

On-Farm Casualty Slaughter of Swine (Zephyr EXL vs CO₂)

Recent research (Grist, et al., 2017a) has demonstrated that the application of the Bock Industries Zephyr EXL to the head of piglets up to 10.9 kg live weight results in a humane stun/kill. Further research (Grist, et al., 2017b) reports the results of a field trial that shows that this tool could be applied within the farrowing unit on-farm, immediately, to any piglet that was identified as injured or in distress. Thus reducing the time these casualty animals are exposed to pain or distress. The field trial also demonstrated that when applied correctly, up to 10 piglets per minute can be dispatched humanely by this method on-farm. This rate compares favourably with that achieved using Carbon dioxide (CO₂) to batches of piglets in a bin.

Exposure of the piglets to carbon dioxide in groups, in a container with up to 80% CO₂, is an alternative method that can be applied in commercial settings but does have animal welfare implications. CO₂ is known to produce an aversive response in the induction phase, which on average lasts for approximately 15 seconds before the onset of anaesthesia (Raj, et al., 1997), which is produced by metabolic and respiratory acidosis, reducing the pH of the cerebrospinal fluid leading to neuronal dysfunction. Experiments have demonstrated that the aversion to CO₂ is such that pigs will avoid a food reward, even when fasted for up to 24 hours, if the CO₂ concentration is above 80% (Raj and Gregory, 1995). Pigs are also known to show aversion (escape attempts) when the rate of induction of unconsciousness is slow (e.g. during exposure to 40 to 70% by volume of carbon dioxide in air) and will demonstrate signs of respiratory distress at $\geq 40\%$ (Raj and Gregory, 1996).

When piglets that are already compromised due to injury or disease are collected in batches, they are generally kept alive until sufficient numbers have been identified to warrant the use of CO₂ and when placed in the container prior to the addition of the gas they are likely to be suffocated or crushed by the number of animals that are placed in the container at any one-time. Both these factors together with the aversiveness of pigs to CO₂ strongly support the use of the Zephyr EXL by producers who are concerned for the welfare of their livestock.



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References:

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