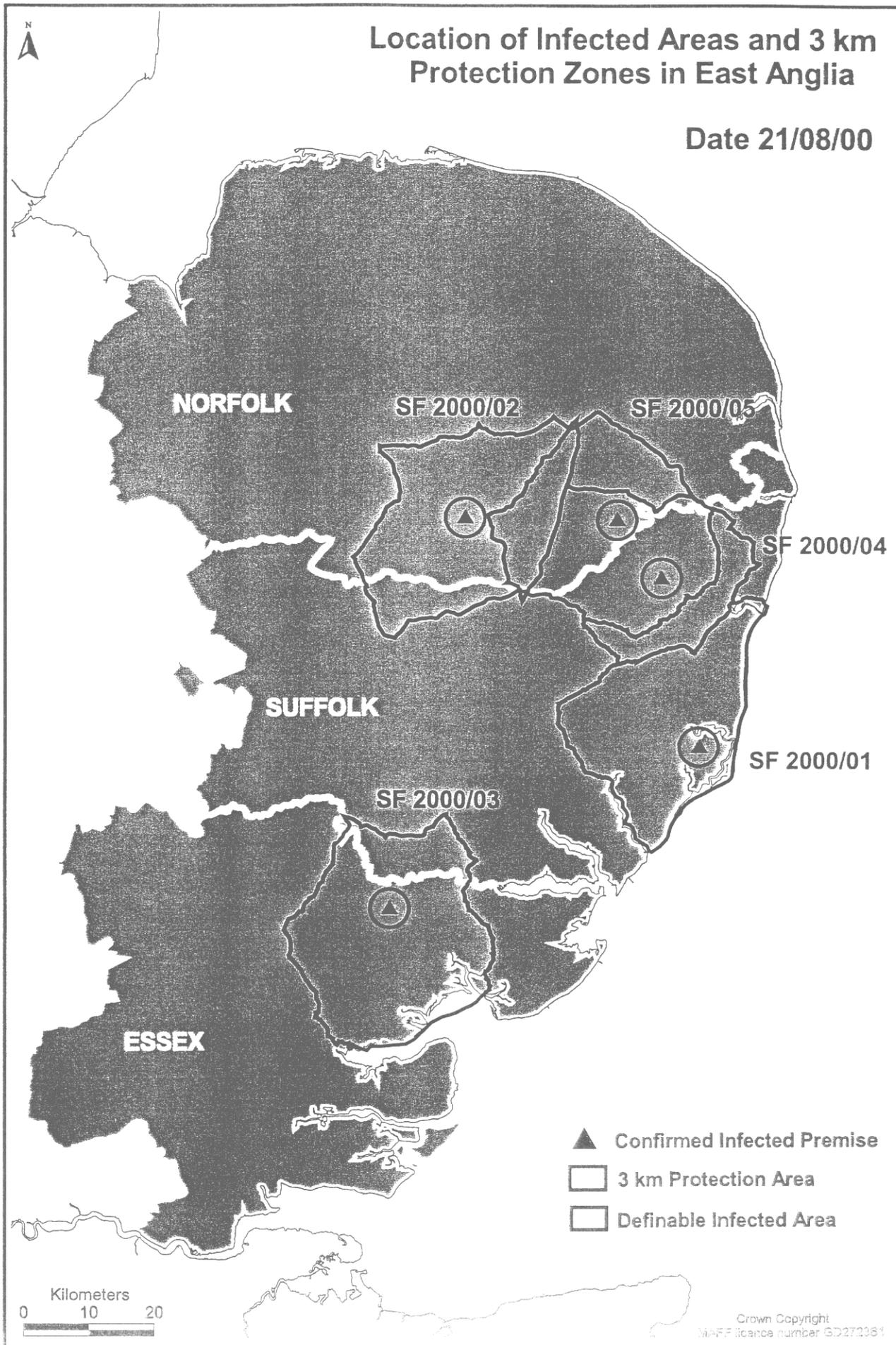
East Anglia



Kilometers
0 30 60 90 120 150

Location of Infected Areas and 3 km Protection Zones in East Anglia

Date 21/08/00



4. EPIDEMIOLOGY AND SUBSEQUENT ACTION

4.1 Epidemiological enquiry

4.1.1 The epidemiological enquiry initiated immediately following diagnosis of CSF in the breeding herd (Ref. 00/02) revealed that infection may have been present on the premises in mid-June.

4.1.2 According to the veterinary surgeon attending the holding, when he visited on 19 June apart from signs of mild heat stress there was nothing to suggest CSF and mortality in the piglets was less than 9%. However, the owner subsequently noted that three sows were off colour and a few pigs were lighter than normal. He put this down to a summer drop in weaning weights. There was no increase in piglet mortality. On 17 July, the owner reported that more sows not eating and some weaner pigs were coughing, some were scouring and losing condition. The veterinary surgeon considered PRRS with/without swine influenza a possibility and advised on treatment. By 4 August, the sows appeared better but a few had developed nasal discharges. Scouring was worse in the weaners and growers where some had pneumonia and some had died. By 7 August, the clinical condition of the pigs had deteriorated and a large number of weaners and growers had died. There was increase in the number of still births, profuse yellow diarrhoea, widespread respiratory signs, hyperaemia and cyanosis of ears, back and rump, pyrexia and inco-ordination. One sow and a boar had also died.

4.2 Integrated production/breeding company

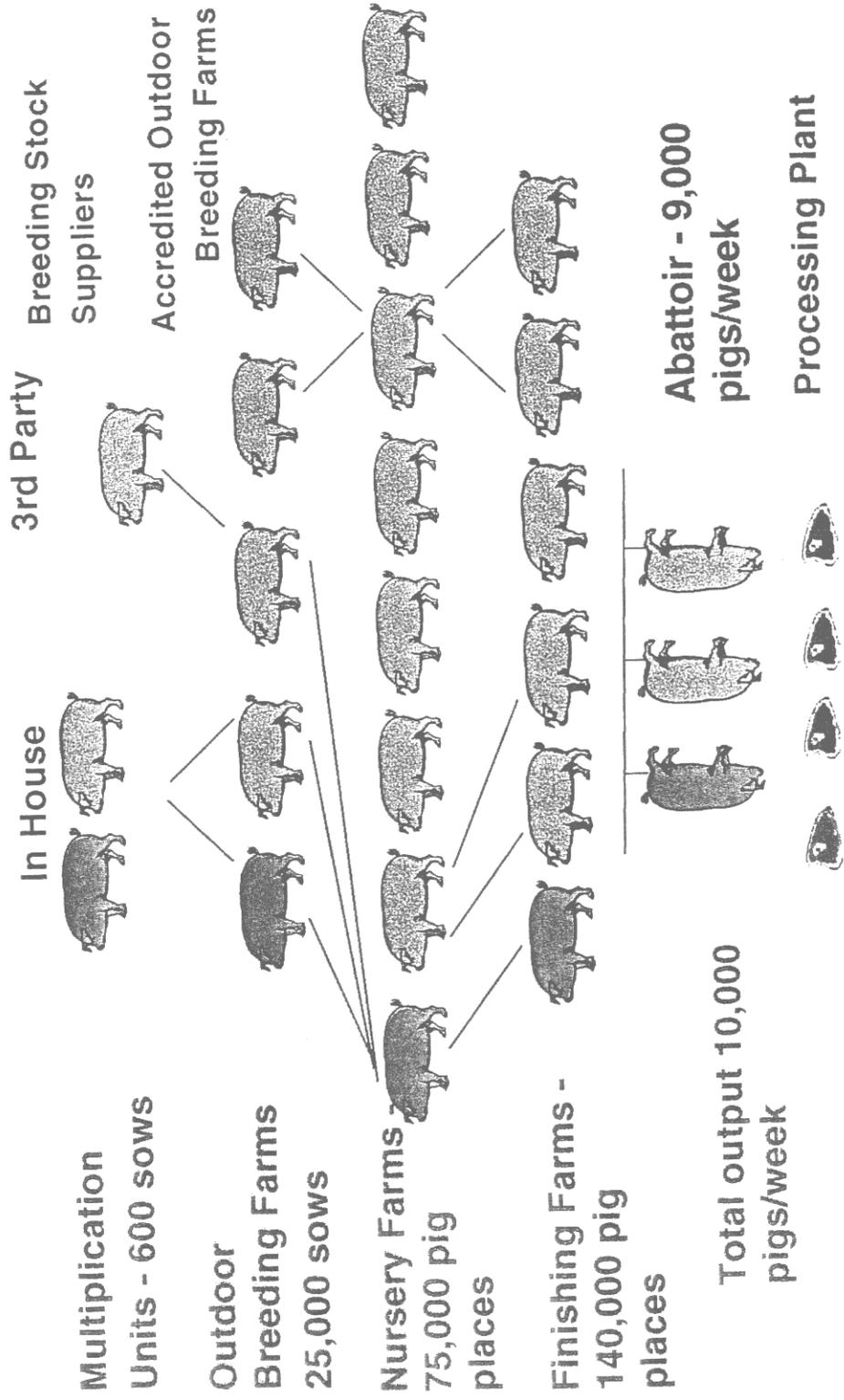
4.2.1 The owner of herd Ref. SF 00/02 was contracted to supply an integrated breeding production company with *rearing stock*.

4.2.2 This company owned a number of breeder/multiplier units but also sourced its breeding stock from a number of outside suppliers. Breeding stock from these primary multiplier units were supplied to 48 breeding farms, 45 of which were owned by the company. The remaining 3 outdoor breeding herds were health accredited and privately owned. These in turn supplied weaned pigs to 75 nursery farms that in turn supplied 130 finishing/fattening units. Diagrams showing the production system and location of the various breeding/rearing and finishing farms are provided at Figures 3,4,5 and 6. The company had good tracing records both with regard to the supply of pigs to its farms and movements of vehicles and people onto and off its premises.

4.3 Epidemiological hypothesis

4.3.1 Armed with this information, the following epidemiological hypothesis was created as a basis for immediate action. This action was additional to the normal inquiries that would take place consequent (a) upon tracing movements of livestock, people and vehicles etc onto and off the infected holdings and (b) as a result of further suspect cases of CSF being reported to MAFF.

Production System



Health Streaming System

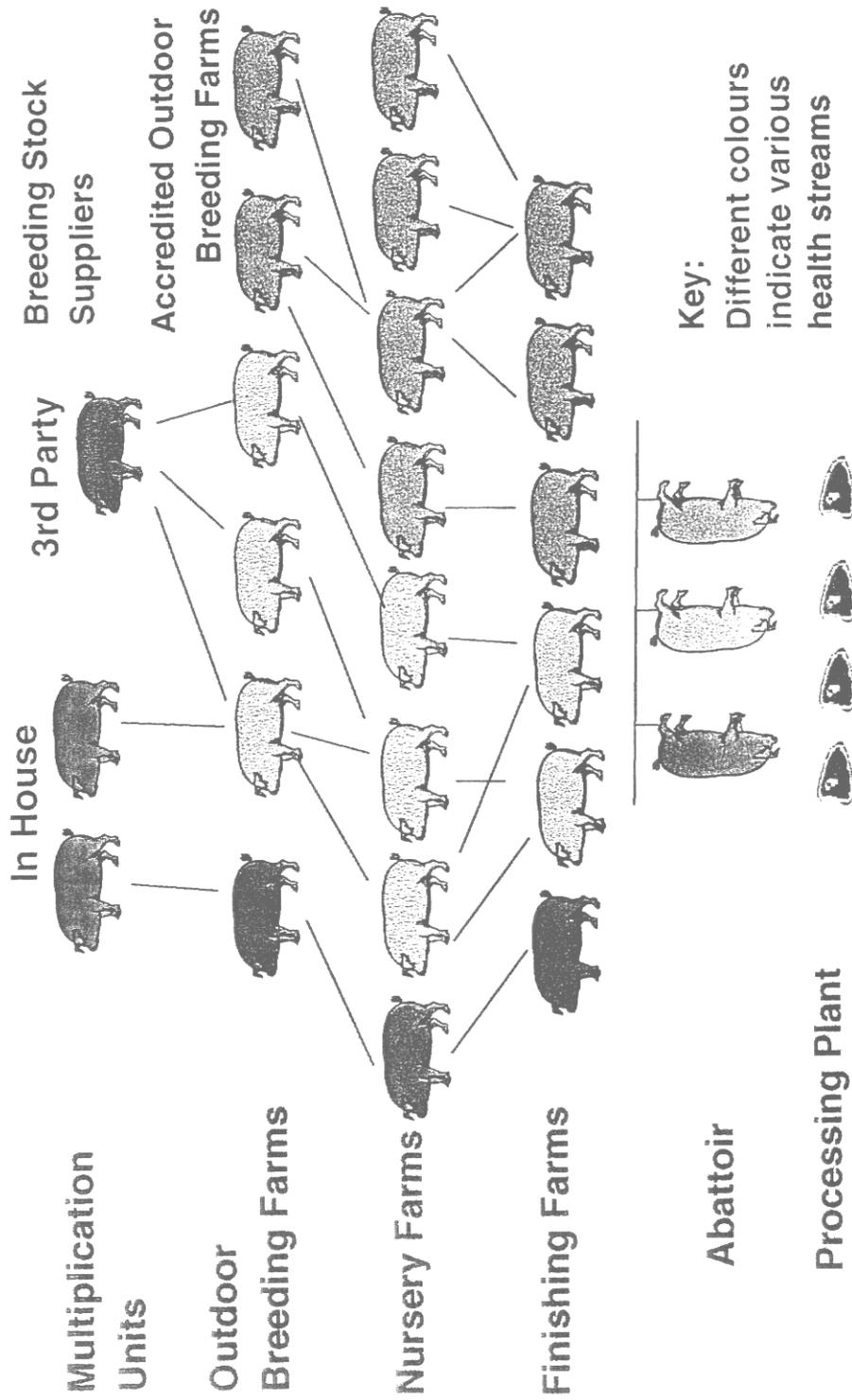


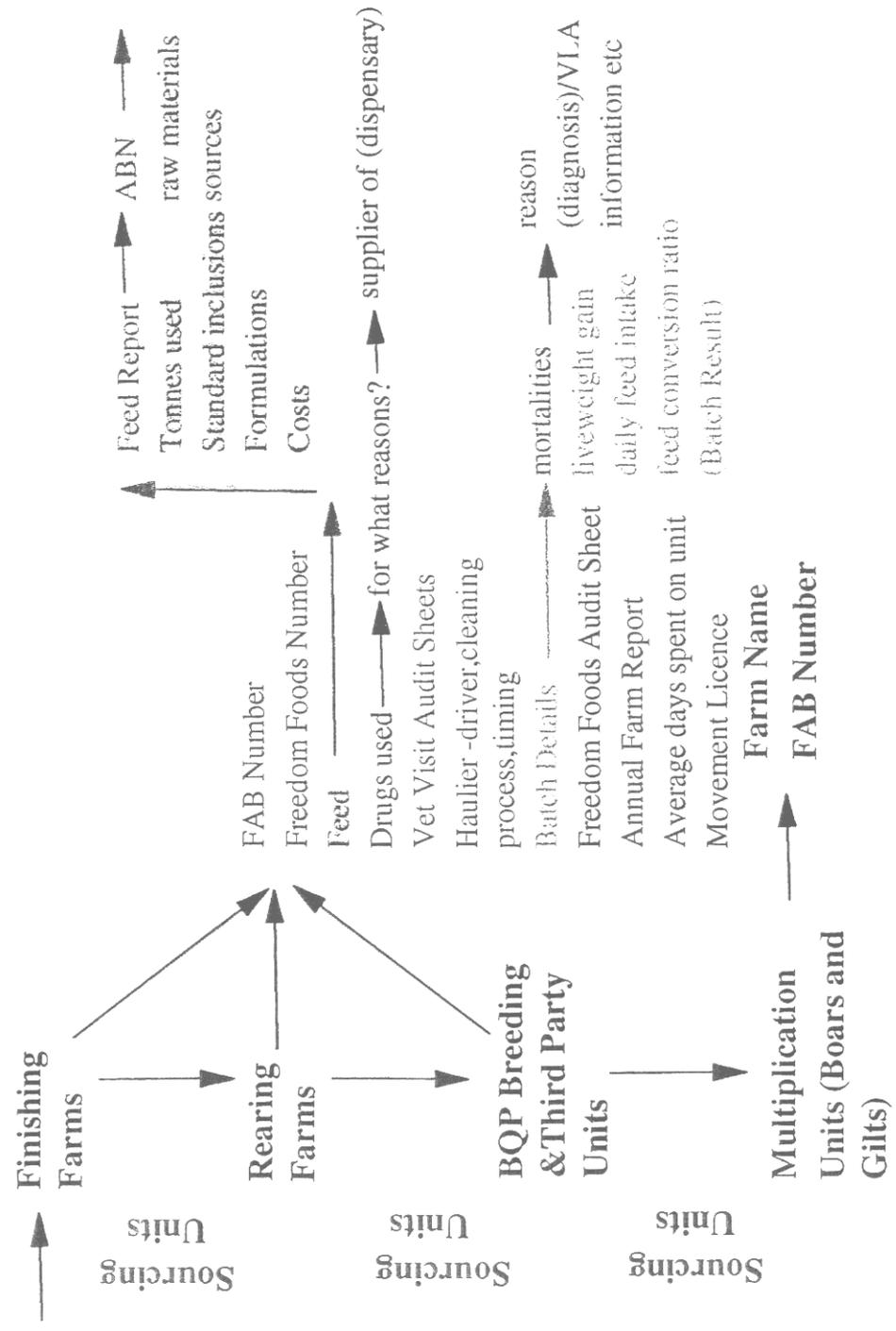
FIG 4

Summary of Farm Distribution by County

FIG 5

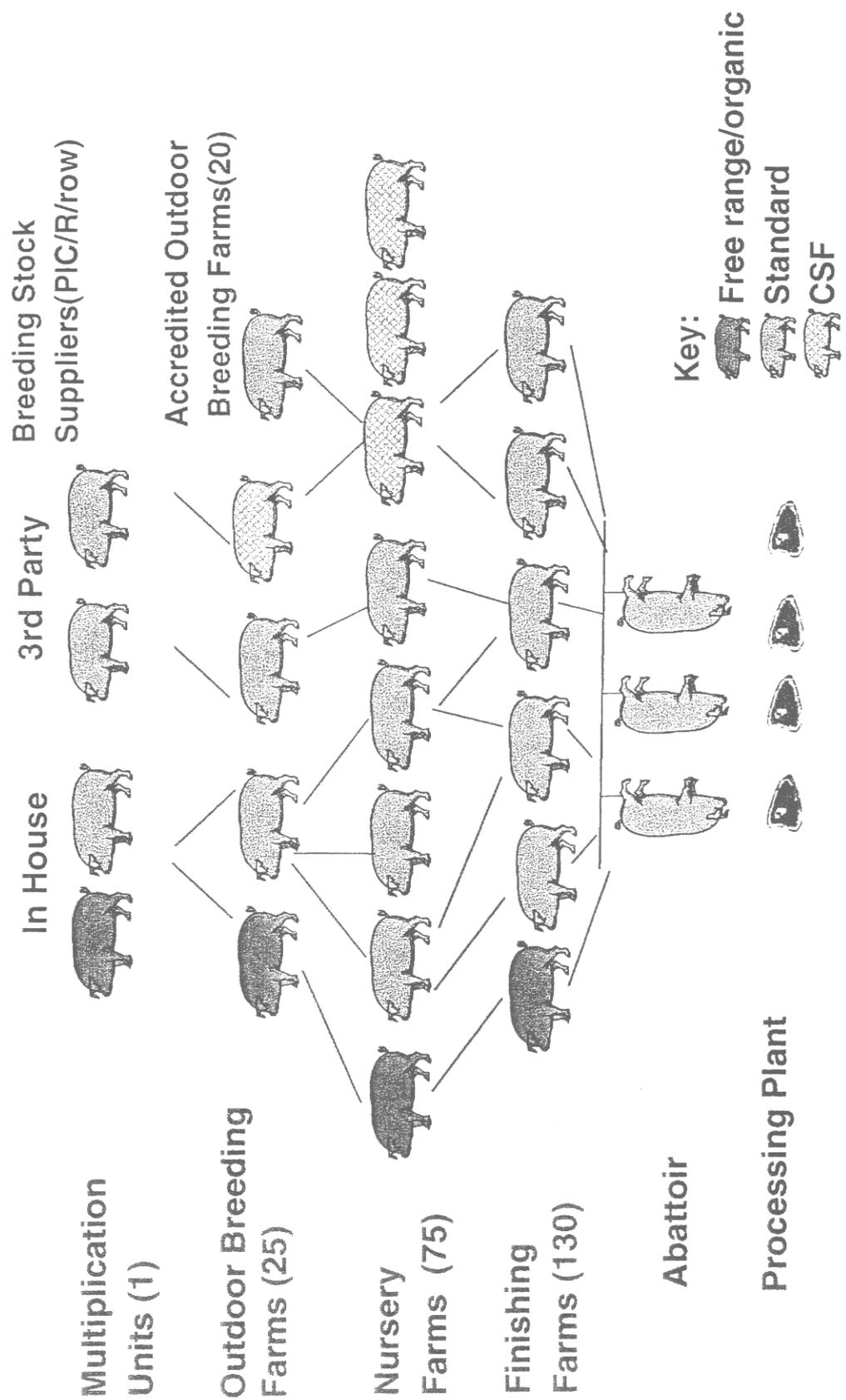
Breeding farms:	Norfolk	20
	Suffolk	16
	Bedfordshire	2
	Devon	1
	Yorkshire	1
	Hampshire	1
	Nottinghamshire	1
Wiltshire	1	
Nursery farms:	Norfolk	36
	Suffolk	26
	Bedford	1
	Essex	2
Finishing farms:	Norfolk	60
	Suffolk	46
	Essex	6
	Beds	1
	Cambs	2
	Yorks	1
	Lincs	1
	Notts	3
	Oxon	2

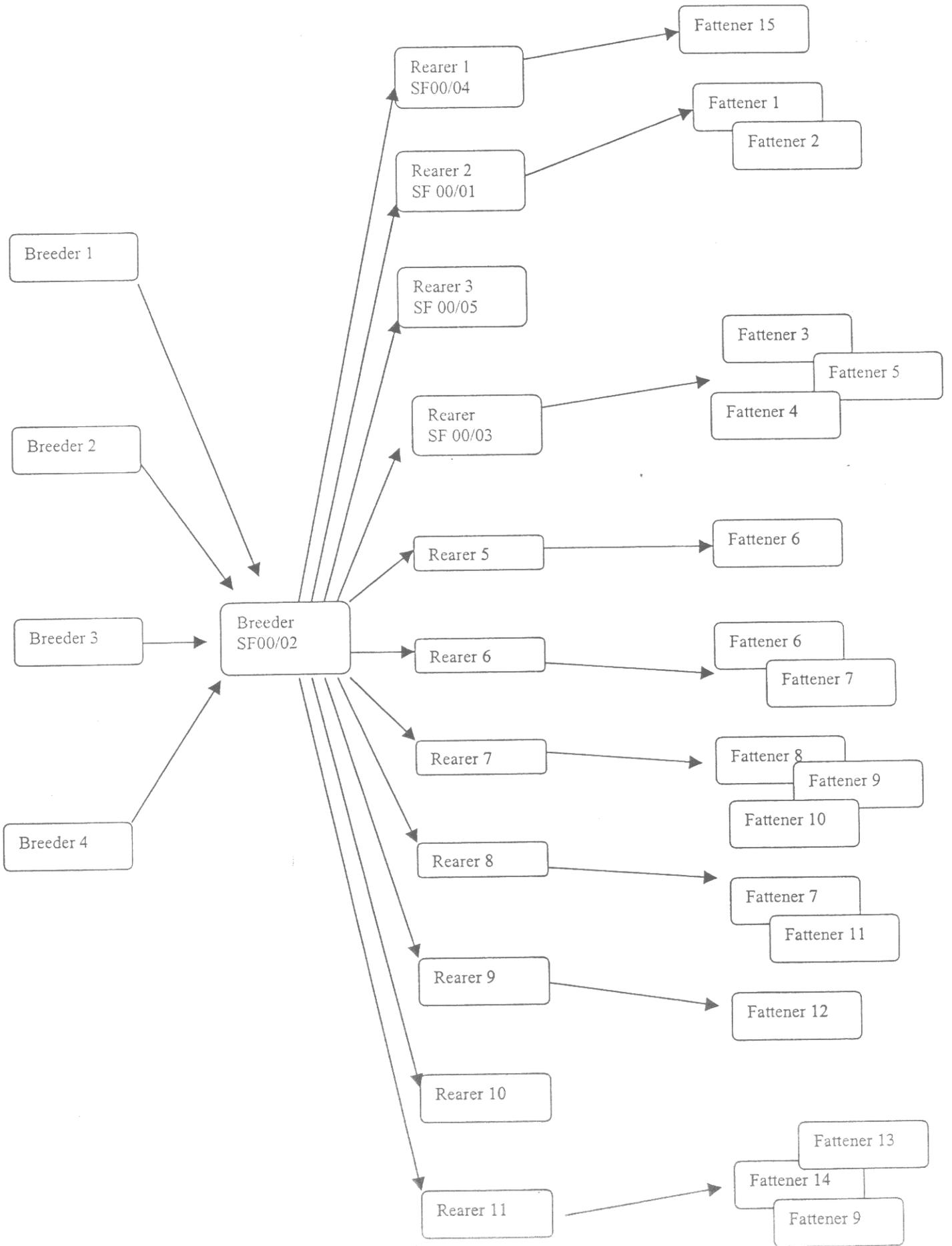
Traceability



- 4.3.2 The breeding unit (Ref. SF 00/02) was assumed to have been the source of infection for incidents Ref. SF 00/01, Ref. SF 00/03, Ref. SF 00/04 and Ref. SF 00/05. Conservatively, CSF virus was assumed to have entered the breeding unit (SF 00/02) on 1 May. Pigs were born on breeding units and remained there for approximately 3- 4 weeks before being moved to rearing premises where they remained for a further 6-8 weeks. From the rearing units, the pigs moved to fattening units where they remained for a further 10 weeks before being slaughtered. The total production cycle lasted 20 – 22 weeks. The company operated an all in/all out system for its rearing and fattening units. Thus pigs born on the breeding unit after 1 May would still be within the production system and would not be slaughtered until mid-September.
- 4.3.3 All 11 rearing and the 15 fattening premises which had received pigs born after 1 May from SF 00/02 would be placed under official veterinary control with immediate effect. The pigs on these premises would be clinically inspected and blood sampled to test for evidence of CSF. Within this overall plan, all the pigs on rearing/fattening premises that had received pigs from SF 00/02 born after 1 June would be treated as “dangerous contacts” and would be destroyed. The vast majority were expected to still be on rearing premises.
- 4.3.4 It was established that SF 00/02 had been supplied with breeding stock from 4 primary multiplier herds since 1 May. These would be placed under official veterinary control, be clinically inspected by a MAFF VO and blood sampled for evidence of CSF.
- 4.3.5 The other 47 breeding herds owned by or contracted to the breeding/production company would be traced, placed under official veterinary control, be inspected by a MAFF VO and blood sampled for evidence of CSF.
- 4.3.6 The movements of the vehicle that transported weaned pigs from SF 00/02 would be traced and all the premises it visited would be placed under official veterinary control, be clinically inspected by a MAFF VO and blood sampled for evidence of CSF. It transpired that since 1 May, one transport company had collected pigs from SF 00/02 on Mondays. After delivering them to the 11 rearing premises (see para 4.3.3 above) it was cleaned and disinfected before collecting weaned pigs from two other breeding company for delivery to other rearing premises
- 4.3.7 A diagram indicating the movement flows is at Figs 7 and 8.

Classical Swine Fever Breakdown





5. POSITION AS AT 20 AUGUST 2000

5.1 Confirmed outbreaks of CSF

5.1.1 CSF has been confirmed on 5 premises to 21 August. Details are contained in the following table.

Table 1: Number of confirmed outbreaks of CSF and their location

Outbreak No	Location	Date confirmed	Primary/Secondary	Link	No pigs	Type
SF 00/01	Suffolk	08.08.00	Secondary	SF 00/02	3,600	Rearer
SF 00/02	Norfolk	09.08.00	Primary		1,757	Breeder
SF 00/03	Essex	09.08.00	Secondary	SF 00/02	923	Rearer
SF 00/04	Suffolk	12.08.00	Secondary	SF 00/02	2,574	Rearer
SF 00/05	Norfolk	12.08.00	Secondary	SF 00/02	833	Rearer

5.2 Pig holdings within 1 km radius of each confirmed CSF outbreak

5.2.1 Maps showing the 3-km and 10-km protection and surveillance zones established around each infected premises and the location of pig holdings within these zones and within 1-km radius of each infected holding are shown in Figures 7, 8, 9, 10 and 11. There is one pig holding within a 1-km radius of SF00/01, 2 within a 1-km radius of SF 00/02, none within a 1-km radius of SF 00/03, 1 within a 1-km radius of SF 00/04 and 2 within a 1-km radius of SFD 00/005. Details are provided in Section 7.

5.3 Pig holdings in the protection and surveillance zones established around each confirmed CSF outbreak

5.3.1 Maps showing the 3-km and 10-km protection and surveillance zones established around each infected premises and the location of pig holdings within these zones shown in Figures 7 – 11. The number of holdings within each of the zones associated with a CSF infected holding is summarised in the following table

Table 2: Number of protection and surveillance zones and pig herds within them

Outbreak No	1-km of holding	^{Rest of} 3-km Protection zone	10-km Surveillance Zone	10-km to boundary of Surveillance Zone	Total Herds
SF 00/01	1	4	43	107	155
SF 00/02	2	20	170	196	388
SF 00/03	0	7	50	59	116
SF 00/04	1	15	132	177	325
SF 00/05	2	16	124	284	426

5.4 Pig holdings which are under official veterinary control because they have potential links to the CSF infected holdings.

5.4.1 An analysis of these holdings and the present state of the investigations on them, is provided below and in Table 3. A flow chart of premises linked to the infected breeding holding SF00/02 is at Figure

Primary/multiplier breeding premises that supplied the CSF infected breeding holding SF00/02 with pigs

5.4.2 Four primary breeding herds were found to have supplied breeding stock to SF 00/02 after 1 April. All have been traced and the pigs on the farms clinically inspected by a MAFF VO. There was no evidence of clinical illness on any of the farms. Blood samples taken from the pigs to test for evidence of CSF have so far given negative results.

Rearing nursery premises that received weaned pigs from CSF infected breeding holding SF00/02 after 1 May and before 1 June 2000

5.4.3 Four (4) rearing premises were traced which had received pigs from SF00/02 between 1 May and 1 June 2000. All the holdings are under official veterinary control pending the outcome of laboratory tests for CSF.

5.4.4 Seven rearing premises received weaned pigs born after 1 June from SF 00/02. Five (5) were killed as "dangerous contacts" and after laboratory testing CSF was confirmed in 4/5 (SF 00/01, SF 00/03, SF 00/04 and SF 00/05). CSF was not confirmed in 1/5. Two (2) holdings had been depopulated, cleaned and disinfected and then restocked before the official VO visit following confirmation *on SF00/02*. The pigs currently on these premises remain under official veterinary control and will be tested for serological evidence of CSF after 30 days.

Fattening/finishing premises that received pigs from CSF infected holding SF 00/02 or from the 11 rearing premises supplied by SF 00/02

5.4.5 Fifteen fattening premises had received pigs from holding SF00/02 after 1 May. All remain under official veterinary control pending the outcome of serological testing for CSF.

Other breeding herds owned by the production/breeding company

5.4.6 The breeding/production company in whose herds CSF has been confirmed, own or are supplied by 48 breeding farms including SF00/02. Forty two (42) of these herds are in East Anglia. All have been officially inspected, placed under official veterinary control pending the outcome of serological testing for CSF.

Other holdings where holdings under official control awaiting the outcome of laboratory tests for CSF

5.4.7. A further 22 holdings have been placed under official veterinary control, awaiting the outcome of laboratory tests for CSF, because the owner or his/her veterinary surgeon has reported illness in pigs and where the clinical picture is such that the possibility of CSF cannot be ruled out. None have any direct or indirect links to SF00/02 or rearing/finishing premises supplied by it. The following table summarises information about these holdings .

Table 3: Number of premises under (Form A) restriction as suspect CSF

Incident No	Location	Primary/ secondary/ New	Date first restricted	Reported by or possibly linked to	No of pigs	Type of unit
SFR 00/15	Suffolk	New	11.08.00	VLA Bury		Breeder
SFR 00/16	Essex	New	11.08.00	Private Vet.	463	Fattener
SFR 00/23	Norfolk	New	14.08.00	OVS	1	Abattoir
SFR 00/24	Suffolk	New	14.08.00	Tracing from SFR 00/23	3200	Fattener
SFR 00/25	Essex	New	15.08.00	Possible link to SF00/03	137	Mixed
SFR 00/26	Lancashire	New	15.08.00	Private Vet	2100	Fattener
SFR 00/27	Norfolk	New	15.08.00	OVS	1	Abattoir
SFR 00/28	Kent	New	15.08.00	OVS	1	Abattoir
SFR 00/29	Norfolk	New	15.08.00	Private Vet	1	Breeder
SFR 00/30	Norfolk	New	15.08.00	Private Vet	1087	Fattener
SFR 00/31	Lincolnshire	New	16.08.00	Private Vet	?	Fattener
SFR 00/32	Suffolk	New	16.08.00	Private Vet	2000	Fattener
SFR 00/33	Suffolk	New	16.08.00	Private Vet	100	Farmed boar
SFR 00/34	Suffolk	New	16.08.00	Private Vet	1314	Breeder
SFR 00/35	Suffolk	New	16.08.00	Private Vet	1969	Breeder
SFR 00/36	Hampshire	New	16.08.00	Private Vet	?	Fattener
SFR 00/37	Dorset	Linked to SFR 00/28	17.08.00	Private Vet	17	Mixed
SFR 00/38	Suffolk	Linked to SFR 00/27	16.08.00	Private Vet	1446	Fattener
SFR 00/39	Suffolk	New	16.08.00	Private Vet	2670	Fattener
SFR 00/40	Norfolk	New	17.08.00	VO	1500	Mixed
SFR 00/41	Suffolk	New	17.08.00	Private Vet		
SFR 00/42	Norfolk	New	17.08.00	Private Vet	116	Rearer

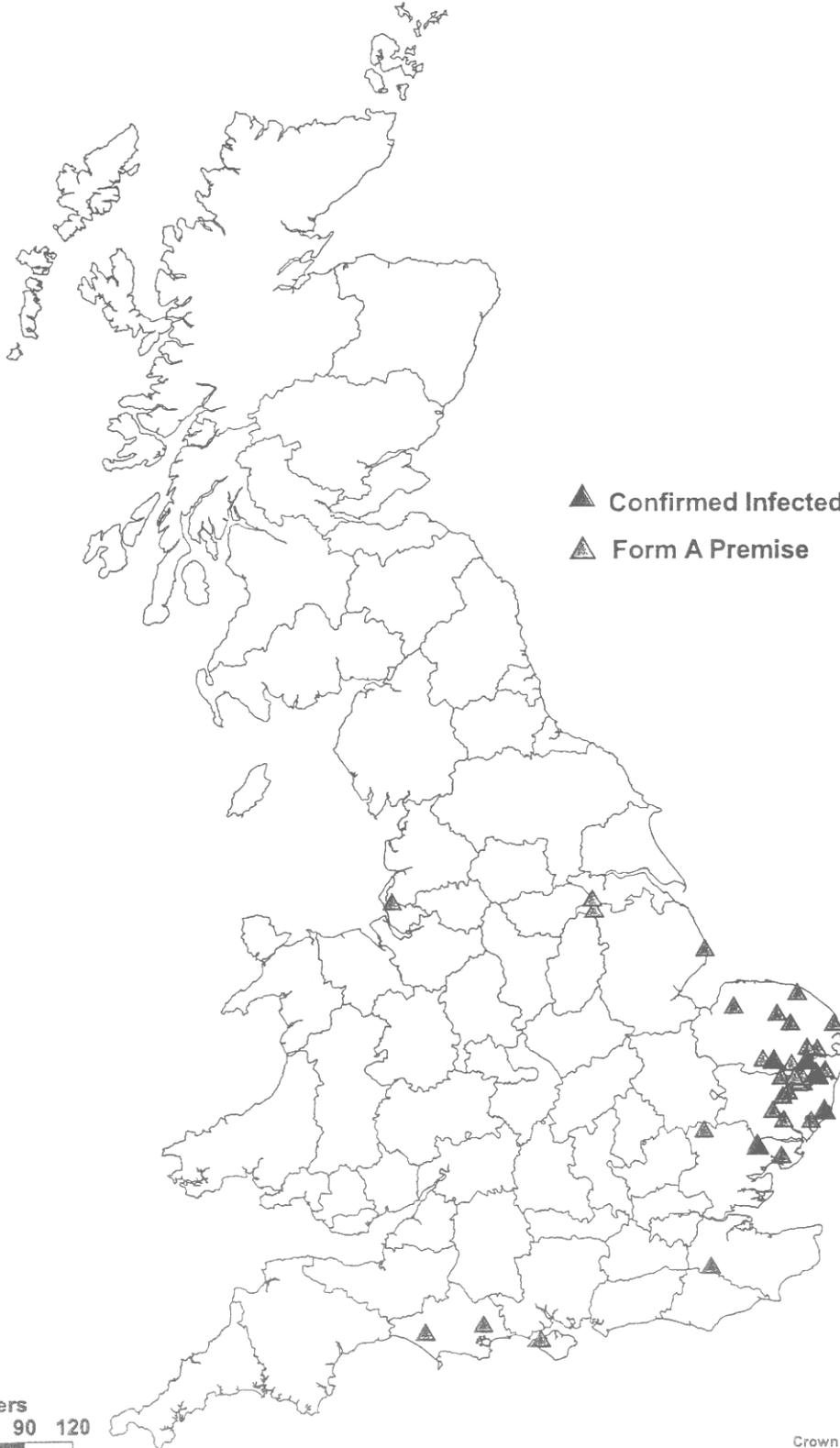
5.5 Epidemiological enquiry into the origin of CSF infection on SF 00/02

5.5.1 The epidemiological inquiry is continuing and evidence amassed to date continues to suggest that primary infection occurred in this breeding on or before 15-June-00. Initial examination of the breeding and production records has shown evidence of severe illness in a single sow and her litter on the 21-June-00. These records are being examined in more detail to relate these observations to the results of virological examination of some animals and serological examination of the entire adult breeding herd that was undertaken at the time of depopulation.

5.5.2 Direct and indirect contacts between this farm and potential sources of introduction such as new stock, livestock lorries, feed lorries, personnel, visitors etc continue to be investigated. Procedures adopted include

Location of Infected Premises and Form A Premises

Date 21/08/00



Kilometers
0 30 60 90 120

imposition of official movement restriction, clinical inspection and serological sampling of all associated pig herds.

- 5.5.3 To date no evidence of Classical Swine Fever has been found and the pattern of disease in the rearing units supplied by the infected breeding herd suggests that disease entered this herd in the second week of June 2000.

6. PIG PRODUCTION IN EAST ANGLIA

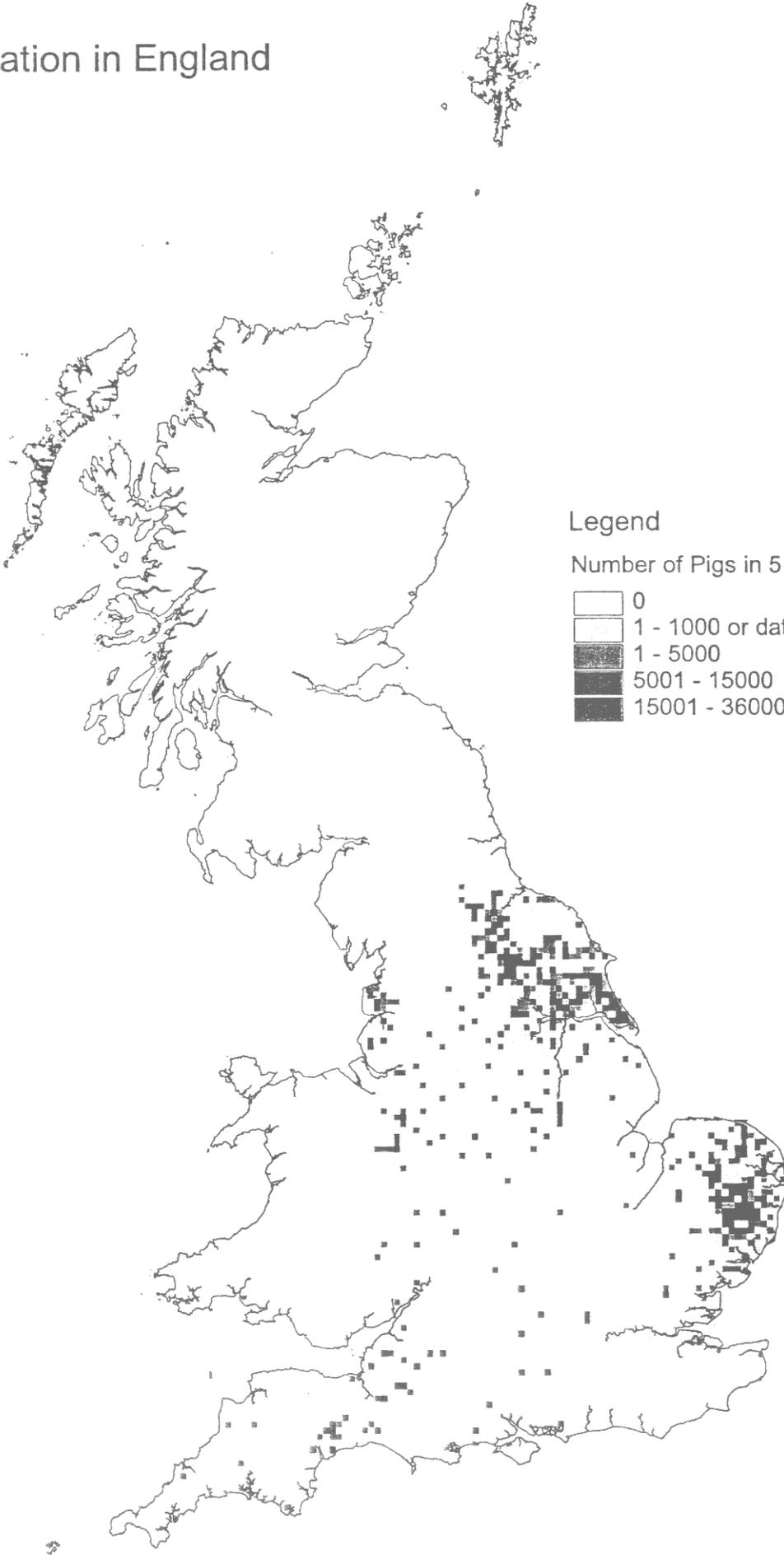
6.1 The following tables show the numbers of pigs and farms with pigs in the counties of Norfolk, Suffolk, Cambridgeshire, Essex and Hertfordshire, which together make up the Region of East Anglia, expressed as a percentage of the totals in East Anglia and in England as a whole.

BREEDING PIGS						
County	By county		In East Anglia		In England	
	Farms	No of Pigs	Percentage of Farms	Percentage of pigs	Percentage of farms	Percentage of Pigs
Norfolk	308	63,228	36.0%	41.3%	4.6%	9.3%
Suffolk	289	68,076	33.8%	44.5%	4.3%	10.0%
Cambridge	92	8,302	10.7%	5.45	1.4%	1.2%
Essex	127	9,826	14.8%	6.4%	1.9%	1.4%
Hertford	40	3,660	4.7%	2.4%	0.6%	0.5%
EAST ANGLIA	856	153,092	100.0%	100.0%	12.9%	22.5%
ENGLAND	6650	679,062			100.0%	100.0%

FATTENING PIGS						
County	By county		In East Anglia		In England	
	Farms	No of Pigs	Percentage of Farms	Percentage of pigs	Percentage of farms	Percentage of Pigs
Norfolk	595	553,697	40.1%	38.1%	6.6%	9.9%
Suffolk	540	716,167	36.4%	49.3%	6.0%	12.8%
Cambridge	118	73,265	8.0%	5.0%	1.3%	1.3%
Essex	178	95,650	12.0%	6.6%	2.0%	1.7%
Hertford	53	13,385	3.6%	0.9%	0.6%	0.2%
EAST ANGLIA	1,484	1,452,164	100.0%	100.0%	16.5%	26.0%
ENGLAND	8981	5,584,298			100.0%	100.0%

TOTAL PIGS						
County	By county		In East Anglia		In England	
	Farms	No of Pigs	Percentage of Farms	Percentage of pigs	Percentage of farms	Percentage of Pigs
Norfolk	636	617,081	39.4%	21.4%	6.0%	9.9%
Suffolk	570	784,105	35.3%	27.2%	5.4%	12.5%
Cambridge	136	81,004	8.4%	2.8%	1.3%	1.3%
Essex	207	617,081	12.8%	21.4%	2.0%	9.9%
Hertford	67	784,105	4.1%	27.2%	0.6%	12.5%
EAST ANGLIA	1616	2,883,376	100.0%	100.0%	15.3%	46.1%
ENGLAND	10,543	6,257,462			100.0%	100.0%

Pig Population in England



Legend

Number of Pigs in 5 x 5 km square

-  0
-  1 - 1000 or data not disclosable
-  1 - 5000
-  5001 - 15000
-  15001 - 36000

0 20 40 60 80 Miles

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Summary

As of 20 August:

- a. CSF was confirmed, in one breeding herd (SF 00/02) and 4 in rearing herds (SF 00/01, 00.03, 00.04 and 00.05) between 8 and 12 August. No cases of CSF have been confirmed since 12 August.
- b. 3-km and 10-km protection and surveillance zones have been established around each of the 5 confirmed cases. There are a total of 68 pig holdings in the 5 Protection Zones and 1342 herds in the 5 Surveillance Zones
- c. Epidemiological investigations suggest that infection may have entered the breeding herd SF 00/02 in early to mid June and have been spread through movement of pigs born after this date to rearing and fattening units in the production pyramid. The system of production is such that all pigs infected by this route should still be alive in the production system.
- d. In addition to the four rearing herds in which CSF was confirmed, a further 3 were found to have received pigs from the primary case after 1 June. Two had been restocked and remain under official veterinary control pending serological testing of the pigs presently on the holding. One was killed out but virological and serological testing of samples taken before depopulation have proved negative for CSF. A further 4 herds which received pigs born between 1 May and 1 June have been placed under official veterinary control and are being test for CSF.
- e. 15 fattening herds have also received pigs from the primary case. These have been officially inspected, placed under official veterinary control awaiting the outcome of laboratory testing for CSF.
- f. Five primary breeding herds which supplied pigs to the primary case after 1 May have been tested for CSF. No evidence of CSF was observed in these herds and all were CSF negative on serological examination.
- g. Forty seven breeding herds owned by or contracted to the breeding/production company have been identified. All have been placed under official veterinary control awaiting the outcome of serological testing for CSF.

DETAILED REPORT ON CLASSICAL SWINE FEVER

OUTBREAK SF 00/01

1. Location

District: Woodbridge,
County: Suffolk
MAFF AHDO: Bury St Edmunds

2. Type and Size of Farm

Total No. of pigs: 3,606
No of breeding pigs: 0
No of rearing pigs: 3,606 Age: 4-14 weeks in 7 houses
No. of fattening pigs: 0

3. Suspicion of disease

Date of suspicion: 4 August 2000
Reported by whom: Company veterinary surgeon

No of sick/dead pigs: 1250
No healthy pigs: 2356

Clinical signs: lethargy, yellow diarrhoea, inco-ordination, fever, excessive thirst, cyanosis of skin particularly ears and abdomen

Post mortem examination: Chronic pneumonia and peritonitis, multifocal petechial haemorrhages, swollen pale kidneys, enlarged haemorrhagic submaxillary lymph nodes

Samples taken: tonsil, spleen, maxillary lymph node, mesenteric lymph node, spleen and ileum from 3 dead pigs. Clotted blood samples from 6 live, in contact pigs.

4. Method of diagnosis

FAT on cryostat tissue sections
Virus isolation on tissue culture with discriminatory typing using monoclonal antibodies.
ELISA serology

5. Date of confirmation of disease: 8 August 2000

6. **Depopulation**

Date of depopulation: 10 August 2000
Method of depopulation: Killing on the holding followed by destruction at a rendering plant

7. **Presumed date of infection:** 11 July 2000

8. **Date of preliminary cleansing and disinfection:** 11 August 2000

9. **Epidemiology**

Tracing back: Source of infection probably infected weaned pigs supplied by Case SF 00/02 on 11 July

Animal contacts: Deliveries of weaned pigs from 7 breeders on 4, 7, 11, 12, 13 and 14 July including from SF 00/02.

Transport contacts: Feed lorries on 5, 8, 19, 22 June; 1,3, 7,14,17,20 and 24 July

Personnel: Company field staff on 13 and 26 June, 5, 7, 11, 14, 18, 21,24,26 July and 2 August
Veterinary surgeon on 19 and 24 July
MAFF on 4, 8 and 9 August

Tracing on: Collection dead pigs on 6, 26 and 30 June, 25 and 30 July
No live animal movements off the premises after 5 July

10. **Zone report**

1 km radius of infected holding: No of holdings with pigs: 1
No/type of pigs: 34/ sows and fatteners

3-km Protection Zone: Established 8 August
No of holdings with pigs: 5

10-km Surveillance Zone: Established 8 August
No of holdings with pigs: 43

11. **Local measures:** As provided for in Directive 80/217

DETAILED REPORT ON CLASSICAL SWINE FEVER

OUTBREAK SF 00/02

1. Location

District: Old Buckenham,
County: Norfolk
MAFF AHDO: Bury St Edmunds

2. Type and Size of Farm

Total No. of pigs: 1,757
No of breeding pigs: 569
No of rearing pigs: 904
No. of fattening pigs: 214

Outdoor unit: 370 sows and gilts in a circular penning arrangement divided into unequal pen sizes by electric fencing.

83 suckling sows plus 904 suckling piglets housed in individual arcs at the rate of 6 arcs to a pen separated by electric fencing.

Indoor unit: 3 boars in individual pens, 44 gilts in 6 pens, 9 maiden gilts in 2 pens, 20 growers in 5 pens and 194 piglets (3-4 weeks old) in 2 pens.

An outdoor breeding unit with all adult sows and most boars kept permanently in fields contained by electric fencing and arcs for shelter. Piglets moved to the indoor unit at 3 weeks of age.

3. Suspicion of disease

Date of suspicion: 7 August 2000
Reported by whom: Company veterinary surgeon

History: One sow became ill on 21 June together with her litter. Symptoms included scouring, nasal discharge, inappetance, loss of weight. The sow died on 18 July but 3-4 of her litter survived. Piglets were scouring, nasal discharge, red eyes, staring coat, loss of weight and inappetance. Piglets died within 7 days of showing signs of disease and the adult stock within 1-3 weeks. Maximum piglet mortality 10-30 days from beginning of June.

No of sick/dead pigs: 76
No healthy pigs: 1681
Samples taken: tonsil, spleen, maxillary lymph node, mesenteric lymph

node, spleen and ileum from 5 dead pigs. Clotted blood samples from 4 live adult in contact pigs.

4. Method of diagnosis

FAT on cryostat tissue sections

Virus isolation on tissue culture with discriminatory typing using monoclonal antibodies.

ELISA serology

5. Date of confirmation of disease: 9 August 2000

6. Depopulation

Date of depopulation: 15 August 2000

Method of depopulation: Killing on the holding followed by destruction at a rendering plant

7. Presumed date of infection: 1 June 2000

8. Date of preliminary cleansing and disinfection: 16 August 2000

9. Epidemiology

Tracing back: 5 primary/multiplier breeding herds

Animal contacts: 7 direct and 14 indirect movements on since 1 May

Transport contacts: 39 direct and 59 indirect potential vehicle contacts

Personnel: 4 direct and 8 indirect potential people contacts

Tracing on: 93 direct and 65 indirect potential miscellaneous Movement tracings.

10. Zone report

1 km radius of infected holding: No of holdings with pigs: 2
No/type of pigs: 1 pet pig and a
30 sows/fattening unit

3-km Protection Zone: Established 9 August
No of holdings with pigs: 22

10-km Surveillance Zone: Established 9 August
No of holdings with pigs: 170

11. **Local measures:** As provided for in Directive 80/217

DETAILED REPORT ON CLASSICAL SWINE FEVER

OUTBREAK SF 00/03

1. Location

District: Colchester,
County: Essex
MAFF AHDO: Chelmsford

2. Type and Size of Farm

Total No. of pigs:	923	
No of breeding pigs:	0	
No of rearing pigs:	923	Age: 4-14 weeks in 7 houses
No. of fattening pigs:	0	

3. Suspicion of disease

Date of suspicion: 7 August 2000
Reported by whom: Company veterinary surgeon

No of sick/dead pigs: 292
No healthy pigs: 631

Clinical signs: lethargy, yellow diarrhoea, inco-ordination, fever, excessive thirst, cyanosis of skin particularly ears and abdomen

Samples taken: tonsil, spleen, maxillary lymph node, mesenteric lymph node, spleen and ileum from 3 dead pigs. Clotted blood samples from 6 live, in contact pigs.

4. Method of diagnosis

FAT on cryostat tissue sections
Virus isolation on tissue culture with discriminatory typing using monoclonal antibodies.
ELISA serology

5. Date of confirmation of disease: 9 August 2000

6. **Depopulation**

Date of depopulation: 11 August 2000
Method of depopulation: Killing on the holding followed by destruction at a rendering plant

7. **Presumed date of infection:** 27 June 2000

8. **Date of preliminary cleansing and disinfection:** 11 August 2000

9. **Epidemiology**

Tracing back: Source of infection probably infected weaned pigs supplied by Case SF 00/02 on 27 July

Animal contacts: Deliveries of weaned pigs from 6 breeders on 26,27,28 and 30 June including from SF 00/02.

Transport contacts: Feed lorries on 11,20,28,31 July

Personnel: Company field staff on 2,6,12 June; 3,7,14,19,25,27 July: 1 and 4 August.
Veterinary surgeon on 7 July and 3 August
MAFF on 7 August

Tracing on: Collection dead pigs on 17 June, 27 July and 2,4 August
No live animal movements off the premises after 26 June

10. **Zone report**

1 km radius of infected holding: No of holdings with pigs: 0

3-km Protection Zone: Established 9 August
No of holdings with pigs: 7

10-km Surveillance Zone: Established 9 August
No of holdings with pigs: 50

11. **Local measures:** As provided for in Directive 80/217

DETAILED REPORT ON CLASSICAL SWINE FEVER

OUTBREAK SF 00/04

1. Location

District: Rumburgh,
County: Suffolk
MAFF AHDO: Bury St Edmunds

2. Type and Size of Farm

Total No. of pigs: 2574
No of breeding pigs: 0
No of rearing pigs: 2574
No. of fattening pigs: 0

3. Suspicion of disease

Date of suspicion: 8 August 2000
Reported by whom: Company veterinary surgeon

No of sick/dead pigs: 609
No healthy pigs: 1965

Clinical signs: lethargy, yellow diarrhoea, inco-ordination, fever, excessive thirst, cyanosis of skin particularly ears and abdomen

Samples taken: tonsil, spleen, maxillary lymph node, mesenteric lymph node, spleen and ileum from 3 dead pigs. Clotted blood samples from 6 live, in contact pigs.

4. Method of diagnosis

FAT on cryostat tissue sections
Virus isolation on tissue culture with discriminatory typing using monoclonal antibodies.
ELISA serology

5. Date of confirmation of disease: 12 August 2000

6. Depopulation

Date of depopulation: 12 August 2000
Method of depopulation: Killing on the holding followed by destruction at a rendering plant

7. Presumed date of infection: 17 July 2000

8. Date of preliminary cleansing and disinfection: 13 August 2000

9. Epidemiology

Tracing back: Source of infection probably infected weaned pigs supplied by Case SF 00/02 on 17 July

Animal contacts: Deliveries of weaned pigs from 6 breeders on 26 June; 17,21,24,26 and 28 July including from SF 00/02.

Transport contacts: Feed lorries on 1 and 10 August

Personnel: Company field staff on 12,26,27 June; 26,28 July and 1 August.
Veterinary surgeon on 27 June and 3 August
MAFF on 9 August

Tracing on: Collection dead pigs on 26 June and 7 July
No live animal movements off the premises after 17 July

10. Zone report

1 km radius of infected holding: No of holdings with pigs: 1
No/type of pigs: 481 fatteners

3-km Protection Zone: Established 12 August
No of holdings with pigs: 16

10 km Surveillance Zone: Established 12 August
No of holdings with pigs: 132

11. Local measures: As provided for in Directive 80/217

DETAILED REPORT ON CLASSICAL SWINE FEVER

OUTBREAK SF 00/05

1. Location

District: Harlesdon,
County: Norfolk
MAFF AHDO: Bury St Edmunds

2. Type and Size of Farm

Total No. of pigs: 833
No of breeding pigs: 0
No of rearing pigs: 833
No. of fattening pigs: 0

3. Suspicion of disease

Date of suspicion: 9 August 2000
Reported by whom: Company veterinary surgeon

No of sick/dead pigs: 520
No healthy pigs: 313

Clinical signs: lethargy, yellow diarrhoea, inco-ordination, fever, excessive thirst, cyanosis of skin particularly ears and abdomen

Samples taken: tonsil, spleen, maxillary lymph node, mesenteric lymph node, spleen and ileum from 3 dead pigs. Clotted blood samples from 6 live, in contact pigs.

4. Method of diagnosis

FAT on cryostat tissue sections
Virus isolation on tissue culture with discriminatory typing using monoclonal antibodies.
ELISA serology

5. Date of confirmation of disease: 12 August 2000

6. Depopulation

Date of depopulation: 11 August 2000
Method of depopulation: Killing on the holding followed by destruction at a rendering plant

7. Presumed date of infection: 4 July 2000

8. Date of preliminary cleansing and disinfection: 13 August 2000

9. Epidemiology

Tracing back: Source of infection probably infected weaned pigs supplied by Case SF 00/02 on 4 July

Animal contacts: Deliveries of weaned pigs from 4 breeders on 3,4,5 and 6 July.

Transport contacts: Feed lorries on 15 July and 3 August

Personnel: Company field staff on 13 June; 6, 10, 24 and 28 July
Veterinary surgeon on 18 and 24 July; 7 August
MAFF on 9 August

Tracing on: Knackerman on 8 August
No live animal movements off the premises after 3 July

10. Zone report

1 km radius of infected holding: No of holdings with pigs: 2
No/type of pigs: 1 holding with 3950 rearers
and 1 holding with 14 fatteners.

3-km Protection Zone: Established 12 August
No of holdings with pigs: 18

10-km Surveillance Zone: Established 9 August
No of holdings with pigs: 124

11. Local measures: As provided for in Directive 80/217

CLASSICAL SWINE FEVER IN GREAT BRITAIN 2000

REPORT NO 2

3 SEPTEMBER 2000

Ministry of Agriculture, Fisheries and Food
3 September 2000

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1. SUMMARY

- 1.1 The total number of confirmed outbreaks of Classical Swine Fever (CSF) in Great Britain remains at five (5). The first outbreak was confirmed on 8 August 2000, the last on 12 August 2000. All five outbreaks appear to be linked. Four outbreaks (SF00/01, 00/03, 00/04 and 00/05) occurred on holdings in Essex (1), Suffolk (2) and Norfolk (1) that received weaned pigs from a breeding unit in Norfolk (SF00/02). There has been no evidence of lateral spread to other holdings within or outwith the control zones established around each of the five infected holdings.
- 1.2 The virus causing all 5 outbreaks is identical and of the genotype 2.1. It is clearly distinguishable from the virus that caused the 1997/98 epidemic in Germany, The Netherlands, Belgium, Spain and Italy. During 2000, there have been no other reports of CSF outbreaks in Europe caused by 2.1 genotype viruses. CSF genotype 2.1 viruses are probably indigenous to Asia and have previously been introduced to Europe.
- 1.3 Epidemiological investigations suggest the virus entered SF00/02 between 7 June and 16 June and thereafter spread slowly to other pigs on the holding. Breeding pigs on the holding were accommodated in outdoor paddocks. The source of infection is thought to have been infected pig meat, in the form of edible waste, discarded by users of footpaths close to these paddocks.
- 1.4 In the absence of further outbreaks of CSF since 12 August, work began on 27 August to lift the controls in the surveillance zones around the five infected holdings. As foreseen in Council Directive 80/217, this will involve MAFF veterinary staff visiting and clinically inspecting the pigs on all holding in each surveillance zone and taking blood samples from pigs on a representative sample of these holdings for CSF antibody determination. It is hoped that all this work will be completed in the period 11 - 18 September, from which dates preparatory work for lifting controls in the protection zones can begin.
- 1.5 On 29 August, and after discussion with the EU Commission, a Pig Welfare (Disposal) Scheme was introduced for owners of pigs in the surveillance zones around each infected holding. The purpose of the scheme is to alleviate welfare problems on farms under restrictions because of CSF. The scheme will allow owners of pigs whose holding have been under restriction for at least two weeks, to dispose of surplus pigs under official veterinary control.

2. CHRONOLOGY AND LEGAL MEASURES

DATE	ACTION AND INTRODUCTION OF LEGAL MEASURES
04.08.00	Suspect CSF reported on a rearing premises in Suffolk. Samples to VLA and IAH Pirbright for CSF and ASW diagnosis. Holding placed under official veterinary control
07.08.00	Suspect CSF reported from a rearing premises in Essex and a breeding premises in Norfolk. Samples to VLA and IAH Pirbright for CSF and ASW diagnosis. Holdings placed under official veterinary control. Internal stop placed on issuing export certificates for porcine germplasm.
08.08.00	<p>CSF confirmed on rearing premises in Suffolk (Outbreak Ref.. SF00/01).</p> <p>Suspect CSF reported on a rearing premises in Suffolk. Samples to VLA and IAH Pirbright for CSF and ASW diagnosis. Holdings placed under official veterinary control</p> <p>The Swine Fever Declaratory Order 2000/2153 made imposing 3/10 km protection and surveillance zones around infected premises SF00/01 and banning movement of all livestock on to /off premises where pigs are kept, transporting any material (feedingstuff, manure, slurry etc) likely to be contaminated with CSF except under licence, movement of any vehicle for transporting pigs or other livestock except under licence and holding markets, fairs etc for pigs. In addition, owners of premises where pigs are dead or diseased must report the same to MAFF</p>
09.08.00	<p>CSF confirmed on breeding premises in Norfolk (Outbreak Ref.. No SF00/02) and rearing premises in Essex (Outbreak Ref.. No SF00/03).</p> <p>Further suspect CSF reported from a rearing premises in Norfolk. Samples to VLA and IAH Pirbright for CSF and ASW diagnosis. Holdings placed under official veterinary control</p> <p>The Swine Fever Declaratory (No 1) and (No 2) Orders 2000/2178 and 2000/2179 made imposing 3 and 10 km protection and surveillance zones around infected premises SF00/02 and SF00/03.</p> <p>All third country live pig export certificates offering country freedom from CSF and porcine germplasm export certificates placed "on hold" while SVS HQ review certificates offering country freedom from CSF.</p> <p>Customer Information Note CIN 2000/26 on exports of live pigs and porcine products issued to livestock producers.</p> <p>From ANIMO messages, and certificate numbers, identified live pig consignments originating from in the restricted areas and extracted details of destination of consignments.</p> <p>Confirmed no AI Centres in restricted zones.</p>

DATE	ACTION AND INTRODUCTION OF LEGAL MEASURES
10.08.00	Pigs on holding SF00/01 destroyed Copy of CIN 2000/26 placed on MAFF Website and ANIMO banner message placed on CENTAUR
11.08.00	Pigs on holdings SF00/03 and SF00/05 destroyed Preliminary Cleansing and disinfection on holding SF00/01 and SF00/03. Customer Information Note CIN 2000/28) on exports of porcine germ plasm issued to exporters
12.08.00	CSF confirmed on rearing premises in Suffolk (Outbreak Ref.. SF00/04) and Norfolk (Outbreak Ref.. SF00/05) The Swine Fever Declaratory (No 3) and (No 4) Orders 2000/220 and 2000/2201 made imposing 3 and 10 km protection and surveillance zones around infected premises SF00/04 and SF00/05. Pigs on holding SF/00/04 destroyed.
13.08.00	Preliminary cleansing and disinfection on holdings SF00/04 and SF00/05
14.08.00	Commission Decision 2000/515 banning live pig exports from England Customer Information Note CIN 2000/30 issued to exporters
15.08.00	Pigs on holding SF00/02 destroyed All exporters of porcine semen with health certificates issued in the past 40 days telephoned and advised of Decision 2000/515
16.08.00	Preliminary cleansing and disinfection on holding SF00/02
17.08.00	CIN 2000/28 put on MAFF Website. CENTAUR banner info on porcine semen prepared.
22.08.00	Commission Decision 2000/528 approved by the SVC amending Decision 2000/515 and restricting the prohibiting on the export of live pigs and porcine semen from England to Suffolk, Norfolk and Essex
23.08.00	CIN 2000/33 and AHC 2000/83 notified industry organisations and SVS staff of the action to be taken following adoption of Decision 2000/515/EC. The Swine Fever Declaratory (Amendment) Order 2000/2209 and The Swine Fever Declaratory (Amendment)(No 1) Order 2000/2224 made amending The Swine Fever Declaratory Order 2000/2153 and Declaratory (No 2), (No 3) and No 4) Orders 2000/2178, 2200 and 2201) and reducing the size of the surveillance zones around outbreaks SF00/01, SF00/03, SF00/04 and SF00/05 to 10-km
24.08.00	The Swine Fever Declaratory (Amendment)(No2) Order 2000/2297 made making minor adjustments to the boundary of the infected area around SF00/01

DATE	ACTION AND INTRODUCTION OF LEGAL MEASURES
27.08.00	Examination of pig holdings in the Surveillance zones around outbreaks SF00/01 and SF00/03 begins prior to lifting zone restrictions
29.08.00	Examination of pig holdings in the Surveillance zones around outbreaks SF00/04 and SF00/05 begins prior to lifting zone restrictions
30.08.00	The Swine Fever Declaratory (Amendment) (No3) Order 2000/2325 made reducing the size of the protection zone around outbreak SF00/02
03.09.00	Examination of pig holdings in the Surveillance zones around outbreaks SF00/02 begins prior to lifting zone restrictions

3. DEVELOPMENTS SINCE THE REPORT NO 1 OF 20 AUGUST 2000

3.1 Outbreaks of Classical Swine Fever

3.1.1. No further outbreaks of Classical Swine Fever (CSF) have been confirmed since the last report on 20 August. The total number of CSF outbreak confirmed in Great Britain in 2000 still stands at five (5). The first outbreak (SF00/01) was confirmed on 8 August 2000, the last outbreak (SF00/05) was confirmed on 12 August 2000. All five outbreaks appeared to be linked, four outbreaks (SF00/01, 03, 04 and 05) occurring on holdings that received weaned pigs supplied by a breeding premises in Norfolk (SF00/02). Epidemiological investigations have failed to identify the source of the infection with certainty. There has been no evidence of lateral spread to other holdings within or outside the 3-km protection and 10-km surveillance zones established around each infected holding.

3.2 Virology

- 3.2.1 Following on from the previously reported nucleic acid sequencing of the virus involved in first CSF outbreak (SF00/01), scientists at the Veterinary Laboratories Agency (VLA) Weybridge are currently sequencing the E2 glycoprotein gene of the viruses obtained from the other four other outbreaks. Results so far show that the nucleic acid sequences of all four viruses are identical. Combined with the epidemiological evidence of direct links between all five outbreaks, VLA has concluded that all were caused by the same virus.
- 3.2.2 The origins of the virus and its exact route of introduction have not been established with certainty. The virus belongs to the same genotype (2.1) that caused the CSF epizootic in the Netherlands, Germany, Spain and Italy in 1997/97, but is clearly distinguishable from the strain that caused those outbreaks. It is more related to, but still not identical to viruses isolated from limited CSF outbreaks in Austria and Switzerland in 1993 and in Italy in 1992 and 1995. There have been no other reports genotype 2.1 viruses causing CSF outbreaks in the EU this year and the recent CSF virus isolated from Rhineland Palatinate region of Germany was genotype 2.3.
- 3.2.3 CSF viruses of genotype 2.1 are probably indigenous to Asia and have previously been introduced to Europe, on one occasion being found in infected wild boar meat imported from China.
- 3.2.4 VLA scientists have established contacts with scientific contacts in Asia with a view to pursuing further molecular analysis of the isolate obtained from the five GB outbreaks.

3.3 Measures taken to control the outbreak

- 3.3.1 Following confirmation of disease on the five holdings, the measures foreseen in Council Directive 80/217 were applied. Protection and surveillance zones were established around each infected holding. The movement of all livestock on to and off premises where pigs were kept was prohibited as was the transport of any material (feedingstuff, manure, slurry etc) likely to be contaminated with CSF except under licence, the movement of any vehicle for transporting pigs or other livestock except under licence and the holding of markets, fairs etc for pigs. In addition, owners of premises where pigs are dead or diseased were required to report the same to MAFF. These measures remain in force.

3.4 Changes to the size of the surveillance zones

- 3.4.1 At the meeting of the SVC on 22 August, the GB authorities explained that at the time control zones were established around each infected holding, the size of the surveillance zones put in place exceeded, by a considerable margin, the 10-km zone foreseen in Directive 80/217. The GB authorities had since obtained clearer view of the epidemiology of the outbreak. In the absence of any evidence to indicate that CSF had spread to holdings within the protection zones, the GB authorities announced their intention to reduce the size of each of the five surveillance zones to a radius of 10-km. This was done on 23 August 2000 for outbreaks SF00/01, 03, 04 and 05 and on 30 August 2000 for outbreak SF00/02. The location and size of the new zones is shown in Figure 1 and Figure 2.

3.5 Controls in the surveillance zones

- 3.5.1 As provided for in Article 9(7) of Council Directive 80/217, the controls imposed within a surveillance zone must apply (a) until cleansing and disinfection of the infected premises has been completed, (b) the pigs on all holdings in the zone have undergone a clinical examination and been found to have no signs of disease suggestive of CSF and (c) serological examinations have been carried out on a representative sample of holdings in the zone and have failed to reveal any antibodies to CSF virus. These examinations may not take place until 15 days has elapsed after completion of preliminary cleansing and disinfection measures on the infected holding.

Location of CSF Outbreak in Great Britain

Date: 04/09/00

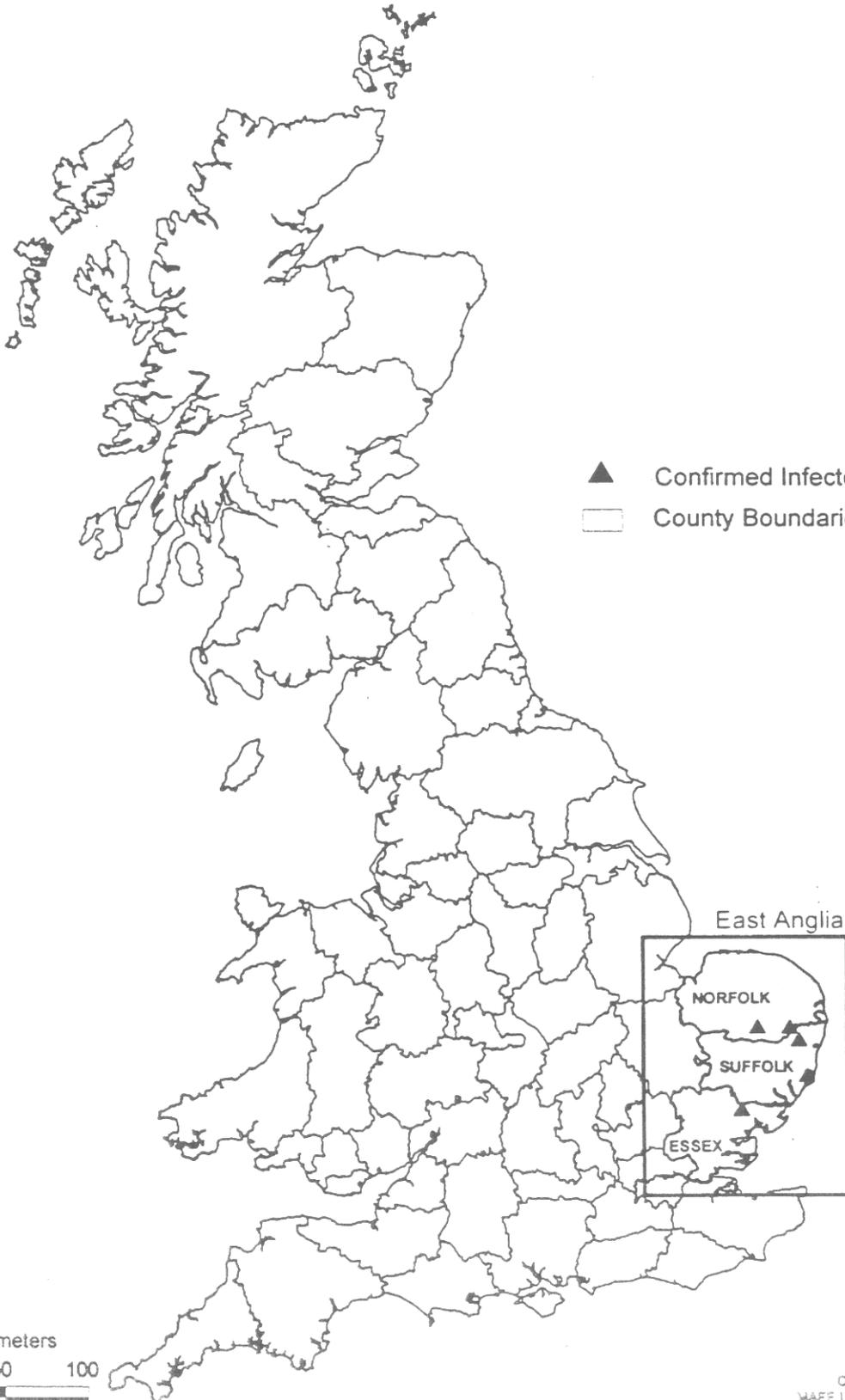
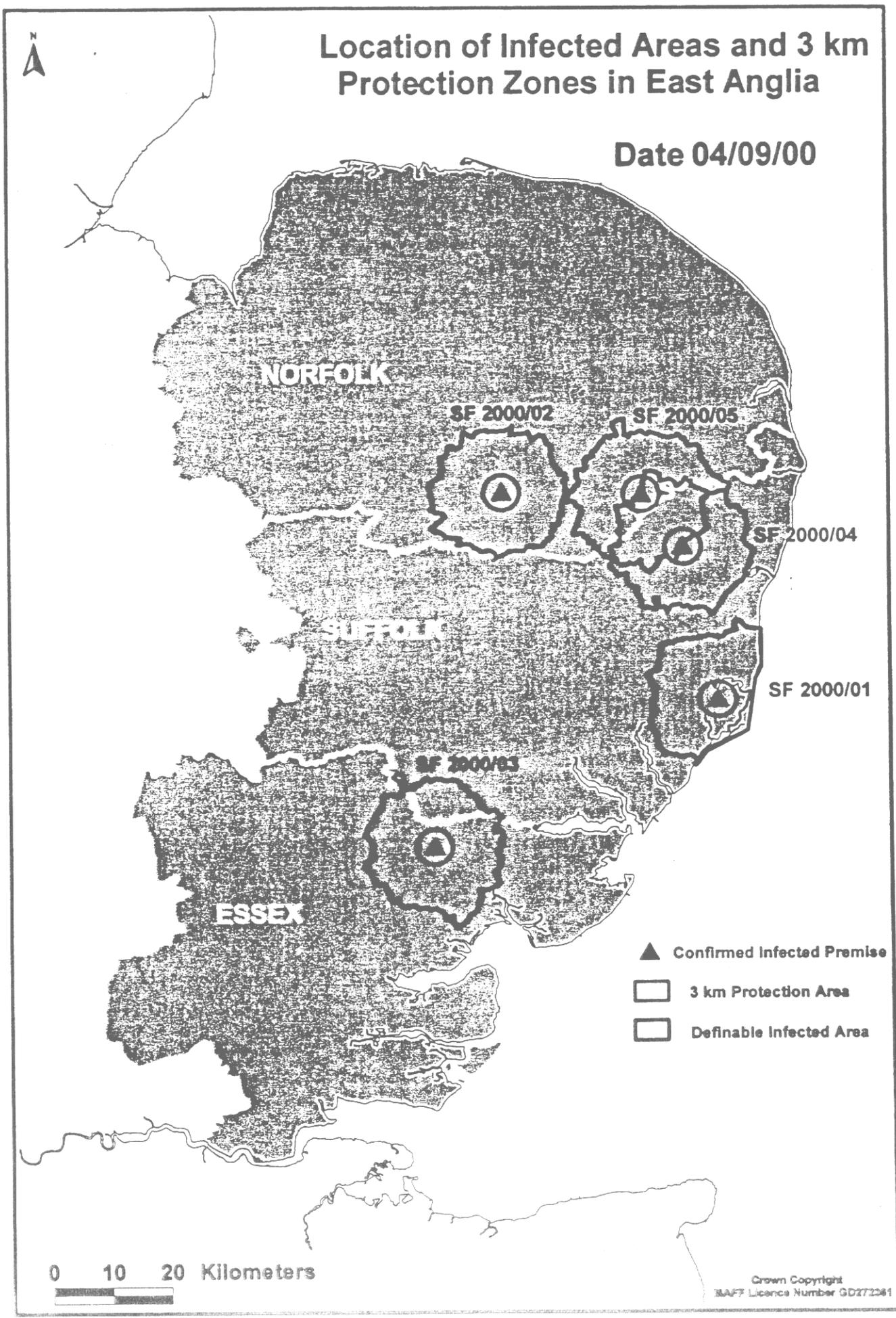


FIGURE 2



3.5.2 The dates on which preliminary cleansing and disinfection was completed on the five (5) infected holdings and the dates on which the measures foreseen in Directive 80/217 can be applied in respect of the surveillance zones are shown in Table 1.

Table 1: Dates on which preliminary cleansing and disinfection was completed on CSF infected holdings and on which preparatory work for lifting controls on the protection and surveillance zones may commence

CSF Infected Holding	Date Preliminary Cleansing and Disinfection completed on the infected holding	Date work may start preparatory to lifting the surveillance zone	Date work may start preparatory to lifting the protection zone	Estimated date on which controls on the surveillance zones may be lifted
SF00/01	12 August	27 August	11 September	11 September
SF00/02	19 August	3 September	18 September	18 September
SF00/03	12 August	27 August	11 September	11 September
SF00/04	14 August	29 August	13 September	13 September
SF00/05	14 August	29 August	13 September	13 September

3.5.3 On 26 August, instructions were issued to MAFF veterinary staff to start the work necessary to lift controls in the surveillance zones in line with the timetable foreseen in Table 1. Based on subsequent survey work, the number of pig holdings in the 3-km and 10-km protection and surveillance zones around each infected holding is summarised in Table 2.

Table 2: The number of holdings with pigs on them in the protection and surveillance zones around each CSF infected holding

CSF Infected Holding	No pig holdings in the 3-km protection zone	No of pig holdings in the 10-km surveillance zone	Total number of pig holdings
SF00/01	7	63	70
SF00/02	19	170	189
SF00/03	4	60	64
SF00/04	13	174	187
SF00/05	12	180	192
Total	55	647	702

3.5.4 Following discussions with the Commission, the GB authorities have adopted the following protocol for examination of pig holdings within the surveillance zones.

- (i) All holdings with breeding pigs will be visited by a MAFF veterinary officer (VO) and all pigs on the holding will be clinically inspected. A statistical sample of breeding pigs on the premises will be subject to detailed clinical examination (including the taking of temperatures) and have a blood sample taken for CSF antibody examination. The number of pigs to be examined and sampled should be sufficient to detect a 5%

prevalence of CSF with 95% confidence in each epidemiological unit on the holding.

- (ii) All holdings with rearing and/or finishing pigs will be visited by a VO and all pigs on the holding will be clinically inspected. On 20% of holdings, a statistical sample of the pigs on the premises will be subject to detailed clinical examination (including the taking of temperatures) and have a blood sample taken for CSF antibody examination. The number of pigs to be examined and sampled should be sufficient to detect a 20% prevalence of CSF with 95% confidence in each epidemiological unit on the holding.
- (iii) On holdings with pet pigs, the procedures described for breeding pigs should be followed but all pet pigs will be blood sampled for CSF serology.

3.5.5 By 3 September, all pig holdings in the surveillance zones around SF00/01 and SF00/03 had been visited, all pigs had been clinically inspected and the necessary blood samples taken for CSF antibody determination. Blood samples are currently being examined by the Veterinary Laboratories Agency.

3.6 Pig Welfare (Disposal) Scheme

3.6.1 On 29 August, and after discussion with the Commission, a Pig Welfare (Disposal) Scheme (PWDS) was introduced for owners of pigs in the surveillance zones around each CSF infected holding. The purpose of the Scheme is to alleviate pig welfare problems on farms areas under restriction because of CSF, by removing pigs and arranging for them to be killed in a dedicated abattoir and their carcasses disposed of by rendering.

3.6.2 The scheme is being operated by the Intervention Board (IBEA), an Executive Agency of the Ministry of Agriculture, Fisheries and Food, and is open only to the owners of pig holdings in Norfolk, Suffolk and Essex, that have been under movement restrictions for at least two (2) weeks. Farmers wishing to participate in the Scheme must apply to IBEA who will make arrangements for an official veterinary inspector to visit the holding to determine eligibility on welfare grounds. Eligible animals will be collected within 48 hours of the inspection. Movement of the pigs from the farm to an unlicensed abattoir dedicated to killing them, will take place under official veterinary supervision to ensure that the vehicles moving the pigs are properly cleansed and disinfected both at the farm and at the abattoir. The pigs will be killed under the supervision of an official veterinary surgeon. Movement of their carcasses from the abattoir to the rendering plant, oversight of the rendering operation and cleansing and disinfection of the vehicles at the abattoir and the rendering plant will all take place under official veterinary supervision.

- 3.6.3 The transport, killing and disposal costs of the Scheme will be born by MAFF but farmers will receive a payment of £35 per pig for each batch of pigs averaging over 60 kg, and £10 per pig for smaller pigs entering the Scheme. It is expected that the most serious welfare problems will centre on boars reaching maturity by mid-September. Not only may these animals be over fat but their meat will be heavily tainted. As such, their carcasses will have virtually no market value when CSF controls come to an end.

3.7 Export of live pigs and porcine semen

- 3.7.1 Following the adoption of Commission Decision 2000/528, restricting the export ban on live pigs and porcine semen to pigs and semen from the counties of Norfolk, Suffolk and Essex, instructions were issued to MAFF Divisional Veterinary Managers on 25 August. These required DVMs to continue withholding export health certificates for live pigs from Norfolk, Suffolk and Essex to other EU Member States, with immediate effect, and to advise Local Veterinary Inspectors in other parts of Great Britain that before export certificates for live pigs could be issued, they must satisfy themselves that the consignment fully met the requirements of the Decision. Export certificates for porcine semen that met the requirements of the Decision would continue to be issued by SVS HQ in London. ANIMO messages should also be sent to the local and central competent veterinary authorities three (3) days in advance of any consignment being exported.
- 3.7.2 On 25 August Customer Information Note 2000/34 was issued to all those involved in trade in live pigs and porcine semen, advising them of the Decision's requirements and the procedures that would now be required for exports.

4. EPIDEMIOLOGICAL INVESTIGATION

4.1 Timing of introduction of virus to SF00/02

- 4.1.1 Investigations to identify the source of CSF infection in the 5 outbreaks have continued. Evidence collected to date indicates that disease first occurred in a breeding herd (SF00/02) in June 2000. The other 4 outbreaks occurred on rearing premises that were supplied by this breeding herd between 27th June and 1st August. Detailed investigation of the five (5) primary/multiplier herds that supplied breeding stock to SF00/02 since December 1999 has indicated these herds are not infected with CSF. Outbreak SF00/02 is therefore considered to be the index case. To date the source of disease for SF00/02 has not been identified, but a number of potential sources have been investigated and ruled out.
- 4.1.2 The holding of origin has been traced to SF00/02 and available evidence suggests that infection arrived there in early June 2000. This holding received breeding stock from primary/multiplier holdings once or twice a month, and supplied

approximately 200 weaned pigs (7kg weight) on a weekly basis to nursery farms associated with an integrated pig company. Figure 3 shows the pattern of movements and dates of supply to nursery farms from 2 May 2000 to 1 August 2000 (when the last batch of weaners left SF00/02).

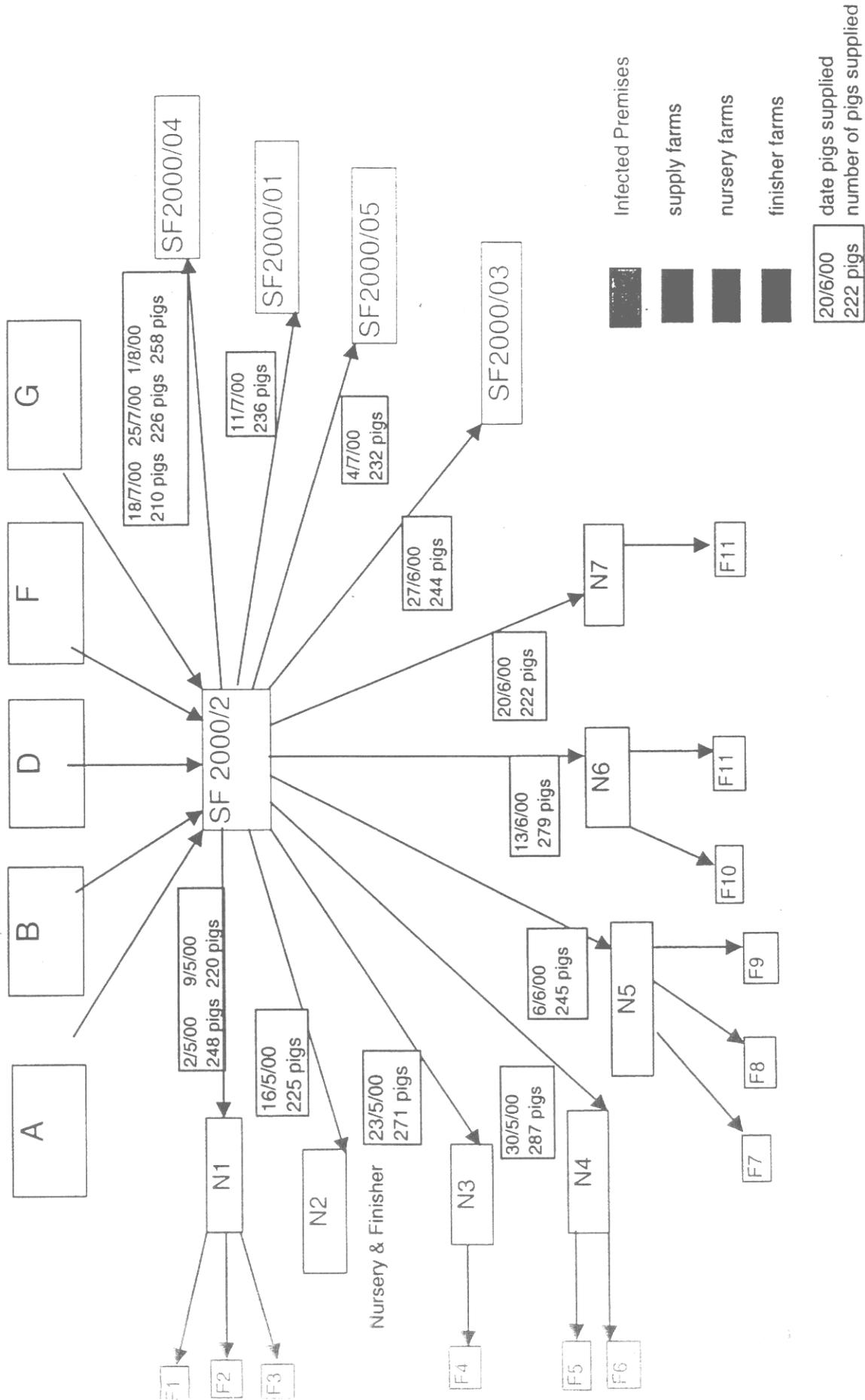
Investigation of weaned pigs produced prior to those with confirmed CSF

- 4.1.3 Weaned pigs that left SF00/02 between 2 May and 20 June were still alive and on finishing premises at the time of the investigation. Clinical inspection and statistical serological sampling to detect antibodies to CSF at a prevalence of 5% with 95% confidence has ruled out the possibility of disease on all these premises (F1 to F12 in Figure 3). An additional investigation of pigs which left SF00/02 on 20 June was carried out, as clinical disease retrospectively identified as probable CSF was first noted on the holding on 21 June. All 1132 pigs on finisher premises F11, which included weaners which left SF00/02 on 13 June and 20 June were blood sampled and serological examinations for CSF were carried out. All serological examinations were negative. All weaned pigs on premises F1 to F11 were in the farrowing paddocks for three weeks before leaving SF00/02. Absence of disease in these pigs indicates that CSF was not widely present in this area of the farm before 20 June.

Investigation of nursery premises with confirmed disease:

- 4.1.4 Table 3 summarises the currently available information about infection on the nursery premises and in the dams of the affected weaners. The long time delay between delivery and disease on SF00/03 suggests that very few pigs were infected on arrival. Clinical CSF occurred sooner after the weaners arrived on the nursery premises that received pigs after SF00/03, suggesting that increasing numbers of pigs in each group were infected. The pattern is not consistent, with smaller numbers of weaners appearing to be infected in the batches delivered to SF00/04 on 18th and 25th July. Surviving piglets from the first affected sow on SF00/02 were weaned on the 11th July when the earliest widespread infection in weaners was seen (SF00/01). The low level of seroprevalence among most dams at the time of depopulation suggests disease spread slowly on SF00/02.

Figure 3



PIG MOVEMENTS ASSOCIATED WITH SF2000/02: 1/5/00 - 1/8/00

Table 3: Progress of disease on affected nursery farms as an indication of likely spread and prevalence of infection on SF00/02 (preliminary figures)

Outbreak number	Date weaners left SF00/02	Estimated prevalence of seroconversion at depopulation in dams of affected weaners, % (n)	Time period from arrival to observation of excess disease
SF00/03	27-Jun-00	21% (4/19 sows)	28 days
SF00/05	04-Jul-00	45% (10/22 sows)	7-10 days
SF00/01	11-Jul-00	74% (14/19 sows)	0 days
SF00/04*	18-Jul-00	19% (4/21 sows)	13 days
	25-Jul-00	36% (8/22 sows)	7 days
	01-Aug-00	figures not yet available	0 days

*losses reported on this farm from 01/08/00, however ill-thrift was noted among pigs delivered on 25/07/00 from the time of arrival

Distribution of CSF seropositive pigs on SF00/02 at depopulation:

- 4.1.5 All breeding animals on SF00/02 were sampled at depopulation and preliminary serological ELISA results have been reviewed. These results clearly demonstrate a high prevalence of CSF seroconversion among some groups, while others have few or no seropositive animals. Movements of animals around the farm are complex and are still being examined, however the distribution of pigs on 19 June and 13 August has been compared with the prevalence of seroconversion to CSF at the time of depopulation.
- 4.1.6 The holding was arranged in two groups of paddocks separated by a vehicle track. On the west side of the track lay 24 farrowing paddocks; on the east side lay a circular arrangement of 26 paddocks which were divided roughly in half. The south side paddocks in the circular arrangement held dry sows during gestation; the north side paddocks held teams of boars with sows for service. A high prevalence of seroconversion to CSF (>60% seroprevalence) occurred among sows which in June were in five adjacent dry sow groups, and one farrowing

paddock. The sow identified as the likely first clinical case of swine fever was in this farrowing paddock from 8 June; she was noticed as being ill on 21 June. If the incubation period for CSF is accepted as 5-14 days, the likely date of infection was between 7 June and 16 June. The groups of sows that farrowed around the same time as the affected sow, and which were accommodated in four adjacent farrowing paddocks, had a seroprevalence at depopulation ranging from 44-50% (median 46%). The seroprevalence at depopulation of groups of sows and gilts in the service teams and the other dry sow paddocks ranged from 0-57% (median 20%).

4.1.7 These early analyses suggest that infection may first have occurred among dry sows, or in the farrowing paddocks, and remained concentrated in these groups as they moved around the farm. The service teams were dynamic, with animals being added and removed on a regular basis. However once sows have been served, the groups of animals remained fairly stable until the sows were weaned. By the time of depopulation on 13 August, 12/15 groups of farrowed sows had no evidence of seroconversion to CSF, and 7/26 service/dry sow groups had a seroprevalence of 10% or less. These figures suggest that disease spread slowly to other animals on the farm and was present for less than one complete production cycle (about 5 months

4.1.8 These early analyses suggest that infection was not widespread in the farrowing paddocks before 20 June as there was no evidence of disease in the weaned pigs reared in these paddocks during this period. However, disease was clearly present in sows in these paddocks after this date. The likely date for the introduction of infection to the farrowing paddocks is therefore thought to have been between 7th and 16th June.

4.2 Source of infection

4.2.1 Investigations have been carried out in an attempt to identify the source of infection at SF00/02. A number of hypotheses have been tested.

The pigs on SF00/02 consumed infected pig product from an exotic source

4.2.2 The pigs on SF00/02 were housed out doors and as such could have had access to environmental sources of animal products. Although there are legal controls to reduce the likelihood that these products will contain CSF virus, illegal imports could contain infected pork product. The location of footpaths close to the pigs, and their inquisitive nature make it likely that any edible products discarded by footpath users would have been consumed by the pigs. Initial results of analysis of the distribution of infected pigs on the farm suggest that infection may have started in a group of dry sows in paddocks adjacent to the footpath.

The pigs on SF00/02 were exposed to infected pigs brought onto the premises or through contact (direct or indirect) with feral pigs, pet pigs or zoo pigs

- 4.2.3 Investigations on the farm have revealed no evidence of incursion by feral swine. There has been no damage to fences and/or feed stores. The farm workers reported that they have never seen feral swine in the vicinity. The local police have confirmed that there have been no reports of feral swine in the area.
- 4.2.4 In the East Anglia region, four (4) zoos/wild life parks are licensed to keep wild boar or pigs; 6 holdings are licensed to farm or keep wild boar and two sightings of wild boar have been recorded (one 8 years ago and one 2 years ago). The pigs on all holdings are being tested serologically for CSF.
- 4.2.5 No import licences for porcine zoo animals have been issued by Bury St Edmunds Animal Health Divisional Office (AHDO) during 2000. Six licences were issued for the import of zoo or pet pigs into Great Britain between 1 January 1996 and 30 July 2000. These pigs originated from Europe or the USA and were not destined for Bury St Edmunds AHDO
- 4.2.6 Investigations of pig holdings in the infected area around SF00/02 showed eight premises where a total of 12 pet pigs were kept, and a zoo (2 pigs) within 3 km of the infected premises. No direct or indirect contact between these and the pigs on SF00/02 has been established. All these pigs have been clinically inspected and serologically tested for CSF. Laboratory results from 9 of the pigs have been received to date, all with negative results.
- 4.2.7 In conclusion, the possibility that infected wild boar are present around SF00/02, but have not yet been detected is unlikely. The density of pig holdings in this part of England is such that should feral pigs in the area become infected, it is likely that unassociated CSF outbreaks would occur. Four of the five outbreaks which have occurred were directly associated with infected pig movements from the breeding herd, SF00/02. The evidence above suggests that the risk of disease from undetected infection in zoo or pet pigs is negligible.

The pigs on SF00/02 were exposed to CSF virus introduced onto the premises by infected pigs

- 4.2.8 Replacement stock were introduced to the breeding herd through the purchase of boars (3 per consignment) and gilts (6 per consignment) from a single supplier with a number of farms. During the period December 1999 to the end of May 2000 replacement stock were supplied from 5 different premises belonging to the same company. This company supplies many other pig farms in Britain and exports breeding stock to the Continent. No evidence of disease has been detected in pigs sent to other destinations. No disease was seen in any stock introduced to SF00/02 this year before 19th July 2000 and clinical inspection and serological testing of pigs to detect CSF at 5% prevalence with 95% confidence of detection have revealed no evidence of disease on any of the supply farms.

4.2.9 Neither has any potential source of CSF infection for the supply farms been identified. All the supply farm pigs are housed inside and so are not exposed to environmental sources of infection (such as animal products from footpaths or carried into fields by birds). Investigation of imports of pigs and semen has shown that no imported semen has been supplied to the company this year. The supply farms do not feed swill, and do not employ migrant workers.

4.2.10 Only two consignments of pigs have been imported into East Anglia (Bury St. Edmunds AHDO) during 2000, one from Denmark and one from Northern Ireland. 40 consignments were imported from the EU to other parts of GB. There have been no imports to East Anglia from Third Countries.

The pigs on SF00/02 were exposed to CSF virus introduced onto the premises by contaminated vehicles or personnel

4.2.11 All vehicles, feed and personnel that visited SF00/02 during the period 01/05/00 to 21/06/00 have been identified. Table 4 summarises the type of contacts identified, the number of farms visited as a result of these contacts and the number of farms where illness was present that raised a suspicion of CSF. Laboratory investigations have ruled out CSF as the cause of illness in all investigations completed to date.

Table 4: Tracing contacts for SF00/02

Type of contact	Period investigated	Number of farms identified as potential sources of infection	Number of farms with no evidence of clinical disease suspicious of CSF	Number of farms where CSF suspected	Number of farms* where CSF ruled out following suspicion
Livestock vehicles	Same day + 2 previous (delivery)	54	50	4	3
	Same day + 1 previous (collection)				
People	Same day + 6 previous	3	3	0	not applicable
Feed delivery vehicles	Same day as delivery	22	19	3	2

* laboratory results awaited for 2 farms

- 4.2.12 Public footpaths are present on two sides of holding SF00/02. These are used regularly by the public. It has not been possible to identify and trace the movements of users of these paths.
- 4.2.13 In summary, it is unlikely that disease has been introduced by contamination on lorries or visitors to the site as the farms from which disease could have been introduced have been investigated, and no evidence of CSF has been found. The slight possibility that a member of the public contaminated the footpath with virus, which was then transferred to the pigs, cannot be ruled out. However a source for this infection has not been identified in the UK.

The pigs on SF00/02 were exposed to aerosol virus from discharges or effluent spread on fields

- 4.2.14 An abattoir located about 1 km from the holding on which outbreak SF00/02 occurred, was found to have discharged waste water on fields near the holding. The fields were to the west and separated from the holding by a 3 metre tall hedge. Serological examinations at the time of depopulation indicate that the group of pigs in which infection first appeared was on a side of the holding away from the fields where water was discharged. The abattoir only handles pork of UK origin. No source of infected pigs for the abattoir has been identified despite increased surveillance throughout Great Britain
- 4.2.15 Human sewage sludge from a septic tank belonging to a private school was applied to fields 600 metres from SF00/02 in April; no other local applications have been identified. This was 2 months before infection is believed to have arrived on the farm. Investigations as to the likelihood of exotic pork product reaching these fields in the sewage sludge are continuing.
- 4.2.16 It is considered unlikely that infection originated from effluent in nearby fields. Surveillance information, the distribution of disease of SF00/02 and expert opinion from virologists make the waste water from the abattoir an unlikely source. Similarly the timing and distribution of the human sewage sludge make this an unlikely source, but investigations are continuing.

The pigs on SF00/02 were exposed to CSF virus in contaminated vaccine or other biological product

- 4.2.17 The only vaccine used on SF00/02 during 2000 was a licensed parvovirus vaccine, with which all gilts were inoculated. This is an inactivated vaccine, and so unlikely to be contaminated with live virus. The only other biological products used were an avermectin product to control mange in February and intermittent use of antibiotic for individual sick pigs. Furthermore, the strain of virus recovered is not used in research and is relatively recently identified. It is therefore unlikely to be present when biologicals are manufactured.

The pigs on SF00/02 were exposed to CSF virus in contaminated semen

- 4.2.18 Investigations have confirmed that all production on SF00/02 was by natural service. A sufficient number of boars were kept to enable this and no evidence has been found that artificial insemination was ever used. The possibility of infected semen causing undetected infection at one of the supply farms is highly unlikely. Records indicate that only semen of UK origin was used on these farms. Six consignments of semen were imported from EU Member States into GB between 1 January and 8 August 2000. No consignments were consigned to East Anglia. In 1999, 8 consignments of semen were imported to East Anglia, all from Germany and destined for different counties from that in which the breeding supply farms are located.

5. POSITION AS AT 3 SEPTEMBER 2000

5.1 Confirmed outbreaks of CSF

5.1.1 CSF has been confirmed on 5 premises to 3 September 2000. There have been no confirmed outbreaks of CSF since 12 August 2000. Details are contained in Table 5 and the geographical location of the infected holdings and the protection and surveillance zones established around them are shown in Figures 1 and 2. Detailed information regarding each infected holding is given in Section 6.

Table 5: Number of confirmed outbreaks of CSF and their location

Outbreak No	Location	Date confirmed	Primary/Secondary	Link	No pigs	Type
SF00/01	Suffolk	08.08.00	Secondary	SF00/02	3,600	Rearer
SF00/02	Norfolk	09.08.00	Primary		1,757	Breeder
SF00/03	Essex	09.08.00	Secondary	SF00/02	923	Rearer
SF00/04	Suffolk	12.08.00	Secondary	SF00/02	2,574	Rearer
SF00/05	Norfolk	12.08.00	Secondary	SF00/02	833	Rearer

5.1.2 The number of tracing exercises carried out in respect of each infected premises to determine the spread of disease is summarised in Table 6

Table 6: The no of tracing carried out in respect of each infected holding to determine the spread of disease

Infected holding	Live animal movements	Vehicle movements	People movements	Others	Total
SF00/01	8	26	61	3	98
SF00/02	31	199	9	32	271
SF00/03	7	12	52	7	78
SF00/04	15	23	14	2	54
SF00/05	5	12	33	4	54
Total	66	272	169	48	555

5.1.3 The number of blood and tissue samples examined during the course of investigations into the spread and epidemiology of CSF outbreaks is summarised in Table 7.

Table 7: The number of laboratory tests to detect CSF carried out by the VLA

	Antigen detection/virus isolation	Whole blood PCR	Serum Antibody ELISA	SNT
No of tests	73	106	18,365	73

5.1.4 The dates on which preliminary cleansing and disinfection was completed on the five (5) infected holdings and the dates on which the measures foreseen in Directive 80/217 can be applied in respect of the surveillance zones are shown in Table 8.

Table 8: Dates on which preliminary cleansing and disinfection was completed on CSF infected holdings and on which preparatory work for lifting controls on the protection and surveillance zones may commence

CSF Infected Holding	Date Preliminary Cleansing and Disinfection completed on the infected holding	Date work may start preparatory to lifting the surveillance zone	Date work may start preparatory to lifting the protection zone	Estimated date on which controls on the surveillance zones may be lifted
SF00/01	12 August	27 August	11 September	11 September
SF00/02	19 August	3 September	18 September	18 September
SF00/03	12 August	27 August	11 September	11 September
SF00/04	14 August	29 August	13 September	13 September
SF00/05	14 August	29 August	13 September	September

5.1.5 On 26 August, instructions were issued to MAFF veterinary staff to start the work necessary to lift controls in the surveillance zones in line with the timetable foreseen in Table 8. Based on subsequent survey work, the number of pig holdings in the 3-km and 10-km protection and surveillance zones around each infected holding is summarised in Table 9.

Table 9: The number of holdings with pigs on them in the protection and surveillance zones around each CSF infected holding

CSF Infected Holding	No pig holdings in the 3-km protection zone	No of pig holdings in the 10-km surveillance zone	Total number of pig holdings
SF00/01	7	63	70
SF00/02	19	170	189
SF00/03	4	60	64
SF00/04	13	174	187
SF00/05	12	180	192
Total	55	647	702

5.2 Pig holdings which have been placed or are currently under official veterinary control because they are linked to the CSF infected holdings through movements of animals, vehicles or people.

5.2.1 An analysis of these holdings and the present state of the investigations on them, is provided below or in Section 6. A flow chart of premises directly linked to the infected breeding holding SF00/02 is at Figure 3.

Primary/multiplier breeding premises that supplied the CSF infected breeding holding SF00/02 with pigs

- 5.2.2 Five primary breeding herds were found to have supplied breeding stock to SF00/02 between December 1999 and 31 May 2000. All have been traced, the pigs on the farms clinically inspected by a MAFF VO. There was no evidence of clinical illness on any of the farms. Blood samples taken from the pigs to test for evidence of CSF have all given negative results. A more detailed account of the investigations on these farms is given in Paragraphs 4.3.8 – 4.3.10.

Rearing nursery premises that received weaned pigs from CSF infected breeding holding SF00/02 after 1 May and before 1 June 2000

- 5.2.3 Eleven (11) rearing premises were traced which had received pigs from SF00/02 between 1 May and 1 June 2000. A more detailed account of the investigations on these farms is given in Paragraphs 4.2.2 – 4.2.3
- 5.2.4 Seven rearing premises received weaned pigs born after 1 June from SF00/02. Five (5) were killed as “dangerous contacts” and after laboratory testing CSF was confirmed in 4/5 (SF00/01, SF00/03, SF00/04 and SF00/05). CSF was not confirmed in 1/5.
- 5.2.5 Clinical and serological examination of pigs on the remaining four premises has failed to reveal any evidence of CSF.

Fattening/finishing premises that received pigs from CSF infected holding SF00/02 or from the 11 rearing premises supplied by SF00/02

- 5.2.6 Twelve fattening premises received pigs from holding SF00/02 after 1 May. Clinical and serological examination of the pigs on these premises has failed to detect any evidence of CSF on these premises. A more detailed account of the investigations on these farms is given in Paragraph 4.2.2.

Other breeding herds owned by the production/breeding company

- 5.2.7 The breeding/production company in whose herds CSF has been confirmed, own or are supplied by 43 breeding farms including SF00/02. Forty one (41) of these herds are in East Anglia. All have been officially inspected and blood samples taken for evidence of CSF antibodies. The results of these examinations have failed to reveal any evidence of CSF on 42 holdings, the remaining holding being SF00/02.

Other holdings where holdings under official control awaiting the outcome of laboratory tests for CSF

- 5.2.8 Since the start of the outbreak on 8 August, a total of 79 have been placed under official veterinary control because the owner or his/her veterinary surgeon has reported illness in pigs and where the clinical picture is such that the possibility of CSF cannot be ruled out. On five (5) holdings, CSF has been confirmed
- 5.2.9 Official controls have been lifted on 47/79 holdings where no evidence of CSF could be detected on laboratory examination of blood and tissues sample.
- 5.2.10 Official controls remain in place on 27 holdings pending the results of laboratory testing. Of these;
- (i) none (0) are linked by movement of pigs with any of the 5 confirmed CSF outbreaks, eleven (11) have links with a confirmed CSF outbreak through the movement of vehicles or people etc., and sixteen (16) have no known links with any of the five confirmed CSF outbreaks;
 - (ii) eight (8) are in the surveillance zones surrounding the five infected holdings: 1 for SF00/01, 2 for SF00/02, 3 for SF00/04 and 4 for SF00/05; and
 - (ii) sixteen (16) are outwith the counties of Essex, Suffolk and Norfolk.

5.3 Summary

As of 3 September 2000:

- a. CSF was confirmed in one breeding herd (SF00/02) and 4 in rearing herds (SF00/01, 00.03, 00.04 and 00.05) between 8 and 12 August. No cases of CSF have been confirmed since 12 August and there has been no evidence of lateral spread to other holdings within or outwith the control zones established around the infected holdings.
- b. 3-km and 10-km protection and surveillance zones have been established around each of the 5 confirmed cases. There are a total of 65 pig holdings in the 5 Protection Zones and 647 herds in the 5 Surveillance Zones now that the size of the surveillance zones has been reduced to the 10-km foreseen in Council Directive 80/217 (see Paragraph 3.4).
- c. In the absence of further outbreaks of CSF since 12 August, work began on 27 August to lift the controls in the surveillance zones around the five infected holdings. It is hoped that all this work will be completed in the period 11 - 18 September, from which dates preparatory work for lifting controls in the protection zones can begin.

- c. Epidemiological investigations suggest that infection may have entered the breeding herd SF00/02 between 7 June and 16 June and subsequently have been spread through movement of pigs born after this date to rearing and fattening units in the production pyramid. The source of infection is likely to have been infected pig meat in the form of edible waste discarded by users of footpaths located close to the outdoor paddocks on which breeding pigs were accommodated on SF00/02.

6. DETAILED REPORT ON CLASSICAL SWINE FEVER

6.1 OUTBREAK SF00/01

1. Location

District: Woodbridge,
County: Suffolk
MAFF AHDO: Bury St Edmunds

2. Type and Size of Farm

Total No. of pigs:	3,606	
No of breeding pigs:	0	
No of rearing pigs:	3,606	Age: 4-14 weeks in 7 houses
No. of fattening pigs:	0	

3. Suspicion of disease

Date of suspicion: 4 August 2000
Reported by whom: Company veterinary surgeon

No of sick/dead pigs: 1250
No healthy pigs: 2356

Clinical signs: lethargy, yellow diarrhoea, inco-ordination, fever, excessive thirst, cyanosis of skin particularly ears and abdomen

Post mortem examination: Chronic pneumonia and peritonitis, multifocal petechial haemorrhages, swollen pale kidneys, enlarged haemorrhagic submaxillary lymph nodes

Samples taken: tonsil, spleen, maxillary lymph node, mesenteric lymphnode, spleen and ileum from 3 dead pigs. Clotted blood samples from 6 live, in contact pigs.

4. Method of diagnosis

FAT on cryostat tissue sections
Virus isolation on tissue culture with discriminatory typing using monoclonal antibodies.
ELISA serology

5. **Date of confirmation of disease:** 8 August 2000

6. **Depopulation**

Date of depopulation: 10 August 2000

Method of depopulation: Killing on the holding followed by destruction at rendering plant

7. **Presumed date of infection:** 11 July 2000

8. **Date of preliminary cleansing and disinfection:** 11 August 2000

9. **Epidemiology**

Tracing back: Source of infection probably infected weaned pigs supplied by Case SF00/02 on 11 July

Animal contacts: Deliveries of weaned pigs from 7 breeders on 4, 7, 11, 12, 13 and 14 July including from SF00/02.

Transport contacts: Feed lorries on 5, 8, 19, 22 June; 1,3, 7,14,17,20 and 24 July

Personnel: Company field staff on 13 and 26 June, 5, 7, 11, 14, 18, 21,24,26 July and 2 August
Veterinary surgeon on 19 and 24 July
MAFF on 4, 8 and 9 August

Tracing on: Collection dead pigs on 6, 26 and 30 June, 25 and 30 July
No live animal movements off the premises after 5 July

10. **Zone report**

1 km radius of infected holding: No of holdings with pigs: 1
No/type of pigs: 34/ sows and fatteners

Protection Zone: Established 8 August
No of holdings with pigs: 7

Surveillance Zone: Established 8 August
No of holdings with pigs: 63

11. **Local measures:** As provided for in Directive 80/217

DETAILED REPORT ON CLASSICAL SWINE FEVER

6.2 OUTBREAK SF00/02

1. Location

District: Old Buckenham,
County: Norfolk
MAFF AHDO: Bury St Edmunds

2. Type and Size of Farm

Total No. of pigs: 1,757
No of breeding pigs: 569
No of rearing pigs: 904
No. of fattening pigs: 214

Outdoor unit: 370 sows and gilts in a circular penning arrangement divided into unequal pen sizes by electric fencing. 83 suckling sows plus 904 suckling piglets housed in individual arcs at the rate of 6 arcs to a pen separated by electric fencing.

Indoor unit: 3 boars in individual pens, 44 gilts in 6 pens, 9 maiden gilts in 2 pens, 20 growers in 5 pens and 194 piglets (3-4 weeks old) in 2 pens. An outdoor breeding unit with all adult sows and most boars kept permanently in fields contained by electric fencing and arcs for shelter. Piglets moved to the indoor unit at 3 weeks of age.

3. Suspicion of disease

Date of suspicion: 7 August 2000
Reported by whom: Company veterinary surgeon

History: One sow became ill on 21 June together with her litter. Symptoms included scouring, nasal discharge, inappetance, loss of weight. The sow died on 18 July but 3-4 of her litter survived. Piglets were scouring, nasal discharge, red eyes, staring coat, loss of weight and inappetance. Piglets died within 7 days of showing signs of disease and the adult stock within 1-3 weeks. Maximum piglet mortality 10-30 days from beginning of June.

No of sick/dead pigs: 76
No healthy pigs: 1681

Samples taken: tonsil, spleen, maxillary lymph node, mesenteric lymphnode, spleen and ileum from 5 dead pigs. Clotted blood samples from 4 live adult in contact pigs.

4. Method of diagnosis

FAT on cryostat tissue sections

Virus isolation on tissue culture with discriminatory typing using monoclonal antibodies.

ELISA serology

5. Date of confirmation of disease: 9 August 2000

6. Depopulation

Date of depopulation: 15 August 2000

Method of depopulation: Killing on the holding followed by destruction at a rendering plant

7. Presumed date of infection: 1 June 2000

8. Date of preliminary cleansing and disinfection: 16 August 2000

9. Epidemiology

Tracing back: 5 primary/multiplier breeding herds

Animal contacts: 7 direct and 14 indirect movements on since 1 May

Transport contacts: 39 direct and 59 indirect potential vehicle contacts

Personnel: 4 direct and 8 indirect potential people contacts

Tracing on: 93 direct and 65 indirect potential miscellaneous movement tracings.

10. Zone report

1 km radius of infected holding: No of holdings with pigs: 2
No/type of pigs: 1 pet pig and a 30 sows/fattening unit

Protection Zone: Established 9 August
No of holdings with pigs: 19

Surveillance Zone: Established 9 August
No of holdings with pigs: 170

11. Local measures: As provided for in Directive 80/217

DETAILED REPORT ON CLASSICAL SWINE FEVER

6.3 OUTBREAK SF00/03

1. Location

District: Colchester,
County: Essex
MAFF AHDO: Chelmsford

2. Type and Size of Farm

Total No. of pigs:	923	
No of breeding pigs:	0	
No of rearing pigs:	923	Age: 4-14 weeks in 7 houses
No. of fattening pigs:	0	

3. Suspicion of disease

Date of suspicion: 7 August 2000
Reported by whom: Company veterinary surgeon

No of sick/dead pigs: 292
No healthy pigs: 631

Clinical signs: lethargy, yellow diarrhoea, inco-ordination, fever, excessive thirst, cyanosis of skin particularly ears and abdomen

Samples taken: tonsil, spleen, maxillary lymph node, mesenteric lymphnode, spleen and ileum from 3 dead pigs. Clotted blood samples from 6 live, in contact pigs.

4. Method of diagnosis

FAT on cryostat tissue sections
Virus isolation on tissue culture with discriminatory typing using monoclonal antibodies.
ELISA serology

5. **Date of confirmation of disease:** 9 August 2000