

The influence of farm characteristics and feed compositions on the environmental impact of pig production in Flanders: productivity, energy use and protein choices are key

Supplementary material

Table S1. Feed ingredients, selected processes and corresponding background databases.

Ingredient	Selected process	Database
Barley	Barley grain, dried, at farm/BE Economic	Agrifootprint v4.0
Oats	Oat grain, market mix, at regional storage/BE Economic	Agrifootprint v4.0
Wheat	Wheat grain, market mix, at regional storage/BE Economic	Agrifootprint v4.0
Maize (France)	Maize, market mix, at regional storage/FR Economic	Agrifootprint v4.0
	Transport, truck 10-20t, EURO5, 80%LF, default/GLO Economic	Agrifootprint v4.0
Wheat flakes	Maize flour, from dry milling, at plant/NL Economic	Agrifootprint v4.0
Wheat pollards	Wheat bran, from dry milling, at plant/BE Economic	Agrifootprint v4.0
Wheat bran	Wheat bran, from dry milling, at plant/BE Economic	Agrifootprint v4.0
Wheat gluten feed	Wheat gluten feed, from wet milling, at plant/BE Economic	Agrifootprint v4.0
Maize pellets	Maize flour, from dry milling, at plant/NL Economic	Agrifootprint v4.0
Maize germ meal	Maize germ meal extracted, consumption mix, at feed compound plant/NL Economic	Agrifootprint v4.0
DDGS	DDGS, dehydrated, from corn, animal feed, at plant/FR U	Agribalyse v1.3
Peas (France)	Pea, at farm/FR Economic	Agrifootprint v4.0
	Transport, truck 10-20t, EURO5, 80%LF, default/GLO Economic	Agrifootprint v4.0
Sugar beet pulp (France)	Sugar beet pulp, wet, from sugar production, at plant/FR Economic	Agrifootprint v4.0
	Transport, truck 10-20t, EURO5, 80%LF, default/GLO Economic	Agrifootprint v4.0
Sugar beet pulp (Belarus)	Sugar beet pulp, wet, from sugar production, at plant/PL Economic	Agrifootprint v4.0
	Transport, truck 10-20t, EURO5, 80%LF, default/GLO Economic	Agrifootprint v4.0
Sugar cane molasses	Sugar cane molasses, consumption mix, at feed compound plant/NL Economic	Agrifootprint v4.0
Sugar beet molasses	Sugar beet molasses, from sugar production, at plant/BE Economic	Agrifootprint v4.0
Danex (Brazil)	Soybean, at farm/BR Economic	Agrifootprint v4.0

	Soybean toasting, processing/FR U	Agribalyse v1.3
	Soybean extrusion, processing/FR U	Agribalyse v1.3
	Transport, sea ship, 80000 DWT, 80%LF, long, default/GLO Economic	Agrifootprint v4.0
Danex (Canada)	Soybean, at farm/CA Economic	Agrifootprint v4.0
	Soybean toasting, processing/FR U	Agribalyse v1.3
	Soybean extrusion, processing/FR U	Agribalyse v1.3
	Transport, sea ship, 80000 DWT, 80%LF, middle, default/GLO Economic	Agrifootprint v4.0
Bosoy (Brazil)	Soybean, at farm/BR Economic	Agrifootprint v4.0
	Soybean toasting, processing/FR U	Agribalyse v1.3
	Soybean extrusion, processing/FR U	Agribalyse v1.3
	Transport, sea ship, 80000 DWT, 80%LF, long, default/GLO Economic	Agrifootprint v4.0
Bosoy (Canada)	Soybean, at farm/CA Economic	Agrifootprint v4.0
	Soybean toasting, processing/FR U	Agribalyse v1.3
	Soybean extrusion, processing/FR U	Agribalyse v1.3
	Transport, sea ship, 80000 DWT, 80%LF, middle, default/GLO Economic	Agrifootprint v4.0
Soy Hipro (Argentina)	Soybean meal, from crushing (solvent), at plant/AR Economic	Agrifootprint, v4.0
	Transport, sea ship, 80000 DWT, 80%LF, long, default/GLO Economic	Agrifootprint, v4.0
Rapeseed meal (Germany)	Rapeseed meal, from crushing (solvent), at plant/DE Economic	Agrifootprint, v4.0
	Transport, truck 10-20t, EURO5, 80%LF, default/GLO Economic	Agrifootprint, v4.0
Rapeseed meal	Rapeseed meal, from crushing (solvent), at plant/BE Economic	Agrifootprint, v4.0
Sunflower seed meal	Sunflower seed meal, consumption mix, at feed compound plant/NL Economic	Agrifootprint, v4.0
Linseed	Linseed, at farm/BE Economic	Agrifootprint, v4.0
Palm kernel expeller	Palm kernel expeller, from crushing, at plant/MY Economic	Agrifootprint, v4.0
	Transport, sea ship, 80000 DWT, 80%LF, long, default/GLO Economic	Agrifootprint, v4.0
Oat husk meal	Oat husk meal, from dry milling, at plant/BE Economic	Agrifootprint, v4.0
Soybean hulls	Soybean hulls, consumption mix, at feed compound plant/NL Economic	Agrifootprint, v4.0
Mixed animal fat	Fat from animals, consumption mix, at feed compound plant/NL Economic	Agrifootprint, v4.0
Soy oil	Crude soybean oil, from crushing (solvent), at plant/NL Economic	Agrifootprint, v4.0
Palm oil	Palm oil, consumption mix, at feed compound plant/NL Economic	Agrifootprint, v4.0
Coconut oil	Crude coconut oil, from Philippines, at feed plant/FR U	Agribalyse v1.3

DL-Methionine	DL-Methionine, animal feed, at retailer gate/RER U	Agribalyse v1.3
L-Lysine HCl	L-Lysine HCl, animal feed, at retailer gate/FR U	Agribalyse v1.3
L-Threonine	L-Threonine, animal feed, at retailer gate/FR U	Agribalyse v1.3
L-Tryptofaan	Tryptophane, animal feed, at retailer gate/FR U	Agribalyse v1.3
L-Valine	Valine, animal feed, at retailer gate/FR U	Agribalyse v1.3
Biscuit meal	Biscuit meal, animal feed, at retailer gate/FR U	Agribalyse v1.3
Calcium carbonate	Calcium carbonate (<63µm), production/RER U	Agribalyse v1.3
Monocalcium phosphate	Monocalcium phosphate, animal feed, at retailer gate/FR U	Agribalyse v1.3
Salt	Sodium chloride, animal feed, at retailer gate/FR U	Agribalyse v1.3
Sodium bicarbonate	Sodium bicarbonate, animal feed, at retailer gate/RER U	Agribalyse v1.3
Bigromin Cazo	Mixture of minerals, trace elements, vitamins and other feed additives.	Agrifootprint, v4.0 Agribalyse v1.3
Porstimin Cazo	Mixture of minerals, trace elements, vitamins and other feed additives.	Agrifootprint, v4.0 Agribalyse v1.3
BrightSow Dracht	Mixture of minerals, trace elements, vitamins and other feed additives.	Agrifootprint, v4.0 Agribalyse v1.3
BrightSow Lacto	Mixture of minerals, trace elements, vitamins and other feed additives.	Agrifootprint, v4.0 Agribalyse v1.3
BrightSpeen	Mixture of whey powder, potato protein, soybean products, synthetic amino acids, organic acids, minerals and vitamins	Agrifootprint, v4.0 Agribalyse v1.3
BrightStart	Mixture of whey powder, wheat products, potato protein, organic acids, minerals, synthetic amino acids and vitamins	Agrifootprint, v4.0 Agribalyse v1.3
BrightGroeï	Mixture of whey powder, potato protein, wheat grain, organic acids, minerals, synthetic amino acids and vitamins	Agrifootprint, v4.0 Agribalyse v1.3
Prolacto LP	Mixture of whey based products, potato protein, vegetable oils, soybean products, organic acids and feed additives.	Agrifootprint, v4.0 Agribalyse v1.3

Table S2. Feed conversion efficiencies, number of pigs produced per sow and resulting productivity of the studied pig production farms.

	Feed conversion efficiency	Number of pigs produced per sow	Productivity
Farm 1	0.32	22.88	7.37
Farm 2	0.35	30.47	10.74
Farm 3	0.35	30.56	10.82
Farm 4	0.34	29.02	9.96
Farm 5	0.35	27.42	9.60
Farm 6	0.34	27.38	9.39
Farm 7	0.38	28.50	10.73
Farm 8	0.34	22.33	7.48
Farm 9	0.37	32.36	11.95
Farm 10	0.31	17.12	5.36
Farm 11	0.34	22.42	7.73
Farm 12	0.35	20.70	7.23
Farm 13	0.37	25.86	9.45
Farm 14	0.36	19.67	7.01
Farm 15	0.34	24.20	8.20
Farm 16	0.35	20.59	7.17
Farm 17	0.31	22.30	7.00
Farm 18	0.38	31.66	12.04
Farm 19	0.35	24.33	8.63
Farm 20	0.34	23.67	8.05
Farm 21	0.33	29.72	9.89
Farm 22	0.38	32.62	12.46
Farm 23	0.36	28.04	10.01
Farm 24	0.38	29.70	11.32
Farm 25	0.31	27.00	8.31
Farm 26	0.34	28.17	9.65
Farm 27	0.32	24.26	7.69
Farm 28	0.33	20.58	6.69
Farm 29	0.38	28.43	10.72
Farm 30	0.36	26.58	9.68
Farm 31	0.37	31.24	11.62
Farm 32	0.37	28.01	10.32
Farm 33	0.32	19.96	6.38
Farm 34	0.31	17.88	5.61
Farm 35	0.40	27.41	10.99
Farm 36	0.33	23.38	7.76
Farm 37	0.34	29.30	10.00
Farm 38	0.34	27.22	9.37
Farm 39	0.34	23.38	8.04