

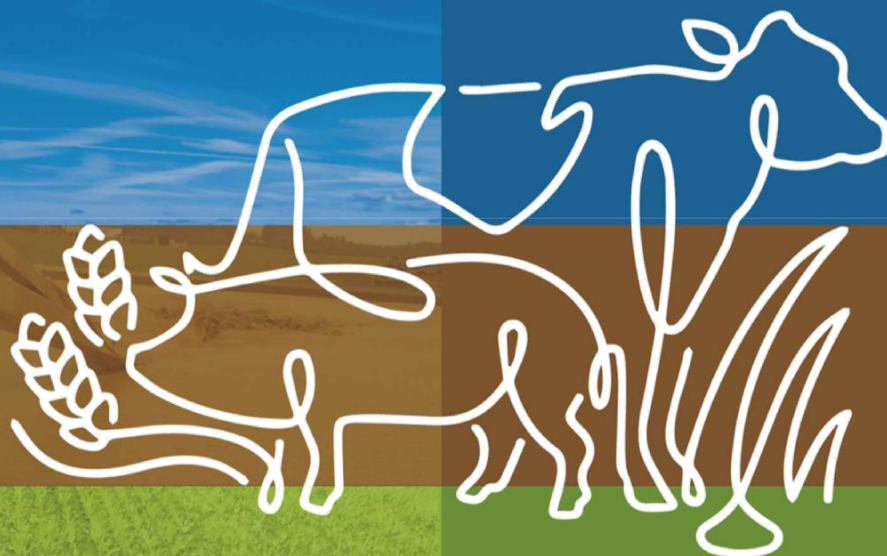


Baltic Slurry Acidification



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Baltic Slurry Acidification

Legal framework analysis

Slurry acidification technologies in the Baltic
Sea Region

Edited by Valters Zelcs, Farmers' Parliament

January 2019

Legal framework analysis

Slurry acidification technologies in the Baltic Sea Region

Edited by Valters Zelcs, Farmers' Parliament, Latvia

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Preface

This report is prepared within the frames of the Baltic Slurry Acidification project, co-financed by INTERREG V B Baltic Sea Region, and implemented by 17 partners from the Baltic Sea Region (BSR) in the period from March 2016 to February 2019.

The report contributes to the development of policy recommendations and analyses of markets and legislation in relation to slurry acidification technologies (SATs) and the overall project objective to promote a wider use of SATs in the BSR where this is found feasible.

Using Danish framework conditions as baseline, the report contains concrete and fact-based information about SAT-related legislation and support schemes in the eight EU Member States of the Baltic Sea Region, as well as Belarus and Russia.

We expect the report to catch the interest of several target groups, especially public authorities and policy makers for considerations for amendments to the national framework conditions to facilitate the use of SATs among their farmers, as well as for review of nutrient and air quality policies

The data for the report was collected and analysed in 2017 and 2018 by the persons and organisations, which are listed as contributing authors to the report.

We are especially glad that co-funding from the Swedish Institute made it possible to include collection, estimations and analysis of information from Russia and Belarus within the frames of the associated project "Bringing Russia and Belarus into Baltic Slurry Acidification".

The report was reviewed by Henning Lyngsø Foged, Organe Institute.

Riga, September 2018

Farmers' Parliament



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Summary

The following table summarises the main barriers and enablers for the use of SATs in the individual countries of the Baltic Sea Region. The table also shows an average score for the current feasibility for SATs use in the countries. The scoring is visualised by colours using traffic light symbolism.

Table 1: Summary of potential for slurry acidification technologies implementation regarding national legislative acts and support schemes.

Country	Current largest barrier(s)	Current most important enabling factor(s)	Subjective average feasibility score
Belarus	The considered legal framework of Belarus does not favour ammonia emission reduction. However, Belarus has voluntarily agreed to 127 Kt NH ₃ ceiling by 2020, since Belarus has agreed to ratify all points of CLRTAP convention.	An important incentive for Belarus livestock farms is the possibility to enhance the fertilising effect of slurry with respect to N and S.	2.0
Denmark	Incentives given for investment in SATs are limited, and there are presently no financial incentives available for investing in SATs.	Farmers save costs for solid cover on slurry tanks and for slurry injection. Especially the use of in-house acidification can be instrumental for obtaining environmental approval.	8.2
Estonia	There are practically no incentives given in framework conditions for use of SATs.	An important incentive for Estonian livestock farms is the possibility to enhance the fertilising effect of slurry with respect to N and S.	4.0
Finland	SATs are not recognised for their ammonia emission reduction effect in the Finnish legal framework.	Finland is focused on ammonia emissions and gives subsidies for slurry injection. Potentially, the use of SATs could be considered as a parallel/alternative measure under this subsidy.	7.8



Country	Current largest barrier(s)	Current most important enabling factor(s)	Subjective average feasibility score
Germany	German regulations are interpreted to hinder storage of slurry that has been acidified with sulphuric acid. This interpretation impedes the use of in-storage and in-house acidification.	The new Fertilisation Ordinance require nitrogen balances, that are gradually tightened, and which most probably can only be achieved in case of a change of practices and the use of technologies like SATs to improve the recycling of nutrients on the farm.	4.6
Latvia	The considered legal framework of Latvia does not favour ammonia emission reduction.	An important incentive for Latvian livestock farms is the possibility to enhance the fertilising effect of slurry with respect to N and S.	4.0
Lithuania	The considered legal framework of Lithuania does not favour ammonia emission reduction.	An important incentive for Lithuanian livestock farms is the possibility to enhance the fertilising effect of slurry with respect to N and S.	3.2
Poland	The considered legal framework of Poland does not favour ammonia emission reduction.	An important incentive for Polish livestock farms is the possibility to enhance the fertilising effect of slurry with respect to N and S.	3.2
Russia	The considered legal framework of Russia does not favour ammonia emission reduction.	An important incentive for Russian livestock farms is the possibility to enhance the fertilising effect of slurry with respect to N and S.	2.6
Sweden	SATs are not recognised for their ammonia emission reduction effect, neither for the beneficial effects of in-house acidification to lower concentration of ammonia and hydrogen sulphide in stables.	The considered Swedish legal framework gives a high priority to ammonia emission reduction, and has, as the only country in the Baltic Sea Region, earmarked subsidies for ammonia emission reduction technology.	4.4



Figure 1: Participant countries arranged on a scale according to received total scoring.

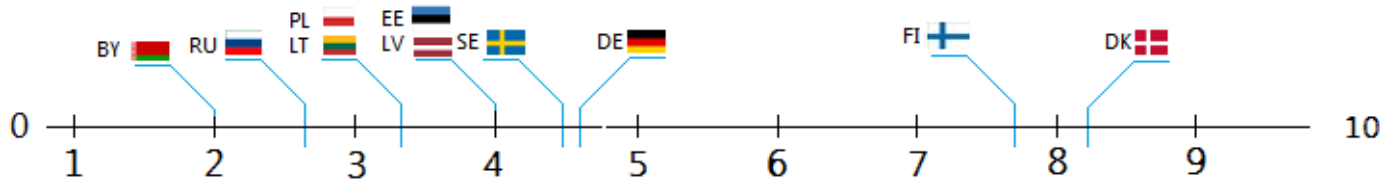


Figure 1 summarizes the ranking of the countries with respect to their potential to introduce SATs. As expected, Denmark's score is the highest. Danish farmers have used SATs for more than 15 years, and the legal framework of Denmark was already adapted to recognise the ammonia emission reduction effect of SATs. The legal framework of Finland is evaluated to give a high feasibility for SATs use, but does not recognise the technologies. Belarus and Russia are the countries with the lowest ranking of the feasibility of SATs use, which is not surprising given the different policy priorities in these countries.

The country annexes specify the exact legal provisions or support schemes that are related to SATs. Although there is an identified lack of enabling regulations in several countries, such as equalising use of SATs with slurry injection, it would be relatively simple as well as well justified to recognise SATs and thus provide such enablers, especially in the light of the decision from the EU of 2017 to grant SATs the status of Best Available Technology (BAT) under the Industrial Emissions Directive (IED) in all Member States.

Likewise, the identified barriers in some countries are probably not intentional, and the legal framework should be updated along with new and innovative technologies appearing on the market. An example of this is the German regulation that is interpreted to prohibit storage of slurry treated with sulphuric acid. The regulation was made to protect soils from being polluted with residues from chemical additives with potential side effects on the environment, nature and human health. Such additives are often used by maize-based biogas plants to stabilise the anaerobic digestion (which is not necessary when manure is digested).

Thus, if political will exists, the regulative environment could be made more accessible for SATs and enable their use in all countries.





Baltic Slurry Acidification



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1: Background

Livestock manure is the main source of ammonia-nitrogen emissions in the Baltic Sea Region (BSR), which through atmospheric deposition accounts for a major portion of the nitrogen entering the Baltic Sea.

Acidification is a well-known technique to reduce ammonia loss from livestock manure (Fangueiro, 2015). Slurry acidification technologies (SATs) have been developed in Denmark and have for several years been approved by the Danish Environmental Protection Agency as Best Available Techniques (BAT) states that Danish farms can utilize to reduce ammonia loss by up to 64% (EPA, 2018). Slurry acidification was included in the BAT reference document for the intensive rearing of poultry and pigs (Santonja et al., 2017), and in February 2017, slurry acidification was adopted as a BAT for reducing ammonia emissions by the Commission Implementing Decision (EU) 2017/302 within the implementation framework of the Industrial Emissions Directive (2010/75/EU). The objective of Baltic Slurry Acidification is to promote the use of SATs throughout the BSR due to its proven advantages.

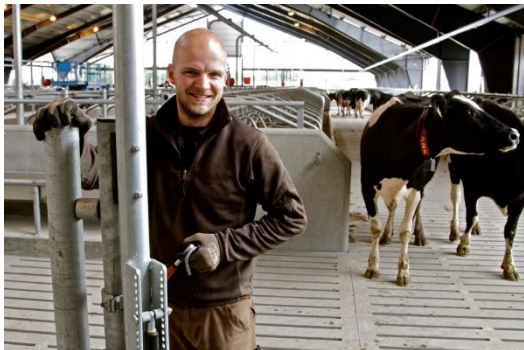
Table 2: Advantages of slurry acidification technologies.

Perspective	Advantages of slurry acidification technologies
Society, politicians, policy makers	<p>Agriculture is the source of 93% of all ammonia emissions in the EU (Eurostat) and BSR countries are committed to improving air quality with strict targets for reducing ammonia emissions (HELCOM, 2013).</p> <p>SATs can reduce ammonia emissions between 40 – 64% from livestock houses, slurry storage tanks and from field application of slurry depending on which SAT is used.</p> <p>Furthermore, SATs can decrease greenhouse gas emissions from livestock production by reducing nitrous oxide emissions that are indirectly related to ammonia emissions (IPCC, 2006) and, since sulphuric acid inhibits methanogenesis, by reducing methane emissions from slurry storages (Petersen et al., 2011).</p>
Farmers	<p>Farmers benefit directly from reducing ammonia emissions by conserving nitrogen in their slurry, which either reduces the need to purchase mineral nitrogen fertiliser or leads to increased crop yields due to extra nitrogen available to the crops. Further benefits arise from using sulphuric acid causing a higher S content in the slurry and thus saves cost of mineral S fertilisers (Foged, 2017).</p> <p>Via legislation, Danish farmers have been given an additional advantage that they do not need to inject slurry on grass fields or bare soils (fields without crops) in case the field spreading happens with band laying systems and the slurry is acidified.</p>



Perspective	Advantages of slurry acidification technologies
	Also, Danish legislation grants farmers the opportunity to save investment costs for solid covers on slurry storage tanks in case they store acidified slurry.
Biogas plants	When digesting slurry, including 10-20% acidified slurry can stimulate the methane yield during anaerobic digestion by almost 20%, however larger amounts can negatively affect the methane yield. In addition, when using separated manure solids with slurry for digestion, replacing 30% of the solids with acidified solids can increase gas yields by 50% compared to only utilizing slurry. (Møller and Moset, 2013).

Since slurry acidification is now on the EU BAT list, it is one of the available technologies that intensive livestock farms from all EU member states can implement in order to meet conditions for the issue of environmental permits in relation to the Industrial Emissions Directive (IED – Directive 2010/75/EU). This is necessary for all farms with more than 40,000 places for poultry, 2,000 pigs (over 30 kg) or 750 sows and BAT-technologies are applied to decrease the ammonia emissions. Via national provisions, Member States have in some cases extended the need for environmental approvals and use of BATs to other sizes and types of livestock farms. This is for instance the case in Denmark, where environmental permits also are required for cattle farms.



Vejlskovgaard in Denmark got an environmental permit to expand their dairy production to 727 Animal Units in 2012. The conditions for the permit comprised a 50% reduction of ammonia emissions, which was fulfilled by an investment in in-house acidification for the new dairy cow stable.



1.1: Legislative framework conditions

Slurry acidification techniques have the potential to contribute to the sustainable economic and social development of the Baltic Sea Region. Realisation of this potential in each country requires that its government recognises the advantages of SATs and works to remove possible legal barriers to implementing SATs, while at the same time, actively helping to pave the way for such “advantageous” technologies via the integration of them in their legal framework and support schemes.

Whereas SATs were recognised already in 2017 as BATs for all EU member states, a process of adjusting the framework conditions to unlock the potentials of these technologies is needed. The first step would be removing unintentional legal barriers for the use of SATs, and the second would be to develop incentives via subsidies or legal enablers to help promote their use.

Danish legislation and support schemes and its influence on the possibility and willingness for Danish farmers to use SATs has in this connection been a starting point for the focus areas of this report.



2: Method and organisation

The main objective of this legal framework analysis is to identify and describe general framework conditions that will help with the implementation of SATs. In particular, defining regulations or support schemes that could potentially hinder or promote use of slurry acidification technologies in each of the project participant countries as well as Russia and Belarus via associated partners.

2.1: Work process

The methods for work presented in the report were first outlined in the project application and then updated during a workshop in Lithuania in 2016. Following workshops in Riga in November 2017 and in Helsinki in March 2018 clarified responsible project staff for each country in relation to collection of information and interpretation of results.

The work process included the following main steps:

1. Development of a questionnaire for collection of relevant information – see Annex A.
2. Information collection.
3. Analysing of information and production of this report and its conclusions.

2.2: Rationale behind the focused regulations and support schemes

Danish experiences with legal and financial incentives for use of SATs were used as a baseline for the focused regulations and support schemes:

Table 3: Rationale of chosen parameters

#	Issue	Rationale
1	Requirements for cover on storage tanks to avoid ammonia emissions.	In-house acidification has been proven, via a VERA Verification ¹ , to substantially reduce ammonia emissions from slurry stores. Against this background, Danish legislation grants the possibility to avoid investments in solid or tight covers (natural crust etc.) when slurry is acidified by in-house acidification.
2	Limitations of N fertilisation via maximum allowed application norms.	Regulations in effect from 1999 to 2016 in Denmark limited N-fertilisation to a level under the optimum economic rates, which increased farmers demand for manure

1 VERA Verifications are found at <http://www.vera-verification.eu/vera-statements/>



	processing technologies that conserve and/or increase the level of mineral nitrogen.
3 Requirements for injection of slurry.	Injection of slurry is done to minimize ammonia emissions during field spreading. Since band spreading acidified slurry with trailing hoses has similar ammonia reducing effects, Danish legislation has given farmers the option of using slurry acidification instead of slurry injection.
4 Restrictions for recirculation of slurry which has already been removed from livestock houses.	The question is based on discussions among project partners, who thought their country might have regulations hindering recirculation of slurry that was already removed from the stable.
5 Restrictions for size/dimension of slurry channels in stables, or other provisions for design of slurry channels reducing the risks of harmful concentration of gases, when slurry is being removed from the channels.	The question is to clarify the existence of such regulations in the individual countries, and to which extent they might be a barrier for in-house acidification.
6 Other currently active regulations that could potentially hinder in-field, in-house or in-storage acidification.	The question is made in order to ensure we collect any other information of relevance for the use of SATs.
7 Support schemes for investing in SATs	The experience from Denmark is that farmers' and other investors' willingness to invest in SATs is heavily dependent on the availability of financial incentives. A number of issues was thus requested to be clarified in order to identify currently available or potential future financial incentives for SAT investments or use – see Annex A for details.

In order to avoid duplication of efforts, this report is alone considering legislation and support schemes that have not already been analysed in other activities of the Baltic Slurry Acidification project, such as labour safety and traffic regulations that are clarified in the A2.5 report (Fors et al., 2018).



2.3: Presentation of analysed results

The information collected for this report is more qualitative than quantitative. The aim is to better clarify the legal feasibility of encouraging implementation of slurry acidification in the different countries. Comparison is made between countries on the likely ease of slurry acidification implementation. Efforts were made to present the answers in a simplified and graphically visualised way that involved a subjective² scoring of the readiness for use of SATs in the countries with respect to the issues mentioned above:

- Based on the provided information for the country in question, with reference to the country annexes, the extent to which the current legislation and support schemes provide farmers with incentives for use of SATs are given a score from 0 to 10, where a score of 0 is visualised with red colour, 10 with green colour and 5 with yellow colour, thus using the symbolism of traffic lights.



- The score of 10 was given to the situations, where the legislation gives farmers the highest motivation to use slurry acidification, and the score of 0 was given to situations where the legislation is not giving farmers any motivation to use slurry acidification. Some principles for the subjective scoring appear from the following table:

Table 4: Explanaton of scoring

#	Issue	Comments to the scoring of the individual issues
1	Requirements for cover on storage tanks to avoid ammonia emissions.	Highest score (10) is given to countries that equalise solid cover with in-house acidification. Lowest scoring (0) is given to countries without any demand to cover on slurry tanks. A low score of 3 was given for countries, where farmers could be requested to ensure a low-cost cover, like natural floating layer.
2	Limitations of N fertilisation via maximum allowed application norms.	Maximal scoring is given to the country with the fertiliser norms that we evaluate as being the strictest with respect to the use of nitrogen fertilisers. The lowest scoring is given to

² By "subjective" is meant being based on impressions. The scoring was first suggested by the editor of this report in order to arrive at a common structure and evaluation of the qualitative information in the national annexes. The subjective scoring was since adjusted during the reviewing process in some cases. Thirdly, the co-authors were requested to argue for amendments of the scoring for their own countries.



	countries without any regulation of nitrogen fertilisation.
3 Requirements for injection of slurry.	The score of 10 was given in case slurry injection is required under some conditions and legally equalised with slurry acidification, and 0 given to countries where no requirements to injection. 3 was given to countries, where farmers are required to incorporate slurry in the soil within a strict time frame, and where slurry injection is an accepted technology. 8 was given in case slurry injection is required under certain conditions.
4 Restrictions for recirculation of slurry which has already been removed from livestock houses.	It turned out that none of the countries had any legal restrictions concerning recirculation of slurry. The issue was therefore not included in the scoring.
5 Restrictions for size/dimension of slurry channels in stables, or other provisions for design of slurry channels reducing the risks of harmful concentration of gases, when slurry is being removed from the channels.	It turned out the none of the countries had any legal restrictions concerning dimensioning of slurry channels that could hinder installation of in-house acidification. The issue was therefore not included in the scoring.
6 Other , currently active regulations that could potentially hinder in-field, in-house or in-storage acidification.	Only Germany and Sweden had regulations that potentially could hinder the use of SATs, and they were given the score of 3, and the rest of the countries a score of 10.
7 Support schemes for investing in SATs	The highest scores were given to countries with several (10) or one (8) support scheme(s) for environmentally friendly or even ammonia emission reducing technology. A score of three was given in case support schemes were available, but without giving farmers any incentives for using the support for investments in cleantech. 0 was given in case no support schemes for investments exist.

- The scoring is a subjective quantification of qualitative information. It is done in order to provide a quick overview of the legal framework-related feasibility



for implementing slurry acidification in a given country, and for the possibility of making comparisons across countries.

- Furthermore, the scoring is relative, meaning that the country with the most optimal situation for a given parameter with respect to giving farmers incentives for use of SATs through the current legal framework is given a score of 10, while other scores are adjusted in relation to that.
- While the scoring is subjective, the national annexes provide the qualitative information that the scoring is based on.



3: Farmer incentives given by the current legal framework for use of SATs

This section presents an overview of the situation with respect to the framework conditions for slurry acidification in the Baltic Sea Region countries. By framework conditions it is here understood the specific legislation that is defined in section 2, including the availability of schemes for financial support to investments in SATs.

By analysing the information from the countries, it became clear, that none of them have reported any legal hindrance for recirculation of slurry to the stables (question 4), neither any building provisions that would require dimensions or design of slurry channels that would impede the installation of in-house acidification (question 5).

3.1: Denmark

#	Issue	Current legal framework	Subjective and relative score
1	Requirements for cover on storage tanks	It is mandatory to ensure cover on storage tanks, but the cover can be a natural or artificial floating layer. Tanks situated close to neighbours and sensitive areas must have a solid cover. Solid cover can be replaced with in-house or in-storage acidification.	10
2	Maximally allowed N norms	Maximum N norms are calculated annually for each farm individually. Accounts must be reported every year.	8
3	Injection of slurry	Slurry can only be applied by using trailing hoses, trailing shoe or injection. There are conditions under which the only possible option is injection.	10



4	Restrictions for recirculation of slurry, which has been removed from livestock house	There are no restrictions of this kind.	-
5	Restrictions and provisions for size/dimensions/design of slurry channels and storage tanks	There are detailed requirements for design of slurry channels and storage tank placement, but none that would impede the use of in-house acidification.	-
6	Existing legislation which would hinder any type of slurry acidification	No legal acts of such kind were found.	10
7	Support schemes	There are no support schemes available for investments in SATs, but a leaked government document clarifies, that there are plans to introduce such investment support as part of a "Climate package" bill.	3
Average			8.2

Hence, for Denmark the situation is that there are no legal bottlenecks for slurry acidification, and the use is enabled by a legal framework that recognises its ammonia emission reduction effects by equating its use with demands for solid cover on slurry tanks and slurry injection. However, liberalisation of nitrogen fertiliser norms in 2016 has removed the profit-based incentive for using slurry acidification for many farms. The Government is according a leaked document planning to introduce subsidies to increase the use of slurry acidification.



3.2: Estonia

#	Issue	Current legal framework	Subjective and relative score
1	Requirements for cover on storage tanks	It is mandatory to ensure cover on storage tanks, but the cover can be a natural or artificial floating layer that does not require any substantial investments.	3
2	Maximally allowed N norms	There are some restrictions for N-fertilisation within nitrogen sensitive areas and nitrate vulnerable zones.	4
3	Injection of slurry	No requirements.	0
4	Restrictions for recirculation of slurry, which has been removed from livestock house	There are no restrictions of this kind.	-
5	Restrictions and provisions for size/dimensions/design of slurry channels and storage tanks	There are no provisions of this kind.	-
6	Existing legislation which would hinder any type of slurry acidification	No legal acts of such kind were found.	10
7	Support schemes	Within the current Rural Development Programme planning period, it is possible to apply for 30-40% investment in organic fertiliser spreading equipment as well as construction. In the application	3



evaluation process additional points are given if spreading equipment incorporates the material into the soil.

Average

4.0

The Estonian legislation is neither demanding solid cover on slurry tanks or slurry injection and N fertilisation is only restricted in NVZ and N-sensitive area. Available subsidies for investments are neither prioritised for ammonia emission reduction technology nor cleantech.



3.3: Finland

#	Issue	Current legal framework	Subjective and relative score
1	Requirements for cover on storage tanks	It is mandatory to ensure cover on storage tanks, but the cover can be a natural or artificial floating layer that does not require any substantial investments. Municipalities have the right to provide additional regulations regarding requirements for storage tanks on municipal level.	6
2	Maximally allowed N norms	There are maximally allowed N norms for different crops. Also, for farms applying for additional environmental payment have to adjust the amount of N used, based on soil type.	7
3	Injection of slurry	Organic fertilisers must be incorporated within 24 hours, injection is one of three incorporation options. Plots with winter cover can only be fertilised by injection after 15th of September, or immediately before sowing of winter crops. Parts of plots with \geq 15% slope can only be fertilised with injection	8
4	Restrictions for recirculation of slurry, which has been removed from livestock house	There are no restrictions of this kind.	-
5	Restrictions and provisions for size/dimensions/design of	No legislative acts prescribe specific design or other of slurry channels or	-



	slurry channels and storage tanks	slurry tanks that would hinder use of SATs.	
6	Existing legislation which would hinder any type of slurry acidification	No legal acts of such kind were found.	10
7	Support schemes	In certain parts of Finland, it is possible to apply for so-called "Injection subsidy" of 40 euro / ha. Also, it is possible to receive 40% support for investment in environmentally friendly technology and 50% for construction work.	8
Average			7.8

The Finnish related legislation is clearly reflecting a wish to reduce nutrient losses from farming, and support schemes are earmarked for environmentally friendly technology, including for use of slurry injection. Compared to other Baltic Sea Region countries, the Finnish legal framework is relatively feasible for slurry acidification. Requirements for solid cover on slurry tanks and use of slurry injection as well as the provided subsidies relatively easy could be equalised with use of slurry acidification.



3.4: Germany

#	Issue	Current legal framework	Subjective and relative score
1	Requirements for cover on storage tanks	It is mandatory to ensure cover on storage tanks, but the cover can be a natural or artificial floating layer that does not require any substantial investments. However, solid cover is required at farms with an environmental permit.	7
2	Maximally allowed N norms	The new Fertilising Act prescribes maximally allowed and gradually tightening N-balances, which in practice theoretically would lead to a demand for manure technologies that increase their fertilisation effect, such as SATs.	10
3	Injection of slurry	Currently there are no mandatory requirements for injection of slurry, but from 2020 it will only be possible to spread slurry close to the soil in stripes, where injection is one of allowed possibilities.	3
4	Restrictions for recirculation of slurry, which has been removed from livestock house	There are no restrictions of this kind.	-
5	Restrictions and provisions for size/dimensions/design of slurry channels and storage tanks	No legislative acts prescribe specific design or other of slurry channels or slurry tanks that would hinder use of SATs.	-



6	Existing legislation which would hinder any type of slurry acidification	A German regulation is interpreted to hinder storage of slurry with added sulphuric acid.	3
7	Support schemes	There are no relevant support schemes in Germany.	0
Average			4.6

Germany has with the new Fertilisation Act introduced regulations that would enable the feasibility for use of SATs if they are equalised with demands for solid cover on slurry tanks and use of slurry injection. Also, the requirements for N-balances would theoretically lead to higher demands for manure technologies like SATs that improve the fertilisation efficiency of the manure. However, use of in-house or in-storage acidification is impeded by a, probably unintended, regulation that is interpreted to forbid the storage of slurry that contains added chemicals.



3.5: Latvia

#	Issue	Current legal framework	Subjective and relative score
1	Requirements for cover on storage tanks	It is mandatory to ensure cover on storage tanks, but the cover can be a natural or artificial floating layer that does not require any substantial investments.	3
2	Maximally allowed N norms	There are maximal N-norms given for the most common crops, but only for farms larger than 20 ha situated within the Nitrate Vulnerable Zone.	4
3	Injection of slurry	No requirements.	0
4	Restrictions for recirculation of slurry, which has been removed from livestock house	There are no restrictions of this kind.	10
5	Restrictions and provisions for size/dimensions/design of slurry channels and storage tanks	No legislative acts prescribe specific design or other of slurry channels or slurry tanks that would hinder use of SATs.	-
6	Existing legislation which would hinder any type of slurry acidification	No legal acts of such kind were found.	-
7	Support schemes	Within the current Rural Development Programme planning period, it is possible to apply for 30-40% investment support for agricultural machinery, including	3



devices for fertiliser spreading. It is also possible to apply for 40% investment support for agricultural buildings.

Average

4.0

The situation for Latvia is that the current legal framework is not giving farmers incentives for use of SATs. There are, however, no legal hindrances for use of SATs.

According to the table above, incentives could for instance be given by earmarking part of subsidies for investments in SATs or in general for technologies that reduce ammonia emissions.



3.6: Lithuania

#	Issue	Current legal framework	Subjective and relative score
1	Requirements for cover on storage tanks	It is mandatory to ensure cover on storage tanks, but the cover can be a natural or artificial floating layer that does not require any substantial investments.	3
2	Maximally allowed N norms	There are no maximal norms for N fertilisation in Lithuania.	0
3	Injection of slurry	No requirements.	0
4	Restrictions for recirculation of slurry, which has been removed from livestock house	There are no restrictions of this kind.	-
5	Restrictions and provisions for size/dimensions/design of slurry channels and storage tanks	No legislative acts prescribe specific design or other of slurry channels or slurry tanks that would hinder use of SATs.	-
6	Existing legislation which would hinder any type of slurry acidification	No legal acts of such kind were found.	10
7	Support schemes	Within the current Rural Development Programme planning period, it is possible to apply for 30-40% investment support for agricultural machinery, including devices for fertiliser and pesticide spreading. It is also possible to apply	3



for investment support for
agricultural buildings.

Average

3.2

Lithuanian framework conditions are not giving farmers any incentives to use slurry acidification, but there are, on the contrary, no legal hindrances for it. Subsidies could in principle be given for investments in SATs.



3.7: Poland

#	Issue	Current legal framework	Subjective and relative score
1	Requirements for cover on storage tanks	It is mandatory to ensure cover on storage tanks, but the cover can be a natural or artificial floating layer that does not require any substantial investments.	3
2	Maximally allowed N norms	There are no maximal norms of overall N fertiliser in Poland.	0
3	Injection of slurry	No requirements.	0
4	Restrictions for recirculation of slurry, which has been removed from livestock house	There are no restrictions of this kind.	-
5	Restrictions and provisions for size/dimensions/design of slurry channels and storage tanks	No legislative acts prescribe specific design or other of slurry channels or slurry tanks that would hinder use of SATs.	-
6	Existing legislation which would hinder any type of slurry acidification	No legal acts of such kind were found.	10
7	Support schemes	Within the current Rural Development Programme planning period, it is possible to apply for 40% investment support for agricultural machinery, including	3



devices for fertiliser and pesticide spreading. It is also possible to apply for investment support for agricultural buildings.

Average

3.2

Polish framework conditions are not giving farmers any incentives to use slurry acidification, but there are, on the contrary, no legal hindrances for it. Subsidies could, in principle, be given for investments in SATs.



3.8: Sweden

#	Issue	Current legal framework	Subjective and relative score
1	Requirements for cover on storage tanks	It is mandatory to ensure natural or solid cover on storage tanks in particular regions of Sweden as well as farms exceeding certain size.	3
2	Maximally allowed N norms	While there are no limitations of maximally allowed norms for majority of Sweden, within the NVZ limits are very strict.	5
3	Injection of slurry	Within the NVZ, if slurry is spread on growing plants, it must be done using band spread or injection techniques.	3
4	Restrictions for recirculation of slurry, which has been removed from livestock house	There are no restrictions of this kind.	10
5	Restrictions and provisions for size/dimensions/design of slurry channels and storage tanks	Stables must be constructed in a way that all hygiene requirements are ensured. That includes daily stable cleaning.	10
6	Existing legislation which would hinder any type of slurry acidification	No legal acts of such kind were found.	4



7	Support schemes	Within this Rural Development Programme, it is possible to apply for support in buying machinery, and construction.	8
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Average	6.4
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Swedish legislation has a high focus on limiting loss of nitrogen into the environment, here under provisions to limit ammonia emissions from storage facilities and stables. In line with this, Sweden offers investment support for technologies to limit ammonia emission. In addition, Swedish provisions prescribes official approval of techniques used for livestock husbandry for animal welfare reasons, but it is not clear what the exact requirements are and how the tests would happen, neither whether in-house acidification is considered to be comprised by the regulation. Likewise, Sweden has like Denmark and many other countries established limit values for the concentration of specific gases in the stables, whereas the provided explanation does not include any documentation for these thresholds to be exceeded in case of the use of in-house acidification. In conclusion, the feasibility for use of SATs is moderate in Sweden but could with relatively simple few amendments of the legal framework be improved.



3.9: Belarus

#	Issue	Current legal framework	Subjective and relative score
1	Requirements for cover on storage tanks	There are no requirements for cover on storage tanks.	0
2	Maximally allowed N norms	There are no maximal N norms	0
3	Injection of slurry	There are no requirements for injection.	0
4	Restrictions for recirculation of slurry, which has been removed from livestock house	There are no restrictions of this kind.	-
5	Restrictions and provisions for size/dimensions/design of slurry channels and storage tanks	No existing provisions.	-
6	Existing legislation which would hinder any type of slurry acidification	No legal acts of such kind were found.	10
7	Support schemes	No relevant support schemes	0
Average			2

Belarus framework conditions are not giving farms any incentives to use slurry acidification, but there are, on the contrary, no legal hindrances for it. Subsidies could, in principle, be given for spreading acidified slurry.



3.10: Russia (5 Russian regions, fully or mostly located within the Baltic Sea drainage area)

#	Issue	Current legal framework	Subjective and relative score
1	Requirements for cover on storage tanks	There are no requirements for cover on storage tanks.	0
2	Maximally allowed N norms	There are no maximal N norms	0
3	Injection of slurry	There are no requirements for injection.	0
4	Restrictions for recirculation of slurry, which has been removed from livestock house	There are no restrictions of this kind.	-
5	Restrictions and provisions for size/dimensions/design of slurry channels and storage tanks	No existing provisions.	-
6	Existing legislation which would hinder any type of slurry acidification	No legal acts of such kind were found.	10
7	Support schemes	No relevant support schemes	3
Average			2.6



Russian framework conditions are not giving farms any incentives to use slurry acidification, but there are, on the contrary, no legal hindrances for it. Subsidies could, in principle, be given for investments in SATs.



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Annex A: Questionnaire

Based on this questionnaire, task 6.2 will compile report on legal framework related to use of SATs in the Baltic Sea region.

The focus of the report is on possible existing barriers and enablers for disseminated use of slurry acidification technologies (SAT's) in the involved countries.

I: Agri-environmental legislation related to SATs

Please describe legal provisions in direct relation to SAT's, comprising the technical regulations related to ammonia emissions for manure handling (housing and storage) and manure utilization (spreading), as well as any other regulations on N fertilisation that motivates farmers to conserve N in their manure. Please list and give short description of the scope for each. (*Clearly described by title of the legal act, number and texts of the article in question, and link to the legal provision – all in local as well as English language*). Technical regulations in scope of focus:

- Need for cover on storage tanks to avoid ammonia emissions,
- Limitations on N fertilisation that motivates the farmer to conserve the N content in the livestock manure,
- Requirements for injection of slurry to reduce ammonia emissions.
- Is it allowed to design stables so that slurry that has already been removed from the stable is pumped back to the slurry channels of the stable?
- Is it allowed to add sulphuric acid to slurry?
- Other legislation, which can affect slurry acidification.

Please use table below for summarizing overall information. Add lines to the table, if some other additional issues should be included.

Title of Legal act	Number and texts of the article in question	Link to the legal provision – all in local as well as English language	Comments
Requirement for cover on storage tanks to avoid ammonia emissions;			
Limitations of N fertilisation via maximally allowed application norms			
Requirements for injection of slurry			



	Title of Legal act	Number and texts of the article in question	Link to the legal provision – all in local as well as English language	Comments
Restrictions for recirculation of slurry that was already removed from livestock houses.				
Restrictions for the size/dimensions of slurry channels in stables, or other provisions for design of slurry channels reducing the risks of harmful concentration of gases, when slurry is removed from the channels. (The question is about the risk of release of harmful gases in lethal doses upon removing the slurry from the stable).				
Would any current regulation hinder in-house, in-store or in-field acidification?				

II: Current support schemes (financial incentives) that would be relevant for SAT investments or use

Please describe support schemes currently available for SAT investment or use in particular country. Which terms and conditions are applied in order to receive support? *(Clearly informed by title of the legal act, number and texts of the article in question, and link to the legal provision – all in local as well as English language.)*

Title of Legal act	Number and texts of the article in question	Link to the legal provision – all in local as well as English language	Comments
Support scheme 1			
Support scheme 2			
Support scheme 3			

In description part please investigate and elaborate following questions:



- Please investigate the situation specifically with RDPs 2014-2020 implementation process. Are manure management and SAT technologies supported today?
- What is the current budget-spending rate?
- Is area payment support available for environmental technologies?
- Is ammonia emission reduction related to greening requirements, and in case it is, in which way?
- Are there given priorities in support schemes for specific environmental technologies?
- Are there any indications for changes of the above issues for the next policy planning period (2020 - ...)?
- Is there any other type of overall support that could apply to SAT available in your country?
- Are there public, social and societal incentives available for farmers' contribution to rural sustainability and environmental management (information from e.g. project surveys etc.)?



Annex B: Legal framework of Denmark

I: Agri-environmental legislation related to SATs

I.1: Requirement for cover on storage tanks to avoid ammonia emissions

Title of Legal act

Bekendtgørelse nr. 865 af 23-06-2017 "Husdyrgødningsbekendtgørelsen" (Cabinet Order No. 865 of 23 June 2017 – "The Cabinet Order on Livestock Manure"). According our information, the Cabinet Order is not available in English.

Number and texts of the article in question

§22 contains decisions about cover on tanks for liquid manure, including digestate of any biomass of vegetable origin:

- Tanks must have cover.
- Tanks situated closer than 300 metres from neighbours or sensitive nature must have a solid cover (e.g. tent, roof, concrete deck or fabric membrane) or a tight cover (natural surface crust layer or equivalent). In 2013 it was estimated by Copenhagen University³ that 10-12% of the Danish slurry is stored in tanks with solid cover, and the share is probably a few percent higher today.
- The solid cover on tanks situated near sensitive nature can be replaced with a technology that appears on the Technology List of the Danish Environmental Protection Agency.
- According to the Technology List, in-house acidification and in-tank acidification can replace a solid cover.
- A log book must be kept in case of tanks with tight cover.

Link to the legal provision – all in local as well as English language

- The Cabinet Order on Livestock Manure: <https://www.retsinformation.dk/Forms/R0710.aspx?id=192157#id16e03b59-5946-49ed-86b7-fd2c89aa9d62>
- The Technology List: <http://eng.mst.dk/trade/agriculture/environmental-technologies-for-livestock-holdings/list-of-environmental-technologies/>
- Log book: <http://mst.dk/media/mst/7879772/logbog.pdf>

3

https://ens.dk/sites/ens.dk/files/Analyser/3_krav_om_fast_overdaekning_af_gyll_ebeholdere_revideret.pdf



Comments

-

1.2: Limitations of N fertilisation via maximally allowed application norms

Title of Legal act

The umbrella law, that refers to e.g. the Nitrates Directive is: "Lov om jordbrugets anvendelse af gødning og om plantedække", jf. lovbekendtgørelse nr. 433 af 3. maj 2017. (In English: "Law on farms' use of fertilisers and about plant cover", LBK nr 433 of 03/05/2017). According to our information the Law is not available in English.

Number and texts of the article in question

The entire law regulates the use of fertilisers and related demands for plant cover and other measures in relation to the overall aim of reducing leaching of nitrogen.

The law determines the overall frames for fertilisation, for example:

- it clarifies that each farm will have an annually calculated quota for use of nitrogen fertilisers that cannot be exceeded,
- it specifies that it governs all livestock herds with a minimum of animals, such as the equivalent of 1 tons N in the livestock manure, and a turnover exceeding DKK 50,000 (app. € 7,500),
- it determines that the mentioned quota includes nitrogen in self-produced livestock manures, including sold and bought manures, including digestate, and
- it demands that plans and accounts for fertilising must be made and reported to the authorities for each cropping year.

The Law entitles the Minister for the Environment and Food to establish detailed measures for implementation. These are issued in an annual Cabinet Order. The Ministry of Environment and Food is annually publishing a Guidance that explains the fertilisation regulations to farmers. The current Guideline has 180 pages, and includes tables with detailed information about fertiliser norms and standard figures for livestock manure etc.

Link to the legal provision – all in local as well as English language

- "Lov om jordbrugets anvendelse af gødning og om plantedække, jf. lovbekendtgørelse nr. 433 af 3. maj 2017 - <https://www.retsinformation.dk/pdfPrint.aspx?id=188833>
- Bekendtgørelse nr. 963 af 12. juli 2017 om jordbrugets anvendelse af gødning i planperioden 2017/2018 (In English: Cabinet Order no. 963 of 12 July 2017 about the use of fertilisers in the plan period 2017/2018) - <https://www.retsinformation.dk/Forms/R0710.aspx?id=192354>
- Vejledning om gødsknings- og harmoniregler Planperioden 1. august 2017 til 31. juli 2018 (In English: Guidance on fertilisation and harmony rules for the



planning period 1 August 2017 to 31 July 2018) -

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Comments

-

1.3: Requirements for injection of slurry

Title of Legal act

Bekendtgørelse nr. 865 af 23-06-2017 "Husdyrgødningsbekendtgørelsen" (Cabinet Order No. 865 of 23 June 2017 – "The Cabinet Order on Livestock Manure").

According to our information the Cabinet Order is not available in English.

Number and texts of the article in question

- §30,2 says that field spreading of liquid manures, including digestate, can only happen by use of such spreading technologies as trailing hoses, trailing shoe or injection.
- §30,3 says that injection must be used in the following cases:
 1. Areas without established crops for harvest other than areas covered by article 31 (1). 1, No. 3.
 2. Areas with fodder grasslands.
 3. Areas sown for seeds breeding for which no company has been contracted for sale of seeds in the coming season.
 4. Areas within 20 meters of Category 1 nature, cf. Section 2, No. 1, of the Executive Order on Approval and Authorization, etc. of livestock and lobster islands and high bogs covered by Category 2 nature, cf. Section 2, No. 2, of the Executive Order on Approval and Authorization, etc. of livestock farming.
- §30,4: Injection may be omitted if the livestock manure has been treated before or in connection with the application by a technique listed on the Danish Environmental Protection Agency's Technology List with at least the same effect on ammonia evaporation in connection with application as deposition on the area of the area concerned, cf. 3, No. 1-3, cf. 7th
- §30,5: The operator responsible for the operation shall, using a technology listed on the Danish Environmental Protection Agency's Technology List as a replacement for injection, cf. 4, keep documentation to have obtained an effect similar to injection. The documentation must be kept on the farm for 5 years.
- Slurry is spread by injection on app. 20% of the area that are field-spread with slurry (Foged, 2017).



Link to the legal provision – all in local as well as English language

- The Cabinet Order on Livestock Manure: <https://www.retsinformation.dk/Forms/R0710.aspx?id=192157#id16e03b59-5946-49ed-86b7-fd2c89aa9d62>
- The Technology List: <http://eng.mst.dk/trade/agriculture/environmental-technologies-for-livestock-holdings/list-of-environmental-technologies/>

Comments

-



Spreading of slurry on fields without crops or on grass fields must happen by use of slurry injection technology, such as shown in the picture above. The spreading of slurry by use of injection is in Danish law equalised with band-laying-spreading of acidified slurry.

1.4: Restrictions for recirculation of slurry that was already removed from livestock houses

Title of Legal act

There are no such provisions in Denmark.

Number and texts of the article in question

The Cabinet Order on Livestock Manure: <https://www.retsinformation.dk/Forms/R0710.aspx?id=192157#id16e03b59-5946-49ed-86b7-fd2c89aa9d62> contains some decisions that hinder reflux from the slurry tank to the stable with the purpose to avoid the risk of slurry flooding in the stable:



- § 23,1: Tanks for the storage of liquid manure with tight cover to which filling happens, shall have submerged inlets, which are protected from reflux. Other filling systems must be carried out so that the floating layer remains intact.
- § 23,2: Tanks for liquid manure storage must not be equipped with a damper or similar connection to the pumping pit if the highest level of the slurry tank is higher than the highest level of the pumping pit.

However, the Cabinet Order does not contain any provisions hindering recirculation of slurry that was already removed from the stable to e.g. a pumping pit.

Link to the legal provision – all in local as well as English language

N/A

Comments

-

1.5: Restrictions for the size/dimensions of slurry channels in stables, or other provisions for design of slurry channels reducing the risks of harmful concentration of gases, when slurry is removed from the channels.

(The question is about the risk of release of harmful gases in lethal doses upon removing the slurry from the stable).

Title of Legal act

Anlæg til flydende husdyrgødning (gylleanlæg og ajlebeholdere), At-anvisning nr. 2.6.1.1-1 (In English: Installations for liquid manure (slurry installations and liquid manure tanks), Order no. 2.6.1.1-1 of Danish Working Environment Authority)

Number and texts of the article in question

1. Interior design

1.1 General

1.1.1: Channel systems must be properly designed. The individual parts must be made of suitable materials and dimensioned so that the strength and durability required for safety are achieved. Slurry systems must be secured so that users or others are not exposed to danger. This should as far as possible be done through the construction, and otherwise by safety equipment.

Pumps, desulphurisation plants and other machinery used in connection with slurry must comply with the applicable machine protection rules and be CE marked. For machinery plants before 1995, where no CE marking is required, refer to the Danish Working Environment Authority's Design No. 2.2.0.1 machinery and machinery.

1.1.2: The technical and constructive requirements of the building regulations for the farms and farms of agriculture must be met.

1.1.3: The Danish Environmental Protection Agency's requirements for the dimensioning and construction of liquid manure tanks must be met.



1.2 Stable, ducts, pumping point and pumps and mechanics

1.2.1: Slurry tanks must not be placed in stables (or other buildings). However, slurry channels with a maximum depth of 1.2 m can be placed in stables.

1.2.2: Slurry channels, cleaning channels and pumping stations must be designed to prevent gases released from the slurry during stirring and pumping from entering the stable or other buildings.

1.2.3: Pumping pits and reservoirs that have pipe connections for backflush of slurry channels must be arranged so that the slurry can be degassed efficiently and safely before flushing.

1.2.4: Pipes for backflushing must be placed with the centre of the pipe no more than 0.2 m above the bottom of the slurry channel.

1.2.5: There must be a water trap on all pipes, channels and common pipelines that goes from the barn to the pumping pit.

The water trap must function independently of the level of slurry in the pumping pit and in the barn.

1.2.6: When a pump has a closed connection directly to the pipeline, a water lock can be omitted on the pipe leading to the pumping pit.

1.2.7: Pipes and other mechanical installations leading the slurry to the pumping pit must be designed so that they do not prevent effective stirring in the pumping pit.

1.2.8: Mechanical cleaning systems connected to a pumping pit must either have a water trap on the cleaning channel between the stable and the pumping pit or a damper and effective venting of the cleaning channel.

In stables with underpressure ventilation, ventilation of the cleaning channel must be a mechanical vent that starts automatically with the pump or the underpressure ventilation must be interrupted.

1.2.9: Channels and pipes that lead the slurry from several stables to a pumping point via a common duct or pipe must be terminated with a water trap before the common pipe for each single room. However, see 1.2.10, 1.2.11 and 1.2.12.

The mentioned provisions do not hinder installation of in-farm acidification.

Link to the legal provision – all in local as well as English language

- Anlæg til flydende husdyrgødning (gylleanlæg og ajlebeholdere), At-anvisning nr. 2.6.1.1-1 (In English: Installations for liquid manure (slurry installations and liquid manure tanks), Order no. 2.6.1.1-1 of Danish Working Environment Authority) - <https://arbejdstilsynet.dk/da/regler/at-vejledninger/a/2-6-1-1-anlaeg-til-flydende-husdyrgod>

Comments

-



I.6: Would any current regulation hinder in-house, in-store or in-field acidification

Title of Legal act

There are no such provisions in Denmark.

Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

-

II: Current support schemes (financial incentives) that would be relevant for SAT investments or use

There are no support schemes available for investments in SATs.

In description part please investigate and elaborate following questions:

- **Please investigate situation specifically with RDPs 2014-2020 implementation process. Are manure management and SAT technologies supported today?**

No. However, there was in 2016 (as well as earlier years) a possibility for applying for 40% support for investments in agro-environmental technology. The prioritised technologies included manure management technologies. The concrete technologies that can be applied for are prioritised politically, based on technical reports from Aarhus University. For SATs, subsidies were only available for investments in in-house acidification – see <http://lbst.dk/tilskud-selvbetjening/tilskudsguide/miljoeteknologi-2016-gylleforsuring/>

For 2018, in August there will be a similar possibility for a short period to apply for support for agro-environmental technologies. According to the preliminary decisions that currently are being heard – see <https://hoeringsportalen.dk/Hearing/Details/61408>, this year's support is prioritised for especially chicken production farms and organic certified farms.

In-storage and in-field acidification was at latest in 2014 eligible for support under the programme, but only for farmers, whereas the investors in these technologies most often are machine pools.

- **What is the current budget-spending rate?**

The 2018 subsidy programme for agro-environmental technology has a budget of DKK 122 million, equal to about M€ 15. Subsidies are available for investments in technologies to reduce energy consumption and pesticide consumption, as well as ammonia evaporation and nutrient input, but investment in SATs are not eligible for support.

- **Is area payment support available for environmental technologies?**



Currently, no such support is available. However, in 2018 there will be, like in earlier years, the possibility to apply for support for environmental technologies. Eligible technologies include mainly drainage systems, wetlands and similar, but not slurry acidification. <http://lbst.dk/tilskudsguide/>

- Is ammonia emission reduction related to greening requirements, and if this is the case, in which way?

No.

- Are there given priorities in support schemes for specific environmental technologies?

Yes, they are politically decided, based on technical reports made by Aarhus University for the Ministry, specifying the abatement costs for N of different relevant technologies. See e.g. the report for 2016 - http://lbst.dk/fileadmin/user_upload/NaturErhverv/Filer/Tilskud/Projekttilskud/Landdistrikter/Miljoeteknologi_2016/DCA_rapport_2016_Sektor_1_3_version_24feb_2016_rev_31-05-2016.pdf

- Are there any indications for changes of the above issues for the next policy planning period (2020 - ...).

According to a leaked document⁴, by the end of 2019, the Government plans to issue a "Climate package", or rather a packet of measure to reduce greenhouse gas emissions and improve the air quality. Slurry acidification is mentioned in 3 of 20 suggested measures, whereof 4 of the 20 measures are related to farming. The leaked document highlights the societal benefits of a cleaner air and it is in line with this directly suggesting that subsidies could be offered to provide incentives for farmers' investments. All three SAT types could be promoted by the coming "Climate package". One of the suggestions in the leaked Government document is to require the use of slurry injection, alternatively slurry acidification for field spreading at growing winter crops.

- Is there any other type of overall support that could apply to SAT available in your country?

No, not to our information.

- Are there public social and societal incentives available for farmers' contribution to rural sustainability and environmental management (information from e.g. project surveys etc.)

No, not according to our information.

4 <https://politiken.dk/preview/static/6630791-Samlede-tiltag-klima-og-luft.pdf>



Annex C: Legal framework of Estonia

I: Agri-environmental legislation related to SATs

I.1: Requirement for cover on storage tanks to avoid ammonia emissions

Title of Legal act

"Veekaitsenõuded väetise- ja sõnnikuhooldlatele ning siloladustamiskohtadele ja sõnniku, silomahla ja muude väetiste kasutamise ja hoidmise nõuded." ("Water protection requirements for manure storage facilities and storage sites, requirements for the use of manure, silage gases and other fertilisers.")

Number and texts of the article in question

§ 5 (2) the liquid manure storage must be covered to reduce the ammonia emission. It has to be either solid cover or natural crust layer.

Link to the legal provision – all in local as well as English language

"Water protection requirements for manure storage facilities and storage sites, requirements for the use of manure, silage gases and other fertilisers.":

<https://www.riigiteataja.ee/akt/720428?leiaKehtiv>

Comments

Legislative act is not available in English.

I.2: Limitations of N fertilisation via maximally allowed application norms

Title of Legal act

- Estonian Water act
- "Veekaitsenõuded väetise- ja sõnnikuhooldlatele ning siloladustamiskohtadele ja sõnniku, silomahla ja muude väetiste kasutamise ja hoidmise nõuded." ("Water protection requirements for manure storage facilities and storage sites, requirements for the use of manure, silage gases and other fertilisers.")

Number and texts of the article in question

Estonian water act:

- § 26³ (5) In nitrate sensitive areas of unprotected groundwater and a soil depth of up to 2 m, and in karst areas, it is permitted to restrict the following on the basis of the protection rules:
 1. Nitrogen spread with mineral fertilisers during one year to an average of 100 kg per hectare of land under cultivation.

In Nitrate vulnerable zones –

- § 26³. Protection of catchment areas against agricultural pollution in nitrate sensitive areas



In nitrate sensitive areas of unprotected groundwater and a soil depth of up to 2 m, and in karst areas, it is permitted to restrict the following on the basis of the protection rules:

1. nitrogen spread with mineral fertilisers during one year to an average of 100 kg per hectare of land under cultivation

“Water protection requirements for manure storage facilities and storage sites, requirements for the use of manure, silage gases and other fertilisers”:

- § 8¹ The amount of added nitrogen fertiliser cannot be more than what is necessary to maintain nutrient balance according to planned yield.
- § 10 (2¹) Over 100 kg/ha amounts must be divided.

The permitted crop amount of movable nitrogen per hectare of arable land, if the nitrogen demand and planned yield is taken into account.

Link to the legal provision – all in local as well as English language

- Estonian Water act :
<https://www.riigiteataja.ee/en/eli/ee/512012017001/consolide/current>
<https://www.riigiteataja.ee/akt/104072017050?leiaKehtiv>
- “Water protection requirements for manure storage facilities and storage sites, requirements for the use of manure, silage gases and other fertilisers” :
<https://www.riigiteataja.ee/akt/720428?leiaKehtiv>

Comments

-

1.3: Requirements for injection of slurry

Title of Legal act

-

Number and texts of the article in question

-

Link to the legal provision – all in local as well as English language

-

Comments

There are no mandatory requirements to inject slurry in Estonia.

1.4: Restrictions for recirculation of slurry that was already removed from livestock houses

Title of Legal act

There are no such provisions in Estonia.



Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

Comments

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I.5: Restrictions for the size/dimensions of slurry channels in stables, or other provisions for design of slurry channels reducing the risks of harmful concentration of gases, when slurry is removed from the channels.

(The question is about the risk of release of harmful gases in lethal doses upon removing the slurry from the stable).

Title of Legal act

N/A

Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

Comments

- There are no legislative acts regulating slurry channels in stables in Estonia.

I.6: Would any current regulation hinder in-house, in-store or in-field acidification

Title of Legal act

There are no such provisions in Estonia.

Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

II: Current support schemes (financial incentives) that would be relevant for SAT investments or use

II.1: Support scheme 1

Title of Legal act

European Union Common Agricultural Policy Implementation Act.



Under this act is the regulation from Ministry of Rural Affairs: The investment support to improve performance of farmers.

Number and texts of the article in question

The entire regulation is connected to this support scheme.

Link to the legal provision – all in local as well as English language

European Union Common Agricultural Policy Implementation Act.

Estonian - <https://www.riigiteataja.ee/akt/104072017063#para67lg2>

English - <https://www.riigiteataja.ee/en/eli/516102017012/consolide>

The investment support to improve performance of farmers.

Estonian - <https://www.riigiteataja.ee/akt/103112017004>

Comments

-

Please investigate the situation specifically with RDPs 2014 - 2020 implementation process. Are manure management and SAT technologies supported today?

If an Estonian farmer is buying a slurry spreader (or makes some other investment), then he has possibility to apply for a 40% support for the investment.

What is the current budget-spending rate?

The entire budget for this support in period 2014-2020 is 146 M€, and the planned budget for 2018 is 22,5 M€.

Is area payment support available for environmental technologies?

There are no extra area payments for environmental technologies.

Is ammonia emission reduction related to greening requirements, and in case it is, in which way?

No

Are there given priorities in support schemes for specific environmental technologies?

If an Estonian farmer is buying a slurry spreader (or makes some other investment), then he has possibility to apply for a 40% support for the investment.

If the spreader is an incorporation or injection spreader, then the application gets additional points in evaluation. The higher is the score the higher are the possibilities for receiving the support.

Are there any indications for changes of the above issues for the next policy planning period (2020 - ...).

Yes, there is the danger that EU funding for Estonian agricultural support schemes can decrease. First reason is that today the Estonian GDP per capita is on such level



compared to EU average that EU financial support to Estonian economy can decrease drastically. And the second reason is BREXIT.

Is there any other type of overall support that could apply to SAT available in your country?

No

Are there public social and societal incentives available for farmers' contribution to rural sustainability and environmental management (information from e.g. project surveys etc.)

In early 2018, the Estonian Ministry of Rural Affairs initiated, in cooperation with Ministry of Environment, the formulation of a new development plan for the agriculture and fishery sectors for the period from 2020 to 2030, including an action plan for implementation. This development plan will become a framework within these sectors, including the agro-environmental issues



Annex D: Legal framework of Finland



Typical Finnish landscape, Photo: Arto Halttunen

I: Agri-environmental legislation related to SATs

I.1: Requirement for cover on storage tanks to avoid ammonia emissions

Title of Legal act

- 1250/2014 - Valtioneuvoston asetus eräiden maa- ja puutarhataloudesta peräisin olevien päästöjen rajoittamisesta; (1250/2014 - Government Decree on Limiting Certain Emissions from Agriculture and Horticulture)

Number and texts of the article in question

- 7.4 § Storages for slurry and liquid organic fertilisers must be covered with solid or floating cover to reduce ammonia emissions and odour nuisance. Naturally formed crust on cattle slurry qualifies as a floating cover (3§).

Floating cover / crust must be taken into account in calculations for the required storage volume calculations. (1250/2014, Annex 1)

Link to the legal provision – all in local as well as English language

1250/2014 - Government Decree on Limiting Certain Emissions from Agriculture and Horticulture <https://www.finlex.fi/fi/laki/ajantasa/2014/20141250#P5> (In Finnish)

In English: https://www.finlex.fi/fi/laki/kaannokset/2014/en20141250_20151261.pdf



Comments

The decree (1250/2014) transposes in Finland the EU Nitrate Directive with certain additional and expanded provisions. The decree applies to the whole country,

In addition, environmental permit authorities and municipal environmental protection authorities can specify requirements, case-by-case, concerning slurry storages, in particular when odour is seen to cause unreasonable nuisance to neighbours or when slurry is aerated or separated (*Guidelines for environmental protection in animal husbandry*, Ministry of Environment, 2010). They may also require storages to be built so that a solid cover can be installed later.

I.2: Limitations of N fertilisation via maximally allowed application norms

Title of Legal act

- N decree
- Valtioneuvoston asetus ympäristökorvauksesta (Government Decree on environmental compensation)
- Laki eräistä ohjelmaperusteisista viljelijäkorvauksista ("Act on certain programme-based compensations for farmers")
- Maa- ja metsätalousministeriön asetus ympäristökorvauksesta ("Ministry of Agriculture and Forestry Decree on Environmental Compensation")

Number and texts of the article in question

N decree: 1250/2014, 11§ (as amended by 435/2015 on 16.4.2015)

- N tot max 170kg/ha
- Specific dosing maximums for soluble N per crop type, sowing period and soil type (mineral/organic soils). Max for soluble N includes accounting of inorganic fertilisers, manure, grazing and organic fertilisers.

Government decree on environmental compensation 235/2015 (19.3.2015), 18§

- Farm with environmental commitment (for compensation) has lower max kg/ha/v N tot per crop in an agricultural field in 4 different soil types as specified in annexes 2-5 (annex 6 for P).
- Extra fertilisation allowance based on achieved yield levels

1360/2014 (30.12.2014)

- Setting the legal basis for environmental compensation based e.g. on EU law.

Law on certain programme-based compensations for farmers 1360/2014 (30.12.2014)

- Setting the legal basis for environmental compensation based e.g. on EU law.

Ministry of Agriculture and Forestry decree on environmental compensation 327/2015 (24.3.2015), 2§



This decree specifies exceptions and gives more detailed regulations e.g. on fertility analyses, cropping plans, yield based exceptions, organic fertilisers and recycled nutrients.

N fertilisation, 2§:

- Has to take into account organic and inorganic fertilisers and manure and nutrients in other products if they have to be reported in product description. Soluble N in manure and organic fertilisers is accounted for 100%.

Yield-based allowances (see above).

- Annexes 1 & 2 specify allowed organic fertilisers in measure 'slurry injection' and 'recycling of nutrients and organic material'.

Link to the legal provision – all in local as well as English language

N decree: <https://www.finlex.fi/sv/laki/ajantasa/2014/20141250>

Government decree on environmental compensation:

<https://www.finlex.fi/fi/laki/ajantasa/2015/20150235?search%5Btype%5D=pika&search%5Bpika%5D=ymp%C3%A4rist%C3%B6korvaus>

Act on certain programme based compensations for farmers:

<https://www.finlex.fi/fi/laki/ajantasa/2014/20141360#P5>

Ministry of Agriculture and Forestry Decree on environmental compensation:

<https://www.finlex.fi/fi/laki/ajantasa/2015/20150327?search%5Btype%5D=pika&search%5Bpika%5D=ymp%C3%A4rist%C3%B6korvauksesta>

Comments

These decrees apply for the entire Finland

1.3: Requirements for injection of slurry

Title of Legal act

- Valtioneuvoston asetus eräiden maa- ja puutarhataloudesta peräisin olevien päästöjen rajoittamisesta (Government decree on limiting certain emissions from agriculture and horticulture) = "Nitraattiasetus" = Nitrate decree. (see above)
- Valtioneuvoston asetus ympäristökorvauksesta ("Government decree on environmental compensation")
- Maa- ja metsätalousministeriön asetus ympäristökorvauksesta ("Ministry of Agriculture and Forestry Decree on environmental compensation")

Number and texts of the article in question

Government Decree on limiting certain emissions from agriculture and horticulture 1250/2014 (18.12.2014), 10§:



- Manure and organic fertilisers have to be mixed in soil within 24 hours with the exception of spreading on vegetation/shoots with trailing hoses or band spreading
- Plots with winter cover can only be fertilised by injection after 15th of September, or immediately before sowing of winter crops.

Government decree on environmental compensation 235/2015, 19§:

- Organic fertiliser must be injected or mixed in soil

Ministry of Agriculture and Forestry decree on environmental compensation 327/2015, 12§:

- Regulates technical implementation of the measures subjected to compensation.
- Must be injected or mixed in soil
 - With certain exceptions and limitations
 - E.g. not applicable when spreading on vegetation during growing season by trailing hoses or band spreading

Parts of plots with \geq 15% slope can only be fertilised with injection

Link to the legal provision – all in local as well as English language

Government decree on limiting certain emissions from agri- and horticulture
<https://www.finlex.fi/fi/laki/ajantasa/2014/20141250#P10>

Government decree on environmental compensation
<https://www.finlex.fi/fi/laki/ajantasa/2015/20150235#L3P19>

Comments

N/A

1.4: Restrictions for recirculation of slurry that was already removed from livestock houses

Title of Legal act

There are no such provisions in Finland.

Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

Comments

-



1.5: Restrictions for the size/dimensions of slurry channels in stables, or other provisions for design of slurry channels reducing the risks of harmful concentration of gases, when slurry is removed from the channels.

(The question is about the risk of release of harmful gases in lethal doses upon removing the slurry from the stable).

Title of Legal act

N/A

Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

Comments

- Nitrate decree only regulates the tightness of the piping systems and storages to prevent leakage.

1.6: Would any current regulation hinder in-house, in-store or in-field acidification

Title of Legal act

No regulations hinder the acidification in Finland.

Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

II: Current support schemes (financial incentives) that would be relevant for SAT investments or use

II.1: Support scheme 1

Title of Legal act

- Valtioneuvoston asetus ympäristökorvauksesta ("State council decree on environmental compensation") and Ministry of Agriculture decree
- Åland rural development programme

Number and texts of the article in question

Measure M10-02 (chapter 8.2.6.3.2) Lietelannan sijoittaminen peltoon ("Injection of slurry"):



- In Mainland Finland: Injection subsidy (based on additional costs compared with band spreading), compensation is max 40€/ha.

Åland rural development programme; Programme, chapter 8.2.5.3.3. Measure M10, 03 Förbättrad användning av stallgödsel ("Improved manure handling"):

- In Åland islands injection / mixing into soil: subsidy 95€/ha (programme 8.2.5.3.3.8)

Link to the legal provision – all in local as well as English language

Mainland Finland rural development programme 2014-2020

http://mmm.fi/kansallinen_lainsaadanto

State council decree on environmental compensation

https://www.maaseutu.fi/globalassets/maaseutuohjelma/hyvaksytyy-ohjelma_16.2.2017.pdf

Ministry of Agriculture decree

<https://www.finlex.fi/fi/laki/alkup/2015/20150327#Pidp450649088>

Åland rural development programme 2014-2020

<http://www.regeringen.ax/naringsliv-foretagande/lantbruk/landsbygdsutvecklings-programmet>

Comments

-

2.2 Support scheme 2

Title of Legal act

- Mainland Finland rural development programme 2014-2020
- Åland rural development programme 2014-2020

Number and texts of the article in question

In Mainland Finland rural development programme 2014-2020: RDP 8.2.3.3.1.8, Measure M04, (Investments in physical property, Art 17, EU 1305/2013;); submeasure 4.4 in non-productive investments related to environmental and climate objectives. (Submeasure 4.3 in modernization and adaptation:

Investments improving environmental state can receive a 30% subsidy and 40% in targeted regions and cooperative projects, also including manure management machinery.

In Åland rural development programme 2014-2020: chapter 8.2.3.3.3; Measure M04-investments in physical property; sub-measure 4.1:

- Investment aid for physical assets in agriculture; including support for manure storage and environmentally friendly manure management; support level 50% (8.2.3.3.3.8)



Link to the legal provision – all in local as well as English language

Mainland Finland rural development programme 2014-2020

http://mmm.fi/kansallinen_lainsaadanto

Åland rural development programme 2014-2020

<http://www.regeringen.ax/naringsliv-foretagande/lantbruk/landsbygdsutvecklings-programmet>

Please investigate the situation specifically with RDPs 2014-2020 implementation process. Are manure management and SAT technologies supported today?

Yes, technologies not specified.

What is the current budget-spending rate?

- after 2016, overall 35%
- Government budget for 2017:
<http://budjetti.vm.fi/indox/sisalto.jsp?year=2017&lang=fi&maindoc=/2017/tae/hallituksenEsitys/hallituksenEsitys.xml&id=/2017/tae/hallituksenEsitys/YksityiskohtaisetPerustelut/30/10/10.html>
- Mainland Finland RDP progress monitoring reports:
<https://www.maaseutu.fi/maaseutuverkosto/vaikutukset/vuosikertomukset-ja--suunnitelmat/>
- Annual progress report: monitoring annex
(<https://www.maaseutu.fi/globalassets/vuosikertomukset/manner-suomen-maaseudun-kehittamisohjelman-2014-2020-vuoden-2016-indikaattorit.pdf>)
- Progress summary:
https://www.maaseutu.fi/globalassets/vuosikertomukset/tiivistelma_manner-suomen-maaseudun-kehittamisohjelman-2014-2020-raportti-vuodelta-2016.pdf
- Environmental measures: area did not increase in 2016 as target level has been reached, 2, 06 Mha = 88,5% of ha eligible for direct support.
- Non-productive investment support targeted for wetlands, traditional biotopes and natural grazing areas
- Technical investment support is mostly (43%) used for subsurface drainage; slurry storage covers and manure separation and slurry injection machinery account for 10% of supported projects (74 individual investments).

Is area payment support available for environmental technologies?

-

Is ammonia emission reduction related to greening requirements, and in case it is, in which way?

Not to our information.



Are there given priorities in support schemes for specific environmental technologies?

Yes; on slurry injection and subsurface drainage

Are there any indications for changes of the above issues for the next policy planning period (2020 - ...).

Not to our information. Good ideas for increasing rate of investment subsidy use are needed and requested. Farmers are hesitant about future and what investment needs or other demands the future may bring.

Is there any other type of overall support that could apply to SAT available in your country?

Investment support for manure management machinery (30-40%)

Are there public social and societal incentives available for farmers' contribution to rural sustainability and environmental management (information from e.g. project surveys etc.)

Air quality is of an increasing concern; public air quality campaigns and monitoring is quite visible



Annex E: Legal framework of Germany

I: Agri-environmental legislation related to SATs

I.1: Requirement for cover on storage tanks to avoid ammonia emissions

Title of Legal act

BlmSchG Decree of the Ministry of Energy Transition, Agriculture, Environment and Rural Areas 26. June 2014 – V 64/V 62; 570.220.200: Immission requirements for animal husbandry systems and facilities for the storage of manure. (Immissionsschutzrechtliche Anforderungen an Tierhaltungsanlagen und an Anlagen zur Lagerung von Gülle).

Number and texts of the article in question

2. Facilities for the storage of slurry

The decree regulates the storage of slurry and digestates if a connected livestock holding, which is concerned by the Federal Emission Control Act, is enlarged or a new one is built. These storages have to be closed; also existing storages of livestock holdings must, according to the decree, be upgraded with a closed roof. (Different systems are possible). This decree is also applied to smaller livestock holdings, when a legally binding emission control permission is necessary.

For slurry lagoons and storages without a requirement for emission control a floating layer must exist. For cattle slurry, a natural closed floating layer of 10 cm is sufficient.

Link to the legal provision – all in local as well as English language

BlmSchG Decree of the Ministry of Energy Transition, Agriculture, Environment and Rural Areas 26. June 2014 – V 64/V 62, 570.220.200: Immission requirements for animal husbandry systems and facilities for the storage of manure

<http://www.gesetze-rechtsprechung.sh.juris.de/jportal/portal/page/bsshoprod?feed=bssho-vv&showdoccase=1¶mfromHL=true&doc.id=VVSH-VVSH000005349>

Comments

N/A

I.2: Limitations of N fertilisation via maximally allowed application norms

Title of Legal act

- Fertilisation ordinance 26th May 2017 (BGBL, I S. 1305)

Number and texts of the article in question

- § 4 Determination of fertilisation demand of nitrogen and phosphate, however, these are only recommendations for “the good professional practice” (die gute fachliche Praxis)



- § 4 and Annex 4: Values of nitrogen demands for each crop, meaning direct location-specific fertilisation limits

The important provisions of the Fertilisation Ordinance in relation to slurry acidification is the following:

- Until 2020, the nitrogen balance for the last three years may not exceed 60 kg N / ha per year. From 2020, a balance of 50 kg nitrogen per hectare per year may not be exceeded.
- For phosphorus, the average balance over the past six years may not exceed 20 kg P₂O₅. From 2023, the balance for this period may not exceed 10 kg of phosphate per hectare per year.

Link to the legal provision – all in local as well as English language

Fertilisation ordinance 26th May 2017 (BGBl, I S. 1305) https://www.gesetze-im-internet.de/d_v_2017/#

Comments

The mentioned requirements for nutrient balances, especially the nitrogen balance, would, at least theoretically, make farmers demand manure technologies that enhance the fertilising effect of the manure, such as SATs.

1.3: Requirements for injection of slurry

Title of Legal act

Fertilisation ordinance 26th May 2017 (BGBl, I S. 1305)

Number and texts of the article in question

- § 6, section (3) Additional specifications for the application of certain fertilisers
Starting from 2020 on arable land and 2025 on grassland, it is only allowed to apply organic fertiliser close to the soil in stripes (injection is one possibility).

Link to the legal provision – all in local as well as English language

Fertilisation ordinance 26th May 2017 (BGBl, I S. 1305) https://www.gesetze-im-internet.de/d_v_2017/

Comments

N/A

1.4: Restrictions for recirculation of slurry that was already removed from livestock houses

Title of Legal act

There are no such provisions in Germany.



Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

Comments

-

1.5: Restrictions for the size/dimensions of slurry channels in stables, or other provisions for design of slurry channels reducing the risks of harmful concentration of gases, when slurry is removed from the channels.

(The question is about the risk of release of harmful gases in lethal doses upon removing the slurry from the stable).

Title of Legal act

N/A

Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

Comments

-

1.6: Would any current regulation hinder in-house, in-store or in-field acidification

Title of Legal act

Ordinance on the handling of substances hazardous to water (Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen, (AwSV))

Number and texts of the article in question

- The supplementary text to the Ordinance clearly states: "... with the objective of the best possible protection of the waters, only storage and filling of liquid manure without additives is allowed...".

Link to the legal provision – all in local as well as English language

Ordinance on the handling of substances hazardous to water (Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen, (AwSV))

<https://www.gesetze-im-internet.de/awsv/BJNR090500017.html>



II: Current support schemes (financial incentives) that would be relevant for SAT investments or use

II.1: Support scheme 1

Title of Legal act

N/A

Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

Comments

-

Please investigate the situation specifically with RDPs 2014-2020 implementation process. Are manure management and SAT technologies supported today?

No, not to our information.

What is the current budget-spending rate?

-

Is area payment support available for environmental technologies?

No.

Is ammonia emission reduction related to greening requirements, and in case it is, in which way?

No, not to our information.

Are there given priorities in support schemes for specific environmental technologies?

No, not to our information.

Are there any indications for changes of the above issues for the next policy planning period (2020 - ...).

No, not to our information.

Is there any other type of overall support that could apply to SAT available in your country?

No, not to our information.

Are there public social and societal incentives available for farmers' contribution to rural sustainability and environmental management (information from e.g. project surveys etc.)

No, not to our information.



Annex F: Legal framework of Latvia

I: Agri-environmental legislation related to SATs

I.1: Requirement for cover on storage tanks to avoid ammonia emissions

Title of Legal act

"Special Requirements for the Performance of Polluting Activities in Animal Housing" (Ministru kabineta noteikumi Nr.829 Īpašās prasības piesārņojošo darbību veikšanai dzīvnieku novietnēs)

Number and texts of the article in question

- 7.1. the storage facilities of liquid manure, semi-liquid manure and urine shall be of closed type or shall have a permanent natural or artificial floating covering layer, which reduces evaporation. The floating covering layer shall continuously cover the surface of the storage facility. Where necessary, the natural covering layer shall be supplemented;
- 7.2. the filling system shall be established so that the floating covering layer would not be disturbed;

Link to the legal provision – all in local as well as English language

"Special Requirements for the Performance of Polluting Activities in Animal Housing";
Latvian – <https://likumi.lv/doc.php?id=271374>;

English:

http://wc.gov.lv/export/sites/default/docs/LRTA/MK_Noteikumi/Cab_Reg_No_829_-_Performance_of_Polluting_Activities_in_Animal_Housing.doc

Comments

-

I.2: Limitations of N fertilisation via maximally allowed application norms

Title of Legal act

Regulation No. 834 "Regulation Regarding Protection of Water and Soil from Pollution with Nitrates Caused by Agricultural Activity"

Number and texts of the article in question

Regulation No. 834 "Regulation Regarding Protection of Water and Soil from Pollution with Nitrates Caused by Agricultural Activity" -

Annex 3 of Cabinet Regulation 834 includes maximally allowed N fertilisation of the most common crops.

Link to the legal provision – all in local as well as English language

Regulation No. 834 "Regulation Regarding Protection of Water and Soil from Pollution with Nitrates Caused by Agricultural Activity"



Latvian: <https://m.likumi.lv/doc.php?id=271376>

Comments

Legal act is not available in English. Overall maximum N norms are regulated only in Nitrate Vulnerable Zones of Latvia.

1.3: Requirements for injection of slurry

Title of Legal act

N/A

Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

Comments

There are no legislative acts requiring slurry injection in Latvia.

1.4: Restrictions for recirculation of slurry that was already removed from livestock houses

Title of Legal act

N/A

Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

Comments

No legislative acts hinder recirculation of slurry.

1.5: Restrictions for the size/dimensions of slurry channels in stables, or other provisions for design of slurry channels reducing the risks of harmful concentration of gases, when slurry is removed from the channels.

(The question is about the risk of release of harmful gases in lethal doses upon removing the slurry from the stable).

Title of Legal act

N/A

Number and texts of the article in question

N/A



Link to the legal provision – all in local as well as English language

N/A

Comments

There are no legal acts regulating slurry channel dimensions in Latvia.

I.6: Would any current regulation hinder in-house, in-store or in-field acidification

Title of Legal act

No legislative acts of Latvia hinder any of SATs.

Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

II: Current support schemes (financial incentives) that would be relevant for SAT investments or use

II.1: Support scheme 1

Title of Legal act

Rural development programme of Latvia;

Cabinet Regulation No. 600, Order in which local and European Union support is allocated within support scheme "Investments in tangible assets"

Number and texts of the article in question

Cabinet Regulation No. 600, Order in which local and European Union support is allocated within support scheme "Investments in tangible assets":

- 50. This support scheme includes following type of eligible costs
- 50.1 following manufacturing fixed assets (including IT software) costs:
- 50.1.5 Machinery for cultivation of crops, including machinery and devices for fertilisers and pesticide spreading.
- 50.1.11 Farm mechanization machinery, devices for mechanization of manure storages and technique
- 50.2 constructions of new agricultural buildings as well as reconstruction of already existing buildings.

Link to the legal provision – all in local as well as English language

Cabinet Regulation No. 600, Order in which local and European Union support is allocated within support scheme "Investments in tangible assets":



Latvian: <https://likumi.lv/ta/id/269868-kartiba-kada-pieskir-valsts-un-eiropas-savienibas-atbalstu-atklatu-projektu-konkursu-veida-pasakumam-ieguldijumi-materialajos>

Comments

This support scheme is defined within the rural development program of Latvia and it is mainly financed by using second pillar payments received from the EU. The intensity of particular programs may vary from year to year; overall, they range from 20-50% with a potential increase for young farmers.



Latvian farmers getting introduced to in-field acidification machinery on field trial day.

II.2: Support scheme 2

Title of Legal act

Cabinet Regulation No. 59 Order in which National and European Union support is allocated in order to promote investments in agriculture.

Number and texts of the article in question

3. Within this support, overall amount of investments for 2018 is M€ 10, of which 3.1. € 5,620,887 is allocated for partial coverage of bank interest rates for farmers.



Link to the legal provision – all in local as well as English language

Cabinet Regulation No. 59 Order in which National and European Union support is allocated in order to promote investments in agriculture.

Latvian: <https://likumi.lv/ta/id/272094-valsts-un-eiropas-savienibas-atbalsta-pieskirsanas-kartiba-investiciju-veicinasanai-lauksaimnieciba>

Comments

This support scheme is financed by national government of Latvia. It completely covers all bank interest rates till 5% margin. Since this support is allocated from national budget, de-minimis limit has to be taken in account.

Please investigate situation specifically with RDPs 2014-2020 implementation process.

One of many policy goals regarding national Rural Development Program of Latvia is to promote more efficient usage of available resources in farming as well as to contribute in developing an environment-friendly economy, resulting both in reduced negative impact on farmland and water quality.

Concerning investments, no investment plans are directly related to such processes as slurry acidification, but there are a couple of investments which are indirectly related to manure management. These investments plans apply on constructing buildings including manure storage tanks, buying agricultural machinery such as slurry spreaders, machinery and technology necessary in mechanizing manure storage tanks etc.;

What is the current budget-spending rate?

Regarding the investment plan mentioned above, in investment round of 2017, the available financing was M€ 70 for individual farms and M€ 5 for farmer cooperatives. The existing limits are 2 000 000 for individual farms, M€ 10 for cooperatives and € 150,000 for young farmers.

Is area payment support available for environmental technologies?

Area payment support is not available for environmental technologies.

Is ammonia emission reduction related to greening requirements, and in case it is, in which way?

N/A

Are there given priorities in support schemes for specific environmental technologies?

Not that we are aware of.

Are there any indications for changes of the above issues for the next policy planning period (2020 - ...).

At the moment the future of CAP is so unclear that it is not possible to make any type of assumptions



Is there any other type of overall support that could apply to SAT available in your country?

Two support schemes mentioned in the table above.

Are there public social and societal incentives available for farmers' contribution to rural sustainability and environmental management (information from e.g. project surveys etc.)

Not that we are aware of.



Annex G: Legal framework of Lithuania

I: Agri-environmental legislation related to SATs

I.1: Requirement for cover on storage tanks to avoid ammonia emissions

Title of Legal act

Įsakymas Dėl Aplinkosaugos Reikalavimų Mėšlui tvarkyti Patvirtinimo (Law on Environmental Requirements of Manure Handling.)

Number and texts of the article in question

2005 07 14 d. Nr. D1-367/3D-342. Law on Environmental Requirements of Manure Handling. 2018 04 11 Edition.:

- 9. Personnel, who have collectors to store liquid manure and/or slurry, must apply measures to reduce the ambient air pollution: roof coverings, various spraying coatings (solid manure, crushed straw, wood, plastic, keramzite granules, 2-3 mm thickness layer of oil and other) and/or other best available techniques, or scientifically based measures.

Link to the legal provision – all in local as well as English language

Law on Environmental Requirements of Manure Handling.
<https://www.e-tar.lt/portal/lt/legalAct/TAR.AE113D1C5ECF>

Comments

N/A

I.2: Limitations of N fertilisation via maximally allowed application norms

Title of Legal act

-

Number and texts of the article in question

-

Link to the legal provision – all in local as well as English language

Law on Environmental Requirements of Manure Handling. <https://www.e-tar.lt/portal/lt/legalAct/TAR.AE113D1C5ECF>

Comments

N/A

I.3: Requirements for injection of slurry

Title of Legal act

Law on Environmental Requirements of Manure Handling.



Number and texts of the article in question

-

Link to the legal provision – all in local as well as English language

-

Comments

N/A

1.4: Restrictions for recirculation of slurry that was already removed from livestock houses

Title of Legal act

-

Number and texts of the article in question

-

Link to the legal provision – all in local as well as English language

-

Comments

-

1.5: Restrictions for the size/dimensions of slurry channels in stables, or other provisions for design of slurry channels reducing the risks of harmful concentration of gases, when slurry is removed from the channels.

(The question is about the risk of release of harmful gases in lethal doses upon removing the slurry from the stable).

Title of Legal act

-

Number and texts of the article in question

-

Link to the legal provision – all in local as well as English language

-

Comments

-

1.6: Would any current regulation hinder in-house, in-store or in-field acidification

Title of Legal act

-



Number and texts of the article in question

-

Link to the legal provision – all in local as well as English language

-

II: Current support schemes (financial incentives) that would be relevant for SAT investments or use

II.1: Support scheme 1

Title of Legal act

Rural development programme of Lithuania 2014-2020

Number and texts of the article in question

-

Link to the legal provision – all in local as well as English language

-

Comments

The purchases of manure or slurry handling equipment and equipment/machinery were supported in the framework of the Lithuanian Rural Development Programme 2014-2020 under the measure "Investments in Agricultural Holdings" last year.

There is a need to admit that the support schemes for agricultural sector from the programme mentioned can vary from year to year.

The support circumstances for manure/slurry management are not consistent, regular or predictable by agricultural consultants. This depends on updated support rules that are announced annually by Ministry of Agriculture.

This year (2018), Lithuanian farmers have a possibility to apply under the measure "Investments in Agricultural Holdings" within the framework of the Lithuanian Rural Development Programme 2014-2020 only for the construction of new manure or slurry storage facilities (but not for equipment or machinery). The support could be available for farmers if they had a plan to buy/keep "new" animals. In such case, there is the idea to make a priority of support for animal husbandry extension in the country.

The intensity of support can vary between 20-100 percent. It depends on a lot of criteria that can be reflected in farmer's application to get a support.

Lithuanian Rural Development Programme 2014-2020 is very popular among stakeholders. Thus, the budget spending rate is high and financial reviews will clarify whether new calls can be announced.



Other ministries (Environment, Education or Internal Affairs) have no additional financial instruments in order to support investments in purchasing of agricultural equipment/technology.

Please investigate the situation specifically with RDPs 2014-2020 implementation process. Are manure management and SAT technologies supported today?

Not to our information.

What is the current budget-spending rate?

N/A

Is area payment support available for environmental technologies?

Not to our information.

Is ammonia emission reduction related to greening requirements, and in case it is, in which way?

Not to our information.

Are there given priorities in support schemes for specific environmental technologies?

Not to our information.

Are there any indications for changes of the above issues for the next policy planning period (2020 - ...).

Not to our information.

Is any other type of overall support that could apply to SAT available in your country?

Not to our information.

Are there public social and societal incentives available for farmers' contribution to rural sustainability and environmental management (information from e.g. project surveys etc.)

Not to our information.



Annex H: Legal framework of Poland

I: Agri-environmental legislation related to SATs

I.1: Requirement for cover on storage tanks to avoid ammonia emissions

Title of Legal act

Ustawa o nawozach i nawożeniu (The act on fertilisers and fertilisation.)

Number and texts of the article in question

Dz. U. nr 688, 2017

Art. 25.

1. Liquid part of manure and slurry are stored only in sealed tanks with a capacity to collect at least a 4-month production of this fertiliser. These tanks should be closed tanks with solid cover or natural crust layer, within the meaning of regulations issued on the basis of art. 7 par. 2 point 2 of the Act of July 7, 1994 - Construction Law (Journal of Laws of 2016, item 290, 961, 1165, 1250 and 2255) concerning technical conditions which should be met by agricultural buildings and their location.

Link to the legal provision – all in local as well as English language

- 'Ustawa o nawozach i nawożeniu (The act on fertilisers and fertilisation.)
<http://prawo.sejm.gov.pl/isap.nsf/download.xsp/WDU20170000668/O/D20170668.pdf>

Comments

Legislative act is not available in English.

I.2: Limitations of N fertilisation via maximally allowed application norms

Title of Legal act

-

Number and texts of the article in question

-

Link to the legal provision – all in local as well as English language

-

Comments

-

I.3: Requirements for injection of slurry

Title of Legal act

Number and texts of the article in question

-



Link to the legal provision – all in local as well as English language

-

Comments

-

1.4: Restrictions for recirculation of slurry that was already removed from livestock houses

Title of Legal act

There are no such provisions in Poland.

Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

Comments

-

1.5: Restrictions for the size/dimensions of slurry channels in stables, or other provisions for design of slurry channels reducing the risks of harmful concentration of gases, when slurry is removed from the channels.

(The question is about the risk of release of harmful gases in lethal doses upon removing the slurry from the stable).

Title of Legal act

N/A

Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

Comments

- There are no legislative acts which regulate size/dimension and design of slurry channels.

1.6: Would any current regulation hinder in-house, in-store or in-field acidification

Title of Legal act

No legislative acts of Poland hinder any of SATs.



Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

II: Current support schemes (financial incentives) that would be relevant for SAT investments or use

II.1: Support scheme 1

Title of Legal act

Rural development programme of Poland

Number and texts of the article in question

8.2.4.3.3 Modernization of agricultural holdings

Subactivity

4.1 Support for investments in agricultural holdings

The aid is granted for tangible or intangible investments improving the overall results (overall performance) of agricultural holdings engaged in agricultural activity. The improvement of the overall performance of an agricultural holding may optionally concern:

- improving the efficiency of using water resources on the farm,
- improving the energy efficiency of the farm,
- increasing the use of renewable energy sources on the farm,
- reduction of greenhouse gas and ammonia emissions from agriculture on the farm,

§ 3. 1. Aid shall be granted for an operation consisting in the implementation of an investment which:

1) ensure:

(a) adaptation of the holding to the requirements set out in the program of measures introduced for a given OSN, concerning the storage conditions:

- natural fertilisers produced on the holding or
- succulent feed or

b) equipping the farm with devices for applying natural fertilisers;

§ 5. 1. The aid shall be granted in the form of refunds of part of the eligible costs, which include the costs of:

1) construction, reconstruction or purchase of:

a) tanks for storing of slurry or horizontal silos for storing of solid manure,

b) plates for collecting and storing manure,

(c) tanks or plates for storing succulent fodder

- with the purchase of a technical installation or equipment,

2) demolition and utilization of materials coming from demolition provided that demolition is necessary for implementation operations,



- 3) purchase of natural fertiliser applicators in the form of liquid type:
 - a) soil coulters,
 - b) disc harrows,
 - c) drilling hoses,
 - 4) purchase of slurry tankers with applicators of natural fertilisers in the liquid form of the type specified in point 3,
 - 5) purchase of manure and compost spreaders:
 - a) with a horizontal crusher adapter and spreading discs,
 - b) with a vertical adapter,
 - c) with horizontal two-drum adapter,
2. Eligible costs are construction, conversion or purchase costs and plates, with a capacity that:
- 1) ensure storage of liquid manure and slurry for a period in which their agricultural use is not possible, corresponding to at least six months of production of these fertilisers;
 - 2) ensure the collection and storage of manure for a period in which it is not used agriculturally, however not less than 6 months;
 - 3) does not exceed by more than 15% the volume of such tanks or such plates calculated for the number of animals kept on the farm, converted into large conversion units (DJP).



Fig. 1 ORUM acidification in-storage system during acid application to 1000 m³ slurry tank in ITP Biebrza experimental farm



Link to the legal provision – all in local as well as English language

Rural development programme of Poland 2014-2020; modernization of agricultural holdings - <http://www.dziennikustaw.gov.pl/du/2015/1371/1>

Comments

Legal act is not available in English.

Please investigate situation specifically with RDPs 2014-2020 implementation process.

Not to our information.

What is the current budget-spending rate?

No information.

Is area payment support available for environmental technologies?

Not to our information.

Is ammonia emission reduction related to greening requirements, and in case it is, in which way?

Not to our information.

Are there given priorities in support schemes for specific environmental technologies?

Not to our information

Are there any indications for changes of the above issues for the next policy planning period (2020 - ...).

Not to our information.

Is there any other type of overall support that could apply to SAT available in your country?

Not to our information.

Are there public social and societal incentives available for farmers' contribution to rural sustainability and environmental management (information from e.g. project surveys etc.)

Not to our information.



Annex I: Legal framework of Sweden

I: Agri-environmental legislation related to SATs

I.1: Requirement for cover on storage tanks to avoid ammonia emissions

Title of legal act

Föreskrifter om miljöhänsyn i jordbruket vad avser växtnäring (SJVFS 2015:21). Not available in English.

Regulations on environmental considerations in agriculture in terms of plant nutrition.

Number and texts of the article in question

- §5a Slurry and urine tanks must have a stable natural crust or other cover. If the crust breaks, immediate measures must be taken to reform it (14 days as recommendation). The same rule applies to slurry tanks with solid roof. This regulation only applies to the geographical area described in 5 d § below.
- §5d The above regulation only applies to agricultural enterprises with more than 10 LSU and within the counties of Stockholm, Uppsala, Södermanlands, Östergötlands, Jönköping, Kronoberg, Kalmar, Gotland, Blekinge, Skåne, Halland, and Västra Götaland as well as the plains within the counties of Värmland, Örebro and Västmanland. The appendix 4 of the regulation SJVFS 2015:21 specifies which areas account as plains within the counties of Värmland, Örebro and Västmanland.

Link to the legal provision

<https://www.jordbruksverket.se/download/18.2da5afd014dde384c9695a58/1434091543400/2015-021.pdf>

Comments

The limit of 10 LSU means that essentially all farms in these regions must comply with this regulation. The counties specified coincide with those designated as Nitrate Vulnerable Zones for the Nitrate Directive.

Local municipalities have the authority to demand stricter abatement measures for granting permits, however, there are no national statistics of how often this happens.

I.2: Limitations of N fertilisation via maximally allowed application norms

Title of legal act

Föreskrifter om miljöhänsyn i jordbruket vad avser växtnäring (SJVFS 2015:21). Not available in English.

Regulations on environmental considerations in agriculture in terms of plant nutrition.



Number and texts of the article in question

- §20, In general, both in and outside of NVZ, nitrogen fertilisation should be limited not to exceed the amount needed by each specific crop. Nitrogen fertilization needs of specific crops should be based on expected yields for particular fields. Determination of nitrogen fertilisation amounts are based on available nitrogen (ammonium nitrogen) in manure but must also include net soil nitrogen mineralisation as affected by soil type, residual nitrogen effects of previous crops and residual nitrogen effects of long-term manure fertilisation, for which the previous two there are national norms to help calculate (appendix 11 and 12 of the regulation respectively). The available nitrogen content in manure or other organic fertiliser is considered according to either national norms (appendix 10 of the regulation) or from an actual analysis of its ammonium nitrogen content. Farms must keep records to show how they derived the crops nitrogen needs and amounts of nitrogen applied in their fertilisers.
- §19a Within NVZ, the maximum amount of total nitrogen from manure application cannot exceed 170 kg total nitrogen per hectare a year as set by the Nitrate Directive. Limits on nitrogen fertilisation from manure are based on nitrogen contents of the manure after storage, i.e., minus the ammonia losses from the animal housing and manure storage. Nitrogen losses during spreading cannot be subtracted from the application rates. National norms can be used to calculate the amount of nitrogen in manure after storage (appendix 9 of the regulation).
- §19b Within NVZ, before autumn sowing of oilseeds no more than 60 kg of available nitrogen (ammonium nitrogen) per hectare can be applied. Within NVZ, before autumn sowing of other crops no more than 40 kg of available nitrogen per hectare can be applied. National norms can be used to calculate the available nitrogen in manure after storage (appendix 10 of the regulation).

Link to the legal provision

<https://www.jordbruksverket.se/download/18.2da5afd014dde384c9695a58/1434091543400/2015-021.pdf>

Comments

The main legislative regulations for manure application rates are mainly linked to phosphorus application rates and therefore should be based according to crop phosphorus needs and regularly measured soil phosphorus classification. A maximum of 22 kg P per hectare a year can be applied (§8 of the above regulation). The amount of phosphorus in manure can be determined either from national norms (appendix 8 of the regulation) or from documented balance calculations for which detailed guidelines are provided. Since manure application is limited by phosphorus contents, crop nitrogen needs can usually not be met by manure application alone, and thus nitrogen application rates are usually limited by phosphorus contents.



Every year, The Swedish Board of Agriculture publishes updated recommendations for economic/environmental optimization for fertilisation, which is expected to be the basis for fertilisation plans which all farmers are required to do.

1.3: Requirements for injection of slurry

Title of legal act

Föreskrifter om miljöhänsyn i jordbruket vad avser växtnäring (SJVFS 2015:21). Not available in English.

Regulations on environmental considerations in agriculture in terms of plant nutrition.

Number and texts of the article in question

Only 23c§ names specifically slurry injection in Swedish legislation.

- §23c In Skåne, Blekinge and Halland counties, slurry spread on growing crops must be spread using bandspreading techniques, injection techniques, or techniques to dilute the slurry or spray with water afterwards.

No other reference is made to injection techniques elsewhere in the regulation inside or outside the NVZ.

Link to the legal provision

<https://www.jordbruksverket.se/download/18.2da5afd014dde384c9695a58/1434091543400/2015-021.pdf>

Comments

The alternative techniques stated in §23c above for diluting slurry or spraying with water afterwards are never practised.

There is a general recommendation (stated after §28d) in the regulation that state whenever possible manure should be incorporated as quickly as possible after spreading or injected. However, there is only one regulation, §23b, which actually requires incorporating manure spread on bare soil within 4 hours for the three southern most coastal counties of Skåne, Blekinge and Halland. At the same time §36 allows for exemptions from the incorporation requirement in §23b when there is a risk of loss of soil from wind erosion.

1.4: Restrictions for recirculation of slurry that was already removed from livestock houses

Title of Legal act

Statens jordbruksverks före skrifter och allmänna råd om djurhållning inom lantbruket m.m. (SJVFS 2010:15). Not available in English.



The regulations and general guidelines from the Swedish Board of Agriculture on livestock farming in agriculture.

Number and texts of the article in question

Chapter 1, §30 states that manure removal from animal stalls must occur at least once a day unless there are other available routines to ensure good indoor air quality.

Link to the legal provision

<https://www.jordbruksverket.se/download/18.6b0af7e81284865248a80002467/2010-015.pdf>

Comments

The first part of §30 states you must remove manure daily, and this means it would not be allowed to pump the manure back under the slatted floors. This regulation was a solution to previous problems with indoor air quality when storing (even temporarily) manure under slatted floors. Because of this regulation, Sweden has a history of requiring daily manure removal from animal houses which has also long steered housing standards and permit approval. Daily manure removal is defined as the best available technique (BAT) for reducing ammonia emissions from animal houses, so there would be little reason to rebuild an existing animal house to work with in-house SAT. It would make more sense to install the modified in-house system by JH Agro, otherwise called the long-term in-storage SAT. However, since the regulation does leave open the possibility for other solutions that prove to be equally effective at securing indoor air quality, farmers should have the option to consider in-house SATs, which might be reasonable when building a new animal house so the technology can be integrated with the design from the start.

The authors think it is worth commenting, however, that due to the long history with housing and manure removal standards there might be some resistance at the local level to grant permits for a manure handling system that calls for pumping slurry back into the channels under the slatted floors. More on the reasons for this is described in 1.6 below.

1.5: Restrictions for the size/dimensions of slurry channels in stables, or other provisions for design of slurry channels reducing the risks of harmful concentration of gases, when slurry is removed from the channels.

Title of legal act

Statens jordbruksverks före skrifter och allmänna råd om djurhållning inom lantbruket m.m. (SJVFS 2010:15). Not available in English.

The regulations and general guidelines from the Swedish Board of Agriculture on livestock farming in agriculture.



Number and texts of the article in question

Chapter 1, §30 states that manure removal from animal stalls must occur at least once a day unless there are other available routines to ensure good indoor air quality.

Link to the legal provision

<https://www.jordbruksverket.se/download/18.6b0af7e81284865248a80002467/2010-015.pdf>

Comments

This regulation requires daily manure removal as a means of reducing harmful concentrations of gasses indoors and is essentially the same as described for 1.4 above.

I.6: Would any current regulation hinder in-house, in-store or in-field acidification

Title of legal act

Statens jordbruksverks före skrifter och allmänna råd om djurhållning inom lantbruket m.m. (SJVFS 2010:15). Not available in English.

The regulations and general guidelines from the Swedish Board of Agriculture on livestock farming in agriculture.

Number and texts of the article in question

Chapter 1 §21 states that when indoors, animals can only occasionally be exposed to air pollutants above the level of 10 ppm for ammonia and 0.5 ppm for hydrogen sulphide.

Link to the legal provision

<https://www.jordbruksverket.se/download/18.6b0af7e81284865248a80002467/2010-015.pdf>

Comments

This animal welfare regulation is lifted as an indirect potential hinder to implementing in-house SATs in Sweden and is related to the issues stated in 1.4 above about recirculation of slurry. Typically, when slurry is stored under slatted floors (even temporarily) and particularly when pumping or mixing occurs, levels of ammonia and H₂S can easily rise above the threshold levels and therefore this practice has not been allowed for quite some time. In-house SATs have been documented to have very low ammonia emissions (below the 10 ppm limit) even when mixing the slurry and pumping back into the manure channels under slatted floors. Hydrogen sulphide emissions from the housing system were also shown to decrease by 70% with in-house SAT, however, it was also noted that there were slight peaks in indoor H₂S levels in connection with the pumping out and pumping in processes. The actual levels measured in these peaks were not given, but since this would occur daily or



several times a day with the in-house system, it might be difficult to get permit approval for this system without further testing to make sure levels are below the limit.

II: Current support schemes (financial incentives) that would be relevant for SAT investments or use

II.1: Support scheme 1

Title of legal act

Rural development programme of Sweden 2014-2020

Number and texts of the article in question

Measure 4.1: Support for investments in agriculture, reindeer farming, and horticulture

Focus area 2a: competitiveness and profitability

Link to the legal provision

<http://www.jordbruksverket.se/amnesomraden/stod/stodilandsbygdsprogrammet/investeringar/jordbruktradgardochrennaring.4.6ae223614dda2c3dbc44ef5.html>

Comments

This support measure is not so much for the actual acidification technology but could be used to for limiting costs and can include both costs for purchase of limestone and the spreading service.

Covers 40% of investment, only for investment above 100,000 SEK.

II.2: Support scheme 2

Title of legal act

Föreskrifter om företagsstöd, projektstöd och miljöinvesteringar samt stöd för lokalt ledd utveckling (SJVFS 2017:14*). Not available in English.

Rural development programme of Sweden 2014-2020

*SJVFS 2017:14 is the most recent update to the original regulation for this period.

Number and texts of the article in question

Measure 4.1: Support for investments in agriculture, reindeer farming, and horticulture

Focus area 5d: reducing emission of greenhouse gases and ammonia.

1/ Support for investment to reduce emissions of greenhouse gases and ammonia applies for purchase of new material, software and new stationary equipment as well as purchase of services for:



- a) building of extra capacity for manure storage over the regulation to reduce greenhouse gas and ammonia emissions.
- b) renovation, new construction or extension of digestate management for the farms own needs.
- c) renovation, new construction or extension of other infrastructure reducing greenhouse gas and ammonia emission but not for investment needed to only manage the regulation regarding manure storage capacity, biogas infrastructure or transport.

2/ Purchase of special equipment for spreading and incorporation of manure that reduce greenhouse gas and ammonia emission.

3/ Purchase of consult services for the planning and implementing the investment.

Covers 40% of investment, only for investment above 100,000 SEK.

Link to the legal provision

<http://www.jordbruksverket.se/download/18.194f839715cf727348920e21/1498813766027/2017-014.pdf>

Comments

All SAT techniques should qualify under this support scheme.

11.3: Support scheme 3

Title of legal act

Förordning (2009:381) om statligt stöd till lokala vattenvårdsprojekt. Not available in English.

Regulation (2009:381) on state aid for local water conservation project.

Number and texts of the article in question

§2 (1. c) Support can be granted to measures that contribute to reducing eutrophication of water environments.

Link to the legal provision

http://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/forordning-2009381-om-statligt-stod-till_sfs-2009-381

Comments

The support is only granted to municipalities and NGOs so farmers would not directly be eligible. The support schemes focus on the efficiency of the measures: cost vs reduction of eutrophication. We have inquired into the possibility for a municipality to invests in a SAT and then make it available, or even require, local farmers to utilize the SAT. This might be a potential local solution for problem areas, however, we have not received any clear indication as to whether this would be possible or not.



What is the current budget-spending rate?

Regarding support schemes 1 and 2 about 33% of the 2014-2020 budget has been used so far. More detailed information about approved support under scheme 2, 5d is available if needed.

Is area payment support available for environmental technologies?

Not to our information.

Is ammonia emission reduction related to greening requirements, and in case it is, in which way?

Not to our information.

Are there, in support schemes, given priorities for specific environmental technologies?

Please see the above-mentioned support scheme 2 and 3.

Are there any indications for changes of the above issues for the next policy planning period (after 2020)?

Nothing has been decided yet, but measures that improve the environment will most likely still be prioritised.

Is there any other type of overall support that could apply to SAT available in your country?

Not to our information.

Are there public social and societal incentives available for farmers' contribution to rural sustainability and environmental management (information from e.g. project surveys etc.)

Not to our information.



Annex J: Legal framework of Belarus

I: Agri-environmental legislation related to SATs

I.1: Requirement for cover on storage tanks to avoid ammonia emissions

Title of Legal act

GOST 33830-2016 «Manure on the base of livestock wastes. Technical conditions».

Number and texts of the article in question

Art.6.5. Manure is stored on the grounds, in the cattle or poultry manure tanks, which could be covered with film.

Link to the legal provision – all in local as well as English language

The Act of the Republic of Belarus from the 16th of December 2008Nr. 2-3 «About the atmospheric air protection»

Comments

In the normative acts of Belarus there are no any mandatory requirements to the construction of the covers on the slurry storage tanks. Application of the covers used only as a recommendation.

I.2: Limitations of N fertilisation via maximally allowed application norms

Title of Legal act

Organizational and technological standards of cultivation. Compilation of industry regulations.

Number and texts of the article in question

Appendix 2. The requirements for execution of the technological operations during manure application and the methods of the assessment of work quality.

Link to the legal provision – all in local as well as English language

Organizational and technological standards of cultivation. Compilation of industry regulations. <https://studfiles.net/preview/5613000/>

Comments

Recommended rates of nitrogen application:

60-90 kg/ha – basic application

20-30 kg/ha – feed application

I.3: Requirements for injection of slurry

Title of Legal act

Agrotechnical requirements for manure application



Number and texts of the article in question

Chapter 11. Methods, terms of work and technology of manure application.

Link to the legal provision – all in local as well as English language

Agrotechnical requirements for manure application

<https://studfiles.net/preview/5611083/>

Comments

Serve as guidelines. Requirements for slurry injection are related mainly to the drilling depth.

I.4: Restrictions for recirculation of slurry that was already removed from livestock houses

Title of Legal act

Veterinary and sanitary rules for veterinary disinfection dated from 04.10.2007

Number and texts of the article in question

Veterinary and sanitary rules for veterinary disinfection dated from 04.10.2007:

156. Usage of industrial litter in the systems of returned technical watering at the livestock and poultry enterprises is allowed after preparation which provides absence of pathogens and deodorization with according technical-economic justification and coordination with authorities of the veterinary and sanitary inspection and ecological control.

Link to the legal provision – all in local as well as English language

Veterinary and sanitary rules for veterinary disinfection dated from 04.10.2007

<http://pravo.levonevsky.org/bazaby11/republic18/text719.htm>

Comments

In Belarus, slurry that was removed from the animal house is not commonly returned to the animal houses.

I.5: Restrictions for the size/dimensions of slurry channels in stables, or other provisions for design of slurry channels reducing the risks of harmful concentration of gases, when slurry is removed from the channels.

(The question is about the risk of release of harmful gases in lethal doses upon removing the slurry from the stable).

Title of Legal act

Management Directive for Agro-Industrial Complex "Recommended Practice for Engineering and Designing of Systems for Animal and Poultry Manure Removal and Pre-application Treatment" RD-APK 1.10.15.02-17



Number and texts of the article in question

Management Directive for Agro-Industrial Complex "Recommended Practice for Engineering and Designing of Systems for Animal and Poultry Manure Removal and Pre-application Treatment" RD-APK 1.10.15.02-17:

- 6.2 In case mechanical manure removal methods are applied, the width and depth of the lengthwise manure channels should fit the dimensions of the used mechanical devices and not be less than 300 and 400 mm, respectively.
- 6.4 Rod conveyors with hydraulic drive are used to remove manure from the lengthwise channels to the cross channels in all types of livestock farms and complexes.
In this case the width of a lengthwise manure channel can be 300-500 mm, the depth –up to 400 mm, the length –up to 150 m.
- 6.5 To remove manure from the cattle farms and complexes with the loose housing system and the channels under the slatted floors on all types of livestock farms and complexes the automated scraping units with hydraulic drive with traction circuit (member) in the form of a steel strip and step-by-step moving of scrapers along the channel axis are recommended. The length of the channel can reach 150 m, the width – 3 m. The cross manure channel may be situated in the middle of the lengthwise channels or at its end.

Link to the legal provision – all in local as well as English language

Management Directive for Agro-Industrial Complex "Recommended Practice for Engineering and Designing of Systems for Animal and Poultry Manure Removal and Pre-application Treatment" RD-APK 1.10.15.02-17

<http://meganorm.ru/Data2/1/4293744/4293744162.pdf>

Comments

In the latest version of the Management Directive there are no strict requirements for designing the slurry channels on pig farms. However, practical experience shows that usually the depth falls within the range of 400-600 mm, and the width is defined basing on the lay-out solution.

I.6: Would any current regulation hinder in-house, in-store or in-field acidification

Title of Legal act

N/A.

Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A



II: Current support schemes (financial incentives) that would be relevant for SAT investments or use

II.1 Support scheme 1

Title of Legal act

The Decree of the President of the Republic of Belarus dated the 17th of July 2014 №347 "About governmental support of agrarian policy"

Ministerial decree of the Republic of Belarus dated 30.12.2017 №1050

Number and texts of the article in question

The Decree of the President of the Republic of Belarus dated the 17th of July 2014 №347 "About governmental support of agrarian policy"

- 9.1. To realize yearly concessional lending for realization of the government programs and events in the agro-industrial complex, including realization of current activity of no less than 10% from gross value of agricultural products.

Ministerial decree of the Republic of Belarus dated 30.12.2017 №1050

- p.4 To recommend to banks to make, in year 2018, concessional lends on term till one year for agricultural enterprises for fieldworks, creation of the solid fodder base and harvesting in 2018 with interests of loan in $\frac{3}{4}$ refinancing rates of the National bank of the Republic of Belarus increased no more than 3 interest points.

Refinancing rate of the National Bank of the Republic of Belarus on 01.02.2018 was 11%.

Link to the legal provision – all in local as well as English language

The Decree of the President of the Republic of Belarus dated the 17th of July 2014 №347 "About governmental support of agrarian policy" - National register of the legal acts dated 21.07.2014 №1/15160

Ministerial decree of the Republic of Belarus dated 30.12.2017 №1050

<http://www.government.by/upload/docs/filefb258145aaf01a95.PDF>

<http://www.government.by/ru/solutions/3080>

Comments

In agricultural sector of the Republic of Belarus, nowadays there aren't any schemes of direct support promoting for investments in SATs.

However, the government of the Republic of Belarus yearly affirms the complex of measures on support of agricultural producers including its concessional lending.

Besides, agricultural producers are indirectly interested in preservation of nitrogen in manure increasing its fertilising features and price as product.



In Belarus slurry is applied on fields mainly using broadcast spreading tanks (fig. 1). Recently, the use of band spreading with hoses for slurry surface application in fields is increasing (fig. 2).

Liquid manure application in fields by the method of splashing



Liquid manure superficial application in field using hoses



In Belarus in-soil injection practically isn't used because of the lack of required equipment for agricultural producers.



Please investigate the situation specifically with RDPs 2014-2020 implementation process.

What is the current budget-spending rate?

In 2017, in accordance with the State program for the development of agricultural business in the Republic of Belarus for 2016-2020, 63,241,319 Belarusian rubles were spent on measures for the preservation of soil fertility, including the acquisition and application of organic and mineral fertilisers, liming, soil agrochemical survey of agricultural lands (acidity, humus, content of macro and microelements, heavy metals of radionuclides), development of a system for calculating the need for fertilisers, which equivalent to about 30 million euros

(web-link: <http://mshp.gov.by/programms/bfa76e1141996f75.html>)

Is area payment support available for environmental technologies?

In Belarus, financial support for certain environmental technologies, including agriculture, is carried out only on the basis of state targeted programs.

At present, in the field of Agroecology, such programs are not directly implemented, but indirectly, the implementation of other state programs may have an impact on Agroecology.

Is ammonia emission reduction related to greening requirements, and in case it is, in which way?

There are no regulations in Belarus that provide for mandatory measures to reduce ammonia emissions in the process of agricultural production.

Are there given priorities in support schemes for specific environmental technologies?

-

Are there any indications for changes of the above issues for the next policy planning period (2020 - ...).

No, not yet.

Is there any other type of overall support that could apply to SAT available in your country?

There are no explicit forms of support for SAT technologies in Belarus yet

Are there public social and societal incentives available for farmers' contribution to rural sustainability and environmental management (information from e.g. project surveys etc.)

At the moment, they do not exist



Annex K: Legal framework of Russia

I: Agri-environmental legislation related to SATs

I.1: Requirement for cover on storage tanks to avoid ammonia emissions

Title of Legal act

N/A

Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

Comments

At the moment there are no normative and legislative acts regulating the cover of storages in the Russian Federation. However, such requirements are expected to appear in the coming years under the transition to BAT system currently in progress in Russia.

I.2: Limitations of N fertilisation via maximally allowed application norms

Title of Legal act

Management Directive for Agro-Industrial Complex "Recommended Practice for Engineering Designing of Systems for Animal and Poultry Manure Removal and Pre-application Treatment" РД-АПК 1.10.15.02-17, in force since 2017, 173 p.

Number and texts of the article in question

Annex E – Approximate rates and time limits for bedding-free manure (slurry) application.

Link to the legal provision – all in local as well as English language

Management Directive for Agro-Industrial Complex "Recommended Practice for Engineering Designing of Systems for Animal and Poultry Manure Removal and Pre-application Treatment" РД-АПК 1.10.15.02-17, in force since 2017, 173 p.

<http://meganorm.ru/Data2/1/4293744/4293744162.pdf>

Comments

HELCOM recommended rate of 170 kg N / ha is used in the regions within Baltic Sea catchment together with the Management Directive.



1.3: Requirements for injection of slurry

Title of Legal act

State Standard GOST 26074-84 "Liquid manure. Veterinary and sanitary requirements for treatment, storage, transportation and utilisation", in force since 1984, 9 p.

Management Directive for Agro-Industrial Complex "Recommended Practice for Engineering and Designing of Systems for Animal and Poultry Manure Removal and Pre-application Treatment" РД-АПК1.10.15.02-17, in force since 2017, 173 p.

Number and texts of the article in question

State Standard GOST 26074-84 "Liquid manure. Veterinary and sanitary requirements for treatment, storage, transportation and utilisation", in force since 1984, 9 p.:

- 4.2. Manure and manure-bearing wastewater from livestock complexes may be applied under crops in such a manner, which prevents the damage or contamination of plants, and also excludes the long-term effects on animals and humans.
- 4.3. In case irrigation equipment with medium and large coverage area is used to apply the liquid manure, the wind speed and direction should be taken into account.

Management Directive for Agro-Industrial Complex "Recommended Practice for Engineering and Designing of Systems for Animal and Poultry Manure Removal and Pre-application Treatment" РД-АПК1.10.15.02-17, in force since 2017, 173 p.:

- 14.4 Liquid manure (slurry), manure-bearing wastewater and their liquid fraction should be applied as a fertiliser under crops on the soil surface using tractor mounted applicators, hose systems (trailing hose/trailing shoe for surface spreading), and irrigation systems during the ploughing, or in the soil subsurface layer using different tractor mounted units equipped with devices, which ensure the depth of manure incorporation being at least 17 cm and prevent the soil surface pollution with manure.

Link to the legal provision – all in local as well as English language

State Standard GOST 26074-84 "Liquid manure. Veterinary and sanitary requirements for treatment, storage, transportation and utilisation", in force since 1984, 9 p.

<http://meganorm.ru/Data2/1/4294828/4294828368.pdf>

Management Directive for Agro-Industrial Complex "Recommended Practice for Engineering and Designing of Systems for Animal and Poultry Manure Removal and Pre-application Treatment" РД-АПК1.10.15.02-17, in force since 2017, 173 p.

<http://meganorm.ru/Data2/1/4293744/4293744162.pdf>

Comments

These regulations are recommendatory in character; the final decision is taken by the farm authorities.



1.4: Restrictions for recirculation of slurry that was already removed from livestock houses

Title of Legal act

State Standard GOST 26074-84 "Liquid manure. Veterinary and sanitary requirements for treatment, storage, transportation and utilisation", in force since 1984, 9 p.

Sanitary Rules and Regulations SanPiN 2.2.3. ...2009 "Hygienic requirements for livestock objects", in force since 2009

Number and texts of the article in question

State Standard GOST 26074-84 "Liquid manure. Veterinary and sanitary requirements for treatment, storage, transportation and utilisation", in force since 1984, 9 p.:

- 2.1. Systems for slurry removal from the livestock houses should ensure the timely removal of excrements, maximum cleanliness in the livestock houses and the recommended inside climate conditions.

Sanitary Rules and Regulations SanPiN 2.2.3. ...2009 "Hygienic requirements for livestock objects", in force since 2009

- 4.2.1. Methods and means for manure removing from livestock houses should ensure the timely removal of excrements.
- 4.2.2. Manure may be removed from the livestock houses and transported to the facilities for collection, quarantine and treatment (collection tanks and in-farm slurry storages) by mechanical and hydraulic methods, including direct flushing with water.
- 4.2.4. In order to prevent the accumulation of pathogenic microorganisms and helminth eggs on the slatted and solid floors, mechanical cleaning and periodic flushing of these surfaces is recommended at least once a week. Tap water is used for these purposes and for washing manure channels. It is allowed to use settled, disinfected and deodorized process waste water for flushing manure from the channels.

Link to the legal provision – all in local as well as English language

State Standard GOST 26074-84 "Liquid manure. Veterinary and sanitary requirements for treatment, storage, transportation and utilisation", in force since 1984, 9 p.

<http://meganorm.ru/Data2/1/4294828/4294828368.pdf>

Sanitary Rules and Regulations SanPiN 2.2.3. ...2009 "Hygienic requirements for livestock objects", in force since 2009

<https://www.google.ru/url?sa=t&rct=j&q=&esrc=s&source=web&cd=5&ved=0ahUKEwjOsY6MqPrYAhWSOSwKHTs9DqlQFghAMAQ&url=http%3A%2F%2F20.rospotrebna.dzor.ru%2Ffiles%2Fdocuments%2Fprojects%2F17620.doc&usq=AOvVaw0xvJne5Kw-9qeJvy0N-Mac>



Comments

-

1.5: Restrictions for the size/dimensions of slurry channels in stables, or other provisions for design of slurry channels reducing the risks of harmful concentration of gases, when slurry is removed from the channels.

(The question is about the risk of release of harmful gases in lethal doses upon removing the slurry from the stable).

Title of Legal act

Management Directive for Agro-Industrial Complex "Recommended Practice for Engineering and Designing of Systems for Animal and Poultry Manure Removal and Pre-application Treatment" РД-АПК 1.10.15.02-17 in force since 2017, 173 p.

Number and texts of the article in question

- 6.2 In case mechanical manure removal methods are applied, the width and depth of the lengthwise manure channels should fit the dimensions of the used mechanical devices and not be less than 300 and 400 mm, respectively.
- 6.4 Rod conveyors with hydraulic drive are used to remove manure from the lengthwise channels to the cross channels in all types of livestock farms and complexes.
In this case the width of a lengthwise manure channel can be 300-500 mm, the depth – up to 400 mm, the length – up to 150 m.
- 6.5 To remove manure from the cattle farms and complexes with the loose housing system and the channels under the slatted floors on all types of livestock farms and complexes the automated scraping units with hydraulic drive with traction circuit (member) in the form of a steel strip and step-by-step moving of scrapers along the channel axis are recommended. The length of the channel can reach 150 m, the width – 3 m. The cross manure channel may be situated in the middle of the lengthwise channels or at its end.

Link to the legal provision – all in local as well as English language

Management Directive for Agro-Industrial Complex "Recommended Practice for Engineering and Designing of Systems for Animal and Poultry Manure Removal and Pre-application Treatment" РД-АПК 1.10.15.02-17 in force since 2017, 173 p.

<http://meganorm.ru/Data2/1/4293744/4293744162.pdf>

Comments

-

1.6: Would any current regulation hinder in-house, in-store or in-field acidification

Title of Legal act

N/A.



Number and texts of the article in question

N/A

Link to the legal provision – all in local as well as English language

N/A

II: Current support schemes (financial incentives) that would be relevant for SAT investments or use

There are no direct support schemes available for investment SATs in the Russian Federation, as well as any other direct support of environmental technologies to be used in agriculture.

However, mechanism of general (overall) agricultural support can be applied to SATs as they are part of the farm production system. Thus, a financial support received by a farmer for modernization of technologies, construction or reconstruction of barns, decoupled subsidies, etc. can be used also for SAT installation or purchase of SAT required equipment.

In this connection the support schemes presented in the annex could have indirect impact on the introduction and dissemination of SATs in Russia. All these support schemes are integrated in the State Programme for Development of Agriculture for 2013-2020. The latest changes in the State Programme were adopted in December 13, 2017 (Governmental regulation # 1544).

Please investigate the situation specifically with RDPs 2014-2020 implementation process.

The Federal Target Programme “Sustainable Development of Rural Territories” has been implemented in 2014-2017. It became a part (sub-programme) of the State Programme for Development of Agriculture for 2013-2020 in this year (2018). The activities of the sub-programme are mostly focused on the development of social and living conditions in rural areas and partly consider overall environmental issues connected with infrastructure and not connected with agricultural production and technologies.

What is the current budget-spending rate?

Since there is no direct support of SATs and other environmental technologies, it is not possible to evaluate the budget-spending rate for them.

Is area payment support available for environmental technologies?

Area payment support is available for agricultural producers on general conditions and can be used for different purposes including environmental technologies.



Is ammonia emission reduction related to greening requirements, and in case it is, in which way?

No.

Are there given priorities in support schemes for specific environmental technologies?

No.

Are there any indications for changes of the above issues for the next policy planning period (2020 - ...).

We do not see any indications for changes for next policy period. The current State Programme for Development of Agriculture for 2013-2020 is mostly focused on:

- ensuring food security of the Russian Federation, taking into account the economic and territorial availability of agricultural products;
- increase of the added value created in agriculture;
- growth in exports of agricultural products;
- increase in investment in fixed assets of agriculture;
- increase in household disposable resources in rural areas.

Is there any other type of overall support that could apply to SAT available in your country?

As noted above there are types of overall support of technological modernization (including SATs). Please see the most effective schemes of overall support in the annex. Agricultural producers can also use financial means received for other areas of support (for example, milk production, maintenance of breeding stock, decoupled support, etc.). However, the biggest influence on the innovation-investment process is provided by forms of direct support.

Are there public social and societal incentives available for farmers' contribution to rural sustainability and environmental management (information from e.g. project surveys etc.)?

Farmers and large agricultural producers (agro holding companies) usually have different attitudes to the environment. Farmers consider surrounding environment as a "home" and try to take care of it. Agro holdings consider it as resource to be used as much as possible without investing in the development of local areas, society and nature. Sometimes, the pressure from the local society and administration can change this attitude in a positive direction.

Support scheme 1

Title of Legal act:

Governmental regulation # 48, January 21, 2017

Number and texts of the article in question:



Rules for granting and distribution of subsidies from the Federal budget to budgets of subjects of the Russian Federation for compensation of direct costs incurred for the creation and modernization of agricultural units (buildings, constructions, installations) and the acquisition of machinery and equipment.

Link to the legal provision – all in local as well as English language:

<http://static.government.ru/media/files/CtyGe4fKXnJ9usy5zvLZLtYXvG4U62E.pdf>

Comments:

Selected investment projects will be granted 20% (machinery and equipment) and 20-30% (units) of the total direct costs after finishing the construction works or when machinery or equipment acquisition documents are provided.

II.1: Support scheme 1

Title of Legal act:

Governmental regulation # 1528, December 29, 2016

Governmental regulation # 875, July 24, 2017 (additions and changes)

Number and texts of the article in question:

Rules for granting the Federal budget subsidies to Russian credit organisations for compensation of shortfall of their income on loans issued at a reduced rate to agricultural producers, organizations and individual entrepreneurs engaged in the production, primary and (or) subsequent (industrial) processing of agricultural products and its sales.

Link to the legal provision – all in local as well as English language:

<http://static.government.ru/media/files/uAAQAhGFekrgX0y1MJTYssky5AONOf.pdf>

<http://static.government.ru/media/files/WuLfaR5Wy8nYdWAb2vKafDD8VOu7vgoB.pdf>

Comments:

The reduced bank rate is 1-5 %. Investment project period: 2-15 years. The project purpose is the development of crop and animal production and processing of its products.

II.2: Support scheme 2

Title of Legal act:

State Programme for Development of Agriculture for 2013-2020

Number and texts of the article in question:

Annex 7. Rules for granting and distribution of subsidies from the Federal budget to budgets of subjects of the Russian Federation for the provision of decoupled support to agricultural crop producers.

Link to the legal provision – all in local as well as English language:



<http://static.government.ru/media/files/Sm11aeajTC6zwCABKI9AxAdKayTg7GU5.pdf>

Comments:

Provision of support to agricultural producers in crop production for reimbursement of the cost of agro-technical works, increase of level of environmental safety of agricultural production, as well as improvement of fertility and quality of soil per 1 hectare of sown area occupied by cereals, legumes and forage crops. The support is applicable for mixed production farms as well.

11.3: Support scheme 3

Title of Legal act:

Regional direct subsidy for the purchase of agricultural machinery and equipment

Number and texts of the article in question:

Subsidies for the reimbursement of a part of the costs of acquiring agricultural machinery, specialized transport, products of the automotive industry, equipment and special equipment for agricultural production are provided at the expense of the regional budget.

Link to the legal provision – all in local as well as English language:

http://agroprom.lenobl.ru/deyat/nauka/State_support/tehnika

Comments:

The size of the subsidy for organic manure spreaders is 30% of the price without VAT (by example of the Leningrad region of Russia).

Support for the acquisition of the best local and foreign machinery, equipment and technologies with a high innovation component in the form of subsidizing part of the costs in the Leningrad region proves high efficiency in terms of accelerating the pace of modernization, wide coverage of manufacturers of all industries, ownership and size of enterprises, transparency of control.

There are several support measures which can be considered as future support schemes on certain conditions:

- A. **Subsidies to producers of agricultural machinery** (Governmental regulation N 1432, December 27, 2012 - "On the approval of the Rules for granting subsidies to producers of agricultural machinery")

In order to increase the availability of agricultural machinery, producers that sell such equipment at a discount are provided with subsidies from the federal budget.

There is a potential support scheme when a Russian machinery manufacturer will start the production of SAT equipment and machinery (slurry tank with required equipment to mix manure with acid). In this case the producer could receive financial support from the Federal budget to cover the sale discount of a slurry tank (up to 25% of the



price). The producer has to be included in the list of producers selling agricultural machinery and equipment in accordance with the Rules for granting subsidies to agricultural machinery manufacturers.

B. Regional governments have an opportunity to provide subsidies for specific activities in agriculture

Financing of the support of the adopted specific activities of regional agricultural producers is carried out from the regional budget with a possibility of co-financing from the federal budget if the activity corresponds to targets and goals of the common subsidy given to the regions. Environmental activities usually don't comply with these goals and can be financed only from regional budgets.

C. Subsidy of the initial lease payment

The Russian company "Rosagroleasing" receives subsidies from the Federal Government to provide different machinery and equipment to agricultural producers on preferential terms. There is a potential possibility that SAT equipment will be included in the list of equipment which can be leased by this company on preferential terms.





Baltic Slurry Acidification



EUROPEAN
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www.balticslurry.eu

Summary of the project

'Baltic Slurry Acidification' is an agro-environmental project, co-financed by Interreg Baltic Sea Region under the priority area 'Natural resources' and the specific objective 'Clear waters'. The aim of the project is to reduce nitrogen losses from livestock production by promoting the use of slurry acidification techniques in the Baltic Sea Region and thus to mitigate eutrophication of the waters, including airborne eutrophication.

Summary of the report

The legislative framework for slurry acidification technologies in Baltic Sea Region countries is analysed on the basis of seven parameters. The collected and analysed information about the parameters is mostly qualitative information about national legislative acts, showing large differences in the legal readiness for slurry acidification in the concerned countries.



Baltic Slurry Acidification



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