



Seek and you shall find; The value of postmortem, in pigs?



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Why should we do post-mortem examinations in pigs? That's the question Jeff Bergemann, Veterinary Services Manager at Zoetis Canada, posed at the start of his presentation to participants of the 2024 PSC Producer Meetings. Jeff, who owns a small herd of cattle, showed pictures of a dead calf that looked completely normal on the outside. However, once he had cut open the calf, it turned out that its heart had been developing outside its chest, instead being in the neck area. This is

a perfect example of the value of post-mortem examinations; it can give you an answer as to what happened to the animal, why it died, and can help find solutions to potential diseases and other problems occurring in the herd.

It's a good idea to do post-mortem examinations when you see changes in production, such as increased mortality or morbidity, or decreased productivity. If you sell isoweans, feeders or replacement gilts, or run a boar stud, there can be a lot of downstream effects when health issues occur. It's a good idea to get a clear picture of what is happening in the herd, and post-mortems will certainly help with that. Post-mortems will also be useful when you change genetics or start up a new herd. Post-mortems are especially important for quarantine barns. You want to investigate if there is an infection going through the herd, in which case the pigs should not be introduced to the main herd, or if the death is a one-off that is of no concern.

Post-mortems help people learn. It can be used as a training tool for barn staff that are looking after and treating pigs. For example, when a pig has a joint that is very swollen and staff are treating it in hopes of making it better, it can help to euthanize that pig, open up the joint, see the puss coming out and notice that the joint under it is completely damaged. Seeing this will make people realize that they wouldn't have been able to save the pig, no matter how hard they try and how much they

treat that pig. It also helps teach the value of doing effective treatments and starting treatments early. When people have a better understanding why they do certain treatments and why certain things may or may not work, they will stay more engaged and be more likely to do the right thing.

“Postmortems are beneficial when you see changes in mortality, morbidity, or reduced productivity.”

To get started with post-mortem examinations on-farm, the most important tool you will need is a sharp knife and a sharpener (but a scalpel blade could also work). You may also need a snare or a board and a captive bolt gun to euthanize the animal. Make sure to wear some PPE, such as gloves and safety glasses. Having a camera on hand can be useful to take pictures or videos that you can send to your vet, or to share with barn staff. To get the most out of a post-mortem, you may want to take samples and take them to a lab for analysis. In this case, you may need any of the following: blood tubes, vacutainer needles, a clipboard and paper, pen or marker, bags, a watertight container, and swabs. Ideally all these things are kept together in a kit for easy retrieval. You may also need ice depending on transport, or formaldehyde to store samples in. Collecting blood or other samples before euthanasia, also called antemortem samples, can be helpful. Just remember that you only get one chance to take these samples.

Post-mortem examinations can be done by producers themselves, or by a veterinarian. If the vet is coming out, make sure everyone in the barn is aware that certain carcasses need

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to be kept aside for the vet, so nobody cleans them up before the vet arrives. Also make sure to provide farm information such as location, genetics and feed provider, as well as vaccine and treatment history. Other important information to provide is the health status of the herd, stage of production and area of the barn where the death(s) occurred, the animal ID, time of death, whether the animal was euthanized or found dead, and if the carcass was frozen before necropsy.

Use a systematic approach for the post-mortem examinations. Doing it the same way consistently minimizes missing an important piece of the puzzle. Start by looking at the outside of the pig; look at the skin and the joints, is there any swelling or discoloration, are the eyes bloodshot, what do the ear tips look like and what is the body condition of the animal? To open the carcass there are two approaches. The ventral approach, which is best for smaller animals, entails laying the animal on its back, flaying both front legs and splaying the animal out so that the legs lay on their own without being held. Then cut through the costochondral junction on both sides and remove the resulting triangular piece. For the lateral approach, which works better for larger animals, lay the animal on its side, and start with the front leg by lifting and cutting the space that is created by this. There is no joint connecting the front leg to the chest. Then cut along the rib joints and splice the ribs to get them out of the way. Both approaches give you access to the thorax, which contains the heart, lungs, thymus (younger pigs only) and lymph nodes, as well as the abdomen, where you'll find the liver, digestive tract, kidneys, the bladder, and the omentum (fatty tissue layer). Another thing to look at when doing a necropsy is the joints, especially if the animal was lame. Next on the list to check is the head, which includes the tonsils, tongue, nasal turbinates and brain. For example, the tonsils are used to check for African Swine Fever.

Further analyses can be done on collected samples like swabs, samples fixed in formalin, or fresh samples. These analyses can include histology, cultures, or molecular diagnostics, and they can help get some answers as to what was wrong with the animal. For example, PCV2 and PCV3 showed up through molecular diagnostics in a pig's heart that looked completely normal with the naked eye.

In summary, it's not complicated to open up a pig and have a look. It's a good idea to do post-mortem examinations to learn and get answers. And remember that your herd veterinarian is a valuable member of your team and can help with necropsies.

