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Killing wild geese with carbon dioxide or a mixture of carbon dioxide and argon

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Abstract

The killing of animals is the subject of societal and political debate. Wild geese are caught and killed on a regular basis for fauna conservation and damage control. Killing geese with carbon dioxide (CO₂) is commonly practiced, but not listed in legislation on the protection of flora and fauna, and societal concerns have been raised against this method. In this study, an experiment was carried out killing 30 wild-caught geese using either CO₂ or a mixture of CO₂ and argon (Ar). Brain function (EEG) and heart function (ECG) were measured to determine loss of consciousness and onset of death. The stage of unconsciousness was reached on average within one minute in both treatments (56 s for CO₂ and 50 s for CO₂ and Ar). States of minimal brain activity and ineffective heart beat were reached more quickly using CO₂ compared to CO₂ and Ar (112 versus 178 s for minimal brain activity and 312 versus 394 s for ineffective heart beat for CO₂ and the mixture of CO₂ and Ar, respectively). The mixture of carbon dioxide and argon did not significantly reduce time to loss of consciousness or death. Further studies on behaviour and stress physiology are needed to determine conclusively whether CO₂ alone is a satisfactory agent to kill wild-caught geese as the lower CO₂ concentration in the CO₂-Ar treatment may act as a sedative and reduce the aversiveness of the animals during exposure to lethal gas concentrations.

Keywords: *animal welfare, argon, CO₂, geese, killing, stunning*