

Maintaining Flock Genetics While Eradicating Ovine Progressive Pneumonia Virus

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Introduction

Recent research by Leymaster et al, has demonstrated that the primary route of transmission of the Ovine Progressive Pneumonia virus (OPPV) is via contact with infected mature sheep. This work demonstrated that the virus is primarily spread through contact with nasal and oral secretions directly from infected to uninfected sheep. Prior to this research, the historical belief was that this virus was spread by the ingestion of infected colostrum and milk thus infected ewes were blamed as sources of infection for their progeny. In 2013, interested sheep producers began eradicating OPPV from their flocks by participating in a cooperative state and industry-led program developed in Minnesota.

Materials and Methods

There are four key components to this eradication program:

1. All testing is performed using HYPHEN BioMed's Elitest® ELISA for MVV/CAEV.
2. Producers with heavily infected flocks have been testing lambs intended as replacement breeding stock at 2-3-months post-weaning. The research published in 2013 indicated that 10-30% of the weaned lambs would test positive from infected ewe flocks.
3. The lambs that test negative are kept as a separate group away from the infected ewes with no nose-to-nose contact.
4. Once serologically positive lambs are removed after the initial test, a follow-up test is scheduled to occur 2 months later. This testing strategy is repeated until the entire lamb group has tested negative two consecutive times. It is imperative that producers adhere to test intervals of every 2-3 months to make expedited progress.

Results

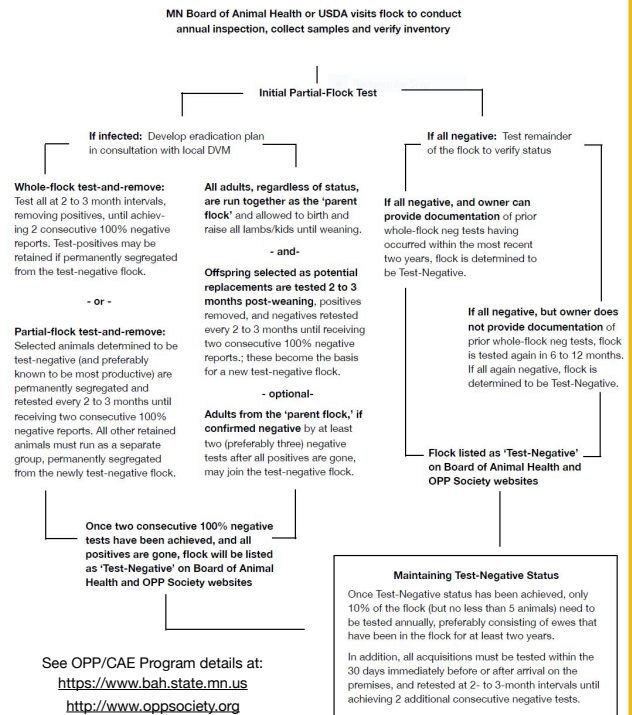
It is possible to rebuild a test-negative flock from test-positive parent sheep in a single generation, following this newer strategy. Although it is recommended to proceed with caution to retain genetic diversity. A more prudent goal for achieving eradication would be 3-5 years, a timeline during which we have observed multiple flocks produce enough seronegative replacements such that all remaining seropositive sheep can be culled.



APPENDIX 2

FLOW CHART:

(Excerpted from Minnesota's Healthy Sheep and Goats Program)



Conclusions

This eradication strategy has worked well assuming certain caveats are followed.

1. The producer needs to generate an electronic inventory of the flock to ensure that all sheep in the tested group have been sampled.
2. All seropositive sheep need highly visible and permanent identification to distinguish them from the seronegative group in case of accidental mixing which spreads virus.
3. Modifications need to be made on the farm to ensure that nose-to-nose contact never occurs between seronegative and seropositive groups.
4. Adhering to the testing schedule is vital such that new infections are detected before there has been more than low levels of transmission.
5. This strategy still requires steadfastness by the producer even though lamb orphaning and rearing on milk replacer is not needed.
6. Engaged producers have documented or been convinced of having higher levels of productivity in their seronegative vs. seropositive ewe groups and have been pleased with the outcome of their efforts.

References

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