

Zephyr Piglet Gun



Helen Thoday,
Prairie Swine Centre



On-farm euthanasia of small piglets is an ongoing area of research due to the emotional attachment stock people can have with the visual process of euthanizing piglets. Although effective if carried out correctly, blunt force trauma as a way of dispatching piglets is seen as a method that needs improvement. Dr. Tina Widowski of the University of Guelph undertook an efficacy trial of the Zephyr Piglet Gun, a non-penetrating captive bolt, for euthanasia of neonate, suckling and weaned piglets up to 9 kg. The study found that overall, the Zephyr-E was a highly effective, single step method of euthanasia for piglets up to 9 kg. For all ages and weights of piglets in the trial loss of sensibility was immediate, involuntary movement ceased in less than 5 minutes and cardiac arrest occurred in less than 15 minutes. The device is now being manufactured by Bock Industries, Inc (Phillipsburg, PA). Training materials (brochure and instructional video) have been produced with support from Farm and Food Care (Ontario). The Zephyr-E provides a practical, science-based alternative to blunt force trauma for euthanasia of young piglets. Through the support of the Agriculture Council of Saskatchewan, a lead-user project was initiated, providing the opportunity to evaluate the feedback of the Zephyr on five commercial farms.

Verus Alliance Inc, based in Alberta found the Zephyr-E was easily adopted into the farrowing barn routine. After initial use they made some adaptations to make it more user friendly. This was achieved by attaching it to a portable compressor so it could be moved to the most

appropriate area of the barn depending on the week. The responsibility of piglet euthanasia was given to the member of staff that was responsible for the fostering of that weeks farrowings so there was a clear understanding of who must be checking and euthanizing any particular piglets - Alaistar Bratton of Verus Alliance explains why they wanted to trial the Zephyr and how it was adopted in to the barn.

"Adapting any new piece of equipment or system is always a challenge but as an industry we need to look forward to what other options for euthanasia are out there and at only \$700 per Zephyr gun that is definitely a cost we can suck up when you think about the use per year. We found the gun lightweight, effective and safe for our staff to use. As long as our staff like it we would consider adopting it across all our sow barns".

Other producers in the trial still found the Zephyr gun difficult to adopt onto farm which seemed to be affected by their current Euthanasia system. Those using Blunt force trauma found the Zephyr a good alternative, however those with CO₂ systems found the Zephyr a system that was unappealing for staff. Feedback identified a need for staff to be well informed prior to a change in euthanasia system about what will be visually seen, and any changes in piglet welfare that should be considered. Staff will need to be aware of what is "normal" and what is the correct time line from loss of sensibility to cardiac arrest, as outlined by Dr. Widowski.

Research carried out by Teresa Casey-Trott at the University of Guelph as part of Dr. Widowski's overall Zephyr research, found that neonatal piglets had longer durations of convulsions, sustained heartbeat and more severe damage



The Zephyr non-penetrating captive bolt gun

than weaned piglets, suggesting age and weight effect traumatic brain injury. For stockpeople this could seem illogical that it would take longer for a tiny piglet to die and could easily lead the handler to think they have carried out the euthanasia process incorrectly.

The Zephyr gun is a good step toward moving on from blunt force trauma. Any form of euthanasia must match the requirements for the welfare of the pigs and requirements of euthanasia as outlines in the AVMA Guidelines for the Euthanasia of Animals: 2013 Edition.

The bottom line:

At a cost of \$700 per unit the Zephyr-E provides pork producers a reliable low-cost alternative for euthanasia of piglets.

A 4,000 sow unit with 10% pre weaning mortality per annum will mean euthanasia requirements for up to 10,000 piglets per year.

This will equate to around .07 cents per piglet in the first year. 