

An update on nocardioform placentitis

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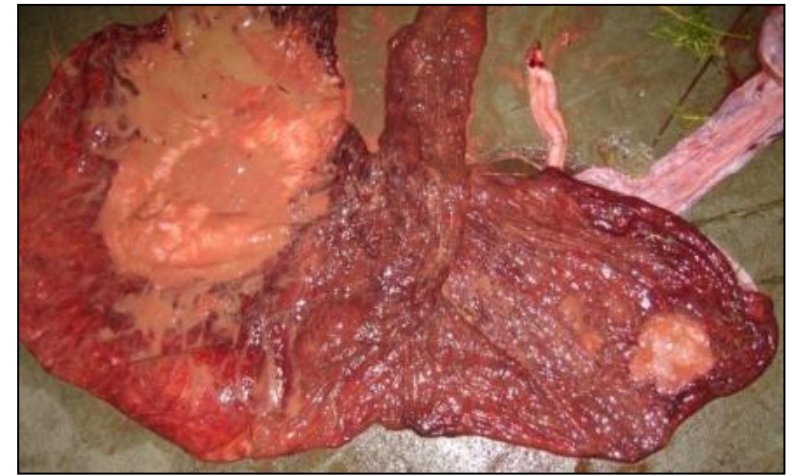
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Nocardioform placentitis



- First diagnosed in KY in 1986.
- Increased incidence during 1998, 1999, 2011, 2017 and 2020 foaling years.
- Also reported in Florida, South Africa, Italy, New Zealand and Australia.
- Associated with gram+ branching actinomycetes including:
 - *Amycolatopsis spp.*
 - *Crossiella equi*
 - *Streptomyces spp.*
 - *Nocardia spp.*

Nocardioform Placentitis

- Vast majority of cases are 10-11 month gestational age
- Abortions in last trimester
- Characterized as a quiet inflammation of placenta without infection of fetus.
- Major lesion is one of placental insufficiency due to damage to the placenta.
- Statistically significant association with hot, dry periods in August and September of the preceding year.

Nocardioform vs ascending placentitis

Nocardioform



Ascending bacterial placentitis



Nocardioform placentitis

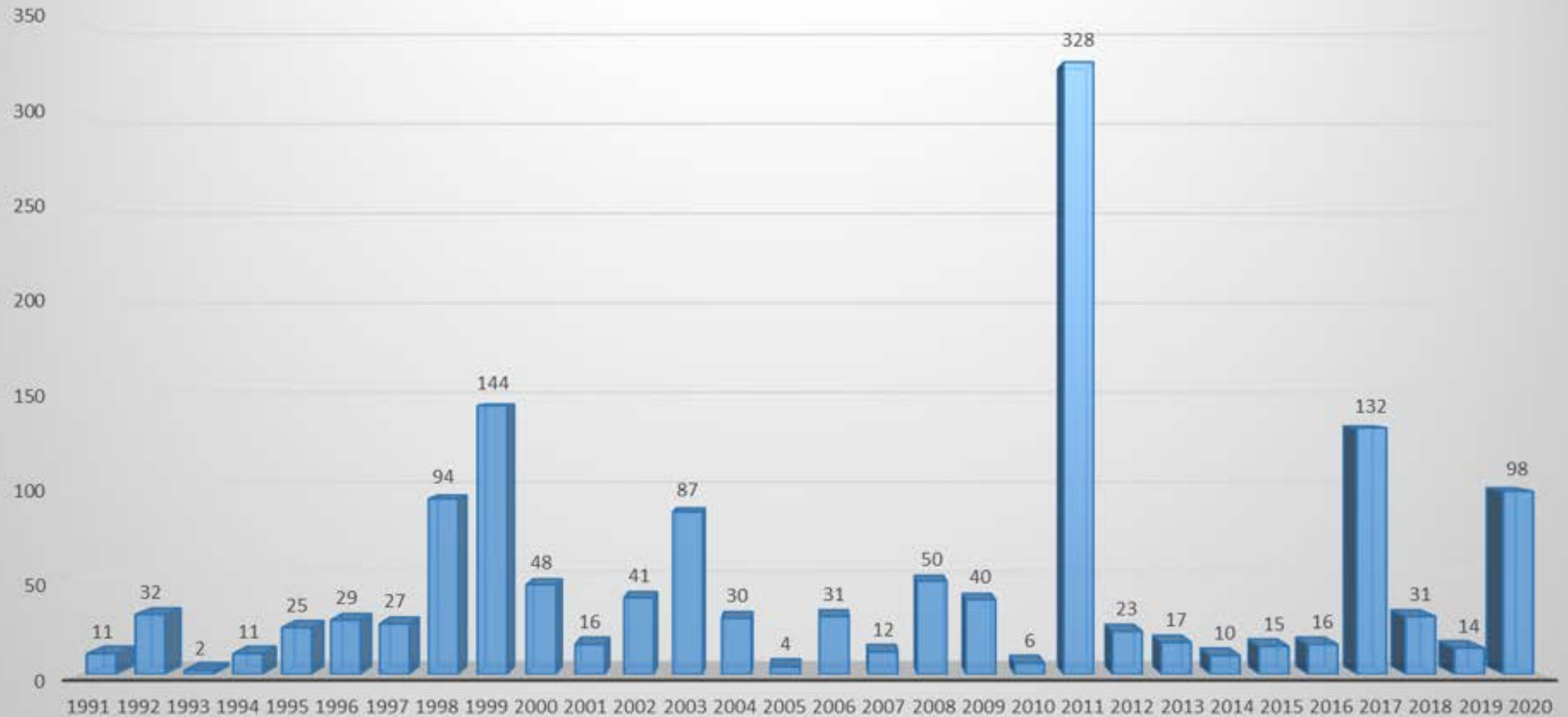


Courtesy of Dr. Christine Bartley



Courtesy of Dr. Kristina Lu

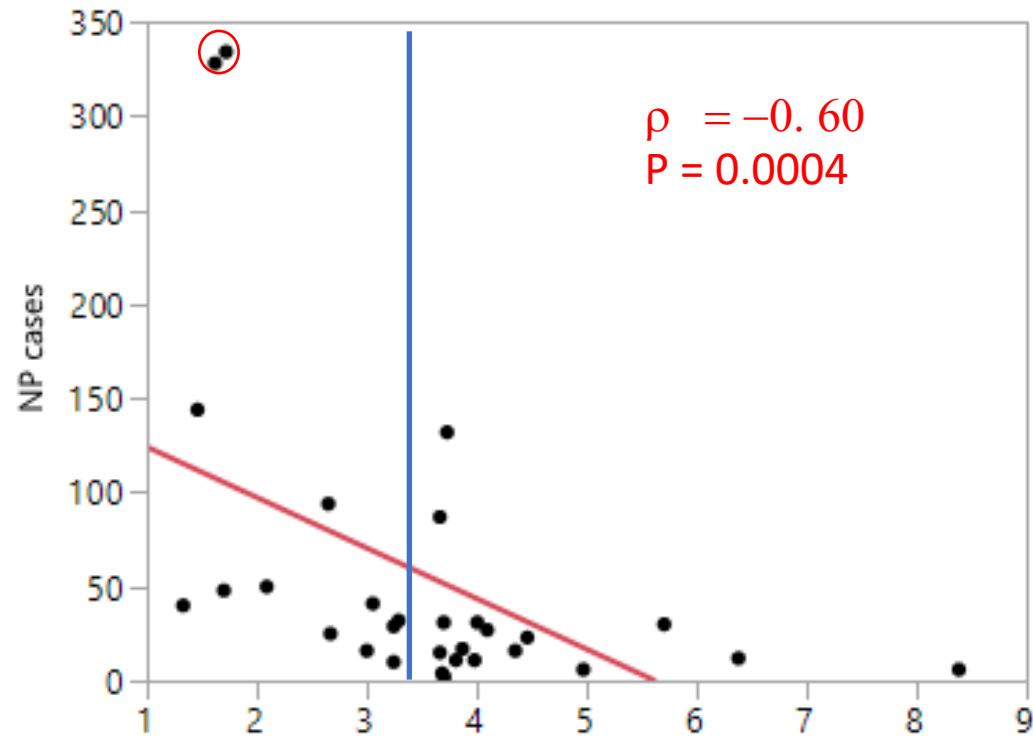
Nocardioform placentitis 1991-2020*



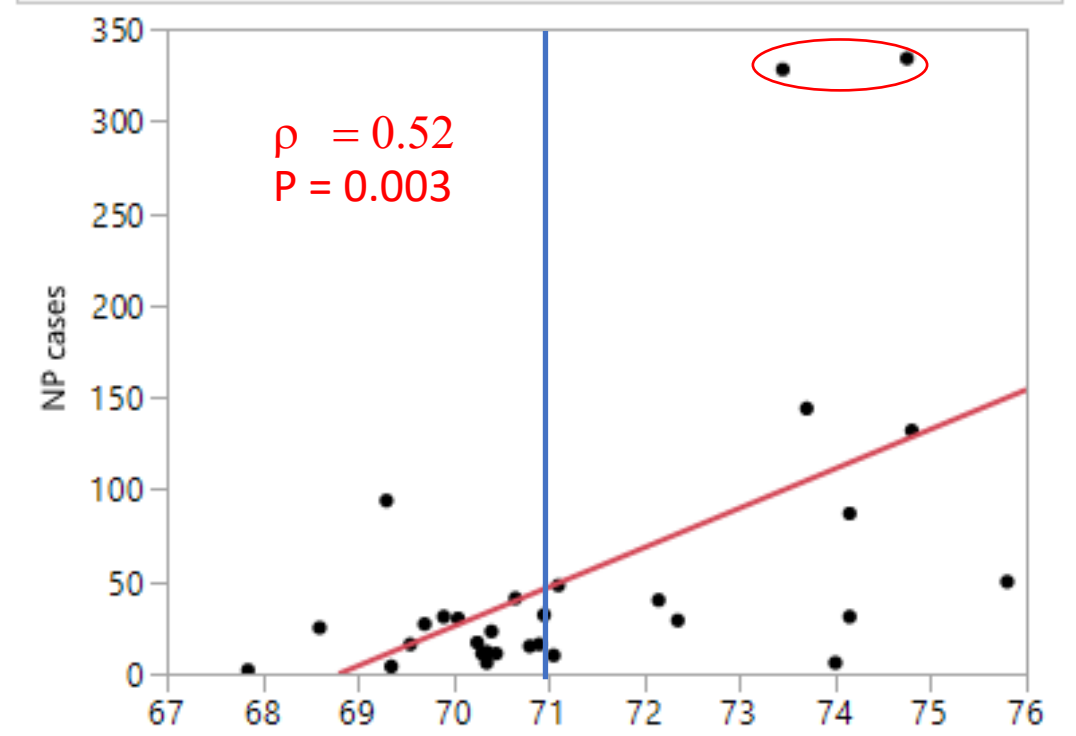
Foaling Year

* Through February 25, 2020

Relationship between late summer climate and NP cases. (1990-2020)



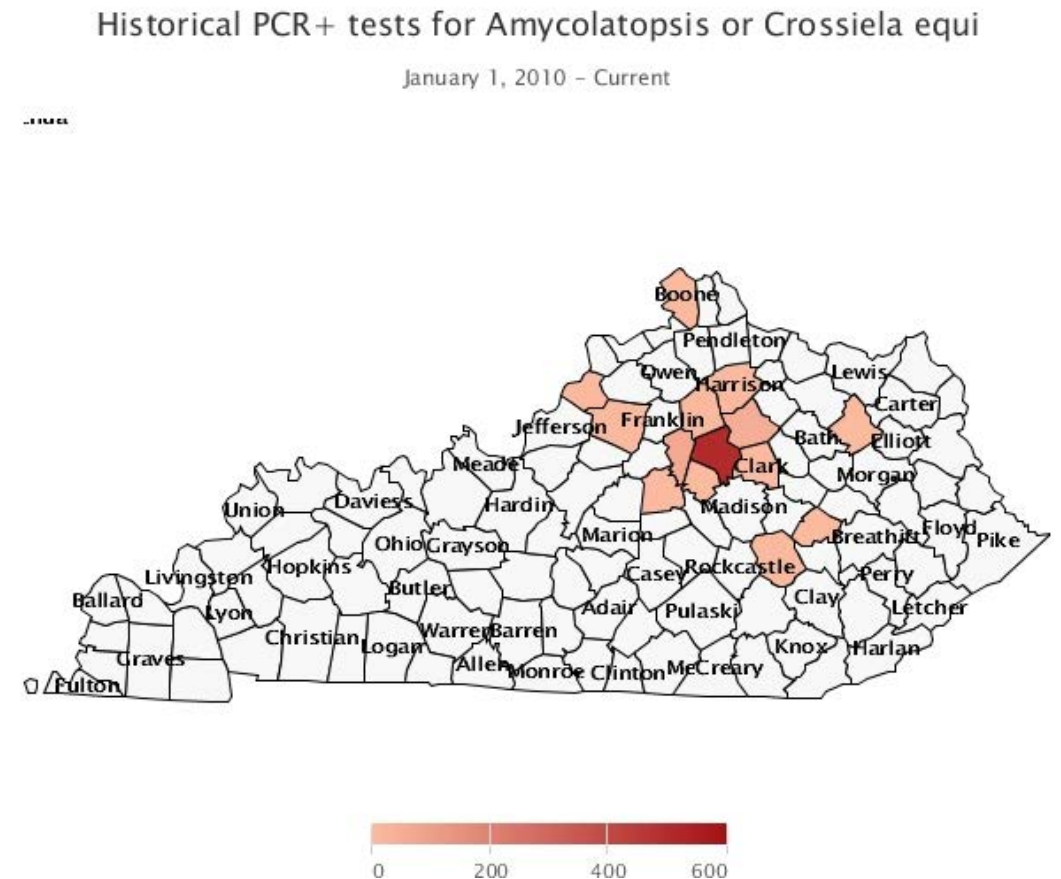
Mean rainfall (August / September)



Mean temperature – August / September

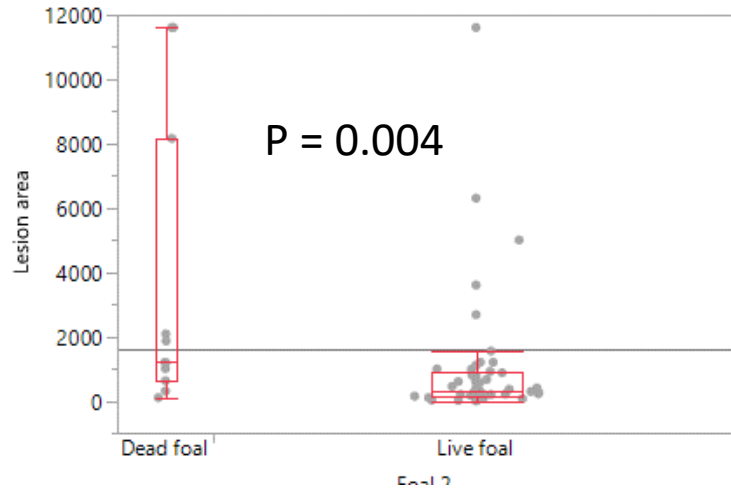
UKVDL submissions for Nocardioform placentitis: 2020

- Total cases submitted – 334
 - 130 dead foals and placenta
 - 204 affected placenta
- TB foals registered in KY for 2018 – 8,191.
 - 4.1% incidence of Nocardioform placentitis

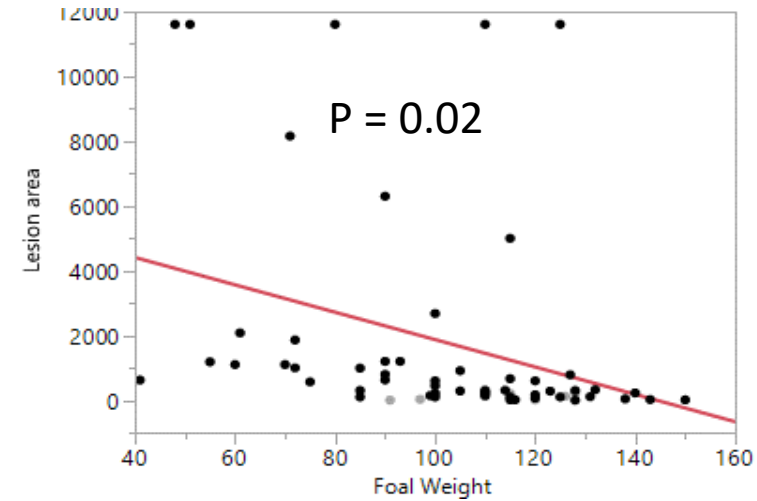


Foal outcomes: 2020 Nocardioform placentitis

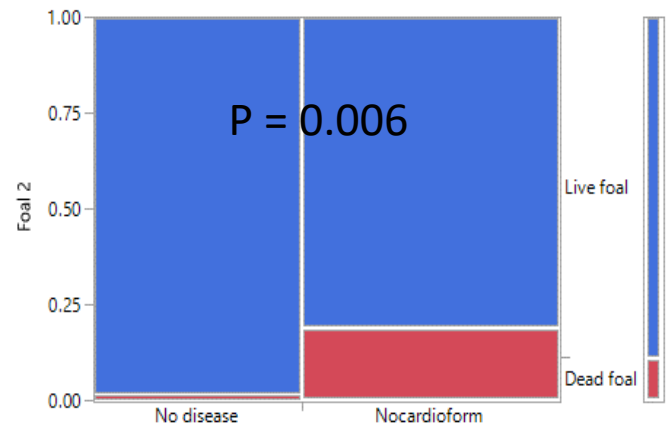
Lesion area v. foal outcome



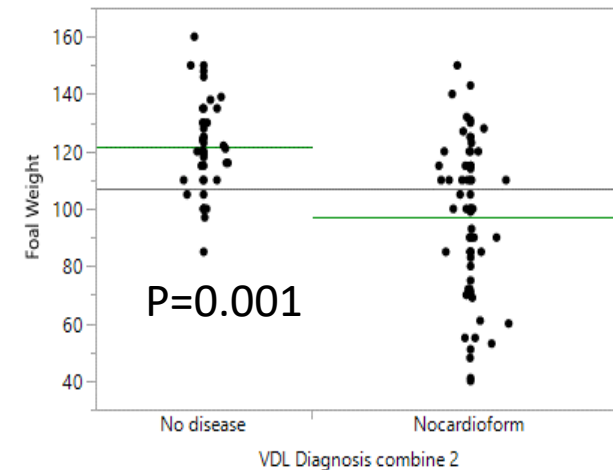
Lesion area v. Foal weight



Proportion of dead foals



Foal weight





Attempts to induce nocardioform placentitis (*Crossiella equi*) experimentally in mares

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- To investigate whether nocardioform placentitis could be induced through inoculation of *Crossiella equi*:
 - i) intrauterine during the periovulatory period
 - ii) intravenously, orally, intra-nasopharyngeal or intra-cervically in pregnant mares
- Examine the frequency of at which endometrial swabs (prior to and after mating) present evidence of nocardioform microorganisms

Nocardioform placentitis: Conclusions

- Nocardioform placentitis results primarily in placental insufficiency with effects on fetal growth.
- NP is associated with hot, dry periods in the preceding August – September.
- Pathogenesis of NP remains unclear.
- RNA Sequencing has revealed the pathways leading to placental insufficiency in the mare associated with NP.

More information – Workshop on nocardioform placentitis 2020

<https://gluck.ca.uky.edu/nocardioform-sept2020>