A decision support tool for sustainable swine nutrition

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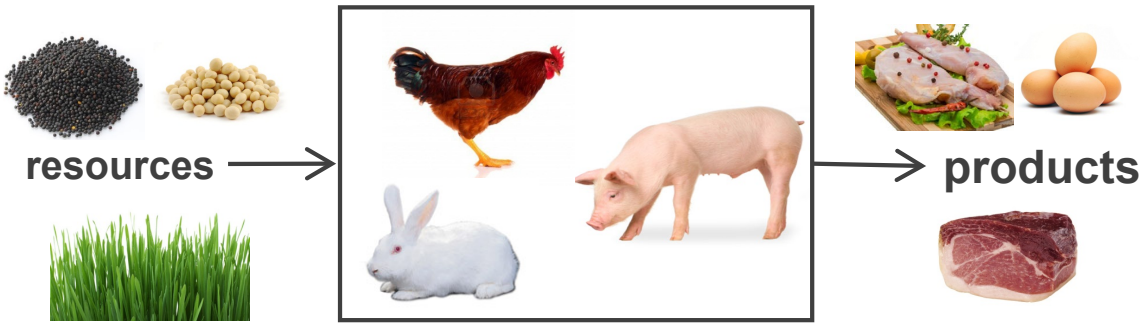
The Feed-a-Gene Project has received funding from the European Union's H2020 Programme under grant agreement no 633531.

Adapting the **feed**, the **animal** and the **feeding techniques** to improve the efficiency and sustainability of monogastric livestock production systems

Feed-a-Gene research program aims to **better adapt** different components of monogastric livestock production systems (pigs, poultry and rabbits) to improve the **overall efficiency** of these systems, to **reduce their environmental impact**, and to enhance **food security** whilst maintaining food quality.



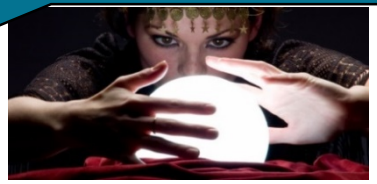
Feed-a-Gene

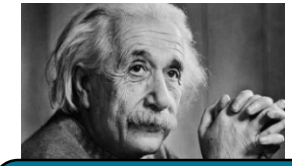
Modelling working package

- Develop biological models of livestock functioning to better understand and predict nutrient and energy utilization of animals along their productive trajectory and, based on these, develop Decision Support Systems.

Observe variation in feeds, animals, and the environment

Predict using data-driven models and quantify interactions and variation





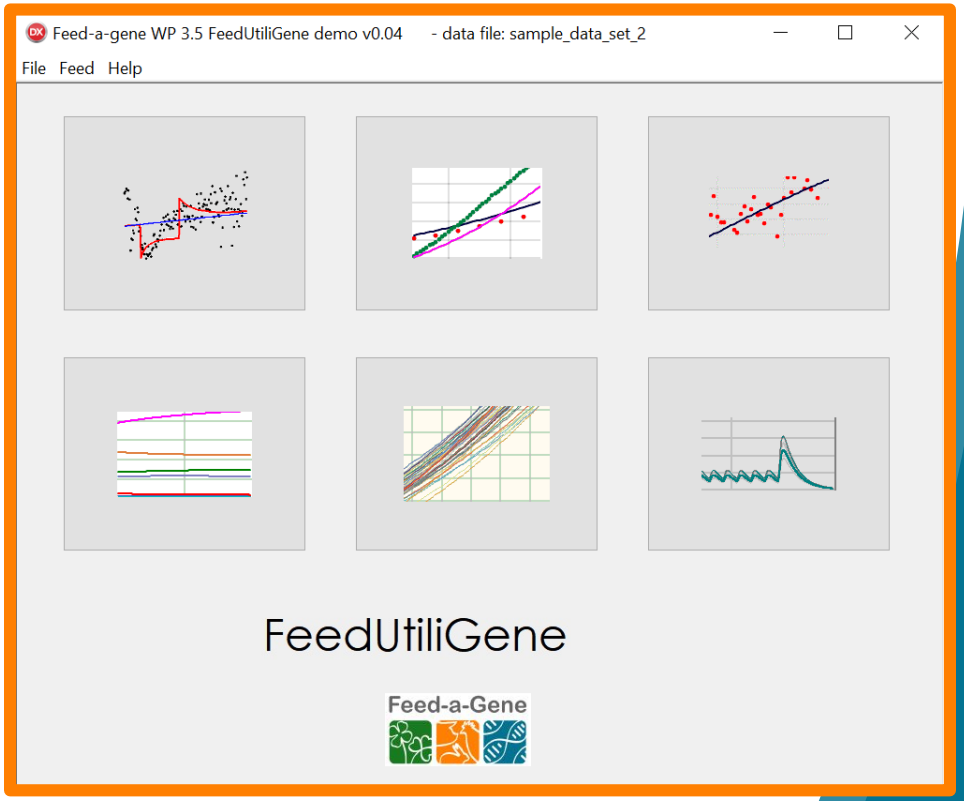
Understand the underlying mechanisms of variation

Control through livestock management (e.g., feeding, breeding)

Aim of the presentation

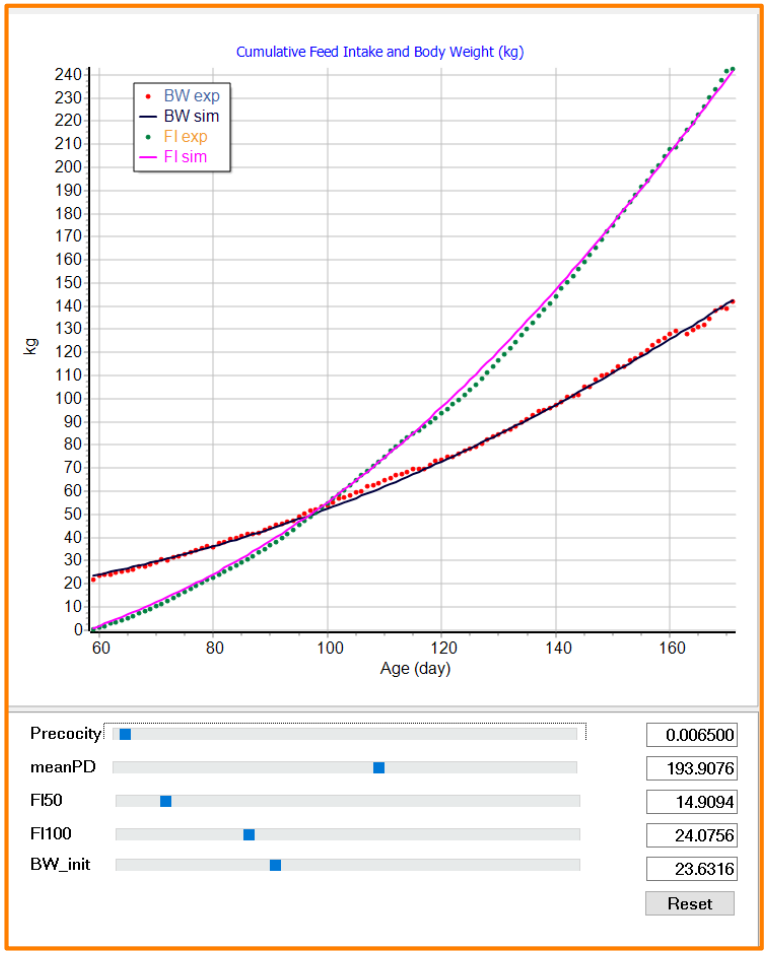
- Illustrate the application of our model that predicts the nutrient partitioning in growing and fattening pigs.

- Demonstrate that *FeedUtiliGene* software can be a useful tool to study the animal response to dietary and some environmental factors.

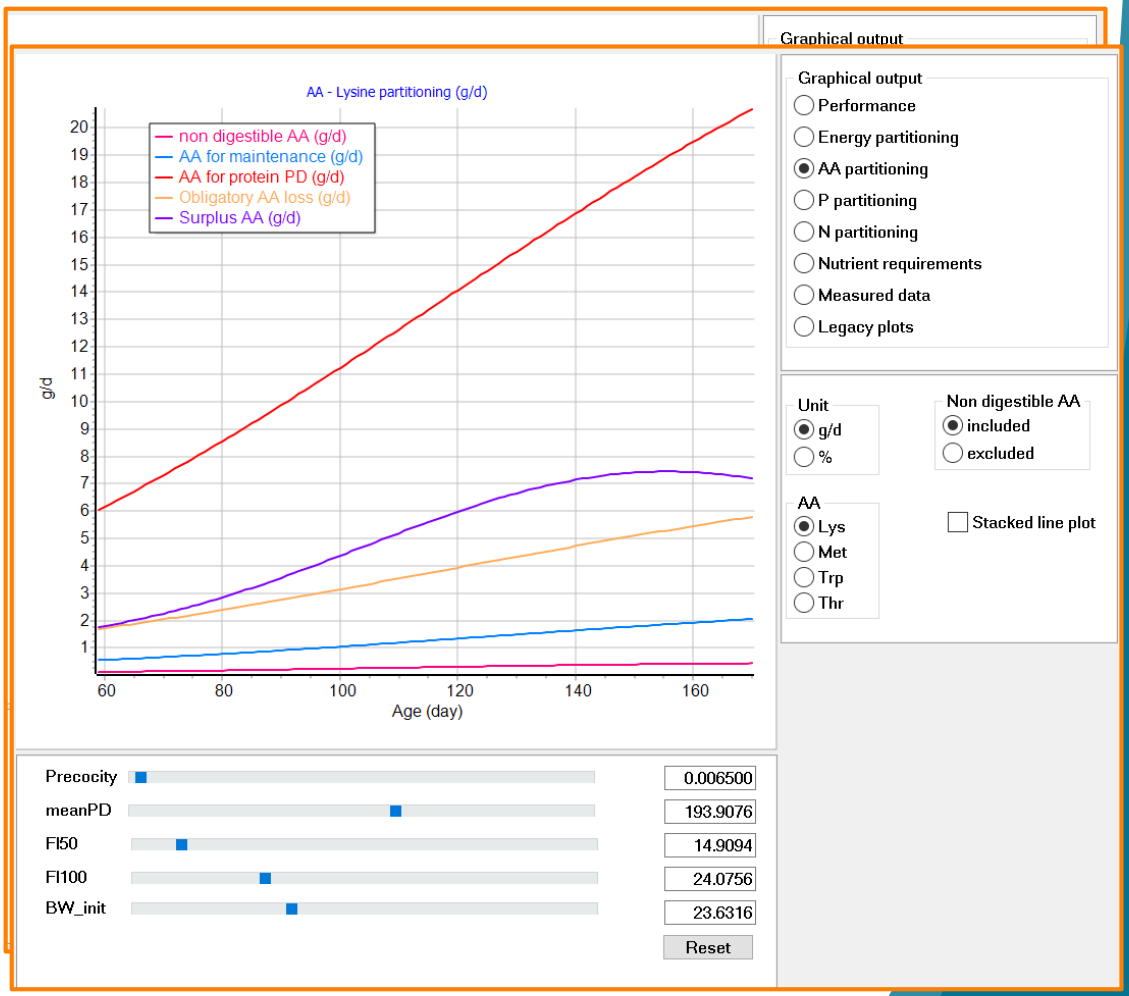


Model use

Parameter estimation

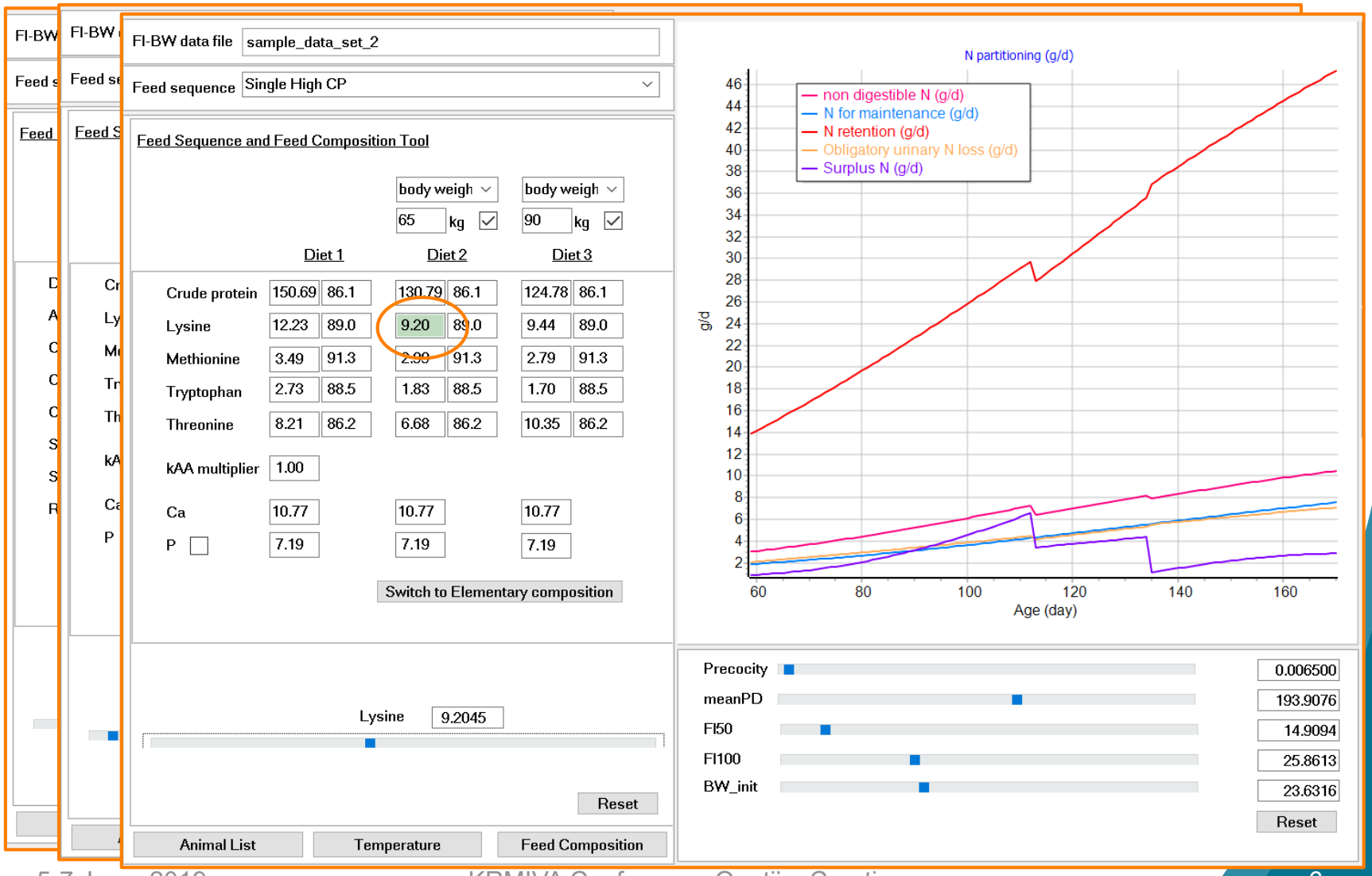


Diagnostic tool



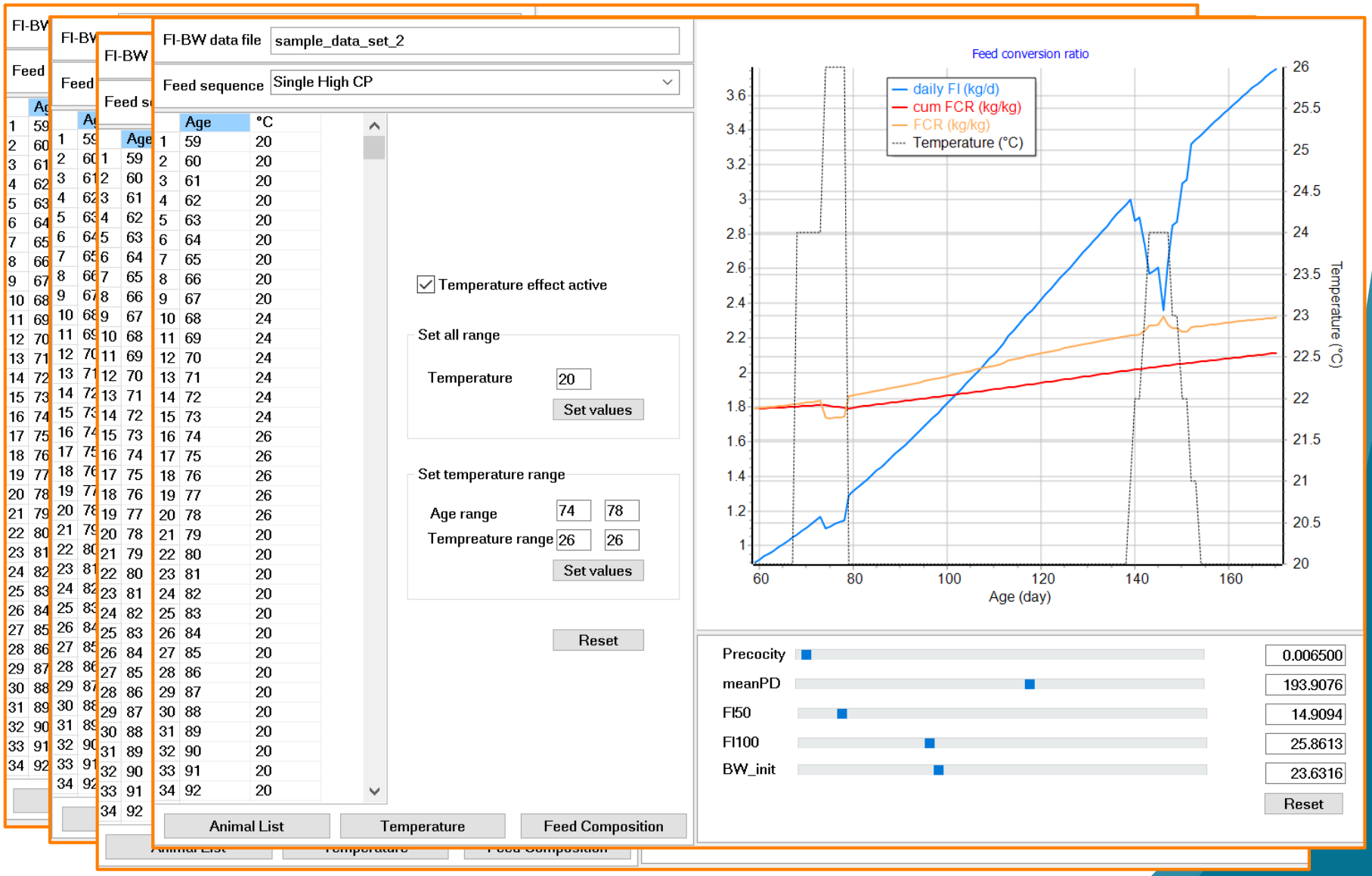
Model use

Case study 1: Minimaize N excretion



Model use

Case study 2: Performance in heat stress



Conclusion

- *FeedUtiliGene* is a useful demonstration tool to study the response of a pig to different feeding schedule and ambient temperature.
- With some adaptation the model might be appropriate to be included in precision feeding systems.

Implication

Precision livestock farming and nutrition has a great potential to contribute to more sustainable animal production systems.

Thank you for your attention!

EU funded Research project

2015 2020

€10 M Budget

Feed-a-Gene

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(www.feed-a-gene.eu)

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