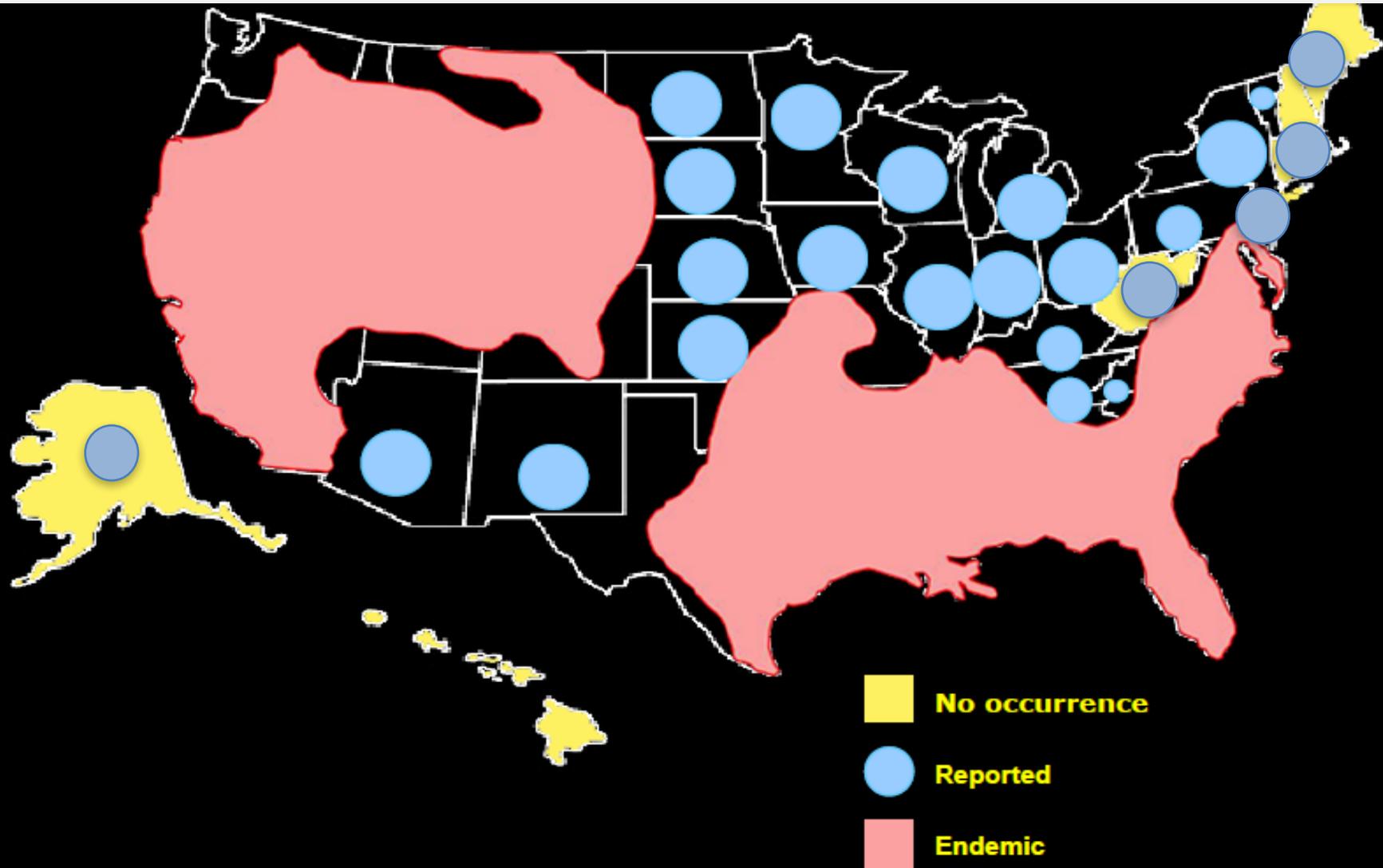


Anaplasmosis: What it is and what it isn't

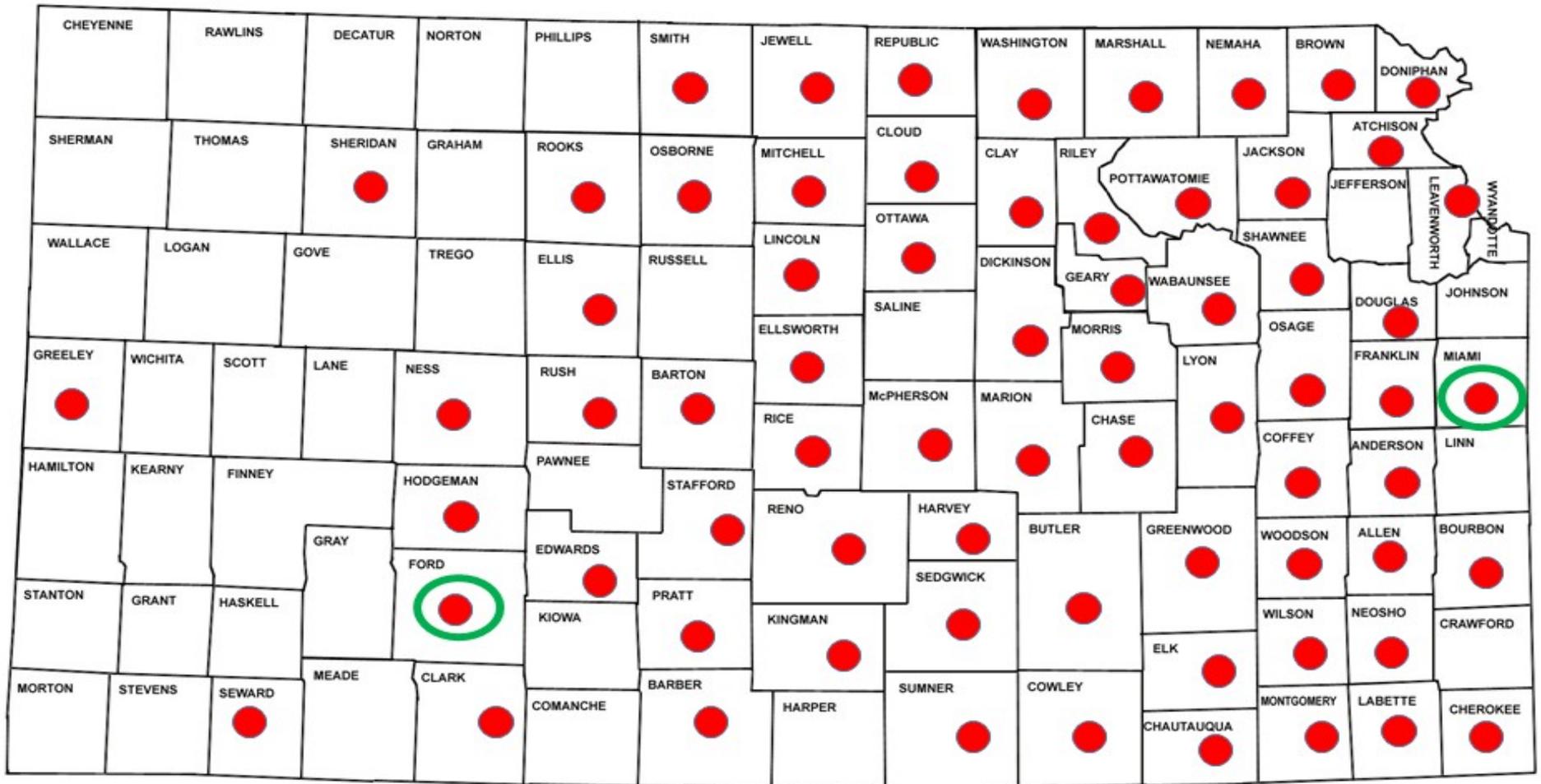
Dr. Mike Apley
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Kansas State Veterinary
DIAGNOSTIC LABORATORY

Anaplasmosis is reported in every state except Hawaii



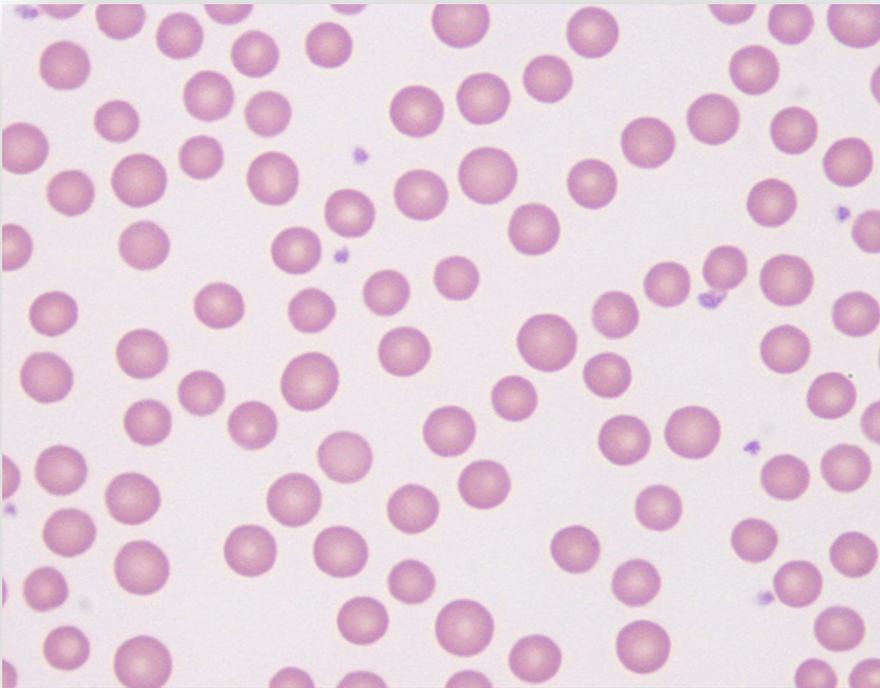
2015: Kansas Positive Counties



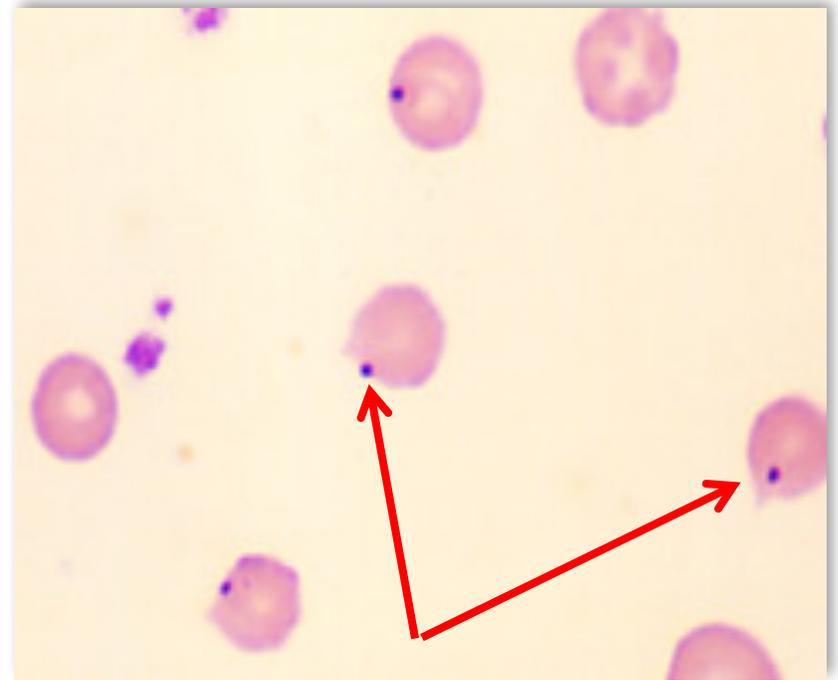
www.ksvdl.org "Disease Trend" button

Anaplasma marginale

- Rickettsia (gram (-) bacteria) infect red blood cells

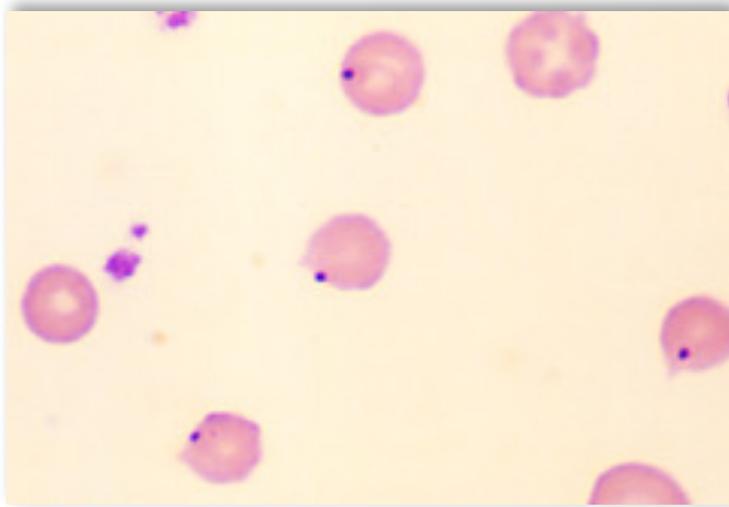


Normal red blood cells



Anaplasma infected red blood cells

Red blood cell destruction



Animal becomes infected

Spleen removes Anaplasma
infected red blood cells

Anemic

Clinical signs



Clinical signs
only in Adults
>2 years age

Time from infection to clinical signs (prepatent period)
6-70 days
Average 28 days

Kocan; 2003, Audry; 2011

Clinical signs

- **Adult cows/bulls found dead in the pasture/calving**
- Lethargy
- Difficulty breathing (especially when moved)
- Aggressive behavior!!!
- Abortion: KSVDL— 4 herds in spring 2015
- Icterus (yellow membranes)/enlarged spleen

Fever
Weight loss
Constipation

Radostits, Smith

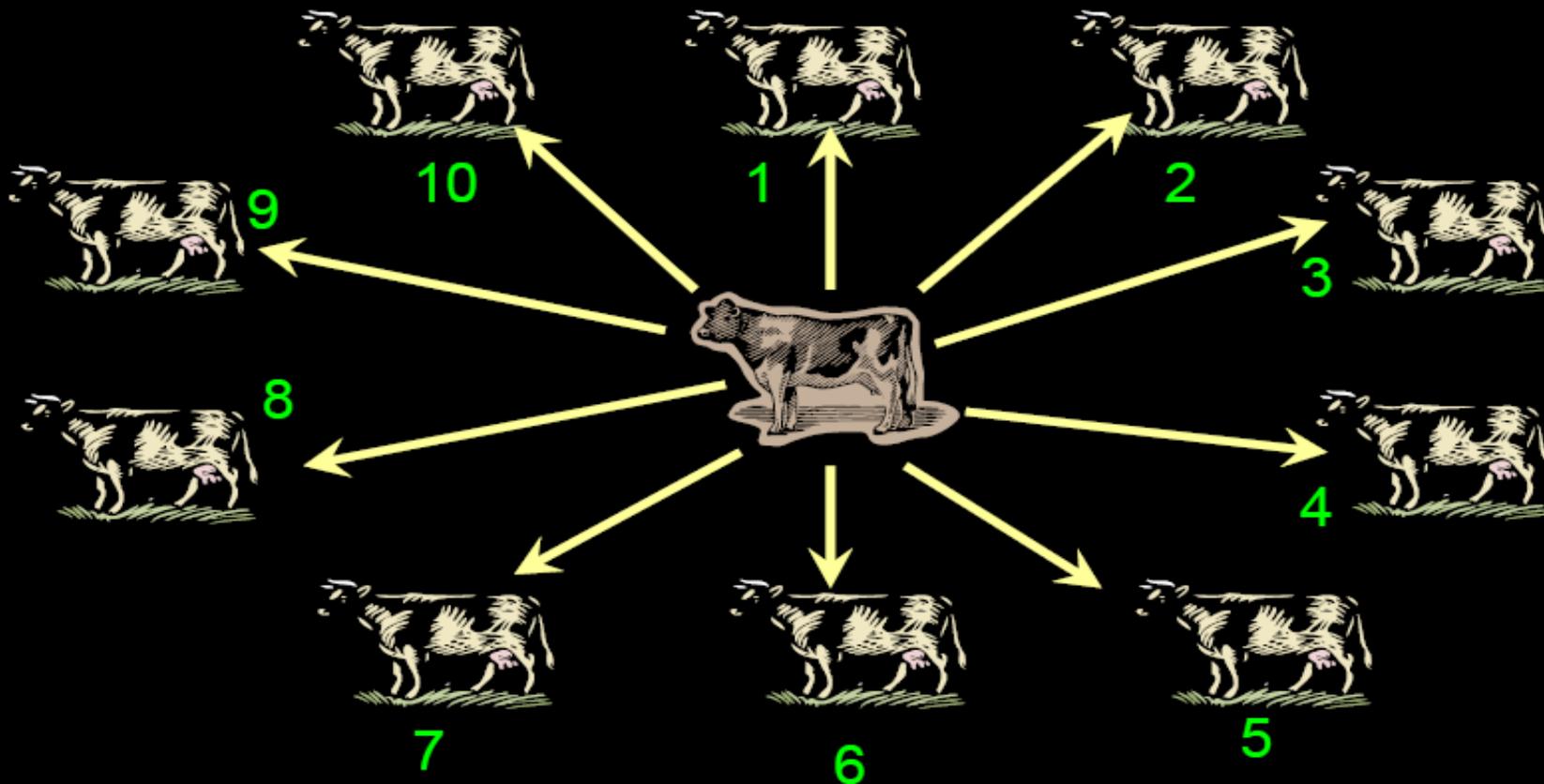
How does infection occur?

Blood transfer

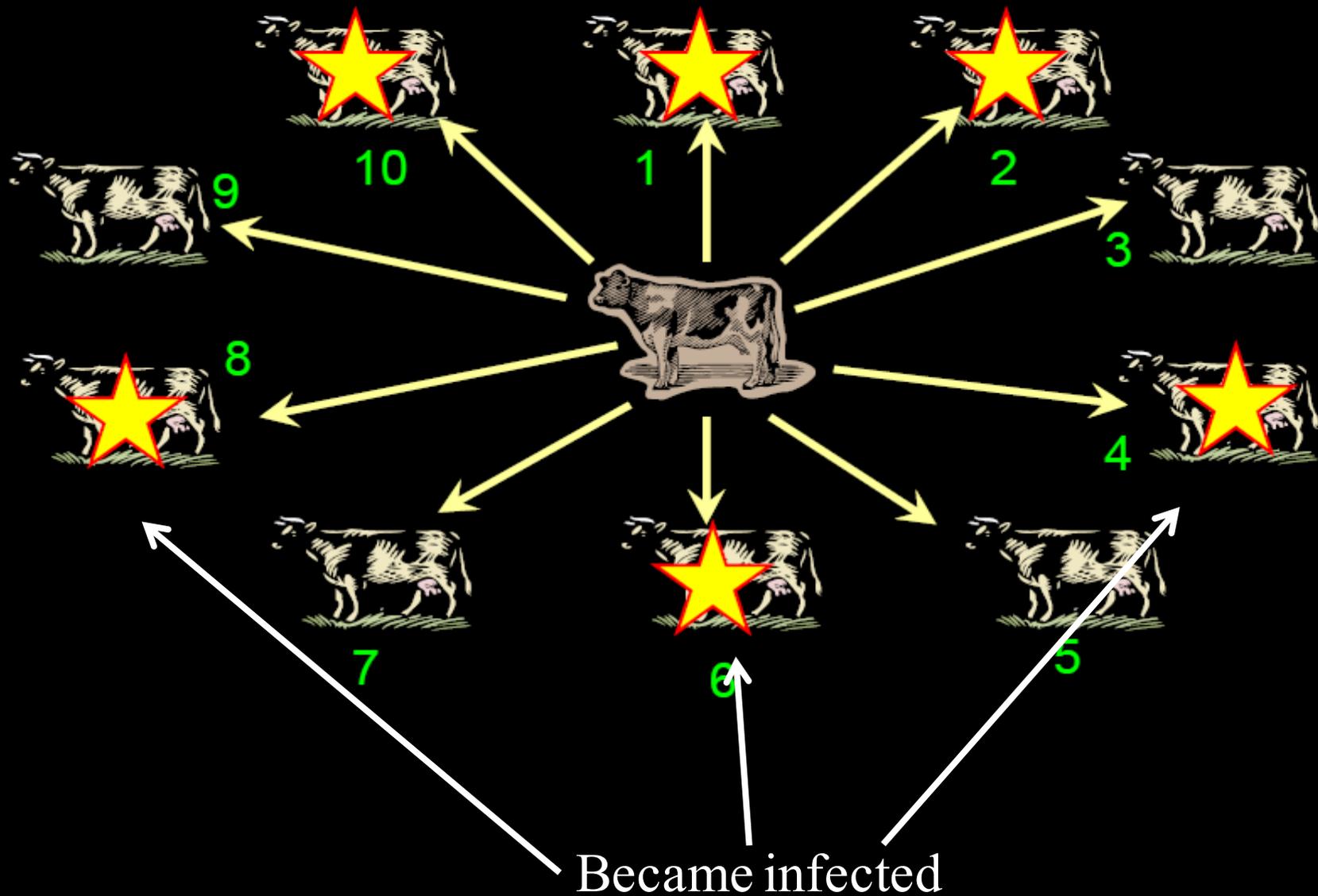
- ✓ Some tick species
- ✓ Some fly species
- ✓ During gestation
- ✓ Needles, Tattoo pliers, etc.



Injection sequence using the same needle: Index cow, 2% *A. marginale* parasitemia



KSU Study



Became infected



All ages of cattle can become
infected

Younger animals are more resistant to
infection
“inverse age immunity”

Kocan; 2003, Aubry; 2011



**All recovered animals will remain
lifelong carriers!!!**



Lifelong carriers will not experience
clinical Anaplasmosis in
subsequent years

Viseshaul; 2000, Kocan; 2003

Life-long carriers

Are the source of infection
for other animals, but....

Difficult to eliminate the carrier state,
and.....



If remove lifelong carrier state:
these animals will be

Susceptible to CLINICAL
Anaplasmosis if re-infected in
subsequent years

Richey; 1991, Reinbold; 2010, Audry: 2011

Anaplasmosis is not...

- A bacterial disease.
 - It is a Rickettsial disease in which the pathogen must parasitize red blood cells to survive.
 - This disease has a very narrow choice for therapy
- A uniform disease caused by a consistent parasite.
 - There are different serotypes which originated from different areas of the country.
 - Research tells us that the ability to cause disease and the response to therapy may be quite different for the different serotypes.
- A disease that goes away if the animal survives clinical disease.

Anaplasmosis is...

- A disease with different clinical outcomes based on the age of cattle infected.
- A disease that can be spread in multiple ways.
 - Ticks are a host where the male tick can be a carrier in which the disease replicates
 - Flies can pass the disease by mechanical means through carrying infected red blood cells between cattle.
 - We can spread the disease through fomites such as injection needles, dehorner, and implant needles.

Anaplasmosis is...

- A disease for which some of our thinking has been informed by older studies that used relatively insensitive tests.
- A disease with limited data related to the efficacy of treatment and control programs.



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Thank you

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Icterus



Icteric eye



Normal eye



Icteric vulva

