

Principles of  
**The Sandhills Calving System...**  
 and how they apply to  
 other production systems



**David R. Smith, DVM, PhD**  
 University of Nebraska-Lincoln

**Sandhills Calving System reduces scours**  
 Successful Farming  
 John Walter and Betsy Freese  
 Jan 25, 2006

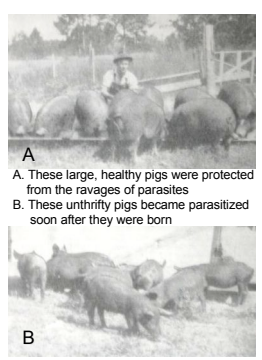


In about an hour, Clements finishes a chore that has helped cut calf scours on his Loup County, Nebraska, ranch to nonexistent...

**The McLean County System of Swine Sanitation**


- Management system to control internal parasites of young pigs
- Based on farrowing hygiene and movement of sow and pigs to clean pastures
- Tested 1919-1926

Reviewed- 1942 USDA Yearbook of Agriculture. pp774-780



A. These large, healthy pigs were protected from the ravages of parasites  
 B. These unthrifty pigs became parasitized soon after they were born

**Domino Ranching**



**Biocontainment**  
 Actions to prevent the spread of infectious agents

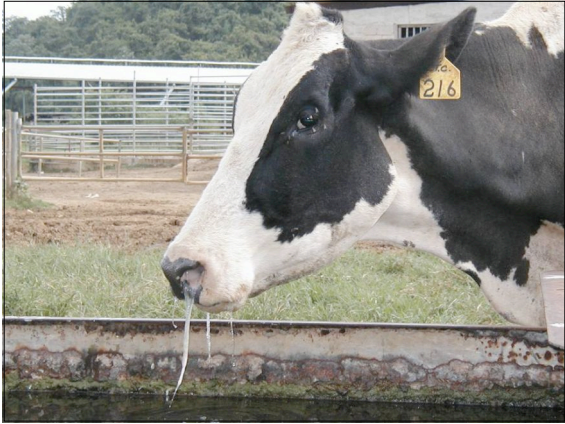
Within populations



**Prevent Effective Contacts**



physical separation  
 minimize contact time  
 minimize dose-load



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### Increase host resistance

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### Remove / prevent entry of the agent

There's uncertainty in buying cows even from our neighbors.

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### neonatal calf diarrhea

- Death loss
- Performance loss
- Treatment costs
- Labor, medication
- Human toll
- Risk for injury, frustration

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### neonatal calf diarrhea:

- Public Health Concerns
- Zoonoses
- Salmonella
- Cryptosporidia
- Antibiotic usage

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### Agents

- bacteria
  - *E. coli*, *Salmonella*
- viruses
  - rotavirus, coronavirus
- protozoa
  - cryptosporidia
- fungi
  - mycotic superinfection

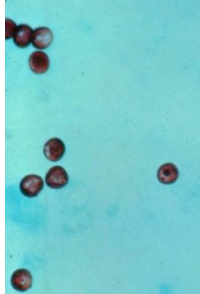
### Agents of calf scours

Diarrhea-causing organisms are common in cattle populations

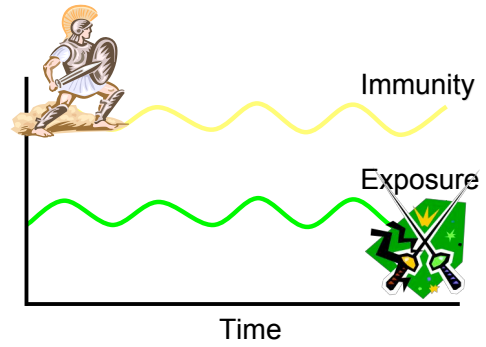
- including herds without scours problems.



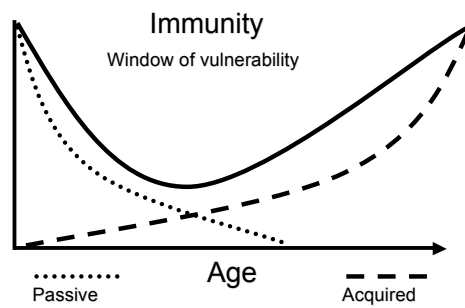
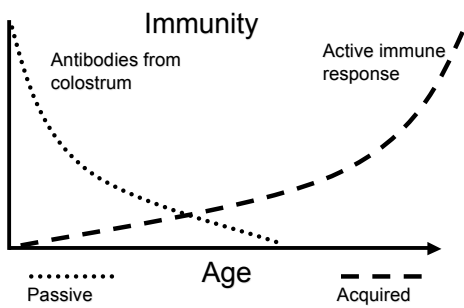
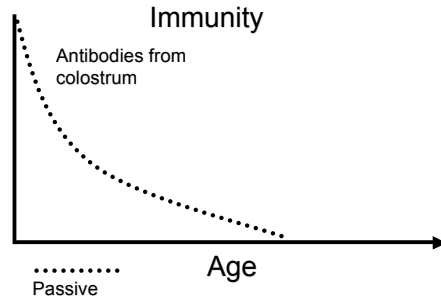
bovine coronavirus

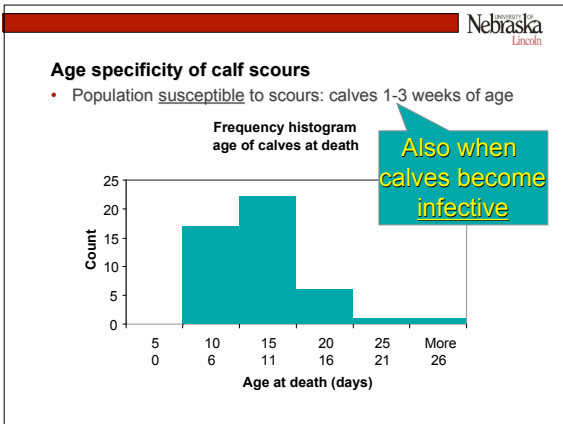
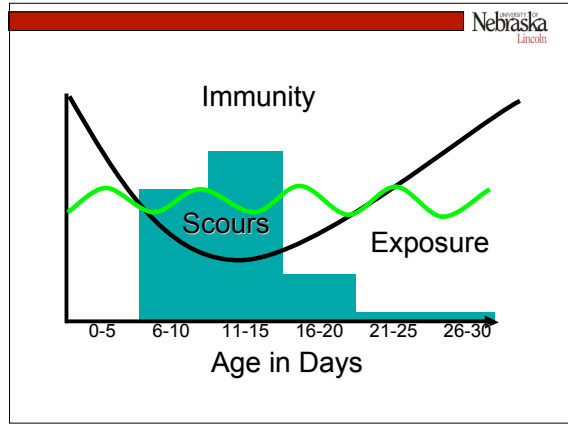
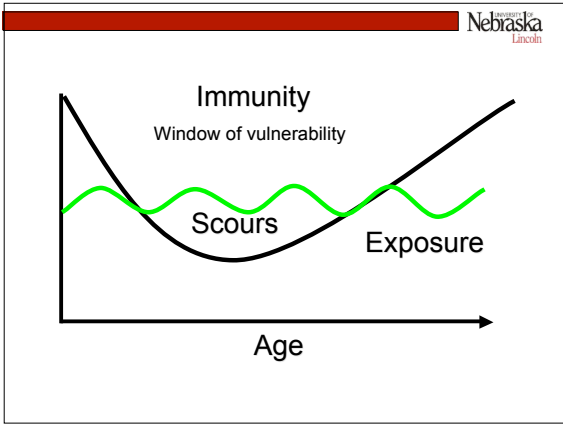


cryptosporidia



The battle between exposure and immunity begins at birth





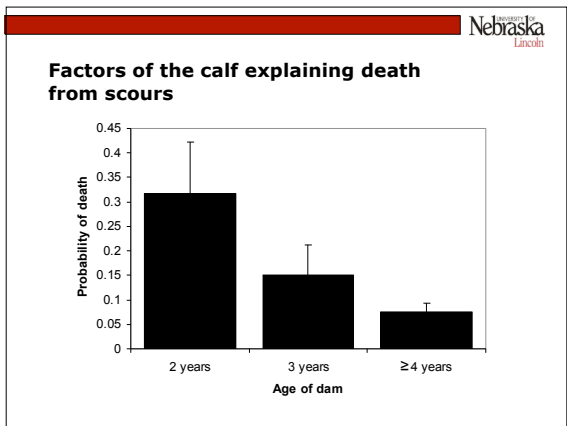
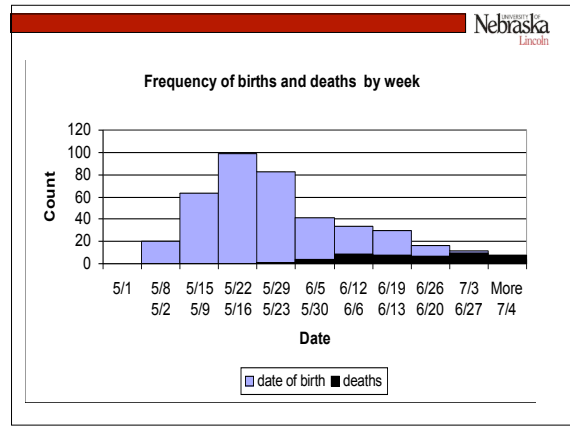
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**Beef herd experiencing severe losses to calf scours**

- 402 cattle with live births, managed as a single group –intensive grazing
- No treatment or control interventions
- 48 deaths due to scours
- An “epidemiologically-pure” scours epidemic
- and RECORDS!**

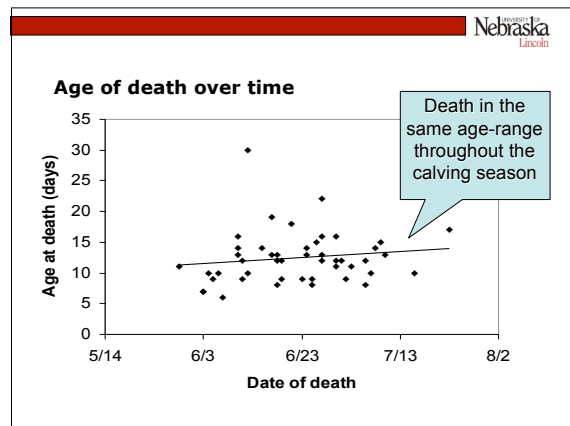
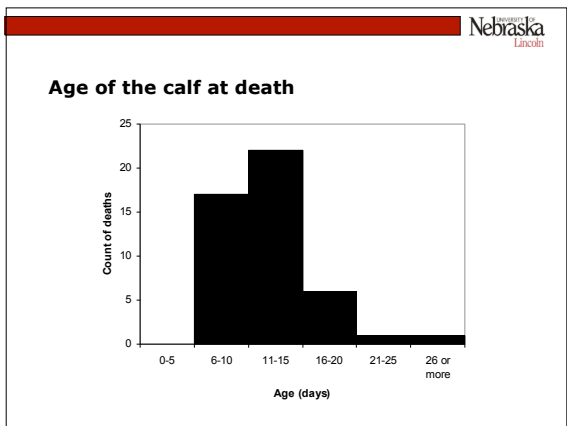
Detailed description: A list of bullet points describing a beef herd's experience with calf scours. To the right is a photograph of a record book with handwritten entries.

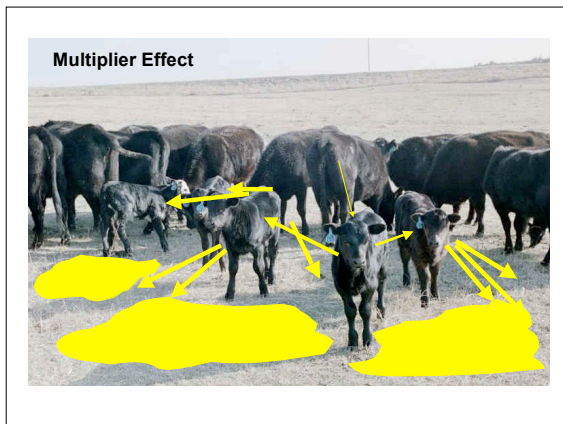
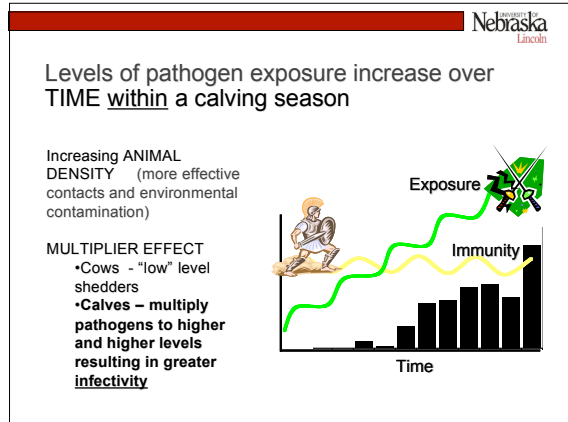
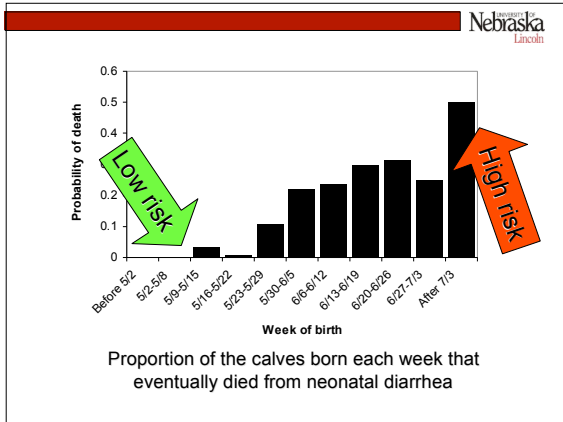
	A	B	C	D	E	F	G	H
1	Dam	damsage	calborn	caldied	datedied	agedied	birthwt	bulcalf
2	R064 98	2	5/13	1	6/12	30	75	1
3	R444	5	5/15	1			69	1
4	R145 98	2	5/18	1	5/29	11	65	0
5	R009 98	2	5/25	1	6/10	16	71	1
6	R364	7	5/25	1	6/4	10	78	0
7	R161 98	2	5/27	1	6/3	7	66	0
8	R305	4	5/27	1	6/3	7	76	0
9	R470	5	5/27	1	6/10	14	77	1
10	R265	6	5/27	1	6/5	9	93	1
11	BL008 98	2	5/28	1	6/6	10	64	0
12	R007	6	5/28	1	6/10	13	72	0
13	R208 98	2	5/29	1	6/17	19	95	1



**Factors of the calf explaining death from scours**

- Calves born on the day of a pasture-move were more likely to die (OR=1.9, p=0.09)



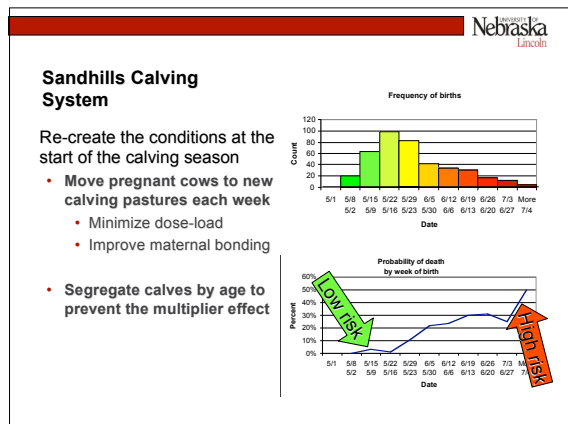
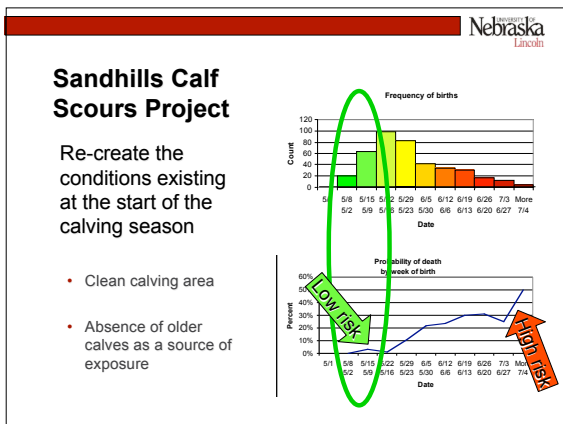


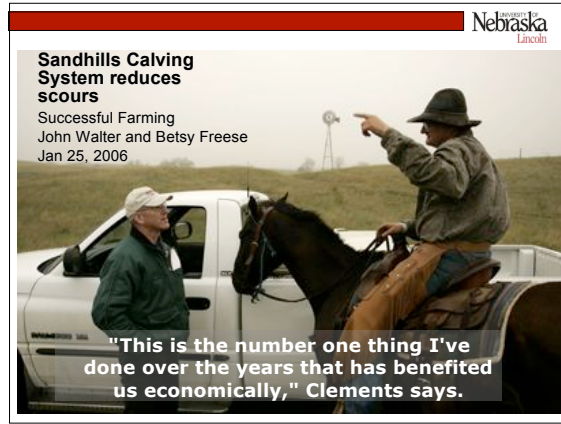
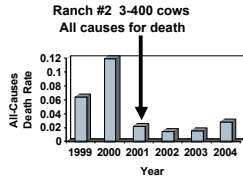
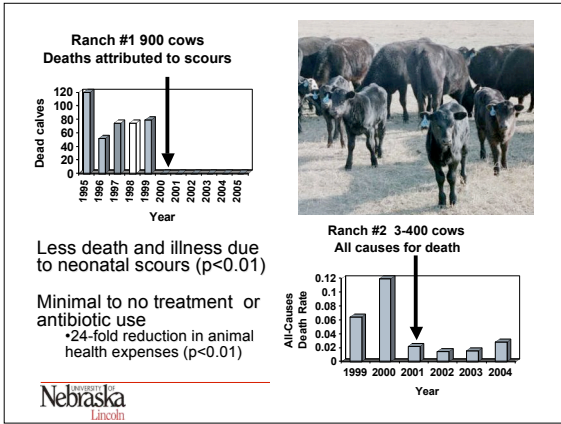
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### Biocontainment strategies for neonatal calf diarrhea

- Eliminate the agent and keep it out
- Increase host resistance
  - **Colostrum!**
- Prevent effective contacts
  - older infective calves
  - and contaminated environment!

Center for Food Security and Public Health, Iowa State University, 2003





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**The Principles of Animal Hygiene and Preventive Veterinary Medicine**

...those more particularly concerned with the food-producing animals must think in terms of hygiene, for their success is in no small measure dependent upon their knowledge of the subject"

Leunis Van Es  
Lincoln, NE 1932

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