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Why Cows Like to Chew Over Things Together

from the *Guardian* (UK)

A British-American team of scientists has produced a study called A Mathematical Model for the Dynamics and Synchronisation of Cows. They were driven partly by the intellectual challenge, and at least a little by an EU council directive, which mandates "that cattle housed in groups should be given sufficient space so that they can all lie down simultaneously".

Their key insight, the team says, was to realise "it is biologically plausible to view [cattle] as oscillators.... During the first stage (standing/feeding), they stand up to graze but they strongly prefer to lie down and 'ruminates' or chew the cud for the second stage (lying/ruminating). They thus oscillate between two stages."

The researchers "modelled the eating, lying and standing dynamics of a cow using a piecewise linear dynamical system.... We chose a form of coupling based on cows having an increased desire to eat if they notice another cow eating and an increased desire to lie down if they notice another cow lying down." This, they say, led to at least one unexpected discovery: "[We] showed that it is possible for cows to synchronise less when the coupling is increased."

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