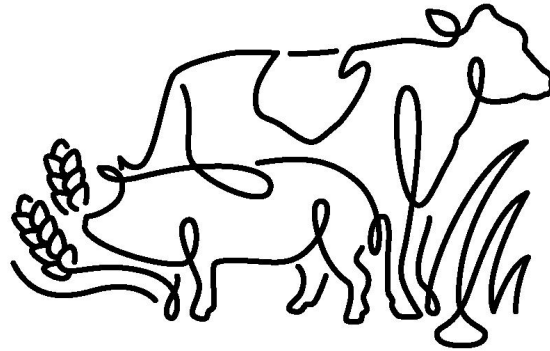
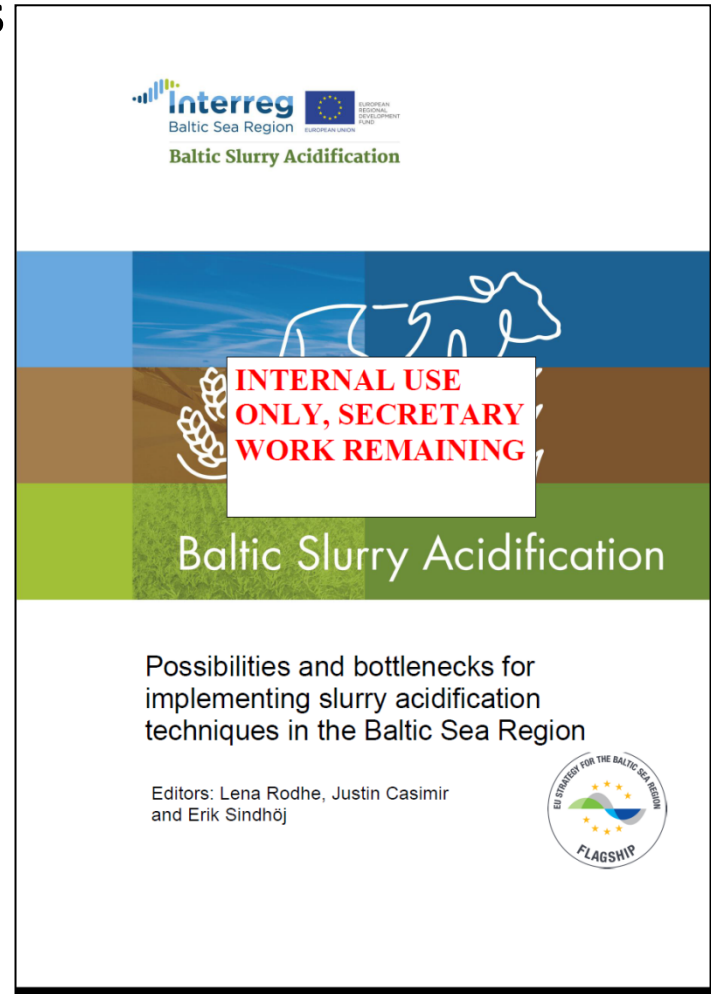


Implementation of SATs on national level



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- Report coming soon and can be then found in www.balticslurry.eu, section "Outputs".





Content of report

- Descriptions of slurry acidification techniques (SATs) in Denmark including In-house, In-storage and In-field SATs, and how it is practiced.
- Summarizes expert judgements on how these SATs could be implemented in each country in the Baltic Sea Region (BSR).
- Special focus on bottlenecks for implementing SATs with existing manure management systems was considered.
- Background descriptions of statistics of manure handling in EU and descriptions of manure handling in each country (Appendix).



Manure is mainly handled as slurry

- Data from Eurostat and national statistics show that a large portion of manure in each country is handled as slurry.
- **All the national experts considered implementing SATs as relevant for their respective countries.**



In-field SATs most applicable in BSR

- The In-field SATs were considered the most applicable SAT for implementation in the BSR.
- They are flexible and mobile and in general have the lowest acid consumption.
- In-field acidification techniques could also be available to smaller farms through agricultural contractors or farmers' cooperation





In-storage, before spreading: the second most interesting SAT

- Mobile equipment is ideal for contractors and co-operations, possible to treat a lot of slurry.
- Another advantage is that once the slurry is acidified, any available spreading equipment can be used.
- The major drawback is that extra storage capacity is needed during acidification due to extensive foaming. Most farmers do not have this extra storage capacity, so if storages are full, some slurry would have to be spread untreated before the rest of the tank could be acidified.





In-house SAT the least interesting

- The stationary In-house SAT was thought to be of less interest in most countries, since it is perhaps the hardest SAT to implement into existing manure handling systems.
- Installing In-House SAT in existing animal houses would, in many cases, probably require re-construction of slurry channels.
- In some countries like Estonia and Sweden, flushing systems inside the barn are currently not allowed due to regulations. Instead, daily mucking out with scrapers are existing (low ammonia emissions in barn).



In-pre-storage, slurry sent to storage (long-term)

- Interest in using the In-house SAT for acidifying all slurry before sending it to storage
- Likely easier to implement into existing manure handling systems. It is still a stationary system for a specific farm, but installation would be simpler and it will reduce emissions both from storage and spreading. (If measures exist on storage, e.g. crust, less needed).



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Estimate on potential for SAT implementation on farms in each country

Farm-level investment (FLI), agricultural contractor or farmer cooperation (AC/FC)

	SATs	In-house	In-storage, long term		In storage, before spreading		In-field		
		Mixing/ buffering pit	In pre-storage, pumping pit	In main storage				Acidification during spreading	
Country	Relevant	FLI	FLI	FLI	AC/FC	FLI	AC/FC	FLI	AC/FC
Estonia	Yes		x			x	x	x	x
Finland	Yes		x				x	Xa	x
Germany	Yes								x
Latvia	Yes				x(2)		x(2)		x(1)
Lithuania	Yes		x			x	x	x	x
Poland	Yes	xb	x		x	x	x	x	x
Sweden	Yes		x		x		x(2)		x(1)
In total	7	1	5	0	3	2	6	4	7



Some bottlenecks for implementing SAT

- In-house SAT may require re-construction of animal housing
- In-house and In-storage SATs may have higher demand on concrete quality (WP2)
- Economy? Benefits and costs will be studied in WP5.
- Safety? Need of extra training with some SATs.
- Need of extra storage capacity because of foaming in storage.
- Existing In-field SAT not possible to use because of rules for using and transporting acid (Germany).



Concluding remark

- In general, there is a good potential to implement currently available SATs into existing manure handling systems in Baltic Sea Region countries. Most of the identified bottlenecks could be dealt with.