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## **Killing of spent laying hens using CO<sub>2</sub> in poultry barns**

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### **Abstract**

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*In Sweden, laying hens are killed using the following methods: i) traditional slaughter; ii) on-farm with CO<sub>2</sub> in a mobile container combined with a grinder; or iii) with CO<sub>2</sub> inside the barn. The number of hens killed using the latter method has increased. During these killings a veterinarian is required to be present and report to the Swedish Board of Agriculture. Data were registered during four commercial killings and extracted from all official veterinary reports at CO<sub>2</sub> whole-house killings in 2008–2010. On-farm monitoring showed that temperature decreased greatly and with high variability. The time until birds became unconscious after coming into contact with the gas, based on time until loss of balance, was 3–5 min. Veterinary reports show that 1.5 million laying hens were killed, in 150 separate instances. The most common non-compliance with legislation was failure to notify the regional animal welfare authorities prior to the killings. Six out of 150 killings were defined as animal welfare failures, eg delivery of insufficient CO<sub>2</sub> or failure to seal buildings to achieve adequate gas concentration. Eleven were either potentially or completely unacceptable from the perspective of animal welfare. We conclude that, on the whole, the CO<sub>2</sub> whole-house gas killing of spent hens was carried out in accordance with the appropriate legislation. Death was achieved reliably. However, there remain several risks to animal welfare and increased knowledge would appear vital in order to limit mistakes related to miscalculations of house volume, improper sealing or premature ventilation turn-off.*

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**Keywords:** animal welfare, carbon dioxide, killing, laying hen, on-farm, whole house