Supplementary material

Table S1. Adult fly housing, temperature, relative humidity, and oviposition substrate of the 53 described egg production systems relying on adult colonies.

Source	Adult fly housing	Temperature *°C*	Rel. humidity *%*	Oviposition substrate
[1]	BugDorms®	26±0.5	60-70	-
[2]	cages	28	70	-
[3]	cages	-	-	-
[3]	cages	-	-	-
[3]	cages	-	-	-
[3]	cages	-	-	-
[4]	wooden cages with wire mesh on sides in greenhouse	25-30	50	Gainesville House Fly Diet
[4]	wooden cages with wire mesh on sides in greenhouse	25-30	50	Gainesville House Fly Diet
[4]	wooden cages with wire mesh on sides in greenhouse	25-30	50	Gainesville House Fly Diet
[4]	wooden cages with wire mesh on sides in greenhouse	25-30	50	Gainesville House Fly Diet
[4]	wooden cages with wire mesh on sides in greenhouse	25-30	50	Gainesville House Fly Diet
[4]	wooden cages with wire mesh on sides in greenhouse	25-30	50	Gainesville House Fly Diet
[5]	wooden cages with wire mesh on sides in greenhouse	25	>50	Gainesville House Fly Diet
[5]	wooden cages with wire mesh on sides in greenhouse	25	>50	Gainesville House Fly Diet
[5]	wooden cages with wire mesh on sides in greenhouse	25	>50	Gainesville House Fly Diet
[6]	greenhouse	27	60-70	-
[6]	greenhouse	27	60-70	-
[6]	greenhouse	27	60-70	-
[6]	greenhouse	27	60-70	-
[6]	greenhouse	27	60-70	-
[6]	greenhouse	27	60-70	-
[7]	greenhouse	27	60-70	-
[7]	greenhouse	27	60-70	-
[7]	greenhouse	27	60-70	-
[7]	greenhouse	27	60-70	-
[7]	greenhouse	27	60-70	-

[7]	greenhouse	27	60-70	-
[8]	greenhouse	27	60-70	-
[8]	greenhouse	27	60-70	-
[8]	greenhouse	27	60-70	-
[8]	greenhouse	27	60-70	-
[8]	greenhouse	27	60-70	-
[8]	greenhouse	27	60-70	-
[8]	greenhouse	27	60-70	-
[9,10]	cages in a poultry barn and outdoors	-	-	residues from larvae rearing
[11]	double-net-systems	-	-	-
[11]	double-net-systems	-	-	-
[11]	double-net-systems	-	-	-
[11]	double-net-systems	-	-	-
[12]	outdoors in metal cages with screen mesh	28±5	-	spent grain
[13]	greenhouse	28	70	-
[13]	greenhouse	28	70	-
[13]	greenhouse	28	70	-
[14]	greenhouse	-	-	chicken manure
[15]	greenhouse	-	-	chicken manure
[15]	greenhouse	-	-	chicken manure
[15]	greenhouse	-	-	chicken manure
[15]	greenhouse	-	-	chicken manure
[15]	greenhouse	-	-	chicken manure
[15]	greenhouse	-	-	chicken manure
[15]	greenhouse	-	-	chicken manure
[15]	greenhouse	-	-	chicken manure
[15]	greenhouse	-	-	chicken manure

Table S2. Nursing substrate, temperature, relative humidity, means of climate control, and nursing period of the 55 described larvae nursing systems.

Source	Nursing substrate	Temperature *°C*	Rel. humidity *%*	Means of climate control	Nursing period *d*
[16,17]	wheat bran	28±1.2	-	Incubation on perforated screen	-
[16,17]	wheat bran	28±1.2	-	Incubation on perforated screen	-
[16,17]	wheat bran	28±1.2	-	Incubation on perforated screen	-
[16,17]	wheat bran	28±1.2	-	Incubation on perforated screen	-
[16,17]	wheat bran	28±1.2	-	Incubation on perforated screen	-
[6]	standard colony diet	27	60-70	Greenhouse	6
[6]	standard colony diet	27	60-70	Greenhouse	6
[6]	standard colony diet	27	60-70	Greenhouse	6
[6]	standard colony diet	27	60-70	Greenhouse	6
[6]	standard colony diet	27	60-70	Greenhouse	6
[6]	standard colony diet	27	60-70	Greenhouse	6
[6]	standard colony diet	27	60-70	Greenhouse	6
[7]	standard colony diet	27	60-70	Greenhouse	6
[7]	standard colony diet	27	60-70	Greenhouse	6
[7]	standard colony diet	27	60-70	Greenhouse	6
[7]	standard colony diet	27	60-70	Greenhouse	6
[7]	standard colony diet	27	60-70	Greenhouse	6
[7]	standard colony diet	27	60-70	Greenhouse	6
[18]	poultry feed	-	-	-	10
[2]	poultry feed	28	70	Climate chamber	12-14
[1]	Gainesville House Fly Diet	26±0.5	60-70	-	-
[15]	Gainesville House Fly Diet	28	75	Greenhouse	6
[15]	Gainesville House Fly Diet	28	75	Greenhouse	6
[15]	Gainesville House Fly Diet	28	75	Greenhouse	6
[15]	Gainesville House Fly Diet	28	75	Greenhouse	6
[15]	Gainesville House Fly Diet	28	75	Greenhouse	6
[15]	Gainesville House Fly Diet	28	75	Greenhouse	6
[15]	Gainesville House Fly Diet	28	75	Greenhouse	6
[15]	Gainesville House Fly Diet	28	75	Greenhouse	6
[15]	Gainesville House Fly Diet	28	75	Greenhouse	6
[4]	Gainesville House Fly Diet	29	60	Rheem Environmental Chamber	4

[4]	Gainesville House Fly Diet	29	60	Rheem Environmental Chamber	4
[4]	Gainesville House Fly Diet	29	60	Rheem Environmental Chamber	4
[4]	Gainesville House Fly Diet	29	60	Rheem Environmental Chamber	4
[4]	Gainesville House Fly Diet	29	60	Rheem Environmental Chamber	4
[4]	Gainesville House Fly Diet	29	60	Rheem Environmental Chamber	4
[5]	Gainesville House Fly Diet	29	60	Rheem Environmental Chamber	4
[5]	Gainesville House Fly Diet	29	60	Rheem Environmental Chamber	4
[5]	Gainesville House Fly Diet	29	60	Rheem Environmental Chamber	4
[14]	diet based on bran	28	60-70	Greenhouse	6
[19]	30% wheat bran and wheat flour; 70% water	28	70	-	7
[11]	30 % compound feed for laying hens; 70% water	28	60	Climate cabinet	5
[11]	30 % compound feed for laying hens; 70% water	28	60	Climate cabinet	5
[11]	30 % compound feed for laying hens; 70% water	28	60	Climate cabinet	5
[11]	30 % compound feed for laying hens; 70% water	28	60	Climate cabinet	
[8]	25% wheat bran; 75% water	27	60-70	Greenhouse	6
[8]	25% wheat bran; 75% water	27	60-70	Greenhouse	6
[8]	25% wheat bran; 75% water	27	60-70	Greenhouse	6
[8]	25% wheat bran; 75% water	27	60-70	Greenhouse	6
[8]	25% wheat bran; 75% water	27	60-70	Greenhouse	6
[8]	25% wheat bran; 75% water	27	60-70	Greenhouse	6
[8]	25% wheat bran; 75% water	27	60-70	Greenhouse	6
[20]	20% wheat bran; 80% water	30	80	Climate chamber	7
[21]	-	28	70	Climate chamber	1

[21]	-	28	70	Climate chamber	1
[21]	-	28	70	Climate chamber	1

Table S3. Harvest stage, temperature and relative humidity, utilized rearing devices, development time, and harvesting process steps of the 75 reviewed larvae rearing systems.

Source	Harvest stage	Temperature *°C*	Rel. humidity *%*	Rearing devices	Development time *days*	Harvesting process steps			
						Separation	Purging	Cleaning	Killing
[1]	prepupal stage	27±0.5	80-90	glass containers	-	manually	-	-	freezing
[16,17]	at emergence of first prepupae	28±1.4	64±3	plastic containers	14	manually	-	water	drying chamber
[16,17]	at emergence of first prepupae	28±1.3	64±3	plastic containers	15.3	manually	-	water	drying chamber
[16,17]	at emergence of first prepupae	28±1.2	64±3	plastic containers	18.3	manually	-	water	drying chamber
[16,17]	at emergence of first prepupae	28±1.5	64±3	plastic containers	19.7	manually	-	water	drying chamber
[16,17]	at emergence of first prepupae	28±1.6	64±3	plastic containers	22	manually	-	water	drying chamber
[2]	after 9 days	28	70	plastic containers	9	manually with forceps	-	water	freezing
[3]	-	27±2	65±5	plastic cups	21.4	-	-	-	-
[3]	-	27±2	65±5	plastic cups	22.6	-	-	-	-
[3]	-	27±2	65±5	plastic cups	24.8	-	-	-	-
[3]	-	27±2	65±5	plastic cups	26	-	-	-	-
[18]	when all larvae turned into prepupae	28	-	plastic containers	14-19	manually with forceps	-	water	drying chamber
[22]	-	26±1	60	-	11	-	-	-	microwave oven
[23]	-	27	60-75	open barrel	21	manually with forceps	-	water	drying chamber
[4]	prepupal stage	29	60	plastic containers	11.3	manually	-	-	freezing
[4]	prepupal stage	29	60	plastic containers	11.6	manually	-	-	freezing
[4]	prepupal stage	29	60	plastic containers	15.6	manually	-	-	freezing
[4]	prepupal stage	29	60	plastic containers	16.7	manually	-	-	freezing

[4]	prepupal stage	29	60	plastic containers	18.6	manually	-	-	freezing
[4]	prepupal stage	29	60	plastic containers	20.3	manually	-	-	freezing
[5]	when 40% of the larvae turned into prepupae	29	60	plastic containers	14	-	-	-	-
[5]	when 40% of the larvae turned into prepupae	29	60	plastic containers	15	-	-	-	-
[5]	when 40% of the larvae turned into prepupae	29	60	plastic containers	16	-	-	-	-
[21]	at emergence of first prepupae	28	70	plastic containers	144	manually with forceps	-	water	freezing
[21]	at emergence of first prepupae	28	70	plastic containers	144	manually with forceps	-	water	freezing
[21]	at emergence of first prepupae	28	70	plastic containers	214	manually with forceps	-	water	freezing
[19]	-	27±0.5	70±5	plastic crates	8.6	-	-	-	freezing
[24]	at emergence of first prepupae	28	70	plastic containers	8.6	manually	-	water	freezing
[24]	at emergence of first prepupae	28	70	plastic containers	8.6	manually	15h	water	freezing
[24]	at emergence of first prepupae	28	70	plastic containers	8.6	manually	15h	water	freezing
[25]	-	26	75	plastic containers	10	-	-	-	-
[25]	-	26	75	plastic containers	10	-	-	-	-
[25]	-	26	75	plastic containers	10	-	-	-	-
[6]	at emergence of first prepupae	27	60-70	plastic containers	18.3	manually with forceps	-	water	drying chamber
[6]	at emergence of first prepupae	27	60-70	plastic containers	18.6	manually with forceps	-	water	drying chamber
[6]	at emergence of first prepupae	27	60-70	plastic containers	20.2	manually with forceps	-	water	drying chamber

[6]	at emergence of first prepupae	27	60-70	plastic containers	20.9	manually with forceps	-	water	drying chamber
[6]	at emergence of first prepupae	27	60-70	plastic containers	21.4	manually with forceps	-	water	drying chamber
[6]	at emergence of first prepupae	27	60-70	plastic containers	22	manually with forceps	-	water	drying chamber
[7]	at emergence of first prepupae	27	60-70	plastic containers	19.4	manually with forceps	-	water	drying chamber
[7]	at emergence of first prepupae	27	60-70	plastic containers	20.6	manually with forceps	-	water	drying chamber
[7]	at emergence of first prepupae	27	60-70	plastic containers	21.1	manually with forceps	-	water	drying chamber
[7]	at emergence of first prepupae	27	60-70	plastic containers	21.1	manually with forceps	-	water	drying chamber
[7]	at emergence of first prepupae	27	60-70	plastic containers	22.5	manually with forceps	-	water	drying chamber
[7]	at emergence of first prepupae	27	60-70	plastic containers	24.3	manually with forceps	-	water	drying chamber
[8]	-	27	60-70	plastic containers	19	manually with forceps	-	water	drying chamber
[8]	-	27	60-70	plastic containers	19	manually with forceps	-	water	drying chamber
[8]	-	27	60-70	plastic containers	19.3	manually with forceps	-	water	drying chamber
[8]	-	27	60-70	plastic containers	19.8	manually with forceps	-	water	drying chamber
[8]	-	27	60-70	plastic containers	19.9	manually with forceps	-	water	drying chamber
[8]	-	27	60-70	plastic containers	20.5	manually with forceps	-	water	drying chamber
[8]	-	27	60-70	plastic containers	20.9	manually with forceps	-	water	drying chamber
[9,10]	after 8 days	-	-	mesh-covered metal trays	8	sieving	12h in sawdust	water	gas oven
[11]	at emergence of first prepupae	28	50	plastic containers	16	manually	-	water	freezing
[11]	at emergence of first prepupae	28	50	plastic containers	16	manually	-	water	freezing

[11]	at emergence of first prepupae	28	50	plastic containers	17	manually	-	water	freezing
[11]	at emergence of first prepupae	28	50	plastic containers	17	manually	-	water	freezing
[12]	-	28±2	65±5	metallic containers	-	-	-	water	gas oven
[26]	-	-	-	-	-	-	-	-	freezing
[26]	-	-	-	-	-	-	-	-	freezing
[27]	-	27.7±1.8	-	plastic containers	-	-	-	-	-
[13]	-	28	70	perti dishes	23.4	-	-	-	-
[13]	-	28	70	perti dishes	23.6	-	-	-	-
[13]	-	28	70	perti dishes	24.8	-	-	-	-
[14]	-	-	-	cement pool	13	-	-	-	-
[20]	-	30±2	60-80	plastic containers	10	sieving	48h	-	microwave oven
[15]	-	28	75	plastic containers	10.5	-	-	-	-
[15]	-	28	75	plastic containers	10.5	-	-	-	-
[15]	-	28	75	plastic containers	10.5	-	-	-	-
[15]	-	28	75	plastic containers	10.5	-	-	-	-
[15]	-	28	75	plastic containers	10.5	-	-	-	-
[15]	-	28	75	plastic containers	10.5	-	-	-	-
[15]	-	28	75	plastic containers	10.5	-	-	-	-
[15]	-	28	75	plastic containers	10.5	-	-	-	-
[15]	-	28	75	plastic containers	10.5	-	-	-	-

Table S4. Components and nutritional composition of the feed substrates used in the 75 reviewed BSFL production systems.

Source	Group[a]	Components (C)					Nutritional composition					
		C1	Share of C1	C2	Share of C2	Water[b]	DM[c]	TOC[d]	N	P	K	GE[e]
			%		*%*	*%*	*%*	*% of DM*	*% of DM*	*% of DM*	*% of DM*	*MJ kg DM^{-1}*
[4]	1	chicken manure	100	-	-	-	22.8	-	2.4	2.4	2.4	-
[4]	1	chicken manure	100	-	-	-	22.8	-	2.4	2.4	2.4	-
[5]	1	chicken manure	100	-	-	-	22.8	40.2	3.5	2.3	-	-
[4]	1	chicken manure	100	-	-	-	23.0	-	-	-	-	-
[6]	1	chicken manure	80	cattle manure	20	-	23.2	41.4	3.3	2.0	-	-
[6]	1	chicken manure	60	cattle manure	40	-	23.5	42.7	3.0	1.6	-	-
[8]	1	chicken manure	60	cattle manure	40	-	23.9	-	4.1	-	-	-
[8]	1	chicken manure	60	cattle manure	40	-	23.9	-	4.1	-	-	-
[8]	1	chicken manure	60	cattle manure	40	-	23.9	-	4.1	-	-	-
[8]	1	chicken manure	60	cattle manure	40	-	23.9	-	4.1	-	-	-
[8]	1	chicken manure	60	cattle manure	40	-	23.9	-	4.1	-	-	-
[8]	1	chicken manure	60	cattle manure	40	-	23.9	-	4.1	-	-	-
[8]	1	chicken manure	60	cattle manure	40	-	23.9	-	4.1	-	-	-
[14]	1	chicken manure	100	-	-	-	24.0	-	-	-	-	-
[16,17]	1	chicken manure	100	-	-	-	25.2	31.3	3.8	-	-	-
[13]	1	chicken manure	100	-	-	-	30.0	-	-	-	-	-

[18]	1	chicken manure	100	-	-	-	31.2	-	3.6	-	-	-
[16,17]	1	chicken manure	90	canola straw	10	-	31.9	32.6	3.5	-	-	-
[16,17]	1	chicken manure	80	canola straw	20	-	38.7	34.0	3.2	-	-	-
[11]	1	chicken manure	100	-	-	-	39.9	38.1	7.4	-	-	-
[11]	1	chicken manure	100	-	-	-	39.9	38.1	7.4	-	-	-
[11]	1	chicken manure	100	-	-	-	39.9	38.1	7.4	-	-	-
[11]	1	chicken manure	100	-	-	-	39.9	38.1	7.4	-	-	-
[1]	1	chicken manure	34.5	coarse chabazite	7.2	58.3	41.7	-	5.0	2.0	14.1	-
[16,17]	1	chicken manure	70	canola straw	30	-	45.4	35.3	2.9	-	-	-
[16,17]	1	chicken manure	60	canola straw	40	-	52.2	36.6	2.5	-	-	-
[22]	1	dried food waste	40	chicken manure	60	-	89.5	-	5.7	-	-	-
[21]	1	dried chicken manure	33.3	-	-	66.7	33.3	-	4.8	1.2	-	-
[26]	1	chicken manure	100	-	-	-	-	-	-	-	-	-
[15]	1	chicken manure	100	-	-	-	-	-	-	-	-	-
[15]	1	chicken manure	100	-	-	-	-	-	-	-	-	-
[15]	1	chicken manure	100	-	-	-	-	-	-	-	-	-
[27]	1	chicken manure	100	-	-	-	-	-	-	-	-	-
[12]	1	chicken manure	100	-	-	-	67.5	-	2.4	1.0	1.7	-
[2]	2	cattle manure	100	-	-	-	13.0	46.9	1.8	-	-	-

[4]	2	dairy manure	100	-	-	-	16.1	-	2.1	0.7	0.6	-
[4]	2	dairy manure	100	-	-	-	16.1	-	2.1	0.7	0.6	-
[5]	2	dairy manure	100	-	-	-	17.0	-	-	-	-	-
[7]	2	cattle manure	60	soybean curd residues	40	-	20.0	48.9	2.8	0.5	-	-
[7]	2	cattle manure	80	soybean curd residues	20	-	20.8	47.8	2.6	0.6	-	-
[7]	2	cattle manure	100	-	-	-	21.6	46.7	2.4	0.7	-	-
[7]	2	cattle manure	60	chicken manure	40	-	23.9	43.9	2.7	1.3	-	-
[6]	2	cattle manure	80	chicken manure	20	-	24.2	45.1	2.4	1.0	-	-
[6]	2	cattle manure	100	-	-	-	24.5	46.4	2.1	0.7	-	-
[13]	2	cattle manure	100	-	-	-	30.0	-	-	-	-	-
[21]	2	dried cattle manure	33.3	-	-	66.7	33.3	-	2.7	0.6	-	-
[23]	2	cattle manure	100	-	-	-	46.5	-	1.7	-	-	-
[26]	2	cattle manure	100	-	-	-	-	-	-	-	-	-
[15]	2	cattle manure	100	-	-	-	-	-	-	-	-	-
[15]	2	cattle manure	100	-	-	-	-	-	-	-	-	-
[15]	2	cattle manure	100	-	-	-	-	-	-	-	-	-
[19]	3	pig manure	100	-	-	-	24.4	44.8	3.4	2.2	1.8	18.6
[24]	3	pig manure	100	-	-		24.8	-	2.6	-	-	-
[19]	3	pig manure	99.9	NH_4Cl	0.1		24.8	-	2.6	-	-	-
[19]	3	pig manure	99.9	NH_4Cl	0.1		24.8	-	2.6	-	-	-

[4]	3	pig manure	100	-	-	-	26.1	-	2.1	2.4	-	-
[4]	3	pig manure	100	-	-	-	26.1	-	2.1	2.4	-	-
[5]	3	pig manure	100	-	-	-	28.0	-	-	-	-	-
[13]	3	pig manure	100	-	-	-	30.0	-	-	-	-	-
[20]	3	pig manure	100	-	-	-	30.0	-	1.8	1.2	1.5	-
[21]	3	dried pig manure	33.3	-	-	66.7	33.3	-	2.6	2.6	-	-
[15]	3	pig manure	100	-	-	-	-	-	-	-	-	-
[15]	3	pig manure	100	-	-	-	-	-	-	-	-	-
[15]	3	pig manure	100	-	-	-	-	-	-	-	-	-
[25]	3	pig manure	100	-	-	-	27.5	-	-	-	-	-
[25]	3	pig manure	100	-	-	-	27.5	-	-	-	-	-
[25]	3	pig manure	100	-	-	-	27.5	-	-	-	-	-
[3]	4	horse manure	50	vegetable waste	50	-	88.1	-	2.2	0.7	-	13.7
[3]	4	horse manure	100	-	-	-	91.0	-	1.6	0.6	-	14.9
[3]	5	sheep manure	50	vegetable waste	50	-	89.6	-	2.6	0.6	-	13.7
[3]	5	sheep manure	100	-	-	-	90.8	-	2.1	0.4	-	14.5
[7]	6	soybean curd residues	100	cattle manure	0	-	17.7	52.1	3.4	0.3	-	-
[7]	6	soybean curd residues	80	cattle manure	20	-	18.5	51.0	3.2	0.4	-	-
[7]	6	soybean curd residues	60	cattle manure	40	-	19.3	49.9	3.0	0.5	-	-
[9,10]	6	fresh brewery waste	34	chicken manure	24	42	35.2	-	-	-	-	10.2

[a] Feed substrate group. 1 = chicken manure, 2 = cattle manure, 3 = pig manure, 4 = horse manure, 5 = sheep manure, and 6 = others.
[b] Auxiliary water that was added regardless of the water contents of the different feed substrate components.

[c] DM = Dry matter.
[d] TOC = Total organic carbon.
[e] GE = Gross energy.

Table S5. General feed substrate composition and preparation steps reported in the reviewed BSFL production studies.

Source	General composition			Feed substrate preparation steps		
	Single manure	Multi manure mixture	Manure/ waste mixture	Preparation step 1	Preparation step 2	Preparation step 3
[2]	x			blending	-	-
[4]	x			homogenization by hand	-	-
[5]	x			homogenization by hand	-	-
[21]	x			oven-drying at 60°C	grinding	mixing with tap water
[24]	x			mixing with NH_4Cl	-	-
[12]	x			sprinkling with water	-	-
[6]		x		mixing the manures	-	-
[8]		x		mixing the manures	inoculation of bacterial strain	-
[1]			x	drying at 105°C for 12h	grinding	mixing with tap water
[16,17]			x	milling and sieving of Canola straw	mixing the substrates	-
[22]			x	mixing the substrates	-	-
[7]			x	mixing the substrates	-	-

Table S6. Dry matter reduction, waste reduction index, feed conversion efficiency, bioconversion rate, and nitrogen reduction of the reviewed BSFL production systems.

Source	Group[a]	DMR[b] *(%)*	WRI[c]	FCE[d] *(%)*	BCR[e] *(%)*	N reduction *(%)*
[1]	1	75.7	-	-	-	53.3
[16,17]	1	35.9	1.6	14.5	-	-
[16,17]	1	38.4	1.9	18.8	-	-
[16,17]	1	42.3	2.3	19.5	-	-
[16,17]	1	42.8	2.8	21.7	-	-
[16,17]	1	43.7	3.1	22.2	-	-
[18]	1	60.0	-	-	-	-
[22]	1	-	-	-	-	-
[4]	1	46.0	-	-	1.8	-
[4]	1	46.0	-	-	2.8	-
[5]	1	-	-	-	-	-
[21]	1	36.7	0.3	3.4	3.3	82.1
[6]	1	43.2	2.0	-	4.2	53.5
[6]	1	52.1	2.6	-	7.9	56.9
[6]	1	49.1	2.4	-	6.9	62.1
[8]	1	42.0	-	16.3	6.8	-
[8]	1	34.5	-	23.8	7.1	-
[8]	1	41.8	-	19.3	8.1	-
[8]	1	45.5	-	19.6	8.9	-
[8]	1	42.3	-	21.6	9.1	-
[8]	1	47.3	-	20.1	9.5	-
[8]	1	48.8	-	22.2	10.8	-
[11]	1	34.4	2.0	-	6.7	-
[11]	1	37.5	2.3	-	6.9	-
[11]	1	36.6	2.3	-	7.0	-
[11]	1	35.9	2.1	-	8.5	-
[14]	1	35.8	-	-	8.0	-
[15]	1	28.8	-	-	-	22.1
[15]	1	53.4	-	-	-	31.8
[15]	1	49.7	-	-	-	56.8
[2]	2	12.7	-	29.5	3.8	-
[23]	2	53.0	2.5	-	12.2	56.5
[4]	2	48.0	-	-	2.1	-
[4]	2	48.0	-	-	3.1	-
[5]	2	-	-	-	-	-

[21]	2	36.8	0.2	2.9	3.0	30.0
[6]	2	44.3	2.1	-	5.9	58.6
[6]	2	55.0	3.0	-	9.9	63.8
[6]	2	53.4	2.9	-	7.9	69.0
[7]	2	25.8	-	-	6.3	31.0
[7]	2	56.6	-	-	14.2	55.0
[7]	2	36.5	-	-	14.8	66.0
[15]	2	56.8	-	-	-	25.8
[15]	2	31.8	-	-	-	49.9
[15]	2	61.7	-	-	-	50.6
[4]	3	33.0	-	-	5.6	-
[4]	3	33.0	-	-	6.6	-
[21]	3	37.7	0.3	4.5	4.1	36.7
[19]	3	22.2	2.6	47.1	12.4	47.2
[24]	3	-	-	-	12.1	46.0
[24]	3	23.1	2.7	58.1	13.9	48.0
[24]	3	22.5	2.6	60.8	14.1	-
[25]	3	45.0	4.5	27.3	13.8	-
[25]	3	52.8	5.3	25.6	15.0	-
[25]	3	64.4	6.4	24.4	17.2	-
[15]	3	34.6	-	-	-	47.9
[15]	3	53.6	-	-	-	51.8
[15]	3	57.8	-	-	-	53.2
[3]	4	-	-	-	1.6	-
[3]	4	-	-	-	2.1	-
[3]	5	-	-	-	0.9	-
[3]	5	-	-	-	1.8	-
[7]	6	32.4	-	-	9.8	33.0
[7]	6	72.4	-	-	11.8	42.0
[7]	6	68.3	-	-	15.2	69.0
[9,10]	6	25.6	3.2	-	10.5	-

[a] Feed substrate group. 1 = chicken manure, 2 = cattle manure, 3 = pig manure, 4 = horse manure, 5 = sheep manure, and 6 = others.
[b] DMR = dry matter reduction.
[c] WRI = waste reduction index.
[d] FCE = feed conversion efficiency
[e] BCR = bioconversion rate.

References

1. Bortolini, S.; Macavei, L.I.; Hadj Saadoun, J.; Foca, G.; Ulrici, A.; Bernini, F.; Malferrari, D.; Setti, L.; Ronga, D.; Maistrello, L. Hermetia Illucens (L.) Larvae as Chicken Manure Management Tool for Circular Economy. *J Clean Prod* **2020**, *262*, doi:10.1016/j.jclepro.2020.121289.
2. Gold, M.; Cassar, C.M.; Zurbrügg, C.; Kreuzer, M.; Boulos, S.; Diener, S.; Mathys, A. Biowaste Treatment with Black Soldier Fly Larvae: Increasing Performance through the Formulation of Biowastes Based on Protein and Carbohydrates. *Waste Management* **2020**, *102*, 319–329, doi:10.1016/j.wasman.2019.10.036.
3. Julita, U.; Suryani, Y.; Kinasih, I.; Yuliawati, A.; Cahyanto, T.; Maryeti, Y.; Permana, A.D.; Fitri, L.L. Growth Performance and Nutritional Composition of Black Soldier Fly, Hermetia Illucens (L), (Diptera : Stratiomyidae) Reared on Horse and Sheep Manure. *IOP Conf. Ser. Earth Environ. Sci.* **2018**, *187*, 012071.
4. Miranda, C.D.; Cammack, J.A.; Tomberlin, J.K. Life-History Traits of the Black Soldier Fly, Hermetia Illucens (L.) (Diptera: Stratiomyidae), Reared on Three Manure Types. *Animals* **2019**, *9*, doi:10.3390/ani9050281.
5. Miranda, C.D.; Cammack, J.A.; Tomberlin, J.K. Mass Production of the Black Soldier Fly, Hermetia Illucens (L.), (Diptera: Stratiomyidae) Reared on Three Manure Types. *Animals* **2020**, *10*, 1–11, doi:10.3390/ani10071243.
6. ur Rehman, K.; Cai, M.; Xiao, X.; Zheng, L.; Wang, H.; Soomro, A.A.; Zhou, Y.; Li, W.; Yu, Z.; Zhang, J. Cellulose Decomposition and Larval Biomass Production from the Co-Digestion of Dairy Manure and Chicken Manure by Mini-Livestock (Hermetia Illucens L.). *J Environ Manage* **2017**, *196*, 458–465, doi:10.1016/j.jenvman.2017.03.047.
7. ur Rehman, K.; Rehman, A.; Cai, M.; Zheng, L.; Xiao, X.; Somroo, A.A.; Wang, H.; Li, W.; Yu, Z.; Zhang, J. Conversion of Mixtures of Dairy Manure and Soybean Curd Residue by Black Soldier Fly Larvae (Hermetia Illucens L.). *J Clean Prod* **2017**, *154*, 366–373, doi:10.1016/j.jclepro.2017.04.019.
8. ur Rehman, K.; ur Rehman, R.; Somroo, A.A.; Cai, M.; Zheng, L.; Xiao, X.; ur Rehman, A.; Rehman, A.; Tomberlin, J.K.; Yu, Z.; et al. Enhanced Bioconversion of Dairy and Chicken Manure by the Interaction of Exogenous Bacteria and Black Soldier Fly Larvae. *J Environ Manage* **2019**, *237*, 75–83, doi:10.1016/j.jenvman.2019.02.048.
9. Roffeis, M.; Almeida, J.; Wakefield, M.E.; Valada, T.R.A.; Devic, E.; Koné, N.; Kenis, M.; Nacambo, S.; Fitches, E.C.; Koko, G.K.D.; et al. Life Cycle Inventory Analysis of Prospective Insect Based Feed Production in West Africa. *Sustainability (Switzerland)* **2017**, *9*, doi:10.3390/su9101697.
10. Roffeis, M.; Fitches, E.C.; Wakefield, M.E.; Almeida, J.; Alves Valada, T.R.; Devic, E.; Koné, N.G.; Kenis, M.; Nacambo, S.; Koko, G.K.D.; et al. Ex-Ante Life Cycle Impact Assessment of Insect Based Feed Production in West Africa. *Agric Syst* **2020**, *178*, doi:10.1016/j.agsy.2019.102710.
11. Sandrock, C.; Leupi, S.; Wohlfahrt, J.; Kaya, C.; Heuel, M.; Terranova, M.; Blanckenhorn, W.U.; Windisch, W.; Kreuzer, M.; Leiber, F. Genotype-by-Diet Interactions for Larval Performance and Body Composition Traits in the Black Soldier Fly, Hermetia Illucens. *Insects* **2022**, *13*, doi:10.3390/insects13050424.

12. Shumo, M.; Osuga, I.M.; Khamis, F.M.; Tanga, C.M.; Fiaboe, K.K.M.; Subramanian, S.; Ekesi, S.; van Huis, A.; Borgemeister, C. The Nutritive Value of Black Soldier Fly Larvae Reared on Common Organic Waste Streams in Kenya. *Sci Rep* **2019**, *9*, doi:10.1038/s41598-019-46603-z.
13. Wang, S.Y.; Wu, L.; Li, B.; Zhang, D. Reproductive Potential and Nutritional Composition of Hermetia Illucens (Diptera: Stratiomyidae) Prepupae Reared on Different Organic Wastes. *J Econ Entomol* **2020**, *113*, 527–537, doi:10.1093/jee/toz296.
14. Xiao, X.; Mazza, L.; Yu, Y.; Cai, M.; Zheng, L.; Tomberlin, J.K.; Yu, J.; van Huis, A.; Yu, Z.; Fasulo, S.; et al. Efficient Co-Conversion Process of Chicken Manure into Protein Feed and Organic Fertilizer by Hermetia Illucens L. (Diptera: Stratiomyidae) Larvae and Functional Bacteria. *J Environ Manage* **2018**, *217*, 668–676, doi:10.1016/j.jenvman.2018.03.122.
15. Zhou, F.; Tomberlin, J.K.; Zheng, L.; Yu, Z.; Zhang, J. Developmental and Waste Reduction Plasticity of Three Black Soldier Fly Strains (Diptera: Stratiomyidae) Raised on Different Livestock Manures. *J Med Entomol* **2013**, *50*, 1224–1230, doi:10.1603/ME13021.
16. Elsayed, M.; Li, W.; Abdalla, N.S.; Ai, P.; Zhang, Y.; Abomohra, A.E.F. Innovative Approach for Rapeseed Straw Recycling Using Black Solider Fly Larvae: Towards Enhanced Energy Recovery. *Renew Energy* **2022**, *188*, 211–222, doi:10.1016/j.renene.2022.02.029.
17. Elsayed, M.; Ran, Y.; Ai, P.; Azab, M.; Mansour, A.; Jin, K.; Zhang, Y.; Abomohra, A.E.F. Innovative Integrated Approach of Biofuel Production from Agricultural Wastes by Anaerobic Digestion and Black Soldier Fly Larvae. *J Clean Prod* **2020**, *263*, doi:10.1016/j.jclepro.2020.121495.
18. Lalander, C.; Diener, S.; Zurbrügg, C.; Vinnerås, B. Effects of Feedstock on Larval Development and Process Efficiency in Waste Treatment with Black Soldier Fly (Hermetia Illucens). *J Clean Prod* **2019**, *208*, 211–219, doi:10.1016/j.jclepro.2018.10.017.
19. Parodi, A.; Gerrits, W.J.J.; Van Loon, J.J.A.; De Boer, I.J.M.; Aarnink, A.J.A.; Van Zanten, H.H.E. Black Soldier Fly Reared on Pig Manure: Bioconversion Efficiencies, Nutrients in the Residual Material, Greenhouse Gas and Ammonia Emissions. *Waste Management* **2021**, *126*, 674–683, doi:10.1016/j.wasman.2021.04.001.
20. Wang, X.; Wu, N.; Cai, R.; Geng, W.; Xu, X. Changes in Speciation, Mobility and Bioavailability of Cd, Cr and As during the Transformation Process of Pig Manure by Black Soldier Fly Larvae (Hermetia Illucens). *J Integr Agric* **2021**, *20*, 1157–1166, doi:10.1016/S2095-3119(20)63333-0.
21. Oonincx, D.G.A.B.; van Huis, A.; van Loon, J.J.A. Nutrient Utilisation by Black Soldier Flies Fed with Chicken, Pig, or Cow Manure. *J Insects Food Feed* **2015**, *1*, 131–139, doi:10.3920/jiff2014.0023.
22. Lee, K.S.; Yun, E.Y.; Goo, T.W. Optimization of Feed Components to Improve Hermetia Illucens Growth and Development of Oil Extractor to Produce Biodiesel. *Animals* **2021**, *11*, doi:10.3390/ani11092573.
23. Li, Q.; Zheng, L.; Qiu, N.; Cai, H.; Tomberlin, J.K.; Yu, Z. Bioconversion of Dairy Manure by Black Soldier Fly (Diptera: Stratiomyidae) for Biodiesel and Sugar Production. *Waste Management* **2011**, *31*, 1316–1320, doi:10.1016/j.wasman.2011.01.005.
24. Parodi, A.; Yao, Q.; Gerrits, W.J.J.; Mishyna, M.; Lakemond, C.M.M.; Oonincx, D.G.A.B.; Van Loon, J.J.A. Upgrading Ammonia-Nitrogen from Manure into Body Proteins in Black Soldier Fly Larvae. *Resour Conserv Recycl* **2022**, *182*, doi:10.1016/j.resconrec.2022.106343.
25. Peng, C.; Zhou, T.; Song, S.; Sun, S. Analysis and Experiment of Feeding Material Process of Hermetia Illucens L. Frass Bucket Wheel Based on DEM. *Comput Electron Agric* **2022**, *196*, doi:10.1016/j.compag.2022.106855.

26. Smetana, S.; Palanisamy, M.; Mathys, A.; Heinz, V. Sustainability of Insect Use for Feed and Food: Life Cycle Assessment Perspective. *J Clean Prod* **2016**, *137*, 741–751, doi:10.1016/j.jclepro.2016.07.148.
27. Sripontan, Y.; Chiu, C.I.; Tanansathaporn, S.; Leasen, K.; Manlong, K.; Papadopoulos, N. Modeling the Growth of Black Soldier Fly Hermetia Illucens (Diptera: Stratiomyidae): An Approach to Evaluate Diet Quality. *J Econ Entomol* **2020**, *113*, 742–751, doi:10.1093/jee/toz337.