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General Mathematical Framework for Analysis of Cattle Farm System

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Abstract : In the given work we present universal mathematical framework for modeling of cattle farm system that can set and validate various hypothesis that can be tested against experimental data. The presented work is preliminary but it is expected to be valid tool for future deeper analysis that can result in new class of prediction methods allowing early detection of cow dieseaes as well as cow performance. Therefore the presented work shall have its meaning in agriculture models and in machine learning as well. It also opens the possibilities for incorporation of certain class of biological models necessary in modeling of cow behavior and farm performance that might include the impact of environment on the farm system. Particular attention is paid to the model of coupled oscillators that it the basic building hypothesis that can construct the model showing certain periodic or quasiperiodic behavior.

Keywords : coupled ordinary differential equations, cattle farm system, numerical methods, stochastic differential equations
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