

Session: Animal Behavior and Well-Being 1: Ruminants**204 - Visual Cues Improve Awareness but Decrease Compliance to Virtual Fence** Tuesday, July 21, 2026  1:45 PM - 2:00 PM CT Location: Monona Terrace Community and Convention Center, Ballroom B**Presenting Author(s)****Sebastian P. Schreiber, MS**

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Virtual fencing (VF) offers an alternative to physical fences for managing livestock and presents a potential tool for managing access to patches of diverse forage resources. How VF effectiveness may be influenced by animals' ability to perceive and respond to changing boundaries. We examined whether supplemental visual cues—traffic cones paired with the audio warning—modify cattle responses to a commercially available VF technology. We included three group-level replicates per treatment, located in adjacent paddocks separated by temporary electric fencing. Twenty-seven Angus heifers were randomly assigned to one of six paddocks (N=4-5 animals/paddock). Control animals were subject to eShepherd® VF, while treatment animals were subject to the same VF with supplemental visual cues placed along all virtual boundaries. The first phase—training—consisted of three 24-hour grazing periods. The next phase—exclusion zone testing (EZT)—consisted of four 24-hour periods, where each circular exclusion zone contained hay bales as attractants. The final phase consisted of conditioned-response extinction, during which the VF was disabled, but visual cues were left in place. We analyzed animal locations, and auditory and electrical cues. Visually cued animals received fewer audio cues ($p = 0.024$), grazed more in proximity to the virtual boundary ($p = 0.035$) and were generally quicker to learn which hay bale-containing exclusion zones were open (no active VF) and utilize that forage resource. However,

visually cued animals were generally less responsive to the auditory cue and more likely to be located outside the designated grazing area ($p = 0.007$). Virtual fencing with or without visual cues was an effective method for managing grazing access to resource-rich patches, but visual cues enhanced the ability for virtually fenced resource patches to influence animal movement and distribution. These results suggest that visual cues can supersede auditory cues and lead to a behavioral trade-off in which spatial awareness of the virtual boundary is improved while compliance is reduced. Longer term and larger scale studies will be helpful in understanding how this trade-off applies in other management contexts. Collectively, our findings, detailed in this presentation, indicate that visual cues may introduce a behavioral trade-off, yet they remain a promising tool for intensive VF applications, including selective access to high-quality forage patches.