

An update on the development of the Ruminant Farm Systems (RuFaS) model

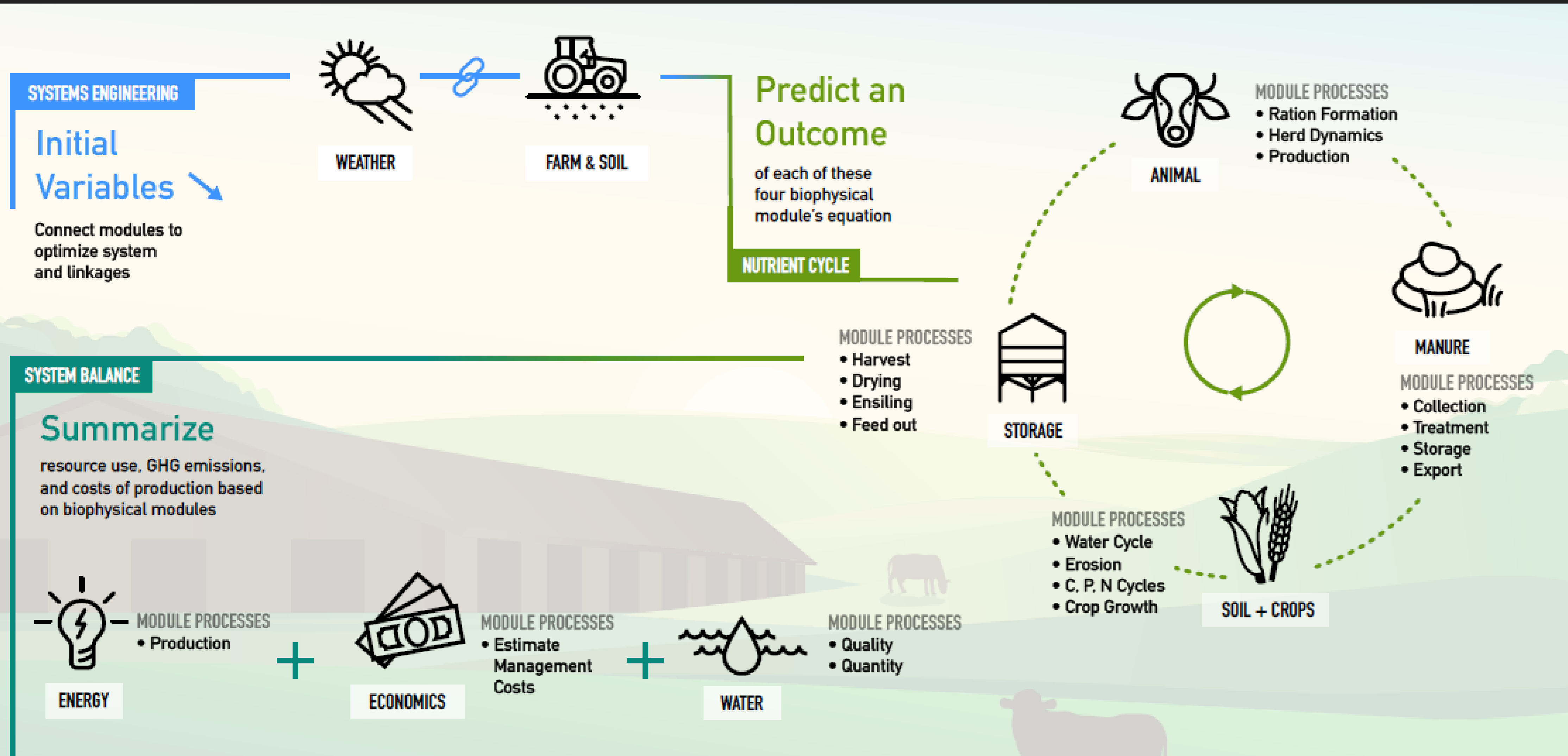
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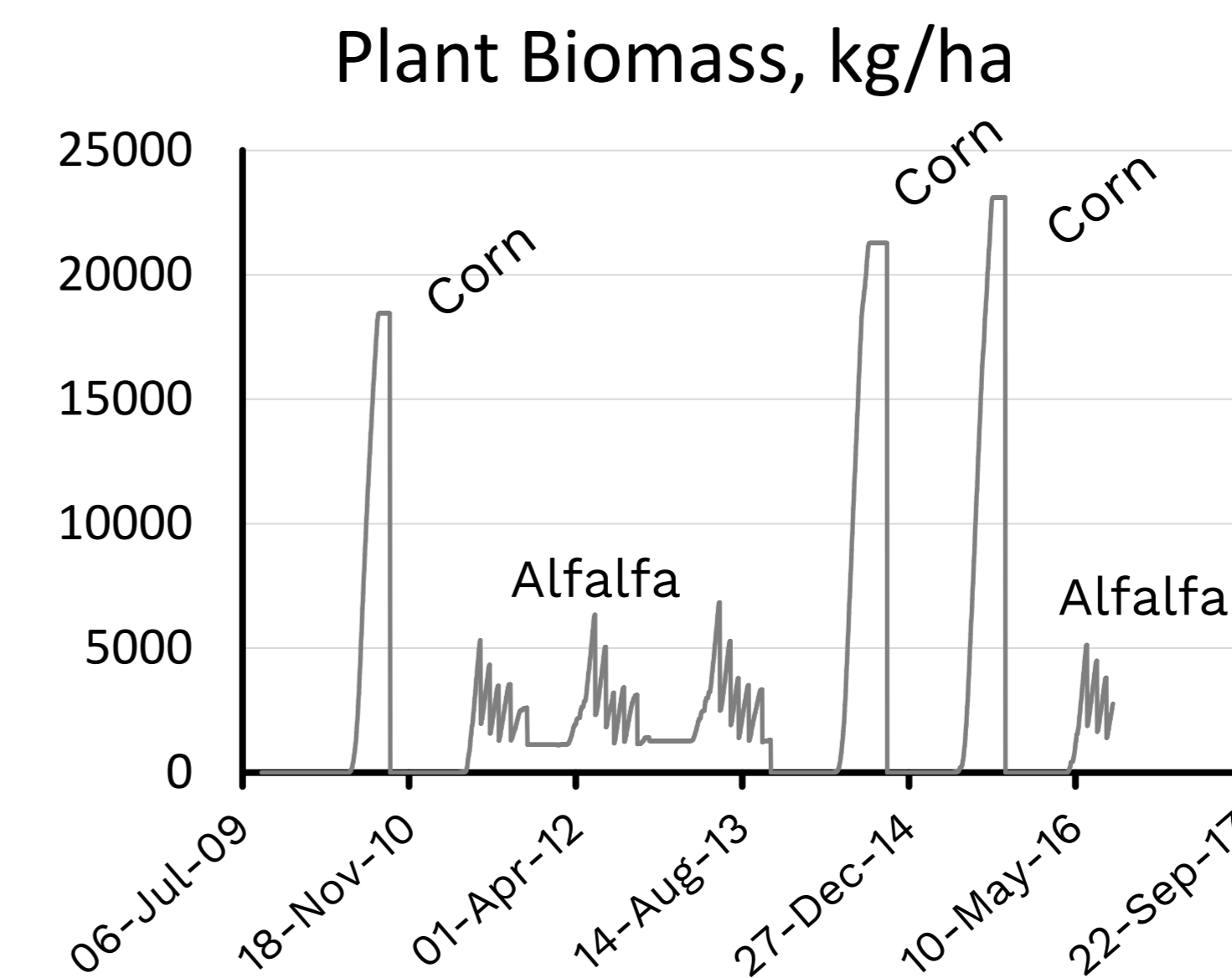


A modern, modular approach to farm systems modeling to support sustainable agriculture

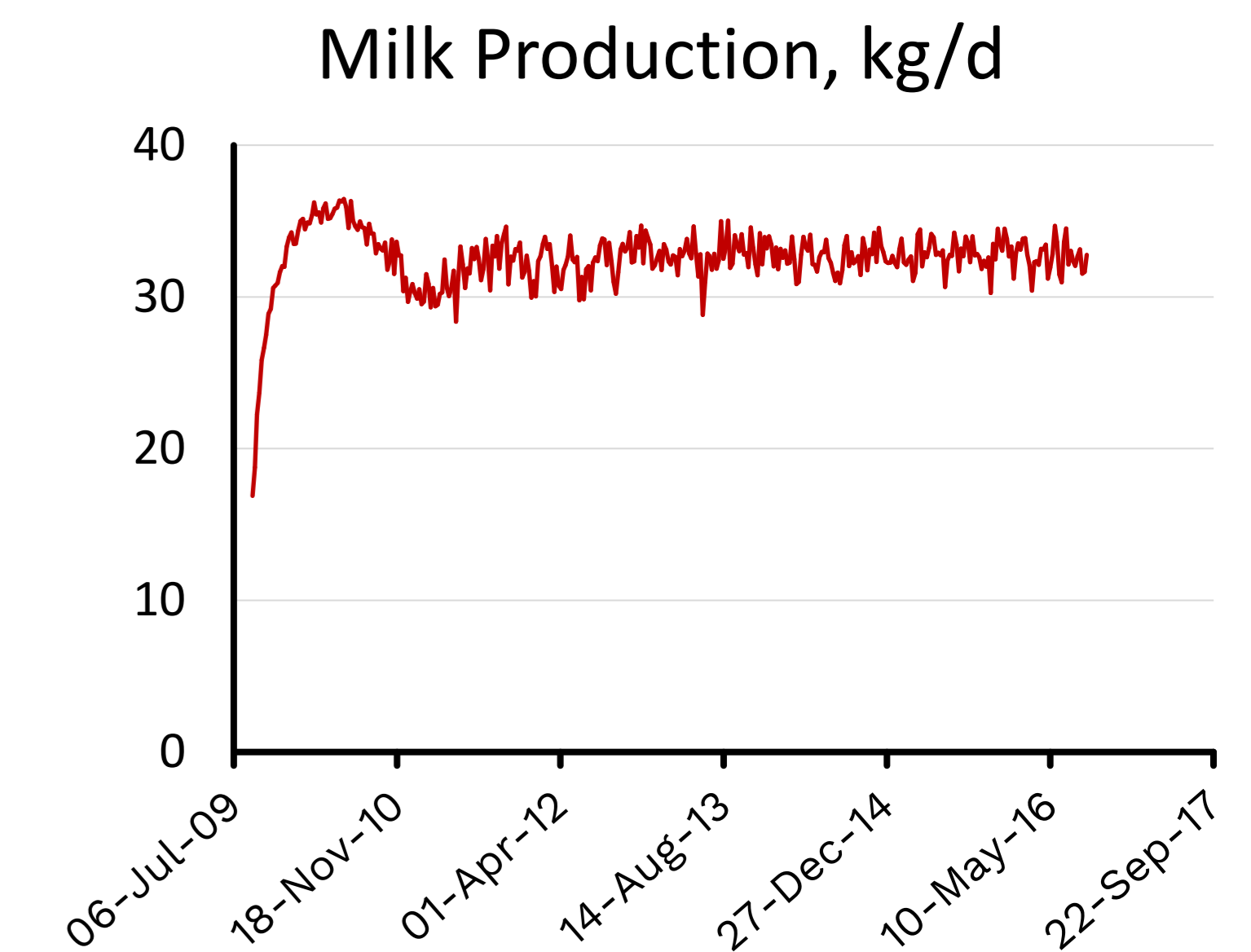
Farm Simulation

Seven Year Simulation
Prairie Du Sac, WI
Corn/Alfalfa Rotation
1000 Cow Herd

Tiered user input and management submodule allows users to simulate an unlimited number of scenarios.



Plant biomass shows annual harvest of corn and multiple cuttings per year of alfalfa.



Breed specific lactation curves predict milk production ([Li et al., 2019](#))

Model Structure

- Nutrient flows tracked through four biophysical modules ([Kebreab et al., 2019](#))
- Variables stored daily for output generator and cleared annually
- Coded in python, a general-purpose programming language

Recent Developments

- Automated Ration Formulation
 - Nutritional Grouping ([Barrientos-Blanco et al., 2020](#))
- SQLite Databases
- Nitrogen, Phosphorus, and Water Cycle in Crop Fields