

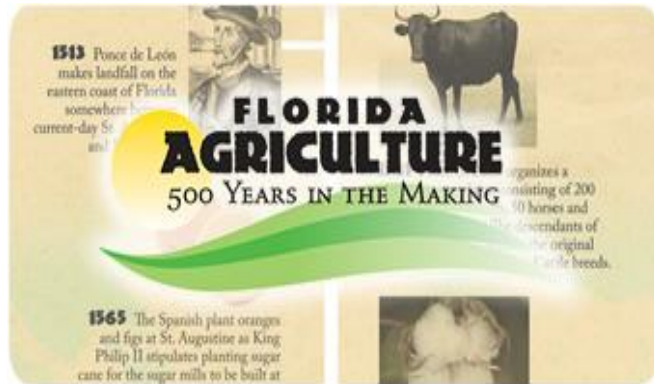


**Foreign Animal and Emerging
Diseases Awareness Course
June 10-13, 2013**



The Florida Department of Agriculture and Consumer Services

Past Events ● Present Accomplishments ● Future Opportunities



One Health

The collaborative effort of multiple disciplines working locally, nationally, and globally to attain optimal health for people, animals and our environment.



One Health
initiative



Science Meets Practice

*Harvesting Science for Safer, More
Plentiful Agriculture in Florida*



Three Focus Areas

1. **Develop Department AgResearch Plan**
2. **Maximize Collaborations**
3. **Amplify Science Information Flow**

To actively fill the void of knowledge



1. Develop Department Research Plan

Priorities

- ▶ What are research needs of Florida agriculture industries?
- ▶ What are research needs of Department staff in order to work more effectively?
- ▶ What are research needs of the Department to effect improved policy?



1. Develop Department Research Plan

- ▶ Identify and track Department work in process, and by whom
- ▶ Determine best way to elicit feedback and manage expectations from the industry and from staff (brainstorming)
- ▶ Determine prioritization scheme
- ▶ Identify potential resources
- ▶ Identify method of information distribution and ongoing solicitation of feedback for future needs



2. Maximize Collaborations

- ▶ Invite participation in the development of research plan
 - Models in Aquaculture and AES, others
- ▶ Encourage contact between staff, academia and industry
- ▶ Enhance translational grant opportunities



3. Amplify Science Information Flow

- ▶ Highlight Department and Industry innovations
 - “AgScience Spotlight”
 - “FDACS Academy”
- ▶ Facilitate monthly *AgriScience* forum
 - Review and discuss peer-reviewed journal articles
 - Encourage dissemination of convention travel hot topics
 - Celebrate in-house publications
- ▶ Coordinate *FDACS Academy*
 - Identify opportunities for staff to disseminate knowledge within and outside of the department



EHV1





The Florida Department of Agriculture & Consumer Services The Division of Animal Industry



Adam H. Putnam, Commissioner - Dr. Thomas J. Holt, Director



Wild-Type EHV-1 Case Information

Thu 2/21 Evening

First positive reported to FDACS . Horse at UF

Tue 2/26 Late evening

1 positive associated with HITS in Tent 6. horse at local farm

Wed 2/27 Afternoon

4 positives associated with HITS Tent 3. Horses at Wellington

Sun 3/3

Show vet vaccinated ~700 horses against flu

Tue 2/26 Late evening

Quarantine expanded to Tent 6. Participated in UFCVM/IFAS meeting (~60 attendees)

Fri 2/22 Early Morning

- Epi investigation begun and coordination with HITS manager.
- Potentially exposed horses quarantined in Tent 7
- DACS meeting at HITS with competitors (200-300 attendees)

Afternoon

- PIO lead identified
- Daily website postings initiated

Wed 2/27 Afternoon

- Expand quarantine to entire HITS
- State Vets conference call, press release
- HITS ~500 people meeting

Thu 2/28 Early morning

IC and SART trailer established on site for additional information dissemination and monitoring

Mon 3/4 Afternoon

Second State Vets conference call. Final quarantine release protocol

Sat 3/2

DACS manning gates 24/7



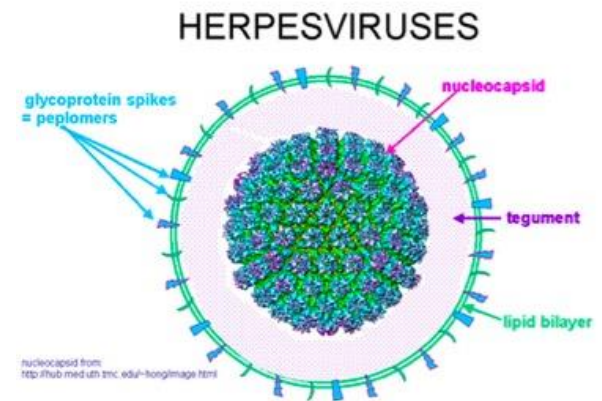
FDACS Response

- 6 positives (2 neuro)
- [1 addtl positive asymptomatic, 1 in s FI]
- ~100 febrile horses neg
- Epi exposure appears to have been bet 2/15-2/20



Herpesviridae

- ▶ *Alphaherpesvirinae* (BHV-1, EHV-1,4, FelineHV, CanineHV)
 - Grow rapidly
 - Latency in sensory neurons
- ▶ *Betaherpesvirinae*
 - Cytomegaloviruses (large balloon-like cells)
 - Grow slowly
 - Latency in salivary glands, kidneys, lymphocytes
- ▶ *Gammaherpesvirinae* (malignant catarrhal fever virus)
 - Lymphoproliferative diseases
 - Latency in lymphoid cells



Equine alpha herpesviruses

Equine herpesvirus	Clinical
EHV-1	Respiratory, abortions, encephalomyelitis
EHV-3	Genital lesions (coital exanthema)
EHV-4	Respiratory
EHV-9	Asymptomatic in equids, severe disease in other species

5 other known herpesviruses



EHV-1

Transmission

- Virus enters via upper respiratory system
 - Direct Contact through nasal secretions
 - Horse to Horse
 - Possible transmission up to 35 feet
 - Spread Indirectly
 - Fomite
 - Equipment
 - Clothing
 - People
 - Hands



EHV-1

Respiratory disease

- ▶ Incubation period (1–10 days)
- ▶ Primary infection in young horses
- ▶ Biphasic fever
- ▶ Nasal discharge, cough
- ▶ Uncomplicated cases → complete recovery 1–2 weeks

Abortions (3rd trimester but can also occur at other times)

Myeloencephalopathy (EHM)



EHV-1

Pathogenesis



Primary replication – Respiratory tract epithelial cells

- ▶ Infection of endothelial cells of vessels in nasal region, viremia associated with monocytes and lymphocytes

Secondary replication in endothelial cells of the uterus, CNS, testes, endocrine organs, infection of ganglion trigeminale



EHV-1 associated neurological disease – *An emerging disease*

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Horse Virus Cripples Md. Racing Industry Outbreak Hits at Time of Financial Peril

By Joshua Partlow and John Scheinman
Washington Post Staff Writers
Wednesday, February 8, 2006; Page B04

Before his racehorse died, before the virus so thoroughly gripped her that she began to thrash and slam her head against the stall, even before she fell to the ground, Simon Purdy knew, as only a trainer can. Something was not right with Kalli Calligan.

The moment he walked into Barn 5 at the Pimlico Race Course before dawn that morning last month, he noticed that the 2-year-old bay filly seemed off. Her head hung low. Her temperature, normal the day before, was rising. When he put his hand on her shoulder, she suddenly crumpled to the ground, her hind legs paralyzed. Five hours later, after her condition deteriorated rapidly, she was euthanized.

"I've been around horses for 35 years, and this is the first time I've seen anything like this," Purdy said. "It was heartbreaking."

In the past month, 16 horses in Maryland have been stricken by equine herpesvirus, a respiratory and neurological virus that has plagued horses in Ohio, Kentucky and Virginia in recent years. Five Maryland horses have been euthanized. Barns at Pimlico,

Enlarge This Photo



Races were run last week at Laurel Park, but the past two Sunday races were called off so horses could be tested. (By Mark Galt — The Washington

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Equine Herpesvirus quarantine partially lifted

March 15th, 2007

Michelle Rivera, CT Staff Writer

The Virginia Tech owned Mar under quarantine because of the Feb. 20, and the quarantine wa

The latest news and in-depth, veterinarian-approved articles on equine health care from The Horse magazine.



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ONLINE NEWS

Herpesvirus: University of Connecticut Quarantine Lifted

by: Edited Press Release
March 07 2007 Article # 9084

Equine herpesvirus-1 (EHV-1) quarantines in Connecticut have been lifted. The virus affected an equine hospital and the herd at the University of Connecticut (UConn). On Dec. 24, 2006, a horse at Fairfield Equine Associates in Newtown, Conn., tested positive for the disease. On Jan. 9, 2007, EHV-1 was detected in horses at the University of Connecticut. As a result, the University quarantined its herd of 80 horses, and instituted biosecurity procedures. The quarantine at Fairfield Equine Associates was lifted and they reopened for business on Jan. 22, 2007.

The revolutionary dietary supplement for pregnant mares, weanlings, yearlings, horses in training, and horses diagnosed with bone abnormalities

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March 15, 2007

Neurologic form of EHV-1 'a potentially emerging disease'

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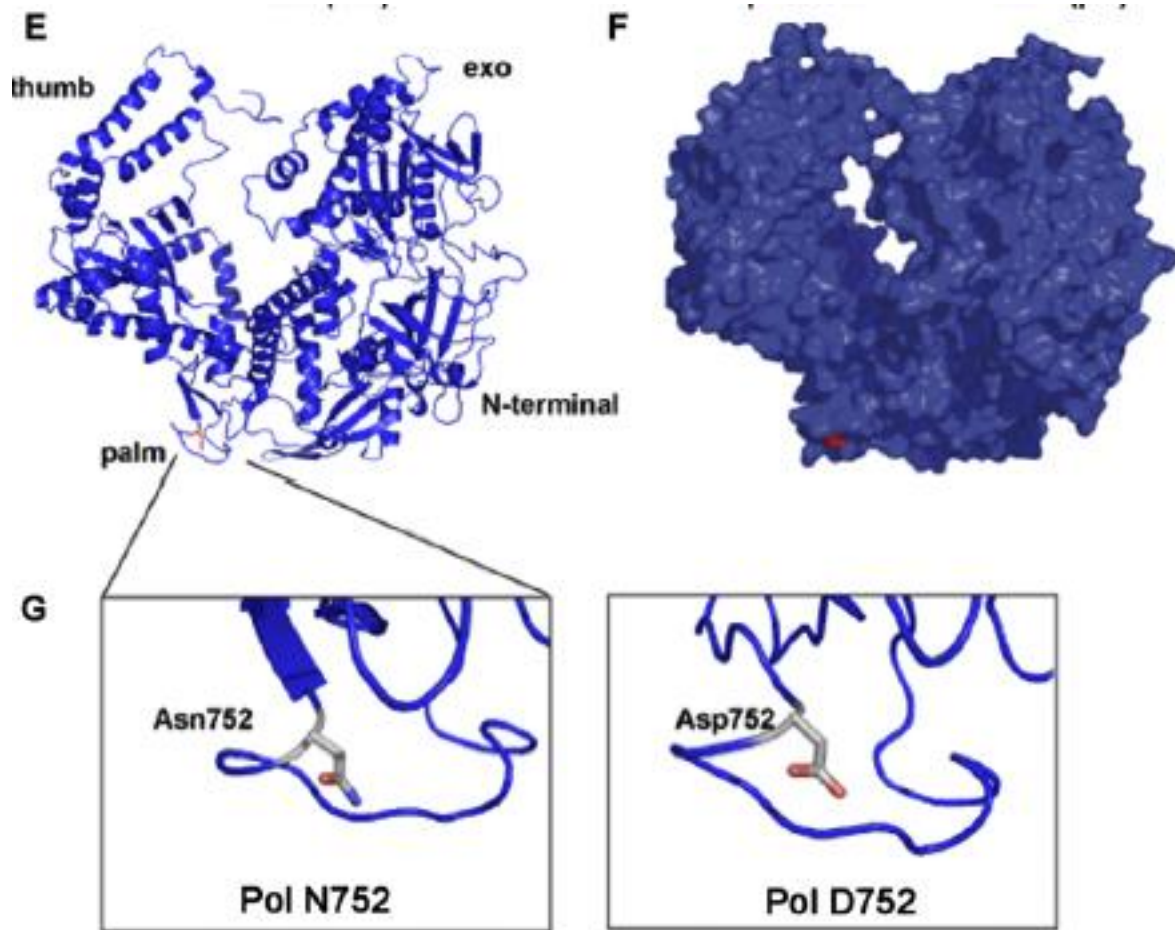
Myeloencephalopathy by EHV-1

- ▶ Often associated with respiratory disease
- ▶ Often several horses
- ▶ Sudden onset rapid progression, early stabilization
- ▶ Ataxia, paresis, urinary incontinence, cystitis
- ▶ Little evidence of viral replication in neural tissues (immune mediated?)
- ▶ Vasculitis, thrombosis, hemorrhages



Photo: Stephen Reed, DVM, DACVIM





Goodman et al. 2007. A point mutation in a herpesvirus polymerase determines neuropathogenicity. PLoS Pathogen. 3(11):e160.doi.1371



Viremia by neuropathogenic and non-neuropathogenic EHV-1

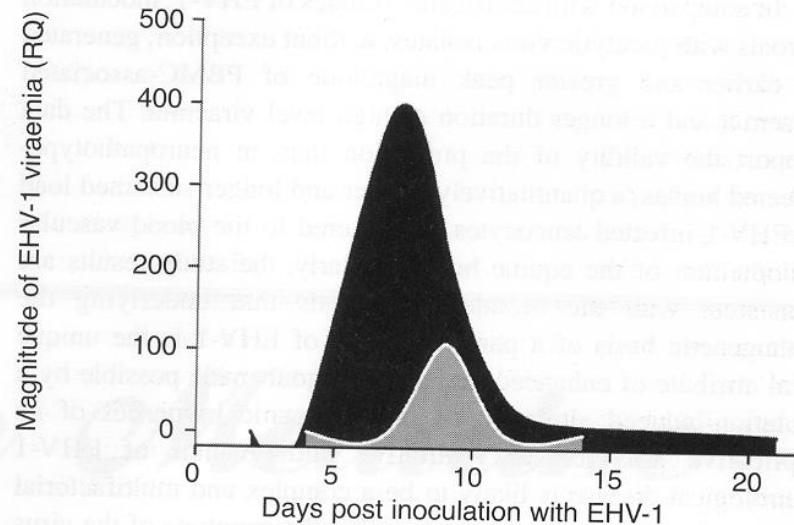


Fig 3: Quantitative kinetic profiles of peripheral blood mononuclear cells (PBMC)-associated viraemia in foals inoculated with neuropathogenic (paralytic; ■; n = 10) or non-neuropathogenic (abortigenic; ■; n = 10) strains of EHV-1. The figure was generated by regraphing the data depicted in Figure 2 as an 'area fill plot,' using SigmaPlot graphing software⁵. The ratio of the 2 shaded areas represents the fold-difference in the virus burden delivered by viraemic leucocytes to the blood vascular endothelium of experimental foals infected with neuropathogenic vs. non-neuropathogenic strains of EHV-1.

Allen and Breathnach 2006. Eq Vet Jn 38:252



Prevention of EHV-1 disease

- ▶ **Management**
- ▶ vaccines
 - short-lived immunity (mares – 5,7,9 months of gestation)
 - reduce severity but do not prevent
 - no vaccines licensed to prevent encephalomyelitis

Influenza



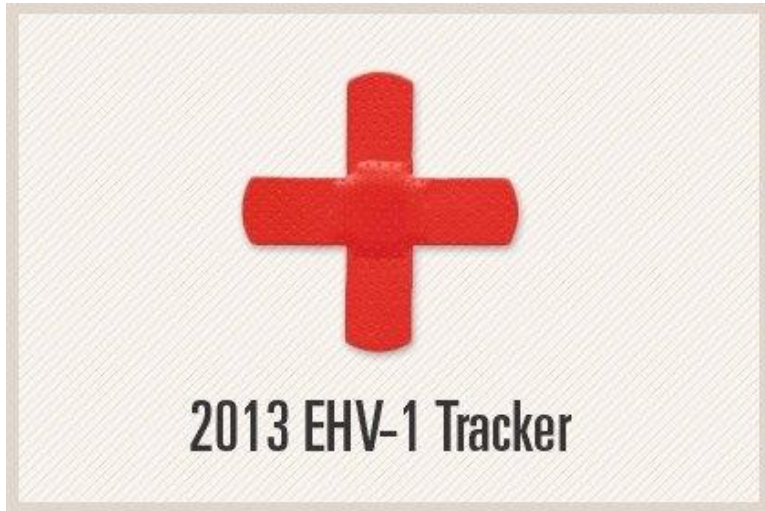
Prevention and Control







Surveillance



Partnerships



Perspectives

- ▶ Hot wash



- ▶ Knowledge Gaps

