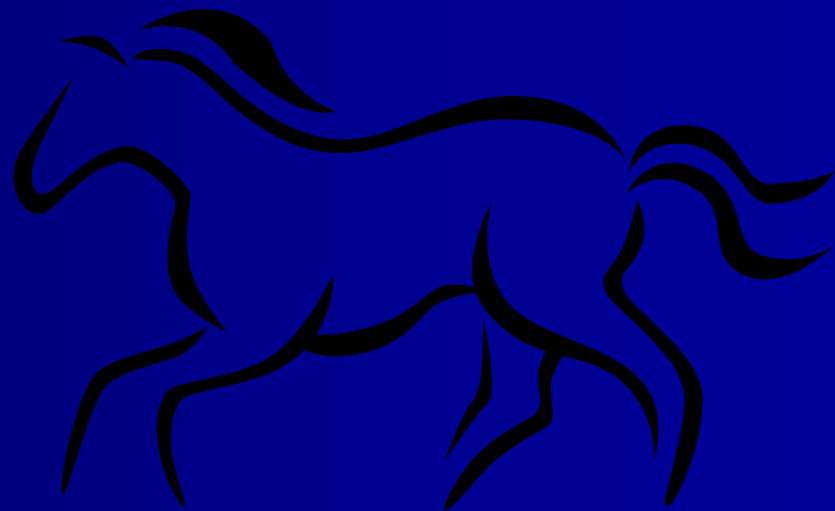


Vesicular Stomatitis Virus 2004/2005/2006 U.S. Outbreak

**Drs. Sabrina Swenson, Lynn Creekmore,
and Larry White**

**USDA, APHIS, National Veterinary
Services Laboratories and VS Western
Regional Office**

**2006 USAHA
Minneapolis, MN**



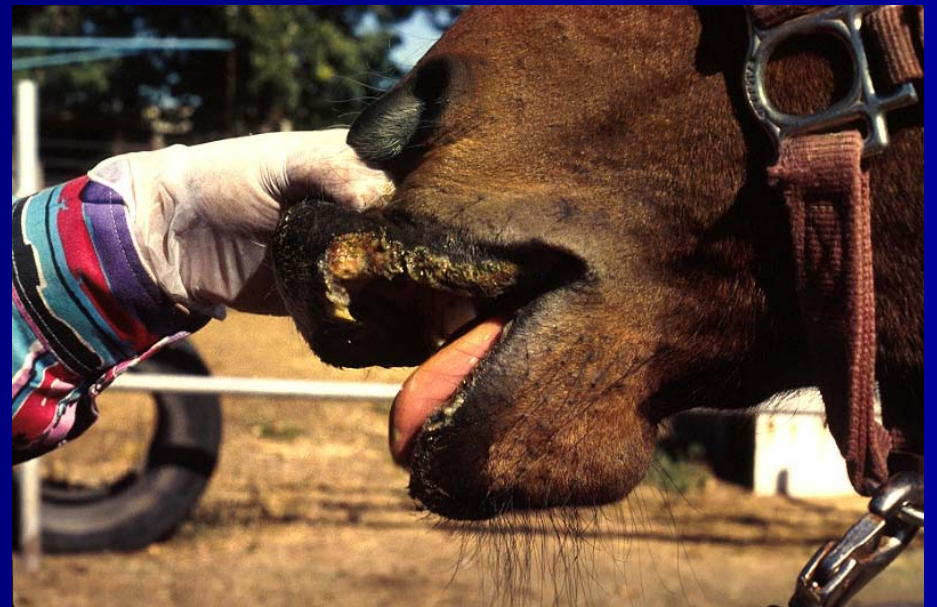
VSV Agent, History, & Host Range

- Two serotypes – New Jersey and Indiana
- Periodically reported in the southeastern and southwestern U.S. since the early 1900's
- Last outbreaks in the southwest were reported in the mid -1990's
- Vesicular stomatitis usually occurs during the summer months and cases tend to cluster along river drainages (supporting the potential role of insect vectors)
- Primarily affects horses, cattle, and swine but other susceptible species include camelids, wildlife, sheep, goats, and humans

Gross Lesions and Clinical Signs

- Vesicles that rupture producing ulcers
- Vesicles typically occur in the oral cavity, on the lips or nose, on teats, and on the coronary bands
- Salivation, anorexia, and weight loss secondary to oral lesions
- Lameness with coronary band lesions
- Decreases in milk production and mastitis in dairy cattle
- Morbidity highly variable on premises (may see only one affected animal out of many or 100% affected)
- Mortality is usually low

Disease is typified by oral vesicles that rupture producing ulcers.



Photos by Drs. Brent Thompson and Fred Bourgeois

Outbreak in 2006 (Current Situation)

- Only one State involved: WY
- Index case was a horse from a premises in Natrona County, WY diagnosed on August 17.
- October 1, 2006 Situation

Wyoming	Total
Cumulative Premises	9
Cumulative Counties	2

Cumulative 2006 Vesicular Stomatitis Outbreak Positive Premises

From:
08/13/06
Through:
10/08/06

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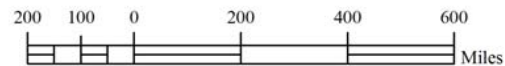


Projection: Albers Equal Area Conic

Central Meridian: 105° West

Legend

- | | |
|---|--|
|  Infects Species |  Major Cities |
|  Equine |  Water |
|  Bovine |  State Boundary |
|  Cumulative Infection Status | |
|  Infected States | |
|  Non-Infected States | |



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Outbreak in 2005

Final Situation

State	AZ	CO	ID	MT	NE	NM	TX	UT	WY	Total
Cum Prem	27	100	2	46	3	23	1	104	139	445
Cum Counties	5	16	2	5	1	10	1	14	15	69

Cumulative

2005 Vesicular Stomatitis

2005
Final

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Outbreak Positive Premises

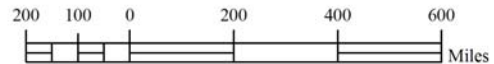


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Outbreak in 2004

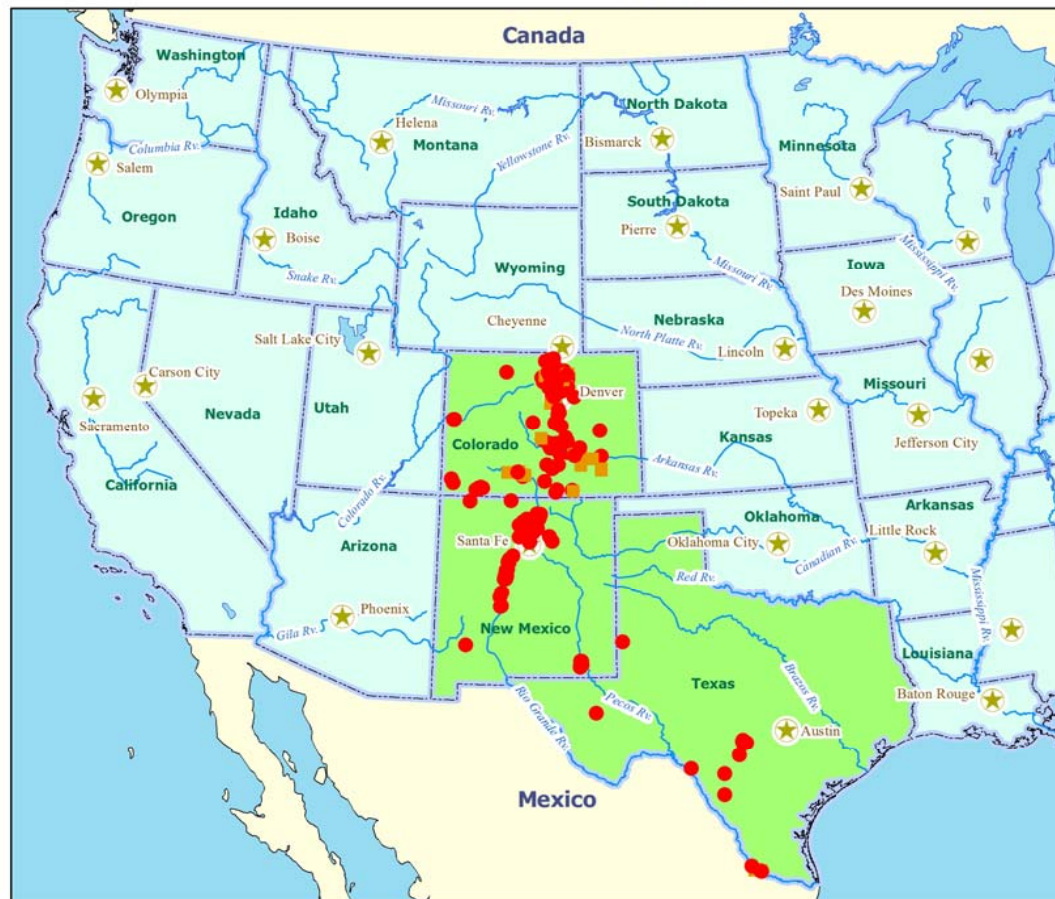
Final Situation

State	CO	NM	TX	Total
Cumulative Premises	199	80	15	294
Cumulative Counties	22	13	8	43

Cumulative 2004 Vesicular Stomatitis Outbreak Positive Premises

2004
Final

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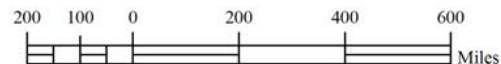


Projection: Albers Equal Area Conic

Central Meridian: 105° West

Legend

- | | |
|---|--|
|  Infects Species |  Major Cities |
|  Equine |  Water |
|  Bovine |  State Boundary |
|  Cumulative Infection Status | |
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VSV Outbreak Comparison 2004, 2005 and 2006

2004

- 3 States – 43 counties
- 294 positive premises
- 405 positive equines, 63 positive bovines
- 2495 susceptible equines and 6101 susceptible bovines on affected premises

2005

- 9 States – 69 counties
- 445 positive premises
- 584 positive equines, 202 positive bovines
- 3677 susceptible equines and 13,285 susceptible bovines on affected premises

2006

- 1 State – 2 counties
- 9 positive premises
- 12 positive equines, 10 positive bovines
- 255 susceptible equines and 485 susceptible bovines on affected premises

Long Term Antibody Study in Horses

- Serologic Tests
 - CELISA
 - Complement fixation (CF)
 - Virus neutralization (VN)



- Photo by Dr. Greg Chavez

Long Term Antibody Study in Horses

- Colorado
 - Infected Nov 2004
 - Cinnamon/Hazel
- Wyoming
 - Infected Sept 2005
 - Red/King

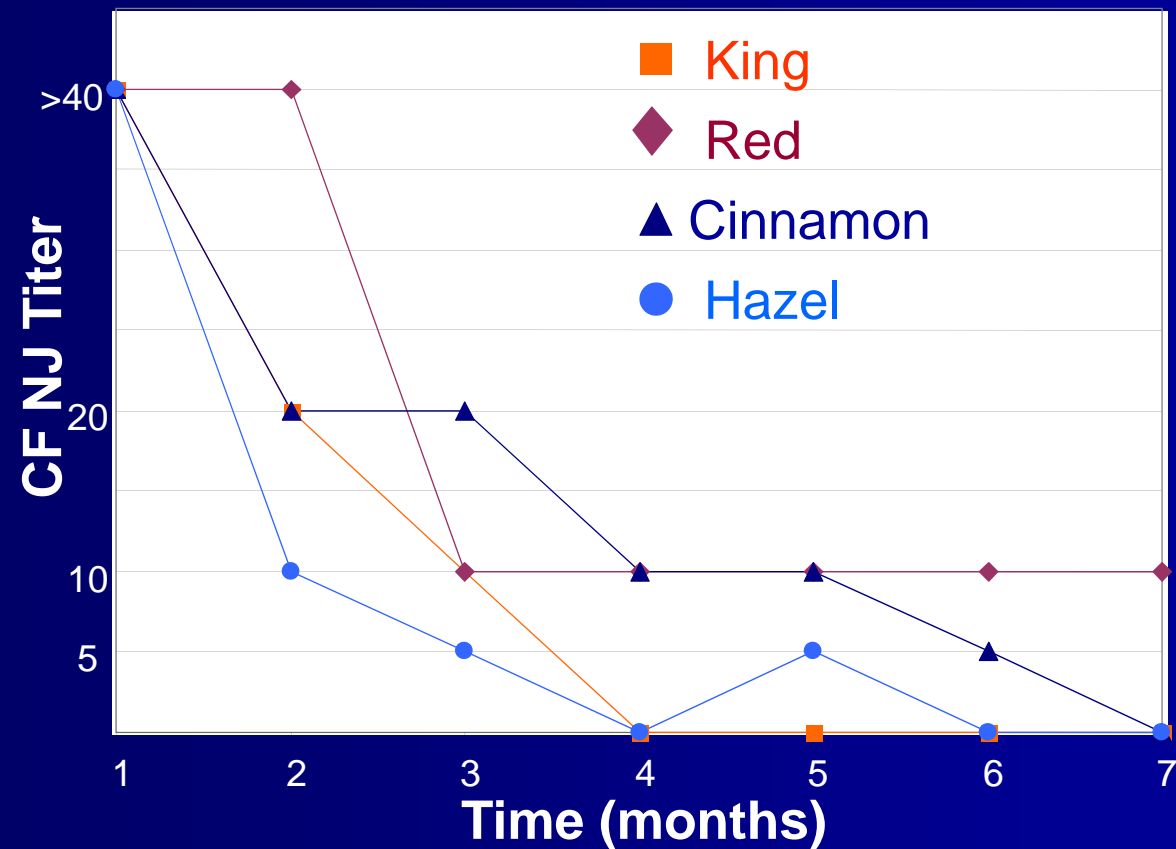


Photo by Dr. Greg Chavez

Long Term Antibody Study

- CELISA & VN Tests
 - CO horses: still positive at 23 months
 - WY horses: still positive at 13 months
 - VN titers $>1:1000$ NJ
 - Impacts movement tests

Complement Fixation Antibody Responses



Other Details....

- New Jersey serotype all three years – Phylogenetic analysis showed a close relationship between the viruses isolated each year
- After action review completed for 2004 and 2005
- VS Vesicular Stomatitis Working group revived

Questions????

Special Thanks to Bill Kelley, USDA, APHIS, VS, WRO Geographer,
State and Federal VMOs of all of the affected States, ARS, and
DHS

