

## **Effect of daily ambient temperature and wind speed on sickness of feedlot cattle.**

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The objective of this study was to determine the magnitude of the effect of daily temperature range and mean wind speed on the probability an individual animal would be identified as sick. Crossbred steers (n=1,551) from a single source were shipped from western Nebraska to southeast Colorado. Cattle from 3 ranch units were received in shipments occurring over 3 separate days. Steers were housed overnight in feedlot receiving pens before being processed and allocated to their feedlot pens. In some cases, initial processing did not occur until the second day after arrival due to time limitations. Individual animals were considered sick if they exhibited clinical signs typical of bovine respiratory disease such as lethargy, depression, coughing, and nasal discharge; as determined by feedlot personnel. The effects of weather (difference between daily maximum and minimum temperature, TDIFF, and mean wind speed, MWS) from 7 d prior to sickness identification through d 0, the day the animal was observed sick, were evaluated as to their influence on sick observations using binary logistic regression and the GENMOD procedure of SAS; where an animal was coded "1" if diagnosed sick on a particular day or "0" if healthy. The model resulted in a significant pen by ranch interaction (P<0.005) and significant effects of TDIFF and MWS on sickness diagnosis. On d 0, unit increases in both TDIFF (1 ° C) and MWS (1 m/s) increased the probability of an animal being pulled by 5.9 ± 0.02% (P<0.001) and 10.1 ± 0.04% (P<0.03), respectively. At d -2 and earlier, MWS did not have a significant effect on the probability of an animal being pulled (all P>0.23). Likewise, TDIFF had no significant effect on the probability of an animal being pulled prior to d -3 (all P>0.13). These results indicate that TDIFF and MWS can influence whether or not an animal becomes sick in the feedlot up to 3 d prior to the onset of disease.

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