Can the calculator be integrated within systems modelling?

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AFBI Farm Business Models

- **Aims to identify profit maximising systems for representative farms**

- **Can examine sensitivity of system to changes in output prices, input costs, farm family circumstances, government policy, etc.**

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Modelling Approach

- **Baseline models used for basic analysis**
- **These models can be extended to address specific research issues**
- **More sophistication increases difficulty and time needed to complete analysis**
- **The most complex models use sophisticated mathematical optimisation software**

How can Models be useful ?

- **Facilitates policy analysis, research prioritization, and industry advice**
- **For industry advice - model is not designed for direct use by farmers or advisers**
- **But can help to identify the best strategies for farmers and advisers to consider**
- **Model most appropriate for investigating new technologies, practices, policies etc - not for standard day-to-day decisions**

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Dairy Farm Model

- **The dairy farm model currently contains fifteen milk production system options**
- **These systems range from 5,000 to 10,000 litre yields, including both spring, autumn and non-seasonal calving options, and winter rations based on grass silage only or both grass and maize silage**
- **Milk supply pattern and quality are assumed to vary with calving date and diet**

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Current state of knowledge:

Optimal Dairy Systems

Optimal system for 'typical' NI dairy farm is a moderate input, moderate output (6500-8500 l/cow) system

These systems are robust over a range of milk prices, concentrate prices, fertiliser prices, and farm family conditions

Low input-low output (NZ style) and high input-high output (US style) systems tend to be less profitable and less resilient

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GHG Calculator integrated within Dairy Farm Model

- **Currently incorporating GHG emissions into the baseline dairy model for all fifteen systems**
- **This utilises the AFBI GHG Calculator to generate NI specific estimates of the GHG emissions produced by the different milk production systems**
- **Will enable us to examine how GHG emissions are influenced by changes in production technologies, management practices, input costs, output prices, government policies, etc.**

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