

100% Local and Organic: Using Algae to Close the Protein Gap for Poultry

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Context

A key challenge in improving the sustainability of organic monogastric production is meeting the required levels of nutrients from locally sourced organic feeds. Can a European sourced, 100% organic diet compete with a globally sourced soya based diet?

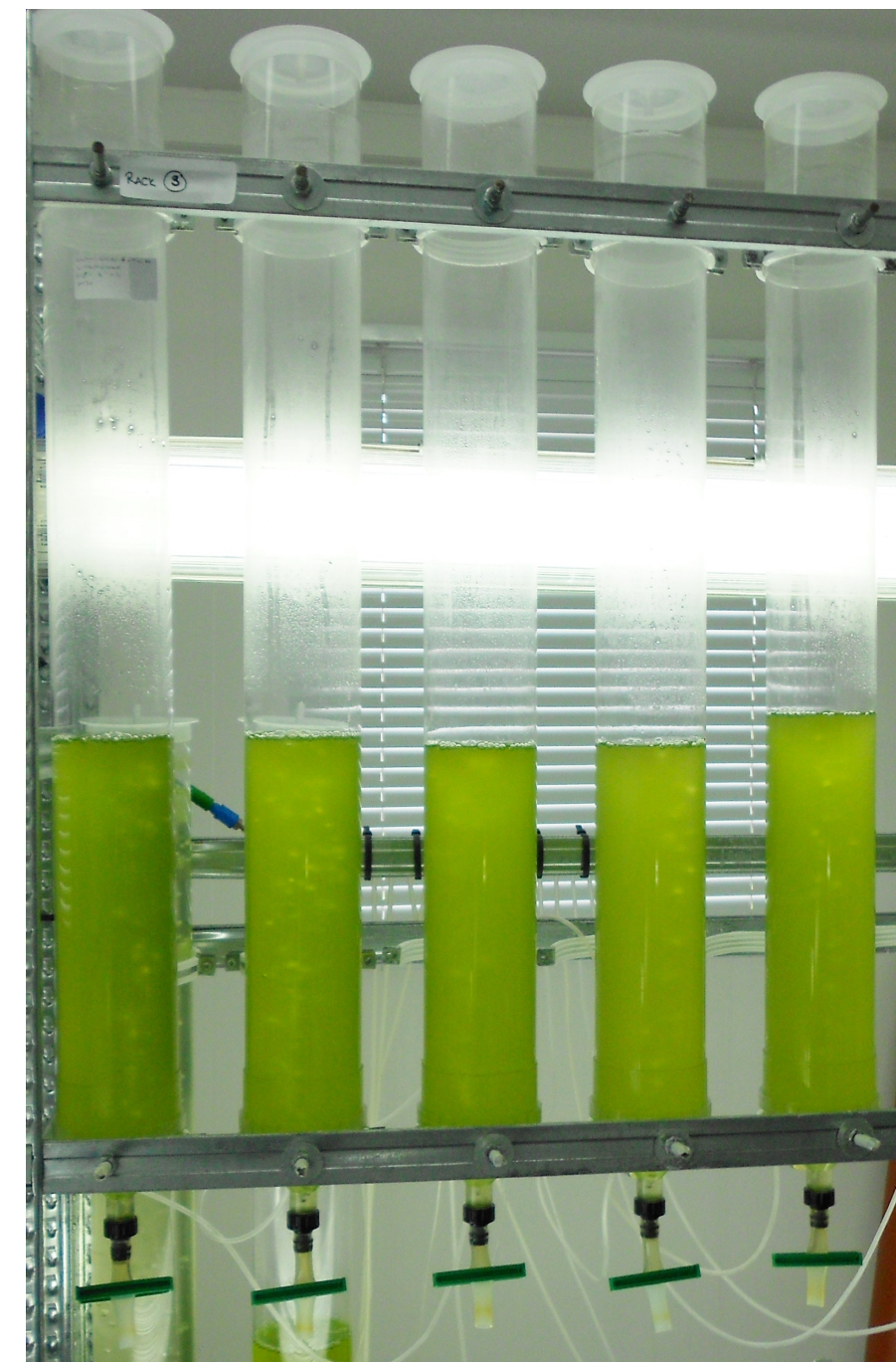
3 Diets

- 100% Organic, Globally Sourced (Control)
- 100% Organic, Locally Sourced, no algae
- 100% Organic Locally Sourced with added **Algae** (*Spirulina*) to ensure good **Methionine** availability

10 Birds per Group, 8 Replicates.

Algae Production

The algae (*Spirulina*) was grown in North Wales using a production system that creates zero waste. A slurry was produced, freeze-dried and sent to the feed mill for inclusion in a standard pellet form



Ingredients

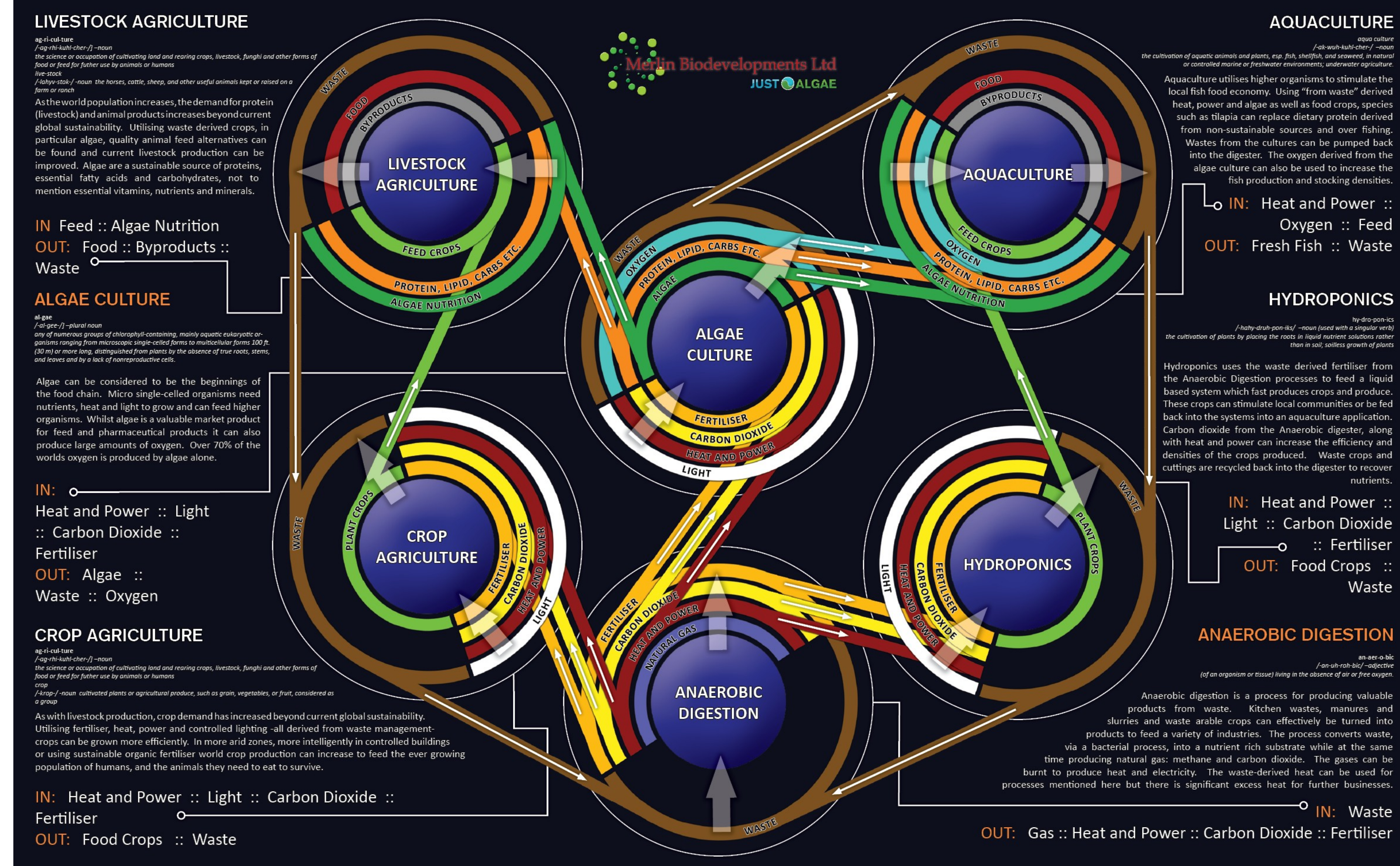
Ingredients were selected to provide similar nutritional profiles. The local diet ingredients are all sourced from Europe, the control ingredients were globally sourced



Control, 100% Organic		100% Organic and Local		100% Organic and Local with Algae	
WHEAT ORGANIC	56.91	WHEAT ORGANIC	30.00	WHEAT ORGANIC	30.29
F.S.SOYA 44/7	22.24	MAIZE ORGANIC	21.37	MAIZE ORGANIC	21.59
SUNFLOWER EXP ORGANIC	9.78	RAPE EXP ORGANIC	15.00	RAPE EXP ORGANIC	15.00
MAIZE ORGANIC	5.00	SWEET LUPINS ORGANIC	14.29	SWEET LUPINS ORGANIC	10.00
MIXER SOYA OIL ORGANIC	2.01	SUNFLOWER EXP ORGANIC	12.00	SUNFLOWER EXP ORGANIC	6.62
DI CAL PHOS	1.45	MIXER SOYA OIL ORGANIC	2.35	BEANS ORGANIC	5.00
ORG RICE CONCENTRATE 65	1.15	FLAX EXP ORGANIC	2.09	FLAX EXP ORGANIC	3.50
TABLE POULTRY 7.5	0.75	TRUCAL 4 CAL CARBONATE	1.20	ALGA	3.00
TRUCAL 4 CAL CARBONATE	0.71	TABLE POULTRY 7.5	0.75	MIXER SOYA OIL ORGANIC	2.50
		PX LUCERNE CONCENTRATE	0.50	TRUCAL 4 CAL CARBONATE	1.20
		DI CAL PHOS	0.45	TABLE POULTRY 7.5	0.75
				DI CAL PHOS	0.55
CRUDE PROT	20.15	CRUDE PROT	19.50	CRUDE PROT	19.54
LYSINE	0.95	LYSINE	0.85	LYSINE	0.88
METH EQ	0.38	METH EQ	0.37	METH EQ	0.40
METH	0.33	METH	0.32	METH	0.35
ME_POULTRY	12.65	ME_POULTRY	12.20	ME_POULTRY	12.30

Merlin Zero Waste Concept

A situation vision of the future showing the outputs of linked symbiotic sustainable commercial applications. The outputs of one process produce products to market and feed further viable commercial enterprises. The situations have zero waste, with all products of processes being utilised and recycled.



Results

No behavioural or welfare problems were recorded. There appeared to be no physical differences between groups

	Feed Conversion Ratio (FCR)	Total Feed per
Control	2.49	7.022
Local	2.43	7.057
Algae	2.38	6.914

