

NEW OPP ERADICATION STRATEGY, MINNESOTA'S TRIAL (Oct 2013–Dec 2017)

MANAGEMENT RECOMMENDATIONS AND CONSIDERATIONS:

The following has been adapted from our 16-page final report, available at: www.bah.state.mn.us (and) www.OPPsociety.org

DEFINITIONS (trial specific):

- PARENT FLOCK: Ewes and rams 12 months and older; may be either OPP positive or negative. Ewes are managed as a single unit, regardless of pos/neg status, and allowed to birth and raise all lambs to weaning.
- TEST-NEGATIVE REPLACEMENTS: Offspring of the Parent Flock that have been selected for replacements and found to be OPP negative post-weaning. To confirm continuing test-negative status, this group will be segregated, and retested every 2 to 3 months with all positives immediately removed, until achieving two consecutive 100% negative tests.
- ERADICATION STRATEGY: Simply stated, Test-Negative Replacements will be *permanently segregated* from the Parent Flock after weaning, and retested every 2 to 3 months with all positives immediately removed, until achieving two consecutive 100% negative tests, thereby creating the base for a 100% test-negative flock.

Adoption of as many of the following management protocols as possible will increase the likelihood of success.

BLOOD TESTING FOR OPP ANTIBODIES:

Once OPP status of the Parent Flock has been determined through the initial test run, future tests will only be needed for potential replacement ewe and ram lambs, and young replacements found to be negative in previous years.

- The U of M Veterinary Diagnostic Laboratory imported the 'Elitest' ELISA at our request in 2013 and we have used this test throughout the trial. While not USDA licensed, it should be noted that this is the only ELISA for OPP that has been validated to World Organization for Animal Health (OIE) standards. Elitest is available to any U.S. flock.
- It's not necessary to test every animal to determine OPP status of the Parent Flock. The following table shows the number of animals 12 months of age and older that need to be randomly sampled and tested in order to be 95% confident of detecting at least one positive animal if 5% or more of the flock is infected.

<30 (TEST ALL)	60 (38)	100 (43)		180 (50)	350 (54)	600 (56)
30 (26)	70 (40)	120 (47)	FLOCK SIZE	200 (51)	400 (55)	700-800 (57)
40 (31)	80 (42)	140 (48)	(SAMPLE SIZE)	250 (53)	450 (55)	1000 (57)
50 (35)	90 (43)	160 (49)		300 (54)	500 (56)	2000 (58)

NOTE: Since sampling a truly random subset can present difficulties, producers should, to the degree possible, select for testing ewes that have been in the flock for at least 2 years. Doing so may increase the odds of detecting OPP infection at the flock level.

- It has been observed that if lambs are weaned at 8 months of age from OPP infected ewes, some lambs may still have colostral/milk anti-OPP antibodies remaining in their serum at 12 months of age. Therefore, earlier weaning at 6 to 8 weeks of age is advised while flock is undergoing eradication, and waiting to test until 2 to 3 months post-weaning is recommended.
- Potential replacements of high value, if positive post-weaning, should be separated in a pen with solid sides as far apart from all others as is practical. They should then be retested in 4 to 6 weeks to reduce the possibility of a false positive due to passive maternal antibodies. Any animals with discrepant results, if not culled, need to remain segregated from all others until at least two consecutive negative tests have been achieved.
- Following *removal date* of any positives (not bleed date), it's best to retest the management group in 2 to 3 months (minimum 7 weeks to avoid missing early infections), preferably before rams go in for breeding or at a time of year when animals are not stressed. Continue testing at 2- to 3-month intervals and promptly removing positives until receiving at least two consecutive 100% negative reports.
- While OPP *transmission* via semen has not been documented, owners, managers and veterinarians utilizing artificial insemination should be aware that the *OPP virus has been detected in semen*. It is recommended that rams being collected for A.I. be tested well in advance of the collection date, and again prior to use of the semen.
- Strict attention to permanent and easily read identification is crucial to the success of eradication efforts. In flocks running more than a few dozen ewes, serious consideration should be given to electronic ID.

NO COMMINGLING OF TEST-POSITIVE AND TEST-NEGATIVE ANIMALS . . . EVER:

- Positive and negative groups may rotate through buildings and pastures. However, it is recommended that test-negative groups always be handled first (chores, etc.) before dealing with any test-positives.
- If young test-negative replacements are confined to the barn during lambing, it's best to lamb them at a time different from the Parent Flock, i.e. either before or after the older ewes.
- Second best would be to designate an upwind section of the barn for young test-negatives, with at least 10' separation between them and the parent flock. As an alternative, consider solid barriers.



Which ewe is infected with the OPP virus?

The only way to know is to test them!

Infected animals not showing symptoms can still infect others.



NO SHARED FENCE LINES, FEEDERS, WATERERS, ETC:

- Electronet and/or an offset wire (either can be charged by a small portable battery unit) will discourage nose-to-nose contact between test-positive and test-negative animals through fences or dry lot panels.
- MOST IMPORTANT to avoid shared feeders since these result in close nose-to-nose contact.
- Shared waterers are a “depends on” category. The OPP virus is carried in cells called macrophages, e.g. found in nasal discharge, which usually sinks to the bottom of the tank. Thus, *while still risky*, shared waterers may be OK if nose-to-nose contact can be avoided. One way of avoiding nose-to-nose contact when two groups drink out of the same trough is to place a solid barrier at the middle of the trough so that each group accesses opposite ends of an oblong tank.
- There is a significant correlation between needle reuse and OPP seroprevalence as flock size increases. Therefore, to decrease the risk of OPP and other infectious disease transmission when giving injections, a fresh needle should always be used for each animal. Consideration should also be given to the use of needle-free injectors, especially in large flocks.
- Due to the unstable nature of the OPP virus in the environment, equipment such as syringes, ear taggers, tattoo pliers and water buckets may be used for both infected and test-negative groups if cleaned and disinfected first.

INTRODUCING NEW PURCHASES AND / OR ANIMALS RETURNING FROM EXHIBITION:

- All animals coming into the flock, whether newly purchased or returning from a show, must be quarantined, i.e. kept far apart from all others, until at least two consecutive negative tests have been achieved with a minimum 4- to 6-week interval. Do not share equipment at shows, always transport your own animals, and be alert to the risk of transmission via nose-to-nose contact and aerosol transmission via coughs. Purchase only from flocks confirmed to be of equal or greater status whenever possible. And always test prior to purchase, especially if status of the source flock is unknown.

SALVAGING OF TEST-NEGATIVE ANIMALS FROM THE PARENT FLOCK:

- Those with adequate facilities for managing multiple groups over an extended period may wish to reintroduce test-negatives from the Parent Flock at some point in time. This must be done with caution, and only after these older animals have achieved two (preferably three) consecutive negative tests after removal of all positives.

GENETIC SELECTION:

- While some may opt to employ the new DNA testing in their OPP *control* efforts, USDA researchers have since found that some strains of the OPP virus have adapted to infect sheep regardless of their genotype. Therefore, at this time the OPP Society does not advocate genetic selection as a route to eradication. Concentration should be on removing the virus, not controlling it, or you will be right back where you began in a few years. In summary, *all* breeds are susceptible to infection with the OPP virus, so *all* shepherds need to be aware of this risk and the related need for biosecurity.