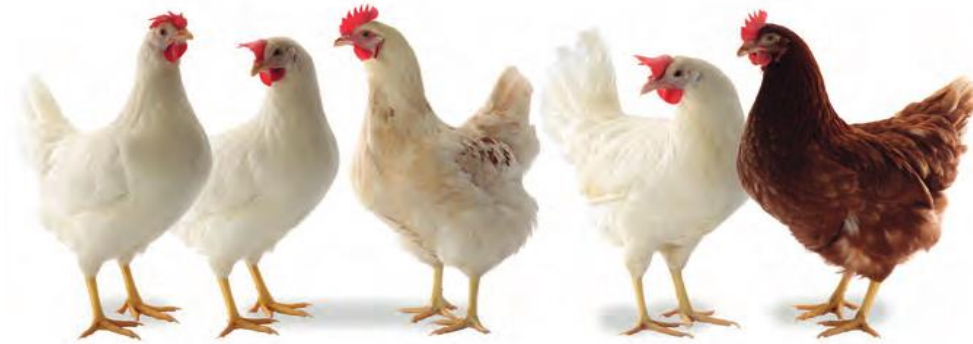




INTERNATIONAL

*The key to your profit!*



# Modelling feed profitability of the H&N birds

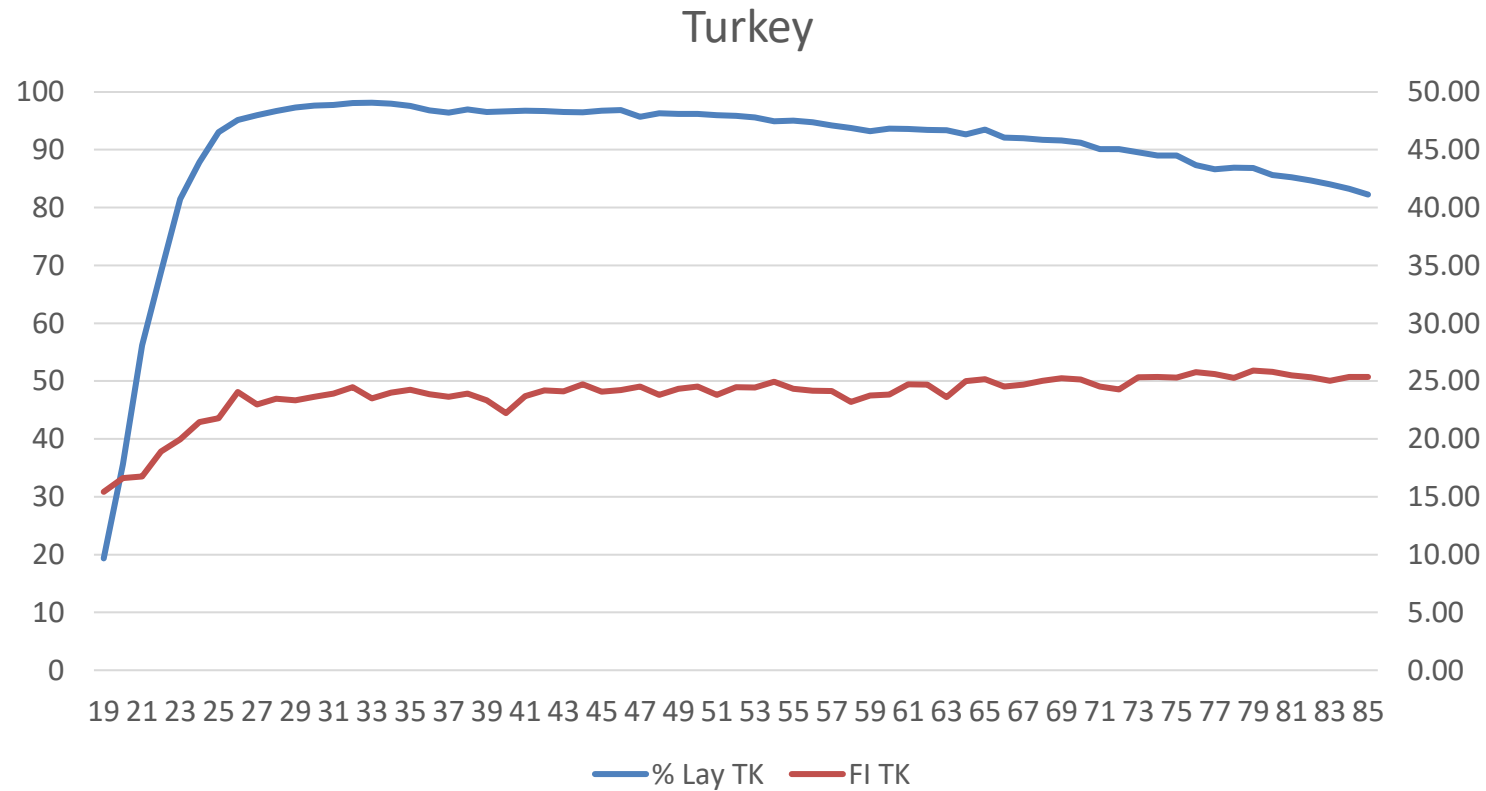


H&N LAYER ACADEMY

**INTERACT WITH US!**

**Make use of our multiple-choice poll tool and pick what you think is correct.**

# It depends on the diet?



US 23-24 lb / 100

Netherlands 27 lb / 100

# Diets

USA	Turkey	Netherlands
Corn	Corn	Corn
Soya	Soya	Wheat
Wheat bran	Wheat bran	Barley
DDGs	Sunflower	Soya
MBM	DDGs	Sunflower
	MBM	Peas
		Oats
		Wheat brand
		Rapeseed meal
		Potato

# Make formulation based on egg mass

Egg mass 60-58

MEn		283-298 kcal / hen / day			
CP		17 gr / hen /day			
	mg / hen / day	22	23	24	
Dig Lysine	800	0.800	0.762	0.727	
Dig Methionine	400	0.400	0.381	0.364	
Dig Met + Cys	720	0.720	0.686	0.655	
Dig Threonine	560	0.560	0.533	0.509	
Dig Tryptophane	176	0.176	0.168	0.160	
Dig Isoleucine	640	0.640	0.610	0.582	
Dig Valine	700	0.700	0.667	0.636	
Dig Argenine	833	0.833	0.794	0.758	

Egg mass 57-55

MEn		277-292 kcal / hen / day			
CP		16.5 gr / hen /day			
	mg / hen / day	22	23	24	
Dig Lysine	770	0.770	0.733	0.700	
Dig Methionine	385	0.385	0.367	0.350	
Dig Met + Cys	693	0.693	0.660	0.630	
Dig Threonine	539	0.539	0.513	0.490	
Dig Tryptophane	169	0.169	0.161	0.154	
Dig Isoleucine	616	0.616	0.587	0.560	
Dig Valine	674	0.674	0.642	0.613	
Dig Argenine	801	0.801	0.763	0.728	

# How to calculate energy

- Animal research
  - INRA, NRC, FEDNA...
  - Additive suppliers
- Calculations
  - $ME = 3.98 \times \text{gr starch} + 3.10 \times \text{gr sugar} + 3.7 \times \text{gr CP} + 8.19 \times \text{gr fat}$

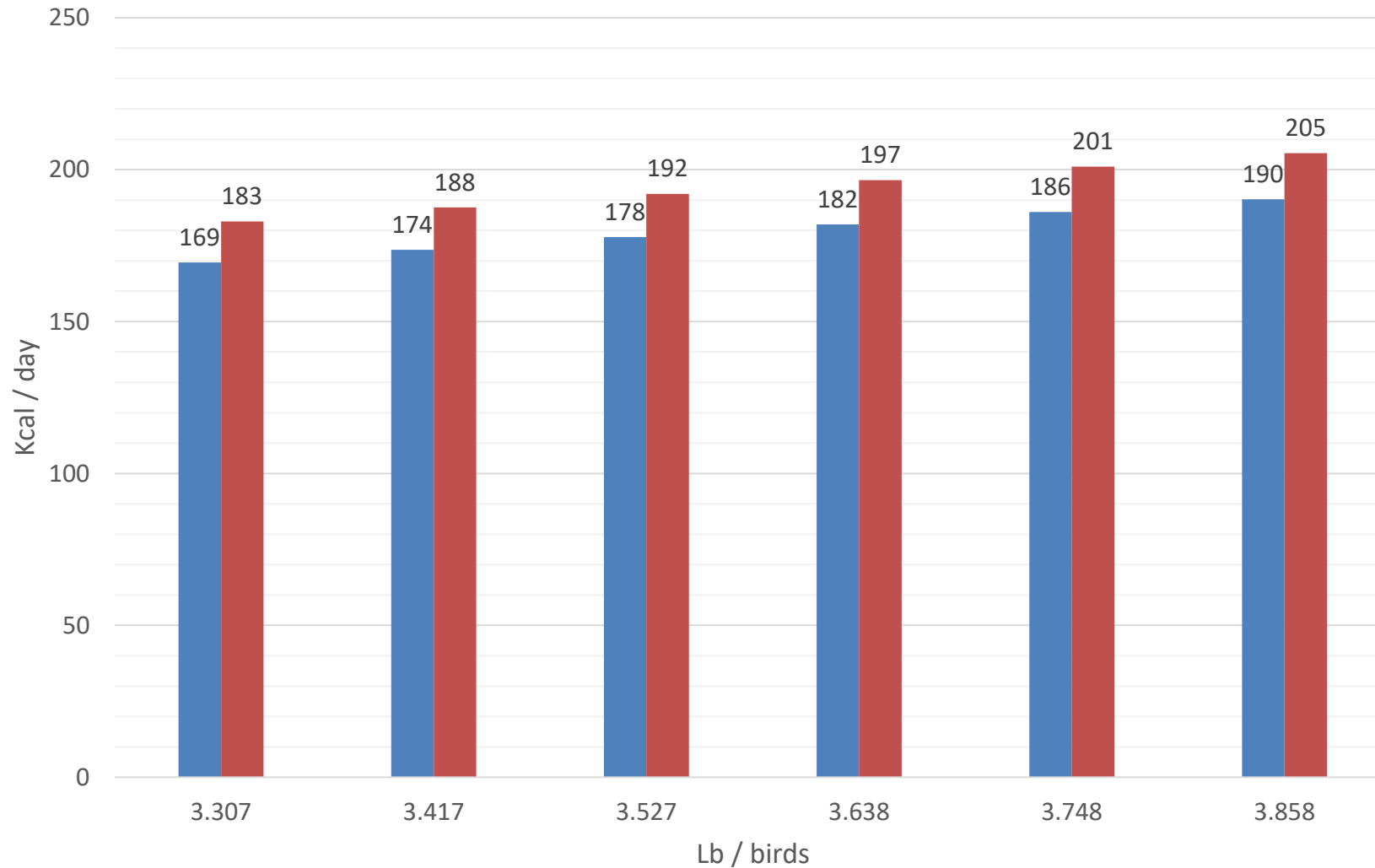
# Energy methods

By the book	ME Value	% in diet	Energy contribution	Total (kcal/kg)
Corn	3300	55	1815	2287
Soya	2360	20	472	

6.4% more

By the formula	ME Value	% in diet	Energy contribution	Total (kcal/kg)
Corn	3104	55	1707	2149
Soya	2210	20	442	

# Modelling the energy needs - BW



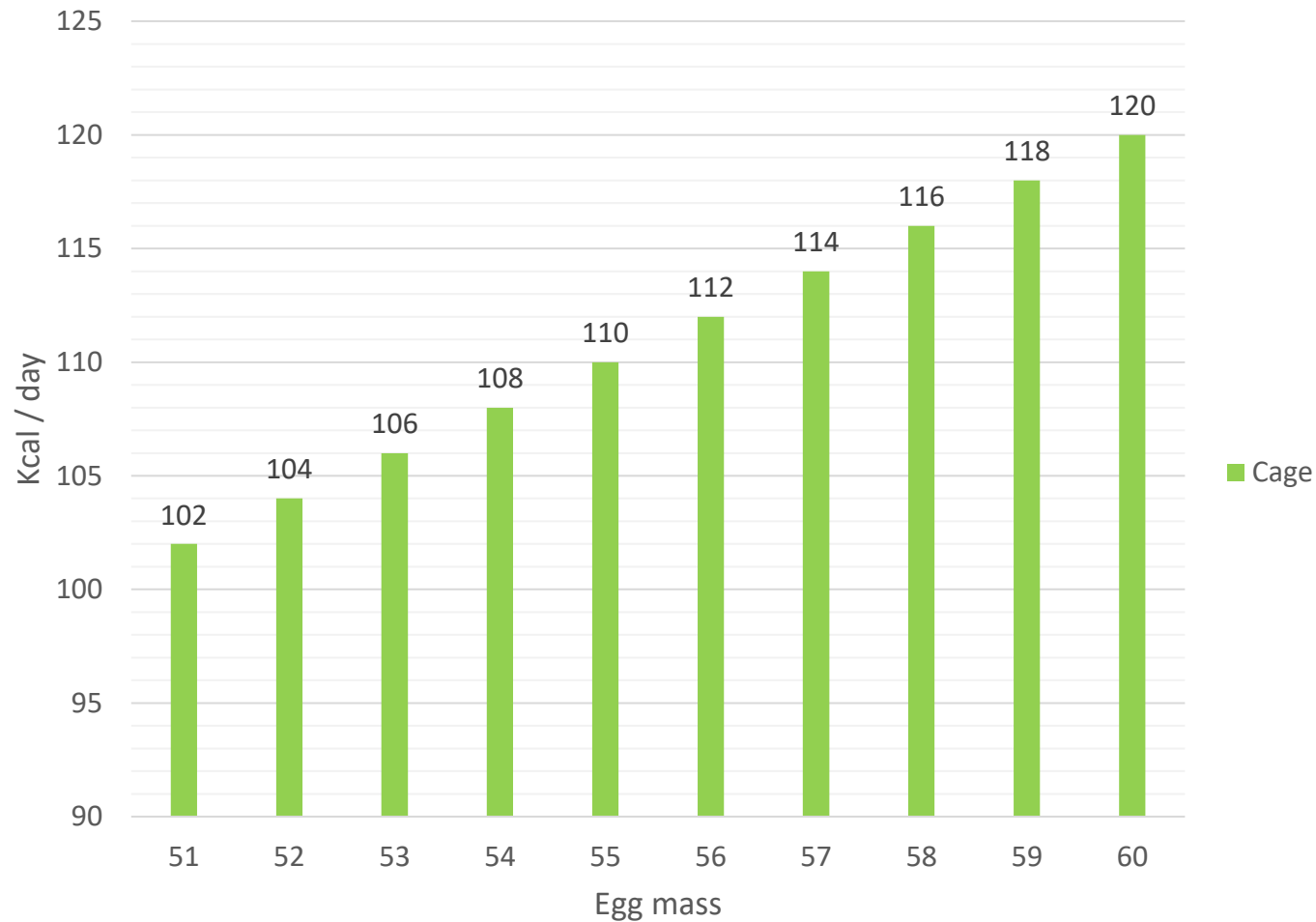
$$EM\ m-c = PV^{0.75} \times 125$$

$$EM\ m-cf = PV^{0.75} \times 135$$

■ Cage  
■ Cage free

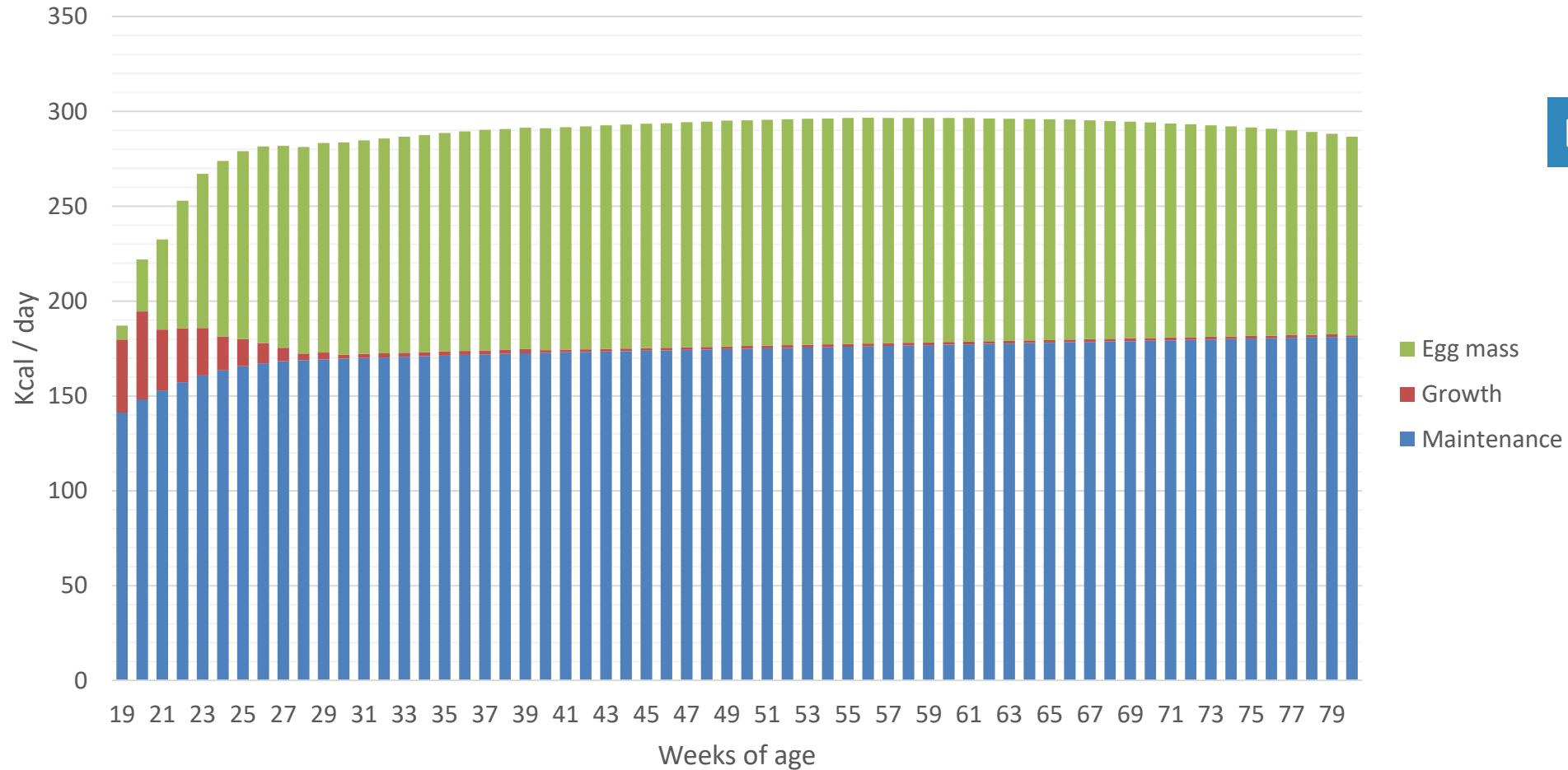


# Modelling the energy needs – Egg mass



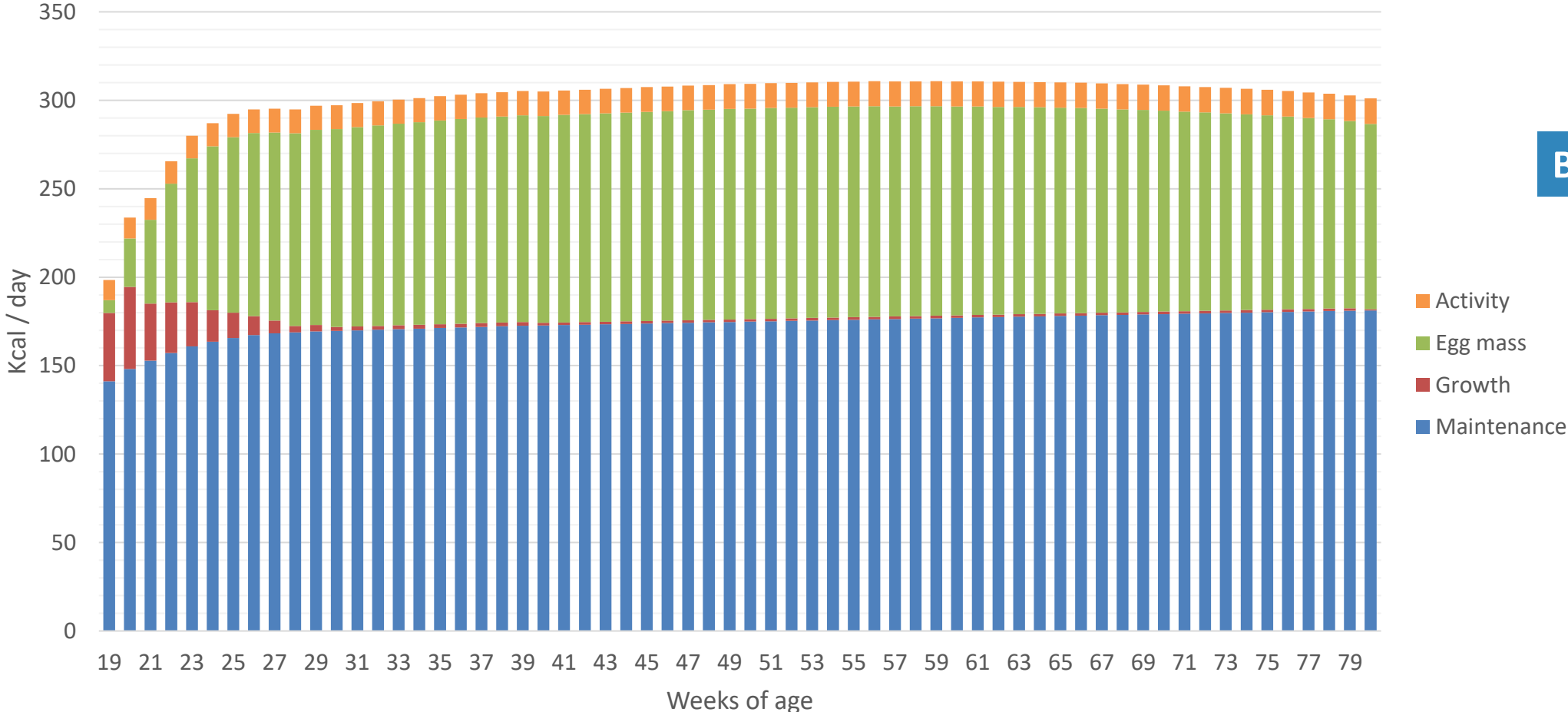
$$EM_p = \text{Egg mass} \times 2$$

# Layer energy needs (kcal/day)



BW => 3.527 lb

# Layer energy needs (kcal/day)



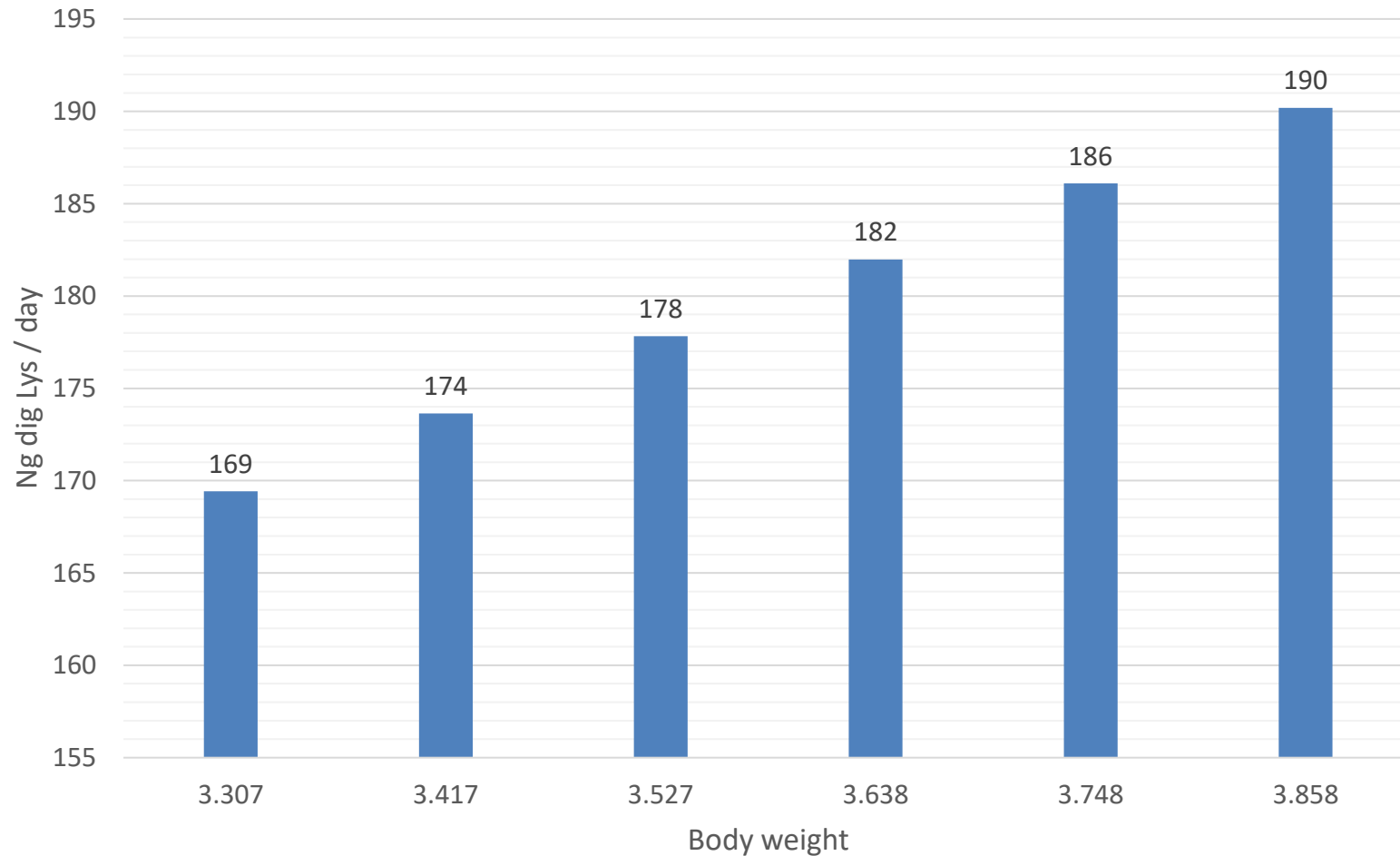
BW => 3.527 lb



# Amino acids

- The total composition is well established by HPLC and NIR technology.
- Digestibility varies:
  - Different research and ages where the research was done.
  - Less variations than in energy.
- Next challenge: digestibility in old hens >80 weeks.

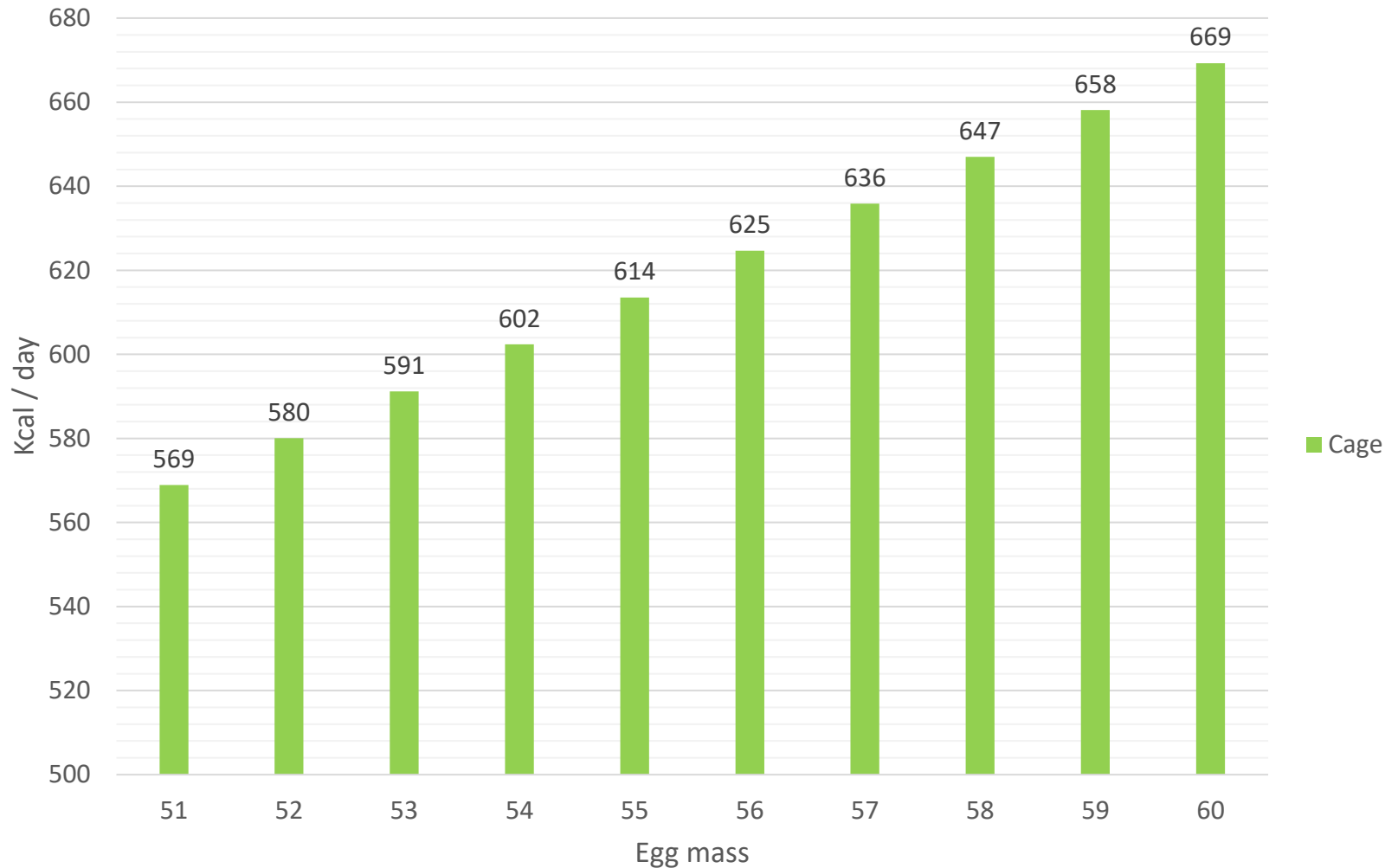
# Modelling the Dig Lysine needs - BW



$$\text{EM m-c} = PV^{0.75} \times 125$$
$$\text{EM m-cf} = PV^{0.75} \times 135$$

■ Cage

# Modelling the AA needs – Egg mass



$EM\ p = \text{Egg mass} \times 11.155$

# Ideal protein ratio

	Cage	Cage free
Lys	100	100
Met	50	50
M+C	90	92
Thr	70	70
Trp	22	24
Ile	80	80
Val	88	88
Arg	104	104

# Egg size controlled by ALL the amino acids

Pullet same size at 17 weeks, same energy feed and production from 22 to 50 weeks

Protein (%)	Fat (%)	Lay (%)	Egg size (gr)	Egg mass
18.5	1.8	91.6	65.2	59.7
17.5	1.8	92.4	64.9	60
16.5	1.8	92.3	64.3	59.3

Adapted from Perez-Bonilla et al 2011b



# Added fat effect in egg weight

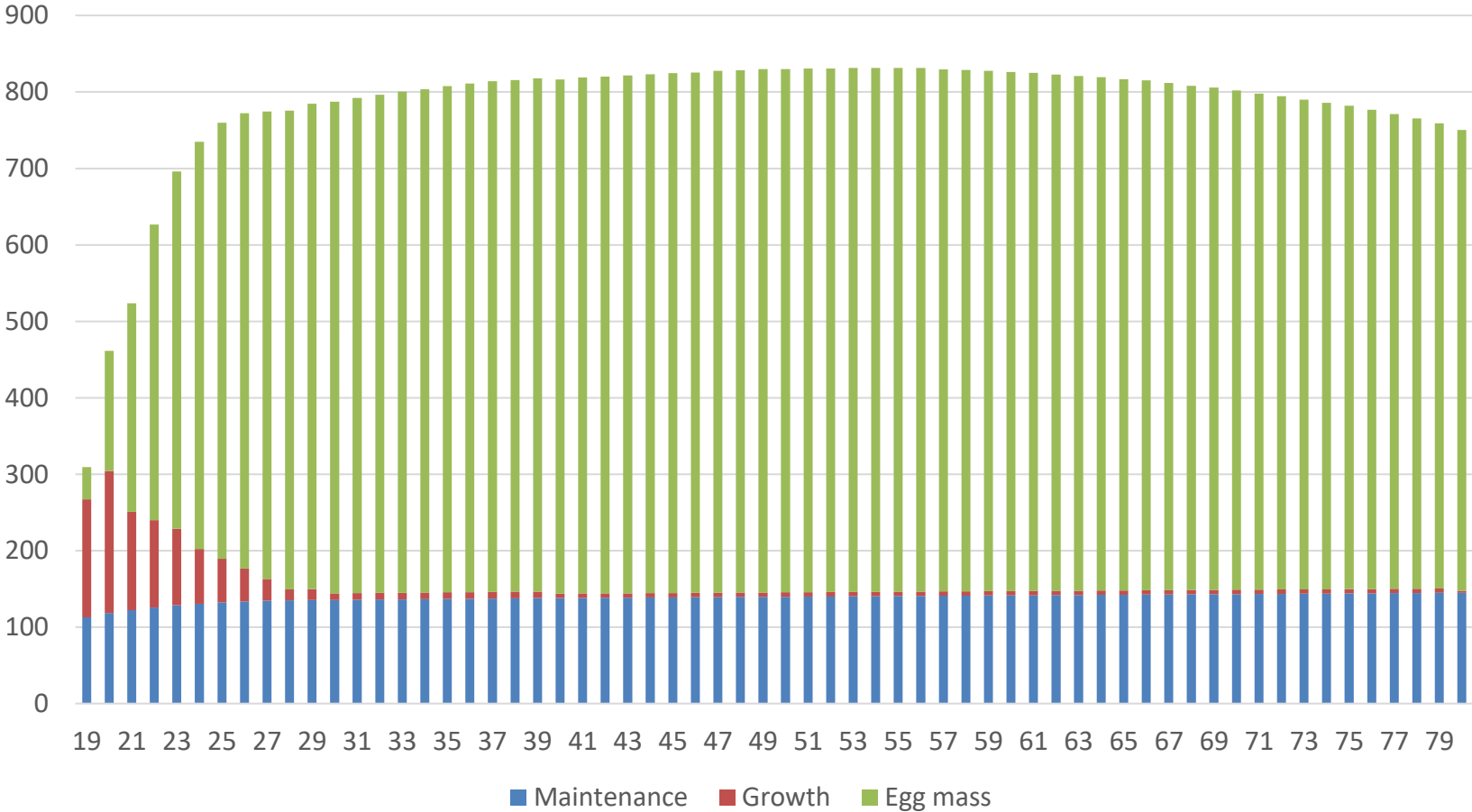
Same energy diets but different added fat

<b>Fat inclusion</b>	<b>1.1</b>	<b>3.0</b>	<b>SEM</b>
<b>ADFI (g)</b>	<b>117</b>	<b>118</b>	<b>0.83</b>
<b>Egg prod. (%)</b>	<b>77.0<sup>b</sup></b>	<b>79.3<sup>a</sup></b>	<b>0.84</b>
<b>FCR (kg/kg)</b>	<b>2.36<sup>a</sup></b>	<b>2.26<sup>b</sup></b>	<b>0.020</b>
<b>Egg weight (g)</b>	<b>64.9<sup>b</sup></b>	<b>66.3<sup>a</sup></b>	<b>0.28</b>

n = 24; P < 0,05

# Layer amino acid needs

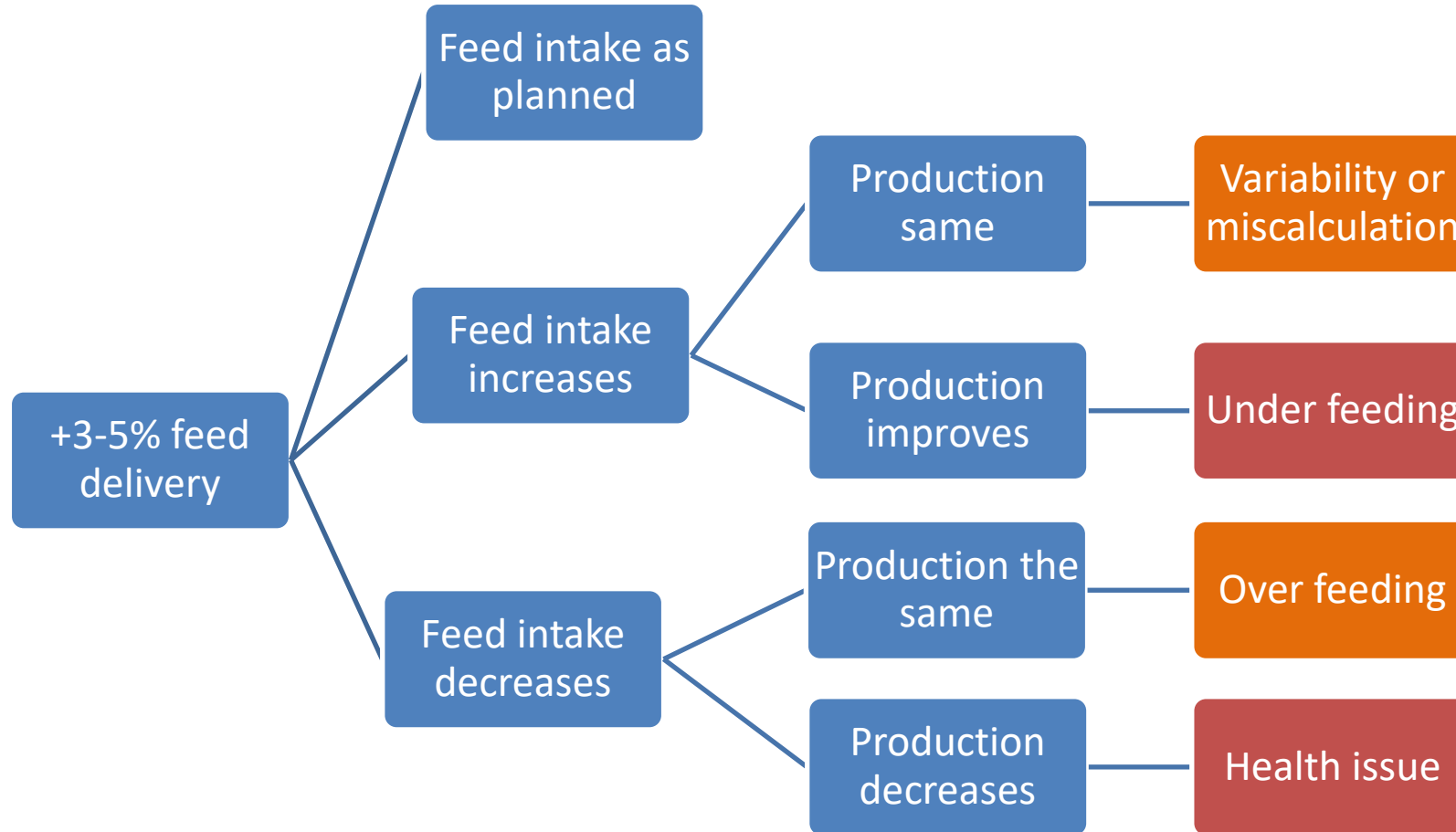
Mg Lys Nick chick



Maintenance 20% Growth 1% Egg mass 79%

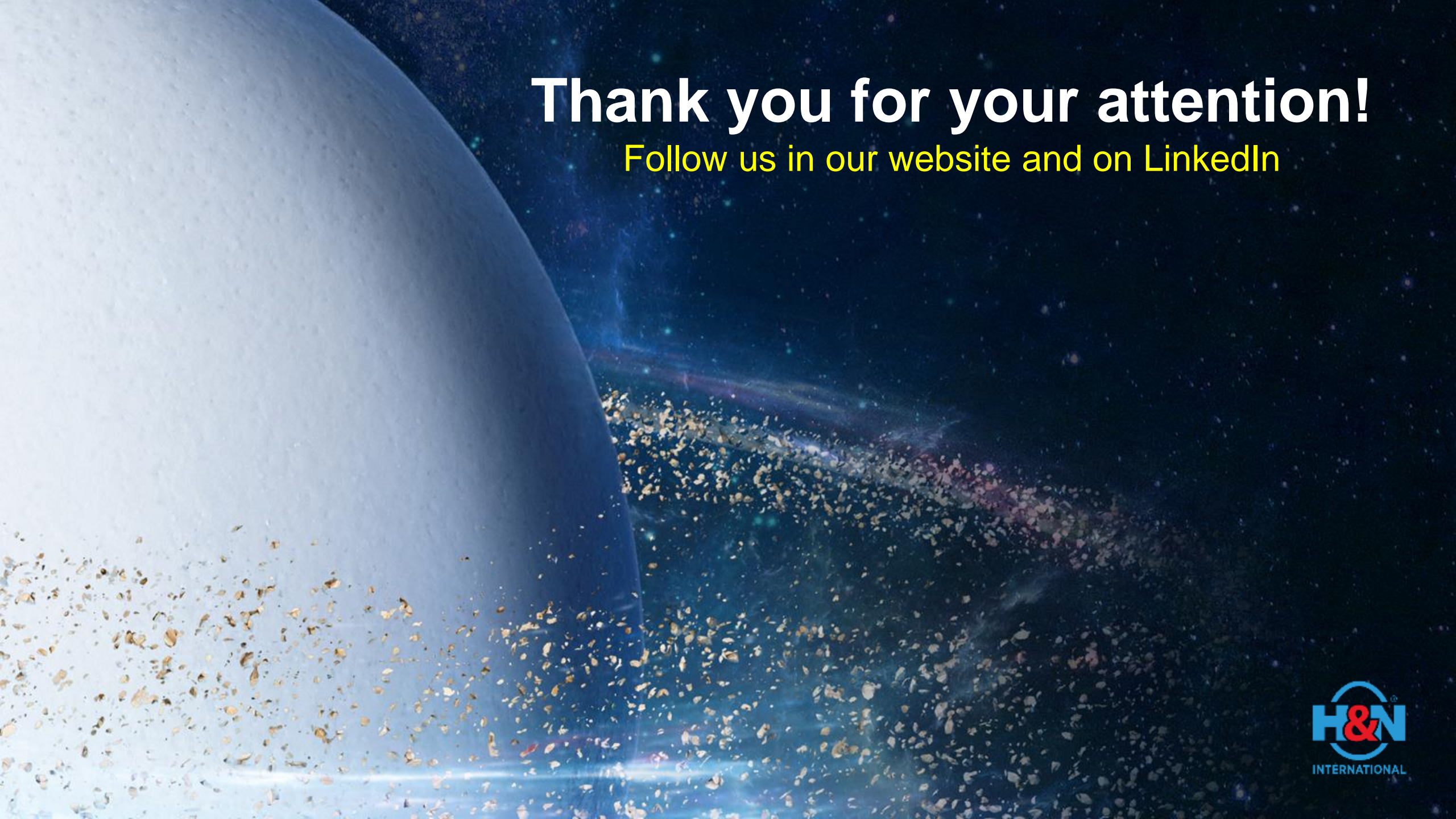


# Layer feed has a target feed intake



# Summary

- H&N birds can adapt to different concentration of the diets.
- Energy information is variable based on the source of information.
- Amino acids control egg mass and we recommend to work with the whole set of amino acids to control case weight.
- The target feed intake in layers is a tool to evaluate quality of the raw materials and needs evaluation.

A space-themed background featuring a large, bright, cratered planet on the left side. The rest of the image is a dark, starry space filled with a dense field of small, golden-brown particles or dust, possibly representing a protoplanetary disk or a debris field. The lighting is dramatic, with a bright glow from the planet illuminating the surrounding dust.

# Thank you for your attention!

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