AGRICULTURAL MODELLING 1
Introduction to Modelling

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When interpreting data, any agricultural enterprise must be viewed as a single integrated system. Mathematical models provide the only tool that allows us to assess our ideas in terms of the results from quantitative experiments. The aim of this module is to introduce the fundamental ideas of modelling, including when and how to attempt to express ideas mathematically, how to solve the resulting mathematical model and compare its predictions to experimental data.

OUTLINE

The Scientific Method

Observation and empiricism

Models as abstractions

Variables, Measurement and Functional Relationships

Physical and Mathematical Models

1 Empirical & Mechanistic Models

Dimensional analysis, Scaling

2 Static and Dynamic Models

Models involving time and time derivatives.

3 Deterministic and Stochastic Models

Probability

Models as Scientific tools, models as management tools

Contributions of models to research & management in agriculture

TEXT

There is no assigned text. Your course notes will be supplemented by handouts, photocopied readings & library holdings.

ASSESSMENT

Students will be assessed on work assigned during the module

1 Essays (30-50%),, essays etc.
There will be two short essay assignments, *each less than 2000 words*.

2 Exercises(10-20%)
These are designed to encourage critical thinking, such as choice of variables, choice of input/output data etc

3 Problems (30-50%)
These are designed to improve analytical problem solving.

Each class member can choose their own weighting scheme within the ranges shown