

## Modeling alternative mitigation strategies for a hypothetical outbreak of foot-and-mouth disease in the United States

M.A. Schoenbaum<sup>1\*</sup>, W.T. Disney<sup>2</sup>.

<sup>1</sup>USDA:APHIS:VS:CEAH, 2150 Centre Ave., Bldg B, Fort Collins, CO.

<sup>2</sup>USDA:FSIS, 2150 Center Ave., Bldg B, Fort Collins, CO.

Alternative mitigation strategies were compared during hypothetical outbreaks of foot-and-mouth disease (FMD) in the USA using a computer-simulation model. The epidemiologic and economic consequences were compared during these simulated outbreaks. Three vaccination and four slaughter strategies were studied along with two speeds of FMD virus spread among three susceptible populations of animals. The populations represented typical animal demographics in the United States.

The best strategy depended on the speed of spread of FMD virus and the demographics of the susceptible population. Slaughter of herds in contact with known contagious herds was less costly than slaughtering only contagious herds. Slaughtering in 3-km rings around contagious herds was consistently more costly than other slaughter strategies. Ring vaccination in 10-km rings was judged more costly than slaughter alone in most situations. Although early ring vaccination resulted in lower government costs and duration in fast-spread scenarios, it was more costly when vaccinated animals were slaughtered with indemnity and other related slaughter costs.