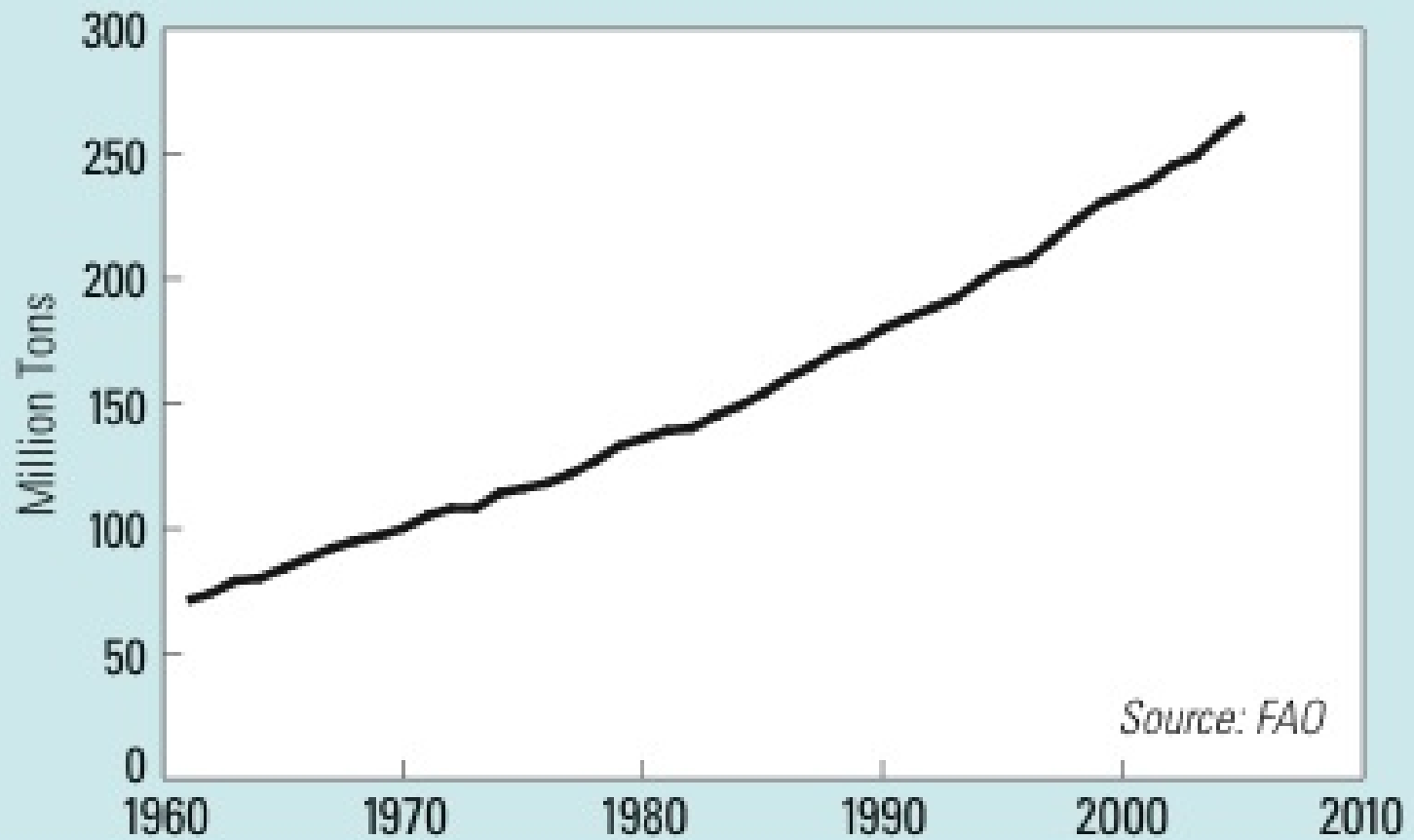


Livestock Plagues

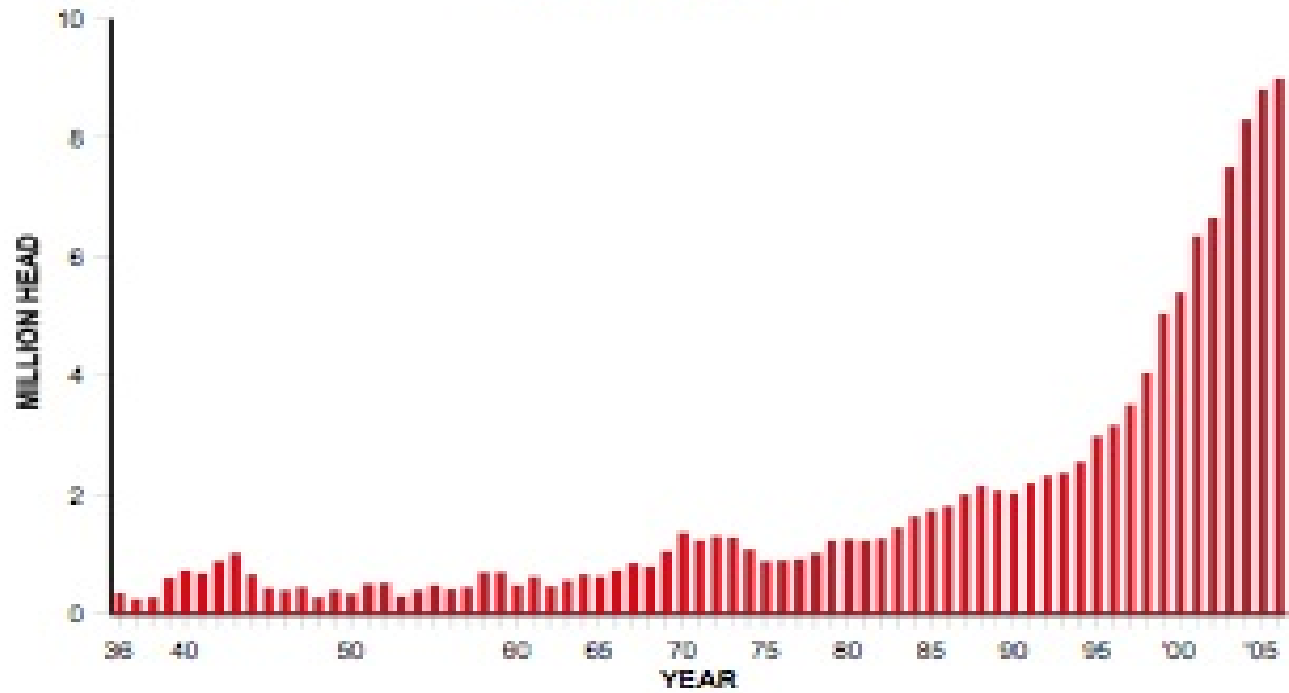
andrew@andrewnikiforuk.com

Manitoba Clean Environment
Commission, April 27, 2007

Figure 1. World Meat Production, 1961–2005



MANITOBA PIG PRODUCTION 1936 - 2006E



The Story

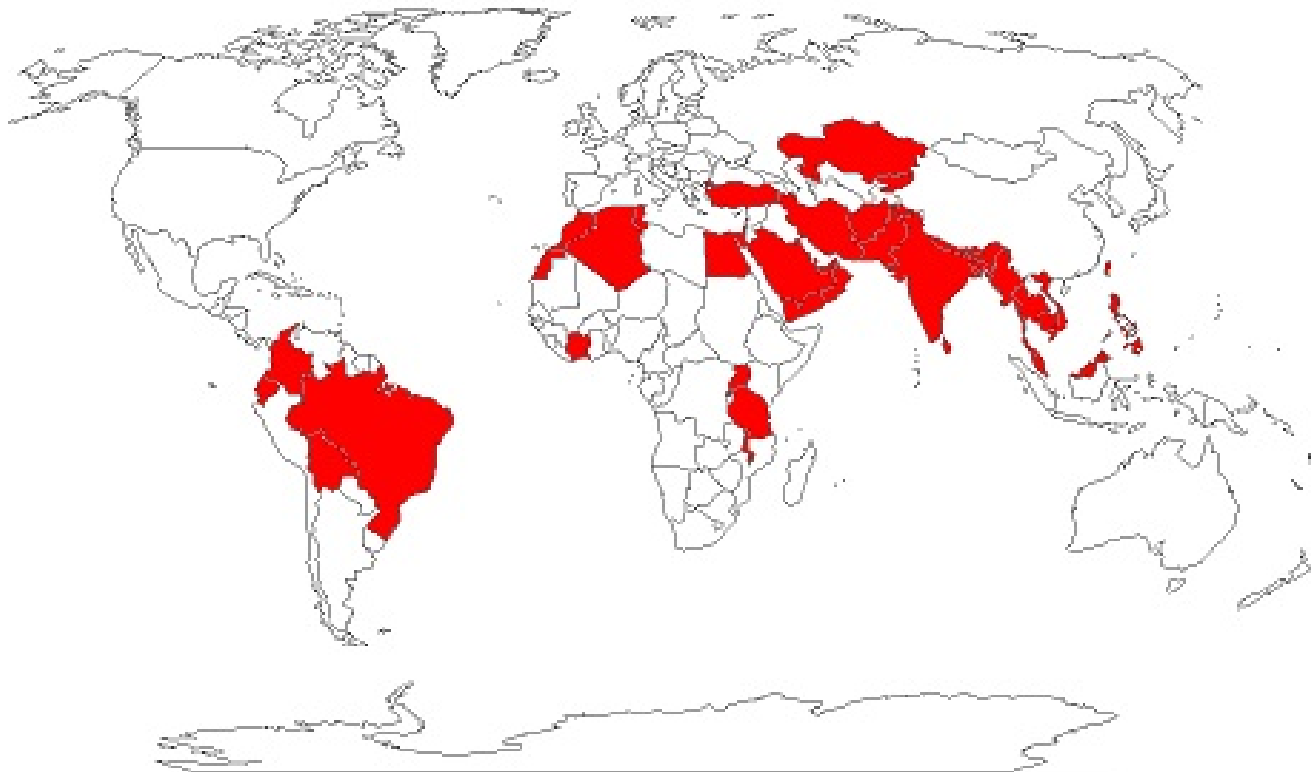
- Unprecedented traffic in people and animals
- Unprecedented concentrations of livestock
- Unprecedented disease exchanges: 607 imported diseases in livestock since 1980

A Soup of Diseases

- Circo Virus (Post Weaning Multisystemic Wasting Disease)
- Swine Influenza
- PRRS (Porcine Reproductive and Respiratory Syndrome)
- Pseudorabies (Herpes virus)
- “Diseases are tops on the list of concerns for hog farmers.”

Taiwan: FMD:1997

FMD Type O outbreaks 1997-1999



FMD Type O as officially reported (OIE,WRL,FAO)



Taiwan's Hog Kingdom: 1997

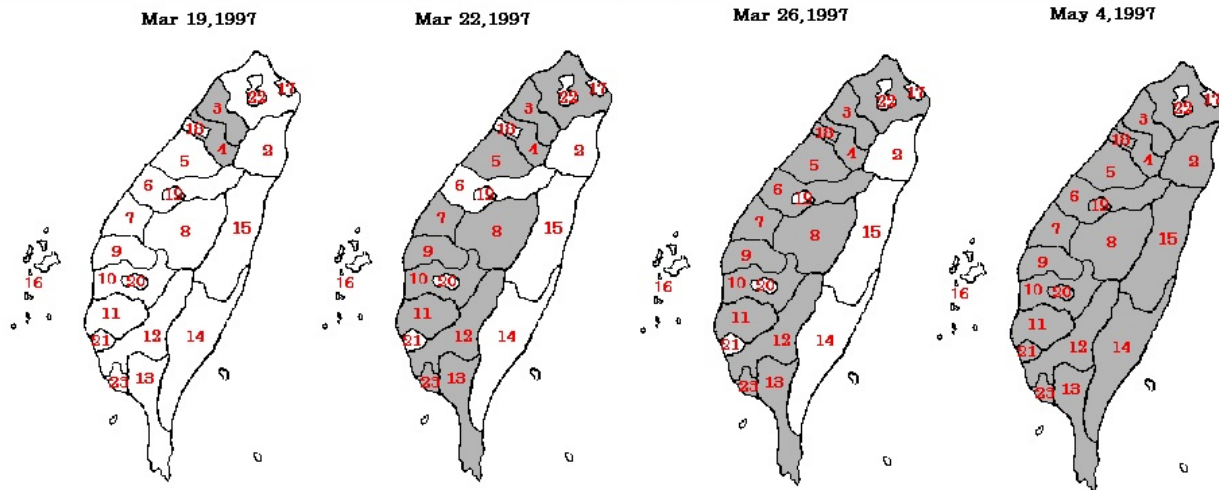
- Rapid population increase since 1950s (tenfold growth) based on imported corn
- 14 million pigs (6500 per square mile)
- 60% of domestic meat consumption
- 40% exported to Japan (\$1.6-billion)
- World's 3rd largest exporter of pork
- Pork accounted for one-third of agricultural production
- Employed 700,000 people (USDA)
- 1991 study proposed to reduce exports to protect water and health but was rejected

Taiwan: Global Pathways

- Smuggling of live pigs
- Smuggling of pig meat products
- Legal importation of live pigs
- Smuggling of animal biologics
- Legal and illegal movement of people
- Trojan pigs: intentional economic sabotage by China
- (index farm located near a port used for pig smuggling.)

Spread of FMD on the map

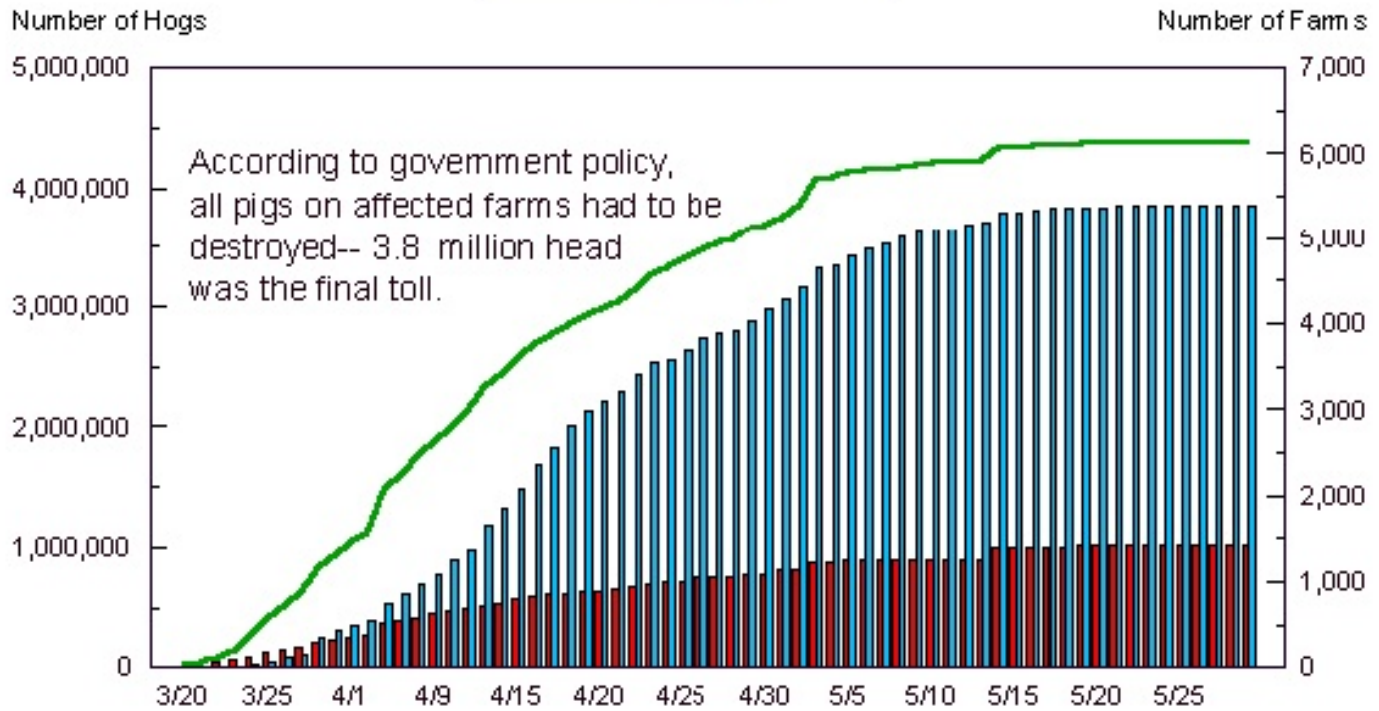
Date	March 19, 1997	March 22	March 26	May 4
Species of animals	swine	swine	swine	swine
No. of farms affected	3farms	107farms	717farms	5,734farms
case	1,570heads	37,627heads	146,771heads	884,127heads
death	615heads	11,943heads	37,643heads	172,430heads
Location	2prefectures	11prefectures ,Pcity	12prefectures 2cities	15prefectures 5cities



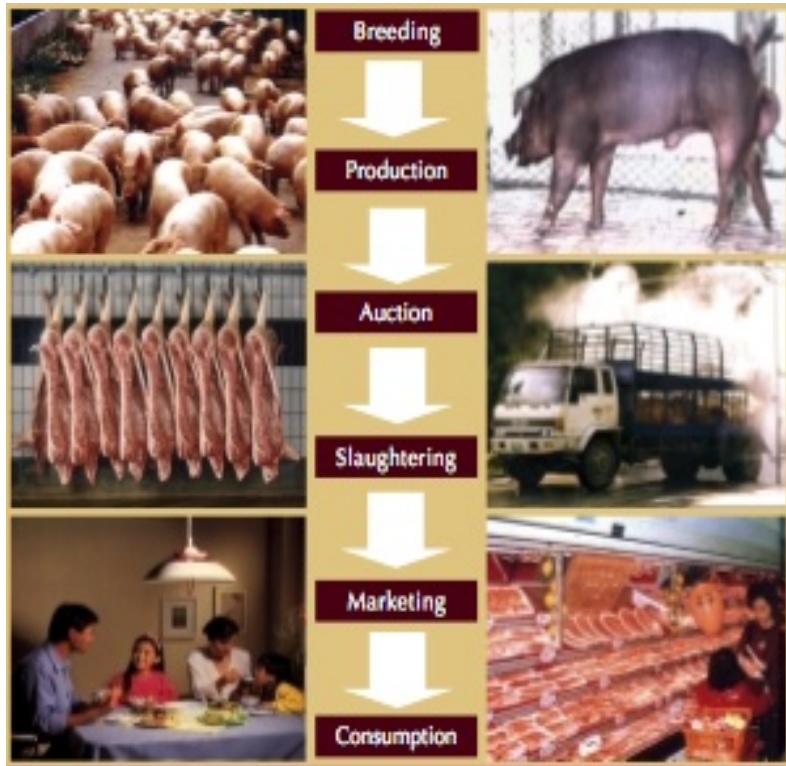
City and Prefecture

- | | | | | |
|----------------------|-----------------------|-------------------------|----------------------|-------------------|
| 1 Taipei Prefecture | 6 Taichung Prefecture | 11 Tainan Prefecture | 16 Penghu Prefecture | 21 Tainan City |
| 2 Yilan Prefecture | 7 Changhwa Prefecture | 12 Kaohsiung Prefecture | 17 Keelung City | 22 Taipei City |
| 3 Taoyuan Prefecture | 8 Naniou Prefecture | 13 Pingtung Prefecture | 18 Sinchu City | 23 Kaohsiung City |
| 4 Sinchu Prefecture | 9 Yunlin Prefecture | 14 Taitung Prefecture | 19 Taichung City | |
| 5 Miaoli Prefecture | 10 Chiayi Prefecture | 15 Hwallen Prefecture | 20 Chisyi City | |

Taiwan FMD Outbreak: Spread of the Disease Was Rapid and Indiscriminate



FMD Correction

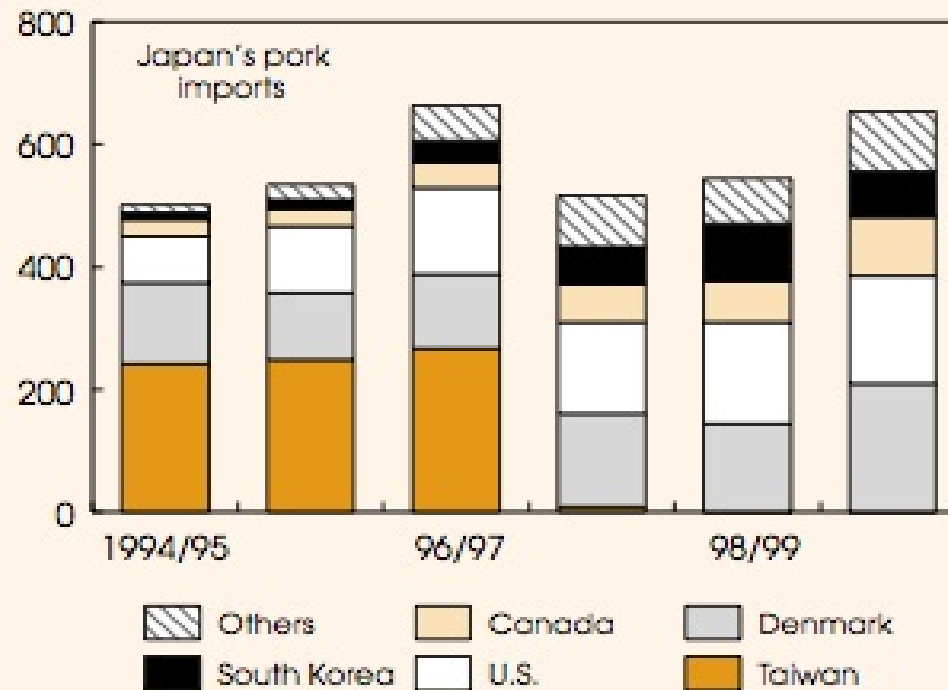


- 4-million pigs killed
- Military called out to electrocute animals
- Export markets closed (Japan)
- 50,000 unemployed (7 of 20 packers closed)
- National herd reduced to 8-million

Flow of swine industry and pork market in Taiwan ROC.
Source: H.C. Wang, National Animal Industry Foundation, Taiwan ROC

Taiwan No Longer Ships Pork to Japan

1,000 metric tons

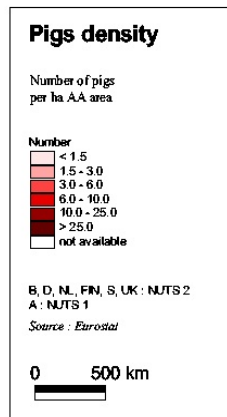


Fiscal year beginning April.

Economic Research Service, USDA

Netherlands: CSF: 1997

Netherlands



1989/90

- Rapid growth: 1970-99
- 24 million pigs
- Exported 60%
- Imported feed (cassava and soybean cake)
- “Highest intensity of livestock production in the world” (FAO)
- 47 pigs per hectare (10x the EU average)



Classical Swine Fever



Classical Swine Fever - 2006



Classical Swine Fever

CSF is a highly contagious viral disease of swine.

Mortality varies from almost zero to 100%.

Only the domestic pig and wild boar are susceptible naturally.





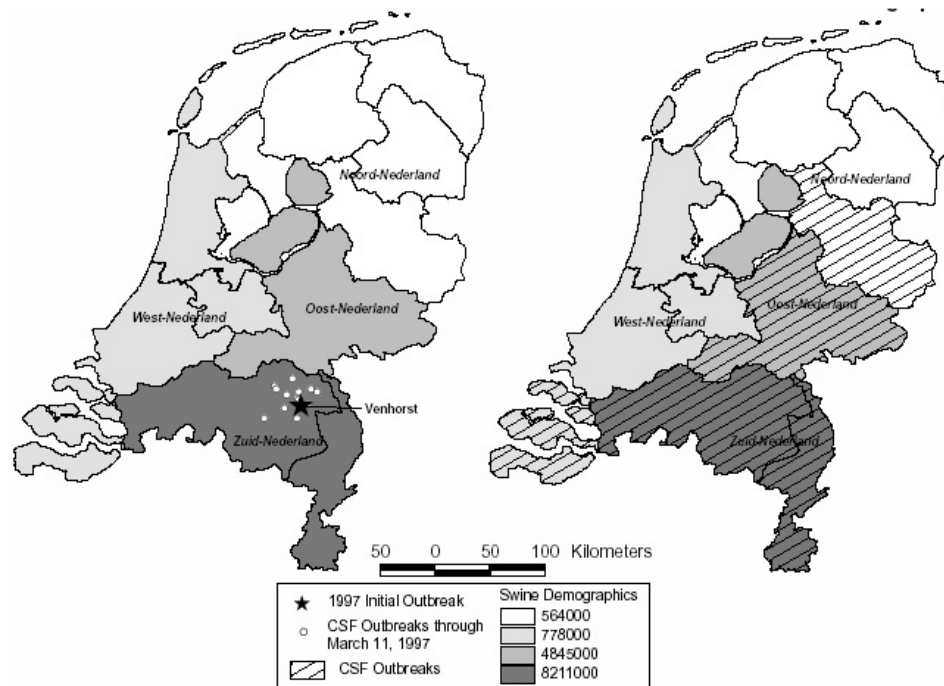
Classical Swine Fever

...can survive for months
in refrigerated meat
and for years
in frozen meat

Figure 21

Netherlands - 1997 CSF Outbreaks through March 11, 1997 in Domesticated Swine Relative to 1995 Swine Demographics

Netherlands - Summary of 1997 and 1998 CSF Outbreaks in Domesticated Swine Relative to 1995 Swine Demographics



CSF: Pathways

- Transport trucks
- Swill feeding
- Artificial insemination
- Vets and animal killers

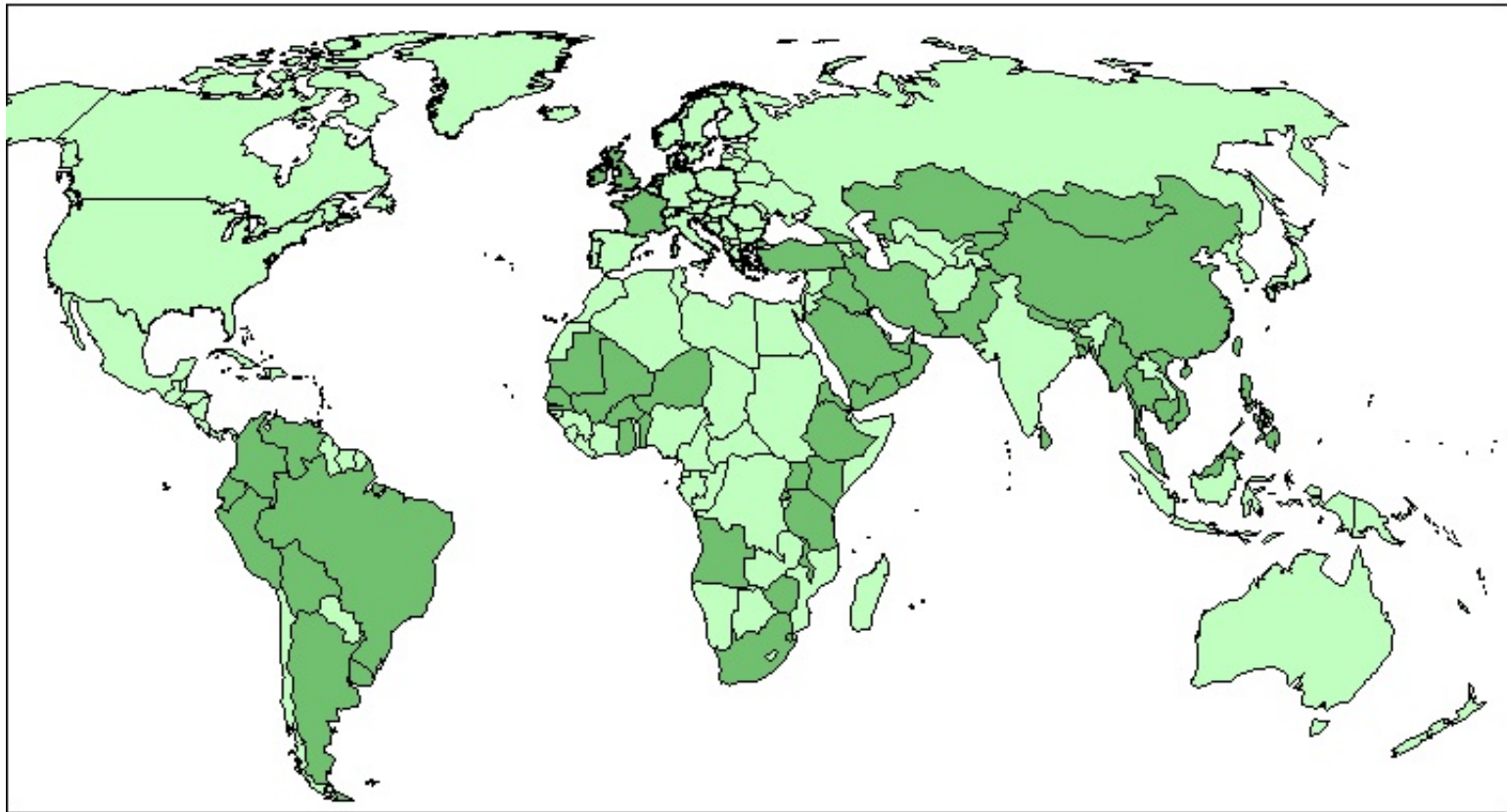
Dutch Pandemonium

- 12-million animals destroyed (majority were not infected)
- \$2.3-billion dollars
- “animal trading movements have to be re-assessed.” (Armin Elbers AHS)
- National plan to reduce herd by 25%: programs to reduce water and air pollution
- 9,200 pig farms (1990): now 4,170 (2006)

“Europe may face further devastating animal disease epidemics due to long-distance transport of animals and increasingly dense livestock units.”

UN FAO: 1998

England:FMD:2001



FMD 2001

The Fuel

- Rising exports (1-million lambs to continent)
- Unprecedented sheep and pig densities
- Decimated government veterinary service
- “Supermarket greed and the drive for globalization at all costs has turned this country into a cesspit for the world’s cheapest meat and meat products.” Farmer

FMD: Global Pathways

- Imports of live animals
- Contaminated meat
(frozen, cured, salted)
- Smuggled meat
- Bad vaccines
- Travellers/tourists/vets/farmers
- Birds

Foot and mouth

Tracing the epidemic

Links

Early February 2001

Foot and mouth disease breaks out at Burnside farm, Heddon-on-the-Wall, Northumberland. By February 25, most of Britain had been declared a contaminated area and European countries were slaughtering thousands of animals exported from Britain. Click below to see how the epidemic spread, to view the symptoms or to see how the disease might enter a typical farm.



Burnside farm

[▶ Next](#)

[▶ Symptoms](#)

[▶ Farms under siege](#)

Foot and mouth Tracing the epidemic

Links

February 21

Sheep from Highampton are taken to Bromham slaughterhouse in Wiltshire where they develop foot and mouth disease. Other sheep are sold to Hill farm in Llanclouddy, Herefordshire, and another batch are sold at auction in Northampton.



▶ Symptoms

▶ Farms under siege

Foot and mouth

Tracing the epidemic

Links

April 17

Over 1,000 cases but the rate of new infections might be levelling off.

One confirmed case in the Irish Republic, at Jenkinstown, County Louth. Two more confirmed cases in northern Ireland at Cushendall, County Antrim and Ardboe, County Tyrone.

Twelve in the Netherlands.

Two in France.



Source: Maff

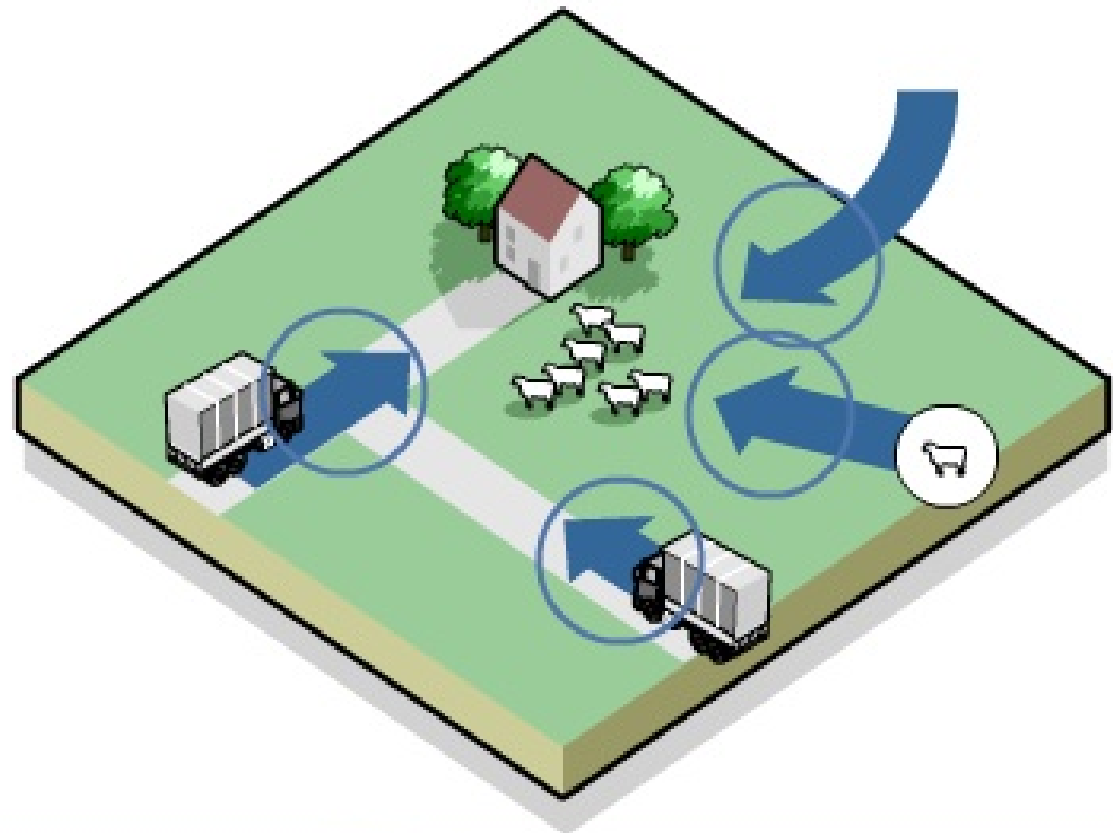


▶ Symptoms

▶ Farms under siege

Foot and mouth Farms under siege

Links



▶ Next

▶ Where it came from

▶ Tracing the epidemic

Kill (stamp out) or Vaccinate?



“Lies, spin, incompetence, cruelty and waste.”







“Grow up. This is the real world, not Disneyland.”



The Dead

- Number of blood tests: 720,000
- Number of positive cases: 337
- Sheep: 3 million culled by DEFRA
- Sheep: 1.6 million (“welfare slaughter”)
- Cattle: 859,000
- Pigs: 145,000 culled by DEFRA
- Pigs: 287,000 (welfare slaughter)

British Pandemonium: A Rwanda for Sheep



- 10 million animals slaughtered (10% were infected)
- Military deployed
- Tourism suspended
- Rural economy in ruins (30,000 farmers)
- \$20-billion disaster

Carnage by Computer

- “involved lawless action by government on such a scale as to amount to a negation of the basic precepts of law...”
- If a private business stored such a large quantity of flammable materials on its premises that its fire control measures could not cope with the great size of a fire caused thereby, would it be excused from liability for the damage caused?
- We are headed for another disaster...”

“A crisis of veterinary medicine”

- Concentration
- Overexpansion for export
- Increased trade and traffic in animals
- Disease Outbreak/Invasion
- Mass slaughter
- An economic or biological crash

Avian Influenza: The Great Bird Plague



- 2003: 30 million birds killed in Netherlands
- 2004: 19 million birds killed in Fraser Valley, BC
- 1996-2006: 200-million birds killed in Asia
- “Neither governments nor the media want to talk or hear about population densities.”

Density Plus Movement = More Disease

182

N. Rose, F. Madec

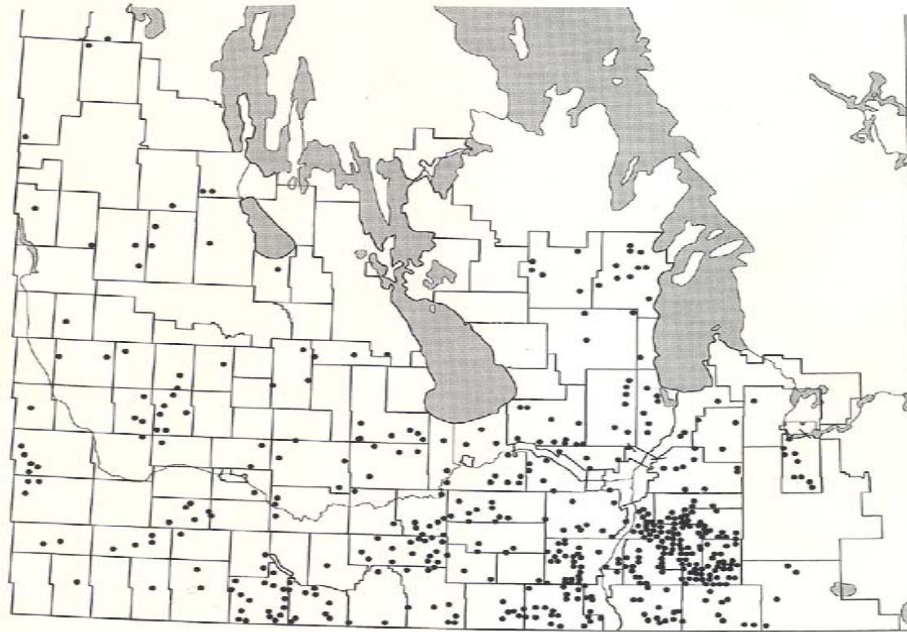


Figure 1. Map of Brittany, localisation of the selected areas: ■ densely populated pig area (canton of Plouguenast) and ■ sparsely populated pig area (cantons of Huelgoat and Chateauneuf du Faou).

Is there a problem here?

Appendix II

Location of Permitted Manure Storage Facilities April 2006



Source: Manitoba Conservation

Pandemonium in Manitoba



- US borders will close
- For every pig infected, 400 will be killed to relieve overcrowding (welfare slaughter)
- “insufficient Canadian operational infrastructure”
- Public response: “irrevocably withdraw its support for livestock production.” (Terry Whiting OCV, 2005)

MRSA

A Global Pathogen

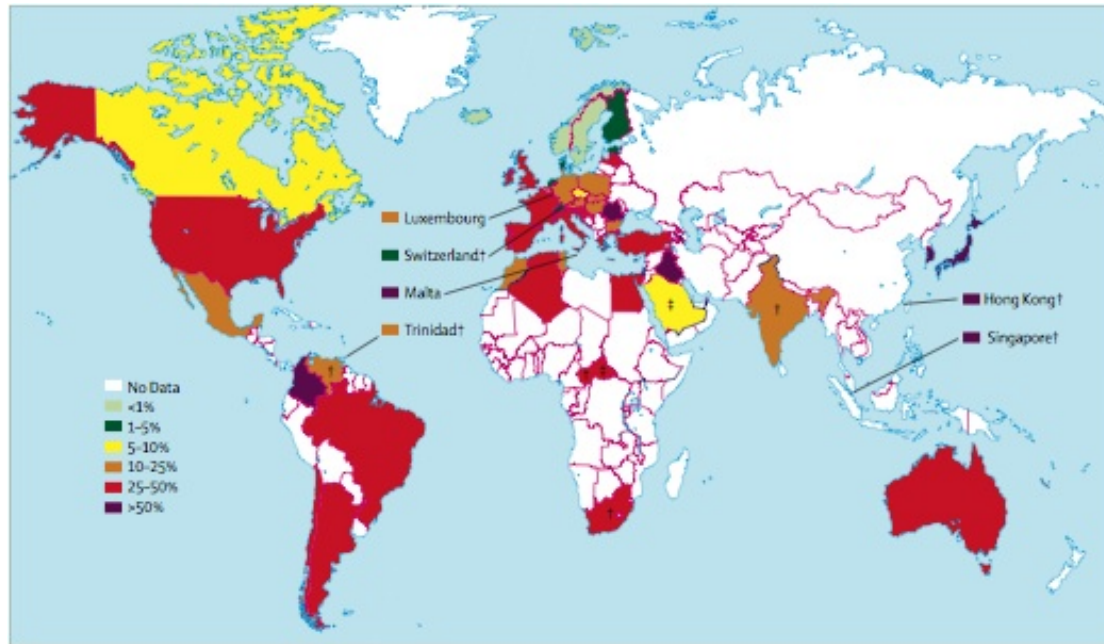


Figure 1: Worldwide prevalence of MRSA displayed by country*

*All presented MRSA proportions are from peer-reviewed studies undertaken since 1998.^{32,39-43} Prevalence estimates for Morocco, Algeria, Tunisia, Egypt, Jordan, Lebanon, and Turkey are from the antimicrobial resistance in the Mediterranean region website⁴⁴ at www.sih.gov.mt/armmed/earss.asp. Studies providing most recent estimate of the MRSA proportion taken into account. If more than one study reported over same period, study including different types of clinical isolates was preferred over studies including only one specific type of specimen. †=Prevalence estimates are based on a study that included only one hospital. ‡=Prevalence estimates are based on studies between 1993 and 1997.





Pigs and MRSA



- 26 pig farmers had MRSA infections at a rate 760 times greater than the Dutch population (EID:2005)
- Three family members, 3 co-workers and 8 out of 10 pigs MRSA positive (Ann Clin Microbiol Antimicrob. 2006)
- “This is a phenomenon that you can only recognize in a country with low prevalence of MRSA.” Dr. Andreas Voss

MRSA Carriers in the Netherlands

- 20% of pig farmers
- 39% of pigs
- 5% of veterinarians
- All hog farmers are isolated upon admission to hospital in the Netherlands

Antibiotic Resistance

- Sales of antibiotics for therapeutic use have increased faster than the number of livestock...1998 to 2004
- An explanation: “the emergence of new infectious diseases in pigs (PIA and Circo-Virus)”
- Resistance levels in animal bacteria show a simultaneous tendency to increase

Other Emerging Trouble

- Avian Flu(H1N1 and H1N2): “swine can be a mixing vessel for human, swine and avian influenza viruses to create new reassortments that may be dangerous to human health.” CDC, May 2006
- Norovirus: “pigs may be reservoirs for emergence of new human noroviruses.” CDC, December 2005

The Manpower Crisis

- 670 government vets (2002)
- 13,699,000 head of cattle (export: 1.5 million)
- 14,367,100 pigs, (export: 5.7 million)
- Slaughter of 4 million cattle; 19-million pigs and half a million sheep
- Vaclav Kouba

Iowa: 2004

- “Industrialization of livestock production over the past three decades has not been accompanied by commensurate modernization of regulations to protect the health of the public or natural public trust resources (water).”

Is this our strategy? Whack-A-Mole



Conclusions

- Livestock revolutions invite biological corrections
- Monocultures are never secure or sustainable
- A livestock plague in Manitoba is probably inevitable
- Land use planning for livestock must be part of public health policy
- Nature will restructure what politicians fail to restrain

