Johne’s testing (Pennsylvania)

Deep Tewari BVSc, PhD, DACVM
Pennsylvania Veterinary Laboratory
Organism detection tests at PVL

- Liquid culture
- Environmental culture
- Detection from tissues with PCR
- Fecal PCR (+ Pooling)
Culture and 20 Yrs evolution
Positive indicators

- Signal
- Graph
- Acid Fast staining
- PCR (IS 900)
Benefits

- Faster turn around (7wks) down from 14-16 wks or sometimes 6 month in 90’s
- No contamination
- High shedders categorization more consistent across labs based on validation >50 colony shedders/tube/g
PCR evolution- same 20yrs

- Week long turn around
- Good for confirming serology suspects rapidly
- or doubtful herds

Real time PCR
- Same day result
- High Se/Sp
Impacts of PCR

- High Se/SP

- Detection faster from 14 wks to 7 wks finally 1-3 days

- Live and dead cannot differentiate-pass through situation -a problem if culling with low amount of DNA signal
Pooling is popular
Pool pos but Culture negative

- Does it happen - Yes
- Can we always resolve it - No
- Dead DNA to blame?
## Culture vs PCR (145 pools)

<table>
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<tr>
<th>PCR (&lt;35 Ct)</th>
<th>Culture +</th>
<th>Culture -</th>
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<tbody>
<tr>
<td>+</td>
<td>100%</td>
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>35 Ct low correlation-60% positivity
Kit changes
Milk labs
Non-specific
Johnes and Diagnostic challenges

- NE Dairy herd 1000+ milking animals
- Using 4-5 Diagnostic labs
- Closed herd-no clinical cases
- Serology pos 30% herd
- Offered alternative kit testing, dropped to 10-15%
- Follow ups on PCR negative
- Animal feed –and blackbirds
Goat and sheep herds

- Culture/PCR on fecal not always predictive-paucibacillary
- Histopath (Diagnostic)
- PCR Necropsy (Diagnostic)
- ELISA/AGID?
Future

- Gamma test-specific antigen
- Improved ELISAs
- PCR- will continue to be important
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