

Economic Impacts of Foreign Animal Diseases

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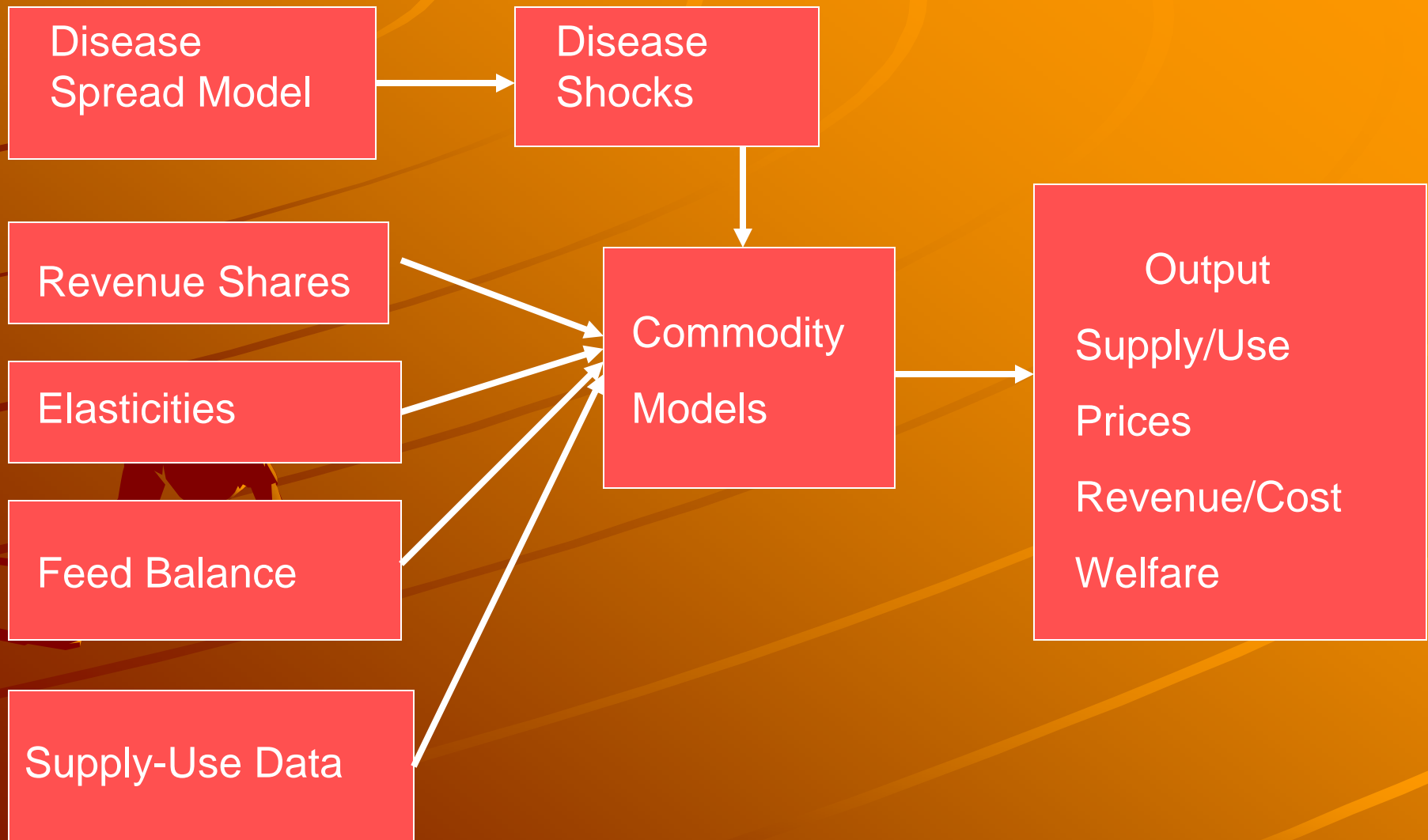
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Objective of the project

- ◆ Estimate the economic impacts of outbreaks of foreign animal diseases on U.S. agriculture
 - Foot-and-Mouth disease
 - Classical Swine Fever
 - HP Avian Influenza
- ◆ Develop a modeling system that can be used for a variety of animal diseases
- ◆ Examine export market recovery dynamics
- ◆ Make modeling framework field useable

Model Overview



Disease Shocks

Animals Destroyed, Slow Spread at 90 days

	Low	Mean	High
		-- thousand head --	
Dairy Cattle	126	85,920	261,898
Sheep	0	4,384	15,456
Swine			
Feed to Finish	0	480,321	1,273,117
Nursery	0	47,740	303,239
Farrow to Finish	0	219,186	698,430
Auction	0	33,800	36,000

Export ban: Beef, Pork, Lamb and Sheep meat, Cattle, Hogs, Lambs, Sheep

Illustrative Hog Market Impacts

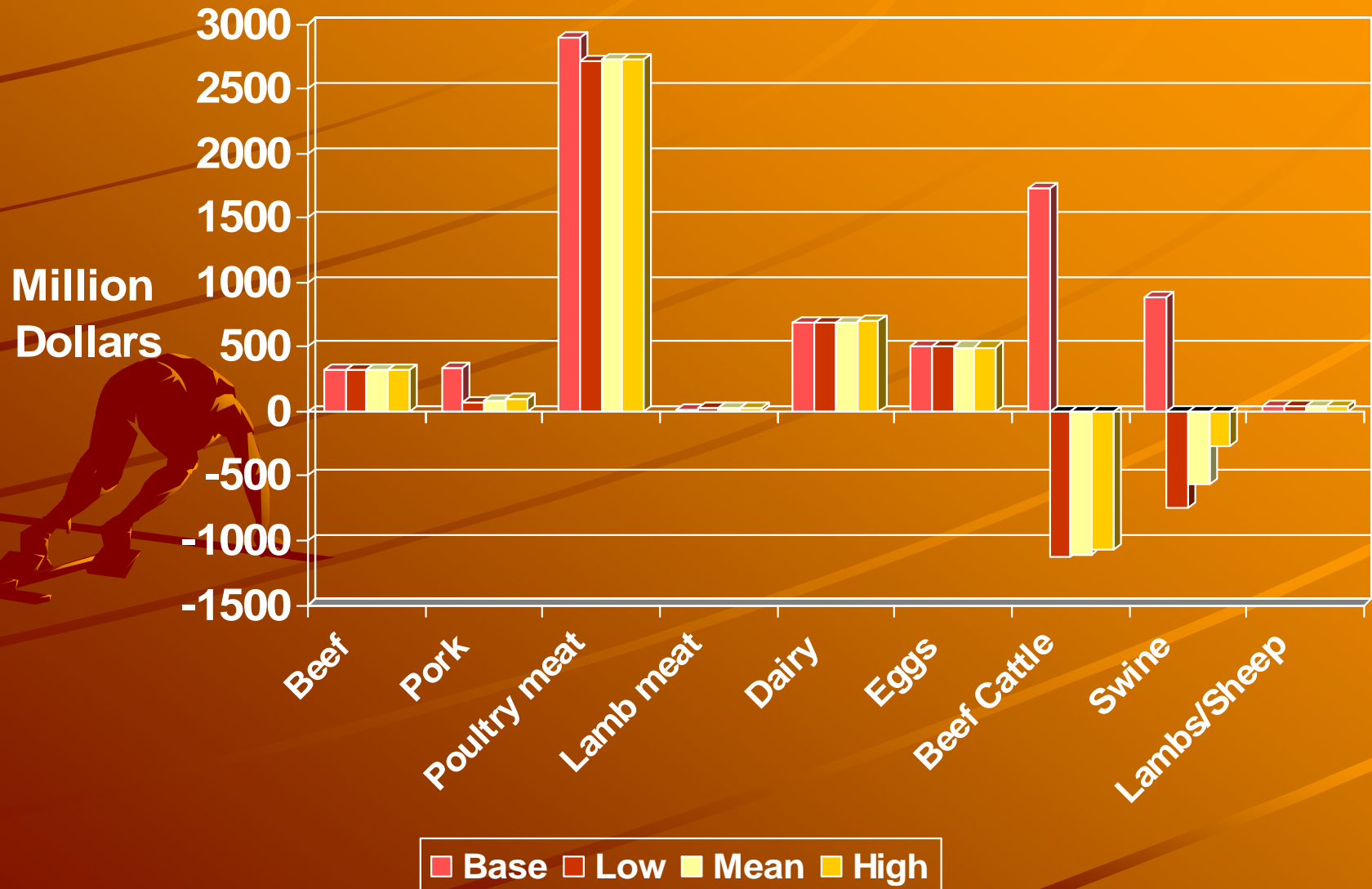
	Units	Base	Low	Mean	High
Breeding	thd	6,267	6,335	6,230	6,012
Finish/Slaughter	thd	24,579	24,579	24,197	23,532
Starting on Feed	thd	25,110	25,110	24,719	24,040
Imports					
Slaughter	thd	480	270	292	330
Feeders	thd	749	421	455	514
Exports					
Slaughter	thd	0.21	0	0	0
Feeders	thd	3.71	0	0	0
Price					
Barrows/gilts	\$/cwt	56.22	31.60	34.18	38.64
Sows	\$/cwt	39.35	22.12	23.93	27.05

Illustrative Impacts Pork

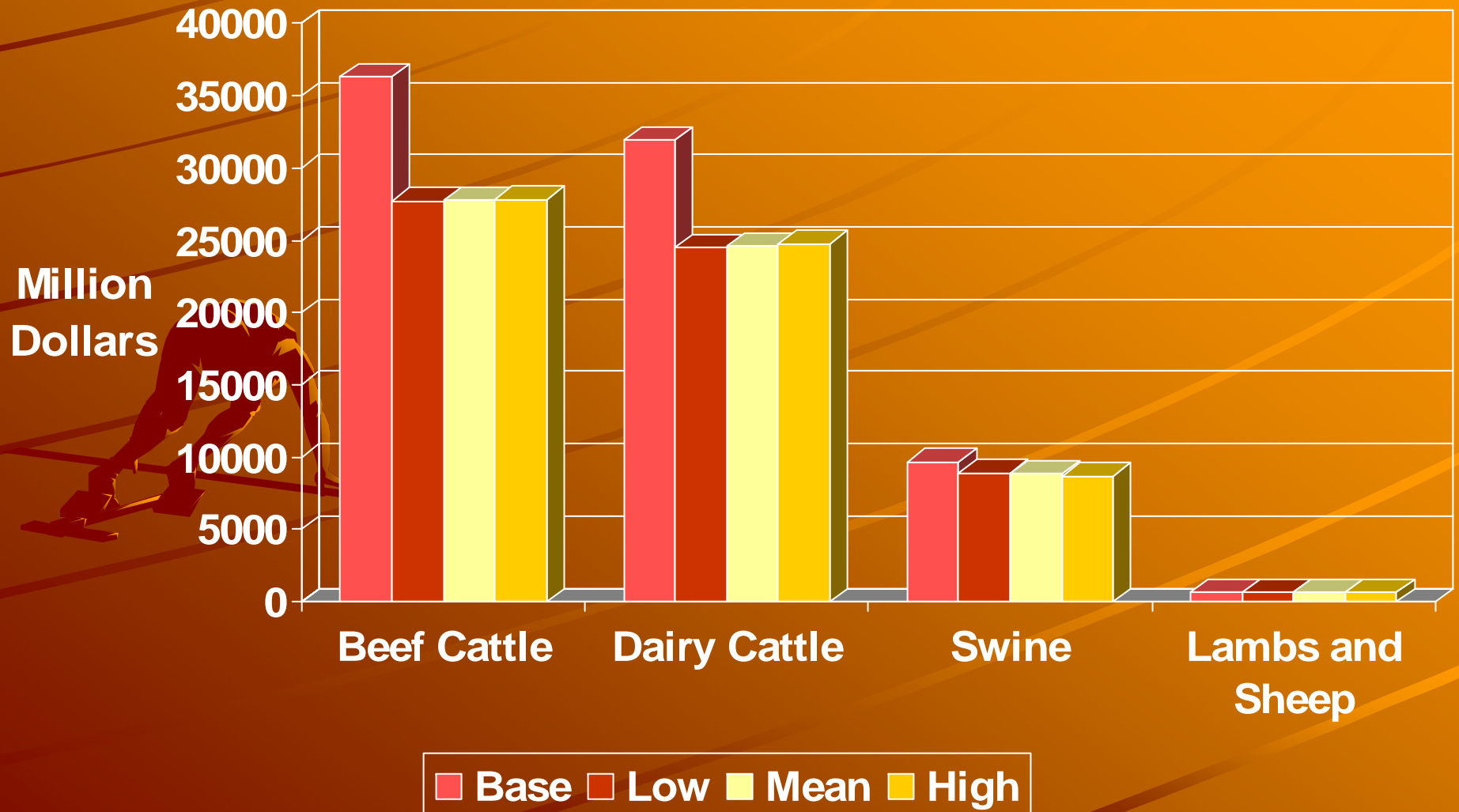


	Units	Base	Low	Mean	High
Carry-in	mil lbs	478.00	478.00	478.00	478.00
Output	mil lbs	4,805.00	4,600.58	4,602.82	4,497.11
Imports	mil lbs	226.69	146.19	154.43	168.71
Exports	mil lbs	400.54	0	0	0
Use	mil lbs	4,617.16	4,732.47	4,702.90	4,651.37
Carry-out	mil lbs	499.00	492.30	292.35	492.45
Price					
Retail	\$/cwt	262.50	240.01	242.31	246.30
Cutout	\$/cwt	63.33	40.84	43.14	47.13

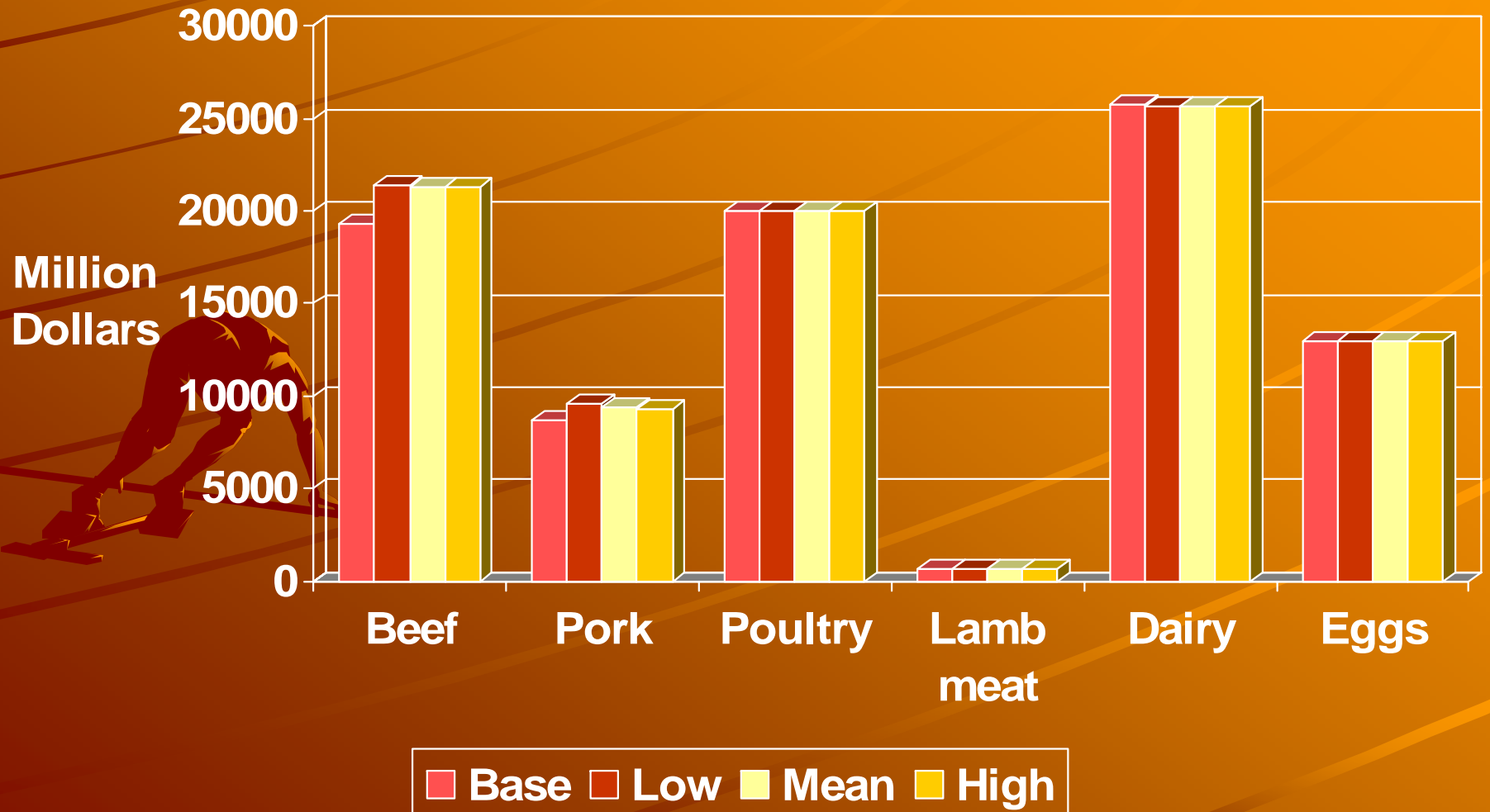
Return to Capital and Management on Sales



Value of Animal Inventories



Welfare Impacts Consumers



How Fast do Exports Recover?

- ◆ Case studies
 - FMD: UK, Taiwan
 - CSF: Netherlands
 - AI: Netherlands
- ◆ Estimate what trade would have been
- ◆ Estimate the link between disease and export loss
- ◆ Estimate how disease factors affect speed of recovery in exports



Future Plans

- ✦ Extend model to 16 quarters
- ✦ Run FMD outbreak scenarios
- ✦ Apply framework to CSF and HPAI
- ✦ Export Recovery
 - Case studies
 - Econometric work
- ✦ Examine quarantine and surveillance zone
 - Characteristics
 - Stochastic Dominance using economic and disease criteria