Livestock Plagues

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Manitoba Clean Environment Commission, April 27, 2007
Figure 1. World Meat Production, 1961–2005

Source: FAO
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

<table>
<thead>
<tr>
<th>Date</th>
<th>March 19, 1997</th>
<th>March 22</th>
<th>March 26</th>
<th>May 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species of animals</td>
<td>swine</td>
<td>swine</td>
<td>swine</td>
<td>swine</td>
</tr>
<tr>
<td>No. of farms affected</td>
<td>3 farms</td>
<td>107 farms</td>
<td>717 farms</td>
<td>5,734 farms</td>
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<tr>
<td>case</td>
<td>1,570 heads</td>
<td>37,627 heads</td>
<td>146,771 heads</td>
<td>884,127 heads</td>
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<td>death</td>
<td>615 heads</td>
<td>11,943 heads</td>
<td>37,643 heads</td>
<td>172,430 heads</td>
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<tr>
<td>Location</td>
<td>2 prefectures</td>
<td>11 prefectures, Pei-tai</td>
<td>12 prefectures, 2 cities</td>
<td>15 prefectures, 5 cities</td>
</tr>
</tbody>
</table>

#### Mar 19, 1997

#### Mar 22, 1997

#### Mar 26, 1997

#### May 4, 1997

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**City and Prefecture**

1. Taipei Prefecture
2. Yilan Prefecture
3. Taitung Prefecture
4. Hualien Prefecture
5. Miaoli Prefecture
6. Chiaju Prefecture
7. Chishang Prefecture
8. Suao Prefecture
9. Yuli Prefecture
10. Chiayi Prefecture
11. Tainan Prefecture
12. Kaohsiung Prefecture
13. Pingtung Prefecture
14. Taitung Prefecture
15. Hualien Prefecture
16. Penghu Prefecture
17. Keelung City
18. Sinsiu City
19. Taichung City
20. Chiayi City
21. Tainan City
22. Taipei City
23. Kaohsiung City
Taiwan FMD Outbreak: Spread of the Disease Was Rapid and Indiscriminate

According to government policy, all pigs on affected farms had to be destroyed-- 3.8 million head was the final toll.
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
Taiwan No Longer Ships Pork to Japan

Japan’s pork imports

1,000 metric tons

Fiscal year beginning April.
Economic Research Service, USDA.
Netherlands: CSF: 1997
Netherlands

- 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

Classical Swine Fever - 2006
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 reassessed.” (Armin Elbers AHS)
- National plan to reduce herd by 25%: programs to reduce water and air pollution
“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
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 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.
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 Llancloudy, Herefordshire, and another batch are sold at auction in Northampton.
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
Foot and mouth
Farms under siege

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
Is there a problem here?
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)
A Global Pathogen
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


- 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