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PRV eradication: Where do we go from here?

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PRV in Minnesota

Minnesota had been making very good progress on its PRV eradication program up until the 4th quarter of 1998, when a few new outbreaks occurred. At one of our clinic staff meetings in November, we had a concerned discussion on the health of southern Minnesota pig herds, with many outbreaks of the new SIV strain (H3N2) going through the pig population, some of it followed by PRRS. With the unusual weather we experienced this past winter (mild temperatures of 25–40° F and high humidity), we all felt the sense of a “time bomb waiting to happen” or that the situation was right for a flare-up in PRV. My associate, Dr. Jerry Torrison, actually warned us in November 1998 that we should start vaccinating all pigs around these pockets of new infection. Being back in private practice for the first time in many years, the situation “scared the heck” out of him.

In January and February, 1999, Minnesota did start to blow up with PRV infections. There were approximately 140 total quarantines at the end of 1998 and within 3 months there were over 280 quarantined herds.

What happened and what went wrong

- We failed to realize the number of PRV-negative pigs that could potentially break with the disease and spread the virus. Our practice alone went from 8 clients in 1990 with 5900 sows to the same 8 clients managing 140,000 sows in 1998, all with off-site, multi-site finishing barns. With 8 off-site finishing barns per 1000 sows, this meant at least 1100 finishing barns in southern Minnesota and northern Iowa for these 8 clients. This scenario existed in at least 4 or 5 other veterinary practices in southern Minnesota.
- The H3N2 strain of SIV hit most of the herds in southern Minnesota. A large percentage of the pig population was sick with SIV and some of those outbreaks were followed by PRRS outbreaks.
- We experienced one of the warmest and most humid winters on record in Minnesota (meaning curtains were often down).

- In some cases—due to historically low pig prices—PRV vaccine was dropped for cost saving purposes.

Proactive approach

Although a little late, after the number of PRV outbreaks rose dramatically, a meeting was held with southern Minnesota veterinarians and state regulatory veterinarians. A mass vaccination plan for all pigs in southern Minnesota was put in place. The methods listed below were used to spread the word about this vaccination plan:

- word of mouth;
- radio spots;
- clinic newsletter;
- newspaper reports; and,
- meetings with large producers.

Also, a combined effort by members of this group lobbied the state legislature for some financial assistance to enable producers to purchase the PRV vaccine. Eventually, \$0.25/dose of PRV vaccine was reimbursed to producers in infected areas.

Lessons learned

Vaccine really works! It:

- can reduce shedding of the virus within a herd or even within a geographical area;
- reduces spread of the virus;
- reduces rates of infection; and,
- increases the minimum infective dose of virus.

Vaccination

More *is* truly better:

- All pigs in an area should be vaccinated, not just sows. Too many nursery and finishing pigs were left unprotected when only sows were vaccinated.
- When sow herds remained viremic, we went from vaccinating gilts prebreeding and sows once each time through the farrowing barn, to a quarterly mass vac-

cination program of entire herds and groups. If we could not get a herd to stabilize, more vaccinations eventually stopped viral spread.

Grow-finish vaccination

In herds with extreme exposure either within the herd or in the neighborhood, multiple doses of vaccine led to reduced incidences (i.e., intranasal vaccination of piglets, intranasal or intramuscular vaccinations of nursery pigs, intramuscular boosters of grow-finish pigs). This was successful in most cases of severely challenged herds as opposed to cases of less severe exposure or area herds where doses of a modified live vaccine often proved sufficient to stop disease spread.

Pig flow

Pig flow is very important. Some of the early partial depopulations and all-in—all-out pig flow was done to break the cycle of PRV in farrow-to-finish operations. I spoke about partial depopulation of rooms and buildings (total air spaces) as a means of control of PRV in the mid-1980s. Partial depopulation has now become an invaluable tool for handling chronic disease or eliminating disease. Partial depopulation, nursery depopulation, bubble depopulation, all-in—all-out by building, and all-in—all-out by site have all been variations of the initial partial depopulations that were done room-by-room to stop the spread of PRV in a finishing barn.

Epidemiological considerations

- We should have gone faster. Once we understood that vaccination and partial depopulations would be successful, we should have been less tolerant and cleaned it up faster. I'm convinced that it would have been cheaper in the long run.
- You must identify all herds in a geographical area—no exceptions.
- Enforcement of rules must be stricter. Penalties and fines must all be levied against producers who do not abide by the rules.
- Prevent politics from hindering PRV eradication. State laws that require vaccination of incoming pigs but not of pigs located within that state's own problem areas are not really attacking the problem where it's needed.
- We must somehow limit the spread of PRV. With the advent of multi-site production, far too many pigs move nearly every day of the week and the rate of disease spread could be astronomical. There must be some emergency funding program that can handle indemnity, business loss, or interruption insurance so that pig movement can be stopped to assess the dis-

ease situation before multiple states and hundreds of thousands of pigs are infected.

- We must turn over all stones in an attempt to identify causes of viral spread.
 - pig movement,
 - people movement,
 - wildlife movement,
 - trucking (market trucks and cull trucks),
 - truck washes, and
 - rendering.

Government's role

Multi-site production is here to stay as is farrowing pigs outside of the corn belt and transporting them to grain source areas. Pigs will spread diseases from site to site quite rapidly. More work must be done to implement programs that will put an immediate stop to this practice and must include the cessation of movement from infected herds as well as movement within areas where the potentially infected pigs have been transported to. Producers and veterinarians should do regular surveillance to be able to rapidly spot new or emerging diseases.

Possibly the government should check all herds or at least sentinel herds annually or periodically for a battery of diseases, as has been done in some areas for PRV. This would ensure early detection and reduce spread.

The role of the local veterinary practitioner or integrator veterinarian

There always seems to be more than enough fires, programs, and projects to deal with at any given time. However, veterinarians must take leadership roles in bringing producers and regulatory people together to eradicate PRV or any disease in a local area.

Future eradication programs

The eradication of Hog Cholera, Brucellosis and (hopefully) Pseudorabies have obviously been incredibly beneficial for the pork industry. Not only have veterinarians and pork producers learned much about disease spread, epidemiology, and vaccine efficacy, but we have also climbed another step in the continued pursuit of low-cost production. The United States has abundant grain supplies, ample space for manure utilization, and a population with a good work ethic. To maximize our profit potential, we need a healthy swine herd.

I believe that we should encourage the development of programs co-sponsored by government agencies, the NPPC, and pork producers to eradicate swine disease organisms that can significantly affect the bottom line of

pork producers. My wish list would include the following diseases:

Trichinosis

It would tremendously enhance our pork-eating experience if people wouldn't think they had to cook all pork well done. As more and more hogs come into the hands of fewer and fewer people and more hogs are raised in confinement facilities, this should be an achievable goal.

PRRS

There is no doubt that porcine reproductive and respiratory syndrome (PRRS) is the most expensive and difficult-to-combat disease ever to hit the U.S. hog industry. We struggled to identify the cause of "Mystery Pig Disease" and are to the point now where we have very reliable serological and PCR tests to track the disease. Management, epidemiology, pig flow design, isolation/acclimatization programs, and vaccination provide us with some of the weapons necessary to combat PRRS. Many veterinarians and producers are now convinced that we need to move their herds to a negative status in order to eliminate the costly effects of PRRS outbreaks and preventative programs. South Dakota has already started an early identification/certification type of program along these lines.

Other diseases that should be considered

Swine dysentery

Swine dysentery is currently at a minimal level. Confinement and all-in—all-out pig flow with washing

and disinfecting between groups have been very hard on this organism.

APP

Multi-site production, the creation of new herds with APP-free stock, and depopulation/repopulation have all helped to keep APP to a manageable level. However, there is some concern that this organism could slowly work its way back into systems. Because production systems are becoming so large, it will be difficult to convince producers to use the above-mentioned methods to eliminate the organism if there are only minimal or periodic effects on these large production systems. But nobody will doubt that APP is a very costly disease worldwide.

Salmonellosis

Other programs might be control-orientated for organisms such as Salmonella.

Not only will disease eradication lower the break-even cost for U.S. producers but, as other countries work through their own disease problems, we'll be allowed to export to more countries with fewer restrictions.

