Virtual Fencing Technology

The first concept of using audible cues emitted by a collar-mounted device worn by an animal appeared about 50 years ago, but it was initially only used on companion animals.[1] Peck's Invisible Fence manufactured the first virtual control devices for domestic livestock in the US in 1987.[1]

Virtual fencing is used in different cattle and sheep rotational grazing systems for precision pasture management. These systems may include: dairy, store, and finishing cattle; ewe and store lambs; as well as lowland or upland, intensive or extensive, low- or high-maintenance grazing systems. Virtual fencing works similarly to conventional electric fencing, but without relying on physical barriers. Rather, fences are digitally created with the help of a mobile application or other software. The animals experience virtual fences by means of an audio cue and potentially an electric shock administered via a collar worn around their neck[2].

DEFRA's Animal Welfare Committee reported that there were 140+ virtual fencing users in the UK at the time of data collection (DEFRA, 20222). This figure might underestimate the current adoption level in the UK as, according to workshop participants, the technology is spreading quickly. Globally, there are four main virtual fencing system manufacturers, namely: Nofence (Norway), eShepherd (Australia), Vence (US), and Halter (New Zealand).

[1] P. Golinski, P. Sobolewska, B. Stefanska, B. and Golinska, *Agriculture*, 13, **2023**, 91:1-14.

[2] Department for Environment, Food & Rural Affairs (DEFRA). 2022. *Opinion on the welfare implications of using virtual fencing systems to contain, move and monitor livestock*. UK Government. Available online.

The D4AgEcol project has received funding from the European Union's Horizon Europe Research and Innovation Program under grant agreement No 101060759.

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