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# ANALYTICAL SUPPORT BEFORE/DURING OUTBREAKS OF DISEASE

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AMY DELGADO  
DIRECTOR, MONITORING AND MODELING  
U.S. DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE  
VETERINARY SERVICES, CENTER FOR  
EPIDEMIOLOGY AND ANIMAL HEALTH  
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# Decision Making



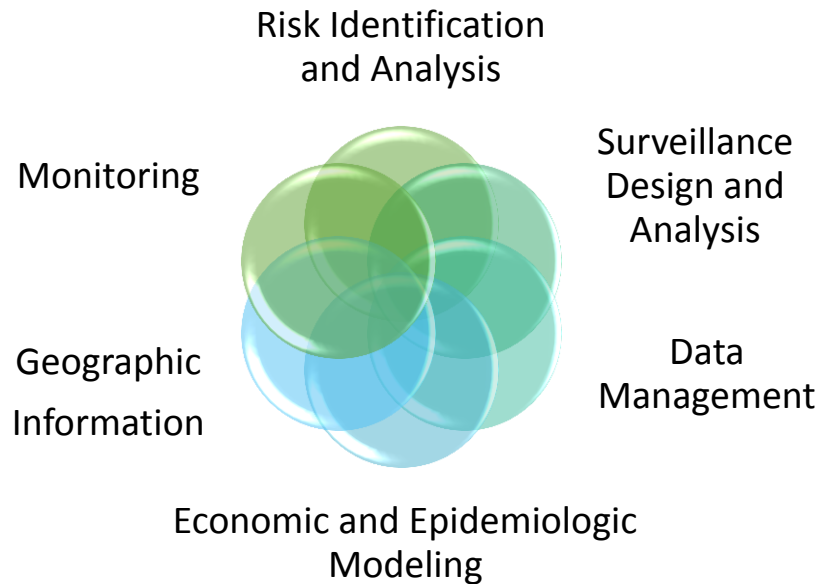
We all have the ability to quickly analyze risk based on our own experiences, but sometimes those calculations are too complex or the data are absent.



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# Center for Epidemiology and Animal Health

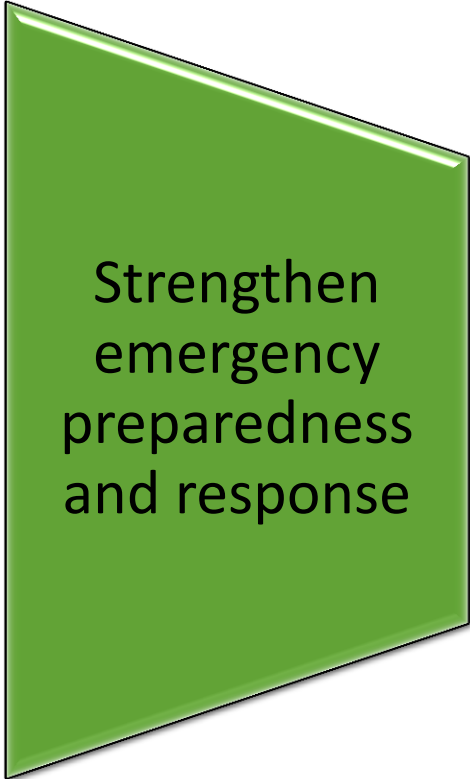
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# Our Aims

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Strengthen  
emergency  
preparedness  
and response



Provide  
scientific  
support for  
decision-  
making



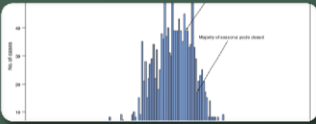
Data »»»»»  
**Information**



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# Outbreak Investigation

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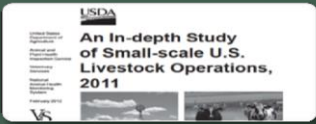
How is disease spreading?



What are the characteristics of the farms or animals being affected?



What are the main risk or protective factors?



What have we seen historically?



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# CEAH can help with:

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# Example – Vesicular Stomatitis

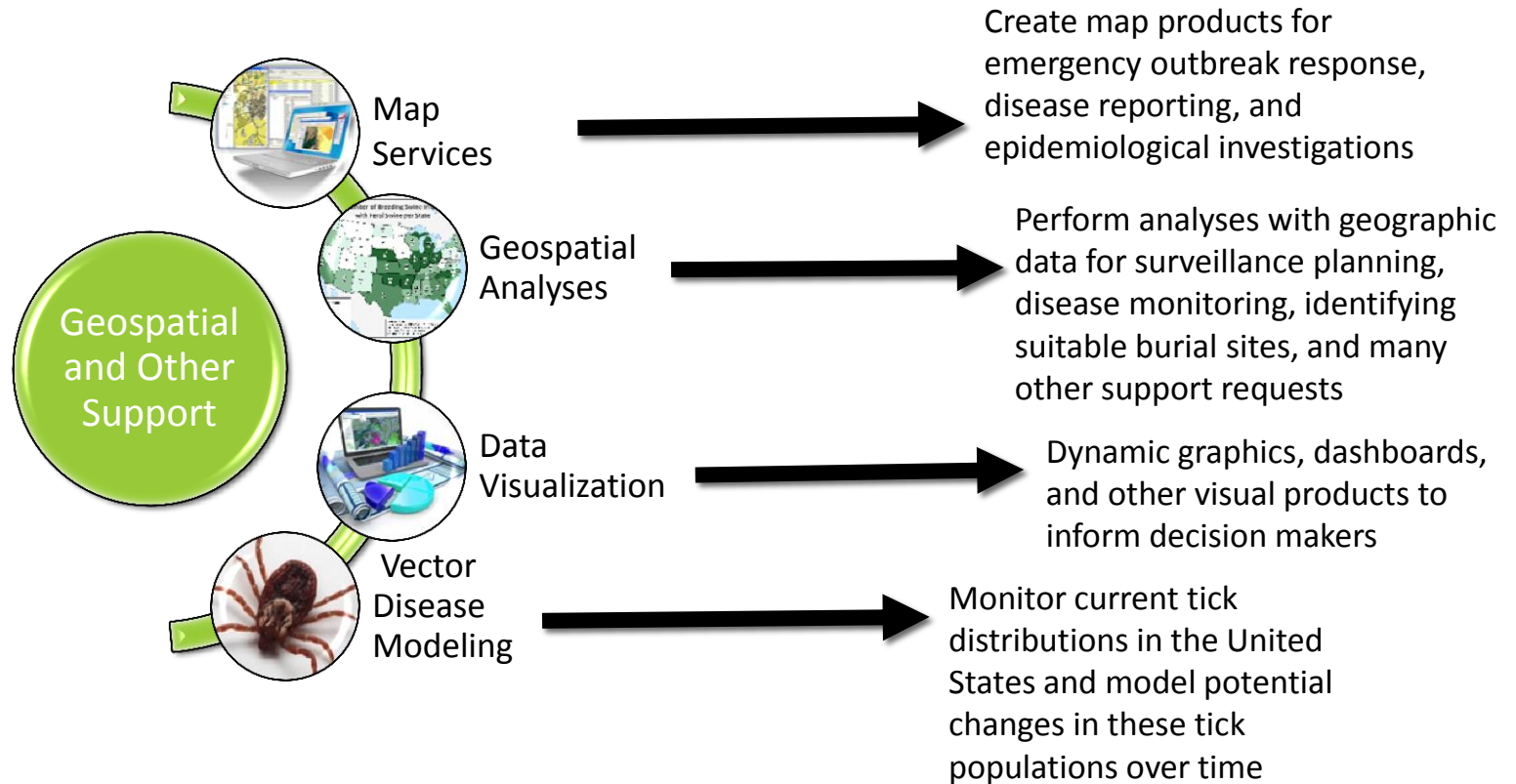
## Vesicular stomatitis epidemic in the Rocky Mountain region occurred in 2014–15

- Colorado experienced the largest number of infected premises of all states, with 370 premises in 17 counties quarantined
- A case-control study was conducted in Colorado to evaluate horse- and management-level factors associated with VS
  - Case risk factors: access to pasture ( $P$  value  $<0.001$ ), pregnancy status ( $P$  value  $=0.002$ ), and being a tan, buckskin, or palomino colored horse ( $P$  value  $=0.022$ )
  - Exposure risk factors: access to pasture ( $P$  value  $<0.001$ ) and lack of daily insect control ( $P$  value  $<0.001$ )
  - Exposure in 2014: direct contact with case horses ( $P$  value  $=0.008$ ) was the most important factor



Photo courtesy of Jason Lombard

# Other Analytical Support



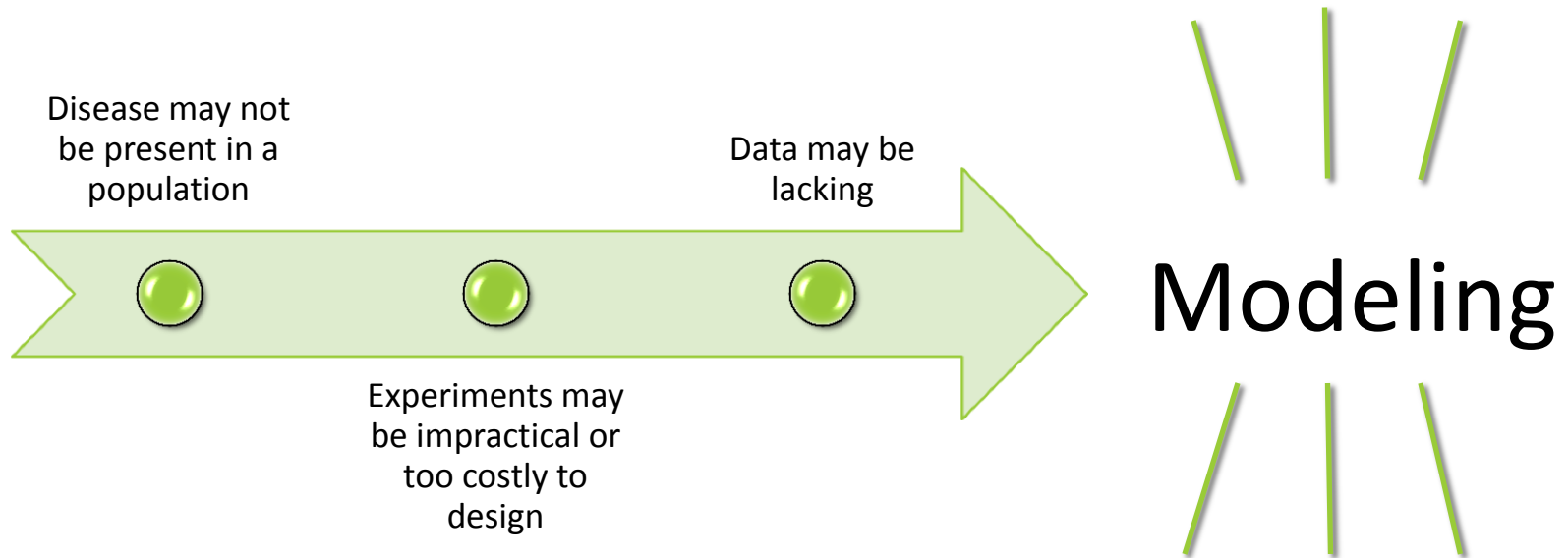




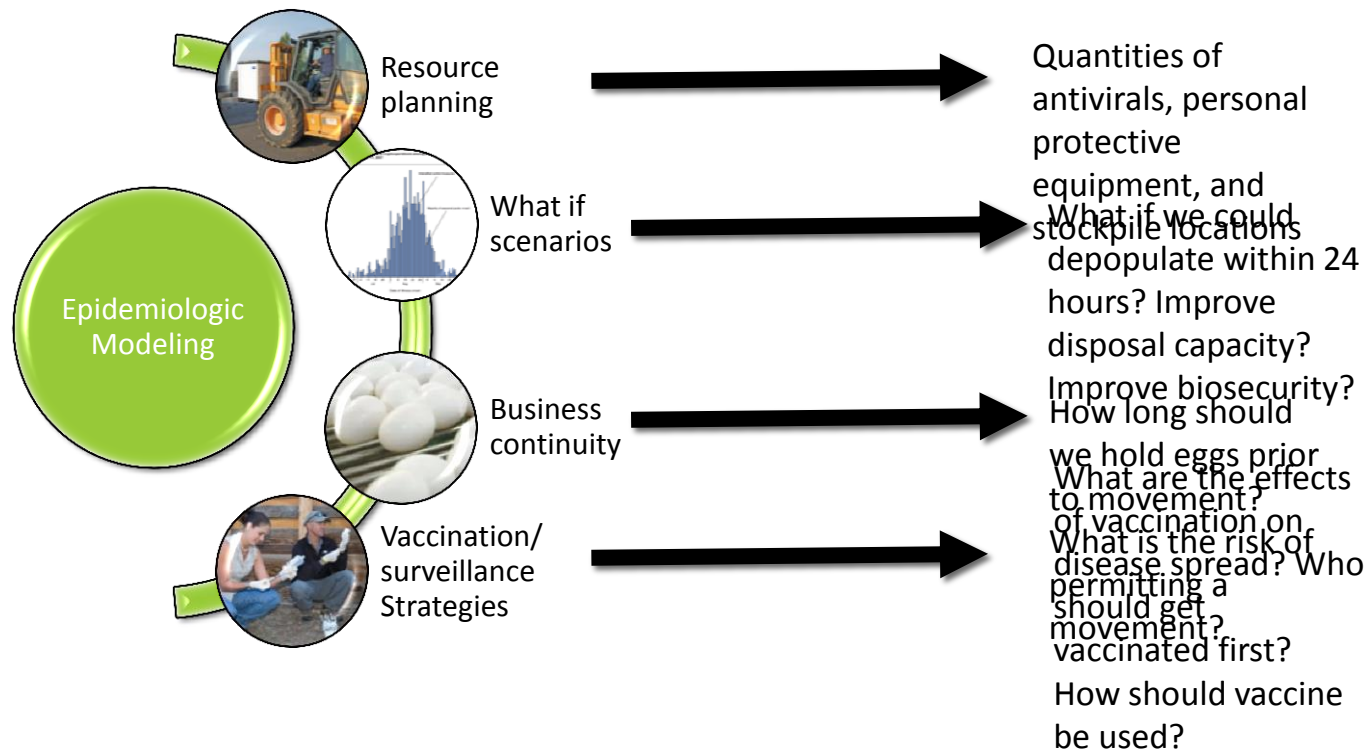
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# Pro-active Analysis

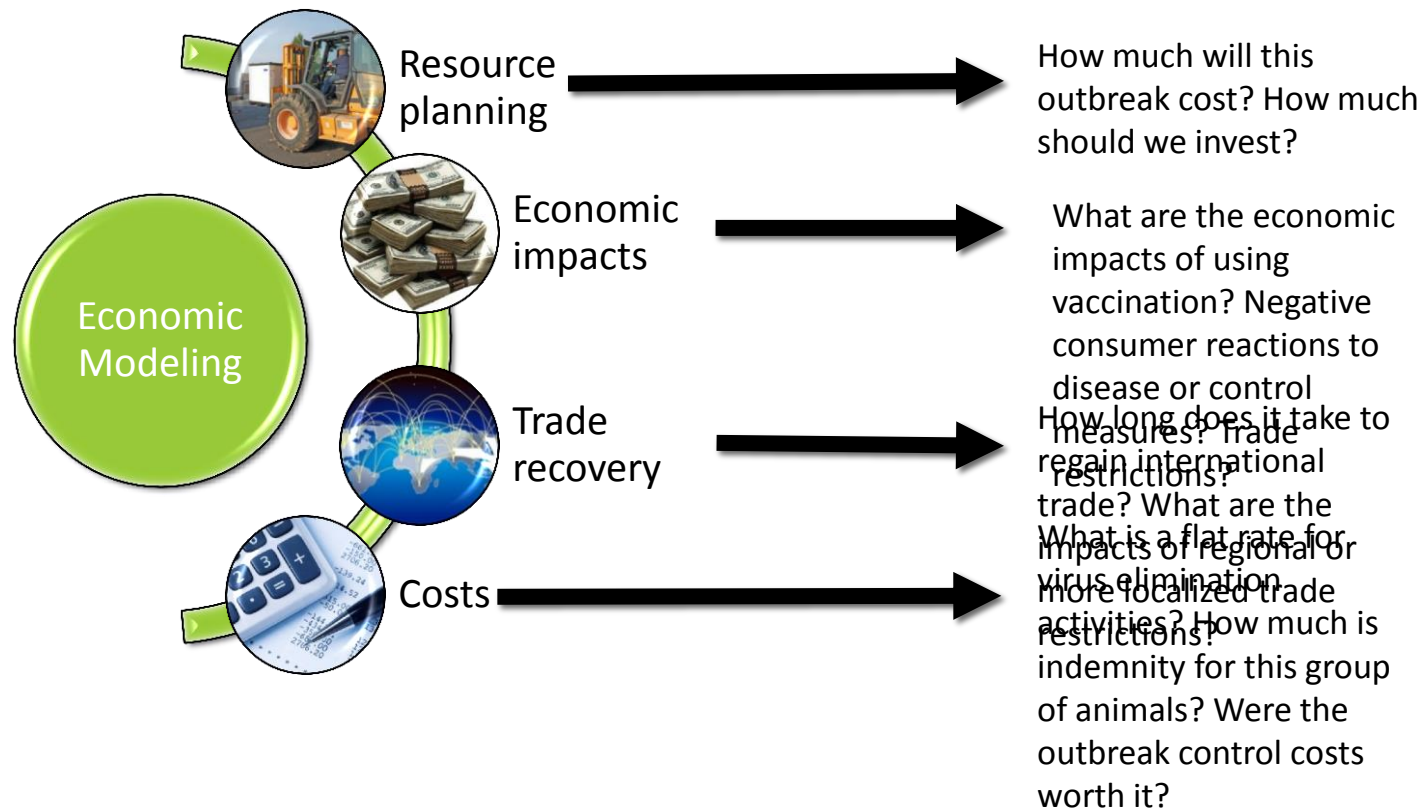
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# What can modeling do for you?



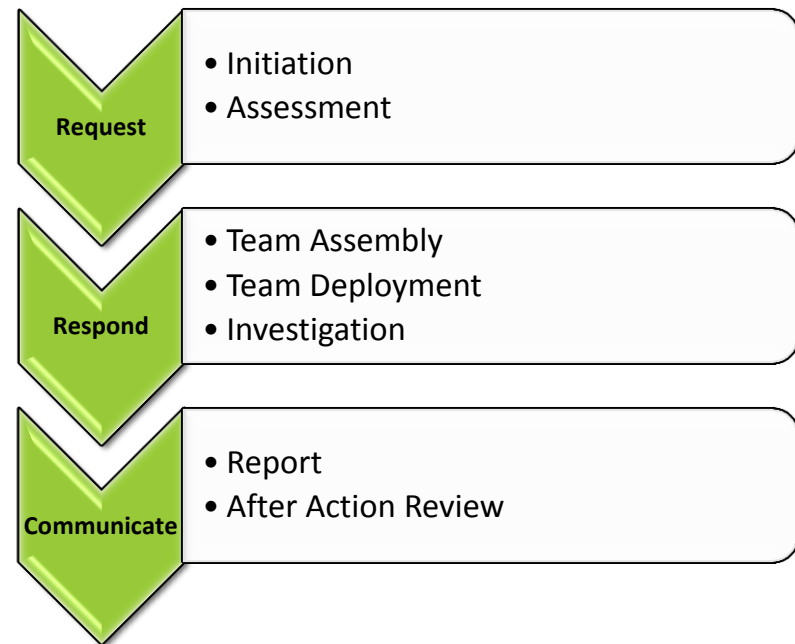
# What can modeling do for you?



# How to get help

Within VS, there is a mechanism for requesting help with outbreak investigations that aren't covered under established programs or processes.

- Requests can be internal or external
- Internal requests can flow through normal organizational structures
- External requests can come in at many levels
- Requests undergo an assessment and VS leadership coordinate if and how to respond
- Response can engage staff across VS, including field epidemiologists as well as CEAH analysts





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## **Amy Delgado**

Director, Monitoring and Modeling, CEAH  
U.S. Department of Agriculture  
Animal and Plant Health Inspection Service  
Veterinary Services  
970-494-7302  
[Amy.h.Delgado@aphis.usda.gov](mailto:Amy.h.Delgado@aphis.usda.gov)

