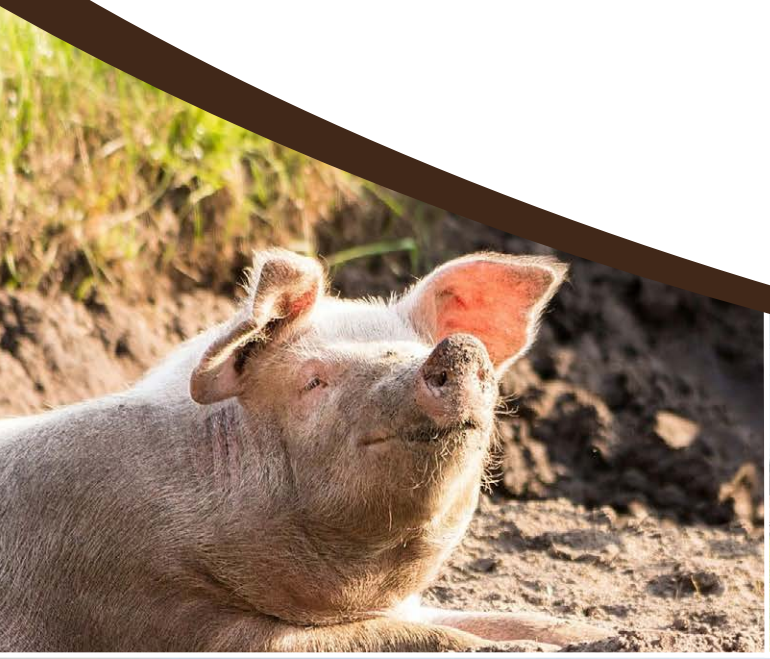
clean air farming

Luftreinhaltung durch Landwirtschaft



Recommendations

CRITERIA FOR EFFECTIVE AIR POLLUTION CONTROL IN FOOD STANDARDS AND PROCUREMENT REQUIREMENTS OF FOOD COMPANIES AND RETAILERS

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Project from:

Bodensee Stiftung Lake Constance Foundation · Deutsche Umwelthilfe · France Nature Environnement · EEB European Environmental Bureau

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1. Air Pollution Control in Agriculture

Emissions of ammonia (NH_3) and methane (CH_4) have a negative impact on human health, climate and ecosystems. Methane has a global warming potential (GWP) about 28 times higher than CO_2 (IPCC, 2014). In addition, it is a precursor in the formation of ground-level ozone (O3), which damages plants and can indirectly contribute to climate change. Ozone leads to inflammation of the respiratory tract, asthma, reduced lung function and impaired physical performance. In 2014, ground-level ozone was responsible for 2,220 premature deaths in Germany and 1,630 in France (European Environment Agency, 2017).

In Europe, agriculture is responsible for 90 % of ammonia and over 50 % of methane emissions. The main sources are direct emissions from the digestive processes of cattle and sheep, manure from animal husbandry, synthetic urea-based fertilisers and decomposition processes of organic matter. It is therefore important to reduce emissions from the production of meat and dairy products.

A healthy environment can be created for people and animals through reduced ammonia and methane emissions from agriculture. Air pollution can be reduced if the formation of secondary particulate matter and ground-level ozone is prevented. At the same time, semi-natural ecosystems can be protected from over-fertilisation and acidification.

Air pollution control is not only an environmental issue, but also a basic prerequisite for production processes, services and quality of life. Food companies and retailers have a significant influence on air pollution control as agricultural products play a very important part of the supply chain. The direct and indirect impacts of companies on air quality are often complex and reducing negative impacts is a challenge for the entire supply chain.

The recommendations are aimed at standard organisations and companies in the food sector with their own procurement guidelines. They are intended to support the management and those responsible for the revision of standard and procurement criteria in anchoring the topic of air pollution control more effectively in the standard or in the company. Producer organisations and industry associations are also invited to use the recommendations as a guideline for an agricultural production that produces cleaner air. Furthermore, political decision-makers are invited to take the recommendations and the associated measures into account in support programmes and in agricultural subsidies. This way, framework conditions can finally be changed in favour of air quality-oriented agriculture and to support farmers in their practices for more air pollution control.

2. The Project LIFE Clean Air Farming

Sustainable agriculture develops solutions for healthy food, clean air and nature conservation. The project Clean Air Farming promotes the knowledge and use of techniques to reduce ammonia and methane emissions as well as the appreciation of food. Meat and dairy products are still too often thrown away and therefore produced unnecessarily. Therefore, there is a high potential for avoiding emissions and air pollutants from food production.

LIFE Clean Air Farming addresses the main challenges in the implantation of measures to reduce ammonia and methane emissions from agriculture. The focus is on the consideration and integration of existing knowledge in legislative processes and in practice, as well as the better enforcement of existing legislation. With regard to methane, there are no concrete legal obligations to reduce emissions in the agricultural sector. In the case of ammonia, however, the National Emissions Ceilings Directive (NEC Directive) sets annual maximum levels that have been exceeded in Germany for years. Therefore, agricultural policy must push the introduction of emission-reducing practices more strongly than in the past in order to reach the set targets.

2.1 Objectives

The LIFE Clean Air Farming project has four main objectives:

- **Raising awareness among associations of the meat and dairy sector as well as stakeholders of the food sector and developing a common position.**

- **Involve civil society organisations in legislative processes and in the implementation of national air quality programmes.**

- **Improve** the curriculum of agricultural vocational training in order to inform future farmers about the impact of their own actions and to provide practical instructions on how to avoid emissions.

- **Reduce** food waste from meat and dairy products along the supply chain to increase overall resource efficiency in food production and to reduce absolute emissions of methane and ammonia.

2.2 Project Actions

- At **round tables, agricultural associations of the meat and dairy sector** and stakeholders of the food sector discuss measures for the reduction of methane and ammonia emissions and identify necessary political framework conditions and incentives for these to be implemented.

- In addition, **food companies are motivated** to set effective and verifiable criteria regarding the reduction of ammonia and methane emissions for suppliers and certified farms. Recommendations for the revision of existing labels and standards in the meat and dairy sector are communicated to companies and organisations

- Across Europe, the project coordinates the **involvement of civil society organisations** in the implementation and revision of relevant directives and programmes. This includes the implementation of the NEC Directive. In addition, Clean Air Farming is pushing for a new Common Agricultural Policy that promotes and requires emission-reduced agriculture in the European Union. The revision of the Gothenburg Protocol at international level is accompanied with the aim of extending it to methane.

- In France, the project promotes the necessary discourse between the actors to harmonise the different policies in the field of air pollution control and the sustainable implementation of the National Plan for the Reduction of Air Pollutant Emissions (PREPA).

- The reduction of ammonia and methane should be increasingly integrated into agricultural vocational training. To this end, agricultural vocational schools, universities, chambers of agriculture, institutes and agricultural associations in Germany are being addressed in a **survey and in expert discussions**. Proposals for improvement will be developed together with those responsible at the chambers of agriculture.

- With the help of **petitions and expert discussions**, legal shortcomings are addressed that cause food waste.

- Intensive **press and media work** will raise awareness of the issue of food waste in society.

2.3 Project Partners and Funding

The project team consists of the four partners the **Lake Constance Foundation**, DUH (**Environmental Action Germany**), the **European Environmental Bureau** (EEB) and **France Nature Environment**. The project partners are jointly developing solutions with stakeholders from agriculture, the food sector and politics. The core area of the project activities is in Germany and France, however, through the involvement of the EEB, the project aims to transfer results on European level and to at least five other EU countries.

The project runs from August 2018 to January 2022 and is funded by the LIFE Programme of the European Commission and the Landwirtschaftliche Rentenbank.

3. Methane and Ammonia Emissions from Agriculture

In Europe, agriculture is responsible for over 90% of ammonia and 50% of methane emissions. Emissions of ammonia (NH_3) and methane (CH_4) both have negative impacts on human health, the climate and ecosystems. Methane not only has a higher global warming potential than CO_2, it is also a precursor in the formation of ground-level ozone (O_3), which damages plants and can therefore also contribute indirectly to climate change. Ozone leads to inflammation of the respiratory tract, asthma, reduced lung function and impaired physical performance. In 2014, ground-level ozone was responsible for 2,220 premature deaths in Germany and 1,630 in France (European Environment Agency, 2017). Ammonia not only leads to eutrophication and acidification of natural ecosystems, but also reacts with other air pollutants to form secondary particulate matter and also fuels climate change via indirect nitrous oxide emissions.

It makes sense to consider the pollutants methane and ammonia together, as they arise from similar agricultural sources. The main sources of methane are emissions from the digestion process of ruminants and emissions from the storage of agricultural fertilisers. Ammonia emissions arise from the application of urea-based mineral fertilisers and also from the storage of manure from pig, cattle and poultry farming. Measures to reduce emissions should therefore always focus on climate protection as well as on improving air quality in order to prevent pollution swapping. In addition, numerous measures for more air pollution control also have positive effects on the soil and on the protection of biodiversity. Agricultural production practices, especially in the meat and dairy sector, offer starting points for an effective reduction of these direct and indirect greenhouse gases.

.3.1 Methane

Methane has a global warming potential 28 times higher than carbon dioxide and is thus one of the most important greenhouse gases. It is produced by natural (moors, forests) and anthropogenic sources (energy industry, waste disposal and agriculture). Methane-forming bacteria are predominantly found in the stomachs of ruminants. A large proportion of Germany's methane emissions are produced by animal husbandry of dairy and beef cattle, sheep and goats. In 2018, this fermentation in ruminants caused 77 percent of methane emissions and 39.4 percent of all greenhouse gas emissions from agriculture. A further 19 percent escapes during the storage and application of farm manure (solid manure and slurry). The remaining 4 percent come mainly from the fermentation of energy crops in biogas plants (Haenel, et al., 2020). Since 1990, anthropogenic methane emissions in Germany have been reduced in all sectors, least of all in the agricultural sector, where emissions have more or less stagnated since 2006. The agricultural sector therefore still has the greatest methane reduction potential, which must be fully exhausted in order to achieve the climate protection targets at EU and national level.

3.2 Ammonia

The strong-smelling gas ammonia (NH_3) is produced during the natural decomposition processes of proteins and urea in slurry and manure from farm animals. In Germany, 95 per cent of ammonia comes from agriculture. It is released primarily in stables and during the storage of farm manure, as well as in fields and grassland shortly after fertiliser application. More than half of the emissions from animal husbandry come from cattle, followed by pig and poultry farming (Haenel, et al., 2020).

Since the invention of the Haber-Bosch process, fertilisers can also be produced synthetically. When urea-based fertiliser is applied, ammonia also escapes. This proportion has been increasing in recent years.

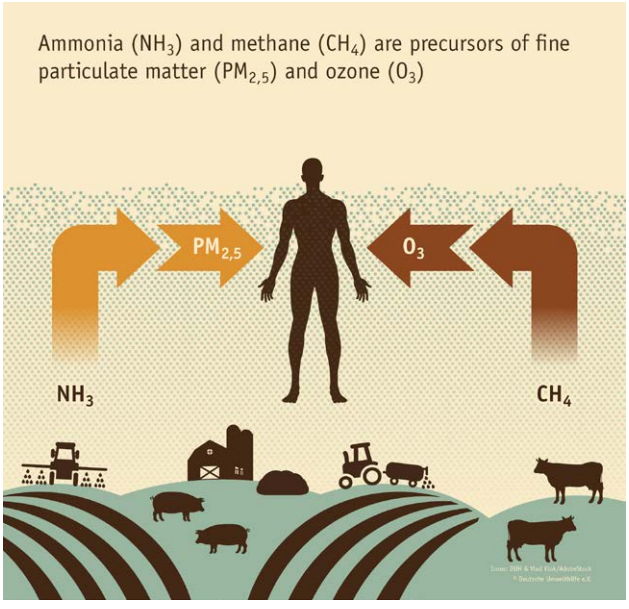

Figure 1: Development of ammonia and methane to air pollutants.

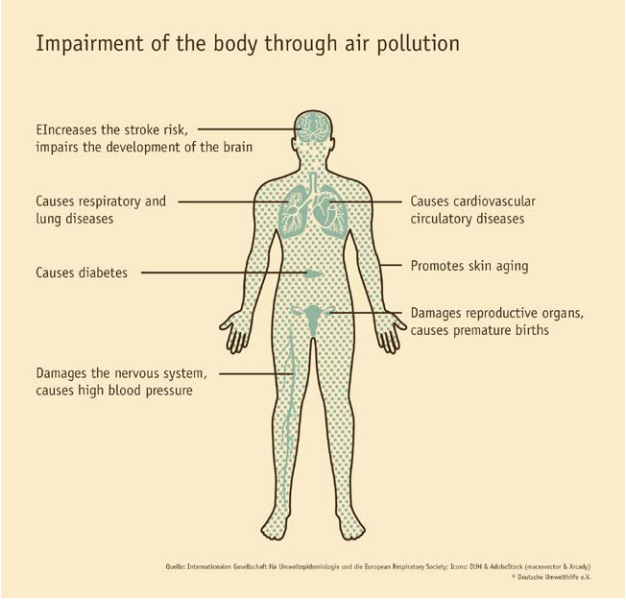

Figure 2: Impairment of the body through air pollution.

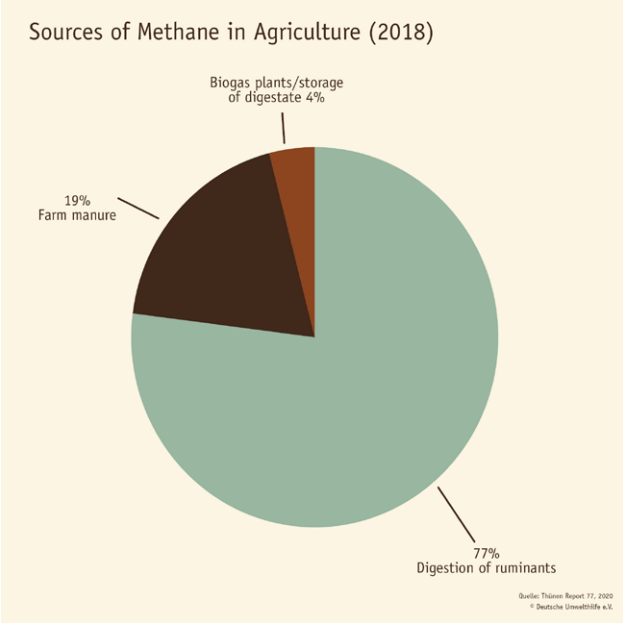

Figure 3: Sources of methane from German agriculture in 2018 (Thünen Report 77, 2020)

Emissions from biogas digestate have become increasingly significant over the past decade due to growing biogas production, so that they now account for about one fifth of agricultural ammonia emissions in Germany. According to the NEC Directive, Germany should not emit more than 550 kilotons of ammonia per year since 2010. Nevertheless, the emissions have continued to rise and were at 662 kilotons in 2016. Under the new NEC Directive, (EU) 2016/2284, Germany is obliged to reduce its ammonia emissions by 29% by 2030 compared to the reference year 2005. The national air quality programme, which was adopted in 2019, shows the development of ammonia emissions in recent years and which measures can lead to the reduction target. However, more measures need to be implemented to reach this target.

The main challenges in reducing methane and ammonia emissions are the lack of implementation of legislation and the consideration of existing knowledge in legislative procedures and in practice. Commitments to reduce methane and ammonia emissions are insufficient or non-existent. The Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-Level Ozone does not include methane targets. Methane is also not addressed in the NEC Directive. However, there are reduction commitments for NH_3 and PM2.5 emissions for the years 2020 and 2030. Within the framework of National Air Pollution Control Programmes (NAPCP), the member states must determine which further means can be used to achieve these targets. Comprehensive information and the political will to implement the necessary measures are, however, still lacking.

3.3 Environmental Impacts of Agriculture

The European Commission has recognised the potential environmental impacts of agriculture and proposed measures to reduce them through the Farm to Fork Strategy. Excessive nutrient inputs from agriculture are a major contributor to air, land and water pollution. This nutrient surplus can be reduced with a 20% reduction in fertiliser use by 2030.

The European Commission sees a need for action above all in the livestock sector, with an improvement in sustainability. There is a great opportunity to achieve results in regions with intensive animal husbandry through balanced fertilisation and sustainable nutrient and land management. Agriculture can provide environmental services in a more targeted manner and contribute to air pollution control if the measures implemented are also adequately rewarded. Standards and companies can support agriculture by rewarding improved environmental performance and positive contributions to air pollution control through fair prices along the supply chain.

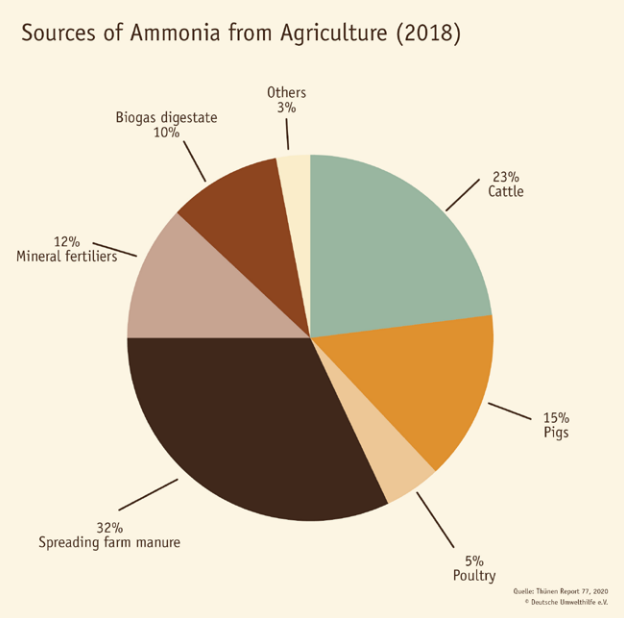

Figure 4: Sources of ammonia from German agri-culture in 2018 (Thünen Report 77, 2020)

3.4 Analysis of Standards and Conclusions

SCREENING

There are more than 400 standards relevant for the European market and an unknown number of procurement requirements for suppliers, food companies and retailers in the EU. Within the framework of the project LIFE Clean Air Farming, nine standards certifying meat and dairy producing farms were selected and analysed for their relevance to clean air.

As the LIFE programme is not a research programme, the screening of the standards was based on the authors' many years of practical experience and on the findings of numerous studies. The focus of the screening was on air pollution in agriculture.

The screening matrix is divided into three parts:

- **Information on the standard organisation**
- **Standard policy and relation to air pollution control**
- **Standard criteria/procurement requirements of companies and their relevance to air pollution aspects**

The matrix was completed for each standard based on the criteria published on the internet and additional information provided by the standard organisations. The screening included national and international standards, regional (quality) standards and private labels.

STANDARD POLICY:

It was analysed whether standard organisations refer to the following topics:

- **Are technical terms used relating to climate protection, air pollution control, methane or ammonia?**
- **Is there a reference to greenhouse gas (GHG) emissions and air pollutants?**
- **Is climate protection/reduction of GHG emissions/ air pollution control addressed?**
- **Are overarching climate protection and air pollution control goals addressed?**

STANDARD CRITERIA OR PROCUREMENT REQUIREMENTS:

Criteria/requirements have been identified that contribute to a reduction of emissions in the main source areas for agricultural air pollutants:

- **Barn construction**
- **Nutrient management**
- **Storage and application of fertilisers**
- **Herd management**
- **Climate change**
- **General**

For each area that can contribute to air pollution control, key agricultural measures have been identified to provide more detailed recommendations. In addition, the assessment matrix provides information on the evaluation of the criteria and the requirements.

EVALUATION OF CRITERIA AND REQUIREMENTS

The evaluation of all criteria and requirements was carried out considering their weighting, effectiveness, transparency and verifiability.

Weighting (type of criterion):

A criterion can be mandatory (M), optional (O) or a recommendation (R).

Efficiency:

The possible effect of the criterion on air pollution control was evaluated.

- **1 = very effective, because the effect on the air pollution aspect (target) is high**
- **2 = effective, because the effect on the air pollution aspect is average**
- **3 = less effective, because the effect on the air pollution aspect is low**
- **4 = no assessment possible**

Transparency:

Whether a criterion is clearly defined or can be interpreted was assessed

- **1 = Criterion is clearly defined / standard has clear guidance for implementation**
- **2 = criterion is open to interpretation**

Verifiability:

The extent to which the criterion is verifiable was assessed.

- **1 = The implementation of the criterion can be verified without problems, as indicators or methods are available**
- **2 = The implementation of the criterion can be verified to a limited extent, as only documents and written evidence are required**
- **3 = No assessment possible**
- **4 = Verifiability requires special expertise of the auditor**

CONCLUSIONS

In the nine standards, a total of 117 criteria were identified that can contribute to air pollution control. The criteria were assigned to areas in which measures can be implemented that lead to the reduction of ammonia and methane emissions.

	International standards (n = 3)	Regional/national/European standards (n = 6)
Barn construction	2	5
Nutrient management	2	4
Storage and application of fertilisers	2	6
Herd management	0	1
Climate change	1	1
General (Environmental aspects)	1	0

Table 1: Number of standards that have criteria for the main source areas of agricultural air pollutants

	International standards (n = 3)	Regional/national/European Standards (n = 6)
Barn construction	0	0
Nutrient management	0	2
Storage and application of fertilisers	1	2
Herd management	0	0
Climate change	1	0
General (Environmental aspects)	1	0

Table 2: Standards that have at least one very effective criterion for the reduction of ammonia and/or methane emissions in the main source areas of agricultural air pollutants

Almost all screened standards have formulated criteria in the areas of barn construction, nutrient management and fertiliser storage and application (Table 1), although these criteria are very effective in reducing ammonia and methane emissions in very few standards (Table 2). Though some effective criteria could be implemented in the area of herd management, only one out of nine standards defined a criterion (Table 1).

The guidelines of the screened standards refer to CO_2 reductions on the farm in three of the nine standards, but none of the standards explicitly refers to the issue of air pollution control or the reduction of ammonia and/or methane emissions. We therefore see the need to formulate recommendations on how the issue of air pollution control, which has synergy effects with climate protection, can be successfully included in standards.

4. Recommendations of Effective Criteria for Air Pollution Control

The recommendations are oriented towards the main sources of agricultural air pollutants. In addition, it is emphasised that numerous measures for more air pollution control are also important contributions to protect the climate, soil and biodiversity.

The recommendations aim to avoid or reduce negative impacts on air pollution control and to promote the implementation of emission-reducing measures. They are relevant for all animal husbandry farms.

As the recommendations address regional, national and international standards, it was not possible to list the legal requirements for the various fields of action in this publication. As a rule, the recommendations go beyond the legal requirements. This „extra step" is urgently needed to achieve the goals of air pollution control and climate protection.

With these recommendations, the authors show a range of possible actions to reduce ammonia and methane emissions. In the medium term, standard organisations should consider all recommendations in their guidelines in order to achieve the reduction of emissions.

The authors are aware that the organisations will proceed step by step and choose different approaches, e.g.

- **Initially, make criteria or measures optional for a certain period of time.**
- **Create a selection of measures and define the minimum number that must be implemented.**
- **Award special points for the implementation of demanding measures.**

It is important that standard organisations and companies compare their criteria and requirements with the recommendations, identify the potential for improvement and take effective steps to seriously and effectively integrate the issue of air pollution control into their quality requirements.

The following recommendations aim to reduce ammonia and methane emissions on the farm and to provide more air pollution control.

4.1 Barn Construction and Storage of Farm Manure

LOW BARN TEMPERATURES

Low barn temperatures ensure a good barn climate and greater animal welfare through reduced heat stress for the animals and fewer harmful gases in the air.

The farm

implements this good practice in all barns by actively and/or passively cooling the barn air with at least one of the following measures:

- **Existing barns: Installation of sufficient fans in the barn, installation of active cooling by drawing air from the shade, sprinkler systems on the roof surface.**
- **New barn construction: thermally insulated roof, green roof, lighter roof and façade colours, ground heat exchanger as well as the above listed measures.**

STORAGE

Methane and especially ammonia emissions can be effectively prevented in the barn and during the storage of farm manure.

The farm

implements at least one of the following (a, b or c):

a) Rapid separation of urine and faeces

Urine and faeces should be separated as quickly as possible to avoid ammonia emissions. In cattle barns and pigsties, this can be ensured by the rapid drainage of urine.

- **In cattle barns, for example, this is achieved by a cross fall of 3% of the tread areas and a urine collection channel as well as a scraper that includes the channel. The scraper cleans every two hours during the animals' activity period. E.g. through floor grooves with drainage openings.**
- **In pigsties, e.g. by quickly draining the slurry from the warm area of the barn, e.g. by means of slider systems in the channel, channel flushing systems with water or reduction of the channel surface with V-shaped slurry drainage channels.**

b) Covered storage for farm manure

When storing slurryclosed outdoor slurry storage tanks should have at least a foil cover.

c) Slurry acidification

By lowering the pH, ammonia emissions from slurry are reduced. This acidification can take place in the barn, during storage or spreading, whereby acidification of the slurry in the barn has the highest reduction potential as it also decreases emissions of downstream areas.

The standard company

- **offers advice on the acidification of slurry for farms. Questions on occupational health and safety as well as on the authorisation of the storage of concentrated sulphuric acid should be answered.**

4.2 Spreading of Farm Manure

RAPID INCORPORATION OF FARM MANURE

From 2025, the incorporation of farm manure on uncultivated arable land within 1 hour is mandatory as part of the Fertiliser Ordinance in Germany. This has a positive air pollution control effect by reducing ammonia emissions. Farms should already start incorporating manure within 1 hour before 2025 in order to improve air quality as quickly as possible.

USE OF A BIOGAS PLANT

The standard organisation

- **promotes farm cooperations to bring the slurry to neighbouring biogas plants or so farms can build a joint plant. In this way, the manure can be better utilised and methane emissions reduced.**

The farm

If a biogas plant is present on the farm:

- **Ensures a continuous supply of slurry via the manure removal system into the digester**
- **Makes all digestate storage facilities gas-tight.**

GRAZING

Grazing enables the immediate separation of urine and faeces and the immediate infiltration of the urine into the soil. This results in fewer ammonia emissions. In addition, less manure is produced in the barn, reducing storage-linked methane and ammonia emissions. However, emissions are only reduced if the barn and yard are kept clean during the grazing period.

The farm

- **Increases the grazing time if the operational conditions allow it. In order to achieve a significant effect on air pollution control, the animals should be on the pasture for at least six hours a day, 120 days a year. This applies to farms where grazing is carried out or possible.**

4.3 Nutrient Management

REDUCTION OF MINERAL FERTILISERS

The standard company

Requires nutrient balances and provides a recognised method for their compilation.

The farm

- **Carries out regular nutrient analyses to ensure that fertiliser is applied in line with plant requirements. This can reduce the amount of synthetic nitrogen fertiliser used.**

- **Draws up a humus balance for arable land and has a humus analysis carried out every six years. The humusbalancemustneverbenegative.InGermany,the balance method recommended by the LFL is used: http://www.lfl.bayern.de/iab/boden/031164/**

LANDLESS LIVESTOCK PRODUCTION

Good examples:

EU-Eco-regulation: landless livestock production, by which the operator of the livestock does not manage agricultural land and/or has not established a written cooperation agreement with another operator according to Article 3(3) is prohibited. (889/2008, page 11).

Naturland standard: Intensification beyond a tolerable extent (over-fertilisation) has to be avoided. If the farm has its own livestock, the amount of manure bought must not exceed a total of 1.4 DU/ha (dung units per hectare), whereby the manure has to be distributed evenly according to the crop rotation over the areas cultivated. (Naturland standards on production 05/2020, page 15).

The farm

- **has no more than 2 LU/ha (livestock units per hectare) in order to avoid a nitrogen surplus on the farm and to achieve a stocking density of 1.4 LU/ha of forage area in the long term. Landless livestock production is not permissible.**

CULTIVATION OF LEGUMES AND CATCH CROPS

Good example:

Naturland Richtlinien: ... a minimum of one fifth of the crops on the arable land has to be legumes (Naturland standards on production 05/2020, page 18). Fields that are expected to lie fallow for more than 12 weeks during the vegetation period have to be cultivated with green manure (Naturland standards on production 05/2020, page 28).

The cultivation of legumes fixes nitrogen in the soil and therefore leads to a reduced consumption of synthetic nitrogen fertiliser. This reduced consumption leads to reduced ammonia emissions on the field, as less nitrogen remains unused on the field. In addition, the soil structure is improved and humus is built up.

The farm

- **Cultivates diverse catch crop mixtures with a proportion of legumes - on land that lies fallow for at least 12 weeks in the period from April to January. This allows the residual nitrogen to be bound and the nitrogen efficiency of the entire system to be increased.**

- **Grows legumes or mixtures containing legumes on at least 10% of the utilized agricultural area in order to integrate legumes more strongly into the crop rotation on the farm.**

4.4 Herd Management

INCREASE LIFETIME DAILY YIELD

The most common causes of culling dairy cows still are fertility problems, udder diseases, metabolic disorders and diseases of the limbs and hooves. If the aim is to increase the lifetime daily yield of dairy cows, these disorders and diseases should be avoided. By extending the lactation period and the calving interval, less offspring/less unproductive animals are needed in the herd. This results in less animals that emit and consequently reduces greenhouse gas emissions in general and methane emissions per litre of milk in particular. Methane emissions can also be reduced through a selection of offspring for calf fattening. To ensure this, more use of farm advisors should be made.

The farm

- **Proves that advice has been taken, at least every two years, on increasing the lifetime daily yield of the dairy cows.**

- **Documents the productive lifetime of its dairy herd (average daily production of the herd per year) on a permanent basis and strives for continuous improvement.**

FEEDING

N-adapted feeding to the growth and production phases of pigs results in reduced excretion of nitrogen (N). This can be achieved by multi-phase feeding and by adjusting the crude protein content.

In cattle, care must be taken to achieve a balance between the crude protein content, the degradability of the crude protein and the energy content, as this reduces the amount of nitrogen in the urine.

The standard company

- **Increases its offer for advice on N-adapted feeding.**

The farm

- **Participates in a training on N-adapted feeding at least every two years and provides evidence of this.**

5. Recommendations for Food Retailers and Food Companies

Food retailers and companies should...

Suppliers and products

- Move away from regulations on visual faults of agricultural products, as there are often no shortcomings in terms of nutritional quality or hygiene. In this way, food waste can be counteracted and a contribution made to air pollution control.
- Pay a fair share of the producers' costs for an improved environment and air quality as well as social responsibility.
- Do not engage in price dumping at the expense of environmental and social standards.

Information and communication

- Keep up to date of new findings on air pollution control in agriculture and take this knowledge into account in company policy and decision-making.
- Promote projects/studies that analyse and document cost savings from air pollution control measures.
- Present the direct and indirect effects on air pollution control in a transparent manner. Communication of air quality measures should be fact-based and appropriate.
- Influence policy makers and the industry to review current quality guidelines for their impact on air quality and to revise guidelines that have negative impacts.
- Use the various communication possibilities to inform and sensitise actors in the food industry (business partners, suppliers, industry associations, etc.) and consumers about the importance of air pollution control for the production of food.

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clean air farming

ABOUT CLEAN AIR FARMING

With our EU-funded project „Clean Air Farming“ (LIFE17 EIG/DE/610), the Lake Constance Foundation and its partners are aiming to reduce ammonia and methane emissions caused by agriculture. To protect biodiversity and health, we are strengthening the competences within agriculture and the food industry, and promoting technical, legal and political solutions. The project started in August 2018 and will end in January 2022.

For more information, please visit:
www.clean-air-farming.eu

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