

Reproductive and other emerging disease concerns

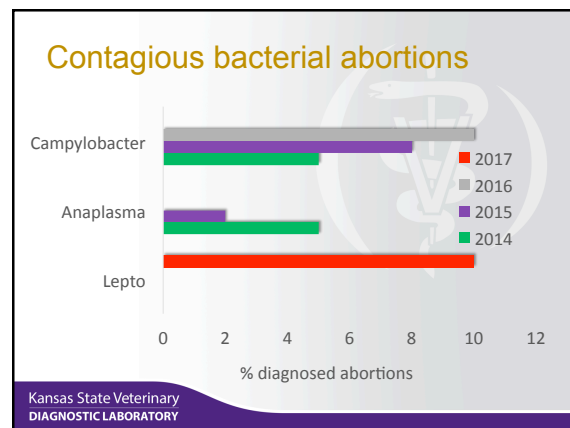
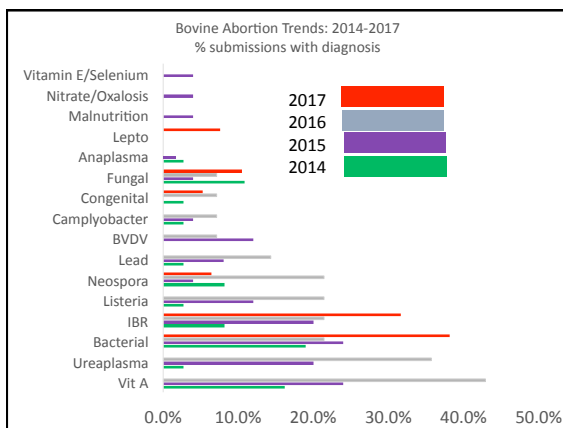
Applied Reproductive Strategies in Beef Cattle
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Manhattan, KS

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Abortion trends

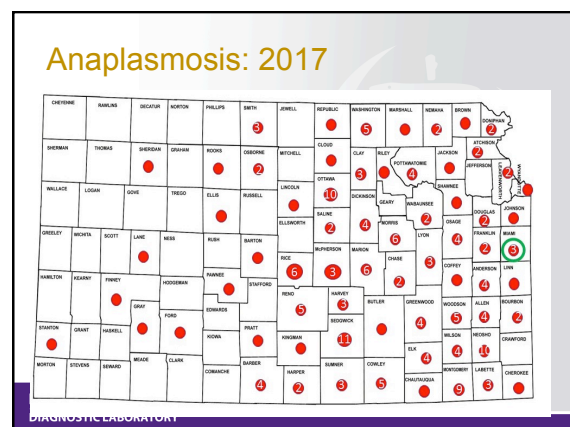


Contagious bacteria

Campylobacter: (*Vibrio vaccines*)
Venereal transmission
Infertility, early embryonic loss, abortions
Hoffer, 1981; OIE, 2014

Anaplasma:
Transmission: insect vectors
(ticks & stable/horse/deer flies)
Needle transmission; within herd trans
Late term abortions, still births
Fowler, et al., 1975; Stewart et al., 1975

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Anaplasma abortions

Abortion: KSVDL— 4 herds (1-6 per), spring 2014, 2015
Anoxia and/or septicemia:

Debey, Andrews, p.c., 2015;

6 intact cows inoculated in 3rd trimester: 4 aborted

Fowler, et al., 1975

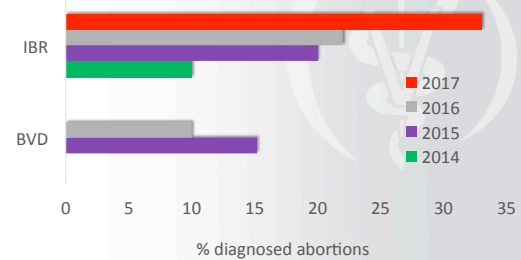
Inoculated intact cows: 6/9 aborted 22-31 days after inoculation

Stewart et al., 1975

KSVDL: August 2017
46 fall cows
3 dead cows
9 abortions/stillborn

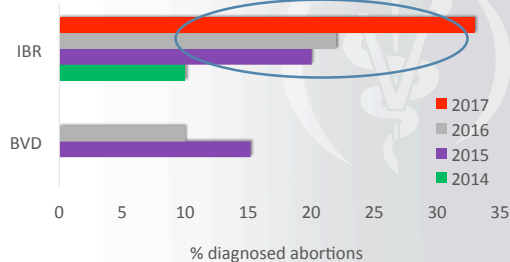
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Viral abortions



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Viral abortions



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IBR

IBR (Infectious bovine rhinotracheitis)
Resp and reproductive organism
Transmission: aerosols/fluid transmission
Carrier herd-adults
Late term abortions

Kennedy et al., 1984; Anderson, 2007

Increase in IBR associated abortion cases since 2014

Many fetuses contained virus strain identical to MLV vaccine strain (KSVDL data)

Follow label instructions!!

All animals which are vaccinated: become immunized?



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BVD

BVDV (Bovine viral diarrhea virus)
Resp. and reproductive organism

Transmission: Aerosols/any fluid (saliva, vaginal, semen, uterine, etc.)

Exposure to PI and/or TI animals!!!!

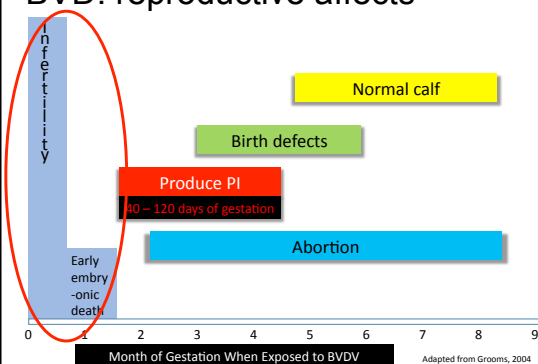
persistently and transiently infected

Gunn, 2004; Anderson, 2007



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BVD: reproductive affects



BVD: fertility and EED

Seronegative cows; exposed to PI

Preg rate (60 dpb)
 seroconverted **before** breeding: 78.6%
 seroconverted **during** breeding: 44.4%
 seroconverted **after** breeding: 22.2%

Virakul, et al. 1988

Seronegative heifers; exposed to PI 4 days after insemination

exposed group, preg rate: 44% (20 dpb)
 unexposed group, preg rate: 79% (20 dpb)

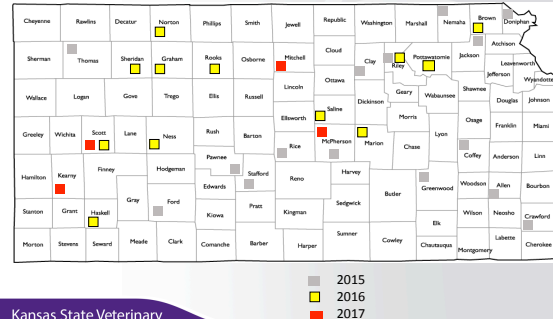
77 days post insemination: preg rate

Exposed: 33% (77 dpb)

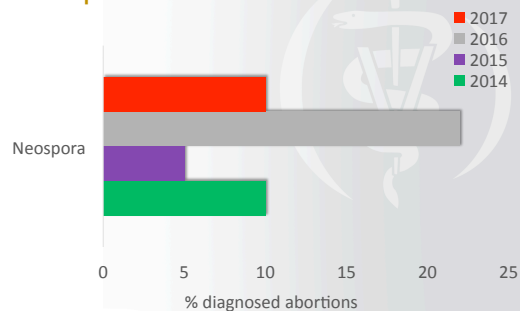
Unexposed: 79% (77 dpb)

McGowan, et al. 1993

BVD persistently infected



Neospora



Neospora

Protozoa: *Neospora caninum*

Horizontal and vertical transmission

Very efficient: up to 95% positive dams pass to fetus

DuBey, et al. 2007; Reichel, 2013

Infection outcomes:

EED

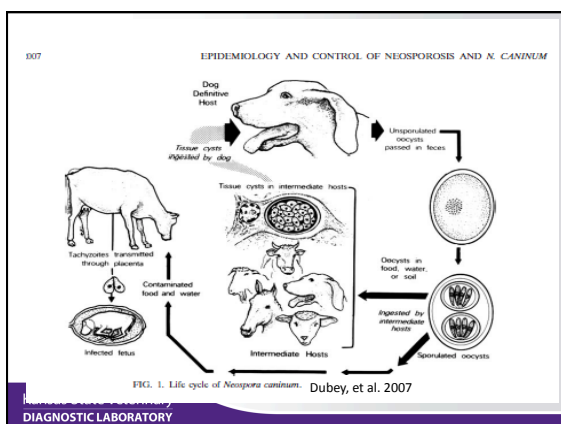
Live, but abnormal calf (dummy calf)—rare

Live, normal calf—most common (are lifelong carriers)

Abortion

Haddad et al. 2005; DuBey, et al. 2007

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Neospora

Seropositive dams: 2X to 3X more likely to abort (25 studies)

Pare, 1997; Lopez-Gatius, et al., 2004

Abortion risk decreases by dam parity

Highest risk, heifers infected during 1st gestation

Thurmond et al., 1997

Epidemic abortions: new, horizontally infected

Endemic abortions: endemic herd, vertical transmission

Reichel, 2013

DuBey, et al. 2007;

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Other “emerging” diseases

Bovine leukosis virus

■ 2015
 ■ 2016
 ■ 2017

NAHMS: 1999 & 2007
 39% beef herds infected
 83% dairy herds infected

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Bovine leukosis virus

Zoonotic potential?

Tumor causing virus
 Associated with premature culling and reduced production
 Most studies: dairy and repro effects minimal

Ott, 2003; Bartlett et al., 2014

2003-2007: 26,694,317 cull cows slaughtered in U.S.
 536,257; postmortem condemned

#1 reason for postmortem condemnation: lymphoma (BLV)
 22.3% or 119,569 animals

White, et al. 2008

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Johne's disease, 2017

cow-calf herds

Zoonotic potential?
 Crohn's disease?
 Juvenile autism?
 Diabetes?

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Thank you!

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