ANNEXES

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Annexe 1

Questionnaire A - PIGS

Glossary and definitions

These "definitions" are taken from : - the draft of BREF IPPC reference document (july 2003)
http://eippcb.jrc.es/pages/FActivities.htm
- the working group of RAMIRAN Network
http://www.ramiran.net/DOC/Glossary2003.pdf

Mating Sows : dry sow

Gestating Sows : pregnant sow

Mating & Gestating Sows : according to the method of farming when buildings are not different

Farrowing Sows : nursing sow

Weaners : ATTENTION : piglet that has been weaned from the sow's milk,
but it can be from 3 weeks in age to 6 weeks or more, according to local farming methods,
the liveweight of weaners entering in specific building can so varied from less 8 kg
and the liveweight at the end of this period (pig is +/- 10 weeks in age) can be more than 30 kg

Growers : the status of young pig comming after the "status of Weaner"; and kept for growing to +/- 60kg

Finishers : the status of pig from the end the growing period to slaughter;
ATTENTION : usually the slaughter liveweight is 90/110 kg,
but according to the kind of desired end product and region of production, it can vary from 60/70 kg to 160 kg

Growers - Finishers : according to the method of farming when buildings are not different; usually describe as **fattening pigs**

Building carachteristics : in this part of questionnaire it concerns only the ways in which the ambient parameters (T°, RH%,,,) are controled

Manure Storage and Handling : this section of the questionnaire try to descibe the storage facilities (material, capacity,...)
and a general approach of handling and disposal methods;
a short list of some treatment option is given

Filtering : physical separation by filtre media

Pig production - mating & gestating sows

Full confinement system

Number of animals :	
or number of places	

Please mark the appropriate box with an "x" or number as appropriate

	Mark one box only							Mark one box only			Mark if applies	Mark all that applies	
Housing system	**Not in use**	% of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**	**Application restricted to** Mating	Gestating
Individual													
Group-housed													
Combined in a yard													

	Not in use	% of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**	**Application restricted to** Mating	Gestating
Floor type													
Fully slatted floor													
Partly slatted floor													
Solid floor with bedding													
Other floor (specify)													

	Not in use	% of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**	**Application restricted to** Mating	Gestating
Manure collection													
Underground deep pit													
Vacuum system & frequent slurry removal													
Flush channels using fresh or treated slurry													
Flush gutter/pipe using fresh or treated slurry													
Reduced manure pit													
Manure scraper													
Deep litter													
Other (specify)													

	Not in use	% of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**	**Application restricted to** Mating	Gestating
Feeding Regime													
Solid diet													
Liquid diet													
Diet control / restricted													
Phase feeding (1 - 2 phases)													
Multiphase feeding													
Low crude protein + amino acid diet													
Use of phytase													
Use of inorganic, phosphorus													
Additives (specify)													
Other feeding strategies (specify)													

Other system

e.g. emerging system in developement

Number of animals :	
or number of places	

Please provide details

Pig production - Farrowing sows

Questionnaire A pgis v4

Full confinement system

Number of animals :	
or number of places	

Please mark the appropriate box with an "x" or number as appropriate

Housing system	**Not in use**	% of **national stock** - mark nearest to estimate (Mark one box only) 0	20	40	60	80	100	Application on **IPPC-Farms** (Mark one box only) rare	common	general	Application on **new build farms** (Mark if applies)
Individual											
Group-housed											
Combined in a yard											

Floor type	**Not in use**	% of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**
Fully slatted floor											
Partly slatted floor											
Solid floor with bedding											
Other floor (specify)											

Manure collection	**Not in use**	% of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**
Underground deep pit											
Vacuum system & frequent slurry removal											
Flush channels using fresh or treated slurry											
Flush gutter/pipe using fresh or treated slurry											
Reduced manure pit											
Manure scraper											
Deep litter											
Other (specify)											

Feeding Regime	**Not in use**	% of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**
Solid diet											
Liquid diet											
Diet control / restricted											
Phase feeding (1 - 2 phases)											
Multiphase feeding											
Low crude protein + amino acid diet											
Use of phytase											
Use of inorganic, phosphorus											
Additives (specify)											
Other feeding strategie (specify)											

Other system

e.g. emerging system in developement

Number of animals :	
or number of places	

Please provide details

Building characteristics pig breeding

Questionnaire A pgis v4

Confinement system

Number of animals :	
or number of places	
or other unit	

Please mark the appropriate box with an "x" or number as appropriate

	Mark one box only						Mark one box only			Mark if applies
	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
		0	20	40	60	80	100	rare	common	general	**new build farms**
closed housing, well insulated (a)											
closed housing, poorly insullated											
open climate housing											

(a) eg: transfer coefficient, U, lower than 0,4 W/m ^{2} /K

	Not in use	% of **national stock** - mark nearest to estimate						Application on **IPPC-Farms**			Application on
		0	20	40	60	80	100	rare	common	general	**new build farms**
Heating elements in floor or in ceiling											
Heating elements radiating heat onto animal											
Preheating air incoming the housing area											
Gas/fuel heater											
Electric heater											
Other heating system (specify)											
Air conditioning (spraying, cooling…)											
Other (specify)											

	Not in use	% of **national stock** - mark nearest to estimate						Application on **IPPC-Farms**			Application on
		0	20	40	60	80	100	rare	common	general	**new build farms**
Natural hand controlled ventilation											
Automatically controlled natural ventilation											
Mechanical ventilation											
Combined system (specify)											
Ventilation - inlet air treatment (cooling, spraying water/oil, other - specify)											
Ventilation - outlet biological air treatment (biofilter, scrubber, combined systems - specify)											
Ventilation - outlet chemical/physical air treatment (scrubber, UV, radiation -specify)											
Other (specify)											

Other system

e.g. emerging system in developement

Number of animals :	
or number of places	

Please provide details

Pig production - weaners

Questionnaire A pgis v4

Full confinement system

Number of animals :	
or number of places	

Please mark the appropriate box with an "x" or number as appropriate

Housing system	**Not in use**	Mark one box only: % of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Mark one box only: Application on **IPPC-Farms** rare	common	general	Mark if applies: Application on **new build farms**
according to herd size											
< 20											
20 - 100											
> 100											

Floor type	**Not in use**	% of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**
Fully slatted floor											
Partly slatted floor											
Solid floor with bedding											
Other floor (specify)											

Manure collection	**Not in use**	% of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**
Underground deep pit											
Vacuum system & frequent slurry removal											
Flush channels using fresh or treated slurry											
Flush gutter/pipe using fresh or treated slurry											
Reduced manure pit											
Manure scraper											
Deep litter											
Other (specify)											

Feeding Regime	**Not in use**	% of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**
Solid diet											
Liquid diet											
Diet control / restricted											
Phase feeding (1 - 2 phases)											
Multiphase feeding											
Low crude protein + amino acid diet											
Use of phytase											
Use of inorganic, phosphorus											
Additives (specify)											
Other feeding strategie (specify)											

Other system

e.g. emerging system in developement

Number of animals :	
or number of places	

Please provide details

Pig production - Growers-Finishers

Questionnaire A pgis v4

Full confinement system

Number of animals :	
or number of places	

Please mark the appropriate box with an "x" or number as appropriate

Housing system	Mark one box only: **Not in use**	% of **national stock** - mark nearest to estimate: 0	20	40	60	80	100	Mark one box only: Application on **IPPC-Farms** rare	common	general	Mark if applies: Application on **new build farms**	Mark all that applies: **Application restricted to** growers	finishers
according to herd size													
< 20													
20 - 100													
> 100													

Floor type	**Not in use**	% of **national stock** - mark nearest to estimate: 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**	**Application restricted to** growers	finishers
Fully slatted floor													
Partly slatted floor													
Solid floor with bedding													
Other floor (specify)													

Manure collection	**Not in use**	% of **national stock** - mark nearest to estimate: 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**	**Application restricted to** growers	finishers
Underground deep pit													
Vacuum system & frequent slurry removal													
Flush channels using fresh or treated slurry													
Flush gutter/pipe using fresh or treated slurry													
Reduced manure pit													
Manure scraper													
Deep litter													
Other (specify)													

Feeding Regime	**Not in use**	% of **national stock** - mark nearest to estimate: 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**	**Application restricted to** growers	finishers
Solid diet													
Liquid diet													
Diet control / restricted													
Phase feeding (1 - 2 phases)													
Multiphase feeding													
Low crude protein + amino acid diet													
Use of phytase													
Use of inorganic, phosphorus													
Additives (specify)													
Other feeding strategie (specify)													

Other system

e.g. emerging system in developement

Number of animals :	
or number of places	

Please provide details

Building characteristics pig fattening

Questionnaire A pgis v4

Confinement system

Number of animals :	
or number of places	
or other unit	

Please mark the appropriate box with an "x" or number as appropriate

	Mark one box only						Mark one box only			Mark if applies	Mark one box only		
	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on	**Application restricted to**		
		0	20	40	60	80	100	rare	common	general	**new build farms**	weaners	growers	finishers
closed housing, well insulated (a)														
closed housing, poorly insullated														
open climate housing														

(a) eg: transfer coefficient, U, lower than 0,4 W/m ^{2} /K

	Not in use	% of **national stock** - mark nearest to estimate						Application on **IPPC-Farms**			Application on	**Application restricted to**		
		0	20	40	60	80	100	rare	common	general	**new build farms**	weaners	growers	finishers
Heating elements in floor or in ceiling														
Heating elements radiating heat onto animal														
Preheating air incoming the housing area														
Gas/fuel heater														
Electric heater														
Other heating system (specify)														
Air conditioning (spraying, cooling…)														
Other (specify)														

	Not in use	% of **national stock** - mark nearest to estimate						Application on **IPPC-Farms**			Application on	**Application restricted to**		
		0	20	40	60	80	100	rare	common	general	**new build farms**	weaners	growers	finishers
Natural hand controlled ventilation														
Automatically controlled natural ventilation														
Mechanical ventilation														
combined system (specify)														
Ventilation - inlet air treatment (cooling, spraying water/oil, other - specify)														
Ventilation - outlet biological air treatment (biofilter, scrubber, combined systems - specify)														
Ventilation - outlet chemical/physical air treatment (scrubber, UV, radiation -specify)														
Other (specify)														

Other system

e.g. emerging system in developement

Number of animals :	
or number of places	

Please provide details

Manure storage and handling

Please mark the appropriate box with an "x" or number as appropriate

Solid/litter based manure

		Mark one box only						Mark one box only			Mark if applies
		Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on **new build farms**
			0	20	40	60	80 100	rare	common	general	
S O T R A G E	Storage capacity < 2 months (on farm)										
	4 months										
	6 months										
	8 months										
	10 months										
	> 12 months										
	Uncovered field storage										
	Covered field storage										
	Concrete floor without walls and roof										
	Concrete floor with walls but without roof										
	Concrete floor with walls and roof										
	Store leakage control (drains, bins)										
	Separated storage of seepage (drainage)										
	Other (specify)										
H A N D L I N G	Additives (specify)										
	Composting (aerobic) treatment on farm										
	Drying process										
	Anaerobic treatment on farm										
	Exportation from farm										
	Other treatment (specify)										
	Side-discharge spreader										
	Rear-discharge beaters spreader										
	Rear-discharge spinning discs spreader										
	Other system (specify)										

Slurry/liquid based manure (1/2)

		Not in use	% of **national stock** - mark nearest to estimate						Application on **IPPC-Farms**			Application on **new build farms**
			0	20	40	60	80	100	rare	common	general	
S T O R A G E	Concrete stores											
	Steel panels stores											
	Wood panels stores											
	other (specify)											
	Deep pit storage below animals											
	Below-ground											
	Above ground											
	Earth banked lagoon											
	Flexible storage											
	Other (specify)											
	No cover											
	natural crust cover											
	artificial floating covers (specify)											
	Roof or tent											
	Concrete lid											
	Other (specify)											
	leakage control (drains, binds)?											
	Storage capacity < 2 months (on farm)											
	4 months											
	6 months											
	8 months											
	10 months											
	> 12 months											

Slurry/liquid based manure (2/2)

		Not in use	% of **national stock** - mark nearest to estimate						Application on **IPPC-Farms**			Application on **new build farms**
			0	20	40	60	80	100	rare	common	general	
	Solids separation											
	Additives (specify)											
H A N D L I N G	Aerobic treatment on farm											
	Drying process											
	Anaerobic treatment on farm											
	Exportation from farm											
	Other treatment (specify)											
	Vacuum tanker with splash plate (broadcast)											
	Band spreader											
	Trailing hoses/shoes											
	Injection											
	Irrigation systems											
	Other system (specify)											

Annexe 2

Questionnaire A - POULTRY

Poultry production - eggs (layers)

Please mark the appropriate box with an "x" or number as appropriate

Cage battery systems for laying hens

Number of animals :		
Mean stocking density		**birds per m²**

	Mark one box only						Mark one box only			Mark if applies	Mark all that applies	
	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on	**Application restricted to**	
Type of cage		0	20	40	60	80 100	rare	common	general	**new build farms**	young hens	parents
Flat – deck design												
Stair- step design												
Compact design												

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on	**Application restricted to**	
Manure removal and storage		0	20	40	60	80 100	rare	common	general	**new build farms**	young hens	parents
Slurry (water addition), stored under battery												
Slurry (water addition), with outside storage												
Wet droppings on belt with frequent removal												
"Pre-dry" droppings on belt, with outside storage												
Long term deep pit storage												
Outside drying technology with daily removal												
Other (specify)												

Alternative systems for laying hens

Enriched cage

Number of animals :		
Mean stocking density		**birds per m²**

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on	**Application restricted to**	
Manure removal and storage		0	20	40	60	80 100	rare	common	general	**new build farms**	young hens	parents
Wet droppings on belt with frequent removal												
"Pre-dry" droppings on belt, with outside storage												
Other (specify)												

Non-cage systems

Number of animals :		
Mean stocking density		**birds per m²**

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on	**Application restricted to**	
Type of building and manure removal/storage		0	20	40	60	80 100	rare	common	general	**new build farms**	young hens	parents
Deep litter system – partially slatted, inhouse storage												
Deep litter system – partially slatted, manure belts												
Aviary system – perch design, inhouse storage (deep pit)												
Aviary system – perch design, manure belts												
Free-range system												
other (specify)												

Other systems

Number of animals :		
Mean stocking density		**birds per m²**

e.g. emerging system in development

Please provide details	

Feeding regime

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on	**Application restricted to**	
		0	20	40	60	80 100	rare	common	general	**new build farms**	young hens	parents
Phase feeding (- 3 phases)												
Multiphase feeding (>3 phases)												
Low Crude Protein + amino acid diet												
Use of Phytase												
Use High Digestibility Inorganic Phosphorus												
Additives (specify)												

Poultry production - broiler

Questionnaire A poultry v4

Totla number of animals :		
and mean stocking density		**birds per m^2**
or surface dedicated to this production		**m^2**

Please mark the appropriate box with an "x" or number as appropriate

Full confinement

	Mark one box only						Mark one box only			Mark if applies
	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
		0	20	40	60	80 100	rare	common	general	**new build farms**
Forced ventilated										
Naturally ventilated but including mechanical options										

Tonnes of meat per year	

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
Type of building		0	20	40	60	80 100	rare	common	general	**new build farms**
Natural light										
Windowless										
Manure Management										
Litter removal after harvest										
Ventilated floor										
Other (specify)										

Semi open system

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
		0	20	40	60	80 100	rare	common	general	**new build farms**
forced ventilated										
naturally ventilated but including mechanical options										

Tonnes of meat per year	

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
Manure Management		0	20	40	60	80 100	rare	common	general	**new build farms**
Litter removal after harvest										
Ventilated floor										
other (specify)										

Feeding regime

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
		0	20	40	60	80 100	rare	common	general	**new build farms**
Phase feeding (- 3 phases)										
Multiphase feeding										
Low Crude Protein + amino acid diet										
Use of Phytase										
Use High Digestibility Inorganic Phosphorus										
Additives (specify)										

Other systems

Number of animals :		
Mean stocking density		**birds per m^2**

e.g. emerging system in development

e.g other species such as quail if production significant

Please provide details	

Poultry production - Turkey

Questionnaire A poultry v4

Total number of animals :		
and mean stocking density		**birds per m²**
or surface dedicated to this production		**m²**

Please mark the appropriate box with an "x" or number as appropriate

Full confinement

	Mark one box only						Mark one box only			Mark if applies
	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
		0	20	40	60	80 100	rare	common	general	**new build farms**
Forced ventilated										
Naturally ventilated but including mechanical options										

Tonnes of meat per year	

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
Type of building		0	20	40	60	80 100	rare	common	general	**new build farms**
Natural light										
Windowless										
Manure Management										
Litter removal after harvest										
Ventilated floor										
other (specify)										

Semi open system

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
		0	20	40	60	80 100	rare	common	general	**new build farms**
Forced ventilated										
Naturally ventilated but including mechanical options										

Tonnes of meat per year	

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
Manure Management		0	20	40	60	80 100	rare	common	general	**new build farms**
Litter removal after harvest										
Ventilated floor										
other (specify)										

Feeding regime

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
		0	20	40	60	80 100	rare	common	general	**new build farms**
Phase feeding (- 3 phases)										
Multiphase feeding										
Low Crude Protein + amino acid diet										
Use of Phytase										
Use High Digestibility Inorganic Phosphorus										
Additives (specify)										

Other systems

e.g. emerging system in development
e.g other species such as quail if production significant

Number of animals :		
Mean stocking density		**birds per m²**

Please provide details	

Web-footed birds (ducks)

Total number of animals :		
and mean stocking density		**birds per m²**
or surface dedicated to this production		**m²**

Please mark the appropriate box with an "x" or number as appropriate

Full confinement

	Not in use	% of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**
	Mark one box only							Mark one box only			Mark if applies
Forced ventilated											
Naturally ventilated but including mechanical options											

Tonnes of meat per year	

	Not in use	% of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**
Type of building											
Natural light											
Windowless											
Floor type											
Solid floor with litter											
Partly slatted/restricted litter											
Fully slatted											
Manure Management											
Litter removal after harvest											
slurry storage outside building											
slurry storage underneath the animals											
Ventilated floor (underfloor litter drying system)											
other (specify)											

Semi open system

	Not in use	% of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**
Forced ventilated											
Naturally ventilated but including mechanical options											

Tonnes of meat per year	

	Not in use	% of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**
Floor type											
Solid florr / littered											
Partly slatted / Partly littered											
Fully slatted											
Manure Management											
Litter removal after harvest											
Ventilated floor											
Other (specify)											

Feeding regime

	Not in use	% of **national stock** - mark nearest to estimate 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**
phase feeding (- 3 phases)											
Multiphase feeding											
Low Crude Protein + amino acid diet											
Use of Phytase											
Use High Digestibility Inorganic Phosphorus											
Additives (specify)											

Other systems - small animal production (if significant)

e.g. emerging system in development

eg: rabbits, mink (fur animals) etc.

Number of animals :		
Mean stocking density		**birds per m²**

Please provide details	

Web-footed birds (geese)

Total number of animals :		
and mean stocking density		**birds per m²**
or surface dedicated to this production		**m²**

Please mark the appropriate box with an "x" or number as appropriate

Full confinement

	Mark one box only						Mark one box only			Mark if applies
	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
		0	20	40	60	80 100	rare	common	general	**new build farms**
Forced ventilated										
Naturally ventilated but including mechanical options										

Tonnes of meat per year	

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
Type of building		0	20	40	60	80 100	rare	common	general	**new build farms**
Natural light										
Windowless										
Floor type										
solid florr with litter										
partly slatted/restricted litter										
fully slatted										
Manure Management										
Litter removal after harvest										
slurry storage outside building										
slurry storage underneath the animals										
Ventilated floor (underfloor litter drying system)										
other (specify)										

Semi open system

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
		0	20	40	60	80 100	rare	common	general	**new build farms**
forced ventilated										
naturally ventilated but including mechanical options										

Tonnes of meat per year	

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
Floor type		0	20	40	60	80 100	rare	common	general	**new build farms**
solid florr / littered										
partly slatted / Partly littered										
fully slatted										
Manure Management										
Litter removal after harvest										
Ventilated floor										
other (specify)										

Feeding regime

	Not in use	% of **national stock** - mark nearest to estimate					Application on **IPPC-Farms**			Application on
		0	20	40	60	80 100	rare	common	general	**new build farms**
phase feeding (- 3 phases)										
Multiphase feeding										
Low Crude Protein + amino acid diet										
Use of Phytase										
Use High Digestibility Inorganic Phosphorus										
Additives (specify)										

Other systems

e.g. emerging system in development

e.g other species such as quail if production significant

Number of animals :		
Mean stocking density		**birds per m²**

Please provide details	

Building characteristics

Questionnaire A poultry v4

Please mark the appropriate box with an "x" or number as appropriate

Confinement system

	Mark one box only							Mark one box only			Mark if applies	Mark all that applies				
	Not in use	% of **national stock** - mark nearest to estimate						Application on **IPPC-Farms**			Application on **new build farms**	**Application only**				
		0	20	40	60	80	100	rare	common	general		layers	broiler	turkeys	ducks	geese
Closed housing, well insulated (a)																
Closed housing, poorly insullated																
Open climate housing																

(a) eg: transfer coefficient, U, lower than 0,4 W/m ^{2} /K

	Not in use	% of **national stock** - mark nearest to estimate						Application on **IPPC-Farms**			Application on **new build farms**	**Application only**				
		0	20	40	60	80	100	rare	common	general		layers	broiler	turkeys	ducks	geese
Heating elements in floor or in ceiling																
Heating elements radiating heat onto animal																
Preheating air incoming the housing area																
Gas/fuel heater																
Electric heater																
Other heating system (specify)																
Air conditioning (spraying, cooling…)																
Other (specify)																

	Not in use	% of **national stock** - mark nearest to estimate						Application on **IPPC-Farms**			Application on **new build farms**	**Application only**				
		0	20	40	60	80	100	rare	common	general		layers	broiler	turkeys	ducks	geese
Natural hand controlled ventilation																
Automatically controlled natural ventilation																
Mechanical ventilation																
Combined system (specify)																
Ventilation - inlet air treatment (cooling, spraying water/oil, other - specify)																
Ventilation - outlet biological air treatment (biofilter, scrubber, combined systems -																
Ventilation - outlet chemical/physical air treatment (scrubber, UV, radiation -specify)																
Other (specify)																

Other systems

e.g. emerging system in development

Number of animals :		
Mean stocking density		**birds per m^2**

Please provide details	

Manure storage and handling

Please mark the appropriate box with an "x" or number as appropriate

Solid Manure storage

Storage capacity (on farm)	Mark one box only: **Not in use**	% of **national stock** - mark nearest to estimate: 0	20	40	60	80	100	Mark one box only: Application on **IPPC-Farms** rare	common	general	Mark if applies: Application on **new build farms**	Mark all that applies: **Application only** layers	broiler	turkeys	ducks	geese
< 2 months																
4 months																
6 months																
8 months																
10 months																
> 12 months																

Type and construction	**Not in use**	% of **national stock** - mark nearest to estimate: 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**	**Application only** layers	broiler	turkeys	ducks	geese
Uncovered field storage																
Covered field storage																
Concrete floor without walls and roof																
Contrete floor with walls but without roof																
Concrete floor with walls and roof																
Store leakage control (drains, bins)																
Separated storage of seepage (drainage)																
Other (specify)																
Closed storage building (dried droppings)																
Other (specify)																

Liquid Manure storage

Storage capacity (on farm)	**Not in use**	% of **national stock** - mark nearest to estimate: 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**	**Application only** layers	broiler	turkeys	ducks	geese
< 2 months																
4 months																
6 months																
8 months																
10 months																
> 12 months																

Type and construction	**Not in use**	% of **national stock** - mark nearest to estimate: 0	20	40	60	80	100	Application on **IPPC-Farms** rare	common	general	Application on **new build farms**	**Application only** layers	broiler	turkeys	ducks	geese
Deep pit storage below animals																
Concrete stores																
Steel panels stores																
Wood panels stores																
Other material (specify)																
Below-ground																
Above ground																
Earth banked lagoon																
Flexible storage																
Other store type (specify)																
No cover																
Natural crust cover																
Artificial floating covers (specify material)																
Roof or tent																
Concrete lid																
Other cover (specify)																
Leakage control (drains, binds)?																

Manure Handling

Spreading equipment	**Not in use**	% of **national stock** - mark nearest to estimate						Application on **IPPC-Farms**			Application on **new build farms**	**Application only**				
		0	20	40	60	80	100	rare	common	general		layers	broiler	turkeys	ducks	geese
Solid spreader																
Side-discharge spreader																
Rear-discharge beaters spreader																
Rear-discharge spinning discs spreader																
Liquid spreader																
Vacuum tanker with splash plate																
Band spreader																
Trailing hoses/shoes																
Injection into soil																
Irrigation systems																
Other spreading system (specify)																

Manure processing	**Not in use**	% of **national stock** - mark nearest to estimate						Application on **IPPC-Farms**			Application on **new build farms**	**Application only**				
		0	20	40	60	80	100	rare	common	general		layers	broiler	turkeys	ducks	geese
Solids separation (from slurry)																
Solids composting																
Drying process																
Exportation from farm																
Aerobic treatment on farm																
Anaerobic treatment on farm																
Other treatment (specify)																
Additives (specify)																

Other systems

e.g. emerging system in development

Number of animals :		
Mean stocking density		**birds per m^2**

Please provide details	

Annexe 3

Questionnaire B - Manure Management

Housing

P - Prevalence
indicate as: **N** not in use, **EX** experimental farms, **FE** few examples on commercial farms, **US** when many examples

T - Trend in usuage
indicate as: **---** declining use; **0** no change in use, **++** increasing use

Impact on A, W, S, E
indicate as: **---** negative impact; **0** no impact, **++** positive impact A = air; W = water; S = soil, E = energy use

	Egg laying		Broilers / Turkeys		Ducks / Geese		Pigs		Other		IMPACT			
Housing system	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**A**	**W**	**S**	**E**
inside - retained in small pens														
inside - large group housing														
inside - open, natural ventilation														
outdoor yard														
other (specify)														

Manure removal

	Egg laying		Broilers / Turkeys		Ducks / Geese		Pigs		Other		IMPACT			
Manure collection / management	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**A**	**W**	**S**	**E**
in-house separation														
manure cooling														
belt removal														
in-house drying														
external drying														
flushing														
in-house composting														
additives														
covering														
other (specify)														

Separation technologies

P - Prevalence
indicate as: **N** not in use, **EX** experimental farms, **FE** few examples on commercial farms, **US** when many examples

T - Trend in usuage
indicate as: **---** declining use; **0** no change in use, **++** increasing use

Impact on A, W, S, E
indicate as: **---** negative impact; **0** no impact, **++** positive impact A = air; W = water; S = soil, E = energy use

	Egg laying		Broilers / Turkeys		Ducks / Geese		Pigs		Other		IMPACT on			
											A	W	S	E
Raw manure/slurry/sludge	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**				
sedimentation/settling														
crust skimming														
clarification														
dewatering														
run-down screen														
vibrating bed														
rotary screen														
sieve drum														
sieve centrifuge														
roller press														
screw press														
belt separator														
decanter centrifuge														
membrane technology														
Natural evaporation														
Forced evaporation														
Other filtration														
Additves														

Solid Fraction Processes

P - Prevalence
indicate as: **N** not in use, **EX** experimental farms, **FE** few examples on commercial farms, **US** when many examples

T - Trend in usuage
indicate as: **---** declining use; **0** no change in use, **++** increasing use

Impact on A, W, S, E
indicate as: **---** negative impact; **0** no impact, **++** positive impact

A = air; W = water; S = soil, E = energy use

	Egg laying		Broilers / Turkeys		Ducks / Geese		Pigs		Other		IMPACT			
	P	T	P	T	P	T	P	T	P	T	A	W	S	E
Composting														
on farm														
passive aeration static pile														
uncovered windrow														
covered windrow														
composting in vessel or in reactor														
forced aeration														
on central plant														
with forced aeration														
with exhaust air treatment in confined building														
Vermicomposting														

	Egg laying		Broilers / Turkeys		Ducks / Geese		Pigs		Other		IMPACT			
	P	T	P	T	P	T	P	T	P	T	A	W	S	E
Drying														
on farm wtith exogenous heating														
on farm using external heating														
on central wtith exogenous heating														
on central using external heating														
Methanisation														
on farm manure only														
on farm co-digestion														
on farm with external heating														
on central manure only														
on central co-digestion														
on central with external heating														
Incineration/combustion														
on farm manure only														
on farm co-generation														
on central manure only														
on central co-generation														
Additives														
Other (specify)														

Liquid Fraction Processes

P - Prevalence
indicate as: **N** not in use, **EX** experimental farms, **FE** few examples on commercial farms, **US** when many examples

T - Trend in usuage
indicate as: **---** declining use; **0** no change in use, **++** increasing use

Impact on A, W, S, E
indicate as: **---** negative impact; **0** no impact, **++** positive impact A = air; W = water; S = soil, E = energy use

	Egg laying		Broilers / Turkeys		Ducks / Geese		Pigs		Other		IMPACT			
	P	T	P	T	P	T	P	T	P	T	A	W	S	E
Aerobic processes														
lagoon														
continous aeration														
SBR (intermittent) process														
Aeration equipment														
plunging jet														
surface aerator														
air sparger														
air injection														
venturi system														
fine bubble diffuser														
other (specify)														
Methanisation with co-digestion														
with heating														
on central plant with co-digestion														
with heating														
anaerobic lagoon *any*														
Chemical processes														
Other (specify)														

Air treatments processes

P - Prevalence
indicate as: **N** not in use, **EX** experimental farms, **FE** few examples on commercial farms, **US** when many examples

T - Trend in usuage
indicate as: **---** declining use; **0** no change in use, **++** increasing use

Impact on A, W, S, E
indicate as: **---** negative impact; **0** no impact, **++** positive impact A = air; W = water; S = soil, E = energy use

	Egg laying		Broilers / Turkeys		Ducks / Geese		Pigs		Other		IMPACT			
	P	T	P	T	P	T	P	T	P	T	A	W	S	E
Inlet Air Ventilation														
filtering														
cooling														
spraying														
uv/radiation treatment														
other (specify)														
Exhaust air treatment														
bio-filter														
bioscrubbing														
water/acid solution scrubbing														
combined systems (filter-scrubber)														
dust filter														
spraying														
uv/radiation treatment														
carbon filter (odour)														
other (specify)														

Energy use in housing

Questioinnaire B - v4

P - Prevalence
indicate as: **N** not in use, **EX** experimental farms, **FE** few examples on commercial farms, **US** when many examples

T - Trend in usuage
indicate as: **---** declining use; **0** no change in use, **++** increasing use

Impact on A, W, S, E
indicate as: **---** negative impact; **0** no impact, **++** positive impact A = air; W = water; S = soil, E = energy use

	Egg laying		Broilers / Turkeys		Ducks / Geese		Pigs		Other		IMPACT			
	P	T	P	T	P	T	P	T	P	T	A	W	S	E
Building thermal insulation quality														
Insulation method														
internal insulation of walls														
external insulation of walls														
roof insulation														
floor insulation														
Ventilation management														
natural ventillation with control														
forced ventilation														
low energy consumption fans														
fans with check valves														
air ducts and fans cleaning														
other (specify)														
Lighting														
use of fluorescent or low consumption lights														
controlled lighting shemes														
other (specify)														

Feeding regimes

P - Prevalence
indicate as: **N** not in use, **EX** experimental farms, **FE** few examples on commercial farms, **US** when many examples

T - Trend in usuage
indicate as : **---** declining use; **0** no change in use, **++** increasing use

Impact on A, W, S, E
indicate as : **---** negative impact; **0** no impact, **++** positive impact A = air; W = water; S = soil, E = energy use

	Egg laying		Broilers / Turkeys		Ducks / Geese		Pigs		Other		IMPACT			
	P	T	P	T	P	T	P	T	P	T	A	W	S	E
Nitrogen efficiency														
Multi phases feeding:														
… with reduced overallf crude protein and adjustement of amino acids														
…. with normal level of crude protein but optimised in diet according to age														
Use of feed additives - enzymes														
Use of feed additives - acidity regulators														
Other additve (specify)														
Phosphorus efficiency														
Use of feed additives - enzymes														
Use of feed additives - acidity regulators														
Use of higly digestible inorganic feed phosphates														
Other additve (specify)														
Carbon efficiency														
Use of feed additives - enzymes														
Other additve (specify)														
Other nutient controls (specify)														
Use of feed additives - enzymes														
Use of feed additives - growth stimulators														
Use of feed additives - micro-organisms														
Reduction of Zinc and Cupper content														

Water use

P - Prevalence
indicate as: **N** not in use, **EX** experimental farms, **FE** few examples on commercial farms, **US** when many examples

T - Trend in usuage
indicate as : **---** declining use; **0** no change in use, **++** increasing use

Impact on A, W, S, E
indicate as : **---** negative impact; **0** no impact, **++** positive impact A = air; W = water; S = soil, E = energy use

	Egg laying		Broilers / Turkeys		Ducks / Geese		Pigs		Other		IMPACT			
											A	W	S	E
Reduction of Water Consumption	P	T	P	T	P	T	P	T	P	T				
use of anti-spillage cup under nipples														
calibrating drinking water devices														
detection of leakages and repairing														
use of specific drinking water supply systems														
use of high pressure cleaners														
metering water use :														
for animal drinking														
for cleaning building														
for air or building cooling														
for outlet air washing														
for other use														
Collecting rain water for cleaning purpose														
Re-use of water for other cleaning purpose														
Other (specify)														

Annexe 4

SUMMARIES FOR EACH COUNTRY FOR PIG INDUSTRY

The following analyses describe for each country the dominant systems in the livestock production process (building, feed, wastes) on IPPC-farms and have been written on the basis of available information from the questionnaires. These analyses are not exhaustive. In effect, come questionnaires were incomplete. In addition, for certain countries or for certain production types, it was not possible to describe all the common systems of livestock rearing, feed regimes or waste management. Thus some analyses have been limited.

Austria

	Head	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Pigs	**3147230**	**52350**	**2,0**	**1,4**
Pigs - piglets under 20 kg	754190	10460	1,7	1,2
Pigs - breeding sows over 50 kg	305030	11180	1,9	1,1
Pigs - others	2088010	50980	2,2	1,6

The replies relative to pig production were quite limited. It is possible to establish that the sows reared before maturity are either grouped or individual pens, whereas on maturity, housing is essentially individual pens. The floor of sow housing and for fattening pigs is mostly slatted with a few on bedding. The insulation of housing is good, and slurries are stored mostly in covered pits.

Belgium

The questionnaire was completed separately for the two regions, Flanders et Wallonia

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Pigs	**6318210**	**7720**	***4,1***	***0,2***
Pigs - piglets under 20 kg	1661340	4590	*3,7*	*0,5*
Pigs - breeding sows over 50 kg	592530	4850	*3,6*	*0,5*
Pigs - others	4064340	7390	*4,4*	*0,2*

Sows are housed individually with integrated slatted floors but on part slatted floors in the case of lactating sows in the Flanders region. Slurry is stored in pits located under the animals but also by a [vacuum] channel system for lactating sows. Feed is solid, restricted and multi-phase. In Flanders, the use of phytase is implied. In Flanders, fattening is done in batches larger than 100 pigs whereas in Wallonia, the herds are smaller (<20 for pigs and <100 or <20 for piglets). The floors of the buildings are integrated slatted with the storage of slurry in deep pits but equally, there is emptying by vacuum for farms rearing piglets in Wallonia. The feed regime is solid, multi-phase and, fattening pigs, completed with phytase. It is equally reported of a controlled feed dose, low in protein for the piglets in Flanders and for older pigs in Wallonia. The buildings are mechanically ventilated and well insulated in

Flanders but rarely insulated in Wallonia. Heating runs on oil or gaz and is applied using radiation elements over the animals or radiators in the floor and ceiling.

In Wallonia, FYM is stored for 6 months and spread using side-discharge spreaders. Slurries are stored in concrete stores for 6 months or more than a year but few are covered. They are exported away from the buildings and spread by vacuum tanker with splashplate (broadcast). In Flanders, FYM are stored in concrete enclosures with walls but not covered. Slurries are essentially kept in deep pits under the animals; external stores are currently covered. They are exported away from the buildings and spread by vacuum tanker with splashplate or trailing hose (or shoe) or injection.

Cyprus

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Pigs	**423570**	**600**	***0,3***	***0,0***
Pigs - piglets under 20 kg	133270	210	*0,3*	*0,0*
Pigs - breeding sows over 50 kg	53650	250	*0,3*	*0,0*
Pigs - others	236650	520	*0,3*	*0,0*

The sows are reared mostly in individual pens and the piglets and fatteners in small groups of fewer than 20 pigs. The floor of pens is slats, partial in the case of dry sows and for fatteners, and integral for the lactating sows and weaned piglets. The management of slurry is done by scraper but for the lactating sows and weaned piglets, the frequent removal by a system of vacuum is also often used. The solid wastes are stored 6 months or more. The FYM are stored in the field or on a concrete area with walls but no cover, where it where it undergoes a natural drying. The slurries are stored in a concrete pit for a separation of solids and the liquid is stored in earth banked lagoons. The stores are not covered by allowed to develop a natural crust. Little information was supplied on the means of land spreading.

The buildings for the rearing of sows can be well insulated or open. The heating of pens is done by heating elements running on gas/oil which are located in the floor or ceiling. The use of air conditioning is widespread. The ventilation is natural and controlled manually but mixed systems also exist. The fattening of pigs is done in open buildings (open climate housing), unheated and ventilated naturally or mechanically. The feed regime for pigs is dry ration and multi-phase. It is limited for the sows. The control of the amount of protein and amino acids is current practice in the rearing of lactating sows and fatteners. The use of phytase is implied for fattening pigs.

Czech Republic

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Pigs	**3018640**	**14590**	***2,0***	***0,4***
Pigs - piglets under 20 kg	956030	3110	*2,1*	*0,4*
Pigs - breeding sows over 50 kg	341060	3640	*2,1*	*0,4*
Pigs - others	1721550	13750	*1,9*	*0,4*

Dry sows awaiting mating and gestation are kept in yards, and those sows in gestation are reared in individual pens. The two method of housing are on partial slats and the handling of wastes is achieved mostly by scraping but the use of the pit or the system of frequent removal by vacuum is also indicated. The piglets for fattening are reared in groups of 20 to 100 animals whereas the pigs are grouped in numbers fewer than 20. The pens are partial slats. The piggery slurry from the fatteners is stored mostly in the concrete or steel slurry tanks and the slurry of weaned piglets equally so but also handled by the option of scraping.

The data relating to the length of storage for FYM where not given. Their storage is generally in the field. The storage of slurries is 4 months in above ground concrete tanks, uncovered but allowed to develop a natural crust. FYM is exported away from the farm. The spreading of FYM is done using "side discharge spreaders" followed by incorporation within 24 hours whereas that for slurries is more variable. Mostly trailing hose or trailing shoe is used. In case of broadcast application the incorporation within 24 hours is followed.

The rearing buildings for fatteners are well insulated. The heating of buildings is not wide spread. It is mostly the piglets during maternity that are warmed via infrared elements. Building ventilation is mechanical.

The feed regime is limited, multi-phase and dry ration except for the fatteners that receive a liquid ration. Widespread is the reduction of wastes via the use of a reduced feed in proteins and amino acids along with the inclusion of phytase and the compounds with digestible phosphorous. It is similar for the inclusion of certain additives, (based on biological agents – enzymes, bacteria, herbal extracts, urease inhibitors – yucca extracts, saponins, algae. Typical products are for example AROMEX (Delacon), Bioalgeen, Amalgerol amongst others.

Denmark

	Heads	**Number of holdings**	**Head (%EU27)**	**Number of holdings (%EU27)**
Pigs	**13534440**	**9020**	***8,8***	***0,2***
Pigs - piglets under 20 kg	4185760	4410	*9,3*	*0,5*
Pigs - breeding sows over 50 kg	1403090	4630	*8,5*	*0,5*
Pigs - others	7945580	8890	*8,5*	*0,3*

Lactating sows are reared in individual pens with other sows mostly in groups. Weaned piglets are housed in groups of 20 to 100 whereas the size of groups of pigs during fattening is more restricted (<20). Housing for sows and fatteners are mostly on slats. Nonetheless, a part of the rearing of sows pre-maternity is on litter (25% of sows). Slurry is removed frequently by the systems of vacuum extraction and the solid FYM by scraping. Buildings are well insulated, heated by heaters working on gas/oil and with elements located in the floor or ceiling or above the animals in the case of the sows with piglets. Ventilation is mechanical and the use of air conditioning is widespread. The treatment of incoming air by spray is also used in fattening. The storage of FYM is done in concreted areas, with walls and with or without covers, and for 8 months or more. The separate storage of any drained liquid is systematically done. The slurries are stored in concrete tanks covered with a natural crust for periods greater than 8 months. Spreading of solids is done by "Rear-discharge beaters" or by

"Rear-discharge spinning discs spreaders" whereas that for slurries is done by tankers fitted with " trailing hoses/shoes".

The feeding of sows and fatteners is solid and liquid ration and limited. Weaned piglets are fed with a liquid ration without limit. In contrast to sows and weaned piglets, the feeding of fattening pigs follows multi-phase. No matter what stage of production, feed regimes are adapted to reduce the amount of wastes.

Estonia

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Pigs	**355240**	**4710**	***0,2***	***0,1***
Pigs - piglets under 20 kg	127380	1890	*0,3*	*0,2*
Pigs - breeding sows over 50 kg	34210	630	*0,2*	*0,1*
Pigs - others	193650	3280	*0,2*	*0,1*

The rearing of dry sows (prior to mating/gestation) is done in groups and during lactation in individual pens. The housing is mostly based on litter with removal by scrapers. Piglets and fatteners are mostly kept in pens as groups of more than 100 animals. Housing is on litter or partially slated floors. The solid manures are scraped and slurries frequently removed by a vacuum system. The ventilation of buildings for sows and pigs is natural but controlled manually with some indication of the treatment of incoming and ventilated air for 10% of sow production. The buildings for sows are rarely insulated and heated by radiators fueled by electricity or gas/oil. The insulation of the buildings for fatteners can be sufficient or insufficient and the heating done by electrical elements located above the animals.

The feed materials for pigs are as the solid ration and applied as a multi-phase regime except for piglets. The use of supplements t reduce wastes seem not widespread for dry sows nor for piglets. The use of phytase and a reduced protein feed and modified amino acids are implied for fattening pigs and also for lactating sows. The storage of solid wastes is more than 12 months on a concreted area with walls but no cover, before being exported off the farm. The spreading of FYM is done by "rear-discharge beaters spreaders" or by "rear-discharge spinning discs spreaders". The slurry produced is stored in above ground concrete tanks (uncovered) for a period of more than 8 months. The slurry is exported off the farm site for a spreading mostly done by "trailing hose/shoes".

Finland

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Pigs	**1401040**	**3080**	***0,9***	***0,1***
Pigs - piglets under 20 kg	450990	2030	*1,0*	*0,2*
Pigs - breeding sows over 50 kg	176700	2170	*1,1*	*0,2*
Pigs - others	773350	3000	*0,8*	*0,1*

Lactating sows are kept in individual pens and dry sows (prior to mating) and during gestation in groups in pens with partial slating linked to a removal of slurry by scraping. Weaned piglets are reared in groups of 20 to 100 whereas the size of batches of pigs during fattening can be less than 20 or still in the groups or 20 to 100. Pens are on part slats with the frequent removal of slurry by vacuum or the storage in pits located under the animals. The feed regime for the sows by dry or liquid ration, liquid for the piglets and solid (dry) for the fatteners. In contrast to the fattening pigs, food for sows and piglets is un-limited. Whatever the physiological stage, feed diet is multi-phase, with reduced concentration of proteins and amino acids and completed with added digestible phosphorous. The use of phytase is more widespread for fattening operations. The building insulation is good, mechanical ventilation and heating provided by the use of radiators running on gas/oil and located in the floor/ceiling or, in for the sows, just overhead. The storage time of solid wastes is over 12 months in concrete stores with walls both covered and uncovered and for the slurries, above ground concrete tanks. Half of the stores and tanks are covered. Spreading of solid wastes is done by "Rear-discharge beaters spreaders" and by "Rear-discharge spinning discs spreaders". Slurries are spread by Vacuum tanker with splash plate or by "Band spreader".

France

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Pigs	**14792820**	**41890**	***9,6***	***1,1***
Pigs - piglets under 20 kg	5407390	12990	*12,0*	*1,5*
Pigs - breeding sows over 50 kg	1281720	12840	*7,8*	*1,3*
Pigs - others	8103700	38920	*8,7*	*1,2*

Housing for sows is individual pens on integrated slats with the storage of slurries in a deep pit (for dry sows prior to mating/gestation and in shallow pit for the lactating sows. The fattening of pigs is done on slatted floors linked to a deep pit under the animals. The buildings are well insulated and the heating is done by electrical elements. For sows, the heating is radiation and located over the animals. Ventilation is mechanical but also natural controlled automatically. Storage of wastes is for 6 months. FYM is stored in a midden without walls and uncovered or in the field. The slurries are treated by additive and stored in concrete pits without covers. Spreading is done by vacuum tanker with splashplates

The feeding of pigs is limited and by liquid or dry ration except for piglest for which feeding is essentially liquid only. The reduction of the level of proteins and amino acids and the use of phytase are widespread for sows and fatteners but multiphase feeding is used only for lactating sows, piglets and fatteners. Only lactating sows do not benefit from compounds with digestible phosphorous.

Germany

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Pigs	**26857820**	**88680**	***17,4***	***2,3***
Pigs - piglets under 20 kg	7129880	33890	*15,8*	*3,9*
Pigs - breeding sows over 50 kg	2541620	33680	*15,4*	*3,3*
Pigs - others	17186320	83790	*18,5*	*2,6*

Mating and gestating sows are commonly kept in individual and group-housing systems, whereas for farrowing sows individual pens are generally applied. Housing of weaned piglets is based on groups of about 20 to 100 and much the same for fattening pigs but smaller groups are equally common. There is a trend towards larger groups. The feeding regime is based on liquid diet, especially for sows, for weaners and fattening pigs solid diet is applied, too. Feeding is generally restricted for mating and gestating sows, but not for farrowing sows and weaners. Phase feeding is commonly applied for sows and pigs (farrowing sows and weaners excepted); phase and multiphase feeding regime is increasingly used for pigs at the fattening stage. Nutritional management options like low crude protein and amino acid diet, use of phytase and of inorganic phosphorus are commonly applied in pig production.

For reproduction the pens consist either of fully or partly slatted floors; for weaners and fatteners fully slatted floors are dominating. Bedding is only rarely applied in pig production. Slurries produced from breeding and fattening are usually removed frequently from buildings, mainly by vacuum systems. Underground deep pit storage is rarely to be found and if only in houses for fatteners and finishers. Deep litter systems exist, but they are of minor importance. Buildings are generally well insulated and mechanically ventilated. Open climate housings with natural ventilation are sometimes used for mating and gestating sows, weaners and fattening pigs, Heating is done by pre-heated feed air by gas/oil (esp. for the sows and fattening pigs), by using a convective system located on the floor or ceiling or by radiation. There is a trend to treat the indoor and the incoming air especially by spraying/fogging for cooling purposes. Biological treatment of the outlet air does only play a minor role in some regions of Germany with a very high animal density. FYM is commonly stored for 4 to 6 months on open platforms with a concrete floor and sidewalls. Seepage is separately stored underneath. Field application with “Rear-discharge beaters spreaders” and “Rear-discharge spinning discs spreaders” is common.

Slurries are usually stored in concrete silos or pits. Inhouse-storage in deep pits under the animals and earth banked lagoons are seldom used. On sensitive sites, a leakage control system is obligatory.

Storage lasts generally 6 months or more depending on the climate conditions. External pits are covered by either a natural cover, a floating layer (straw/granules) or by a roof/cover. For the spreading of the slurries all types of techniques are applied (broadcast and incorporation, band spreaders, trailing hoses/shoes and injection).

With respect to handling of FYM and slurries, especially anaerobic treatment (biogas production) plays some role.

Italy

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Pigs	**8757640**	**102780**	***5,7***	***2,7***
Pigs - piglets under 20 kg	1760010	8240	*3,9*	*0,9*
Pigs - breeding sows over 50 kg	703310	13650	*4,3*	*1,4*
Pigs - others	6294310	100890	*6,8*	*3,1*

Lactating sows are housed in individual pens and dry sows either in groups or as individuals. Piglets post weaning are reared in groups of 20 to 100 whereas the size of batches of fatteners is fewer than 20 animals. The housing is on integral slats for weaned piglets and lactating sows and mostly partial slats for other groups. The slurry is mostly managed in small pits for dry sows and pre-maternal sows (gilts) and but by deep pit located under the animals in the case of weaned piglets,fatteners and lactating sows. Feeding is by dry ration for the weaned piglets and liquid ration for sows and fattening pigs. The regime is limited for dry sows and fatteners. Nutrition management based on multi-phase and using compounds with digestible phosphorous are widespread. A tendency to a feed regime reduced in protein but complete in amino acids is in progress

The buildings are well insulated and ventilated mechanically in the housing for farrowing sows and weaners. During fattening, the stockmen use a natural ventilation which is controlled automatically. The heating for the housing for lactating sows and weaners is electric or works by gas/oil and is applied by pre-heating the entering air or by using radiating elements set up above the animals. For fatteners , heating is usually not applied. Pig wastes are mostly as slurry and solids corresponding to the separated slurry fibre. This latter part represents around 5% of the wastes being handled. The solid phase is stored for up to 3 months in concrete middens with walls but without roof with control of drainage liquid. Solid fraction is spread using “Rear-discharge beaters” or “Rear-discharge spinning discs” spreaders. The slurry (liquid phase) is stored for 6 months in an “Earth-banked lagoon” or concrete pit or in pits located under the animal pens. Stores are not covered. The slurries are spread using “Vacuum Tanker fitted with splashplates” or injection or irrigation with ploughing in within 24 hours.

Latvia

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Pigs	**430110**	**39050**	***0,3***	***1,0***
Pigs - piglets under 20 kg	105960	5160	*0,0*	*0,1*
Pigs - breeding sows over 50 kg	46600	4480	*0,0*	*5,8*
Pigs - others	277550	36370	*0,0*	*0,4*

The reproduction (breeding) operation is done both with sows in groups and in individual pens. The piglets and fatteners are mostly kept in groups of 20 to 100. The floor of housing is slatted, mostly as partial for the sows and total for the fattening, or a floor of packed earth,

concrete or plastic but without bedding. Wastes are mostly managed as slurry in a deep pit. Other systems such as frequent removal by vacuum or the use of channels, drainage gutters are also in use but in a more restricted way. The buildings for sows can be well or poorly insulated.

The buildings for fattening pigs are better insulated. When the housing is heated, this is done either by the angling of elements located in the floor or ceiling or by an automatic control. The ventilation of housing is mostly mechanical. The storage of wastes – mostly as slurry and for a period of 6 months – is done in above ground concrete tanks or steel tanks, both covered by natural crusts (or artificially induced). The slurry is subsequently exported and spread by "trailing hose/shoe" spreaders.

The feed regime is mostly as the dry ration, unrestricted and not multi-phase. Furthermore, the feed is formulated as combined fodder is most common. The reduction in protein and amino acid and the use of compounds with digestible phosphorous is widespread.

Lithuania

	Heads	**Number of holdings**	**Head (%EU27)**	**Number of holdings (%EU27)**
Pigs	**1200190**	**151830**	***0,8***	***4,0***
Pigs - piglets under 20 kg	267430	29820	*0,6*	*3,4*
Pigs - breeding sows over 50 kg	112920	28180	*0,7*	*2,8*
Pigs - others	819850	135850	*0,9*	*4,2*

No detail was received concerning the pig production.

Netherlands

	Heads	**Number of holdings**	**Head (%EU27)**	**Number of holdings (%EU27)**
Pigs	**11311560**	**9690**	***7,3***	***0,3***
Pigs - piglets under 20 kg	4562990	3880	*10,1*	*0,4*
Pigs - breeding sows over 50 kg	1116810	3990	*6,8*	*0,4*
Pigs - others	5631760	9550	*6,1*	*0,3*

Lactating sows are kept in individual pens and dry sows prior to mating as individuals or in groups. The fattening of pigs is done in limited groups (<20). The feed regime for sows is solid ration, limited and balanced with phytase. That of fattening pigs is solid or liquid ration, multi-phase and completed with phytase and digestible phosphorous. For piglets, in contrast to older pigs, the feeding is not limited, low on proteins but complete in amino acids. The floor is slatted, partial for the dry sows and complete for lactating sows and fattening, the slurries being stored in pits located under the animals. The buildings are well insulated and have mechanical ventilation. The heating for sows is centralized on hot water and/or incoming air may be also pre-heated. The piglets prior to weaning can benefit also from electric heating. During fattening, the dominant heating system is via elements in the floor

and ceiling. Piggery wastes are mostly as slurry. Other than pits located in the building, slurries are stored for 6 to 8 months outside in concrete or steel tanks. The vessels are more or less all covered by a roof. The application of slurries to land is mostly done by injection. The storage of FYM is for a minimum of 6 months and is done in different ways, midden or in covered heaps in the field. There is not single dominant method for spreading solid wastes.

Poland

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Pigs	**17716940**	**701660**	***11,5***	***18,4***
Pigs - piglets under 20 kg	5853900	309740	*13,0*	*35,4*
Pigs - breeding sows over 50 kg	1880330	425140	*11,4*	*42,1*
Pigs - others	9982710	577420	*10,7*	*17,9*

The rearing of dry sows prior to mating is done in groups and that of lactating sows in individual pens. Housing is mostly on litter. The management of wastes is done by storing in a small pit for dry sows and by the use of scraped surface for those in gestation. The buildings are well insulated and fitted out with heating elements set up over the sows. Ventilation of housing can be mechanical or natural.

The piglets and fatteners are raised in groups of 20 to 100 animals in housing based on litter mostly but slatted floor systems also exist. Liquid wastes are frequently removed from channels using vacuum emptying ; litter and bedding is removed from the pens mostly by scraping. The pens are less well insulated than for the sows and have electrical heating and mechanical ventilation.

The feeding of sows and pigs is dry ration but do not seem to be controlled with respect to reducing the wastes produced.

Solid wastes are stored between 4 and 6 months on a concrete surface with retaining walls but no roof. Spreading is done by “rear discharge beater” spreaders. Slurries are equally stored for 4 to 6 months in above ground concrete tanks where natural crusts are allowed to develop. The spreading of slurry is done by “Vacuum tanker” with splash plate.

Portugal

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Pigs	**1833880**	**82620**	***1,2***	***2,2***
Pigs - piglets under 20 kg	540230	13050	*1,2*	*1,5*
Pigs - breeding sows over 50 kg	262650	23890	*1,6*	*2,4*
Pigs - others	1031000	68200	*1,1*	*2,1*

The replies to questionnaires are somewhat variable between the growing stages. The questionnaires were completed well enough for suckling sows and fattening pigs and a bit less

so for livestock represented by dry sows (awaiting insemination) and also the building design along with the management of livestock wastes.

The lactating sows are reared in individual pens on completed slatted floors. The weaned piglets and fattening pigs are reared in groups of fewer than 20. The floor of housing is slatted, integrated in the case of piglets. For fattening pigs, slurry is stored in deep pits located under the animals. Few of the fattening buildings are isolated.

Feeding is by solid ration and unrestricted for all stages of production. The diet is multiphase except for weaned pigs. The diet for the sows is reduced in protein and amino acids and that for the fatteners is completed with phytase. The use of a feed diet incorporating digestible phosphorous is widespread. It is the same for added vitamins except for dry sows and those during gestation.

Spain

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Pigs	**22776700**	**115760**	***14,7***	***3,0***
Pigs - piglets under 20 kg	6061800	19090	*13,4*	*2,2*
Pigs - breeding sows over 50 kg	3380920	41010	*20,5*	*4,1*
Pigs - others	13333980	95610	*14,3*	*3,0*

Sows are reared in individual pens on slatted floors, integral for those lactating and partial for other sow types. During fattening, pigs are in groups of fewer than 20 head, on slatted floor, mostly integrated for piglets and partial (or total) for fatteners. The slurry from sows and weaned piglets is stored in a pit under the slatting whereas that of the fatteners is equally kept in both in deep or shallow pits. The insulation of the buildings is good, ventilation, mechanical, and heating, electric or running on gas/oil, is applied to sows and piglets by radiative elements above the maternal sows, or elements in the floor/ceiling or by the heating of air drawn into the buildings. The treatment of incoming air is equally applied to pigs in the finishing stage. Solid manures are stored between 4 and 6 months, mostly in the field but also used are concrete stores with walls and with/without covers. The storage of slurries is done mostly in earth-banked lagoons of which half form natural crusts. The spreading of solid wastes is mostly by “side/discharge spreaders” and for slurries by “ Vacuum tanker with splash plate”. The feed regime is dry ration with the addition of phytase and digestible phosphorous limited for dry sows prior to mating. During fattening, the use from a two-phase to multi-phase diet is widespread.

Sweden

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Pigs	**1811220**	**2790**	***1,2***	***0,1***
Pigs - piglets under 20 kg	537800	1640	*1,2*	*0,2*
Pigs - breeding sows over 50 kg	185420	1770	*1,1*	*0,2*
Pigs - others	1088000	2540	*1,2*	*0,1*

The housing of lactating sows is in individual pens on partial slatted floors with automatic scrapper. Sows prior to mating/gestation are kept in groups on deep litter. Piglets and fatteners are reared in small groups of less than 20 animals on partial slats also with a scrapper system. However, around 40 to 50% of piglets are reared on deep litter. The feed regime is liquid ration with a reduction in the level of proteins and amino acids. In the case of lactating sows and fatteners, the diet is equally multi-phase with the addition of phytase. Furthermore, piglets and fatteners receive compounds of digestible phosphorous.

The buildings are well isolated, mechanically ventilated and fitted out with radiant heaters located above the sows or heating via the floor or ceiling during fattening. The solid wastes, produced mostly for sows, are stored over 10 months in concrete stores with walls by without roofs; it is spread with "rear discharge beater" spreaders. Slurry is stored during 10 months or more in concrete pits (below or above ground) with the development of natural crusts. It is noted that around 40% of the tanks are provided with covers, of the tent type or floating or solid lid. The spreading of slurry is achieved by the use of vacuum tankers fitted with splashplate.

United Kingdom

	Heads	**Number of holdings**	**Head (%EU27)**	**Number of holdings (%EU27)**
Pigs	**4860410**	**11470**	***3,1***	***0,3***
Pigs - piglets under 20 kg	1316520	4720	*2,9*	*0,5*
Pigs - breeding sows over 50 kg	533860	6720	*3,2*	*0,7*
Pigs - others	3010030	9690	*3,2*	*0,3*

Dry sows prior to mating or gestation and fatteners are reared in groups on litter. FYM is removed by scraper and, for fatteners, in deep pit (vérifie le sens ici). Lactating sows are kept in individual pens on slated floors partial and total. Slurry from sows is kept in small pits (=channels?) but the use of systems based on vacuum removal is also reported. For piglets, slurry is removed by vacuum or stored in a small pit. Feeding is dry ration, multi-phase and for sows, restricted. Other information on nutrition was not provided.

Buildings for sows are rarely insulated and ventilation is natural both controlled and free. For fattening, the buildings are also not often insulated and rarely heated. Ventilation can be mechanical or natural, controlled or not. FYM when produced is often stored in the field or in middens for variable periods of time but with some indication of a time no more than 6 months. FYM is exported away from farms where it is spread using many different techniques. Slurry is stored in concrete pits, above ground steel tanks or in earth-bank lagoons with our without liner. Manure storage is mostly uncovered and for time periods less than 4 months. The spreading of slurry is done by vacuum tanker with splashplate but the use of irrigation systems is also common.

Annexe 5

SUMMARIES FOR EACH COUNTRY FOR POULTRY INDUSTRY

Austria

	Head	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	11940	65500	0,8	0,9
Poultry - broilers (1000 birds)	5580	2740	0,7	0,2
Laying hens (1000 birds)	5730	60860	1,1	1,0
Poultry - others (1000 birds)	620	13400	0,3	0,3

Information on poultry production was very limited and general and only applied to egg production. They are thus not included in this report.

Belgium

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	35570	5430	*2,3*	*0,1*
Poultry - broilers (1000 birds)	21070	1280	*2,7*	*0,1*
Laying hens (1000 birds)	13310	4280	*2,6*	*0,1*
Poultry - others (1000 birds)	1190	1130	*0,5*	*0,0*

Egg laying poultry are essentially reared in compact battery cages with the removal and pre-drying of droppings by conveyor belt. Alternative systems indicated for Wallonia are partial slatted floor and deep litter with free movement. Broilers are reared in buildings on litter with forced ventilation and artificial light. Litter is removed at the end of a production batch. Ducks reared in Wallonia are in closed buildings with forced ventilation or in an semi-open system with natural ventilation on litter withdrawn at the end of the production cycle. In closed buildings, light is natural or artificial, the floor is on integrated slats and slurry is stored in external pits. The nutritional management of the poultry is more widespread in Wallonia. Data relating to the production of turkeys and geese was not provided.

Cyprus

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	4340	9450	*0,3*	*0,1*
Poultry - broilers (1000 birds)	3380	3740	*0,4*	*0,2*
Laying hens (1000 birds)	750	8940	*0,1*	*0,1*
Poultry - others (1000 birds)	210	4490	*0,1*	*0,1*

The questionnaire relating to poultry production was completed solely with respect to egg laying hens and broilers.

The rearing of egg layers is done in alternatives systems, essentially in aviaries (percheries) with a deep pit within the building. The drying of droppings outside the building is done. The feed regime is only multi-phase. The production of broilers takes place only in closed buildings on litter with natural ventilation, natural light with the removal of litter at the end of the production cycle. The buildings for layers are rarely insulated as these are mostly open buildings (open climate housing). The buildings for broilers are heated by warming air (gas/oil) and air conditioning is achieved on passing the air though wet zones located on the inside of the building (wet cell surface housing area). The ventilation of buildings is natural . Wastes are stored in the field without cover for a period of 6 months or more allowing a drying. The spreading is by solid spreader.

Czech Republic

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	26570	19590	*1,8*	*0,3*
Poultry - broilers (1000 birds)	16170	650	*2,1*	*0,0*
Laying hens (1000 birds)	9110	18850	*1,7*	*0,3*
Poultry - others (1000 birds)	1290	5250	*0,6*	*0,1*

Laying hens are reared in compact battery cages mostly with the cage type “stair step” with a frequent removal of the droppings by conveyor both wet and pre-dried. The rearing in managed (enriched) cages is not widespread. The alternative system is also not commonly used and involves deep litter. The rearing of broilers, turkeys and ducks are only done in closed buildings on litter which is removed at the end of the production cycle. Buildings are under artificial light and with forced ventilation.

No information on the production of geese was supplied. There in the Czech Republic only one installation under IPPC Directive was found.

Poultry buildings are well insulated, ventilated mechanically and warmed using heaters running off gas or oil. The wastes mostly are not stored at the farm but transferred as by-products. In some cases, the storage of slurry of 10 months is in deep pits located under the animals covered by natural crust. Wastes are often treated at the farm by aeration or by the addition of additives based on algae or oils.

The feeding regime is multi-phase, reduced in protein and amino acids and with the addition of supplements (phytase and digestible phosphorous). The utilisation feed additives (oils, saponins, enzymes) in order to reduce the wastes is widespread. However, the use of additives is less used for duck production.

Denmark

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	17580	3600	*1,2*	*0,1*
Poultry - broilers (1000 birds)	11910	360	*1,5*	*0,0*
Laying hens (1000 birds)	5120	3200	*1,0*	*0,1*
Poultry - others (1000 birds)	560	810	*0,3*	*0,0*

Egg production farm systems are either battery cage or alternative system. The battery cages are compact and the droppings produced managed by a release onto conveyor with or without pre-drying or otherwise a deep litter system. Alternative systems are either those on partial slatting and deep litter and free range systems. The broilers and turkeys are produced only in confined systems with artificial lighting and forced ventilation.

Ducks are reared in buildings with natural light, forced ventilation. The floor of the buildings of the three … ? is on litter with removal at the end of the production cycle. Insulation of poultry buildings is good and the ventilation is mechanical or natural under automatic control. The heating system, applied to broiler and turkey is based on a pre-heating of air entering the buildings or by the use of heaters running on gas/oil as for ducks. Air conditioning is largely applied on broiler farms as well as the treatment of incoming air by sprays. The solid wastes are stored beyond 10 months mostly in covered heaps in the field but also as FYM in enclosed and covered stores. The separate storage of the drained liquid is less widespread to that observed for pigs. The storage of slurry of 10 months is in deep pits located under the animals or in above ground concrete tanks covered by a natural crusts. The wastes are 50% exported away from the farms and spreading of FYM and droppings is done by "rear-discharge spinning discs spreader" and that for slurries by using the injection technique.

The feed regime is multi-phase, reduced in proteins/amino acids and with the addition of phytase and digestible phosphorous. The production of geese is negligible.

Estonia

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	2130	12510	*0,1*	*0,2*
Poultry - broilers (1000 birds)	980	350	*0,1*	*0,0*
Laying hens (1000 birds)	1120	12250	*0,2*	*0,2*
Poultry - others (1000 birds)	30	1660	*0,0*	*0,0*

No response was provided concerning poultry production but there is some indication that this is mostly limited to a small family scale operation.

Finland

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	10540	1920	*0,7*	*0,0*
Poultry - broilers (1000 birds)	5470	140	*0,7*	*0,0*
Laying hens (1000 birds)	4550	1620	*0,9*	*0,0*
Poultry - others (1000 birds)	510	330	*0,2*	*0,0*

The rearing of layer chickens as done in compact cages (battery), managed cages or using a system of litter on partial slating. For these three methods of operation, the droppings are removed in the wet form by conveyor. The production of broilers, turkeys and ducks is solely done in closed buildings on litter removed at the end of the batch, and under artificial lighting and forced ventilation. The buildings are well insulated, heated by gas/oil, ventilated

mechanically. The solid wastes are stored for more than 12 months in concrete stores without walls (pads), or in heaps that are covered. The slurries are stored in below ground concrete pits. The solid wastes are exported away from the farm. They are spreading is done by "rear discharge spinning discs" spreaders.

France

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	283330	163280	*18,7*	*2,3*
Poultry - broilers (1000 birds)	125360	75820	*16,1*	*4,9*
Laying hens (1000 birds)	77210	134970	*14,8*	*2,1*
Poultry - others (1000 birds)	80760	69670	*36,8*	*1,8*

Egg layers are reared in compact battery cages. The droppings are managed mostly by a frequent removal by conveyor with or without drying and directed towards and external store, or, by a daily removal towards an external drying system. The production in managed cage is very limited when compared to compact battery cage, and linked to a conveyor removal system for pre-dried droppings. The production in alternative systems is essentially on partial slats with a deep pit, inside or outside, the latter being linked by a conveyor. Broilers and turkeys are reared in buildings on litter with natural ventilation. The removal of litter in this case is at the end of the production cycle.

Ducks for roasting are reared in closed buildings, under artificial light and forced ventilation. The floor is integral slats leading to a slurry which is stored in an external pit. The production of ducks for "fois gras" is in a semi open system with natural ventilation with a litter removed at the end of the production cycle. Geese for roasting or for forced feeding are reared mostly in a semi-open system with natural ventilation and on litter removed at the end of the batch. Poultry buildings are well insulated in general. Heating by gas/oil is used for broilers. Ventilation is mechanical, natural (by controlled automatically) or a mixture of both. The use of air conditioning in the rearing of broilers is equally widespread (55% of production). The management of droppings and solid manures is based on storage of more than 4 months in the field or in dungheaps with walls and floor of concrete and with or without covers. The storage of slurries is also for more than 4 months and is done in flexible (plastic??) stores without covers. The spreading of wastes is done by a spreader for FYM or for slurry.

The feed regime for layers, broilers, turkeys and ducks is multi-phase, reduced in protein and amino acids, with the addition of phytase and compounds rich in digestible phosphorous. Only in one case has a feed regime multi-phase been clearly mentioned for geese.

Germany

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	120560	83400	*7,9*	*1,2*
Poultry - broilers (1000 birds)	56760	9820	*7,3*	*0,6*
Laying hens (1000 birds)	50500	78870	*9,7*	*1,2*
Poultry - others (1000 birds)	13290	13180	*6,0*	*0,3*

The rearing of egg layers in batteries is legally not longer allowed since 2009. For retrofitting either alternative housing systems (deep litter or aviary systems) possibly combined with a veranda and/or a yard or - to a less extent - enriched cages are applied. Usually the droppings are collected on conveyor belts for frequent removal with or without pre-drying. But still deep litter systems with in-house storage are relevant to some extent.
Broilers, turkeys and ducks are usually reared in closed buildings on litter removed at the end of the production cycle, with a preference for forced ventilation and artificial light. But also naturally ventilated, semi-open systems (open sidewalls) are applied. Gas/fuel heaters are commonly applied, in the case of fattening poultry at the beginning of production. Sometimes the indoor or the incoming air is treated by spraying/fogging for cooling purposes in summer. There are no systems for the biological treatment of the outlet air available in Germany.
The dried manure is usually loaded on trucks and stored in special manure stores. FYM is either stored on open platforms with a concrete floor and sidewalls with seepage stored separately underneath or on the field before its application. Field application with solid spreaders (Rear-discharge beaters spreaders and Rear-discharge spinning discs spreaders) is common. But, usually on larger farms, dry manure and FYM are exported.
For poultry, phase and multi-phase (esp. turkeys) feeding regimes are widespread. Nutritional management includes the use of low crude protein and an amino acid diet (only rarely for layers), the use of phytase and of high digestibility inorganic phosphorus, too.

Italy

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	149090	74640	*9,8*	*1,1*
Poultry - broilers (1000 birds)	90390	43680	*11,6*	*2,8*
Laying hens (1000 birds)	36120	66470	*6,9*	*1,1*
Poultry - others (1000 birds)	22580	12030	*10,3*	*0,3*

Laying hens are reared in compact battery cages with the removal of pre-dried droppings by conveyor belt. With systems of “managed cages” (???) the droppings are handled in the same way. The alternative systems not using cages, not common in Italy, are those based on partially slatted floors and deep litter. The production of meat poultry (broiler and turkey) is in closed buildings and on litter which is removed at the end of the cycle. The lighting in the buildings is usually artificial and the ventilation forced. (Diet management to reduce nutrients in waste is not widespread. Buildings, both well and poorly insulated are common. Heating, as used for broilers, is by gas/oil and via elements set up above the animals. The use of air conditioning is not in current use. The management of wastes is mainly as solids. The litter from broilers and turkeys housings are stored in the field, whereas manure from cage housing in a concrete midden with walls, both covered and uncovered for variable times between 2 and 4 months. Spreading is by “solid spreader” followed by ploughing in. Production of ducks and geese in large units is not practised in Italy.

Latvia

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	4040	60410	*0,3*	*0,9*
Poultry - broilers (1000 birds)	1170	1230	*0,2*	*0,1*
Laying hens (1000 birds)	2750	58860	*0,5*	*0,9*
Poultry - others (1000 birds)	120	11910	*0,1*	*0,3*

The questionnaire as applying to poultry was filled out only for the production of egg laying hens. Nonetheless, it is necessary to note the bird production is mostly at the level of domestic volumes. The rearing of layers is done in flat deck cages, stair step or compact cages. There is no dominant system for the handling of wastes although the system of conveyors with frequent removal of droppings is becoming common. With managed cage systems or un-confined, the management of wastes doesn't seem very systematic. The use of multi-phase feeding and a diet reduced in protein is reported as current practice along with the use of phytase and the inclusion of compounds with digestible phosphorous.

Lithuania

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	9810	172510	*0,6*	*2,5*
Poultry - broilers (1000 birds)	4020	31240	*0,5*	*2,0*
Laying hens (1000 birds)	4350	163350	*0,8*	*2,6*
Poultry - others (1000 birds)	1440	73500	*0,7*	*1,9*

Egg layers are produced in conventional battery cages and also using managed cage and alternative systems. The traditional cages are mostly of the type "flat deck" operated with a conveyor to remove frequently the droppings. The managed cages are also operated with a conveyor for the removal of the droppings. The alternative rearing options fall as 50% deep litter system, and part slats, and 33% aviaries with a deep pit. The free range system is equally used. The production of broilers is solely done in closed buildings on litter and with forced ventilation and artificial lighting. The litter is removed at the end of the production cycle.

Turkeys are produced in a closed system as for the broilers or in a semi-open system. This system is mostly with natural ventilation on litter with removal at the end of the production batch. The rearing of geese and ducks is effectively only in semi-open housing with natural ventilation and with the removal of litter at the end of the cycle. The feed regime for poultry is multi-phase but is seems without the complements that enable a reduced nutrient content of the wastes. However the use of a diet with a modified amount of protein and amino acids is indicated for turkeys but only representing 10% of the bird numbers. The buildings used for poultry production are well insulated and are warmed by mostly electric radiators Wastes are stored for a period of 8 months on a concrete surface with walls but no cover (for solid wastes) and above ground concrete tanks on which is applied a raft of straw (for liquid wastes). Most solid wastes pass through a composting operation. No indication is included in the returned questionnaire on the manner of land spreading the wastes.

Netherlands

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	95470	3060	*6,3*	*0,0*
Poultry - broilers (1000 birds)	44500	760	*5,7*	*0,0*
Laying hens (1000 birds)	48420	2100	*9,3*	*0,0*
Poultry - others (1000 birds)	2550	260	*1,2*	*0,0*

Laying hens are reared in compact battery cages with the removal of pre-dried droppings by conveyor belt. For alternatives, the two most common methods are a system using partially slatted floors related to deep litter and an aviary (perches) with the removal of droppings by conveyor. Broilers, turkeys and ducks are reared mostly in closed buildings with forced ventilation and artificial lighting. The floor is comprised of litter which is removed at the end of the production cycle. The control of the feed regime is to reduce wastes (multi-phase, reduced proteins and digestible P) are all widespread. Buildings are well insulated and heating is by gas/oil. Solid wastes are stored in the building during animal production and the droppings, pre-dried, are removed and kept in covered vessels for periods less than 2 weeks. There are also buildings given over to the storage of dried droppings. The droppings and solid wastes are then exported from the farms.

Air conditioning of the feed air is quite widespread. No information was supplied concerning geese production.

Poland

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	151430	1319520	*10,0*	*19,0*
Poultry - broilers (1000 birds)	83280	665040	*10,7*	*43,3*
Laying hens (1000 birds)	48580	1156200	*9,3*	*18,3*
Poultry - others (1000 birds)	19570	480790	*8,9*	*12,4*

Egg laying poultry are reared mostly in battery cages but there is also the alternative of free range representing around 19% of national production. For cage reared, they are typically of the type “compact design” and the management of droppings is done with pre-drying on a belt with external storage. The rearing of free range or unconfined is principally on partial slats and deep litter or on perches with deep litter.

The production of broiler and turkey is mostly done in closed buildings on litter and set up with a system of forced ventilation and artificial lighting. The removal of litter is done at the end of the cycle.

The rearing of ducks and geese is done in a closed system and for half, by an open system. The closed buildings are on a floor with integrated slats or on litter, both with forced ventilation and artificial light. The litter is removed at the end of the cycle whereas the slurry is stored outside of the building. The semi-open buildings are with natural ventilation, on litter removed at the end of the cycle.

For all forms of production, the animals have a multi-phase feed regime but without any additives to enable the reduction of wastes.

Buildings for egg laying poultry and broilers are well insulated but for all others, insulation is average. The ventilation of buildings is mechanical with a system of treatment for incoming air (cooling, spray). A pre-heating of air entering the buildings with layers and broilers is often provided.

Solid wastes (pre-dried), solid manures and slurries are stored over 6 months in the field (solids) or in above ground tanks for the liquids. The spreading of solid FYM is by traditional spreader and for the slurries its again a matter of the common vacuum tanker.

Portugal

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	29230	193250	*1,9*	*2,8*
Poultry - broilers (1000 birds)	18120	122820	*2,3*	*8,0*
Laying hens (1000 birds)	9280	173890	*1,8*	*2,8*
Poultry - others (1000 birds)	1840	50600	*0,8*	*1,3*

The production of egg layers is done mostly in compact battery cages with a frequent emptying of droppings by conveyor taking it to an external store. The production of broilers and turkey is mostly done in closed buildings on litter, fitted out with windows and natural ventilation. The litter is removed at the end of the production batch. Semi-open systems are also natural ventilation with removal at the end of the cycle. Buildings for rearing ducks are similar but he floor is either litter, removed at the end of the production cycle, or partial slatting relating to a collection of slurry in a pit under the ducks. Few buildings are insulated and heating by gas/oil via radiant elements over the chicks is used. Ventilation is a mix of mechanical and natural controlled automatically. A treatment of the ventilated air is used except for duck production farms. Concerning the management of wastes, it would seem that the main practice is one of exportation as a valued product away from the farm.

It seems that there is no (or very little) goose production in Portugal.

The feed regimes for poultry is multi-phase, with added phytase (for egg layers), digestible phosphorus and additives (vitamins, enzymes …)

Spain

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	174350	196870	*11,5*	*2,8*
Poultry - broilers (1000 birds)	96970	61730	*12,5*	*4,0*
Laying hens (1000 birds)	59980	188570	*11,5*	*3,0*
Poultry - others (1000 birds)	17400	19130	*7,9*	*0,5*

The production of egg layers is done in compact cages with a frequent removal of wet droppings by conveyor belt. The alternative method is free range. Broilers are reared on litter in a closed building, forced ventilated but with natural light. The litter is removed at the end of the production cycle. The feed regime is multi-phase, protein reduced, reduced in amino acids and completed by the addition of phytase and digestible phosphorous. Buildings are well insulated with mechanical ventilation. Heating, applied to broilers, is based on gas/oil and achieved by the use of elements in the floor/ceiling, or radiant elements over the birds or by pre-heating the incoming air. The use of air conditioning is equally widespread. The handling of wastes concerns solely solid materials. These are stored between 6 and 8 months in the field, then exported away from the farm and spread using a solid spreader. No feedback was received for the production of turkeys, ducks or geese.

Sweden

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	14390	5310	*0,9*	*0,1*
Poultry - broilers (1000 birds)	7500	230	*1,0*	*0,0*
Laying hens (1000 birds)	6760	5030	*1,3*	*0,1*
Poultry - others (1000 birds)	120	340	*0,1*	*0,0*

Egg laying hens are reared mostly in either managed cage systems or in aviaries. In the former, wet droppings are frequently removed via a conveyor belt taking it to an exterior store. For aviaries, the wastes are stored in deep pits located within the building. Broilers are reared in closed buildings on litter removed at the end of the production batch; there is natural light and forced ventilation. Those systems that are semi open are also on litter removed at the end of production but with a natural ventilation. The rearing of turkeys is mostly done in closed systems, ventilated and lit naturally with the removal of litter at the end of the cycle. The feed regime is multi-phase, digestible phosphorous being added and the concentration of protein and amino acid, reduced.

Concerning turkeys, information on the feed regime was not provided. Data relative to the production of ducks and geese is limited but indicates rearing in a semi-open system with natural ventilation on litter removed at the end of the cycle.

The buildings for layers, broilers and turkeys are well insulated and those for ducks and geese are open housing. The heating of closed buildings is done by a centralized system using hot water and applying heat via radiant elements set up above the animals. Ventilation is mechanical for turkeys, layers and broilers and natural in the case of ducks and geese (and sometimes commonly so for turkeys as well). Storage of wastes for 6 months or more according to the production method. Solid manures are stored in concrete middens with walls but no roofs; the slurries are kept in above or below ground concrete tanks with the development of natural crusts. Information on disposal to land was not supplied.

United Kingdom

	Heads	Number of holdings	Head (%EU27)	Number of holdings (%EU27)
Poultry (1000 birds)	173890	42450	*11,5*	*0,6*
Poultry - broilers (1000 birds)	111480	1970	*14,3*	*0,1*
Laying hens (1000 birds)	49010	35930	*9,4*	*0,6*
Poultry - others (1000 birds)	13400	20470	*6,1*	*0,5*

The rearing of layers is in battery cages with a wide range of systems for handling the droppings including the use of conveyors (with and without drying) and deep pits storage under the building. The main alternative is free range production. The feeding is multi-phase with reduced protein with a balance provided in amino acids. Broilers and turkeys are produced in closed buildings with forced ventilation, artificial lighting and with litter removal at the end of each batch. Rearing of ducks is also done in closed buildings with forced ventilation and artificial lighting. Buildings in this case can be based on litter (this being removed at the end of the crop) or on partial slats with storage of wastes outside the building. These buildings are mechanically ventilated, well insulated and heated by gas or oil. Solid wastes are stored in the field for six months or less whereas this is below 2 months for slurries. Wastes are exported away from the farms. Spreading of wastes is done by spreader: rear-discharge beaters or rear-discharge spinning discs. The data relating to feeding allow some indication only that the feed regimes of broilers are multiphase. Nutritional information relating to geese was very limited and insufficient to allow an assessment.

Annexe 6

Analysed data

POULTRY PRODUCTION – PERCENTAGE OF NATIONAL STOCK

Poultry production - eggs (layers)

% of national stock

Cage battery systems for laying hens	UK	NL	CZ	IT	DE	ES	SE	CY	FI	LV	LT	BE_F	BE_W	PL	DK	PT	F
Type of cage																	
Flat – deck design	<20		<20			<20				40-60	>80	<20					<20
Stair- step design	<20	<20	>80	<20		<20				20-40	<20	<20		20-40	20-40		<20
Compact design	40-60	40-60	<20	>80	60-80	>80	<20		>80	20-40		60-80	>80	60-80	60-80	>80	60-80
Manure removal and storage																	
Slurry (water addition), stored under battery		<20								<20							<20
Slurry (water addition), with outside storage		<20								<20	<20				<20		<20
Wet droppings on belt with frequent removal	<20	<20	40-60	<20	<20	60-80	>80		>80	20-40	60-80	<20	<20		20-40	60-80	20-40
"Pre-dry" droppings on belt, with outside storage	<20	40-60	40-60	60-80	20-40	20-40				<20	<20	60-80	>80	60-80	20-40	20-40	20-40
Long term deep pit storage	<20		<20	<20	<20	<20		<20				<20			20-40		<20
Outside drying technology with daily removal		<20		<20		<20		>80				<20		<20			20-40
Other (specify)	<20																
Alternative systems for laying hens																	
Enriched cage																	
Manure removal and storage																	
Wet droppings on belt with frequent removal			<20	20-60-8	<20		>80		>80	<20	>80						20-40
"Pre-dry" droppings on belt, with outside storage	<20	<20	<20	60-80	<20		<20			<20		<20		<20	>80		60-80
Other (specify)																	
Non-cage systems																	
Type of building and manure removal/storage																	
Deep litter system – partially slatted, inhouse storage	<20	20-40	<20	>80	20-40	<20	20-40		20-40	<20	40-60		>80	<20	40-60		20-40
Deep litter system – partially slatted, manure belts		<20		<20	<20	<20	<20		60-80			<20					20-40
Aviary system – perch design, inhouse storage (deep pit)	<20				<20	<20	60-80	60-80			20-40			<20			<20
Aviary system – perch design, manure belts		20-40		<20	<20	<20		<20	<20			<20					<20
Free-range system	20-40	<20		<20	<20	60-80	<20	20-40			<20		80		40-60		
other (specify)			>80		20-40												
Feeding regime																	
Phase feeding (- 3 phases)	40-60	60-80	>80	40-60	>80	<20			>80	20-40	20-40	<20		60-80		>80	<20
Multiphase feeding (>3 phases)				40-60	<20	>80	>80	>80	<20	<20	60-80	<20	60-80		>80	>80	>80
Low Crude Protein + amino acid diet	>80	>80	>80	>80	<20	60-80	>80		40-60	20-40			60-80	<20	>80	>80	>80
Use of Phytase		>80	>80	40-60	20-40	>80	<20		40-60	<20		40-60	>80		>80	40-60	>80
Use High Digestibility Inorganic Phosphorus		>80	>80	>80	40-60	>80	>80		>80	<20			>80		>80	>80	>80
Additives (specify)			>80		60-80					<20						60-80	
Other system e.g. emerging system in																	

Poultry production - broiler

% of national stock

Full confinement	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**LV**	**LT**	**BE_F**	**BE_W**	**PL**	**DK**	**PT**	**F**
Forced ventilated	>80	>80	>80	>80	>80	>80	>80	20-40	>80		60-80	>80	>80	>80	>80	20-40	60-80
Naturally ventilated but including mechanical options	<20	<20		<20		<20	<20	60-80		<20	20-40	<20				60-80	20-40
Tonnes of meat per year																	
Type of building																	
Natural light	<20			>80	20-40	>80	>80	60-80			20-40	<20				>80	40-60
Windowless	>80	>80	>80	<20	40-60	<20	<20	20-40	>80		60-80	>80	>80	>80	>80	<20	40-60
Manure Management																	
Litter removal after harvest	>80	>80	>80	>80	>80	>80	>80	>80	>80		>80	>80	>80	>80	>80	>80	>80
Ventilated floor		<20				<20					<20						<20
Other (specify)					<20												
Semi open system																	Parcours
forced ventilated														<20			<20
naturally ventilated but including mechanical options					<20		>80						>80			>80	>80
Tonnes of meat per year																	
Manure Management																	
Litter removal after harvest				<20-60-8	>80		>80						>80	>80		>80	>80
Ventilated floor																	<20
other (specify)																	
Feeding regime																	
Phase feeding (- 3 phases)	>80	>80	>80		>80	<20		40-60	60-80			60-80					
Multiphase feeding		<20		>80		>80	>80	40-60	20-40		>80	<20	>80	>80	>80	>80	>80
Low Crude Protein + amino acid diet		>80	>80	>80	<20	>80	>80		60-80				60-80		>80	>80	>80
Use of Phytase	20-40	>80	>80	60-80	<20	>80	<20		>80			60-80	>80		>80		>80
Use High Digestibility Inorganic Phosphorus		>80	>80	>80	20-40	>80	>80		>80				>80		>80		>80
Additives (specify)			>80		60-80											>80	
Other system e.g. emerging system in																	

Poultry production - Turkey

% of national stock

Full confinement	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**LV**	**LT**	**BE_F**	**BE_W**	**PL**	**DK**	**PT**	**F**
Forced ventilated	>80	60-80	>80	20-40	<20		<20		>80		>80			>80	60-80		60-80
Naturally ventilated but including mechanical options	<20	20-40		60-80			>80				<20				20-40	>80	20-40
Tonnes of meat per year																	
Type of building																	
Natural light	<20	20-40		>80	<20		>80				<20				20-40	>80	40-60
Windowless	>80	60-80	>80	<20	<20		<20		>80		>80			>80	60-80		40-60
Manure Management																	
Litter removal after harvest	>80	>80	>80	>80	>80		>80		>80		>80				>80	>80	>80
Ventilated floor	<20										<20						<20
Other (specify)																	
Semi open system																	
forced ventilated	<20	3									<20			>80			<20
naturally ventilated but including mechanical options	<20				60-80						>80					>80	>80
Tonnes of meat per year																	
Manure Management																	
Litter removal after harvest	<20	>80		<20-60-80	>80						>80			>80		>80	>80
Ventilated floor											<20						
other (specify)					<20												
Feeding regime																	
Phase feeding (- 3 phases)	>80		>80						>80								
Multiphase feeding		>80		>80	>80				60-80		>80			>80	>80	>80	>80
Low Crude Protein + amino acid diet		>80	>80	>80	<20				>80		<20				>80	>80	>80
Use of Phytase	20-40	>80	>80	60-80	20-40				>80						>80		>80
Use High Digestibility Inorganic Phosphorus		>80	>80	>80	40-60										>80		>80
Additives (specify)			>80		60-80											>80	
Other system e.g. emerging system in developement																	

Web-footed birds (ducks)

% of national stock

Full confinement	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**LV**	**LT**	**BE_F**	**BE_W**	**PL**	**DK**	**PT**	**F**
Forced ventilated	40-60	>80	>80		60-80				>80				>80	40-60			60-80
Naturally ventilated but including mechanical options	20-40	<20													>80	>80	20-40
Tonnes of meat per year																	
Type of building																	
Natural light	20-40	20-40			20-40								40-60		>80	>80	60-80
Windowless	40-60	60-80	>80		40-60								40-60	>80	<20		20-40
Floor type																	
Solid floor with litter	40-60	>80			>80				>80				<20	40-60	>80	20-40	<20
Partly slatted/restricted litter	40-60	<20	>80												<20	20-40	
Fully slatted													>80	20-40		<20	>80
Manure Management																	
Litter removal after harvest	>80	>80	>80		>80				>80					>80	>80	40-60	<20
slurry storage outside building	60-80												>80	20-40	<20		>80
slurry storage underneath the animals																40-60	<20
Ventilated floor (underfloor litter drying system)																	
other (specify)																	
Semi open system																	
forced ventilated																	
naturally ventilated but including mechanical options	20-40				20-40		>80				>80		>80	40-60			>80
Tonnes of meat per year																	
Floor type																	
Solid florr / littered	<20				>80		>80				>80		>80	>80			>80
Partly slatted / Partly littered	<20																
Fully slatted																	
Manure Management																	
Litter removal after harvest					>80		>80				>80		>80	>80			>80
Ventilated floor																	
Other (specify)																	
Feeding regime																	
Phase feeding (- 3 phases)	>80	60-80	>80		>80									>80			
Multiphase feeding		<20									>80				>80	>80	>80
Low Crude Protein + amino acid diet		>80	>80		<20										>80	>80	>80
Use of Phytase	<20	>80	>80		<20										>80		?
Use High Digestibility Inorganic Phosphorus		>80	>80		20-40								>80		>80		>80
Additives (specify)			<20		60-80											>80	
Other system e.g. emerging system in developement																	

Web-footed birds (geese)

% of national stock

Full confinement	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**LV**	**LT**	**BE$_F$**	**BE$_W$**	**PL**	**DK**	**PT**	**F**
Forced ventilated														40-60			
Naturally ventilated but including mechanical options	<20																<20
Tonnes of meat per year																	
Type of building																	
Natural light																	>80
Windowless														>80			
Floor type																	
Solid floor with litter														40-60			>80
Partly slatted/restricted litter																	
Fully slatted														20-40			
Manure Management																	
Litter removal after harvest														>80			>80
slurry storage outside building														20-40			
slurry storage underneath the animals																	
Ventilated floor (underfloor litter drying system)																	
other (specify)																	
Semi open system																	
forced ventilated					<20												
naturally ventilated but including mechanical options	<20				>80		>80				>80			40-60			>80
Tonnes of meat per year																	
Floor type																	
Solid florr / littered	<20				>80		>80				>80			>80			>80
Partly slatted / Partly littered					<20												
Fully slatted																	
Manure Management																	
Litter removal after harvest					>80		>80				>80			>80			>80
Ventilated floor																	
Other (specify)																	
Feeding regime																	
Phase feeding (- 3 phases)	>80				>80									>80			
Multiphase feeding					<20						>80						>80
Low Crude Protein + amino acid diet																	?
Use of Phytase	<20																?
Use High Digestibility Inorganic Phosphorus					20-40												
Additives (specify)																	
Other system e.g. emerging system in developement																	

Building characteristics

% of national stock

	UK	NL	CZ	IT	DE	ES	SE	CY	FI	LV	LT	BE_F	BE_W	PL	DK	PT	F
Confinement system																	
Closed housing, well insulated (a)	>80	>80	>80	40-60	>80	>80	>80	<20	>80	20-40	60-80	40-60	>80	>80	60-80	<20	60-80
Closed housing, poorly insullated	<20	<20	<20	40-60		<20		<20		<20	20-40	40-60		<20	<20	>80	<20
Open climate housing	<20	<20		<20	<20	<20	60-80	60-80				<20	<20			<20	<20
(a) eg: transfer coefficient, U, lower than 0,4 W/m^2/K																	
Heating elements in floor or in ceiling		20-40			<20	<20	40-60								<20		
Heating elements radiating heat onto animal		<20		60-80	>80	>80	>80			20-40	<20		<20		<20	40-60	
Preheating air incoming the housing area		<20	<20			>80				<20		<20	<20	>80	40-60	20-40	
Gas/fuel heater	60-80	60-80	>80	>80	>80	60-80			60-80		60-80	40-60	>80		20-40	60-80	>80
Electric heater			<20	<20		20-40	20			20-40	<20			<20			
Other heating system (specify)				60-80	<20		>80	>80	20-40				>80				
Air conditioning (spraying, cooling…)		60-80	20-40	40-60	<20	>80		<20							>80	<20	40-60
Other (specify)																	
Natural hand controlled ventilation		<20		<20		<20	60-80	60-80							<20	<20	20-40
Automatically controlled natural ventilation		<20		<20		<20		<20		<20			<20		>80		40-60
Mechanical ventilation	>80	>80	>80	>80	>80	>80	>80		>80	<20	>80	60-80	>80	>80	>80		40-60
Combined system (specify)					<20					<20	<20			<20		>80	40-60
Ventilation - inlet air treatment (cooling, spraying water/oil, other - specify)		60-80		40-60	20-40	>80		20-40				<20	<20	60-80	40-60	>80	40-60
Ventilation - outlet biological air treatment (biofilter, scrubber, combined systems -		<20				<20						<20					
Ventilation - outlet chemical/physical air treatment (scrubber, UV, radiation -specify)		<20				<20						<20					
Other (specify)																	
Other system e.g. emerging system in developement																	

Manure storage and handling

% of national stock

Solid Manure storage	UK	NL	CZ	IT	DE	ES	SE	CY	FI	LV	LT	BE_F	BE_W	PL	DK	PT	F
Storage capacity (on farm)																	
< 2 months	20-40	40-60		40-60		<20			<20								
4 months	<20	<20		40-60		<20								<20			>80
6 months	40-60	<20	<20	<20	60-80	40-60	>80	40-60				60-80		>80			
8 months	<20	<20		<20	20-40	40-60		<20			>80						
10 months	<20	<20				<20	>80	<20							>80		
> 12 months	<20	20-40				<20		<20	>80						<20		
Type and construction																	
Uncovered field storage	40-60		<20	40-60	20-40	60-80		>80				<20		>80			40-60
Covered field storage						<20			<20			<20			40-60		<20
Concrete floor without walls and roof	<20			20-40		<20	2<20		>80	20-40		<20			<20		<20
Contrete floor with walls but without roof					<20	<20	60-80	<20		<20	>80	<20					<20
Concrete floor with walls and roof	<20	<20	<20	20-40		<20	<20				<20	<20			20-40		<20
Store leakage control (drains, bins)					<20	20-40									20-40		<20
Separated storage of seepage (drainage)					<20	20-40	>80								20-40		
Other (specify)	<20	20-40	>80		10-70							40-60		<20			
Liquid Manure storage																	
Storage capacity (on farm)																	
< 2 months	60-80									<20							
4 months										<20				<20		<20	>80
6 months														>80			
8 months							40-60				>80						
10 months							40-60								<20		
> 12 months		<20							>80								
Type and construction																	
Deep pit storage below animals		<20													<20	>80	<20
Concrete stores							>80		>80	<20	>80			60-80	<20		<20
Steel panels stores											<20			<20			
Wood panels stores																	
Other material (specify)																	
Below-ground	40-60	<20					40-60		>80		<20						
Above ground	<20						40-60				>80			>80	<20		
Earth banked lagoon																	
Flexible storage										<20							40-60
Other store type (specify)																	
No cover											<20						>80
Natural crust cover							>80							>80	<20		
Artificial floating covers (specify material)											>80						
Roof or tent																	<20
Concrete lid																	
Other cover (specify)																	
Leakage control (drains, binds)?											>80				<20		
Manure Handling																	
Spreading equipment																	
Solid spreader	>80			>80	>80	>80		>80		<20				>80			60-80
Side-discharge spreader	20-40		20-40	20-40	<20	<20			20-40								
Rear-discharge beaters spreader	60-80			20-40	60-80	<20											
Rear-discharge spinning discs spreader	60-80			20-40	20-40	<20			60-80						>80		
Liquid spreader										<20							>80
Vacuum tanker with splash plate														<20			
Band spreader																	
Trailing hoses/shoes																	
Injection into soil															<20		<20
Irrigation systems																	
Other spreading system (specify)				>80													
Manure processing																	
Solids separation (from slurry)																	<20
Solids composting		<20	<20	<20		20-40					>80			<20			<20
Drying process		20-40		<20		<20		>80		<20				>80	<20		<20
Exportation from farm	40-60	60-80	60-80	20-40	60-80	60-80			60-80	40-60					40-60		<20
Aerobic treatment on farm			20-40			<20			<20	<20	<20						
Anaerobic treatment on farm						<20											
Other treatment (specify)	20-40																
Additives (specify)			20-40	20-40													
Other system e.g. emerging system in developement																	

Annexe 7

Analysed data

POULTRY PRODUCTION – APPLICATION ON IPPC FARMS

Poultry production - eggs (layers)

Application on IPPC-Farms

Cage battery systems for laying hens	UK	NL	CZ	IT	DE	ES	SE	CY	FI	LV	LT	BE_F	BE_W	PL	DK	PT	F
Type of cage																	
Flat – deck design	R		R			R								G			R
Stair- step design	R	R	G	R		R					C			R			R
Compact design	C	G	R	G	C	G			G			C		RG	G	G	G
Manure removal and storage																	
Slurry (water addition), stored under battery		R												R			R
Slurry (water addition), with outside storage		R												G			R
Wet droppings on belt with frequent removal	R	R	G	R	R	C			G					R	G	C	R
"Pre-dry" droppings on belt, with outside storage	C	G	G	C	C	C					C	C		RC		G	C
Long term deep pit storage	C		R	C	R			C						R			R
Outside drying technology with daily removal		C		R				C						R			G
Other (specify)	R																
Alternative systems for laying hens																	
Enriched cage																	
Manure removal and storage																	
Wet droppings on belt with frequent removal		R	R	R	R		G		G		G			G			R
"Pre-dry" droppings on belt, with outside storage	R	R	R	C	R		R					R		R	G		G
Other (specify)																	
Non-cage systems																	
Type of building and manure removal/storage																	
Deep litter system – partially slatted, inhouse storage	R	G	R	G	C	R					G			C	G		C
Deep litter system – partially slatted, manure belts		C		R	C	R			G			R		R			C
Aviary system – perch design, inhouse storage (deep pit)	C				R	R	G	R						G			C
Aviary system – perch design, manure belts		G		R	C	R		C				R		R			C
Free-range system	R	C		R	R	R		C						R	G		
other (specify)		C	G		C												
Feeding regime																	
Phase feeding (- 3 phases)	G	G	G	C	G	R			G					RC		G	R
Multiphase feeding (>3 phases)				C	R	G	G	G			G			G	G	G	G
Low Crude Protein + amino acid diet		G	G	G	R	G	G		C					G	G	G	G
Use of Phytase		G	G	C	C	G	R		C					C	G	C	G
Use High Digestibility Inorganic Phosphorus		G	G	G	C	G	G		G					C	G	G	G
Additives (specify)			G		C											C	
	48	72	60	68	72	60	28	24	32	0	20	20	0	84	36	36	80

Poultry production - broiler

Application on IPPC-Farms

Full confinement	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**LV**	**LT**	**BE_F**	**BE_W**	**PL**	**DK**	**PT**	**F**
Forced ventilated	G	G	G	G	C	G	G	C	G		G	G		GG	G	R	C
Naturally ventilated but including mechanical options	R	R		R				C						R		G	C
Tonnes of meat per year																	
Type of building																	
Natural light	R			G	C	G	G	C						R		G	C
Windowless	G	G	G	R	C	R		C	G		G	G		GC	G	R	C
Manure Management																	
Litter removal after harvest	G	G	G		G	G		G	G					GC		G	G
Ventilated floor		R												R			
Other (specify)					C												
Semi open system																	
forced ventilated		R												C			R
naturally ventilated but including mechanical options		R			R												G
Tonnes of meat per year																	
Manure Management																	
Litter removal after harvest					C		G							C			G
Ventilated floor																	
other (specify)																	
Feeding regime																	
Phase feeding (- 3 phases)	G	G	G		C	R		G	G					R			
Multiphase feeding		R		G		G	G							GC	G	G	G
Low Crude Protein + amino acid diet		G	G	G	C	G	G		G					G	G	G	G
Use of Phytase		G	C	C	C	G	R		G					C	G		G
Use High Digestibility Inorganic Phosphorus		G	G	G	C	G			G					G	G		G
Additives (specify)			G		C											G	
Other system e.g. emerging system in																	
	30	60	40	40	60	45	30	30	35	0	10	10	0	65	30	40	60

Poultry production - Turkey

Application on IPPC-Farms

Full confinement	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**LV**	**LT**	**BE_F**	**BE_W**	**PL**	**DK**	**PT**	**F**
Forced ventilated	G	G	G	C	C				G		G			R	G		C
Naturally ventilated but including mechanical options	R	C		C			G									G	C
Tonnes of meat per year																	
Type of building																	
Natural light	R			G	C											G	C
Windowless	G	G	G	R	C		G		G		G			R	G		C
Manure Management																	
Litter removal after harvest		G		G	G				G		G				G	G	G
Ventilated floor							G										
Other (specify)																	
Semi open system																	
forced ventilated	R													R			R
naturally ventilated but including mechanical options	R				C						C						G
Tonnes of meat per year																	
Manure Management																	
Litter removal after harvest					G						G			R			G
Ventilated floor																	
other (specify)					C												
Feeding regime																	
Phase feeding (- 3 phases)	G		G						G								
Multiphase feeding		G		G	G				G		C			C	G	G	G
Low Crude Protein + amino acid diet		G	G	G	C				G						G	G	G
Use of Phytase		G	G	C	C				G						G		G
Use High Digestibility Inorganic Phosphorus		G	G	G	C										G		G
Additives (specify)			G		C											G	
Other system e.g. emerging system in developement																	
	35	40	35	45	60	0	15	0	35	0	30	0	0	25	35	30	60

Web-footed birds (ducks)

Application on IPPC-Farms

Full confinement	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**LV**	**LT**	**BE_F**	**BE_W**	**PL**	**DK**	**PT**	**F**
Forced ventilated	C	G	G		C									C			C
Naturally ventilated but including mechanical options	R														G	G	C
Tonnes of meat per year																	
Type of building																	
Natural light					C										G	G	C
Windowless		G	G		C									C			G
Floor type																	
Solid floor with litter		G	G		G										G	C	R
Partly slatted/restricted litter			G													C	R
Fully slatted														C		R	G
Manure Management																	
Litter removal after harvest		G			G									C	G	C	
slurry storage outside building																	G
slurry storage underneath the animals																C	
Ventilated floor (underfloor litter drying system)																	
other (specify)																	
Semi open system																	
forced ventilated																	
naturally ventilated but including mechanical options	R				C									C			G
Tonnes of meat per year																	
Floor type																	
Solid florr / littered					G									C			G
Partly slatted / Partly littered																	
Fully slatted																	
Manure Management																	
Litter removal after harvest					G									C			
Ventilated floor																	
Other (specify)																	
Feeding regime																	
Phase feeding (- 3 phases)	G	G	G		G									C			
Multiphase feeding															G	G	G
Low Crude Protein + amino acid diet		G	G		C										G	G	G
Use of Phytase		G	G		C										G		
Use High Digestibility Inorganic Phosphorus		G	G		C										G		G
Additives (specify)			R		C											G	
Other system e.g. emerging system in developement	15	31	35	0	50	0	0	0	0	0	0	0	0	31	31	38	50

Web-footed birds (geese)

Application on IPPC-Farms

Full confinement	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**LV**	**LT**	**BE_F**	**BE_W**	**PL**	**DK**	**PT**	**F**
Forced ventilated														C			
Naturally ventilated but including mechanical options																	
Tonnes of meat per year																	
Type of building																	
Natural light																	G
Windowless														C			
Floor type																	
Solid floor with litter																	G
Partly slatted/restricted litter																	
Fully slatted														C			
Manure Management																	
Litter removal after harvest														C			G
slurry storage outside building																	
slurry storage underneath the animals																	
Ventilated floor (underfloor litter drying system)																	
other (specify)																	
Semi open system																	
forced ventilated					C												
naturally ventilated but including mechanical options					C									C			G
Tonnes of meat per year																	
Floor type																	
Solid florr / littered					C									C			G
Partly slatted / Partly littered					C												
Fully slatted																	
Manure Management																	
Litter removal after harvest					C												G
Ventilated floor																	
Other (specify)																	
Feeding regime																	
Phase feeding (- 3 phases)					C									C			
Multiphase feeding					C												G
Low Crude Protein + amino acid diet																	
Use of Phytase																	
Use High Digestibility Inorganic Phosphorus																	
Additives (specify)																	
Other system e.g. emerging system in developement	0	0	0	0	27	0	0	0	0	0	0	0	0	27	0	0	27

Building characteristics

Application on IPPC-Farms

	UK	NL	CZ	IT	DE	ES	SE	CY	FI	LV	LT	BE_F	BE_W	PL	DK	PT	F
Confinement system																	
Closed housing, well insulated (a)	G	G	G	C	C	G	G	C	G		G			GC	G	C	C
Closed housing, poorly insullated	R	R		C		R		C						RC		G	R
Open climate housing	R			R		R		C						R		R	C
(a) eg: transfer coefficient, U, lower than 0,4 W/m^2/K																	
Heating elements in floor or in ceiling		C			R	R								G	G		
Heating elements radiating heat onto animal		R		C		G								R	G	C	
Preheating air incoming the housing area		R	R			G								RC	G	R	
Gas/fuel heater	C	G	G	G	C	G			G					G		G	G
Electric heater			R	R		C								C			
Other heating system (specify)				C	R			C	G								
Air conditioning (spraying, cooling…)		G		C	R	G		C									
Other (specify)																	
Natural hand controlled ventilation				R		R		C						C			
Automatically controlled natural ventilation	R	R		R		R		R						C	G		
Mechanical ventilation	G	G	G	G	G	G			G		G			GC	G		G
Combined system (specify)					C											G	
Ventilation - inlet air treatment (cooling, spraying water/oil, other - specify)		G		C	C			C						C	C	R	C
Ventilation - outlet biological air treatment (biofilter, scrubber, combined systems -		R												C	G		
Ventilation - outlet chemical/physical air treatment (scrubber, UV, radiation -specify)		R												R	G		
Other (specify)																	
Other system e.g. emerging system in developement	32	63	26	63	42	63	5	42	21	0	11	0	0	74	47	42	32

Manure storage and handling

Application on IPPC-Farms

Solid Manure storage	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**LV**	**LT**	**BE_F**	**BE_F**	**PL**	**DK**	**PT**	**F**
Storage capacity (on farm)																	
< 2 months		G		C		R											
4 months		R		C		R								R		G	G
6 months		R		R	C	C		C						CC			
8 months		R		R	C	C					G			G			
10 months		R				R	G								G		
> 12 months		C				R			G						G		
Type and construction																	
Uncovered field storage	C		R	C	C	G		C						RC			C
Covered field storage			R			R								C	G		C
Concrete floor without walls and roof	R		R	C		R			G					C			R
Contrete floor with walls but without roof			R		C	R		C			G			G			R
Concrete floor with walls and roof	C	C	R	C		R									G	G	C
Store leakage control (drains, bins)					C	C									G	R	
Separated storage of seepage (drainage)					C	C									G		
Other (specify)		G-G	G-G		C-C							G		R		G	
Liquid Manure storage																	
Storage capacity (on farm)																	
< 2 months														R			
4 months														C		C	G
6 months														GR			
8 months											G						
10 months															G		
> 12 months		R							G								
Type and construction																	
Deep pit storage below animals														R	C	G	
Concrete stores							C		G		G			C	C		
Steel panels stores														G			
Wood panels stores														C			
Other material (specify)																	
Below-ground							C		G					R			
Above ground							C				G			RC	C	G	
Earth banked lagoon														G			
Flexible storage														C			
Other store type (specify)																	
No cover														C			
Natural crust cover							G							GC	C		
Artificial floating covers (specify material)											G						
Roof or tent														C			
Concrete lid														R			
Other cover (specify)																	
Leakage control (drains, binds)?											G				C		
Manure Handling																	
Spreading equipment																	
Solid spreader				G	C	G		C						C			
Side-discharge spreader			R	C	R	R											
Rear-discharge beaters spreader				C	C	R								G			
Rear-discharge spinning discs spreader				C	C	R			G					C	G		
Liquid spreader																	
Vacuum tanker with splash plate														R			
Band spreader																	
Trailing hoses/shoes																	
Injection into soil															G		
Irrigation systems																	
Other spreading system (specify)				G													
Manure processing																	
Solids separation (from slurry)														G			C
Solids composting		R	R	R		C					G			CR		R	C
Drying process		G		R		R		C						RC	C		C
Exportation from farm		G	G	C	C	G			G						C	G	C
Aerobic treatment on farm			C			R			R					R			
Anaerobic treatment on farm						R											
Other treatment (specify)														G		G	
Additives (specify)			C	C													
Other system e.g. emerging system in developement	5	21	20	29	21	39	9	9	14	0	14	2	0	57	29	18	20

Annexe 8

Analysed data

POULTRY PRODUCTION – APPLICATION ON NEW BUILD FARMS

Poultry production - eggs (layers)

Application on new build farms

Cage battery systems for laying hens	UK	NL	CZ	IT	DE	ES	SE	CY	FI	LV	LT	BE_F	BE_W	PL	DK	PT	F
Type of cage																	
Flat – deck design														X			
Stair- step design			X								X			X			
Compact design	X		X	X	X	X	X							X		X	X
Manure removal and storage																	
Slurry (water addition), stored under battery																	
Slurry (water addition), with outside storage																	
Wet droppings on belt with frequent removal			X			X											
"Pre-dry" droppings on belt, with outside storage	X		X	X	X	X					X					X	
Long term deep pit storage			X	X				X									
Outside drying technology with daily removal				X				X									X
Other (specify)																	
Alternative systems for laying hens																	
Enriched cage																	
Manure removal and storage																	
Wet droppings on belt with frequent removal			X		X		X		X		X						
"Pre-dry" droppings on belt, with outside storage	X			X	X							X		X	X		X
Other (specify)																	
Non-cage systems																	
Type of building and manure removal/storage																	
Deep litter system – partially slatted, inhouse storage		X	X	X							X				X		
Deep litter system – partially slatted, manure belts		X		X	X				X			X					
Aviary system – perch design, inhouse storage (deep pit)							X										
Aviary system – perch design, manure belts		X		X	X				X			X					X
Free-range system	X			X	X										X		
other (specify)		X			X												
Feeding regime																	
Phase feeding (- 3 phases)		X	X	X	X				X							X	
Multiphase feeding (>3 phases)				X	X	X	X	X			X				X	X	X
Low Crude Protein + amino acid diet		X	X	X	X	X	X		X						X	X	X
Use of Phytase		X	X	X	X	X			X						X	X	X
Use High Digestibility Inorganic Phosphorus		X	X	X	X	X	X		X						X	X	X
Additives (specify)			X		X											X	
Other system e.g. emerging system in	16	32	48	56	56	28	24	12	28	0	20	12	0	16	28	32	32

Poultry production - broiler

Application on new build farms

Full confinement	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**LV**	**LT**	**BE$_F$**	**BE$_W$**	**PL**	**DK**	**PT**	**F**
Forced ventilated		X	X	X	X	X	X	X	X		X	X		X	X	X	X
Naturally ventilated but including mechanical options																X	X
Tonnes of meat per year																	
Type of building																	
Natural light				X	X	X	X									X	X
Windowless		X	X	X	X	X		X	X		X	X		X	X	X	X
Manure Management																	
Litter removal after harvest		X	X		X	X		X	X					X		X	X
Ventilated floor																	
Other (specify)																	
Semi open system																	
forced ventilated														X			
naturally ventilated but including mechanical options					X											X	X
Tonnes of meat per year																	
Manure Management																	
Litter removal after harvest					X		X							X			X
Ventilated floor																	
other (specify)																	
Feeding regime																	
Phase feeding (- 3 phases)		X	X		X				X								
Multiphase feeding				X		X	X				X			X	X	X	X
Low Crude Protein + amino acid diet		X	X	X	X	X	X		X						X	X	X
Use of Phytase		X	X	X	X	X			X						X		X
Use High Digestibility Inorganic Phosphorus		X	X	X	X	X			X						X		X
Additives (specify)			X		X											X	
Other system e.g. emerging system in																	
	0	35	40	35	55	40	25	15	35	0	15	10	0	30	30	45	55

Poultry production - Turkey

Application on new build farms

Full confinement	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**LV**	**LT**	**BE$_F$**	**BE$_W$**	**PL**	**DK**	**PT**	**F**
Forced ventilated		X	X	X	X		X		X		X			X	X		X
Naturally ventilated but including mechanical options		X														X	X
Tonnes of meat per year																	
Type of building																	
Natural light		X		X												X	X
Windowless		X	X	X			X		X		X				X		X
Manure Management																	
Litter removal after harvest		X		X	X		X		X		X				X	X	X
Ventilated floor																	
Other (specify)																	
Semi open system																	
forced ventilated														X			
naturally ventilated but including mechanical options					X						X					X	X
Tonnes of meat per year																	
Manure Management																	
Litter removal after harvest		X			X						X			X		X	X
Ventilated floor																	
other (specify)																	
Feeding regime																	
Phase feeding (- 3 phases)			X						X								
Multiphase feeding		X		X	X				X		X			X	X	X	X
Low Crude Protein + amino acid diet		X	X	X	X				X						X	X	X
Use of Phytase		X	X	X	X				X						X		X
Use High Digestibility Inorganic Phosphorus		X	X	X	X										X		X
Additives (specify)			X		X											X	
Other system e.g. emerging system in developement																	
	0	50	35	40	45	0	15	0	35	0	30	0	0	20	35	40	55

Web-footed birds (ducks)

Application on new build farms

Full confinement	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**LV**	**LT**	**BE_F**	**BE_W**	**PL**	**DK**	**PT**	**F**
Forced ventilated		X			X				X					X			X
Naturally ventilated but including mechanical options															X	X	
Tonnes of meat per year																	
Type of building																	
Natural light															X	X	X
Windowless		X	X											X			X
Floor type																	
Solid floor with litter		X			X										X	X	
Partly slatted/restricted litter			X													X	
Fully slatted														X			X
Manure Management																	
Litter removal after harvest		X			X									X	X	X	
slurry storage outside building																	X
slurry storage underneath the animals																X	
Ventilated floor (underfloor litter drying system)																	
other (specify)																	
Semi open system																	
forced ventilated																	
naturally ventilated but including mechanical options					X		X							X			X
Tonnes of meat per year																	
Floor type																	
Solid florr / littered					X		X							X			X
Partly slatted / Partly littered																	
Fully slatted																	
Manure Management																	
Litter removal after harvest					X									X			
Ventilated floor																	
Other (specify)																	
Feeding regime																	
Phase feeding (- 3 phases)		X	X		X									X			
Multiphase feeding															X	X	X
Low Crude Protein + amino acid diet		X	X		X										X	X	X
Use of Phytase		X	X		X										X		X
Use High Digestibility Inorganic Phosphorus		X	X		X										X		X
Additives (specify)					X											X	
Other system e.g. emerging system in developement	0	31	23	0	42	0	8	0	4	0	0	0	0	31	31	35	42

Web-footed birds (geese)

Application on new build farms

Full confinement	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**LV**	**LT**	**BE_F**	**BE_W**	**PL**	**DK**	**PT**	**F**
Forced ventilated														X			
Naturally ventilated but including mechanical options																	
Tonnes of meat per year																	
Type of building																	
Natural light																	X
Windowless														X			
Floor type																	
Solid floor with litter																	X
Partly slatted/restricted litter																	
Fully slatted														X			
Manure Management																	
Litter removal after harvest														X			X
slurry storage outside building																	
slurry storage underneath the animals																	
Ventilated floor (underfloor litter drying system)																	
other (specify)																	
Semi open system																	
forced ventilated																	
naturally ventilated but including mechanical options							X							X			X
Tonnes of meat per year																	
Floor type																	
Solid florr / littered							X							X			X
Partly slatted / Partly littered																	
Fully slatted																	
Manure Management																	
Litter removal after harvest																	X
Ventilated floor																	
Other (specify)																	
Feeding regime																	
Phase feeding (- 3 phases)														X			
Multiphase feeding																	X
Low Crude Protein + amino acid diet																	
Use of Phytase																	
Use High Digestibility Inorganic Phosphorus																	
Additives (specify)																	
Other system e.g. emerging system in developement	0	0	0	0	0	0	8	0	0	0	0	0	0	27	0	0	27

Building characteristics

Application on new build farms

	UK	NL	CZ	IT	DE	ES	SE	CY	FI	LV	LT	BE_F	BE_W	PL	DK	PT	F
Confinement system																	
Closed housing, well insulated (a)	X	X	X	X	X	X	X	X	X		X			X	X	X	X
Closed housing, poorly insullated														X			
Open climate housing	X																
(a) eg: transfer coefficient, U, lower than 0,4 W/m^2/K																	
Heating elements in floor or in ceiling		X													X		
Heating elements radiating heat onto animal		X		X	X	X									X	X	
Preheating air incoming the housing area						X								X	X		
Gas/fuel heater		X	X	X	X	X			X		X					X	X
Electric heater				X													
Other heating system (specify)				X	X			X	X								
Air conditioning (spraying, cooling…)		X	X	X	X	X		X									
Other (specify)																	
Natural hand controlled ventilation				X													
Automatically controlled natural ventilation				X											X		
Mechanical ventilation		X	X	X	X	X			X		X			X	X		X
Combined system (specify)					X											X	
Ventilation - inlet air treatment (cooling, spraying water/oil, other - specify)		X		X	X			X						X	X	X	X
Ventilation - outlet biological air treatment (biofilter, scrubber, combined systems -															X		
Ventilation - outlet chemical/physical air treatment (scrubber, UV, radiation -specify)															X		
Other (specify)																	
Other system e.g. emerging system in developement	11	37	21	53	42	32	5	21	21	0	16	0	0	26	47	26	21

Manure storage and handling

Application on new build farms

Solid Manure storage	UK	NL	CZ	IT	DE	ES	SE	CY	FI	LV	LT	BE_F	BE_W	PL	DK	PT	F
Storage capacity (on farm)																	
< 2 months		X		X		X											
4 months				X												X	X
6 months				X	X			X						X			
8 months				X	X						X						
10 months							X								X		
> 12 months									X						X		
Type and construction																	
Uncovered field storage				X	X									X			
Covered field storage															X		
Concrete floor without walls and roof				X					X								
Contrete floor with walls but without roof					X			X			X						
Concrete floor with walls and roof				X		X									X	X	X
Store leakage control (drains, bins)					X	X									X	X	
Separated storage of seepage (drainage)					X	X									X		
Other (specify)			X		X							X		X		X	
Liquid Manure storage																	
Storage capacity (on farm)																	
< 2 months																	
4 months																X	X
6 months														X			
8 months											X						
10 months																	
> 12 months									X								
Type and construction																	
Deep pit storage below animals															X		
Concrete stores							X		X		X			X			
Steel panels stores																	
Wood panels stores																	
Other material (specify)																	
Below-ground							X		X								
Above ground							X				X			X		X	
Earth banked lagoon																	
Flexible storage																	X
Other store type (specify)																	
No cover																	
Natural crust cover							X							X			
Artificial floating covers (specify material)											X						
Roof or tent																	X
Concrete lid																	
Other cover (specify)																	
Leakage control (drains, binds)?											X						
Manure Handling																	
Spreading equipment																	
Solid spreader				X	X	X								X			X
Side-discharge spreader				X													
Rear-discharge beaters spreader				X	X												
Rear-discharge spinning discs spreader				X	X				X						X		
Liquid spreader																	X
Vacuum tanker with splash plate																	
Band spreader																	
Trailing hoses/shoes																	
Injection into soil															X		
Irrigation systems																	
Other spreading system (specify)				X													
Manure processing																	
Solids separation (from slurry)																	X
Solids composting				X							X					X	X
Drying process		X		X											X		X
Exportation from farm		X	X	X	X	X			X						X		X
Aerobic treatment on farm			X														
Anaerobic treatment on farm																	
Other treatment (specify)																X	
Additives (specify)			X	X													
Other system e.g. emerging system in developement	0	5	7	29	20	11	9	4	13	0	14	2	0	14	20	14	20

Annexe 9

Analysed data

PIG PRODUCTION – PERCENTAGE OF NATIONAL STOCK

Pig production - mating & gestating sows

% of national stock

valeur exacte donnée mais rempalcée par catégorie pour harmonisation

Full confinement system	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**PL**	**LV**	**BE_F**	**BE_W**	**DK**	**EE**	**PT**	**AT**	**F**
Housing system																		
Individual		40-60		40-60	60-80	60-80		60-80	<20	20-40	40-60	60-80	60-80	20-40			40-60	60-80
Group-housed	60-80	40-60		40-60	20-40	20-40	>80	20-40	>80	60-80	40-60	20-40	<20	60-80	>80		40-60	20-40
Combined in a yard	20-40		>80		<20	<20	<20	<20							<20			
Floor type																		
Fully slatted floor	<20		<20	20-40	<20	<20		20-40	<20		20-40	60-80	60-80		<20		<20	60-80
Partly slatted floor	<20	>80	>80	60-80	>80	60-80	<20	60-80	60-80	<20	60-80	20-40	<20	60-80	<20		40-60	20-40
Solid floor with bedding	>80	<20	<20	0-20	<20	<20	<20	<20	<20	>80		<20	<20	20-40	60-80			<20
Other floor (specify)				0-20			60-80				40-60							
Manure collection																		
Underground deep pit	<20	60-80	<20	20-40		60-80			<20		20-40	40-60	60-80					>80
Vacuum system & frequent slurry removal	<20	20-40	20-40	<20	>80	<20	<20	<20	<20	<20	<20		<20	40-60	<20			
Flush channels using fresh or treated slurry				<20							<20			<20				
Flush gutter/pipe using fresh or treated slurry		<20		<20						<20	<20				<20			
Reduced manure pit	<20	<20	20-40	40-60		<20				40-60	<20	20-40		<20	<20			
Manure scraper	60-80		40-60	<20			20-40	60-80	60-80	<20	<20			20-40	60-80			
Deep litter		<20	<20		<20	<20	60-80		<20			<20		<20	<20		<20	<20
Other (specify)																		
Feeding Regime																		
Solid diet	60-80	>80	60-80	20-40	<20	>80	20-40	>80	40-60	>80	60-80	>80	60-80	40-60	>80	>80		40-60
Liquid diet	20-40	<20	20-40	60-80	20-40	<20	>80	<20	40-60		40-60	<20	<20	40-60	<20	<20		40-60
Diet control / restricted	>80	>80	>80	>80	>80	>80		>80				>80	>80	>80	20-40		>80	>80
Phase feeding (1 - 2 phases)	>80	<20	>80	60-80		<20			>80	<20	<20	40-60	>80		40-60	>80		
Multiphase feeding	<20	<20	>80			<20		>80	<20			20-40						
Low crude protein + amino acid diet	<20		>80			<20	>80	20-40	60-80		60-80	<20		>80		>80		>80
Use of phytase	20-40	>80	>80		<20	60-80	<20	<20	20-40		<20	>80		>80		20-40		60-80
Use of inorganic, phosphorus	20-40	20-40	>80	>80	<20	60-80		<20	>80		60-80			>80		40-60		60-80
Additives (specify)			60-80	<20	<20						<20					20-40		
Other feeding strategies (specify)					60-80						40-60					40-60		
Other system e.g. emerging system in developement																		

Pig production - Farrowing sows

% of national stock

valeur exacte donnée mais rempalcée par catégorie pour harmonisation

Full confinement system	UK	NL	CZ	IT	DE	ES	SE	CY	FI	PL	LV	BE_F	BE_W	DK	EE	PT	AT	F
Housing system																		
Individual	>80	>80	<80	>80	>80	>80	>80	>80	>80	>80	40-60	>80	>80	>80	>80	>80	60-80	>80
Group-housed	<20				<20	<20	<20	<20			40-60	<20			<20		20-40	
Combined in a yard					<20	<20	<20											<20
Floor type																		
Fully slatted floor	40-60	60-80	20-40	>80	60-80	60-80		40-60	<20		<20		>80	40-60	20-40	>80	40-60	>80
Partly slatted floor	40-60	20-40	>80	<20	20-40	20-40	>80	20-40	60-80	20	40-60	>80		40-60	60-80	<20	<20	<20
Solid floor with bedding	20-40	<20	<20		<20	<20	<20	<20	20-40	80		<20	<20	<20			20-40	<20
Other floor (specify)							<20				40-60			<20				
Manure collection																		
Underground deep pit		60-80	<20	40-60		>80			<20		40-60		40-60					
Vacuum system & frequent slurry removal	20-40	20-40	<20	<20	>80	<20	<20	20-40	20-40		<20	40-60	40-60	>80	<20			
Flush channels using fresh or treated slurry											<20			<20				
Flush gutter/pipe using fresh or treated slurry											<20				<20			
Reduced manure pit	40-60	<20	40-60	<20		<20				<20	<20	20-40			20-40			>80
Manure scraper	20-40		40-60	<20			>80	60-80	40-60	>80	20-40			<20	60-80			
Deep litter			<20		<20	<20	<20					<20			<20		<20	
Other (specify)				<20														
Feeding Regime																		
Solid diet	60-80	>80	60-80	20-40	<20	>80	20-40	>80	40-60	>80	60-80	>80	60-80	40-60	>80	>80		40-60
Liquid diet	20-40	<20	20-40	40-60	20-40	<20	>80	<20	40-60		40-60	<20	<20	40-60	<20			40-60
Diet control / restricted	>80	>80	>80			<20		>80	20-40			>80		>80				60-80
Phase feeding (1 - 2 phases)	>80		>80	>80		<20	>80	40-60	>80		<20	>80	>80	<20	>80			60-80
Multiphase feeding	<20		>80	<20		<20	>80		<20					<20				
Low crude protein + amino acid diet			>80	20-40		<20	<20	60-80	60-80		60-80	<20		>80	20-40	>80		
Use of phytase		>80	>80		<20	60-80	>80	<20	20-40			>80		>80	20-40	20-40		60-80
Use of inorganic, phosphorus		20-40	>80	>80	<20	60-80		<20	>80		60-80			>80		60-80		60-80
Additives (specify)			60-80	<20	<20						<20					60-80		
Other feeding strategie (specify)					60-80						40-60							
Other system e.g. emerging system in developement																		

Building characteristics pig breeding

% of national stock

valeur exacte donnée mais rempalcée par catégorie pour harmonisation

Confinement system	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**PL**	**LV**	**BE_F**	**BE_W**	**DK**	**EE**	**PT**	**AT**	**F**
closed housing, well insulated (a)		>80		60-80	>80	60-80	>80	40-60	>80	>80	20-40	60-80	<20	>80	20-40		>80	60-80
closed housing, poorly insullated	60-80	<20		20-40		20-40	<20		<20		40-60	<20	60-80	<20	60-80			
open climate housing	20-40	<20			<20	<20	<20	20-40				<20	<20	<20	<20		<20	
(a) eg: transfer coefficient, U, lower than 0,4 W/m^2/K																		
Heating elements in floor or in ceiling		20-40	<20	<20	<20	20-40	20-40	60-80	20-40	<20	40-60	40-60	40-60	>80				
Heating elements radiating heat onto animal		<20	<20	40-60	<20	20-40	>80		20-40	40-60	<20	40-60	20-40	>80	<20			>80
Preheating air incoming the housing area		40-60	<20	40-60	40-60	20-40	<20	20-40	<20			<20	<20	<20	<20			<20
Gas/fuel heater		<20	<20	40-60	60-80	40-60		60-80	>80			60-80	60-80	60-80	40-60			
Electric heater		40-60	<20	40-60	<20	40-60	<20	60-80	<20	<20			<20	20-40	40-60			>80
Other heating system (specify)		>80	<20				20-40		<20		20-40		<20	<20	<20			
Air conditioning (spraying, cooling…)	15	<20	<20		<20	<20	<20	60-80					<20	>80				<20
Other (specify)			40-60		40-60						20-40							
Natural hand controlled ventilation	40-60	<20	<20			<20	<20		<20	40	<20	<20	<20	<20	>80			<20
Automatically controlled natural ventilation	40-60	<20	<20	<20	<20	<20	<20	40-60	<20	<20		<20		<20	<20			>80
Mechanical ventilation	20-40	>80	>80	>80	>80	60-80	>80		60-80	60	60-80	60-80	40-60	>80	<20			>80
Combined system (specify)		<20		<20				20-40			<20				<20			
Ventilation - inlet air treatment (cooling, spraying water/oil, other - specify)		<20	<20	20-40	<20	<20		>80				<20	<20	<20	<20			<20
Ventilation - outlet biological air treatment (biofilter, scrubber, combined systems - specify)		<20			<20							<20		<20	<20			<20
Ventilation - outlet chemical/physical air treatment (scrubber, UV, radiation -specify)		<20							<20			<20		<20				
Other (specify)		20-40																
Other system e.g. emerging system in developement																		

Pig production - weaners

% of national stock

valeur exacte donnée mais rempalcée par catégorie pour harmonisation

Housing system	UK	NL	CZ	IT	DE	ES	SE	CY	FI	PL	LV	BE_F	BE_W	DK	EE	PT	AT	F
according to herd size																		
< 20		60-80		20-40	<20	>80	60-80	>80	<20		40-60	<20	40-60	<20	<20	>80		
20 - 100		<20	>80	60-80	>80	<20	20-40	<20	>80	>80	60-80	<20	40-60	>80	40-60			
> 100		<20			<20	<20	<20			<20	40-60	60-80		<20	60-80			
Floor type																		
Fully slatted floor	40-60	60-80	20-40	>80	>80	60-80		60-80	<20	20	40-60	>80	60-80	20-40	<20	>80	40-60	60-80
Partly slatted floor	20-40	20-40	60-80	<20	<20	20-40	60-80	20-40	>80	20	20-40	<20	20-40	60-80	40-60	<20	20-40	<20
Solid floor with bedding	20-40		<20	<20	<20	<20			<20	40-60		<20	<20	<20	60-80		20-40	<20
Other floor (specify)							20-40				40-60							
Manure collection																		
Underground deep pit		60-80	<20	60-80		>80			20-40		20-40	40-60	<20					>80
Vacuum system & frequent slurry removal	40-60	20-40	20-40	10	>80	<20	<20	20-40	60-80	20-40	<20		60-80	>80	20-40			
Flush channels using fresh or treated slurry				<20							<20			<20				
Flush gutter/pipe using fresh or treated slurry				<20							<20							
Reduced manure pit	40-60	<20	20-40	<20		<20					<20	20-40						
Manure scraper	20-40		20-40	<20			60-80	60-80	<20	20-40	<20			<20	60-80			<20
Deep litter			<20	<20	<20	<20	40-60		<20	<20			<20	<20			<20	
Other (specify)				<20														
Feeding Regime																		
Solid diet	>80	60-80	80	60-80	<20	>80	20-40	>80	60-80	>80	60-80	>80	60-80	60-80	>80	>80		60-80
Liquid diet	20-40	20-40	20	20-40	20-40	<20	>80	<20	20-40		40-60	<20	<20	20-40	<20			<20
Diet control / restricted		<20	5			<20						>80		<20				>80
Phase feeding (1 - 2 phases)	<20	>80	95	>80		60-80		20-40	>80			>80	60-80	20-40				>80
Multiphase feeding	>80		>80			<20		60-80			<20	<20	<20	<20				<20
Low crude protein + amino acid diet		>80	95	60-80		<20	>80		40-60		60-80	>80		>80				60-80
Use of phytase		60-80	95	<20	<20	60-80	<20		60-80					>80				60-80
Use of inorganic, phosphorus		20-40	95	60-80	<20	60-80	>80	<20	>80		60-80			>80				60-80
Additives (specify)			60-80	20-40	<20			<20			<20							
Other feeding strategie (specify)					60-80						60-80							
Other system e.g. emerging system in developement																		

Pig production - Growers-Finishers

% of national stock

valeur exacte donnée mais rempalcée par catégorie pour harmonisation

Housing system	UK	NL	CZ	IT	DE	ES	SE	CY	FI	PL	LV	BE_F	BE_W	DK	EE	PT	AT	F
according to herd size																		
< 20		>80	>80	>80	20-40	>80	>80	>80	40-60		20-40	<20	60-80	60-80	<20	>80		
20 - 100		<20	<20	<20	40-60	<20	<20	<20	40-60	80	60-80	<20	<20	20-40	40-60			
> 100		<20	<20		<20	<20				<20	20-40	>80	<20	<20	60-80			
Floor type																		
Fully slatted floor	20-40		<20	20-40	>80	40-60		20-40	<20	<20	60-80	60-80	60-80	20-40	<20		20-40	
Partly slatted floor	20-40	>80	>80	60-80	<20	40-60	>80	60-80	>80	20-40	<20	20-40	<20	60-80	40-60		40-60	
Solid floor with bedding	60-80	<20	<20	1	<20	<20		<20	<20	40-60		<20	<20	<20	60-80		<20	
Other floor (specify)				5			<20				20-40							
Manure collection																		
Underground deep pit	20-40	60-80	<20	20-40	<20	20-40			40-60	<20	20-40	40-60	60-80			>80		60-80
Vacuum system & frequent slurry removal	<20	20-40	20-40	<20	60-80	<20	<20	<20	40-60	<20	<20		<20	>80	20-40			<20
Flush channels using fresh or treated slurry		<20		<20						<20	<20		<20	<20				
Flush gutter/pipe using fresh or treated slurry	20-40			<20						20-40	<20							
Reduced manure pit	20-40	20-40	40-60	40-60		40-60					<20	20-40						
Manure scraper	<20		20-40	<20			>80	>80	20-40		<20		<20	<20	60-80			
Deep litter			<20		<20	<20			<20				<20	<20	<20		<20	
Other (specify)				<20	<20													
Feeding Regime																		
Solid diet	60-80	40-60	20-40	20-40	<20	>80	20-40	>80	20-40	>80	40-60	>80	60-80	40-60	>80	>80		40-60
Liquid diet	20-40	40-60	60-80	60-80	40-60	<20	>80	<20	60-80		60-80	<20	<20	40-60	20-40	<20		40-60
Diet control / restricted		>80	>80	>80	<20	<20		<20	>80		<20	>80	<20	60-80				60-80
Phase feeding (1 - 2 phases)	>80	60-80	>80	60-80	60-80	60-80	40-60	20-40	60-80			>80	40-60	40-60	20-40			60-80
Multiphase feeding	20-40	<20	>80	20-40	20-40	<20	40-60	60-80	20-40		<20		40-60	40-60	20-40			<20
Low crude protein + amino acid diet		<20	>80	<20	<20	<20	>80	40-60	40-60		60-80	<20	60-80	>80	40-60			60-80
Use of phytase		>80	>80		<20	60-80	<20	20-40	40-60		<20	>80	60-80	>80	40-60			60-80
Use of inorganic, phosphorus		20-40	>80	>80	<20	60-80	>80	<20	>80		60-80			>80				40-60
Additives (specify)			60-80	<20	<20						<20							
Other feeding strategie (specify)		20-40			40-60						40-60							
Other system e.g. emerging system in developement																		

Building characteristics pig fattening

% of national stock

valeur exacte donnée mais rempalcée par catégorie pour harmonisation

	UK	NL	CZ	IT	DE	ES	SE	CY	FI	PL	LV	BE_F	BE_W	DK	EE	PT	AT	F
Full confinement system																		
closed housing, well insulated (a)	40	>80	>80	60-80	>80	60-80	>80	<20	>80	<20	60-80	60-80	20-40	>80	40-60	<20	>80	
closed housing, poorly insullated	20-40	<20		20-40		20-40	<20		<20	>80	20-40	<20	60-80	<20	40-60	>80		
open climate housing	20-40	<20			<20	<20	<20	>80				<20	<20	<20	<20		<20	
(a) eg: transfer coefficient, U, lower than 0,4 W/m^2 /K																		
Heating elements in floor or in ceiling	<20	40-60	<20	<20	20-40	20-40	40-60		<20		40-60	60-80	20-40	60-80	>80			
Heating elements radiating heat onto animal	<20	<20	<20	20-40	<20	40-60	<20				<20		40-60	<20				
Preheating air incoming the housing area	<20	<20		60-80	40-60	20-40			20-40	<20		<20	20-40	<20				<20
Gas/fuel heater	<20	<20	20-40	>80	>80	40-60			60-80	20-40		60-80	>80	60-80	<20			
Electric heater	<20					40-60	<20		<20	60-80				20-40	>80			>80
Other heating system (specify)		<20	40-60		40-60		20-40		<20	20-40	20-40			<20	<20			
Air conditioning (spraying, cooling…)	<20	<20	<20	<20	<20	<20	<20	20-40	20-40				<20	>80				
Other (specify)																		<20
Natural hand controlled ventilation	20-40	<20		<20		<20	<20	20-40	<20	<20	<20	<20	<20	<20	>80			
Automatically controlled natural ventilation	20-40	<20	<20	40-60	<20	<20		20-40	<20		20-40	<20	<20	<20	<20			>80
Mechanical ventilation	40-60	>80	>80	40-60	>80	60-80	>80	20-40	>80	>80	60-80	60-80	60-80	>80	<20			>80
combined system (specify)								20-40										
Ventilation - inlet air treatment (cooling, spraying water/oil, other - specify)		<20	<20		<20	40-60		20-40					<20	>80				<20
Ventilation - outlet biological air treatment (biofilter, scrubber, combined systems - specify)		<20			<20				<20	<20		<20		<20				<20
Ventilation - outlet chemical/physical air treatment (scrubber, UV, radiation -specify)		<20							<20			<20		<20				<20
Other (specify)					<20						20-40							
Other system e.g. emerging system in developement																		

Manure storage and handling

% of national stock

valeur exacte donnée mais rempalcée par catégorie pour harmonisation

	Solid/litter based manure	UK	NL	CZ	IT	DE	ES	SE	CY	FI	PL	LV	BE_F	BE_W	DK	EE	PT	AT	F
STORAGE	Storage capacity < 2 months (on farm)	20-40			<20		<20									<20			
	4 months				20-40		20-40	<20			20-40					<20			
	6 months	20-40	<20		40-60	>80	20-40	<20	60-80		40-60			>80					>80
	8 months		<20			<20	<20	20-40	40-60			<20			20-40	<20			
	10 months	<20	<20			<20	<20	60-80	<20	<20					40-60				
	> 12 months	<20	<20				<20			>80					20-40	60-80			
	Uncovered field storage	20-40		>80		<20	>80		20-40		<20		<20	<20		<20			>80
	Covered field storage		<20				<20			<20			<20	<20	<20	<20			<20
	Concrete floor without walls and roof			<20	<20	<20	20-40								20-40				>80
	Concrete floor with walls but without roof	20-40	<20	<20	60-80	>80	20-40	>80	40-60	40-60	60-80	<20	60-80	<20	40-60	60-80			<20
	Concrete floor with walls and roof	<20	<20		<20		20-40			40-60	<20		<20		<20				<20
	Store leakage control (drains, bins)	20-40	<20	40-60	>80	<20	20-40	<20	20-40	<20		<20			<20	<20			<20
	Separated storage of seepage (drainage)	<20	<20			>80	<20						<20		>80				
	Other (specify)			20-40															
HANDLING	Additives (specify)				<20									<20					
	Composting (aerobic) treatment on farm	<20	<20	<20	<20	<20	<20			<20	<20			<20					<20
	Drying process						<20		60-80										
	Anaerobic treatment on farm			<20		<20	<20	<20	<20		<20			<20	<20				
	Exportation from farm	40-60		>80	20-40		<20			<20				20-40		>80			
	Other treatment (specify)						<20												
	Side-discharge spreader	20-40		<20	20-40		>80			<20				60-80					
	Rear-discharge beaters spreader	20-40	<20		40-60	60-80	<20	>80		40-60	>80				40-60	40-60			<20
	Rear-discharge spinning discs spreader	<20	<20		40-60	<20	<20	<20	<20	40-60					40-60	40-60			<20
	Other system (specify)			>80															
	Slurry/liquid based manure (1/2)																		
STORAGE	Concrete stores	20-40	40-60	40-60	20-40	>80	20-40	>80	>80	>80	>80	40-60		>80	>80	>80			>80
	Steel panels stores	20-40	20-40	20-40	<20	<20	<20	<20		<20	<20	60-80			<20	<20			
	Wood panels stores		20-40				<20												
	other (specify)	20-40						<20											
	Deep pit storage below animals	<20	40-60	20-40	20-40	20-40	<20						>80						<20
	Below-ground	20-40	<20	60-80	<20	<20	<20	40-60		>80	<20	60-80	<20	<20		<20			
	Above ground	20-40	40-60	20-40	<20	40-60	<20	40-60		<20	40-60		<20	<20		>80			
	Earth banked lagoon	20-40	20-40	<20	40-60	<20	60-80	<20	>80		<20	60-80							
	Flexible storage	<20	<20				<20						<20						
	Other (specify)														<20				
	No cover	>80		60-80	>80	20-40	40-60	<20	>80	20-40				<20		60-80		<20	>80
	natural crust cover			60-80	<20	20-40	40-60	>80	40-60		>80	20-40			>80	20-40		<20	
	artificial floating covers (specify)	<20			1	<20	<20	<20		<20		20-40	40-60	<20	<20				<20
	Roof or tent	<20	>80	<20	<20	<20	<20	<20		20-40			20-40		<20	<20		>80	<20
	Concrete lid	<20	<20		20-40	<20	<20	<20		<20	<20		20-40		<20				
	Other (specify)	<20						<20				<20							
	leakage control (drains, binds)?		>80	40-60		<20					<20				>80				
	Storage capacity < 2 months (on farm)	20-40		<20			<20					<20							
	4 months	20-40	<20	60-80	<20		20-40				20-40	<20				<20			
	6 months		40-60	20-40	60-80	60-80	20-40	<20	60-80		60-80	60-80	40-60	>80					>80
	8 months	<20	20-40	<20	<20	20-40	<20	20-40	<20			20-40	40-60		20-40	<20			
	10 months		<20	<20	<20		<20	60-80	<20	<20					40-60	20-40			<20
	> 12 months	<20	<20		<20		<20	20-40	<20	>80				>80	20-40	40-60			
	Slurry/liquid based manure (2/2)																		
HANDLING	Solids separation	<20	<20	<20	20-40	<20	<20		40-60	<20	<20		40-60		<20				
	Additives (specify)	<20		20-40	<20	<20								<20		<20			60-80
	Aerobic treatment on farm	<20	<20		<20		<20		<20		<20		<20	<20					
	Drying process						<20		20-40				<20		<20				
	Anaerobic treatment on farm	<20	<20	<20	<20	<20	<20	<20	<20	<20			<20	<20	<20			<20	
	Exportation from farm		<20	>80	<20	<20	<20			20-40		60-80	60-80	40-60		>80			
	Other treatment (specify)		<20																
	Vacuum tanker with splash plate (broadcas	40-60		20-40	40-60	60-80	>80	40-60		40-60	80/60-80		20-40	60-80		<20			>80
	Band spreader	<20		<20	<20	20-40	<20			40-60	<20	<20		<20					<20
	Trailing hoses/shoes	<20		40-60	<20	<20	<20	20-40		<20		20-40	20-40		>80	>80			<20
	Injection	<20	>80	20-40	20-40	<20	<20	<20	<20			<20	20-40	<20	<20	<20			<20
	Irrigation systems	20-40			20-40		<20				<20								
	Other system (specify)				20-40														

Annexe 10

Analysed data

PIG PRODUCTION – APPLICATION ON IPPC FARMS

Pig production - mating & gestating sow Application on IPPC-Farms

Full confinement system	UK	NL	CZ	IT	DE	ES	SE	CY	FI	PL	LV	BE_F	BE_W	DK	EE	PT	AT	F
Housing system																		
Individual		C		C	C	C		C		C		R		C	G	G		C
Group-housed		C		C	C	C	G	C	G	GGC		C	G	G		C		R
Combined in a yard			G		R			R		R						R		
Floor type																		
Fully slatted floor			C	C	R	R		R		R		R	C			R		C
Partly slatted floor		G	G	C	C	G	C	C	C	C		G	C	G	G	G		
Solid floor with bedding		R	C	R	R	R	R	R	R	G		R		C				
Other floor (specify)				R			G			R								
Manure collection																		
Underground deep pit		G	R	C		G			C			R	C			G		C
Vacuum system & frequent slurry removal		C	C	R	C	R	R	R	C	C			C	G	G			
Flush channels using fresh or treated slurry		R		R		R				C				R				
Flush gutter/pipe using fresh or treated slurry		R		R		R												
Reduced manure pit		R	C	C		R				R		C		R	R			
Manure scraper		R	C	R			G	C	C	G				G	R			
Deep litter		R			R	R	G		R			R		R				R
Other (specify)																		
Feeding Regime																		
Solid diet		C	G	C		G	R	C	C	G			G		C	G		C
Liquid diet		C	C	C	C	R	G	C	C							R		C
Diet control / restricted		G	G	G	G	G							G					C
Phase feeding (1 - 2 phases)			G	C		R			C	GC			G			G		
Multiphase feeding			G			R		C	C	C								
Low crude protein + amino acid diet			G			R	G	C	C	C				G		G		C
Use of phytase		G	G		C	G	G	R	C	R		G		G		C		C
Use of inorganic, phosphorus			G	G	C	G		R	C	C				G		C		C
Additives (specify)			C	R	C											C		
Other feeding strategies (specify)					C											C		
Other system e.g. emerging system in developement	0	60	68	72	56	76	44	56	56	68	0	36	32	48	24	56	0	44

Pig production - Farrowing sows **Application on IPPC-Farms**

Full confinement system	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**PL**	**LV**	**BE$_F$**	**BE$_W$**	**DK**	**EE**	**PT**	**AT**	**F**
Housing system																		
Individual		G	C	G	C	G	G	G	G	RC			G	G	G	G		C
Group-housed					R	R												
Combined in a yard					R	R												
Floor type																		
Fully slatted floor		G	C	G	C	C		C		C			G	G		G		C
Partly slatted floor		R	G	R	C	C	G	C	G	GC				G	C	R		
Solid floor with bedding			R		R	R			R	R				R				
Other floor (specify)														R				
Manure collection																		
Underground deep pit		C	R	C		G			C	C						G		
Vacuum system & frequent slurry removal		C	C	R	C	R		R	C				G	G	R			
Flush channels using fresh or treated slurry						R				G				R				
Flush gutter/pipe using fresh or treated slurry						R												
Reduced manure pit			G	R		R				C								C
Manure scraper			G	R		R		C		R				R				
Deep litter			C		R	R												
Other (specify)				C														
Feeding Regime																		
Solid diet		C	G	C		G	R	C	C	G			G	G	G	G		C
Liquid diet		R	C	C	C	R	G	R	C					G				C
Diet control / restricted		G	G			R		C	C					G	C			C
Phase feeding (1 - 2 phases)			G	G		R		C	C				G	R				C
Multiphase feeding			G	R		R	G		C					R				
Low crude protein + amino acid diet			G	C		R		C	C	G				G	C	G		
Use of phytase		G	G		C	G	G	R	C	C				G	C			C
Use of inorganic, phosphorus			G	G	C	G		R	C	R				G				C
Additives (specify)				R	C					C								
Other feeding strategie (specify)					C													
Other system e.g. emerging system in developement	0	36	68	60	52	84	24	48	52	52	0	0	20	64	28	24	0	36

Building characteristics pig breeding **Application on IPPC-Farms**

Confinement system	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**PL**	**LV**	**BE_F**	**BE_W**	**DK**	**EE**	**PT**	**AT**	**F**
closed housing, well insulated (a)		G		C	C	G	G	G	G	G			G	G	G	R		C
closed housing, poorly insullated		R		C			C			C			R	R		G		
open climate housing		R			R					R			R	R		R		
(a) eg: transfer coefficient, U, lower than 0,4 W/m^2/K																		
Heating elements in floor or in ceiling		R	R	R	R	C	G	G	G	GC				G	C			
Heating elements radiating heat onto animal		R	R	C	C	C	G		C	R				G				C
Preheating air incoming the housing area		R	R	C	C	C			G	R			R	R		R		R
Gas/fuel heater		R	G	C	C	C		G	G	R			C	G		R		
Electric heater		C	R	C	C	C		G	R	GC			C	C		G		C
Other heating system (specify)		G	G						R				R	R				
Air conditioning (spraying, cooling…)		R	R		C	R		G		R			R	G		R		
Other (specify)			G		C													
Natural hand controlled ventilation		R	R			R	C			R			R	R		G		
Automatically controlled natural ventilation		R	R	R	C	R		C	R	G			R	R	C	R		C
Mechanical ventilation		G	G	G	C	G	G		G	CG			G	G		C		C
Combined system (specify)		R		R												C		
Ventilation - inlet air treatment (cooling, spraying water/oil, other - specify)		R	R	C	R			C		R				R		R		R
Ventilation - outlet biological air treatment (biofilter, scrubber, combined systems - specify)		C			R					R			C	R				R
Ventilation - outlet chemical/physical air treatment (scrubber, UV, radiation -specify)		C							R				C	R				
Other (specify)		C																
Other system e.g. emerging system in developement	0	95	63	58	68	53	32	37	53	74	0	0	68	84	16	63	0	42

Pig production - weaners

Application on IPPC-Farms

Housing system	UK	NL	CZ	IT	DE	ES	SE	CY	FI	PL	LV	BE_F	BE_W	DK	EE	PT	AT	F
according to herd size																		
< 20		C		C	R	G	G	C		G			C	C		G		
20 - 100		C	C	C	C	R		R	G	C			C	G				
> 100		R			R	R				RC				R	G			
Floor type																		
Fully slatted floor		C	C	G	C	G			R	R			G	C		G		C
Partly slatted floor		R	G	R	R	C	G		G	GC			R	G	G	R		R
Solid floor with bedding			R	R	R	R			R	R			R	R				
Other floor (specify)																		
Manure collection																		
Underground deep pit		C	R	C		G			C	C						G		C
Vacuum system & frequent slurry removal		R	C	R	C	R	R	R	G				C	G				
Flush channels using fresh or treated slurry				R						G			R	R				
Flush gutter/pipe using fresh or treated slurry				R		R							R					
Reduced manure pit		R	C	R						C					C			
Manure scraper			C	R			G	C	R	R				R	C			R
Deep litter			R	R	R	R			R					R				
Other (specify)				R														
Feeding Regime																		
Solid diet		C	G	C	R	G	C	G	C	GC			G	G	G	G		C
Liquid diet		C	C	C	C	R	C	R	C					G				
Diet control / restricted		R	R			R								R				C
Phase feeding (1 - 2 phases)		G	G	G		G		C	G	G			G	G				C
Multiphase feeding			G			R		C		C				C				
Low crude protein + amino acid diet			G	C		R			C					G				C
Use of phytase		G	G	R	C	G			C	C				G				C
Use of inorganic, phosphorus		G		C	C	G		R	G					G				C
Additives (specify)			C	C	C			R										
Other feeding strategie (specify)					G													
Other system e.g. emerging system in developement	0	56	68	80	56	72	24	40	56	56	0	0	40	72	20	20	0	40

Pig production - Growers-Finishers

Application on IPPC-Farms

Housing system	UK	NL	CZ	IT	DE	ES	SE	CY	FI	PL	LV	BE_F	BE_W	DK	EE	PT	AT	F
according to herd size																		
< 20		G	G	G	R	G	G	G	C	R			G	G		G		
20 - 100				R	C	R		R	C	GC			R	G		R		
> 100					R	R				R			R	R	G			
Floor type																		
Fully slatted floor			C	C	C	C		R	R	C			G	C		R		
Partly slatted floor		G	G	C	R	C	G	G	G	G				G	C	G		
Solid floor with bedding			R	R	R	R			R	R				R				
Other floor (specify)				R														
Manure collection																		
Underground deep pit		C	R	C	R	R			C	R			G			G		
Vacuum system & frequent slurry removal		C	C	C	C	R	C	R	G	C				G	C			
Flush channels using fresh or treated slurry				R						G				R				
Flush gutter/pipe using fresh or treated slurry				R						C								
Reduced manure pit		C	G	C		G									R			
Manure scraper			C	R			G	G	R	R				C	R			
Deep litter			R		R	R			R	R				R				
Other (specify)				R														
Feeding Regime																		
Solid diet		C		C	R	G		G	C	GC			G	G	C	G		C
Liquid diet		C		C	C	R		R	C					G	R	R		C
Diet control / restricted		G		G	R	R		R	G	R				C				C
Phase feeding (1 - 2 phases)		G		C	R	G	C	R	C	R				G				C
Multiphase feeding		R		C	C	R	C	C	C	G			G	C				
Low crude protein + amino acid diet				R	C	R	G	C	C	C			G	G				C
Use of phytase		G			C	G		R	G	C			G	G				C
Use of inorganic, phosphorus		R		G	C	G	G	R	G	C				G				C
Additives (specify)				R	C													
Other feeding strategie (specify)					C													
Other system e.g. emerging system in developement	0	48	36	84	76	72	32	56	68	76	0	0	36	72	28	28	0	28

Building characteristics pig fattening Application on IPPC-Farms

Full confinement system	UK	NL	CZ	IT	DE	ES	SE	CY	FI	PL	LV	BE_F	BE_W	DK	EE	PT	AT	F
closed housing, well insulated (a)		G	G	C	C	G	G	R	G	GC			G	G	C	R		
closed housing, poorly insullated		R		R		C			R	R				R		G		
open climate housing		R			R	R		G		R				R		R		
(a) eg: transfer coefficient, U, lower than 0,4 W/m ^{2} /K																		
Heating elements in floor or in ceiling		C	R	R	C	C	G		C	R			C	G				
Heating elements radiating heat onto animal		R	R	C	C	C	R			C			R	R				
Preheating air incoming the housing area		R		C	C	C			C	R				R	C			R
Gas/fuel heater		R	C	G	G	C			G	R				G				
Electric heater			R			C			R	GC				R		C		
Other heating system (specify)		R	G		C		C		R					C				
Air conditioning (spraying, cooling…)		R	R	R	R	C	R	R	C	R				G				
Other (specify)																		R
Natural hand controlled ventilation				R		R		R	R	R				R	R	C		
Automatically controlled natural ventilation			R	C	C	R		C	R	C				R	R	C		C
Mechanical ventilation		G	G	C	C	G	G	R	G	G			G	G	C	C		C
combined system (specify)								C								C		
Ventilation - inlet air treatment (cooling, spraying water/oil, other - specify)		R	R		R	C		R		G				G				R
Ventilation - outlet biological air treatment (biofilter, scrubber, combined systems - specify)		R			R				R	R				C				R
Ventilation - outlet chemical/physical air treatment (scrubber, UV, radiation -specify)		R							R	R				C				R
Other (specify)					R													
Other system e.g. emerging system in developement	5	74	58	58	74	74	37	47	74	84	5	5	26	89	32	47	5	42

Manure storage and handling

Application on IPPC-Farms

	Solid/litter based manure	UK	NL	CZ	IT	DE	ES	SE	CY	FI	PL	LV	BE_F	BE_W	DK	EE	PT	AT	F
STORAGE	Storage capacity < 2 months (on farm)				R		R				C								
	4 months		R		C	C	C				G								
	6 months		R		C	C	C		G								G		
	8 months		R			R	R		R						R				
	10 months		R				R	G	R	G					C				
	> 12 months						R								G				
	Uncovered field storage			C			G		G		R						R		C
	Covered field storage						R				R				R		G		R
	Concrete floor without walls and roof			C	R		R				G				R		C		C
	Concrete floor with walls but without roof		R	C	C	G	R	G	G		RC				R		R		
	Concrete floor with walls and roof		R		R		R				R				R		C		R
	Store leakage control (drains, bins)		R	G	G	C	R			R	R				R		R		
	Separated storage of seepage (drainage)		R			G	R				R				R				
	Other (specify)			R													G		
HANDLING	Additives (specify)				R														
	Composting (aerobic) treatment on farm			R	R	R	R				GC						R		R
	Drying process						R		C		C								
	Anaerobic treatment on farm			C		R	R		R		R								
	Exportation from farm			G	C		R				G				R				
	Other treatment (specify)						R												
	Side-discharge spreader				C						G								
	Rear-discharge beaters spreader		R		C	C		C		C	RC				C				R
	Rear-discharge spinning discs spreader		R		C	C		C	R	C	R				C				
	Other system (specify)																		
	Slurry/liquid based manure (1/2)																		
STORAGE	Concrete stores		C	C	C	C	R	G	C	G	GC				G	G			C
	Steel panels stores		C	C	R	R	R			R	C				R				
	Wood panels stores		C				R				R								
	other (specify)																		
	Deep pit storage below animals		C	C	C	R	R				R						G		
	Below-ground		R	G	R	G	R			G	G						R		
	Above ground		C	C	R	G	R			R	C					C	G		
	Earth banked lagoon		R	R	C	R	G		G		C					C	G		
	Flexible storage		R								R								
	Other (specify)																		
STORAGE	No cover			G	G		C		G	R	C								
	natural crust cover			C	R	C	C	G	C		G				G		G		
	artificial floating covers (specify)				R	C	R			R	RC				R				
	Roof or tent		G	R	R	R	R	R		C	G				G				
	Concrete lid		R		C	R	R			R	R				R				
	Other (specify)							R											
	leakage control (drains, binds)?		G	C											G	G			
	Storage capacity < 2 months (on farm)						R				R								
	4 months		R	C	R		C				C								
	6 months		C	C	C	C	C	G	G		GC						G		C
	8 months		G	R	R	C	R								R				
	10 months		G	R	R		R	C					G		G				
	> 12 months		C		R		R	C	G	G					C				
	Slurry/liquid based manure (2/2)																		
HANDLING	Solids separation		R		C	R	R	R	C	R	R				R		G		
	Additives (specify)			C	R	R		R											
	Aerobic treatment on farm		R		R		R				GC						G		
	Drying process						R				R				R				
	Anaerobic treatment on farm		R	R	R	R	R		C		R				R		G		
	Exportation from farm		R	G	R	C	R			C	C								
	Other treatment (specify)		R						C								C		
	Vacuum tanker with splash plate (broadcast)			C	C	C	G			R	GC								C
	Band spreader			R	R	C	R			G	C								R
	Trailing hoses/shoes			C	R	C	R			R	R				G	C	C		R
	Injection		G	C	C	C	R		R		R				C				R
	Irrigation systems				C		R				R								
	Other system (specify)				C														
		0	53	48	67	50	77	22	30	30	70	0	2	0	45	8	33	0	20

Annexe 11

Analysed data

PIG PRODUCTION – APPLICATION ON NEW BUILD FARMS

Pig production - mating & gestating sow Application on new build farms

Full confinement system	UK	NL	CZ	IT	DE	ES	SE	CY	FI	PL	LV	BE_F	BE_W	DK	EE	PT	AT	F
Housing system																		
Individual				X				X						X				
Group-housed		X		X	X	X	X	X	X	X		X	X	X	X	X		X
Combined in a yard					X													
Floor type																		
Fully slatted floor				X									X					X
Partly slatted floor		X		X	X	X	X	X	X	X		X		X	X	X		
Solid floor with bedding				X								X		X				
Other floor (specify)							X											
Manure collection																		
Underground deep pit		X		X		X			X				X			X		X
Vacuum system & frequent slurry removal		X		X	X		X	X	X					X	X			
Flush channels using fresh or treated slurry				X						X				X				
Flush gutter/pipe using fresh or treated slurry				X						X					X			
Reduced manure pit				X								X						
Manure scraper							X	X	X	X								
Deep litter							X					X		X				
Other (specify)																		
Feeding Regime																		
Solid diet		X		X		X		X	X	X			X		X	X		X
Liquid diet				X	X		X	X	X									X
Diet control / restricted		X		X	X	X		X					X					X
Phase feeding (1 - 2 phases)				X					X	X			X			X		
Multiphase feeding								X	X									
Low crude protein + amino acid diet								X	X					X		X		X
Use of phytase		X			X	X		X	X					X		X		X
Use of inorganic, phosphorus				X	X	X			X					X		X		X
Additives (specify)				X	X											X		
Other feeding strategies (specify)					X											X		
Other system e.g. emerging system in developement	0	28	0	64	40	28	28	44	48	28	0	20	24	40	20	40	0	36

Pig production - Farrowing sows

Application on new build farms

Full confinement system	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**PL**	**LV**	**BE_F**	**BE_W**	**DK**	**EE**	**PT**	**AT**	**F**
Housing system																		
Individual		X	X	X	X	X	X	X	X	X			X	X	X	X		X
Group-housed																		
Combined in a yard																		
Floor type																		
Fully slatted floor		X		X		X		X					X	x		X		X
Partly slatted floor			X	X	X	X	X		X	X				X	X			
Solid floor with bedding			X							X								
Other floor (specify)																		
Manure collection																		
Underground deep pit		X		X		X			X							X		
Vacuum system & frequent slurry removal		X	X	X	X		X	X	X				X	X	X			
Flush channels using fresh or treated slurry														X				
Flush gutter/pipe using fresh or treated slurry															X			
Reduced manure pit			X	X						X								X
Manure scraper				X				X	X									
Deep litter			X															
Other (specify)																		
Feeding Regime																		
Solid diet		X	X	X		X	X	X	X	X			X	X	X	X		X
Liquid diet			X	X	X		X	X	X					X	X			X
Diet control / restricted		X	X					X	X					X				X
Phase feeding (1 - 2 phases)			X	X				X	X				X	X				X
Multiphase feeding			X	X					X					X				
Low crude protein + amino acid diet			X	X				X	X					X	X	X		
Use of phytase		X	X		X	X		X	X					X	X	X		X
Use of inorganic, phosphorus			X	X	X	X		X	X					X		X		X
Additives (specify)				X	X											X		
Other feeding strategie (specify)					X													
Other system e.g. emerging system in developement	0	28	56	56	32	28	20	44	52	20	0	0	20	52	32	32	0	36

Building characteristics pig breedin **Application on new build farms**

Confinement system	**UK**	**NL**	**CZ**	**IT**	**DE**	**ES**	**SE**	**CY**	**FI**	**PL**	**LV**	**BE_F**	**BE_W**	**DK**	**EE**	**PT**	**AT**	**F**
closed housing, well insulated (a)		X		X	X	X	X	X	X	X			X	X	X	X		
closed housing, poorly insullated							X											
open climate housing					X													
(a) eg: transfer coefficient, U, lower than 0,4 W/m^2 /K																		
Heating elements in floor or in ceiling				X		X	X	X	X					X	X			
Heating elements radiating heat onto animal			X	X		X	X							X				X
Preheating air incoming the housing area				X	X	X			X				X					X
Gas/fuel heater			X	X	X	X			X					X	X			
Electric heater		X		X		X		X		X				X		X		X
Other heating system (specify)		X												X				
Air conditioning (spraying, cooling…)			X		X			X						X				
Other (specify)			X		X													
Natural hand controlled ventilation							X											
Automatically controlled natural ventilation				X	X										X	X		X
Mechanical ventilation		X	X	X	X	X	X		X	X			X	X	X	X		X
Combined system (specify)				X				X								X		
Ventilation - inlet air treatment (cooling, spraying water/oil, other - specify)			X	X	X			X						X				X
Ventilation - outlet biological air treatment (biofilter, scrubber, combined systems - specify)		X			X									X				X
Ventilation - outlet chemical/physical air treatment (scrubber, UV, radiation -specify)		X												X				
Other (specify)		X																
Other system e.g. emerging system in developement	0	37	32	53	53	37	32	32	26	16	0	0	16	58	26	26	0	37

Pig production - weaners

Application on new build farms

Housing system	UK	NL	CZ	IT	DE	ES	SE	CY	FI	PL	LV	BE_F	BE_W	DK	EE	PT	AT	F
according to herd size																		
< 20		X		X		X	X	X					X			X		
20 - 100		X	X	X	X				X	X				X				
> 100					X										X			
Floor type																		
Fully slatted floor		X	X	X	X	X							X		X	X		X
Partly slatted floor		X	X	X	X	X	X		X	X				X	X			
Solid floor with bedding			X	X	X													
Other floor (specify)																		
Manure collection																		
Underground deep pit				X		X										X		X
Vacuum system & frequent slurry removal		X	X	X	X		X	X	X				X	X	X			
Flush channels using fresh or treated slurry				X														
Flush gutter/pipe using fresh or treated slurry				X														
Reduced manure pit			X	X						X								
Manure scraper			X				X	X										
Deep litter				X	X					X								
Other (specify)																		
Feeding Regime																		
Solid diet		X	X	X		X		X	X	X			X	X	X	X		X
Liquid diet		X	X	X	X		X	X	X					X	X			
Diet control / restricted			X															X
Phase feeding (1 - 2 phases)		X	X	X		X		X	X				X	X				X
Multiphase feeding			X					X						X				
Low crude protein + amino acid diet			X	X					X					X				X
Use of phytase		X	X	X	X	X			X					X				X
Use of inorganic, phosphorus		X	X	X	X	X		X	X					X				X
Additives (specify)			X	X				X										
Other feeding strategie (specify)					X													
	0	40	64	72	44	32	20	36	36	20	0	0	20	40	24	16	0	32

Pig production - Growers-Finishers

Application on new build farms

Housing system	UK	NL	CZ	IT	DE	ES	SE	CY	FI	PL	LV	BE_F	BE_W	DK	EE	PT	AT	F
according to herd size																		
< 20		X	X	X		X	X	X	X				X	X		X		
20 - 100				X	X				X	X				X				
> 100													X		X			
Floor type																		
Fully slatted floor				X	X	X		X					X					
Partly slatted floor		X	X	X	X	X	X	X	X	X				X	X	X		
Solid floor with bedding			X															
Other floor (specify)																		
Manure collection																		
Underground deep pit		X							X				X			X		
Vacuum system & frequent slurry removal		X	X	X	X		X	X	X	X				X	X			
Flush channels using fresh or treated slurry				X										X				
Flush gutter/pipe using fresh or treated slurry				X														
Reduced manure pit		X	X	X		X				X		X		X				
Manure scraper							X	X										
Deep litter			X										X					
Other (specify)																		
Feeding Regime																		
Solid diet		X		X		X		X	X	X			X	X	X	X		X
Liquid diet		X		X	X		X	X	X					X				X
Diet control / restricted		X		X				X	X					X				X
Phase feeding (1 - 2 phases)		X		X		X	X	X	X					X				X
Multiphase feeding				X	X		X	X	X		X		X	X				
Low crude protein + amino acid diet				X	X			X						X				X
Use of phytase		X			X	X		X						X				X
Use of inorganic, phosphorus				X	X	X		X	X					X				X
Additives (specify)				X	X													
Other feeding strategie (specify)					X													
	0	40	24	64	44	32	28	52	44	20	4	4	28	56	16	16	0	28

Building characteristics pig fattening Application on new build farms

	UK	NL	CZ	IT	DE	ES	SE	CY	FI	PL	LV	BE_F	BE_W	DK	EE	PT	AT	F
Full confinement system																		
closed housing, well insulated (a)		X	X	X	X	X	X	X	X	X			X	X	XX	X		
closed housing, poorly insullated				X														
open climate housing					X			X					X					
(a) eg: transfer coefficient, U, lower than 0,4 W/m^2 /K																		
Heating elements in floor or in ceiling		X		X	X	X	X		X					X	X			
Heating elements radiating heat onto animal				X	X	X												
Preheating air incoming the housing area				X	X	X			X				X		X			
Gas/fuel heater			X	X	X	X			X					X				
Electric heater						X									X	X		
Other heating system (specify)		X	X		X		X		X					X				
Air conditioning (spraying, cooling…)				X	X	X		X	X					X				
Other (specify)																		X
Natural hand controlled ventilation													X	X				
Automatically controlled natural ventilation				X	X			X						X	X			X
Mechanical ventilation		X	X	X	X	X	X	X	X				X	X	X			X
combined system (specify)								X								X		
Ventilation - inlet air treatment (cooling, spraying water/oil, other - specify)			X		X	X		X		X				X				X
Ventilation - outlet biological air treatment (biofilter, scrubber, combined systems - specify)		X			X						X			X				X
Ventilation - outlet chemical/physical air treatment (scrubber, UV, radiation -specify)		X												X				X
Other (specify)					X													
	0	32	26	47	68	47	21	37	37	11	5	0	26	58	32	16	0	32

Manure storage and handling

Application on new build farms

Solid/litter based manure	UK	NL	CZ	IT	DE	ES	SE	CY	FI	PL	LV	BE_F	BE_W	DK	EE	PT	AT	F
STORAGE																		
Storage capacity < 2 months (on farm)																		
4 months				X														
6 months					X	X		X					X			X		
8 months					X	X		X										
10 months					X		X	X						X				
> 12 months									X				X	X	X			
Uncovered field storage																		X
Covered field storage																X		X
Concrete floor without walls and roof				X														
Concrete floor with walls but without roof			X	X	X		X	X		X					X			X
Concrete floor with walls and roof				X		X			X							X		
Store leakage control (drains, bins)			X	X	X	X			X									
Separated storage of seepage (drainage)					X													
Other (specify)			X													X		
HANDLING																		
Additives (specify)				X														
Composting (aerobic) treatment on farm				X						X								
Drying process								X										
Anaerobic treatment on farm			X		X			X										
Exportation from farm			X	X														
Other treatment (specify)																		
Side-discharge spreader				X			X		X									
Rear-discharge beaters spreader				X	X				X	X								
Rear-discharge spinning discs spreader				X	X			X	X									
Other system (specify)																		
Slurry/liquid based manure (1/2)																		
STORAGE																		
Concrete stores		X	X	X	X		X	X	X	X				X	X			X
Steel panels stores		X	X	X	X													
Wood panels stores		X																
other (specify)																		
Deep pit storage below animals			X													X		
Below-ground		X	X	X					X									
Above ground			X	X	X				X	X					X	X		
Earth banked lagoon				X		X		X							X	X		
Flexible storage																		
Other (specify)														X				
No cover			X	X				X										
natural crust cover			X			X	X			X				X		X		
artificial floating covers (specify)				X	X													
Roof or tent		X		X	X		X		X					X	X			
Concrete lid				X	X													
Other (specify)																		
leakage control (drains, binds)?		X	X		X									X	X			
Storage capacity < 2 months (on farm)																		
4 months															X			
6 months		X	X	X	X	X		X		X						X		
8 months		X		X	X	X									X			
10 months		X		X			X					X		X				
> 12 months		X		X			X	X	X					X				
Slurry/liquid based manure (2/2)																		
HANDLING																		
Solids separation				X				X						X		X		
Additives (specify)			X	X														
Aerobic treatment on farm				X				X		X								
Drying process														X				
Anaerobic treatment on farm			X	X	X			X						X		X		
Exportation from farm			X	X	X				X									
Other treatment (specify)								X								X		
Vacuum tanker with splash plate (broadcast)				X		X				X								X
Band spreader				X	X				X									
Trailing hoses/shoes			X	X										X	X			
Injection		X	X	X	X			X						X				
Irrigation systems				X														
Other system (specify)				X														
	0	18	32	58	37	15	13	28	22	15	0	2	3	23	17	20	0	8

Annexe 12

Analysed data

MANURE MANAGEMENT TRENDS - ALL EUROPE

Housing

	Egg laying							Broilers / Turkeys							Ducks / Geese							Pigs						
	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0
Housing system																												
inside - retained in small pens	8	3	0	4	0	4	10	1	1	0	12	1	0	10	1	0	1	7	0	0	8	13	1	0	0	2	4	8
inside - large group housing	9	5	0	0	6	0	8	14	1	0	0	2	0	12	8	0	0	1	1	0	8	9	3	0	2	9	1	3
inside - open, natural ventilation	1	4	2	6	2	1	8	3	4	0	6	1	2	9	5	1	0	3	0	1	8	7	4	1	1	1	3	7
outdoor yard	3	6	1	4	5	0	8	1	3	2	7	2	0	9	4	3	0	2	0	0	9	2	5	1	4	2	2	7
other (specify)	2	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0

Manure removal

Manure collection / management																												
in-house separation	0	0	0	11	0	0	9	0	0	0	10	0	0	9	0	0	0	8	0	0	7	1	3	4	5	2	1	8
manure cooling	0	0	0	12	0	0	10	0	0	0	11	0	0	10	0	0	0	8	0	0	7	1	4	1	8	4	1	6
belt removal	14	1	0	0	10	0	4	1	1	0	9	1	0	9	0	0	0	8	0	0	7	1	1	2	8	0	2	8
in-house drying	9	4	0	1	8	0	4	2	1	0	9	1	0	9	1	0	0	8	1	0	7	0	0	1	11	0	0	10
external drying	5	4	0	4	6	0	7	2	1	0	9	2	0	9	0	1	0	8	1	0	7	1	2	1	7	2	1	8
flushing	0	2	0	11	0	1	10	0	0	0	11	0	0	10	0	0	0	9	0	0	8	2	6	0	6	1	2	6
in-house composting	1	3	1	7	1	1	9	3	2	0	7	1	1	9	1	1	0	7	0	1	7	3	2	1	6	1	3	6
additives	0	4	2	5	4	0	7	1	3	2	5	4	0	7	0	1	2	5	3	0	5	1	6	4	1	5	0	5
covering	4	4	0	4	5	0	6	3	4	0	5	4	0	7	1	3	0	3	2	0	4	4	5	2	2	4	1	6
other (specify)	0	0	0	1	0	0	1	2	0	0	0	0	0	2	1	0	0	0	0	0	1	0	1	0	1	1	0	0

US Common commercial : F Few commercial : EX Only experimental : N not in use

++ growing usuage : - - declined usuage : 0 no change in usuage

Separation technologies

	Egg laying							Broilers / Turkeys							Ducks / Geese							Pigs						
	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0
Raw manure/slurry/sludge																												
sedimentation/settling	0	0	0	10	0	0	8	0	0	0	10	0	0	8	0	0	0	7	0	0	6	1	7	0	2	4	0	5
crust skimming	0	0	0	10	0	0	8	0	0	0	10	0	0	8	0	0	0	7	0	0	6	0	3	1	5	2	0	5
clarification	0	0	0	10	0	0	8	0	0	0	10	0	0	8	0	0	0	7	0	0	6	0	2	1	4	1	0	4
dewatering	1	0	0	9	0	0	8	1	0	0	9	1	0	7	0	0	0	7	0	0	6	0	2	2	4	2	0	5
run-down screen	0	0	0	10	0	0	8	0	0	0	10	0	0	8	0	0	0	7	0	0	6	0	2	2	4	1	1	5
vibrating bed	0	0	0	10	0	0	8	0	0	0	10	0	0	8	0	0	0	7	0	0	6	1	2	1	4	1	1	5
rotary screen	0	0	0	10	0	0	8	0	0	0	10	0	0	8	0	1	0	7	1	0	6	1	0	3	4	2	0	5
sieve drum	0	0	0	10	0	0	8	0	0	0	10	0	0	8	0	1	0	7	1	0	6	0	3	1	5	2	0	5
sieve centrifuge	0	0	0	10	0	0	8	0	0	0	10	0	0	8	0	0	0	7	0	0	6	0	4	1	4	2	1	4
roller press	0	0	0	10	0	0	8	0	0	0	10	0	0	8	0	0	0	7	0	0	6	1	5	2	3	3	1	5
screw press	0	0	0	10	0	0	8	0	0	0	10	0	0	8	0	0	0	7	0	0	6	4	7	1	0	6	1	5
belt separator	0	0	0	10	0	0	8	0	0	0	10	0	0	8	0	0	0	7	0	0	6	0	5	2	2	2	1	4
decanter centrifuge	0	0	0	10	0	0	8	0	0	0	10	0	0	8	0	1	0	7	1	0	6	2	4	1	2	4	0	5
membrane technology	0	0	0	10	0	0	8	0	0	0	10	0	0	8	0	0	0	7	0	0	6	0	2	3	3	2	0	5
Natural evaporation	3	2	0	6	1	0	7	2	2	0	7	1	0	7	1	1	0	5	1	0	5	2	4	1	4	1	1	8
Forced evaporation	1	2	0	7	2	0	6	1	1	0	8	1	0	7	1	0	0	6	1	0	5	1	3	1	5	2	0	7
Other filtration	0	0	0	9	0	0	7	0	0	0	9	0	0	7	0	0	0	6	0	0	5	0	1	2	6	1	1	5
Additves	0	4	0	6	3	0	4	0	3	1	6	2	0	5	0	3	0	5	1	0	5	1	6	1	1	2	1	4

Solid Fraction Processes

		Egg laying							Broilers / Turkeys							Ducks / Geese							Pigs						
		US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0
Composting																													
on farm																													
	passive aeration static pile	5	0	0	6	0	1	9	5	0	0	6	0	1	9	3	0	0	5	0	1	6	6	2	0	5	1	0	10
	uncovered windrow	0	2	0	9	0	0	9	1	3	0	7	0	0	9	0	1	1	6	0	0	6	2	3	0	6	1	0	7
	covered windrow	0	2	0	9	0	0	9	1	2	1	7	1	0	8	0	0	0	8	0	0	6	0	5	1	5	0	0	8
	composting in vessel or in reactor	0	2	0	9	0	0	9	0	0	0	11	0	0	9	0	0	0	8	0	0	6	0	1	1	10	1	0	8
	forced aeration	0	1	0	10	0	0	9	1	1	0	9	1	0	8	0	0	0	8	0	0	6	0	4	1	7	3	0	6
on central plant																													
	with forced aeration	0	1	1	8	1	0	7	0	1	1	8	1	0	7	0	0	0	8	0	0	6	1	1	1	8	2	0	6
	with exhaust air treatment in confined building	1	1	0	8	2	0	6	2	2	0	8	2	1	7	0	0	0	8	0	0	6	1	0	2	10	2	0	8
Vermicomposting		0	0	1	9	1	0	7	0	0	2	8	1	1	6	0	0	1	7	0	0	6	0	2	1	7	1	0	6
Drying																													
on farm	wtith exogenous heating	2	2	0	7	3	0	6	0	1	0	10	0	0	9	0	0	0	9	0	0	7	0	1	1	8	2	0	6
	using external heating	3	2	1	5	3	0	7	1	1	0	9	1	0	8	1	0	0	8	1	0	6	0	1	0	8	1	0	6
on central	wtith exogenous heating	0	0	0	10	0	0	8	0	0	0	10	0	0	8	0	0	0	8	0	0	6	0	1	1	8	2	0	6
	using external heating	0	2	0	9	2	0	7	0	2	0	9	2	0	7	0	1	0	8	1	0	6	0	1	0	8	1	0	6
Methanisation																													
on farm	manure only	0	1	1	10	1	0	7	0	1	1	9	1	0	7	0	1	1	6	1	0	6	1	6	1	4	3	2	5
	co-digestion	0	2	2	7	1	0	7	0	2	2	7	1	0	7	0	2	0	6	1	0	6	2	5	2	2	6	0	4
	with external heating	0	1	0	10	0	0	7	0	1	0	9	0	0	7	0	1	0	6	0	0	6	1	3	0	5	2	0	5
on central	manure only	0	0	0	11	0	0	7	0	0	0	10	0	0	7	0	0	0	7	0	0	6	0	5	0	6	1	2	6
	co-digestion	0	1	1	9	0	0	8	0	1	1	9	0	0	8	0	1	0	7	0	0	7	1	7	1	2	7	0	3
	with external heating	0	0	0	11	0	0	7	0	0	0	10	0	0	7	0	0	0	7	0	0	6	1	5	0	3	3	0	5
Incineration/combustion																													
on farm	manure only	0	1	3	8	1	0	9	0	2	3	7	2	0	9	0	1	0	8	0	0	7	0	0	1	10	1	1	7
	co-generation	0	0	0	11	0	0	8	0	0	0	11	0	0	9	0	0	0	8	0	0	6	0	0	0	11	0	1	8
on central	manure only	0	1	3	7	0	0	9	0	1	3	7	1	0	9	0	1	0	7	0	0	6	0	1	0	10	0	2	8
	co-generation	1	2	1	7	1	0	7	1	1	1	8	2	0	7	0	1	0	7	0	0	6	0	1	1	9	1	1	7
Additives		0	5	0	5	2	0	6	0	5	0	5	2	0	6	0	3	0	5	0	0	6	1	6	0	3	4	0	4
Other (specify)		0	0	0	1	0	0	1	0	0	0	1	0	0	1	0	0	0	1	0	0	1	0	0	0	1	0	0	1

Liquid Fraction Processes

		Egg laying							Broilers / Turkeys							Ducks / Geese							Pigs						
		US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0
Aerobic processes																													
lagoon		0	0	0	10	0	0	7	0	0	0	9	0	0	6	0	0	1	6	0	0	5	3	2	1	6	1	1	7
continous aeration		0	1	0	9	0	0	6	0	1	0	8	0	0	6	0	0	1	6	0	0	5	1	6	1	2	2	3	3
SBR (intermittent) process		0	1	0	9	0	0	6	0	1	0	8	0	0	6	0	1	1	5	0	0	5	2	5	0	4	5	1	3
Aeration equipment																													
plunging jet		0	0	0	9	0	0	6	0	0	0	8	0	0	6	0	0	0	6	0	0	5	0	3	0	6	1	2	5
surface aerator		0	0	0	9	0	0	6	0	0	0	8	0	0	6	0	0	1	5	0	0	5	1	6	0	2	2	3	3
air sparger		0	0	0	9	0	0	6	0	0	0	8	0	0	6	0	0	0	6	0	0	5	0	1	0	6	1	0	4
air injection		0	0	0	9	0	0	6	0	0	0	8	0	0	6	0	0	0	6	0	0	5	1	2	1	5	3	0	4
venturi system		0	0	0	9	0	0	6	0	0	0	8	0	0	6	0	0	0	6	0	0	5	1	1	1	5	2	1	4
fine bubble diffuser		0	0	0	9	0	0	6	0	0	0	8	0	0	6	0	0	0	6	0	0	5	2	2	1	4	2	1	4
other (specify)		0	0	0	6	0	0	3	0	0	0	5	0	0	3	0	0	0	3	0	0	2	0	0	0	3	1	0	1
Methanisation	with co-digestion	0	1	0	8	0	0	5	0	1	1	7	0	0	6	0	1	0	5	0	0	4	1	4	2	3	3	0	5
	with heating	0	1	0	5	0	0	2	0	1	0	4	0	0	2	0	1	0	3	0	0	2	2	3	0	4	3	0	3
on central plant	with co-digestion	0	0	0	8	0	0	4	0	0	0	7	0	0	4	0	0	0	6	0	0	4	1	6	0	3	4	0	4
	with heating	0	0	0	6	0	0	2	0	0	0	5	0	0	2	0	0	0	4	0	0	2	1	5	0	2	3	0	3
anaerobic lagoon	*any - Not specific*	0	0	0	8	0	0	4	0	0	0	7	0	0	4	0	0	0	5	0	0	3	0	4	0	4	0	0	5
Chemical processes		0	0	0	9	0	0	5	0	0	0	8	0	0	5	0	0	0	7	0	0	5	0	4	0	5	2	0	4
Other (specify)		0	0	0	2	0	0	1	0	0	0	2	0	0	1	0	0	0	2	0	0	1	1	1	0	1	1	0	1

Air treatments processes

	Egg laying							Broilers / Turkeys							Ducks / Geese							Pigs						
	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0
Inlet Air Ventilation																												
filtering	0	1	1	9	1	0	7	0	1	1	9	1	0	7	0	1	0	7	1	0	5	0	1	1	8	1	0	6
cooling	3	3	0	5	4	0	5	4	2	0	5	5	0	4	2	2	0	4	3	0	3	3	6	0	3	7	0	4
spraying	1	3	0	7	1	0	7	3	3	0	5	3	0	6	2	2	0	4	1	0	6	1	6	1	4	4	0	6
uv/radiation treatment	0	0	0	10	0	0	7	0	0	0	10	0	0	7	0	0	0	7	0	0	5	0	0	2	9	1	0	6
other (specify)	0	0	0	2	0	0	1	0	0	0	2	0	0	1	0	0	0	1	0	0	0	1	0	0	3	0	0	2
Exhaust air treatment																												
bio-filter	0	1	1	9	1	0	6	0	1	1	9	1	0	6	0	0	1	7	0	0	6	0	5	2	6	4	0	5
bioscrubbing	0	0	0	11	1	0	6	0	0	2	9	1	0	6	0	0	0	8	0	0	6	2	4	0	6	5	0	4
water/acid solution scrubbing	0	1	0	10	2	0	5	0	1	1	9	2	0	6	0	0	0	8	0	0	6	2	3	1	6	6	0	3
combined systems (filter-scrubber)	0	0	1	10	1	0	7	0	0	1	10	1	0	7	0	0	1	7	0	0	7	0	3	1	7	4	0	3
dust filter	1	1	1	8	1	0	7	1	1	1	8	1	0	7	1	0	0	7	1	0	5	1	0	1	9	1	0	6
spraying	0	0	0	11	0	0	7	0	0	2	9	0	0	8	0	0	0	8	0	0	6	0	1	0	10	1	0	6
uv/radiation treatment	0	0	0	11	0	0	7	0	0	0	11	0	0	7	0	0	0	8	0	0	6	0	0	1	10	0	0	6
carbon filter (odour)	0	0	1	10	1	0	6	0	0	1	10	1	0	6	0	0	1	7	0	0	6	0	1	2	9	1	0	6
other (specify)	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	1	0	0	2	0	0	1

Energy use in housing

	Egg laying							Broilers / Turkeys							Ducks / Geese							Pigs						
	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0
Building thermal insulation quality																												
Insulation method																												
internal insulation of walls	10	0	0	2	4	0	7	10	0	0	1	4	0	7	4	1	1	1	3	0	4	8	1	0	2	3	0	8
external insulation of walls	4	3	1	1	3	0	6	4	3	1	1	3	0	6	3	2	0	2	3	0	4	5	3	1	1	4	0	5
roof insulation	13	0	0	0	7	0	6	12	0	0	0	6	0	6	7	0	1	0	4	0	4	13	1	0	0	7	0	7
floor insulation	6	4	1	1	6	0	6	8	3	1	0	5	0	7	4	1	0	3	4	0	4	7	2	1	2	5	0	5
Ventilation management																												
natural ventillation with control	2	6	0	5	1	2	9	3	6	0	4	1	3	9	6	3	0	0	1	1	7	8	3	0	1	2	3	6
forced ventilation	7	0	0	0	1	0	6	7	0	0	0	0	0	7	1	0	1	1	0	0	3	8	2	0	0	5	0	5
low energy consumption fans	9	1	0	0	7	0	3	8	2	0	0	7	0	3	5	1	0	1	4	0	3	9	2	0	0	8	0	3
fans with check valves	5	3	0	1	4	0	5	5	3	0	1	5	0	4	2	1	1	2	2	0	4	4	5	0	0	7	0	2
air ducts and fans cleaning	5	3	0	1	4	0	4	5	3	0	1	4	0	4	4	1	0	1	3	0	2	5	4	0	1	5	0	4
other (specify)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lighting																												
use of fluorescent or low consumption lights	9	3	0	0	9	0	3	7	2	1	0	9	0	1	4	3	0	0	5	0	2	11	2	0	0	11	0	2
controlled lighting shemes	11	2	0	0	9	0	4	9	2	1	0	8	0	4	4	3	0	1	4	0	4	8	2	2	1	5	0	8
other (specify)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Feeding regimes

	Egg laying							Broilers / Turkeys							Ducks / Geese							Pigs						
	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0
Nitrogen efficiency																												
Multi phases feeding:																												
… with reduced overallf crude protein and adjustement of amino acids	5	7	0	1	5	0	7	5	7	0	1	5	0	7	2	4	0	2	3	0	4	6	5	1	1	8	0	4
…. with normal level of crude protein but optimised in diet according to age	10	3	0	2	3	1	9	12	0	0	2	2	1	9	8	1	0	2	2	1	6	10	2	0	1	6	0	5
Use of feed additives - enzymes	7	2	0	2	6	0	5	8	1	0	1	5	0	5	6	1	0	0	3	0	4	4	5	2	1	8	0	4
Use of feed additives - acidity regulators	1	4	3	3	5	0	5	1	3	4	1	4	0	5	1	1	3	1	2	0	4	3	5	4	0	8	0	4
Other additve (specify)	0	1	0	1	0	0	2	0	1	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Phosphorus efficiency																												
Use of feed additives - enzymes	9	2	1	1	6	1	6	9	2	1	1	7	1	5	6	1	1	1	3	0	6	7	4	1	0	7	0	5
Use of feed additives - acidity regulators	1	2	3	4	3	0	6	1	2	3	4	3	0	6	1	1	2	3	2	0	4	2	3	2	3	3	0	7
Use of higly digestible inorganic feed	8	3	1	0	4	0	8	8	2	1	0	4	0	7	6	1	1	0	3	0	5	7	5	1	0	5	1	7
Other additve (specify)	0	0	0	1	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Carbon efficiency																												
Use of feed additives - enzymes	3	2	1	3	5	0	4	6	0	1	2	5	0	4	4	0	1	1	2	0	4	3	2	1	5	6	0	4
Other additve (specify)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Other nutient controls (specify)																												
Use of feed additives - enzymes	2	2	4	2	4	0	6	2	2	4	2	5	0	5	2	1	2	2	3	0	4	2	4	3	0	5	0	4
Use of feed additives - growth stimulators	1	1	3	6	2	0	7	2	1	3	5	2	0	7	0	1	2	5	2	0	4	0	1	1	8	1	0	8
Use of feed additives - micro-organisms	1	3	4	2	4	1	3	1	4	3	2	4	1	3	1	2	2	3	3	0	3	0	6	2	1	4	0	4
Reduction of Zinc and Cupper content	1	2	3	3	4	0	5	1	2	3	3	4	0	5	0	1	2	4	2	0	5	3	4	2	0	5	1	3

Water use

	Egg laying							Broilers / Turkeys							Ducks / Geese							Pigs						
	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0	US	FE	EX	N	++	---	0
Reduction of Water Consumption																												
use of anti-spillage cup under nipples	9	2	0	1	6	0	6	11	0	0	0	7	0	4	5	1	0	2	2	0	6	10	1	0	2	6	0	6
calibrating drinking water devices	7	3	0	0	5	0	5	7	2	0	0	5	0	4	4	2	0	0	3	0	3	8	4	0	0	8	0	4
detection of leakages and repairing	9	3	0	0	6	0	6	9	3	0	0	6	0	6	5	1	0	0	3	0	3	12	1	0	0	8	0	5
use of specific drinking water supply systen	4	5	0	1	3	0	7	4	6	0	1	3	0	8	4	1	0	1	3	0	3	7	2	0	2	4	0	7
use of high pressure cleaners	13	1	0	0	5	0	9	13	0	0	0	5	0	8	8	0	0	0	4	0	4	14	0	0	0	5	0	9
metering water use :	3	2	0	0	1	0	4	3	2	0	0	1	0	4	2	1	0	0	0	0	3	4	0	0	0	2	0	2
for animal drinking	6	5	0	0	6	0	4	6	5	0	0	6	0	4	3	2	0	0	2	0	3	4	5	0	1	5	0	5
for cleaning building	2	5	0	1	4	0	5	2	5	0	1	4	0	5	1	2	0	1	1	0	4	1	4	0	0	5	0	4
for air or building cooling	0	2	0	5	1	0	6	0	2	0	5	1	0	6	0	1	0	3	1	0	3	0	1	0	3	2	0	4
for outlet air washing	1	2	2	1	2	0	7	1	2	2	1	2	0	7	1	0	1	2	1	0	4	1	1	0	1	3	0	5
for other use	1	1	0	1	0	0	4	1	1	0	1	0	0	4	1	0	0	1	0	0	2	0	0	0	0	0	0	3
Collecting rain water for cleaning purpose	0	3	0	10	1	1	8	0	3	0	10	1	1	8	0	0	0	8	0	0	6	0	5	0	8	3	0	7
Re-use of water for other cleaning purpose	0	1	0	9	1	0	8	0	1	0	9	1	0	8	0	0	0	7	0	0	6	0	4	1	7	2	0	8
Other (specify)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Annexe 13

Analysed data

MANURE MANAGEMENT TRENDS - EGG PRODUCTION

Housing

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
	Egg laying																															
Housing system	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
inside - retained in small pens			US	---	US	0	US	0	US	---	N	0	US	0	N		US	0	FE	0	N	0	US	---	FE	0	US	0	FE	---	N	0
inside - large group housing			US	++	FE	++	FE	++	US	++	US	0	US	0			FE	0	FE	0	US	0	FE	++	US	0	US	0	US	++	US	0
inside - open, natural ventilation			FE	0	EX	0	N	0	N		FE	---	N	0			N	0			FE	++	FE	0	EX	++	US	0	N		N	0
outdoor yard			US	++	N	0	FE	++	FE	0	FE	++	N	0	FE	0	N	0			EX	++	FE	++	N	0	US	0	FE		US	0
other (specify)									US	++																			US	++		
Manure removal																																
Manure collection / management																																
in-house separation			N	0	N	0	N	0	N		N	0	N	0							N	0	N	0	N	0			N		N	0
manure cooling	N	0	N	0	N	0	N	0	N		N	0	N	0							N	0	N	0	N	0			N		N	0
belt removal	US	++	US	++	US	0	US	0	US	++	US	++	US	++			US	0	FE		US	++	US	0	US	++	US	++	US	++	US	++
in-house drying	FE	++	US	++	FE	++	US	++	US	++	US	++	US	++					FE		N	0	US	0	US	++	US	0	US		FE	0
external drying	N	0	FE	++	FE	0	FE	++	FE	0	N	0	US	++	US	++					N	0	US	0	US	++	US	++			N	0
flushing	N	0	N	0	N	0	N	0	N		N	0	N	0					FE		FE	---	N	0	N	0	N	0			N	0
in-house composting	N	0	EX	0	N	0	N	0	N		FE	---	US	0							N	0	N	0	N	0	FE	++			FE	0
additives	N	0	N	0	FE	++	FE	0	EX	0	EX	0									FE	++	N	0	FE	++	N	0			N	++
covering	FE	++	N	0	N	0	US	++	N		FE	0	US	++							FE	++	US	0	FE	++	N	0			US	0
other (specify)																					N	0										

Separation technologies	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
	Egg laying																															
Raw manure/slurry/sludge	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
sedimentation/settling	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
crust skimming	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
clarification	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
dewatering	N	0	N	0	N	0	N		N		N	0									N	0	US	0	N	0					N	0
run-down screen	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
vibrating bed	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
rotary screen	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
sieve drum	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
sieve centrifuge	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
roller press	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
screw press	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
belt separator	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
decanter centrifuge	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
membrane technology	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
Natural evaporation	N	0	N	0	FE	0	N		N		FE	0			US						US	0	N	0	US	++					N	0
Forced evaporation	N	0	N	0	FE	0	N		N		N	0									N	0	N	0	US	++					FE	++
Other filtration	N	0	N	0	N	0	N		N		N	0									N	0	N	0							N	0
Additves	N	0	N	0			N		N		FE	0									FE	++	N	0	FE	++			FE		N	++

Solid Fraction Processes

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
	Egg laying																															
Composting	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
on farm																																
passive aeration static pile	N	0	N	0	N	0	US	0	US	0	US	---									US	0	N	0			US	0	N		N	0
uncovered windrow	N	0	N	0	N	0	FE	0	N		FE	0									N	0	N	0			N	0	N		N	0
covered windrow	N	0	N	0	N	0	FE	0	N		N	0									N	0	FE	0			N	0	N		N	0
composting in vessel or in reactor	N	0	FE	0	N	0	FE	0	N		N	0									N	0	N	0			N	0	N		N	0
forced aeration	N	0	N	0	N	0	N	0	N		N	0									N	0	FE	0			N	0	N		N	0
on central plant																																
with forced aeration	N	0	N	0	EX	0	FE	++	N		N	0									N	0					N	0	N		N	0
with exhaust air treatm in confined building	N	0	N	0	N	0	FE	++	N		N	0									N	0	US	++					N		N	0
Vermicomposting	N	0	N	0	N	0	N	0	N		EX	0									N	++					N	0	N		N	0
Drying																																
on farm ith exogenous heating	N	0	US	++	N	0	US	++	N		FE	0									N	0			N	0	N	0	N		FE	++
on farm using external heating	N	0	FE	0	FE	0	N	0	EX	0	US	++									N	0			US	++	US	++	N		N	0
on central ith exogenous heating	N	0	N	0	N	0	N	0	N		N	0									N	0					N	0	N		N	0
on central using external heating	N	0	N	0	N	0	FE	++	N		N	0									N	0			FE	++	N	0	N		N	0
Methanisation																																
manure only	N	0	N	0	N	0	N		N		N	0									N	0	N		EX	++	N	0	FE		N	0
on farm co-digestion	N	0	EX	0	N	0	N		FE	0	N	0									N	0	N				N	++	FE		EX	0
with external heating	N	0	N	0	N	0	N		N		N	0									N	0	N				N	0	FE		N	0
manure only	N	0	N	0	N	0	N		N		N	0									N	0	N				N	0	N		N	0
on central co-digestion	N	0	N	0	N	0	N		FE	0	N	0									N	0	N				N	0	N		EX	0
with external heating	N	0	N	0	N	0	N		N		N	0									N	0	N				N	0	N		N	0
Incineration/combustion																																
on farm manure only	N	0	EX	0	N	0	N		Ex	0	N	0									N	0	N	0	FE	0	N	0	N		EX	++
co-generation	N	0	N	0	N	0	N		N		N	0									N	0	N	0			N	0	N		N	0
on central manure only	N	0	EX	0	N	0	N		Ex	0	FE	0									N	0	N	0			N	0	N		EX	0
co-generation	FE	0	US	0	N	0	N		N		FE	0									N	0	N	0			N	0	N		EX	++
Additives	N	0	N	0	FE	++	FE	0	N		FE	0									N	0			FE	++			FE		N	0
Other (specify)			N	0																												

Liquid Fraction Processes

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
	Egg laying																															
Aerobic processes	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
lagoon	N	0	N	0	N	0	N		N		N	0													N	0	N	0	N		N	0
continous aeration	N	0	N	0	N	0	N		N		N	0													N		N	0	FE		N	0
SBR (intermittent) process	N	0	N	0	N	0	N		N		N	0													N		N	0	FE		N	0
Aeration equipment																																
plunging jet	N	0	N	0	N	0	N		N		N	0													N		N	0			N	0
surface aerator	N	0	N	0	N	0	N		N		N	0													N		N	0			N	0
air sparger	N	0	N	0	N	0	N		N		N	0													N		N	0			N	0
air injection	N	0	N	0	N	0	N		N		N	0													N		N	0			N	0
venturi system	N	0	N	0	N	0	N		N		N	0													N		N	0			N	0
fine bubble diffuser	N	0	N	0	N	0	N		N		N	0													N		N	0			N	0
other (specify)			N	0	N	0	N		N																N						N	0
Methanisation with co-digestion	N	0	N	0	N	0	N		N		N	0													N				FE		N	0
with heating							N		N		N	0													N				FE		N	0
					N	0	N																		N							
on central plant with co-digestion	N	0	N	0			N		N		N	0													N				N		N	0
with heating							N		N		N	0													N				N		N	0
anaerobic lagoon *any - Not specific*			N	0	N	0	N		N		N	0													N				N		N	0
Chemical processes	N	0	N	0	N	0	N		N		N	0													N				N		N	0
Other (specify)			N	0					N																							

Air treatments processes	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
	Egg laying																															
Inlet Air Ventilation	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
filtering	N	0	N	0	N	0	N	0	N		N	0			N										FE	++	N	0	N		EX	0
cooling	N	0	FE	0	N	0	US	0	N		US	++			FE	++									US	++	FE	++	N		N	0
spraying	N	0	FE	0	N	0	FE	0	N		N	0			N										US	++	FE	0	N		N	0
uv/radiation treatment			N	0	N	0	N	0	N		N	0			N										N	0	N	0	N		N	0
other (specify)							N	0																					N			
																													N			
Exhaust air treatment																																
bio-filter	FE	0	N	0	N	0	N		N		N	0			N										EX	++	N	0	N		N	0
bioscrubbing	N	0	N	0	N	0	N		N		N	0			N										N	0	N	0	N		N	++
water/acid solution scrubbing	N	0	FE	++	N	0	N		N		N	0			N										N	0	N	0	N		N	++
combined systems (filter-scrubber)	N	0	N	0	N	0	N		Ex	0	N	0			N										N	0	N	0	N		N	++
dust filter	FE	0	N	0	N	0	EX	0	N		N	0			N										US	++	N	0	N		N	0
spraying	N	0	N	0	N	0	N		N		N	0			N										N	0	N	0	N		N	0
uv/radiation treatment	N	0	N	0	N	0	N		N		N	0			N										N	0	N	0	N		N	0
carbon filter (odour)	N	0	N	0	N	0	N		N		N	0			N										EX	++	N	0	N		N	0
other (specify)															N														N			

Energy use in housing

Egg laying

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
Building thermal insulation quality	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
Insulation method																																
internal insulation of			US	++	US	0	US	0	N		US	++	US	++			US	0			US	0	US	0	N	0	US	++			US	0
external insulation o			N	0	EX	0	FE	0	US	0	FE	++									US	0			US	++	US	++			FE	0
roof insulation			US	++	US	++	US	0	US	0	US	++	US	++	US	++	US	0			US	0	US	0	US	++	US	++			US	0
floor insulation			US	++	FE	0	FE	0	US	++	FE	++	EX	++			US	0			US	0	FE	0	US	++	US	++			N	0
Ventilation management																																
natural ventillation with control	US	++	FE	0	FE	0	N	0	N		FE	---	N	0					FE	0	FE	0	FE	---	N	0	US	0			N	0
forced ventilation	US	0			US	0	US	++					US	0			US	0			US	0	US	0								
low energy consump			US	++	US	++	US	++	US	0	US	++									US	0	US	++	US	++	FE	++			US	0
fans with check valv			FE	0	US	++	US	0			FE	++									FE	0	US	++	US	++	US	0			N	0
air ducts and fans cleaning			US	++	FE	++	US	0	N		FE	++									US	0	FE	0	US	++					US	0
other (specify)																																
Lighting																																
use of fluorescent or low consumpt			US	++	US	++	US	++	US	0	FE	++			US	++			FE	0	US	++	US	++	US	++	FE	++			US	0
controlled lighting shemes			US	++	US	++	US	++	US	0	FE	++	US	++	US	++	US	0			US	0	US	++	US	++	FE	++			US	0
other (specify)																																

Feeding regimes

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
	Egg laying																															
Nitrogen efficiency	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
Multi phases feeding:																																
… with reduced overallf crude protein and adjustement of amino acids			US	0	US	0	US	0	FE	0	FE	++					US	++	FE	0	FE	0	FE	++	FE	++	FE	++	N		US	0
…. with normal level of crude protein but optimised in diet according to age	US	0	US	0	US	0	US	0	FE	0	US	++	US	0			N		FE	0	US	0	FE	++	US	++	US	---	N		US	0
Use of feed additives - enzymes			N	0	US	++	N	0	FE	0	US	++					US	++			US	0	FE	++	US	++	US	++			US	0
Use of feed additives - acidity regulators			N	0	EX	0	FE	++	EX	0	FE	++					FE	++			US	0	FE	++	EX	++	N				N	0
Other additve (specify)							N	0											FE	0												
Phosphorus efficiency																																
Use of feed additives - enzymes	US	0	US	0	US	++	US	++	FE	0	US	++	N	---			FE	++			US	0	US	0	EX	++	US	++			US	0
Use of feed additives - acidity regulators			N	0	EX	0	FE	++	EX	0	FE	++					N	0			US	0			EX	++	N				N	0
Use of higly digestible inorganic feed phosphates			US	0	FE	0	US	0	FE	0	US	++	US	0			US	++	FE	0	US	0			EX	++	US	++			US	0
Other additve (specify)							N	0																								
Carbon efficiency																																
Use of feed additives - enzymes			N	0	N	++	FE	++	US	0	US	++					FE	++			US	0			EX	++					N	0
Other additve (specify)																																
Other nutient controls (specify)																																
Use of feed additives - enzymes			N	0	EX	0	N	0	EX	0	US	++					FE	++			US	0			EX	++	FE	++			EX	0
Use of feed additives - growth stimulators			N	0	N	0	US	0	EX	0	FE	++					N	0			N	0			EX	++	N		N		EX	0
Use of feed additives - micro-organisms			N	0	??		FE	---	EX	0	FE	++					EX	++			US	++			EX	++	N		FE		EX	0
Reduction of Zinc and Cupper conten			N	0	??		US	0	EX	0	FE	++					EX	++			FE	++			N	0	EX	++			N	0

Water use

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
	Egg laying																															
	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	P	T
use of anti-spillage cup under nipp	FE	++	US	++	US	0	US	++	US	0	FE	0	US	++							N	0	US	++	US	++	US	0			US	0
calibrating drinking water devices			US	++	US	0	FE	++	US	0	FE	++							FE	0	US	0	US	++	US	++					US	0
detection of leakages and repairing	FE	++	US	++	US	0	US	++	US	0	FE	++					US	0	FE	0	US	0	US	++	US	++					US	0
use of specific drinking water supp			US	++	N	0	US	0	US	0	FE	++							FE	0	FE	0	FE	++	FE	0					US	0
use of high pressure cleaners	US	0	US	++	US	0	US	++	US	0	US	++	US	0			US	0	FE	0	US	0	US	0	US	++	US	++			US	0
metering water use :	FE	0					US	++	US	0									FE	0	US	0										
for animal drinking			US	++	US	++	FE	++	FE	0	FE	++	US	++					FE	0	US	0	FE	++	US						US	0
for cleaning building			N	0	US	++	FE	++	FE	0	FE	++							FE	0	US	0	FE	++	f choices				List of ch			0
for air or building cooling			N	0	N	0	N	0	N		FE	++							FE	0	N	0										0
for outlet air washing			EX	0		0		0	Ex	0	N	++							FE	0	US	0	FE	++	f choices							0
for other use			N	0		0													FE	0	US	0										
Collecting rain water for cleaning pu			N	0	N	0	FE	++	N		N	0	N		N				FE	0	N	0	FE	---	N	0	N	0			N	0
Re-use of water for other cleaning pu			N	0	N	0	N	0	N		N	0									N	0	FE	++	N	0	N	0			N	0
Other (specify)																																

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Analysed data

MANURE MANAGEMENT TRENDS - DUCKS AND GEESE PRODUCTION

Housing

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		Dk	
	Ducks / Geese																															
Housing system	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
inside - retained in small pens			N	0					N		N	0	N	0			N	0			N	0			EX	0	US	0			N	0
inside - large group housing			US	0					US	0	US	0	US	0			US	0			N	0			US	++	US	0			US	0
inside - open, natural ventilation			N	0					US	0	FE	---	US	0			N	0			US	0			US	0	US	0			N	0
outdoor yard			N	0					FE	0	FE	0	US	0			US	0			FE	0			US	0	US	0			N	0
other (specify)									N																							
Manure removal																																
Manure collection / management																																
in-house separation	N	0	N	0					N		N	0	N	0							N	0			N	0					N	0
manure cooling	N	0	N	0					N		N	0	N	0							N	0			N	0					N	0
belt removal	N	0	N	0					N		N	0	N	0							N	0			N	0					N	0
in-house drying	N	0	N	0					N		N	0	N	0							N	0			US	++	N	0			N	0
external drying	N	0	N	0					N		N	0	N	0							N	0			FE	++	N	0			N	0
flushing	N	0	N	0					N		N	0	N	0							N	0			N	0	N	0			N	0
in-house composting	N	0	N	0					N		FE	---	N	0							N	0			N	0	N	0			US	0
additives	N	0	N	0					EX	0	EX	0									N	0			FE	++	N	++			N	++
covering			N	0					N		FE	0									FE	++			FE	++	N	0			US	0
other (specify)																					US	0										

Separation technologies

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		Dk	
	Ducks / Geese																															
Raw manure/slurry/sludge	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
sedimentation/settling	N	0	N	0					N		N	0									N	0			N	0					N	0
crust skimming	N	0	N	0					N		N	0									N	0			N	0					N	0
clarification	N	0	N	0					N		N	0									N	0			N	0					N	0
dewatering	N	0	N	0					N		N	0									N	0			N	0					N	0
run-down screen	N	0	N	0					N		N	0									N	0			N	0					N	0
vibrating bed	N	0	N	0					N		N	0									N	0			N	0					N	0
rotary screen	N	0	N	0					N		N	0									N	0			N	0	FE	++			N	0
sieve drum	N	0	N	0					N		N	0									N	0			N	0	FE	++			N	0
sieve centrifuge	N	0	N	0					N		N	0									N	0			N	0					N	0
roller press	N	0	N	0					N		N	0									N	0			N	0					N	0
screw press	N	0	N	0					N		N	0									N	0			N	0					N	0
belt separator	N	0	N	0					N		N	0									N	0			N	0					N	0
decanter centrifuge	N	0	N	0					N		N	0									N	0			N	0	FE	++			N	0
membrane technology	N	0	N	0					N		N	0									N	0			N	0					N	0
Natural evaporation	N	0	N	0					N		FE	0									N	0			US	++					N	0
Forced evaporation	N	0	N	0					N		N	0									N	0			US	++					N	0
Other filtration	N	0	N	0					N		N	0									N	0									N	0
Additves	N	0	N	0					N		FE	0									N	0			FE	++			FE		N	0

Solid Fraction Processes

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		Dk	
	Ducks / Geese																															
Composting	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
on farm																																
passive aeration static pile	N	0	N	0					US	0	US	---									US	0					N	0	N		N	0
uncovered windrow	N	0	EX	0					N		FE	0									N	0					N	0	N		N	0
covered windrow	N	0	N	0					N		N	0									N	0					N	0	N		N	0
composting in vessel or in reactor	N	0	N	0					N		N	0									N	0					N	0	N		N	0
forced aeration	N	0	N	0					N		N	0									N	0					N	0	N		N	0
on central plant																																
with forced aeration	N	0	N	0					N		N	0									N	0					N	0	N		N	0
with exhaust air treatment in confined building	N	0	N	0					N		N	0									N	0					N	0	N		N	0
Vermicomposting	N	0	N	0					N		EX	0									N	0					N	0	N		N	0
Drying																																
on farm wtith exogenous heating	N	0	N	0					N		N	0									N	0			N	0	N	0	N		N	0
on farm using external heating	N	0	N	0					N		N	0									N	0			US	++	N	0	N		N	0
on central wtith exogenous heating	N	0	N	0					N		N	0									N	0					N	0	N		N	0
on central using external heating	N	0	N	0					N		N	0									N	0			FE	++	N	0	N		N	0
Methanisation																																
on farm manure only	N	0	N	0							N	0									N	0			EX	++	N	0	FE		N	0
on farm co-digestion	N	0	N	0					FE	0	N	0									N	0					N	++	FE		N	0
on farm with external heating	N	0	N	0							N	0									N	0					N	0	FE		N	0
on central manure only	N	0	N	0							N	0									N	0					N	0	N		N	0
on central co-digestion	N	0	N	0					FE	0	N	0									N	0					N	0	N		N	0
on central with external heating	N	0	N	0							N	0									N	0					N	0	N		N	0
Incineration/combustion																																
on farm manure only	N	0	N	0					N		N	0									N	0			FE	0	N	0	N		N	0
on farm co-generation	N	0	N	0					N		N	0									N	0					N	0	N		N	0
on central manure only	N	0	N	0					N		FE	0									N	0					N	0	N		N	0
on central co-generation	N	0	N	0					N		FE	0									N	0					N	0	N		N	0
Additives	N	0	N	0					N		FE	0									N	0			FE	0			FE		N	0
Other (specify)			N	0																												

Liquid Fraction Processes

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		Dk	
	Ducks / Geese																															
Aerobic processes	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
lagoon	N	0	N	0					N		N	0															EX	0	N		N	0
continous aeration	N	0	N	0					N		N	0															EX	0	N		N	0
SBR (intermittent) process	N	0	N	0					N		N	0															EX	0	FE		N	0
Aeration equipment																																
plunging jet	N	0	N	0					N		N	0															N	0			N	0
surface aerator	N	0	N	0					N		N	0															EX	0			N	0
air sparger	N	0	N	0					N		N	0															N	0			N	0
air injection	N	0	N	0					N		N	0															N	0			N	0
venturi system	N	0	N	0					N		N	0															N	0			N	0
fine bubble diffuser	N	0	N	0					N		N	0															N	0			N	0
other (specify)			N	0					N																						N	0
Methanisation with co-digestion	N	0	N	0					N		N	0																	FE		N	0
with heating									N		N	0																	FE		N	0
on central plant with co-digestion	N	0	N	0					N		N	0																	N		N	0
with heating									N		N	0																	N		N	0
anaerobic lagoon *any - Not specifically designed*			N	0					N		N	0																	N		N	0
Chemical processes	N	0	N	0	N	0			N		N	0																	N		N	0
Other (specify)			N	0					N																							

Air treatments processes	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		Dk	
	Ducks / Geese																															
Inlet Air Ventilation	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
filtering	N	0	N	0					N		N	0													FE	++	N	0	N		N	0
cooling	N	0	FE	0					N		US	++													US	++	FE	++	N		N	0
spraying	N	0	FE	0					FE	0	N	0													US	++	US	0	N		N	0
uv/radiation treatment			N	0					N		N	0													N	0	N	0	N		N	0
other (specify)																													N			
																													N			
Exhaust air treatment																																
bio-filter	N	0	N	0					N		N	0													EX	0	N	0	N		N	0
bioscrubbing	N	0	N	0					N		N	0													N	0	N	0	N		N	0
water/acid solution scrubbing	N	0	N	0					N		N	0													N	0	N	0	N		N	0
combined systems (filter-scrubber)	N	0	N	0					EX	0	N	0													N	0	N	0	N		N	0
dust filter	N	0	N	0					N		N	0													US	++	N	0	N		N	0
spraying	N	0	N	0					N		N	0													N	0	N	0	N		N	0
uv/radiation treatment	N	0	N	0					N		N	0													N	0	N	0	N		N	0
carbon filter (odour)	N	0	N	0					N		N	0													EX	0	N	0	N		N	0
other (specify)																													N			

Energy use in housing

Ducks / Geese

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		Dk	
Building thermal insulation quality	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
Insulation method																																
internal insulation of walls			US	++							US	++	EX	0							US	0			N	0	US	++			FE	0
external insulation of walls			N	0					US	0	FE	++									N	0			US	++	US	++			FE	0
roof insulation			US	++					US	0	US	++	EX	0							US	0			US	++	US	++			US	0
floor insulation			US	0					US	++	FE	++	N	0							N	0			US	++	US	++			N	0
Ventilation management																																
natural ventillation with control	US	0	FE	0					US	0	FE	---	US	0							FE	0			US	++	US	0			US	0
forced ventilation	N	0											EX	0							US	0										
low energy consumption fans			US	++					US	0	US	++									US	0			US	++	FE	++			N	0
fans with check valves			EX	0							FE	++									N	0			US	++	US	0			N	0
air ducts and fans cleaning			US	++					N		FE	++									US	0			US	++					US	0
other (specify)																																
Lighting																																
use of fluorescent or low consumption lights			US	++					US	0	FE	++									US	++			US	++	FE	++			FE	0
controlled lighting shemes			US	++					US	0	FE	++	N	0							US	0			US	++	FE	++			FE	0
other (specify)																																

Feeding regimes

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		Dk	
	Ducks / Geese																															
Nitrogen efficiency	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
Multi phases feeding:																																
… with reduced overallf crude protein and adjustement of amino acids			US	0					FE	0	FE	++									N	0			FE	++	FE	++	N		US	0
…. with normal level of crude protein but optimised in diet according to age	US	0	US	0					FE	0	US	++	US	0			N				US	0			US	++	US	---	N		US	0
Use of feed additives - enzymes			US	0					FE	0	US	++									US	0			US	++	US	++			US	0
Use of feed additives - acidity regulators			EX	0					EX	0	FE	++									US	0			EX	++					N	0
Other additve (specify)																																
Phosphorus efficiency																																
Use of feed additives - enzymes	N	0	US	0					FE	0	US	++	US	0							US	0			EX	++	US	++			US	0
Use of feed additives - acidity regulators			N	0					EX	0	FE	++									US	0			EX	++	N				N	0
Use of higly digestible inorganic feed phosphates			US	0					FE	0	US	++	US	0							US	0			EX	++	US	++			US	0
Other additve (specify)																																
Carbon efficiency																																
Use of feed additives - enzymes			US	0					US	0	US	++									US	0			EX	++					N	0
Other additve (specify)																																
Other nutient controls (specify)																																
Use of feed additives - enzymes			N	0					EX	0	US	++									US	0			EX	++	FE	++			N	0
Use of feed additives - growth stimulators			N	0					EX	0	FE	++									N	0			EX	++	N		N		N	0
Use of feed additives - micro-organisms			N	0					EX	0	FE	++									US	++			EX	++	N		FE		N	0
Reduction of Zinc and Cupper content			N	0					EX	0	FE	++									N	0			N	0	EX	++			N	0

Water use

Ducks / Geese

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		Dk	
Reduction of Water Consumption	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
use of anti-spillage cup under nipples			US	++					US	0	US	++	N	0							N	0			FE	0	US	0			US	0
calibrating drinking water devices			FE	++					US	0	FE	++									US	0			US	++					US	0
detection of leakages and repairing			US	++					US	0	FE	++									US	0			US	++					US	0
use of specific drinking water supply systems			US	++					US	0	FE	++									N	0			US	++					US	0
use of high pressure cleaners			US	++					US	0	US	++	US	0							US	0			US	++	US	++			US	0
metering water use :	FE	0							US	0											US	0										
for animal drinking			US	++					FE	0	FE	++									US	0									US	0
for cleaning building			N	0					FE	0	FE	++									US	0										0
for air or building cooling			N	0					N		FE	++									N	0										0
for outlet air washing			N	0					EX	0	N	++									US	0										0
for other use			N	0																	US	0										
Collecting rain water for cleaning purpose			N	0					N		N	0	N								N	0			N	0	N	0			N	0
Re-use of water for other cleaning purpose			N	0					N		N	0									N	0			N	0	N	0			N	0
Other (specify)																																

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Analysed data

MANURE MANAGEMENT TRENDS - BROILERS AND TURKEY PRODUCTION

Housing

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
	Broilers / Turkeys																															
Housing system	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
inside - retained in small pens			N	0	N	0	N	0	N		N	0	N	0	N		N	0			N	++	N	0	FE	0	US	0	N		N	0
inside - large group housing			US	0	US	0	US	0	US	0	US	0	US	0	US	++	US	0	FE	0	US	0	US	0	US	++	US	0	US		US	0
inside - open, natural ventilation			N	0	N	0	FE	---	US	0	FE	---	N	0			N	0			FE	0	N	0	FE	++	US	0	US		N	0
outdoor yard			EX	0	N	0	EX	++	N		FE	0	N	0	N		N	0			FE	0	N	0	FE	++	US	0			N	0
other (specify)									N																							
Manure removal																																
Manure collection / management																																
in-house separation			N	0	N	0	N	0	N		N	0	N	0							N	0	N	0	N	0					N	0
manure cooling	N	0	N	0	N	0	N	0	N		N	0	N	0							N	0	N	0	N	0					N	0
belt removal	N	0	N	0	N	0	N	0	N		N	0	N	0							FE	0	N	0	US	++					N	0
in-house drying	N	0	N	0	N	0	N	0	N		N	0	N	0					FE		N	0	US	0	US	++					N	0
external drying	N	0	N	0	N	0	N	0	N		N	0	N	0	US	++					N	0	US	0	FE	++					N	0
flushing	N	0	N	0	N	0	N	0	N		N	0	N	0							N	0	N	0	N	0					N	0
in-house composting	N	0	N	0	N	0	N	0	N		FE	---	US	0							US	0	N	0	N	0	FE	++			US	0
additives	N	0	N	0	US	++	FE	0	EX	0	EX	0									FE	++	N	0	FE	++	N	0			N	++
covering	N	0	N	0	N	0	FE	++	N		FE	0	US	++							FE	++	US	0	FE	++	N	0			US	0
other (specify)																	US	0			US	0										

Separation technologies	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
	Broilers / Turkeys																															
Raw manure/slurry/sludge	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
sedimentation/settling	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
crust skimming	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
clarification	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
dewatering	N	0	N	0	N	0	N		N		N	0									N	0	US	++	N	0					N	0
run-down screen	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
vibrating bed	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
rotary screen	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
sieve drum	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
sieve centrifuge	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
roller press	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
screw press	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
belt separator	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
decanter centrifuge	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
membrane technology	N	0	N	0	N	0	N		N		N	0									N	0	N	0	N	0					N	0
Natural evaporation	N	0	N	0	FE	0	N		N		FE	0			US						N	0	N	0	US	++					N	0
Forced evaporation	N	0	N	0	FE	0	N		N		N	0									N	0	N	0	US	++					N	0
Other filtration	N	0	N	0	N	0	N		N		N	0									N	0	N	0							N	0
Additves	N	0	N	0			N		N		FE	0									N	0	N	0	FE	++			FE		EX	++

Solid Fraction Processes

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
	Broilers / Turkeys																															
Composting	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
on farm																																
passive aeration static pile	N	0	N	0	N	0	US	0	US	0	US	---									US	0	N	0			US	0	N		N	0
uncovered windrow	N	0	N	0	FE	0	FE	0	N		FE	0									N	0	N	0			US	0	N		N	0
covered windrow	N	0	N	0	EX	0	FE	0	N		N	0									N	0	FE	0			US	++	N		N	0
composting in vessel or in reactor	N	0	N	0	N	0	N	0	N		N	0									N	0	N	0			N	0	N		N	0
forced aeration	N	0	N	0	N	0	N	0	N		N	0									N	0	FE	0			US	++	N		N	0
on central plant																																
with forced aeration	N	0	N	0	EX	0	FE	++	N		N	0									N	0					N	0	N		N	0
with exhaust air treatment in confined building	N	0	N	0	N	0	FE	++	N		N	0					US	0			N	0	US	++			FE	---	N		N	0
Vermicomposting	N	0	N	0	N	0	N	0	N		EX	0									EX	++					N	---	N		N	0
Drying																																
on far wtith exogenous heating	N	0	N	0	N	0	FE	0	N		N	0									N	0			N	0	N	0	N		N	0
using external heating	N	0	N	0	FE	0	N	0	N		N	0									N	0			US	++	N	0	N		N	0
on ce wtith exogenous heating	N	0	N	0	N	0	N	0	N		N	0									N	0					N	0	N		N	0
using external heating	N	0	N	0	N	0	FE	++	N		N	0									N	0			FE	++	N	0	N		N	0
Methanisation																																
manure only	N	0	N	0	N	0	N				N	0									N	0	N		EX	++	N	0	FE		N	0
on far co-digestion	N	0	EX	0	N	0	N		FE	0	N	0									N	0	N				N	++	FE		EX	0
with external heating	N	0	N	0	N	0	N				N	0									N	0	N				N	0	FE		N	0
manure only	N	0	N	0	N	0	N				N	0									N	0	N				N	0	N		N	0
on ce co-digestion	N	0	N	0	N	0	N		FE	0	N	0									N	0	N				N	0	N		EX	0
with external heating	N	0	N	0	N	0	N				N	0									N	0	N				N	0	N		N	0
Incineration/combustion																																
on far manure only	N	0	EX	0	N	0	FE	++	EX	0	N	0									N	0	N	0	FE	0	N	0	N		EX	++
co-generation	N	0	N	0	N	0	N	0	N		N	0									N	0	N	0			N	0	N		N	0
on ce manure only	N	0	EX	0	N	0	N	++	EX	0	FE	0									N	0	N	0			N	0	N		EX	0
co-generation	US	0	EX	0	N	0	N	++	N		FE	0									N	0	N	0			N	0	N		N	++
Additives	N	0	N	0	FE	++	FE	0	N		FE	0									N	0			FE	++			FE		N	0
Other (spe			N	0																												

Liquid Fraction Processes

Broilers / Turkeys

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
Aerobic processes	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**
lagoon	N	0	N	0	N	0	N		N		N	0															N	0	N		N	0
continous aeration	N	0	N	0	N	0	N		N		N	0															N	0	FE		N	0
SBR (intermittent) process	N	0	N	0	N	0	N		N		N	0															N	0	FE		N	0
Aeration equipment																																
plunging jet	N	0	N	0	N	0	N		N		N	0															N	0			N	0
surface aerator	N	0	N	0	N	0	N		N		N	0															N	0			N	0
air sparger	N	0	N	0	N	0	N		N		N	0															N	0			N	0
air injection	N	0	N	0	N	0	N		N		N	0															N	0			N	0
venturi system	N	0	N	0	N	0	N		N		N	0															N	0			N	0
fine bubble diffuser	N	0	N	0	N	0	N		N		N	0															N	0			N	0
other (specify)			N	0	N	0	N		N																						N	0
Methanisation with co-digestion	N	0	N	0	N	0	N		N		N	0															EX	0	FE		N	0
with heating							N		N		N	0																	FE		N	0
on central plant with co-digestion	N	0	N	0	N	0	N		N		N	0																	N		N	0
with heating							N		N		N	0																	N		N	0
anaerobic lagoon *any - Not specific*			N	0	N	0	N		N		N	0																	N		N	0
Chemical processes	N	0	N	0	N	0	N		N		N	0																	N		N	0
Other (specify)			N	0					N																							

Air treatments processes

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
	Broilers / Turkeys																															
Inlet Air Ventilation	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
filtering	N	0	N	0	N	0	N	0	N		N	0			N										FE	++	N	0	N		EX	0
cooling	N	0	FE	++	N	0	US	0	N		US	++			FE	++									US	++	US	++	N		N	0
spraying	N	0	US	0	FE	++	FE	0	FE	0	N	0			N										US	++	US	++	N		N	0
uv/radiation treatment			N	0	N	0	N	0	N		N	0			N										N	0	N	0	N		N	0
other (specify)							N	0																					N			
																													N			
Exhaust air treatment																																
bio-filter	FE	0	N	0	N	0	N		N		N	0			N										EX	++	N	0	N		N	0
bioscrubbing	N	0	EX	0	N	0	N		N		N	0			N										N	0	N	0	N		EX	++
water/acid solution scrubbing	N	0	FE	++	N	0	N		EX	0	N	0			N										N	0	N	0	N		N	++
combined systems (filter-scrubber)	N	0	N	0	N	0	N		Ex	0	N	0			N										N	0	N	0	N		N	++
dust filter	FE	0	N	0	N	0	EX	0	N		N	0			N										US	++	N	0	N		N	0
spraying	N	0	EX	0	N	0	EX	0	N		N	0			N										N	0	N	0	N		N	0
uv/radiation treatment	N	0	N	0	N	0	N		N		N	0			N										N	0	N	0	N		N	0
carbon filter (odour)	N	0	N	0	N	0	N		N		N	0			N										EX	++	N	0	N		N	0
other (specify)															N														N			

Energy use in housing

Broilers / Turkeys

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
Building thermal insulation quality	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
Insulation method																																
internal insulation of walls			US	++	US	0	US	0			US	++	US	++			US	0			US	0	US	0	N	0	US	++			US	0
external insulation of walls			N	0	EX	0	FE	0	US	0	FE	++									US	0			US	++	US	++			FE	0
roof insulation			US	++	US	++	US	0	US	0	US	++	US	++			US	0			US	0	US	0	US	++	US	++			US	0
floor insulation			US	0	FE	0	FE	0	US	++	FE	++	US	++			US	0			US	0	US	0	US	++	US	++			EX	0
Ventilation management																																
natural ventillation with control	US	++	FE	0	FE	0	FE	---	US	0	FE	---	N	0					FE	0	N	0	FE	---	N	0	US	0			N	0
forced ventilation	US	0			US	0	US	0					US	0			US	0			US	0	US	0								
low energy consumption fans			US	++	US	++	FE	++	US	0	US	++									US	0	US	++	US	++	FE	++			US	0
fans with check valves			FE	0	US	++	US	++			FE	++									FE	0	US	++	US	++	US	0			N	0
air ducts and fans cleaning			US	++	FE	++	US	0	N		FE	++									US	0	FE	0	US	++					US	0
other (specify)																																
Lighting																																
use of fluorescent or low consumption lights			US	++	US	++	US	++	US	0	FE	++									US	++	US	++	US	++	FE	++			EX	++
controlled lighting shemes			US	++	US	++	US	++	US	0	FE	++	US	++			US	0			US	0	EX	++	US	++	FE	++			US	0
other (specify)																																

Feeding regimes

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
	Broilers / Turkeys																															
Nitrogen efficiency	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
Multi phases feeding:																																
… with reduced overallf crude protein and adjustement of amino acids			US	0	US	0	US	0	FE	0	FE	++					US	++	FE	0	FE	0	FE	++	FE	++	FE	++	N		US	0
…. with normal level of crude protein but optimised in diet according to age	US	0	US	0	US	0	US	0	US	0	US	++	US	0			N				US	0	US	0	US	++	US	---	N		US	0
Use of feed additives - enzymes			US	0	US	++	N	0	FE	0	US	++					US	++			US	0			US	++	US	++			US	0
Use of feed additives - acidity regulators			EX	0	EX	0	FE	++	EX	0	FE	++					FE	++			US	0			EX	++					N	0
Other additve (specify)							N	0											FE	0												
Phosphorus efficiency																																
Use of feed additives - enzymes	FE	++	US	0	US	++	US	++	FE	0	US	++	N	---			US	++			US	0	US	0	EX	++	US	++			US	0
Use of feed additives - acidity regulators			N	0	EX	0	FE	++	EX	0	FE	++					N	0			US	0			EX	++	N				N	0
Use of higly digestible inorganic feed phosphates			US	0	FE	0	US	0	FE	0	US	++	US	0			US	++			US	0			EX	++	US	++			US	0
Other additve (specify)							N	0																								
Carbon efficiency																																
Use of feed additives - enzymes			US	0	N	++	US	++	US	0	US	++					US	++			US	0			EX	++					N	0
Other additve (specify)																																
Other nutient controls (specify)																																
Use of feed additives - enzymes			N	0	EX	0	N	0	EX	0	US	++					FE	++			US	0			EX	++	FE	++			EX	++
Use of feed additives - growth stimulators			US	0	N	0	US	0	EX	0	FE	++					N	0			N	0			EX	++	N		N		EX	0
Use of feed additives - micro-organisms			N	0	??		FE	---	EX	0	FE	++					FE	++			US	++			EX	++	N		FE		EX	0
Reduction of Zinc and Cupper cont			N	0	??		US	0	EX	0	FE	++					EX	++			FE	++			N	0	EX	++			N	0

Water use

Broilers / Turkeys

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		LT		BE_F		PL		F		AT		DK	
Reduction of Water Consumption	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
use of anti-spillage cup under nipples			US	++	US	0	US	++	US	0	US	++	US	++							US	++	US	++	US	++	US	0			US	0
calibrating drinking water devices			US	++	US	0	FE	++	US	0	FE	++									US	0	US	++	US	++					US	0
detection of leakages and repairing	FE	++	US	++	US	0	US	++	US	0	FE	++					US	0	FE	0	US	0	US	++	US	++					US	0
use of specific drinking water supply systems	FE	0	US	++	N	0	US	0	US	0	FE	++							FE	0	FE	0	FE	++	FE	0					US	0
use of high pressure cleaners	US	0	US	++	US	0	US	++	US	0	US	++	US	0			US	0			US	0	US	0	US	++	US	++			US	0
metering water use :	FE	0					US	++	US	0									FE	0	US	0										
for animal drinking			US	++	US	++	FE	++	FE	0	FE	++	US	++			US		FE	0	US	0	FE	++							US	0
for cleaning building			N	0	US	++	FE	++	FE	0	FE	++							FE	0	US	0	FE	++								0
for air or building cooling			N	0	N	0	N	0	N		FE	++							FE	0	N	0									List of cho	0
for outlet air washing			EX	0		0		0	Ex	0	N	++							FE	0	US	0	FE	++								0
for other use			N	0		0													FE	0	US	0										
Collecting rain water for cleaning purpose			N	0	N	0	FE	++	N		N	0	N		N				FE	0	N	0	FE	---	N	0	N	0			N	0
Re-use of water for other cleaning purpose			N	0	N	0	N	0	N		N	0									N	0	FE	++	N	0	N	0			N	0
Other (specify)																																

Annexe 1X

Analysed data

MANURE MANAGEMENT TRENDS - PIG PRODUCTION

Housing

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		BE_F		PL		AT		F		DL	
	Pigs																													
Housing system	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
inside - retained in small pens			US	0	US	0	US	0	US	---	US	0	US	++	US	++	US	---	FE	0	US	0	US	0	US	---	US	---	US	0
inside - large group housing			FE	++	FE	++	US	0	US	++	N	0	US	---	N		US	++	FE	0	US	++	US	++	US	++	US	++	US	++
inside - open, natural ventilation			FE	---	EX	++	US	0	US	0	US	---	US	---	US	0	N	0			FE	0	US	0	US		FE		FE	0
outdoor yard			N	0	N	0	EX	++	FE	0	FE	++	US	---	US	---	N	0			FE	0	N	0	FE				FE	0
other (specify)									N																					
Manure removal																														
Manure collection / management																														
in-house separation			N	0	FE	0	N	0	EX	0	EX	0	EX	---	N				US	++	N	0	N	0	FE		FE	0	EX	++
manure cooling	N	0	FE	---	N	0	N	0	N		N	0	US	++	N		FE	++			N	0	FE	++	N		EX	0	FE	++
belt removal	N	0	FE	---	N	0	N	0	N		EX	0	N	0	N				US	---	N	0	N	0					EX	0
in-house drying	N	0	N	0	N	0	N	0	N		N	0	N	0	N						N	0	N	0			EX	0	N	0
external drying	N	0	FE	++	N	0	N	0	EX	0	FE	---	N	0	US	++					N	0	N	0					N	0
flushing	N	0	FE	---	N	0	US	--	N		FE	---	N	0	N				FE		N	0	US	++	FE		FE	0	FE	0
in-house composting	N	0	N	0	N	0	N	0	EX	---	FE	0	US	---	N						N	0	US	++	FE				US	---
additives	FE	0	EX	++	FE	++	FE	0	EX	0	FE	0			N						EX	0	FE	++	FE		US	++	EX	++
covering	FE	++	EX	---	N	0	FE	++	EX	0	FE	0			N		US	++			US	0	FE	++	US		FE	0	US	0
other (specify)															N										FE	++				

Separation technologies

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		BE_F		PL		AT		F		DL	
	Pigs																													
Raw manure/slurry/sludge	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
sedimentation/settling	FE	0	FE	++	FE	0	FE	0	N		FE	0							FE	++			FE	++			US	++	N	0
crust skimming	N	0	FE	++	FE	0	N		N		EX	0											FE	++			N	0	N	0
clarification	N	0	FE	++	FE	0	N		N		EX	0																	N	0
dewatering	N	0	FE	++	N	0	FE	0	N		EX	0															EX	++	N	0
run-down screen	FE	0	N	++	N	0	FE	---	N		EX	0															EX	0	N	0
vibrating bed	FE	0	N	++	N	0	US	---	N		N	0															FE	0	EX	0
rotary screen	N	0	N	++	N	0	US	++	N		EX	0											EX	0					EX	0
sieve drum	N	0	N	++	FE	++	N		N		FE	0									FE	0					N	0	EX	0
sieve centrifuge	N	0	FE	++	N	0	N		N		FE	0									FE	0					FE	---	EX	++
roller press	FE	0	FE	++	N	0	N		N		FE	0			US	++					FE	0	FE	++			EX	---	EX	0
screw press	FE	0	FE	++	FE	---	US	++	FE	0	FE	0			US	++	FE	0			US	++	EX	++			US	0	FE	++
belt separator	FE	0	FE	++	FE	0	N		N		EX	0									FE	0					EX	---	FE	++
decanter centrifuge	N	0	FE	++	N	0	FE	++	Ex	0	FE	0									US	++					US	++	FE	0
membrane technology	N	0	FE	++	N	0	N		Ex	0	FE	0															EX	0	EX	++
Natural evaporation	US	0	N	0	FE	0	N		**Ex**	0	FE	0			US	++			FE	0			FE	0			N	---	N	0
Forced evaporation	N	0	FE	++	N	0	N		**Ex**	0	FE	0									US	0	N	0			FE	++	N	0
Other filtration	N	0	FE	++	N	0	N		N		N	0									EX	---					EX	0	N	0
Additves	FE	0	FE	++			N		Ex	0	FE	0											FE	0	FE		FE	---	US	++

Solid Fraction Processes

		UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		BE_F		PL		AT		F		DL	
		Pigs																													
Composting		P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
	on farm																														
	passive aeration static pile	FE	0	FE	0	N	0	N	0	US	0	US	0			N		US	0			N	0	US	++	US		US	0	N	0
	uncovered windrow	FE	0	N	0	FE	0	N	0	N		FE	0			N						N	0	US	++	US				N	0
	covered windrow	N	0	FE	0	EX	0	FE	0	N		N	0			N						FE	0	FE	0	FE				N	0
	composting in vessel or in reactor	N	0	FE	++	N	0	N	0	N		N	0			N						N	0	N	0	N		EX	0	N	0
	forced aeration	N	0	EX	++	N	0	N	0	N		N	0			N						FE	0	FE	++	FE		FE	++	N	0
	on central plant																														
	with forced aeration	N	0	N	++	EX	0	N	0	N		FE	0			N								N	0	N		US	++	N	0
	with exhaust air treatment in confined building	N	0	N	++	N	0	N	0	N		N	0			N		EX	0			US	++	N	0	N		EX	0	N	0
Vermicomposting		FE	0	N	++	N	0	N	0	N		EX	0			N								FE	0	N				N	0
Drying																															
	on farm wtith exogenous heating	N	0	FE	++	N	0	N	0	N		N	0											N	0	N		EX	++	N	0
	on farm using external heating	N	0	FE	++	N	0	N	0	N		N	0											N	0	N				N	0
	on central wtith exogenous heating	N	0	FE	++	N	0	N	0	N		N	0											N	0	N		EX	++	N	0
	on central using external heating	N	0	FE	++	N	0	N	0	N		N	0											N	0	N				N	0
Methanisation																															
	manure only	N	0	N	0	FE	++	FE	0	FE	---	FE	0			FE	++					N		EX	++	US		N	---	FE	0
	on farm co-digestion	N	0	FE	++	EX	++	FE	++	FE	++	FE	0									EX	0	N	0	US		FE	++	US	++
	on farm with external heating	N	0	N	0	FE	0	FE	++			N	0									N		N	0	US				FE	++
	manure only	N	0	N	0	FE	++	N	0	FE	---	FE	0									N		N	0	FE		N	---	FE	0
	on central co-digestion	N	0	FE	++	EX	++	FE	++	FE	++	FE	0									FE	++	N	0	FE		FE	++	US	++
	on central with external heating	N	0	FE	++	FE	0	FE	++			N	0									FE	++	N	0	FE				US	0
Incineration/combustion																															
	on farm manure only	N	0	N	0	N	0	N	0	N		N	0									N	0	N	0	N		N	---	EX	++
	on farm co-generation	N	0	N	0	N	0	N	0	N		N	0									N	0	N	0	N		N	---	N	0
	on central manure only	N	0	N	0	N	0	N	0	N	---	FE	0									N	0	N	0	N		N	---	N	0
	on central co-generation	N	0	N	0	N	0	N	0	N		FE	0									N	0	N	0	N		N	---	EX	++
Additives		N	0	FE	++	FE	++	FE	0	N		FE	0											US	++	FE		N	0	FE	++
Other (specify)				N	0																										

Liquid Fraction Processes

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		BE_F		PL		AT		F		DL	
	Pigs																													
Aerobic processes	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
lagoon	US	0	N	0	N	0	N		N		US	0							US	0	EX	0	FE	++	N		FE	---	N	0
continous aeration	FE	---	FE	++	FE	---	FE	0	N		FE	0									US	++			FE		EX	---	N	0
SBR (intermittent) process	FE	---	N	++	N	0	FE	++	N		FE	0			FE	++					US	++			FE		US	++	N	0
Aeration equipment																														
plunging jet	N	0	N	++	N	0	FE	---	N		FE	0							FE	0							N	---	N	0
surface aerator	FE	---	FE	++	FE	---	FE	---	N		FE	0											FE	0			US	++	N	0
air sparger	N	0	N	++	N	0	N		N		FE	0																	N	0
air injection	N	0	N	++	FE	++	N		N		FE	0											US	++			EX	0	N	0
venturi system	FE	---	N	++	N	0	US	++	N		N	0															EX	0	N	0
fine bubble diffuser	FE	---	N	++	N	0	FE	0	N		N	0									US						US	++	EX	0
other (specify)			N	++	N	0			N																					
Methanisation with co-digestion	FE	0	N	0	FE	0	FE	++	N		N	0									EX	0	EX	++	FE				US	++
with heating			N	0	FE	0	US	++	N		N	0			FE	++					N				FE				US	++
			N	0																										
on central plant with co-digestion	FE	++	N	0	FE	0	FE	++	N		FE	0									FE	++	N	0	FE				US	++
with heating			N	0	FE	0	FE	++	N		FE	0									FE	++			FE				US	++
anaerobic lagoon *any - Not specifically*			N	0			N		N		FE	0							FE	0			N	0	FE				FE	0
Chemical processes	N	0	FE	++	N	0	N		N		FE	0											FE	0	N				FE	++
Other (specify)			FE	++					N										US	0										

Air treatments processes	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		BE_F		PL		AT		F		DL	
	Pigs																													
Inlet Air Ventilation	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
filtering			EX	++	N	0	N	0	N		N	0			N								N	0	N		FE	0	N	0
cooling	N	0	US	++	FE	0	N	0	FE	0	US	++			FE	++	FE	++					FE	++	N		FE	++	US	++
spraying	N	0	FE	0	FE	++	FE	++	FE	0	N	0	EX	0	N								FE	++	N		FE	++	US	0
uv/radiation treatment	N	0	EX	++	N	0	N	0	N		N	0			N								EX	0	N		N		N	0
other (specify)							N	0							N				**US**	**0**					N					
																									N					
Exhaust air treatment																														
bio-filter	N	0	FE	++	N	0	N		FE	++	EX	0			N		FE	++			FE	0	FE	++	N		N		EX	0
bioscrubbing	N	0	US	++	N	0	N		FE	++	N	0			N						US	++	FE	++	N		FE	0	FE	++
water/acid solution scrubbing	N	0	US	++	N	0	N		FE	++	N	0			N						US	++	EX	++	N		FE	++	FE	++
combined systems (filter-scrubber)	N	0	FE	++	N	0	N		FE	++	N	0			N								EX	++	N		N		FE	++
dust filter	N	0	N	0	N	0	EX	0	N		N	0			N								US	++	N		N		N	0
spraying	N	0	N	0	N	0	N		N		N	0			N								N	0	N		FE	++	N	0
uv/radiation treatment	N	0	N	0	N	0	N		N		N	0			N								N	0	N		N		EX	0
carbon filter (odour)	N	0	N	0	N	0	N		N		N	0			N		FE	++					EX	0	N		N		EX	0
other (specify)															N				**US**	**0**					N					

Energy use in housing

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		BE_F		PL		AT		F		DL	
	Pigs																													
Building thermal insulation quality	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
Insulation method	US	++																									US	++		
internal insulation o	FE	0	N	0	US	0	US	0			US	++	US	++			US	0			US	0	N	0			US	++	US	0
external insulation o	US	++	US	++	EX	0	FE	0	US	0	FE	++							US	0			US	++			N		FE	0
roof insulation	FE	0	US	++	US	++	US	0	US	0	US	++	US	++	US	++	US	0	US	0	US	0	US	++			US	++	US	0
floor insulation			US	++	EX	0	FE	0	N		US	++	US	++			US	0	US	0	FE	++	US	++			N		US	0
Ventilation management																														
natural ventillation with control	US	0	FE	---	FE	++	US	0	US	0	US	---	US	---	US	0					FE	++	US	0			N		US	0
forced ventilation	US	0			US	0	US	0					FE	++	FE	++	US	++	US	0	US	0	US	++			US	++		
low energy consum	US	0	US	++	US	++	US	++	US	0	US	++			FE	++					US	++	US	++			FE	++	US	0
fans with check val			US	++	US	++	FE	0			FE	++			FE	++					US	++	US	++			FE	++	FE	0
air ducts and fans cleaning	US	0	FE	++	FE	++	US	0	N		FE	++									US	++	US	++			FE	0	US	0
other (specify)																														
Lighting																														
use of fluorescent or low consump	US	++	US	++	US	++	US	++	US	0	FE	++			US	++	US	0	US	++	US	++	US	++			US	++	FE	++
controlled lighting shemes	US	0	US	++	FE	0	US	++	US	0	FE	++	EX	0	US	++	US	0			N	0	US	++			EX	0	US	0
other (specify)																														

Feeding regimes

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		BE_F		PL		AT		F		DK	
	Pigs																													
Nitrogen efficiency	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
Multi phases feeding:																														
… with reduced overallf crude protein and adjustement of amino acids	EX	0	FE	++	US	0	US	++	FE	0	FE	++			US	++	US	++			FE	++	FE	++	N		US	++	US	0
…. with normal level of crude protein but optimised in diet according to age	US	++	US	++	US	0	US	0	US	++	US	++			US	0	N		FE	0	US	++	US	++	FE				US	0
Use of feed additives - enzymes	US	0	N	0	US	++	FE	0	FE	0	US	++			FE	++	US	++			FE	++	EX	++			FE	++	EX	++
Use of feed additives - acidity regulators	FE	0	EX	++	EX	0	US	++	EX	0	FE	++			FE	++	US	0			FE	++	US	++			FE	++	EX	++
Other additve (specify)							N																							
Phosphorus efficiency																														
Use of feed additives - enzymes	US	0	US	++	US	++	FE	0	FE	0	US	++	FE	++	FE	++	US	++			US	0	EX	++					US	0
Use of feed additives - acidity regulators	FE	0	N	0	EX	0	US	0	EX	0	FE	++			FE	++	N	0					US	++					N	0
Use of higly digestible inorganic feed phosphates	FE	0	US	---	FE	0	US	0	FE	0	US	++	US	0	FE	++	US	++	FE	0			EX	++			US	++	US	0
Other additve (specify)							N	0																						
Carbon efficiency																														
Use of feed additives - enzymes	US	++	N	0	N	++	N	0	US	0	US	++			FE	++	FE	++					EX	++			N		N	0
Other additve (specify)							N	0																						
Other nutient controls (specify)																														
Use of feed additives - enzymes	US	0	FE	0	EX	0	FE	++	EX	0	US	++					FE	++					FE	++					EX	++
Use of feed additives - growth stimulators	N	0	N	0	N	0	N	0	EX	0	FE	++					N	0					N	0	N				N	0
Use of feed additives - micro-organisms	N	0	FE	++	??		FE	0	EX	0	FE	++					FE	++					FE	++	FE				EX	0
Reduction of Zinc and Cupper conte	FE	---	EX	++	??		US	0	FE	0	FE	++					EX	++					FE	++			US	++	US	0

Water use

	UK		NL		CZ		IT		DE		ES		SE		CY		FI		LV		BE_F		PL		AT		F		DL	
	Pigs																													
Reduction of Water Consumption	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
use of anti-spillage cup under nipp	N	0	US	0	US	0	US	++	US	0	US	++	N	0	US	++			FE		US	++	US	++			US	++	US	0
calibrating drinking water devices	FE	++	US	++	US	0	FE	++	US	0	FE	++			FE	++			US	0	US	++	US	++			US	++	US	0
detection of leakages and repairin	US	++	US	++	US	0	US	++	US	0	FE	++			US	++	US	0	US	0	US	++	US	++			US	++	US	0
use of specific drinking water supp	US	0	US	++	N	0	US	0	US	0	FE	++							US	0	FE	++	N	0			US	++	US	0
use of high pressure cleaners	US	0	US	0	US	0	US	++	US	0	US	++	US	0	US	++	US	0	US	0	US	0	US	++			US	++	US	0
metering water use :							US	++	US	0									US	0							US	++		
for animal drinking	FE	0			US	++	FE	++	FE	0	FE	++	N	0					US	0	FE	++	US	++					US	0
for cleaning building		0			US	++	FE	++	FE	0	FE	++								0	FE	++		++						0
for air or building cooling		0			N	0	N	0	N		FE	++								0										++
for outlet air washing of cho		0				0		0	US	0	N	++								0	FE	++	of choices							++
for other use		0				0														0										
Collecting rain water for cleaning pu	FE	0	N	0	N	0	FE	++	N		N	0	N		N				N	0	FE	++	FE	0			FE	++	N	0
Re-use of water for other cleaning p	FE	0	N	0	N	0	N	0	N		N	0			N				N	0	FE	++	FE	0			FE	++	EX	0
Other (specify)																														

Annexe 17

POULTRY PRODUCTION INDICATED BY EUROPEAN EXPERTS CONSULTED

Key

(a) cm²/hen
(b) 20 for Standard, 10 for bio
(c) In m²
(d) Very low production
(e) Breeding
(f) Force feeding
(g) At breeding production
(h) No significant production
(i) 9 in winter garden
(j) Total number of animals (laying hens) in the Czech Republic; 4520474 laying hens producing eggs (age more than aprox. 15 weeks)- Amount of places initiated in the project of the building equipped with cages): 2580560 young laying hens before producing eggs (age from 0 to aprox.15 weeks)
(k) stocking density has to fulfil the Welfare Directive requirements
(l) Total number of animals (places for housing) in the Czech Republic *6.5
(m) Total amount of places for birds housing in the installations under IPPC Directive: 490865 places of laying hens producing eggs (age more than aprox. 15 weeks) - (amount of places initiated in the project of the building equipped with cages): 470376 places of young laying hens before producing eggs (age from 0 to aprox.15 weeks
(n) According to the EU legislation
(o) Only few farms
(p) kg/m²
(q) cm² usable area/bird in the cage
(r) per m² usable area
(s) 2003 data (actualized)
(t) FEPASA, 2006
(u) Heavy: 3 a 4, semi-heavy: 4 a 5, youngs: 10
(v) Slaughter animals;
(w) Places

Poultry Production		Eggs (layers)			Broiler			Turkey			Ducks			Geese		
		Numb. Animals	Mean stocking density	Surf. dedicated	Numb. Animals	Mean stocking density	Surf. dedicated	Numb. Animals	Mean stocking density	Surf. dedicated	Numb. Animals	Mean stocking density	Surf. dedicated	Numb. Animals	Mean stocking density	Surf. dedicated
Belgium (Flander)	Battery Cage	6000000	35	-	15000000	20										
	Enriched cage	500000	26													
	Non-cage systems	1000000	9-12													
Belgium (Wallonie)	Battery Cage	1400000	18	550(a)	3500000	10-20(b)	190000(c)	(d)			25000(e) 5000(f)	5(g)		(h)		
	Enriched cage															
	Non-cage systems	200000	6-9(i)													
Cyprus	Battery Cage	332637	11		3516476	11.5	304882(c)									
	Enriched cage															
	Non-cage systems															
Czech Republic	Battery Cage	5823859(j)	<18(k)		108369723(l)	<15-40		455967	2,5		17343	3				
	Enriched cage	201600	<18(k)													
	Non-cage systems	(m)														
Denmark	Battery Cage	1022000	(n)		95 000 000	18		750000		33 (?)	870000	3		0		
	Enriched cage	500000	(n)													
	Non-cage systems	1227000	(n)													
Finland	Battery Cage		15-16		950000(w)	16-17		(o)			(o)					
	Enriched cage	3100000	15-16													
	Non-cage systems		12-13													
France	Battery Cage	47400000									41800000	13				
	Enriched cage				633 800 000	22		72800000	7-8		33000000			700000		
	Non-cage systems	9000000	8.5													
Germany	Battery Cage	27914000	9	-	56762600	21	2702981(c)	10604300			2626000	5		384000	2	
	Enriched cage															
	Non-cage systems	11705900														

Poultry Production		Eggs (layers)			Broiler			Turkey			Ducks			Geese		
		Number of Animals	Mean stocking density	Surface dedicated	Number of Animals	Mean stocking density	Surf. dedicated	Numb. Animals	Mean stocking density	Surf. dedicated	Numb. Animals	Mean stocking density	Surf. dedicated	Numb. Animals	Mean stocking density	Surf. dedicated
Italy	Battery Cage	50000000	18	550(a)	97500000	14-20		15000000	2-6							
	Enriched cage	800000														
	Non-cage systems	800000														
Lithuania	Battery Cage	425000	17	-	3636800		40(p)	116500		38(p)	35800	10		44200	4	
	Enriched cage	61000	13													
	Non-cage systems	66000	12													
Netherlands	Battery Cage	14500000	22-40	550(a)	41913979	18-24		1139840	3-5		1043349	6-7				
	Enriched cage	523000	17-34	600(q)												
	Non-cage systems	16100000	9(r)													
Poland	Battery Cage	43000000	18.1	-	70946503	17		6855319			3559676	10		827008	6	
	Enriched cage	2700000	13.3													
	Non-cage systems	8100000	9													
Portugal	Battery Cage	7623770(s)	4-5		29 100 000(t)	17					3489000(t)	6				
	Enriched cage							4756000(t)	3-5 (10)(u)							
	Non-cage systems															
Spain	Battery Cage	47991000			567221000(v)											
	Enriched cage															
	Non-cage systems	3150000														
Sweden	Battery Cage	50000			10400000	19	520000(c)	148000 (w)			22000(w)			22000(w)		
	Enriched cage	1700000														
	Non-cage systems	3300000														