

Food as a Weapon

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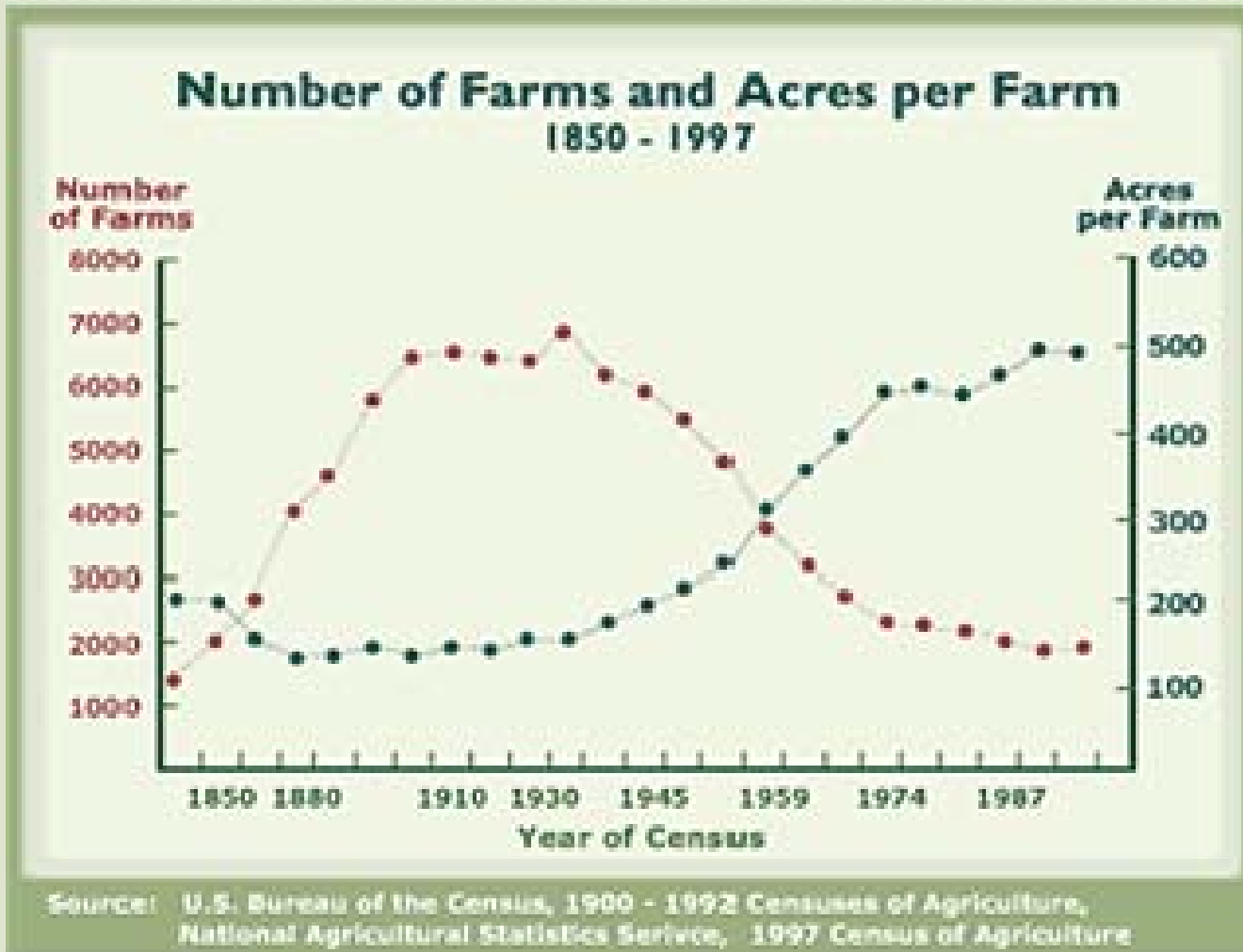
Agro-Terrorism

- Subset of Bioterrorism
- Deliberate introduction of animal or plant disease
- Goal
 - Generate fear
 - Cause economic losses
 - Undermine stability
- Risk to human health if agent is zoonotic

Tennessee Agriculture

- Over \$2 billion annually in cash receipts
- Ranks #2 in equine and meat goats
- In top 5 states for tobacco, hay, fresh market tomatoes, snap beans
- 85,000 farms
- 44% of the state is farm land

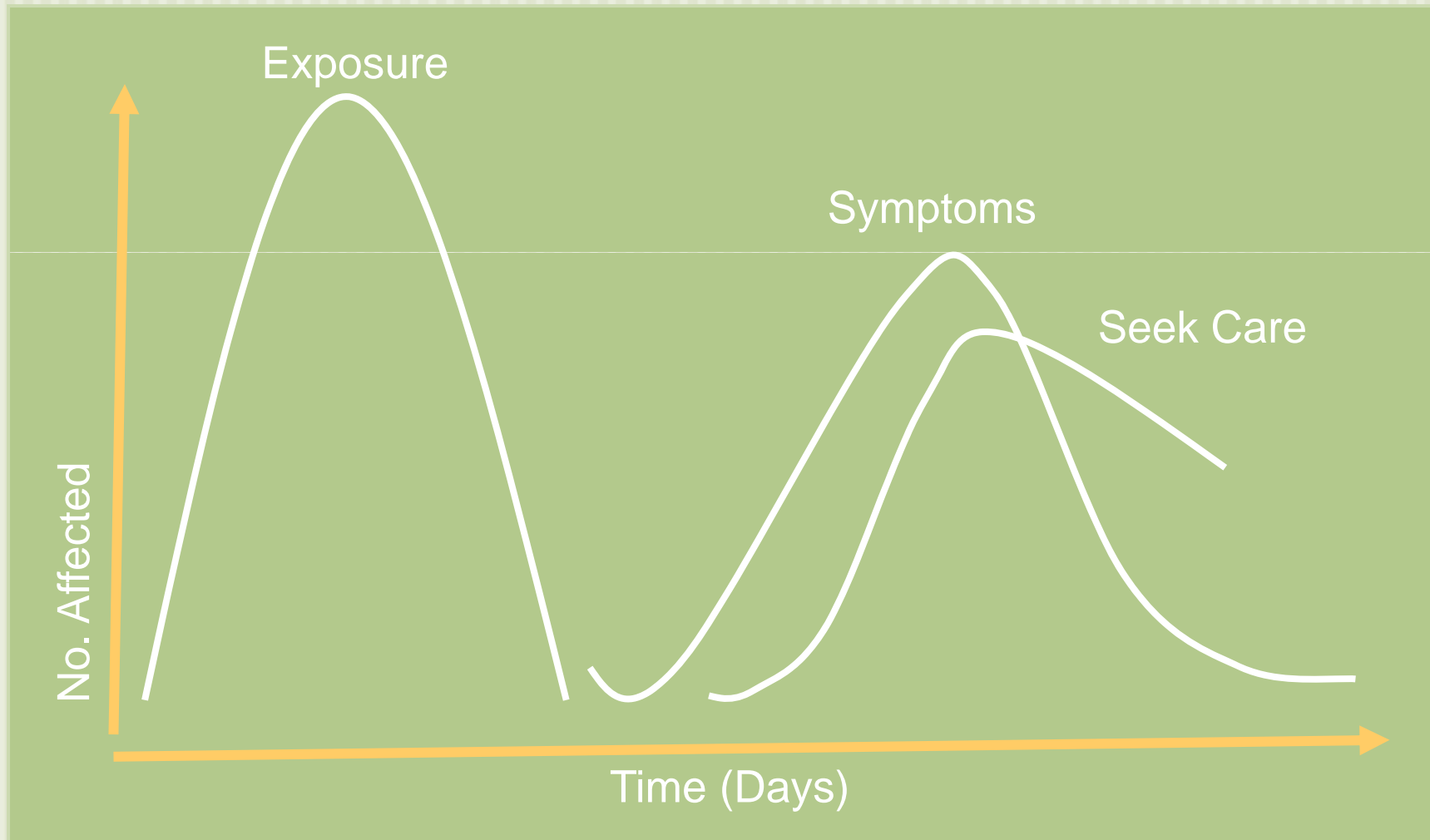
Number of U.S. Farms



Characteristics of Targeting Agriculture

- Attack on animals not as emotional as human targets
- Less chance of retaliation
- Use of agent may go undetected for days/weeks
 - Difficult to trace
 - Plausible deniability
- Many of the infectious agents not zoonotic
 - Safe to work with

Infectious Disease Outbreak



Introducing an Agent

- Multiple methods of delivery
 - Accidental by tourists, products
 - Intentional
- Simultaneous introduction in multiple areas
- Real vs. hoax
 - Lack of consumer confidence

Clues Suggesting an Attack

- Traceback of animals yields dead-end
- No shared factor among animals
- History of the farm/facility
- Other concurrent outbreaks
- Unusual signs
- Overwhelming mortality
- Unusual season for disease

History

- **WWI**
 - Glanders to infect draft animals
- **WWII**
 - Experimentation with Foot and Mouth Disease by Germans
 - Colorado potato beetles to destroy potato crops
- **1921, France**
 - Rinderpest, late blight in potatoes
- **1940-50, Soviet Union**
 - Anti-agriculture weapons
- **United States**
 - 1941 - Examined use of Newcastle, fowl plague, FMD, hog cholera
 - 1984 - Contamination of a salad bar in Oregon
 - 1996 - Feed product contamination in Wisconsin



Some examples of risk

- Avian Influenza (AI)
- Foot and Mouth Disease (FMD)
- Bovine Spongiform Encephalopathy (BSE)

Avian Influenza

- Affects chickens, turkeys, pheasants, quails, ducks, geese, guinea fowl, a variety of free flying species; more recently, mammals (cats, Stone Marten)
- Migratory waterfowl are the natural reservoir
- **Signs**
 - Sudden death
 - Lethargy and Anorexia
 - Decreased egg production
 - Swelling and discoloration of the head, comb, eyelids, wattles and hocks
 - Incoordination and/or Diarrhea

Avian Influenza

- Spreads by contact with
 - infected birds
 - contaminated manure
 - fomites (e.g.: vehicles, crates, shoes)
- Remains viable in environment for long periods
- Poses a greater challenge to the world than any other infectious disease, including AIDS (WHO)

10 things you need to know about pandemic influenza (WHO)

1. Pandemic influenza is different from avian influenza
2. Influenza pandemics are recurring events
3. The world may be on the brink of another pandemic
4. All countries will be affected
5. Widespread illness will occur

10 things you need to know about pandemic influenza (WHO)

6. Medical supplies will be inadequate
7. Large numbers of deaths will occur
8. Economic and social disruption will be great
9. Every country must be prepared
10. WHO will alert the world when the pandemic threat increases

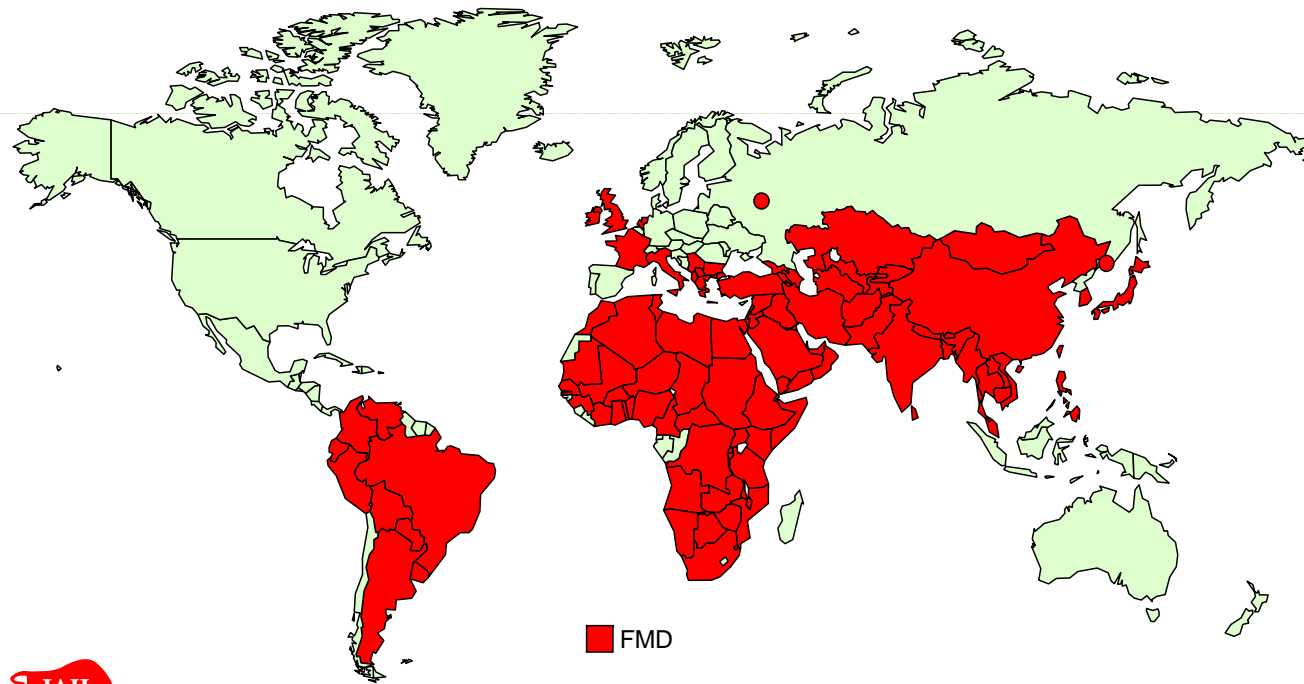
Foot and Mouth Disease (FMD)

- Viral infection
- Considered to be the most important livestock disease in the world
- Not in U.S. since 1929
- Vesicular disease of cloven-hoofed animals
- Spread by aerosol & fomites



FMD

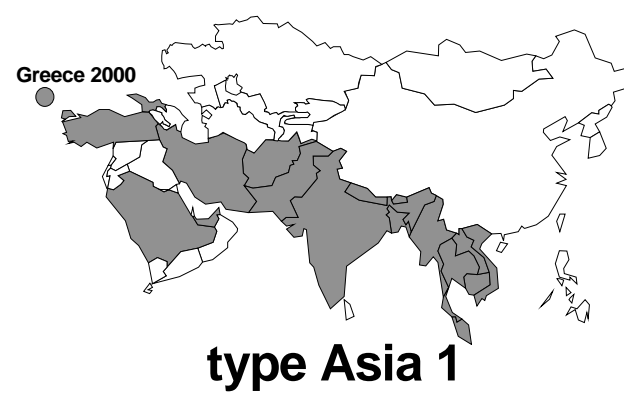
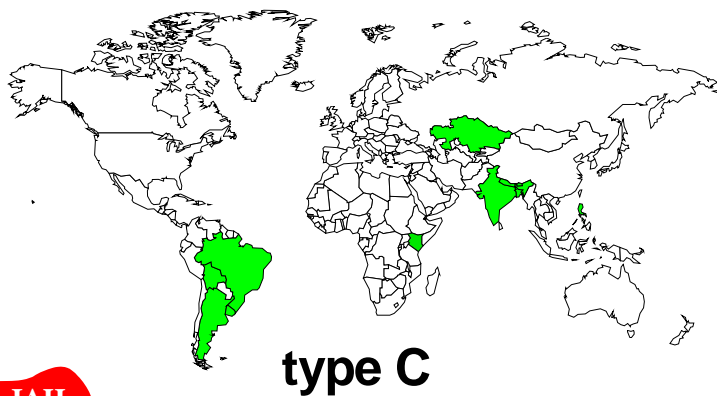
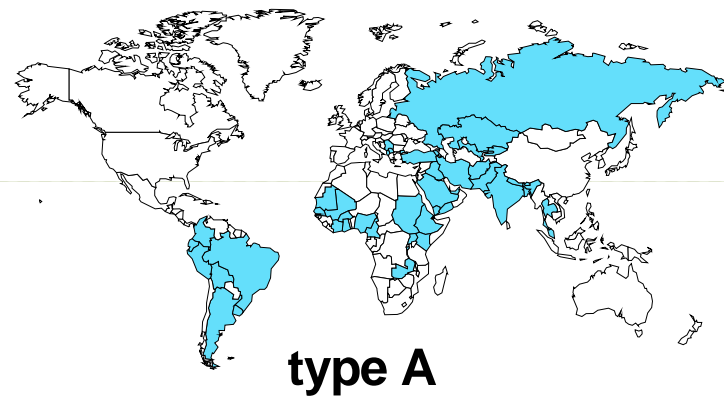
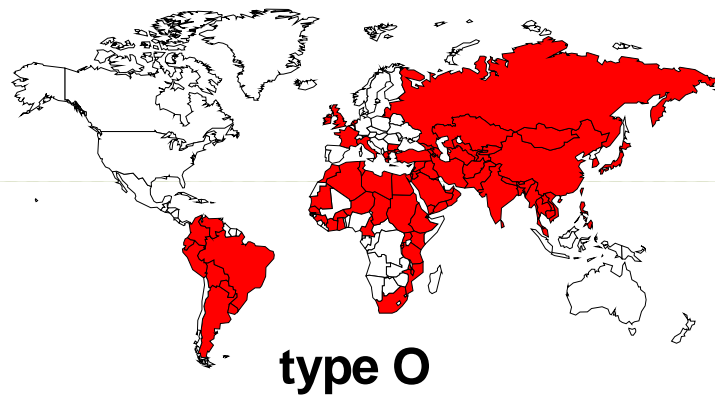
Countries in which foot-and-mouth disease outbreaks have occurred, 1992-2002



Compiled by N.J. Knowles, 3 March 2002

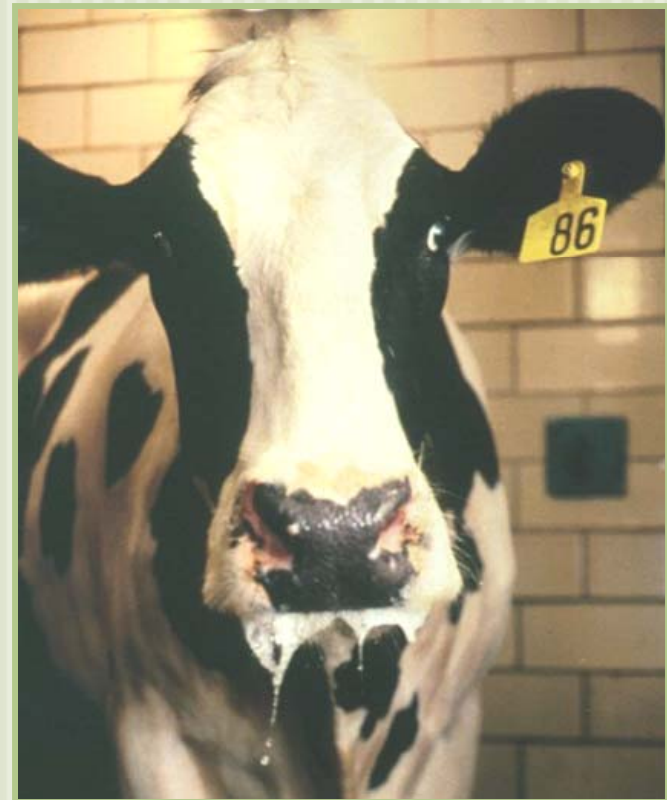
FMD

Countries in which FMD was reported, 1990 to 2002



Foot and Mouth Disease

- Animals at risk in the U.S.
 - 94.9 million cattle
 - 60 million swine
 - 6 million sheep
 - 40 million wildlife
 - Not horses
- Humans rarely infected
- Huge economic impact



U.K. FMD Outbreak, 2001

- Total costs over £10 billion
 - Ag industry, compensation, tourism, sports
- 6 million animals slaughtered
 - FMD free in less than 1 year
- Public perception
 - Animal welfare
 - Smoke pollution



FMD in Wildlife

- Risk of enzootic wildlife infection
 - Permanent trade embargoes possible
- Risk to zoos and endangered species
 - 1985 - Israel FMD infection in gazelles causing 1,500 deaths, spread to neighboring livestock
- Billions spent annually in the U.S.
 - Outdoor recreational activities

Bovine Spongiform Encephalopathy (BSE)

- Known as Mad Cow Disease
- Greater than 180,000 cases (95% in UK)
- Epidemiology
 - Prolonged incubation (2 to 8 years)
 - Progressive debilitating neurological illness which is always fatal (2 wks to 6 months)
 - Agent elicits no detectable specific immune response
- Economic impact mostly based on consumer fear

Animal Disease Control

- Veterinarians are often the first line of defense
- Action Plan:
 - **Find**
(*surveillance*)
 - **Contain**
(*prevention of spread from infected herds*)
 - **Eradicate**
(*elimination of the disease*)

Disease Control Action Plan

- Good on-farm husbandry practices
 - Economics usually limit effectiveness at some level
- Regulatory
 - Animal identification (ear tag, tattoo, etc.)
 - National Animal Identification System (NAIS)
 - Animal movement must be traceable
 - Health certificate
 - Disease reporting
 - Zoonotic and FAD
 - Good food manufacturing and distribution practices
- Proper in home food preparation and handling
 - Uninformed consumers exposed to more risks

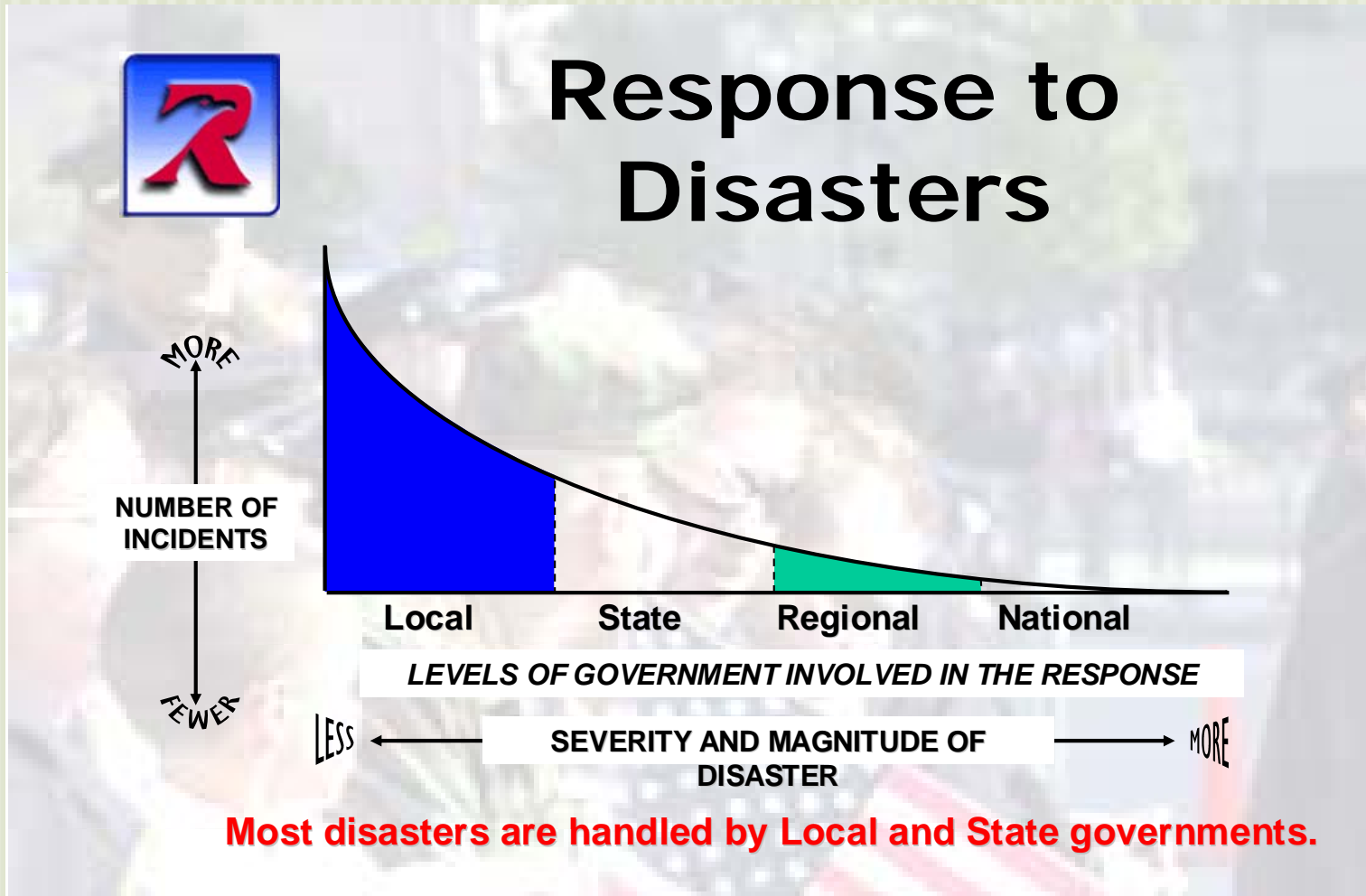
Disease Control Action Plan

- Medical services by veterinarians
 - Examinations
 - Disease prevention
 - Medical treatment or elimination
- Veterinary Diagnostic Laboratory Network
- Research
- Education
 - Over \$2 million DHS grant to UTCVM for Agriculture Vulnerability Assessment Training

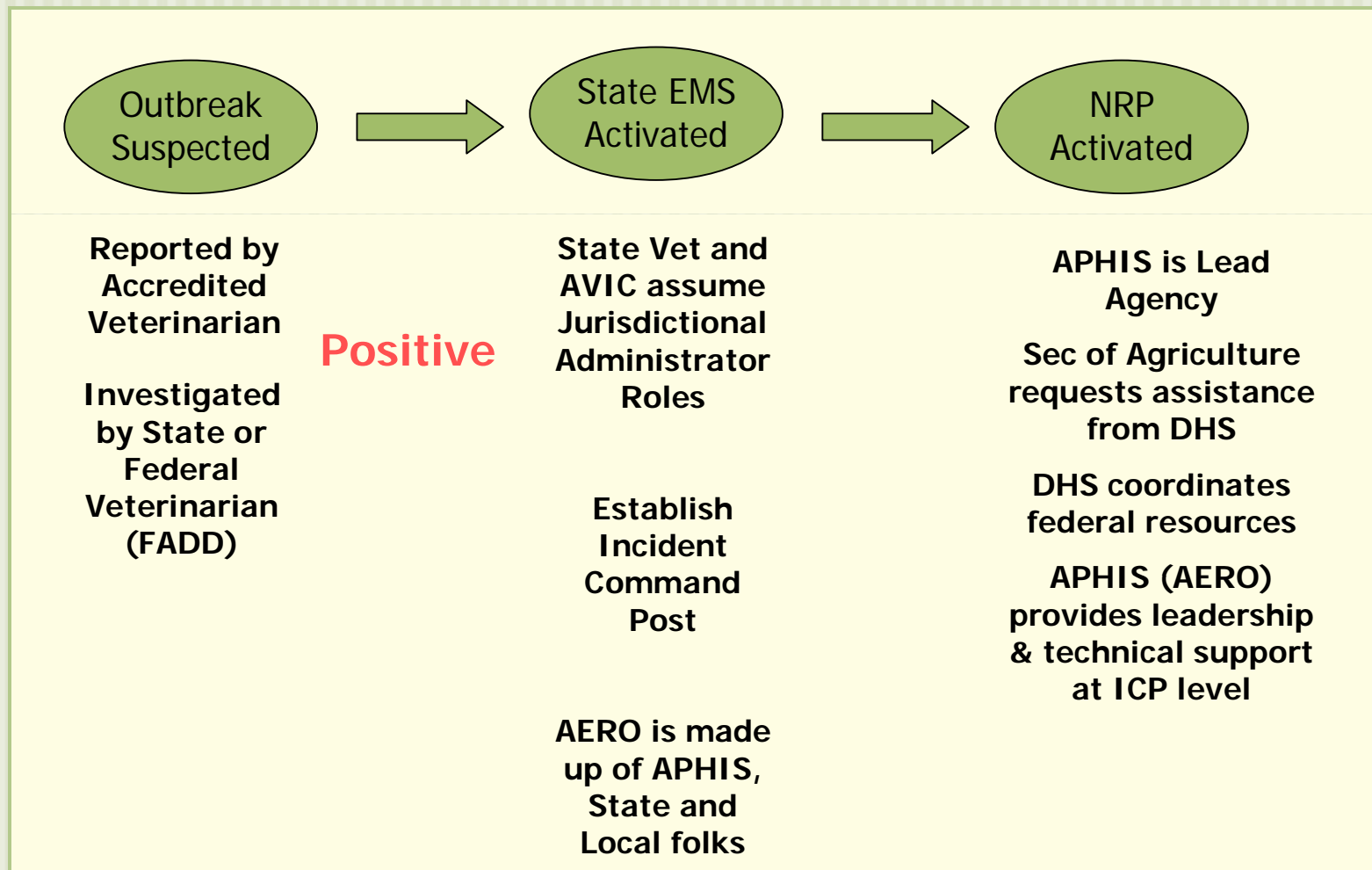
Disease Control Action Plan

- The National Animal Health Emergency Management System (NAHEMS)
- The National Incident Management System (NIMS)
 - Incidence Command System (D.A.R.T./K.A.R.T.)
- Animal Emergency Response Organizations (AEROs)
 - State level with national coordination

Management Characteristics



Intergrated Local-State-Federal Response System



What is Pre-Incident Credentialing?

- Identification of qualified individuals to assist in an agricultural disaster in advance of the event
- Provides standardized training
- NIMS identifies credentialing as a priority



Goals for Pre-Incident Credentialing

FEMA identifies pre-incident credentialing as a critical issue for emergency response and lists four goals:

- Specify and standardize the role and responsibilities of first responders
- Ensure that personnel responding to an incident have been properly trained and are qualified
- Provide uniform certification programs allowing first responders to provide mutual aid nationwide
- Allows proper identification and task assignment

Why Credential?

- Safety of people and animals
- Security of site, people and animals
- Identification of qualified persons able to work with animals



All disasters start and end locally!

TN Pre-Incident Credentialing

TN Emergency Support Function 16: *Care and Housing of Animals during Emergencies and Disasters*

- “All hazard- all animal” document
- Credentialing required
- TN Statute



TN Pre-Incident Credentialing

- Initiated in 2003
- Over 700 individuals credentialed
 - Primarily Veterinarians, Vet Technicians, and Extension Agents
 - Other categories: Administrators, Volunteers
 - Over 70% have indicated a willingness to be deployed out of TN
- UT College of Veterinary Medicine
 - Key partner with TN Dept. of Agriculture in development and delivery of training

TN Pre-Incident Credentialing

- Must complete 8 hour training course to receive credential badge
- Training includes:
 - 2 hrs ICS
 - 1 hr ICS in Animal Disaster
 - 1 hr ESF 16 Overview
 - 1 hr Foreign Animal Diseases Awareness
 - 1 hr Agroterrorism Agents
 - ½ hr Biosecurity
 - ½ hr Reporting roles and responsibilities

TN Pre-Incident Credentialing

- Collection of personal information, qualifications and contact information
- Maintenance of information in secure database
- Issuance of standardized photo identification badge

Preparation Counters Terrorism

Thank you!

