

Republic of Latvia  
Cabinet  
Regulation No. 829  
Adopted 23 December 2014

## **Special Requirements for the Performance of Polluting Activities in Animal Housing**

*Issued pursuant to  
Section 24.<sup>2</sup>, Paragraph two  
of the Law On Pollution*

### **I. General Provisions**

1. This Regulation prescribes special requirements for the performance of polluting activities in animal housing.
2. Only the requirements of Sub-paragraph 4.4.1 of this Regulation shall be applied to an animal housing in which less than 10 animal units are located or, if the animal housing is located in a highly vulnerable zones – less than five animal units.
3. The following terms are used in this Regulation:
  - 3.1. solid manure – manure with a mixture of litter and feedingstuff leftovers where the content of dry matter is more than 15 per cent;
  - 3.2. semi-liquid manure – manure with a mixture of litter, feedingstuff leftovers or water where the content of dry matter is from 10 to 15 per cent;
  - 3.3. liquid manure – manure with a mixture of water where the content of dry matter is from 2 to 10 per cent;
  - 3.4. urine – liquid waste of livestock and liquid, which flows out from solid manure;
  - 3.5. silage juice – liquid, which flows out from silage during preparation and storage thereof;
  - 3.6. animal housing – any building or part thereof or environment or place delimited under open-air conditions, where livestock are hold permanently or temporarily, including the necessary auxiliary facilities and subsidiary structures;
  - 3.7. deep cattle-shed – animal lodging where solid manure is accumulated right there in the cattle-shed for at least half-year;
  - 3.8. manure storage facility – a structure for accumulation of livestock manure until their use for field fertilisation or other type of use;
  - 3.9. lagoon-type manure storage facility – a type of manure storage facility characterised by a form of semi-embedded or embedded construction pit, the walls and base of which are covered with a waterproof material.

### **II. Requirements for Restriction and Control of Pollution**

4. The following requirements shall be determined for the collection, drainage and storage of livestock manure:
  - 4.1. collection and drainage systems in animal housing shall be built from a waterproof material, which is resistant to the effects of equipment used in animal housing;

4.2. the floor and walls of the storage facility shall be built from a waterproof material, which is resistant to the effects of the equipment used;

4.3. an appropriate system for the collection and drainage of liquid manure or urine to the relevant storage facilities shall be established in animal housing;

4.4. solid manure shall be stored:

4.4.1. by the animal housing until further use thereof, if less than 10 animal units are located at the animal housing or, if it is located in a highly vulnerable zone - less than five animal units. The floor of manure storage area shall be arranged in accordance with the requirements of Sub-paragraph 4.6.6 of this Regulation. urine shall be accumulated in a specially equipped container;

4.4.2. in a manure storage facility which is built of concrete, or on area covered with concrete, or in a specially arranged area with a liquid-proof base, if more than 10 animal units are located at the animal housing or, if it is located in a highly vulnerable zone - more than five animal units. urine shall be accumulated in a specially arranged storage facility (container);

4.4.3. in a deep cattle-shed. Livestock manure accumulated in a deep cattle-shed outside animal housing, if the content of dry matter of at least 45 per cent is ensured, shall be stored for not more than 24 months. A livestock manure storage area shall be arranged in accordance with the requirements of Sub-paragraphs 4.6.3., 4.6.4. and 4.6.5. of this Regulation and the base shall be built from waterproof material;

4.4.4. in exceptional cases outside the animal housing for not more than five months – from 1 May until 30 September – or if renovation or reconstruction of a manure storage facility is carried out. Temporary storage area shall be arranged in conformity with the requirements of Sub-paragraph 4.6. of this Regulation;

4.5. in order to store solid manure outside animal housing:

4.5.1. an operator shall submit an application to the regional environmental board of the State Environmental Service (hereinafter – board) in which the operator substantiates an exceptional case referred to in Sub-paragraph 4.4.4. of this Regulation. A cadastral designation of the land unit shall be indicated in the application and conformity of the place for storage of solid manure with the requirements of Sub-paragraph 4.6 of this Regulations shall be certified. A block map of the Rural Support Service (in scale 1:5000 or in scale 1:10 000, not older than five years), where intended place for solid manure storage is marked, shall be appended to the application. If the operator carried out renovation or reconstruction of the storage facility, the time for work performance shall be indicated in the application;

4.5.2. the board shall co-ordinate the place for solid manure storage outside the animal housing on the basis of the submitted documents. If, upon performance of an examination, the State environmental inspector detects non-conformity of the place for solid manure storage or type of storage with the requirements of Sub-paragraph 4.6. of this Regulation and the operator has not performed measures within a time period laid down by the board for the rectification of these non-conformities, the board shall cancel co-ordination of the place for solid manure storage. A duty of the operator is to remove livestock manure stored in a non-conforming place and to ensure management thereof in conformity with the requirements of this Regulation;

4.6. when arranging solid manure storage area outside animal housing, the following conditions shall be taken into account:

4.6.1. such content of dry matter (above 30 per cent) shall be ensured for livestock manure so that it could be arranged in a pile and urine would not seep therefrom;

4.6.2. the quantity of solid manure in a storage area shall conform to the amount of livestock manure to be worked into the relevant field in one year;

4.6.3. livestock manure storage area shall not be established in a place where the slope gradient is more than five degrees in order for relief not to facilitate formation of surface run-off and release;

4.6.4. livestock manure storage area shall not be established in wetlands and flooded territories;

4.6.5. livestock manure storage area shall be arranged not closer than 50 m from surface water bodies and from a well from which water for the household is being taken, or not closer than 30 m from the baulk of a collecting ditch and a structure of the amelioration system (from a well, surface run-off collector);

4.6.6. a base of livestock manure storage area shall be made of waterproof material or at least 30 centimetres thick absorbent material (straw, peat, chips) shall be arranged so that it could catch the liquid in manure and protect against run-off. The base of absorbing material shall be arranged in width of two metres around the perimeter of the livestock manure pile. The livestock manure shall be covered with protective layer of at least 2 centimetres thick absorbent material (straw, peat, chips) or waterproof material in order to limit exposure to atmospheric deposition, to prevent run-off and evaporation of volatile substances;

4.6.7. livestock manure storage area shall not be established at the same place, if at least three years have not passed.

5. The following requirements shall be specified for the manures storage facilities:

5.1. the volume of the storage facility for the storage of livestock manure and silage juice shall ensure the accumulation thereof for at least eight months. If the quantity of livestock manure exceeds the volume of the storage facility referred-to, the operator shall transfer the relevant quantity, which exceeds the volume of the storage facility, to another person;

5.2. urine from open and closed storage facilities of solid manure shall be collected in a separate storage facility, the capacity of which ensures accumulation there for at least eight months;

5.3. storage of silage juice in a urine or liquid manure storage facility shall be permissible if the amount of silage juice does not exceed five per cent from the amount of liquid manure. Discharge of silage juice in the environment shall not be permissible;

5.4. the capacity of manure storage facility and urine accumulation container shall be calculated in accordance with Annex to this Regulation;

5.5. the structures referred to in Sub-paragraphs 5.1. and 5.2. of this Regulation shall be built in conformity with the laws and regulation regarding construction;

5.6. livestock manure, including urine, shall be used in accordance with the regulatory enactments regarding the protection of water and soil from pollution with nitrates caused by agricultural activity.

6. The following requirements shall be determined for the storage of silage in a trench and piles, as well as use thereof:

6.1. the base of a silage trench shall be made of a waterproof material and resistant to the effects of silage and potential mechanical damage during filling in or emptying;

6.2. the base of a silage trench shall be made with a slope gradient towards the direction of unloading of silage. A cross-channel for drainage of silage juice into an accumulation tank shall be arranged in the lowest part of the trench in the slope gradient;

6.3. when storing silage in piles on a field, a film or absorbing material layer shall be spread under the pile. The spread film shall be connected with the film covering the pile or the pile shall be covered with absorbing material layer;

6.4. a silage pile shall be formed at sites where the terrain does not facilitate the formation of surface run-off and the run-off of silage juice. The silage pile shall be placed in

accordance with the requirements laid down in the laws and regulations regarding environment protection in relation to protective zones of surface water objects, but not closer than 30 m from a river, brook, ditch, wells of amelioration systems or a well, from which water for the household is being taken;

6.5. if a silage pile is formed at the same place every year, the base of the pile shall be covered with concrete. The base for a field shall be formed with a slope gradient towards the part of the tank for collection of silage juice. A small ditch for the collection of silage juice or an edge with a height of 0.2-0.3 m shall be formed around the field of the silage pile;

6.6. silage juice shall not be spread on the field during the time period from 1 December to 1 March, as well as on the frozen, wet or snow covered soil.

7. The following requirements shall be determined for the storage of liquid manure, semi-liquid manure and urine:

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;

7.3. upon accumulating liquid manure in a lagoon-type manure storage facility:

7.3.1. the level of the base of the storage facility shall be at least 50 cm above the maximum groundwater level. If necessary, the groundwater level shall be lowered by building a drain in the base;

7.3.2 the base and walls of the storage facility shall be sealed with a special waterproof material, which is intended for the storage of liquid manure and the edges of which are fixed at the upper edge of the storage facility;

7.3.3. the storage facility shall be delimited with a fencing.

8. When designing a new animal housing, building of a manure storage facility or an equipment for further processing of manure shall be intended in the building design. When rebuilding an animal housing put into service, where necessary, it may be intended to build a new storage facility or re-build existing one for manure storage, or to build equipment for further processing of manure. The capacity of manure storage facility shall ensure storage of livestock manure for at least eight months.

9. In animal housing where solid manure is accumulated in a deep cattle-shed, and in a farm where meat livestock, sheep and animals of wild species intended for the acquisition of production are permanently hold under open air conditions in a delimited environment, a manure storage facility is not necessary.

### **III. Monitoring Performed by Operator**

10. State environmental inspectors shall control the compliance with the requirements of this Regulation.

11. An operator shall indicate data in an inventory journal (on paper or in electronic form) referred to in Paragraph 12 of this Regulation. The inventory journal shall be presented for examination upon the request of the State environmental inspector. The operator shall keep the relevant information for at least three years.

12. The following shall be indicated in an inventory journal:

12.1. the date when the covering of the floating covering layer (if any) was supplemented;

12.2. the date when livestock manure, fermentation residues or silage juice was spread on a field;

12.3. the date when livestock manure, fermentation residues or silage juice was transferred to another natural person or legal person, indicating the amount and address of a natural or legal person;

12.4. the date when solid manure was placed in a storage place outside animal housing.

13. The operator who manages lagoon type storage facility where drills or drain system with monitoring well is arranged, the following requirements shall be complied with:

13.1. during exploitation of manure storage facility the measurements of groundwater quality shall be carried out at the observation (monitoring) sites once a year before emptying of the storage facility, and the results of analysis shall be submitted to the relevant board within a month after receipt thereof;

13.2. such parameters as total nitrogen ( $N_{kop.}$ ) and certain nitrogen compounds (nitrates, nitrites and ammonium), as well as total phosphorus ( $P_{kop.}$ ) shall be determined in groundwater. Water pH shall be determined during sample taking on site. Limit values laid down in the regulations regarding quality of surface and groundwater shall be taken into account in quality assessment of groundwater.

14. Groundwater quality observation (monitoring) system shall be arranged by a merchant to whom a licence of the State Environmental Service for the use of subsoil is issued.

15. Groundwater samples shall be taken and analysis shall be carried out by an accredited laboratory.

16. When designing a new lagoon type storage facility, it shall be intended to arrange a shallow groundwater quality observation (monitoring) system. In the direction of potential groundwater flow, but not further than 10 metres from a storage facility, at least one drill with a filter shall be arranged up to three metres deeper than the base of the storage facility. The drill may be replaced with a drain system which is arranged under the base of the storage facility so as it is possible to take water samples therefrom, as well as discharge of drain collector into some watercourse, ditch or water reservoir shall be ensured in conformity with the laws and regulations regarding building regulations regarding hydrotechnic and amelioration structures.

#### **IV. Closing Provisions**

17. If a manure storage facility or manure storage place fails to comply with the requirements of this Regulation, until 1 July 2015 the operator shall submit a plan of measures to the board in order to ensure the compliance of livestock manure storage with the requirements of this Regulation.

18. The board shall take a decision to accept the plan of improvements within one month after receipt of the plan of improvements referred to in Paragraph 17 of this Regulation and shall inform the operator thereof in writing. If the plan of improvements does not ensure the fulfilment of the requirements of this Regulation, the board shall take a decision to refuse to approve the plan.

19. Storage of solid manure is permissible next to the animal housing, by arranging the base of the livestock manure storage area in accordance with the requirements of Sub-paragraph 4.6.6. of this Regulation and by ensuring accumulation of urine in a specially equipped container, or outside animal housing for 10 months a year in accordance with the requirements of Sub-paragraph 4.6. of this Regulation:

19.1. until 31 December 2016 - in the animal housing where there are more than 15 animal units, but in highly vulnerable zones – more than 10 animal units;

19.2. until 31 December 2017 - in the animal housing where there are from 10 to 15 animal units, but in highly vulnerable zones – from 5 to 10 animal units.

20. If a manure storage facility or urine accumulation container has been built in the animal housing before coming into force of this Regulation, the capacity of solid manure storage facility shall ensure accumulation of manure for at least six months, but the capacity of liquid and semi-liquid manure, as well as urine storage facility – for at least seven months.

21. Cabinet Regulation No. 628 of 27 July 2004, Special Environmental Requirements for Performance of Polluting Activities in Animal Housing, (*Latvijas Vēstnesis*, 2004, No. 120., 159; 2007, No. 72; 2008, No. 167; 2011, No. 75) is repealed.

### **Informative Reference to European Union Directive**

This Regulation contains legal norms arising from Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources.

Prime Minister

Laimdota Straujuma

Minister for Agriculture

Jānis Dūklavs

## Calculation of Capacity of Manure Storage Facilities

1. The methodology is intended for the calculation of capacity of solid manure, semi-liquid manure, liquid manure and urine storage facilities.

2. The amount of solid manure and (or) liquid manure during one year shall be calculated in conformity with the norms included in Table “Amount of Acquisition of Livestock Manure and Composition Thereof” of Annex 2 to the Regulation Regarding Protection of Water and Soil from Pollution with Nitrates Caused by Agricultural Activity by using the following formula:

$$M_g = \sum_{k=1}^n m_k \cdot z_{dz}, \text{ where}$$

$M_g$  – the amount of livestock manure obtained in a housing, t/per year;

$m_k$  – the amount of livestock manure from one animal, t/per year;

$z_{dz}$  – the number of animals in one group;

$n$  – the number of animal groups.

Note. If animals, for example cows, are let go to pasture or regular walks, the amount of livestock manure is less during one year accordingly.

3. The amount of livestock manure, which actually is accumulated during one year, shall be calculated by using the following formula:

$$M_f = M_g \pm M_{tr}, \text{ where}$$

$M_f$  – actually accumulated amount of livestock manure, t/per year;

$M_{tr}$  – the amount of livestock manure which is stored at other place or is delivered for storage from other housings, t/per year. If such transportation of livestock manure is not carried out, then  $M_{tr} = 0$ .

Note. Taking into account that it is possible to transfer livestock manure acquired in the animal housing to other operator or purchase from other operator, the amount of livestock manure, which is to be accumulated at the storage facility of the relevant animal housing during one year, may differ from the amount of livestock manure which is acquired at the relevant animal housing during one year.

4. The capacity of storage facility, when acquiring solid manure, shall be calculated by using the following formula:

$$V_c = \frac{k_r \cdot T_{g(k)} \cdot M_f}{12 \cdot \zeta_c}, \text{ where}$$

$V_c$  – necessary capacity of the storage facility, m<sup>3</sup>;

$k_r$  – reserve coefficient,  $k_r = 1.2-1.3$ ;

$T_{gl.k}$  – normative duration of livestock manure accumulation. For solid manure  $T_{gl.k}$  is 8 months;

$M_g$  – the amount of livestock manure obtained in a housing, t/per year;

$\zeta_c$  – volume mass of solid manure. For fresh solid manure  $\zeta_c$  is from 0.65 to 0.75 t/m<sup>3</sup>, but after storage of 2–6 months – 0.7–0.8 t/m<sup>3</sup>.

5. The amount of urine to be accumulated which is flowing out of solid manure and is supplemented with sewage and silage juice (if it is lead into the storage facility):

$$V_v = \frac{k_r \cdot T_{gl.v} \cdot \lambda_v \cdot M_f}{12 \cdot \zeta_v} + V_p, \text{ where}$$

$V_v$  – the amount of urine to be accumulated, m<sup>3</sup>;

$T_{gl.v}$  – normative accumulation duration of urine,  $T_{gl.v} = 8$  months;

$\lambda_v$  – a part of urine amount, by calculating from the mass of the acquired livestock manure;  $\lambda_v = 0.25$ –0.50;

$\zeta_v$  – the volume mass of urine, t/m<sup>3</sup>;  $\zeta_v = 1.0$ –1.05 t/m<sup>3</sup>;

$V_p$  – the amount of additional water which may flow into urine or liquid manure, m<sup>3</sup>. It forms from the water used for cleaning of premises, drinking water and silage juice splashed out by animals (it is allowed to input up to 5 % of the total amount of urine or liquid manure).

$$V_p = \frac{T_{gl.v} \cdot \sum_{i=1}^n q_i \cdot z_{dz_i}}{12} + V_s, \text{ where}$$

$q$  – water entered into livestock manure, including into urine, m<sup>3</sup>/animals per year (Table 1);

$z_{dz}$  – the number of animals in one group;

$n$  – the number of animal groups;

$V_s$  – the amount of silage juice, which is entered into urine or liquid manure, m<sup>3</sup> (Table 2).

Table 1

**Amount of water used for cleaning of premises and drinking water, which enters into livestock manure and urine m<sup>3</sup>/animals per year**

No.	Animal group	Amount of water
1.	Cows, not tied (acquire urine)	4.3
2.	Cows, tied (acquire solid manure)	2.7
3.	Heifers	0.5
4.	Bulls	0.45
5.	Sows in farrow	0.15
6.	Sows with piglets	0.55
7.	Separated piglets	0.05
8.	Pigs for fattening	0.12



**Silage juice discharge, m<sup>3</sup>, by counting per one ton of mass of preservation**

No.	Type of grass plant mass to be preserved	Dry matter content, %	Juice discharge, m <sup>3</sup> /t
1.	Freshly cut grass	17	0.175
		20	0.100
2.	Dried grass	25	0.035
		30	0.00
3.	Corn	15	0.28
		30	0.00

6. The capacity of storage facility for liquid and semi-liquid manure shall be calculated by using the following formula:

$$V_s = \frac{k_r \cdot T_{gl.s}}{12 \cdot \zeta_k} \cdot M_f + V_p, \text{ where}$$

$V_s$  – necessary capacity of liquid and semi-liquid manure storage facility, m<sup>3</sup>;

$k_r$  – reserve coefficient,  $k_r = 1.2-1.3$ ;

$T_{gl.s}$  – normative accumulation duration of manure;  $T_{gl.s} = 8$  months;

$\zeta_k$  – manure volume mass. Semi-liquid manure – 0.85–0.95 t/m<sup>3</sup>, liquid livestock manure – 1.01–1.02 t/m<sup>3</sup>, pig manure – 1.05–1.07 t/m<sup>3</sup>.

Minister for Agriculture

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