



Use of a dynamic mechanistic broiler model to reduce environmental footprint

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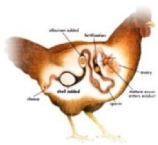
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Introduction

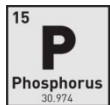
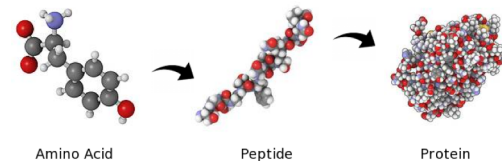


digestive physiology and metabolism of avian species

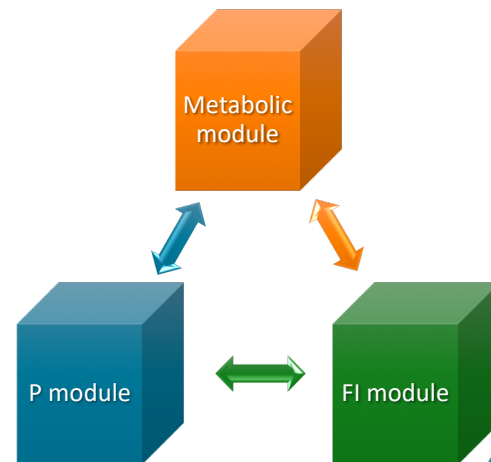
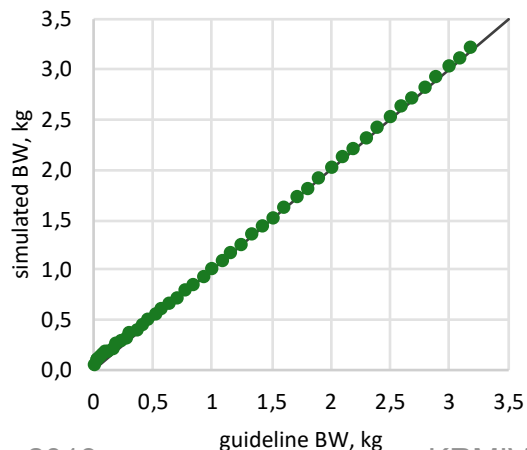
N and P concentration in poultry manure is high



adequate dietary N (AAs)

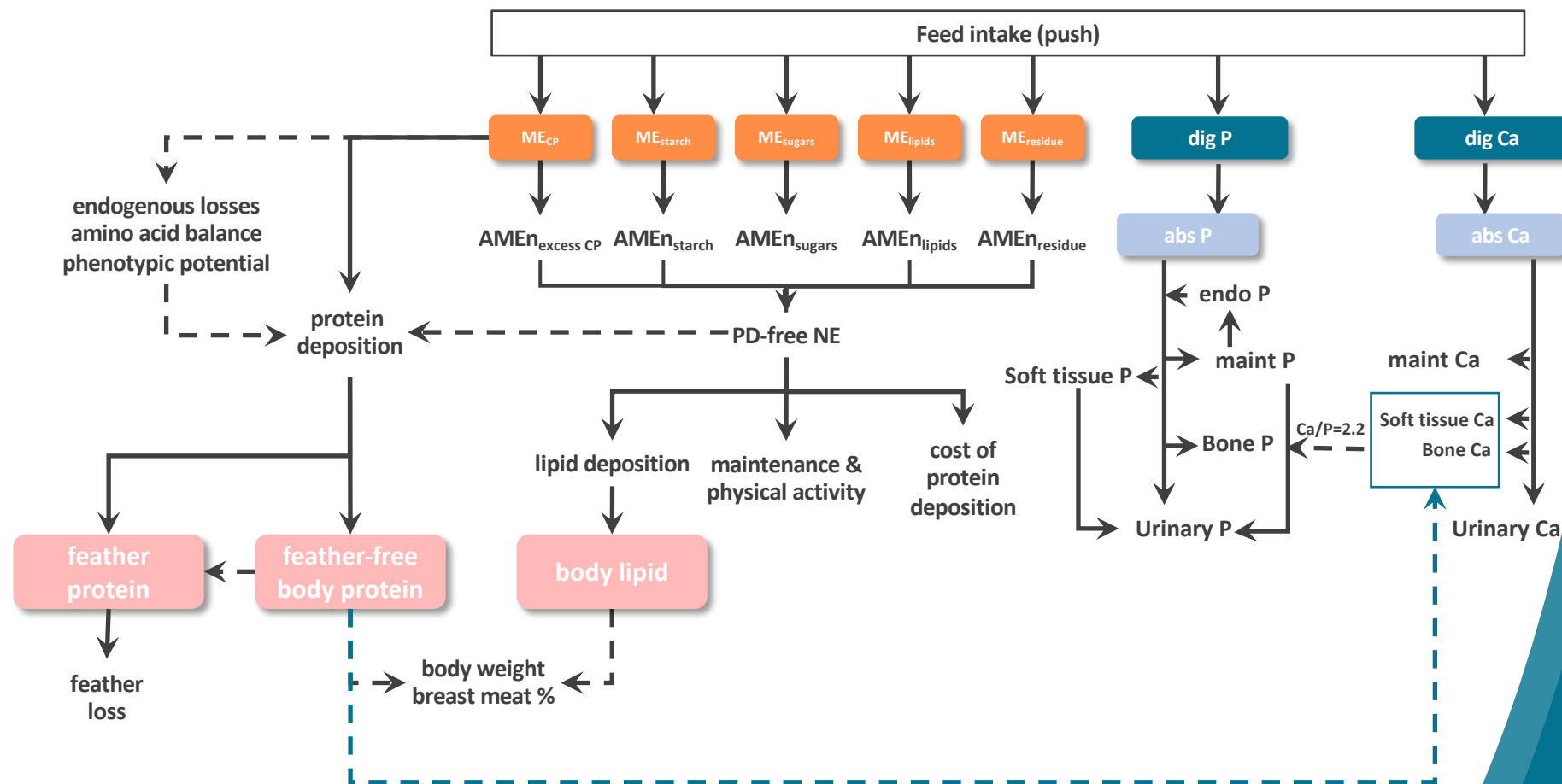


phytic acid bounded form of P





Model concept

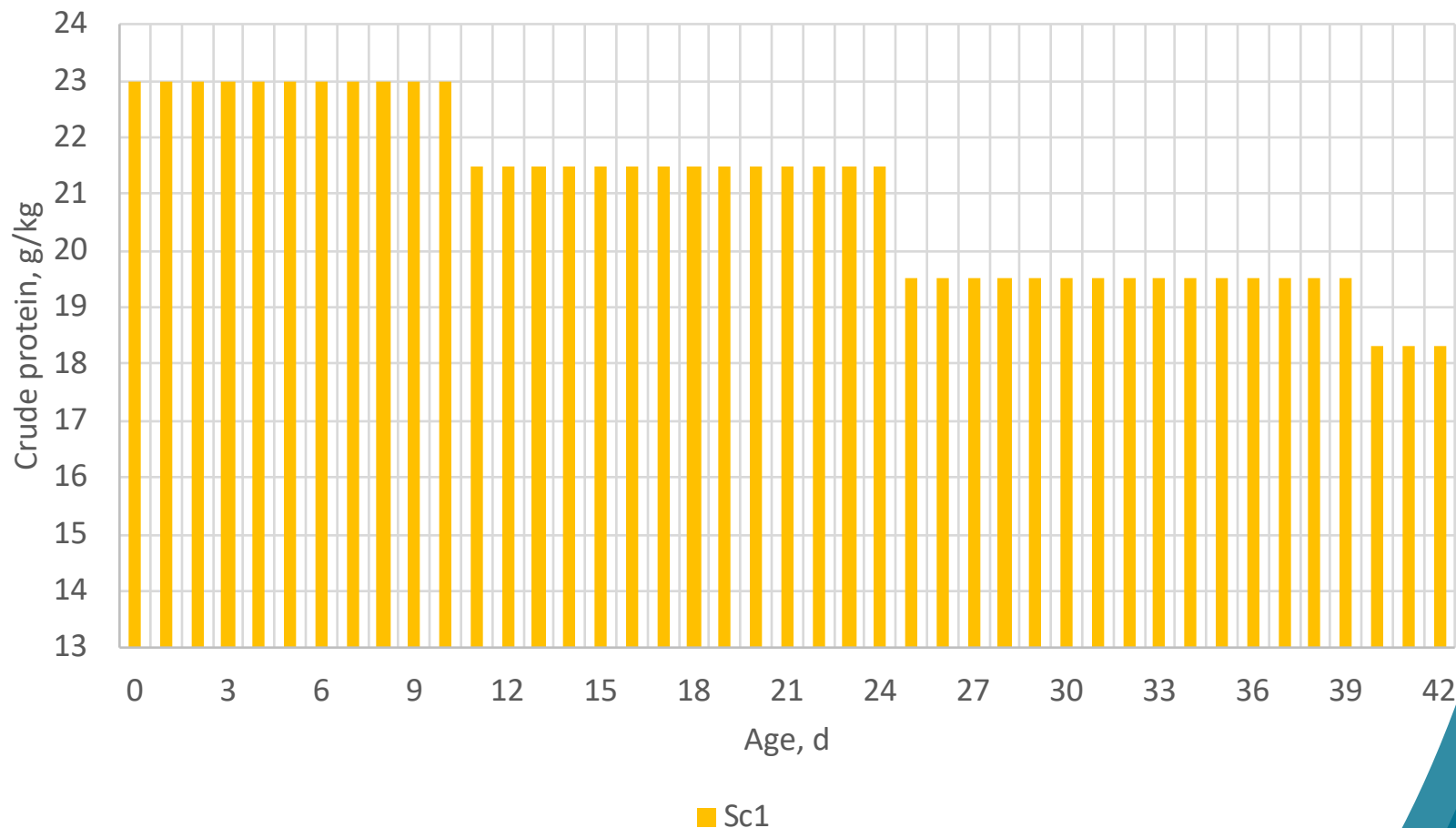


Dukhta *et al.* (2017, 2018). PhD thesis, Kaposvár University

Halas *et al.* (2017), Dukhta *et al.* (unpublished)



Optimal dietary CP as suggested by the model and the CP content of the feeds in different phases of two scenarios



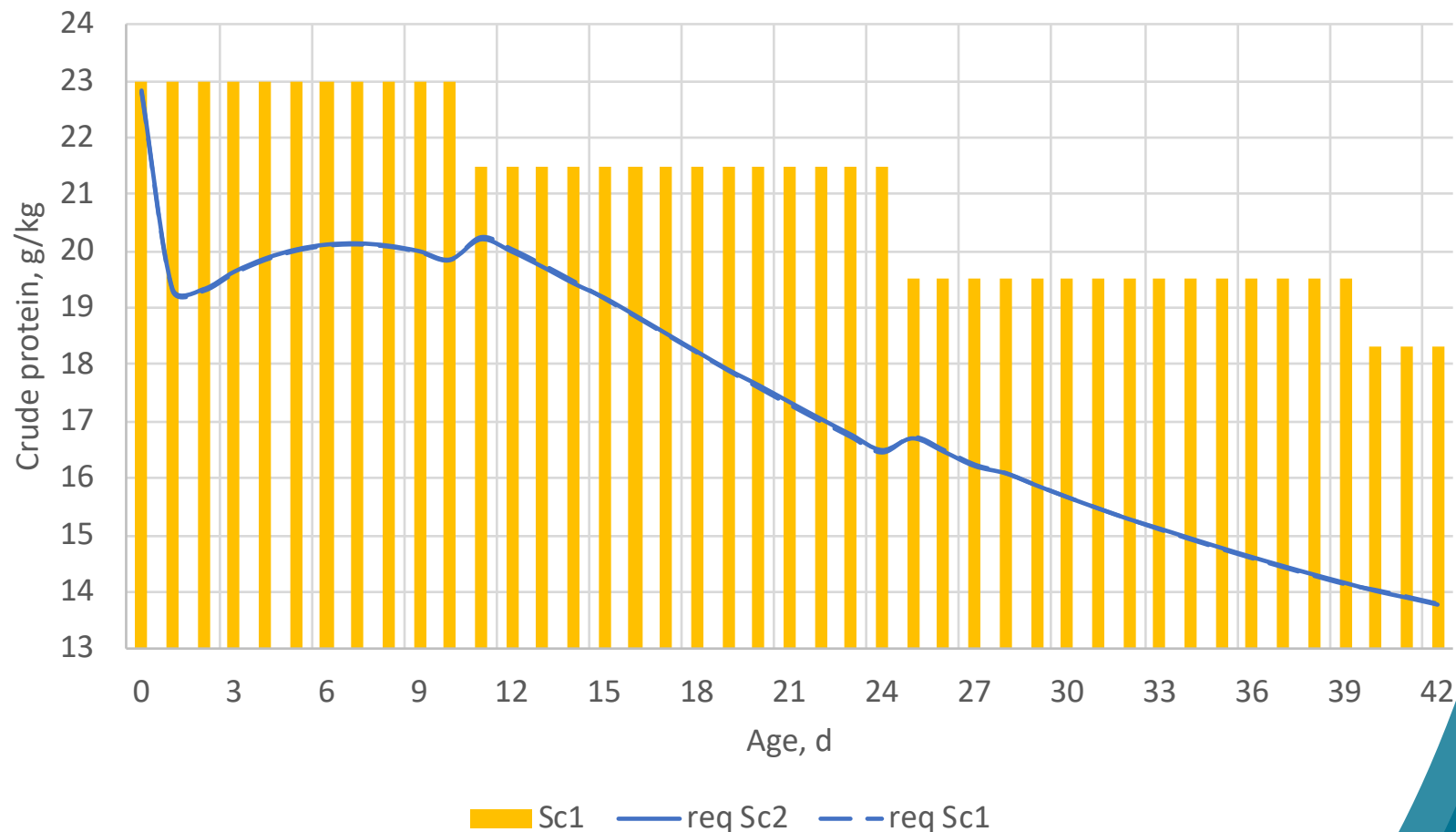
Sc1 – Ross recommendations, Sc2 – multiple phases feeding

5-7 June, 2019

req Sc1, 2 – available P requirements within scenarios 1 and 2, respectively



Optimal dietary CP as suggested by the model and the CP content of the feeds in different phases of two scenarios

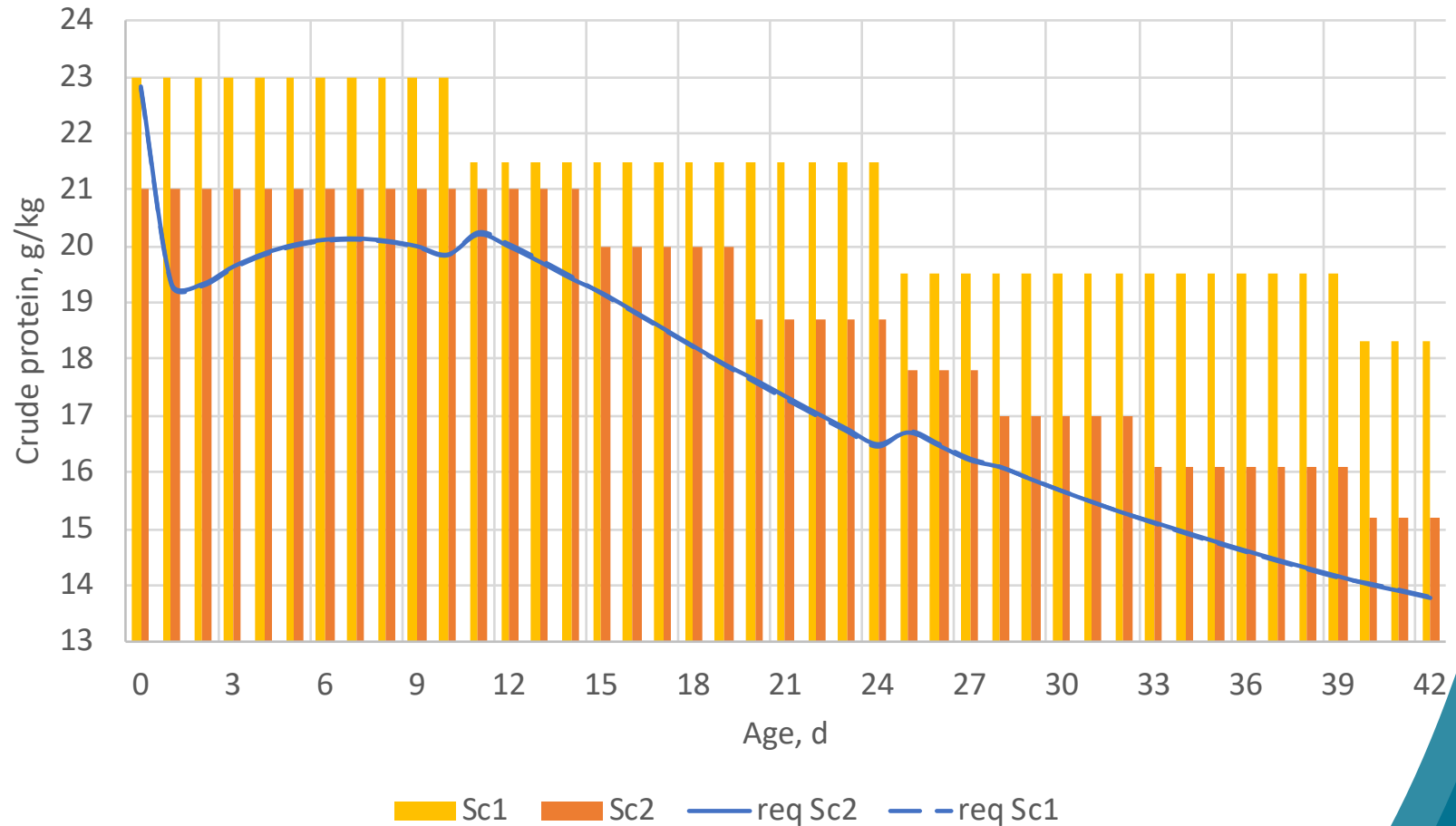


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Optimal dietary CP as suggested by the model and the CP content of the feeds in different phases of two scenarios

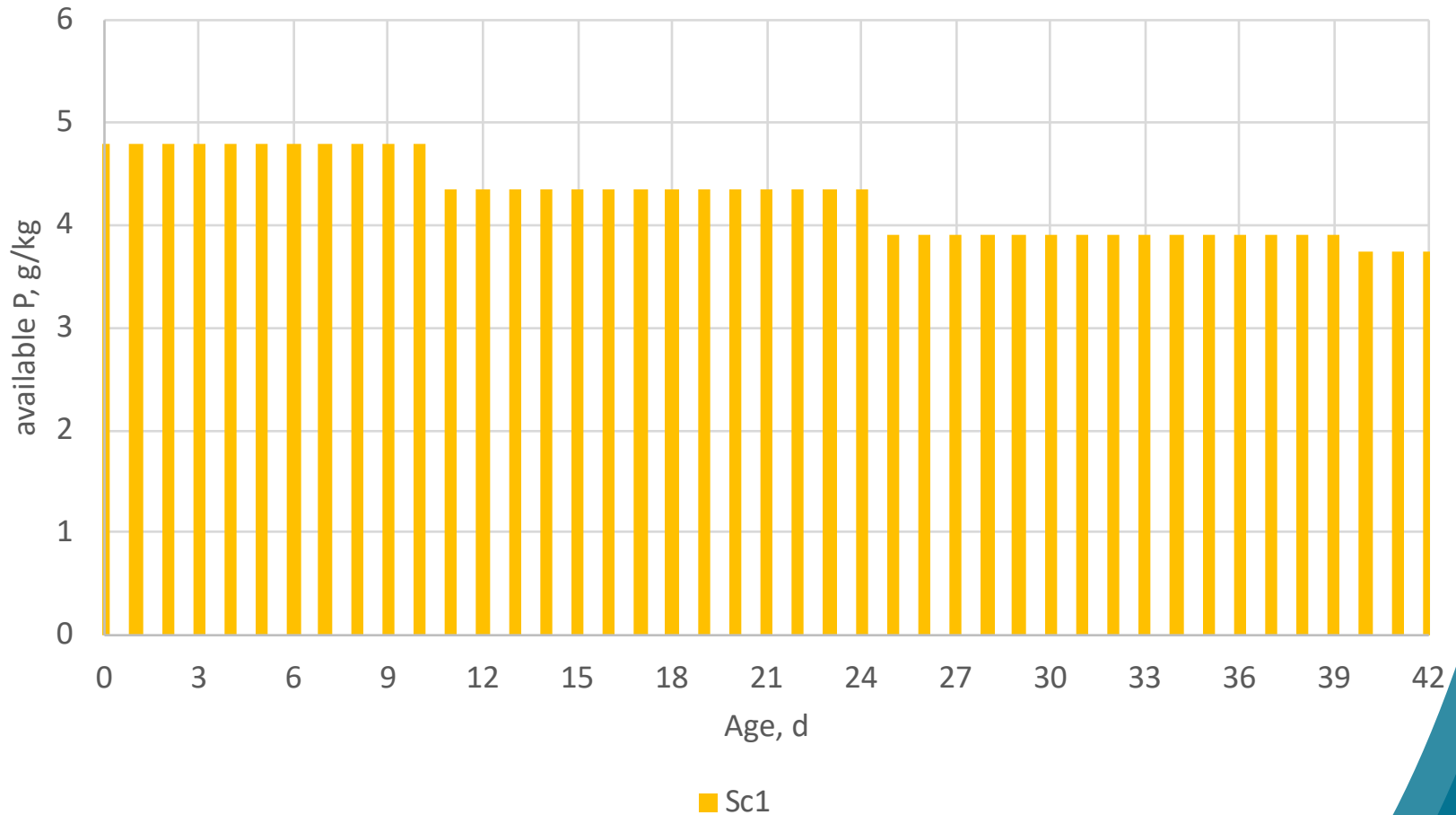


Sc1 – Ross recommendations, Sc2 – multiple phases feeding

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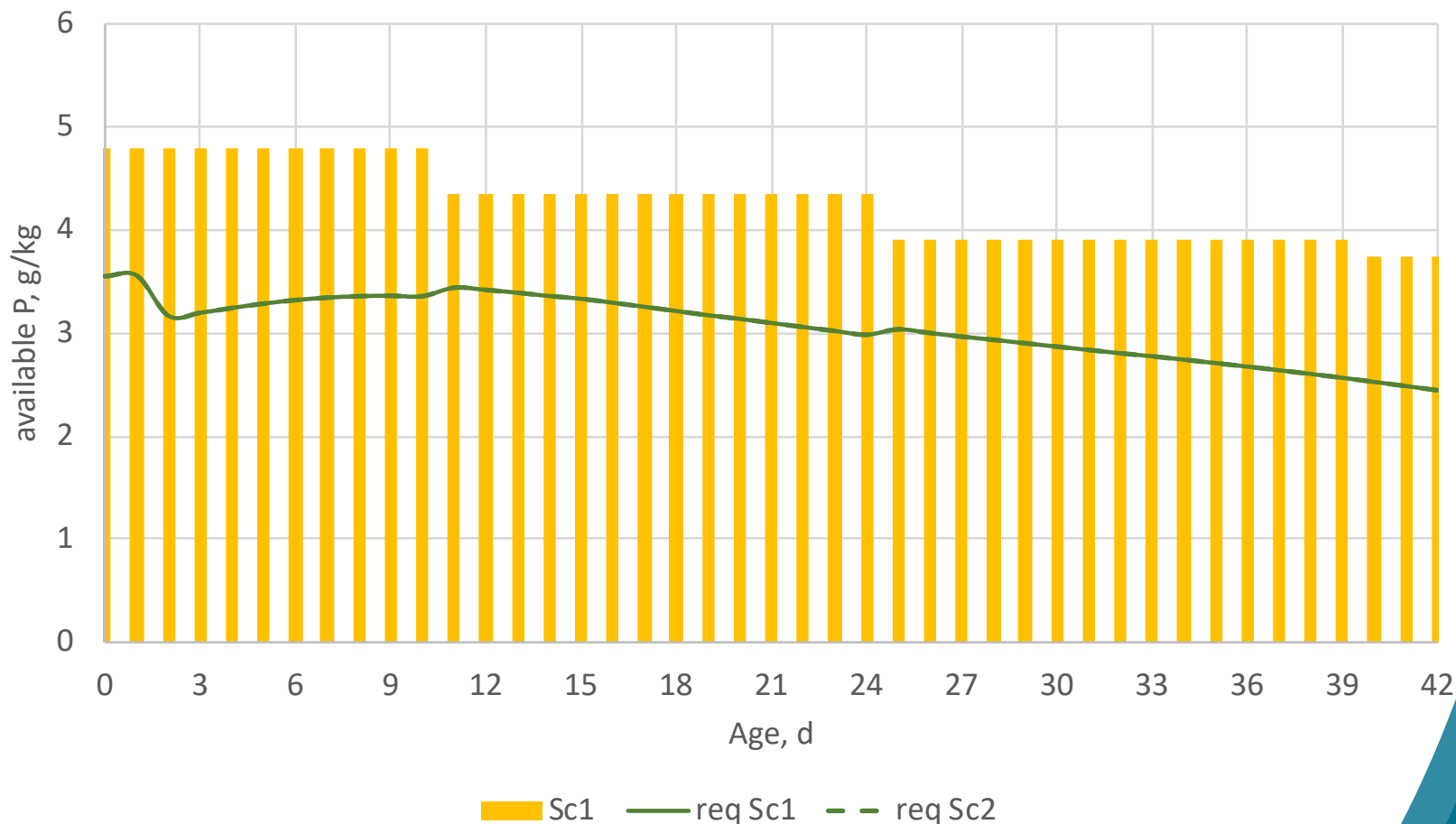
Optimal dietary available P as suggested by the model and the avP content of the feeds in different phases of two scenarios



Sc1 – Ross recommendations, Sc2 – multiple phases feeding
 req Sc1, 2 – available P requirements within scenarios 1 and 2, respectively



Optimal dietary available P as suggested by the model and the avP content of the feeds in different phases of two scenarios



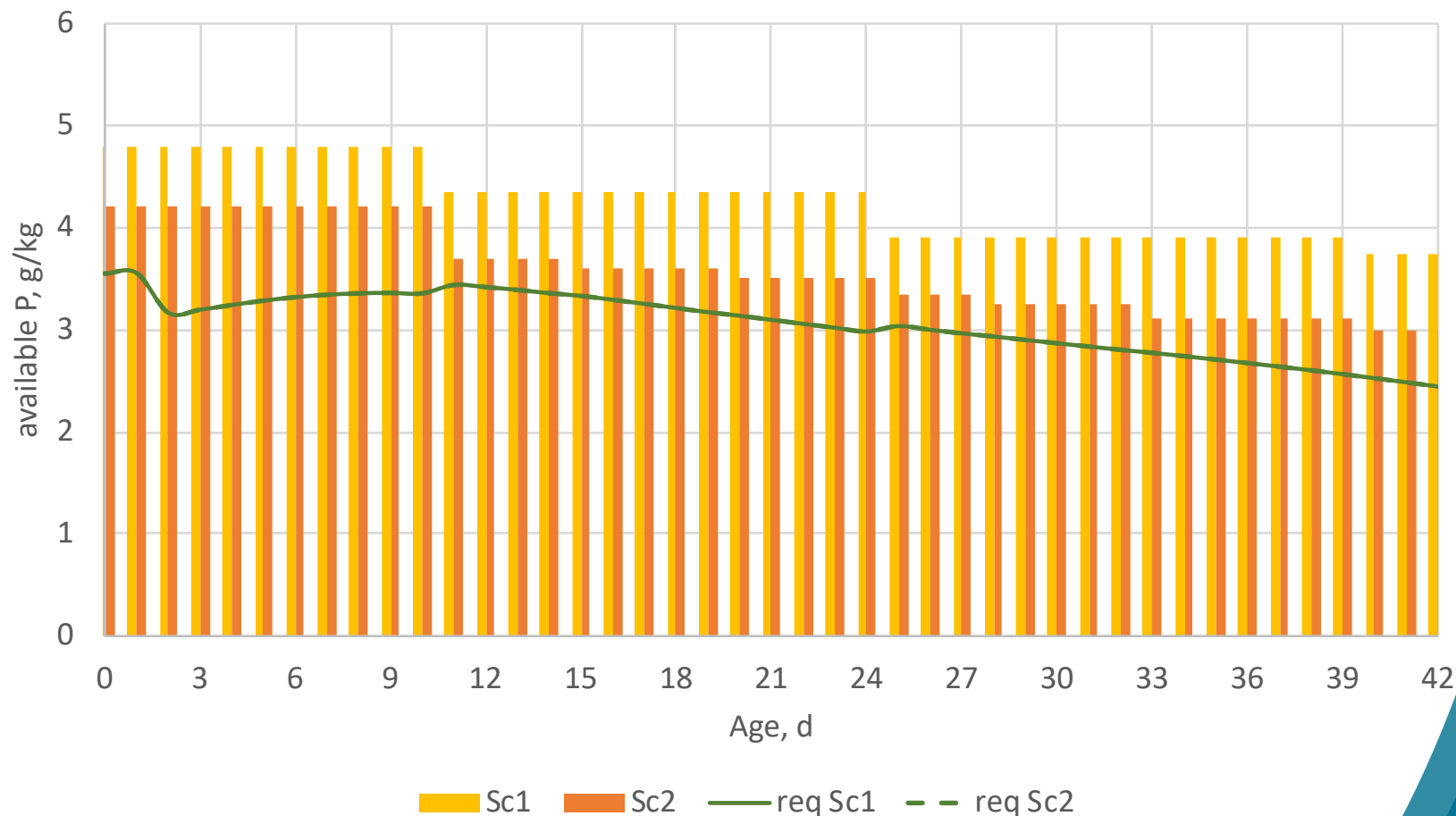
Sc1 – Ross recommendations, Sc2 – multiple phases feeding

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Optimal dietary available P as suggested by the model and the avP content of the feeds in different phases of two scenarios



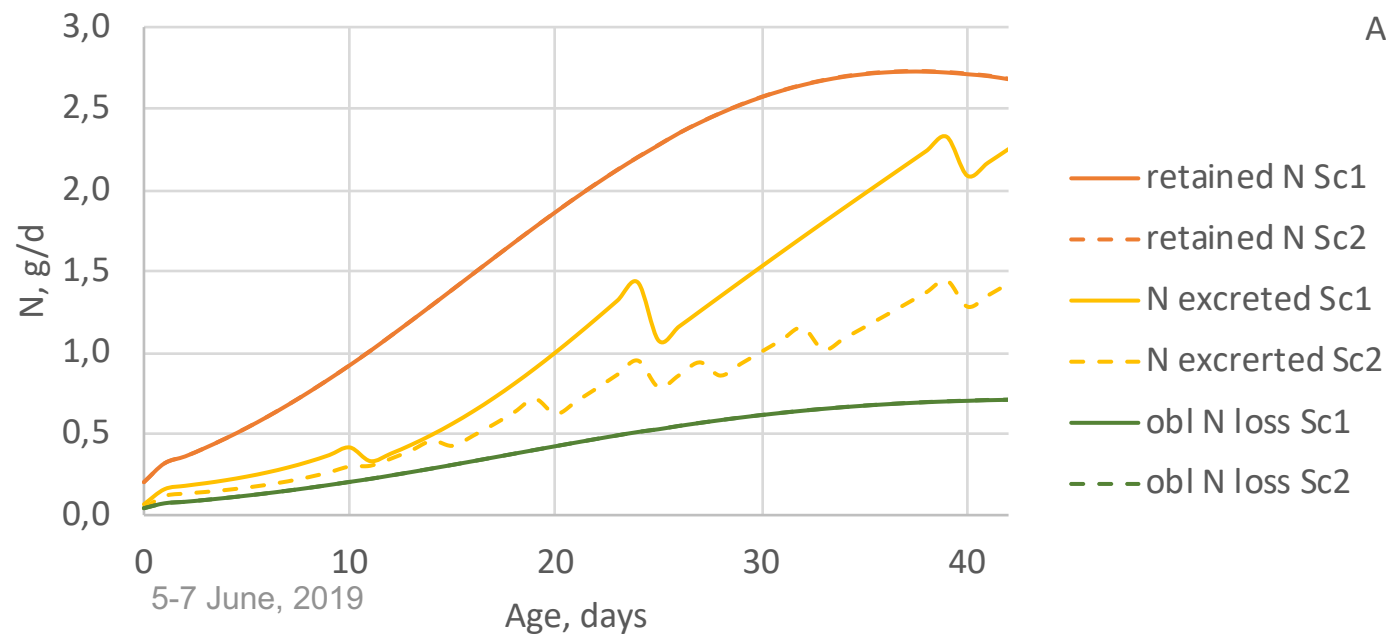
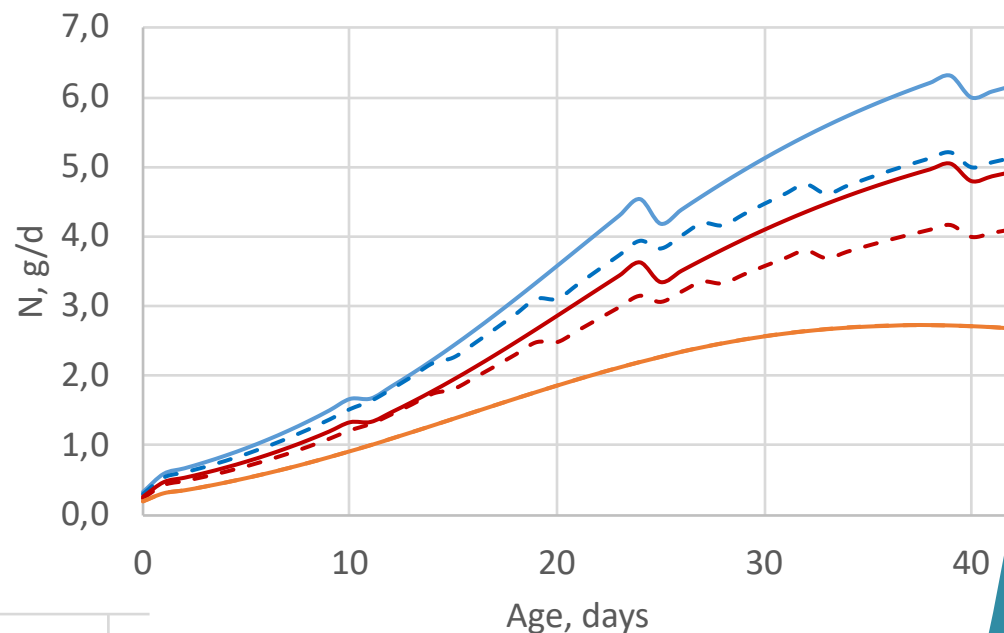
Sc1 – Ross recommendations, Sc2 – multiple phases feeding

req Sc1, 2 – available P requirements within scenarios 1 and 2, respectively



Distribution of N

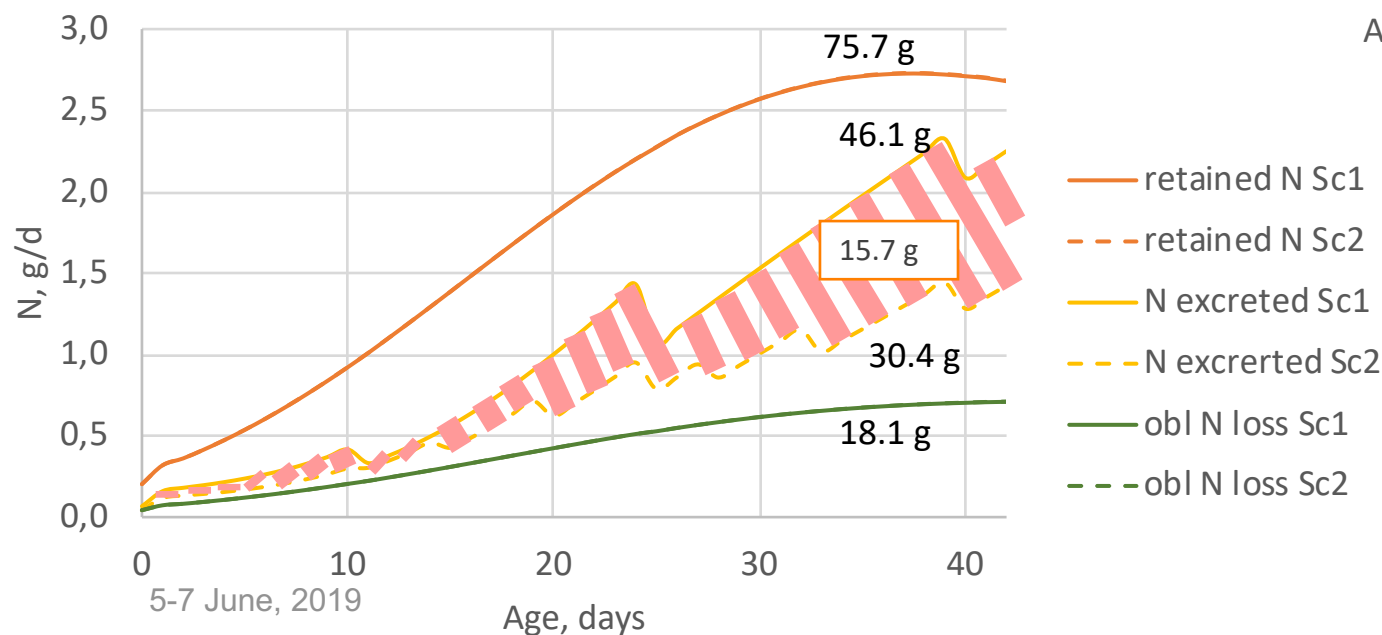
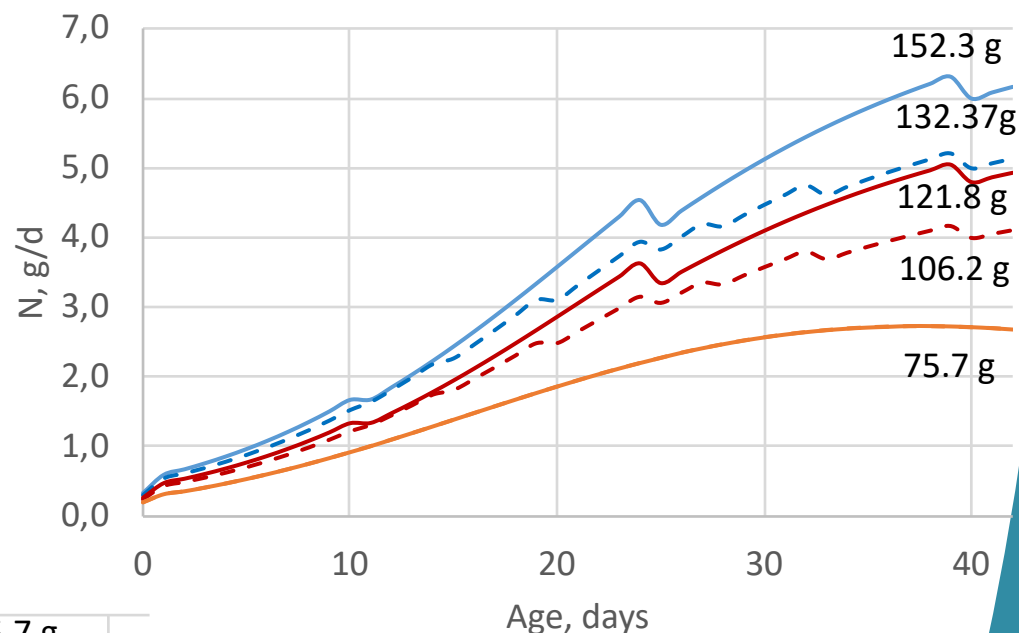
— N Intake Sc1
 - - N Intake Sc2
 — digN Intake Sc1
 - - digN Intake Sc2
 — retained N Sc1
 - - retained N Sc2





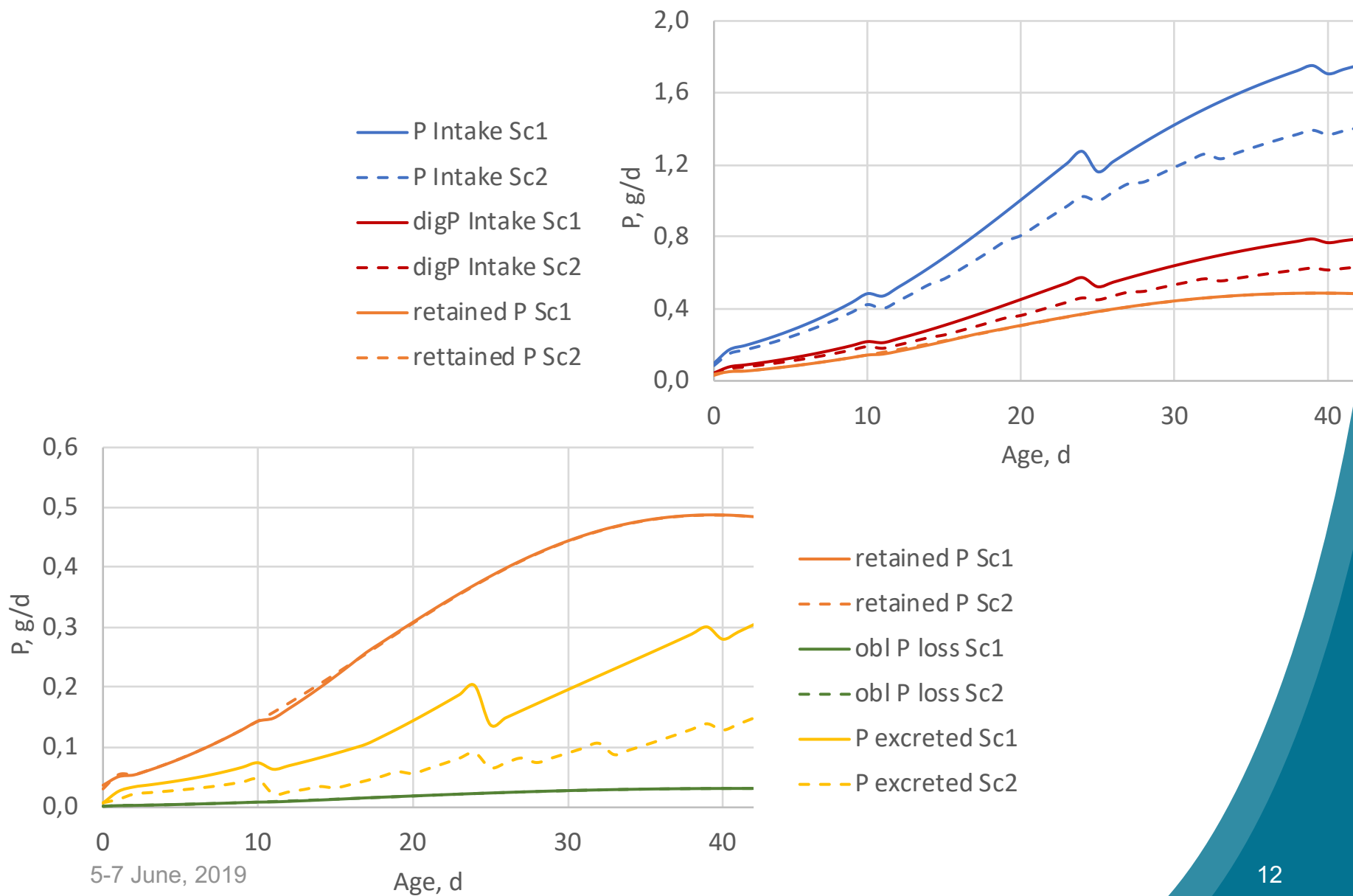
Distribution of N

- N Intake Sc1
- - N Intake Sc2
- digN Intake Sc1
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- retained N Sc1
- - retained N Sc2



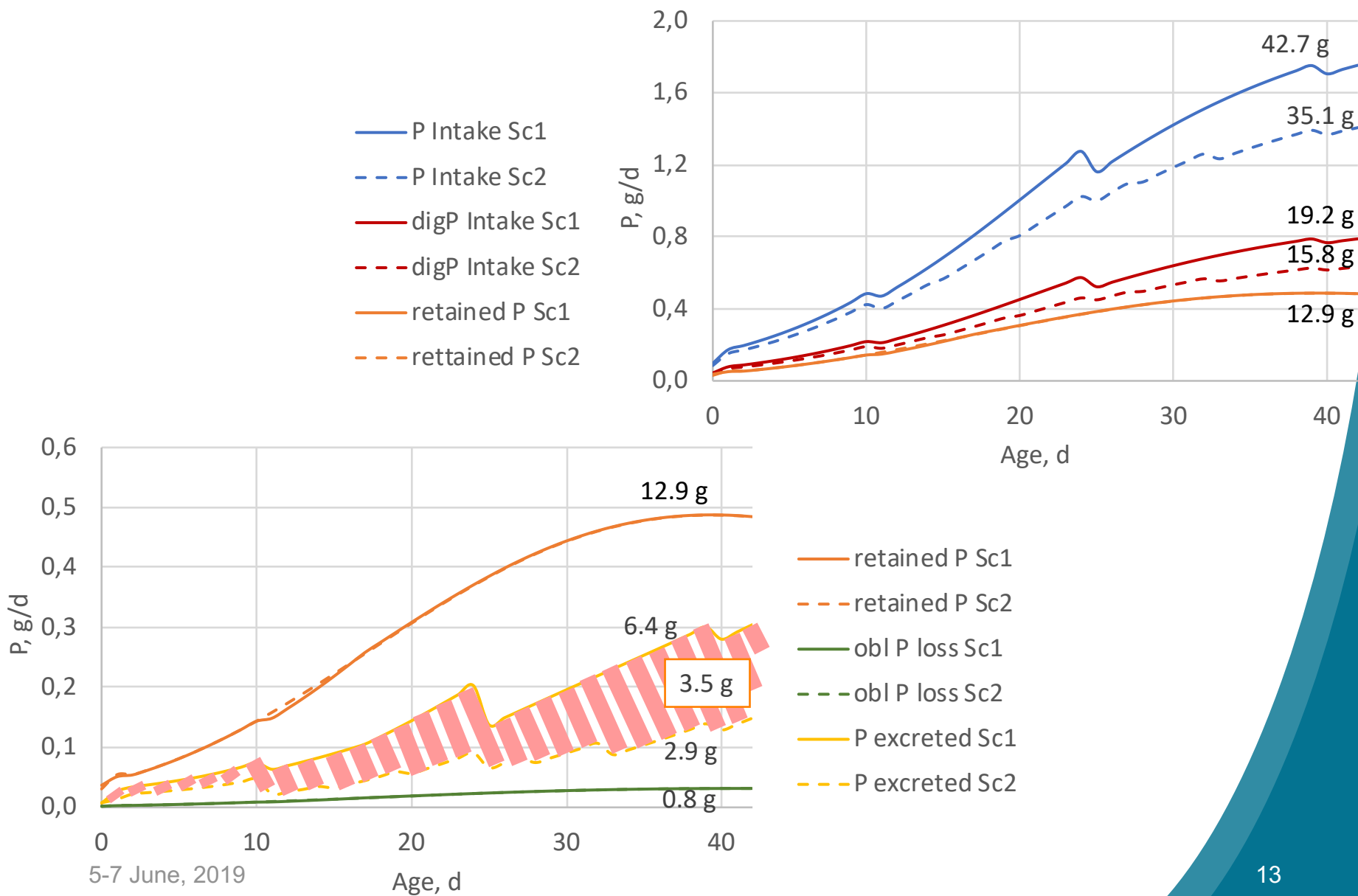


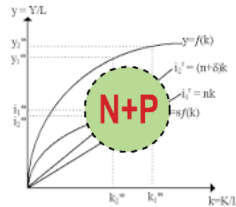
Distribution of P





Distribution of P





Conclusion



Since the levels of digestible N and available P in the feeds are known, the distribution of absorbed nutrients in the metabolism can be simulated.

This approach may allow a better understanding of the concept of feed use mechanism for the decision to be taken.

The model is an excellent tool to design alternative feeding strategies for animal production with a low environmental footprint.



Thank you for your attention!

EU funded
Research
project

2015
2020

€10 M
Budget

Feed-a-Gene



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

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