

Emission Scenario Documents (ESD) for biocidal products: Data refinement via questionnaires

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Emission Scenario Document (ESDs)

- present methods for estimation of emission of biocides
- shall cover the 'normal use' including a 'realistic worst case scenario'
- shall ensure uniform authorization
- draft ESD published for public consultation in 2009

The disinfection of eggs in poultry hatcheries

- a high standard of hygiene is necessary in livestock farming
- eggs are hatched under optimized artificial conditions
- disinfection of eggs is performed twice (see scheme on right):
 - in sluice after arrival at hatchery (stage 1)
 - in hatcher during breeding (stage 2)
- according to draft and final ESD additional disinfection of setters / hatchers & equipment is performed (stage 3)

Verification of draft ESD data by a questionnaire for the specific use 'disinfection in hatcheries'

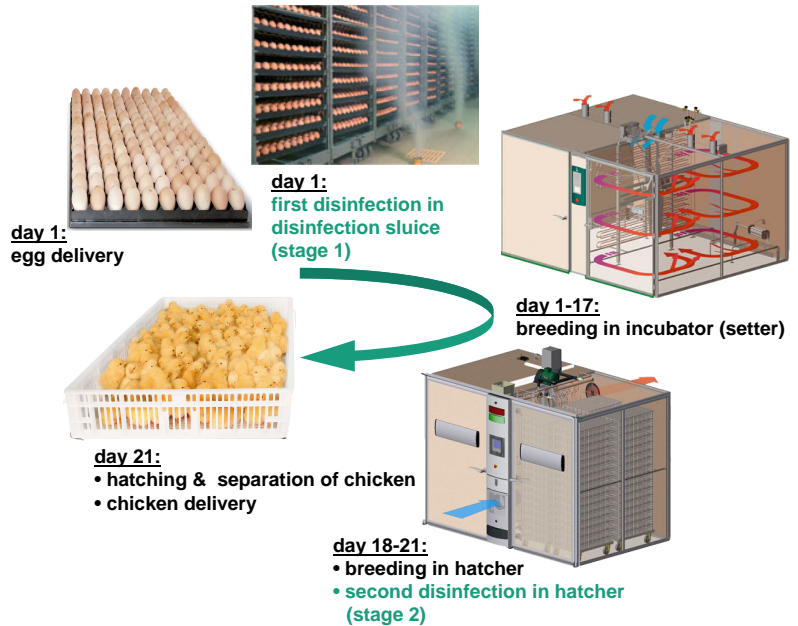
Challenges using questionnaires in surveys

- choosing correct addressee (e.g. associations vs. small companies)
- gathering data in a short & easy to handle questionnaire
- clear format for acceptance by addressee & extraction of data
- covering all possible uses (including different substances & equipment)

Evaluation of questionnaire

- avoid misunderstanding (e.g. 'solving in water' ↔ 'dilution step' or 'active ingredient' ↔ 'disinfectant' = biocidal product)
- avoid free text (difficult interpretation) (e.g. 'amount used' only valuable in relation to 'room size')
- danger of misinterpretation (falsifying results) (e.g. 'type' or 'unit' for stated 'amount of active ingredient' not provided)

Schematic Overview: Disinfection Steps of Eggs



Comparison: Questionnaire results & ESD data

- stage 3 disinfection as stated in ESD usually not performed at all
- questionnaire showed data similar to but also deviating from draft ESD
- exemplarily comparison calculation
→ different local emission rates ($E_{\text{local air/water}}$):

		Survey	ESD
mass formaldehyde (Q a.i. appl)	g per m ³	7.00	1.2
volume (V_{stage})	sluice	m ³ 261	49
	hatcher	m ³ 20.47	9.73
	setter	x**	9.73
number (N_{stage})	sluice	-	1
	hatcher	-	24
	setter	-	x**
disinfections ($N_{\text{appl stage}}$)	sluice	per day	1
	hatcher	per day	0.57
	setter	per day	x**
$E_{\text{local water}}^*$	g per day	76**	18
$E_{\text{local air}}^{**}$	g per day	3711**	867

* with $F_{\text{air}} = 0.98$, $F_{\text{water}} = 0.02$

** without 'stage 3' disinfection

Data from questionnaires were partly incorporated in the final ESD (2011)

Conclusion and Recommendations

- questionnaires are powerful instruments
- ESDs have to be updated and improved constantly
- ESDs are living documents (no mandatory use of default values)
- further ESD refinement should cover:
 - degradation / consumption of disinfectant
 - information about origin and applicability of data
 - judgments for reliability of picklist & default values