

## **Regulation Regarding Protection of Water and Soil from Pollution with Nitrates Caused by Agricultural Activity**

*Issued pursuant to  
Section 11, Paragraph two, Clause 3 and Section 18, Paragraph two, Clause 2 of  
the Law On Pollution*

### **I. General Provisions**

1. This Regulation prescribes:

1.1. the requirements for the protection of water and soil from pollution with nitrates caused by agricultural activity;

1.2. the highly vulnerable zones to which increased requirements apply for the protection of water and soil from pollution with nitrates caused by agricultural activity (hereinafter – highly vulnerable zones), the borders and criteria for the designation thereof;

1.3. the procedures for the management of highly vulnerable zones.

2. The following terms are used in this Regulation:

2.1. freshwater - naturally occurring water having a low concentration of salts, which is often suitable for abstraction and treatment to produce drinking water;

2.2. nitrogen compound – any nitrogen-containing substance except for gaseous molecular nitrogen;

2.3. fertiliser – any substance containing a nitrogen compound or nitrogen compounds which is used on land to enhance growth of vegetation (including livestock manure, the residues from fish farms, sewage sludge and biogas plant fermentation residues - digestate (hereinafter - fermentation residues));

2.4. mineral fertiliser – any fertiliser which is manufactured by an industrial process, containing plant nutritional elements in the form of an easily soluble non-organic compound, as well as organic compounds acquired by means of chemical synthesis;

2.5. livestock – animals kept for profit or other farming purposes;

2.6. livestock manure – waste products excreted by livestock (solid excrement and urine (bodily fluid)), mixed with or without litter and leftover feed and water, including in processed form;

2.7. land application – the addition of materials to land by spreading on the surface of the land, injection into the land placing below the surface of the land or mixing with the surface layers of the land;

2.8. eutrophication – the enrichment of water by nitrogen compounds, causing an accelerated growth of algae and higher forms of plant life to produce an undesirable disturbance to the balance of organisms present in the water and to the quality of the water concerned;

2.9. pollution with nitrates – the discharge, directly or indirectly, of nitrogen compounds from agricultural sources into the aquatic environment, the results of which are so

as to cause hazards to human health, harm to living resources and to aquatic ecosystems, damage to amenities or interference with other legitimate uses of water;

2.10. animal unit – a specific animal which produces 100 kilograms of nitrogen with livestock manure, in a year.

## **II. Requirements for the Protection of Water and Soil from Pollution with Nitrates Caused by Agricultural Activity**

3. In order to ensure the protection of water and soil from pollution with nitrates caused by agricultural activity, the operator shall ensure the implementation of the following requirements:

3.1. fertilisers:

3.1.1. shall not be spread upon frozen, water saturated or snow-covered soil;

3.1.2. shall be spread on flood-lands and areas under the threat of flood only after the season of possible floods has passed. Mineral fertilisers shall only be sown on areas during the crop vegetation period;

3.1.3. shall not be spread in locations where it is prohibited in accordance with the laws and regulations regarding the protection zones or specially protected territories;

3.2. unless composted in advance, faecal residues from septic and dry toilet tanks, by-products from the food industry and waste, or other by-products of organic origin from manufacturing (residues from fish-farms) and waste shall not be used as fertiliser. Sewage sludge and the compost thereof shall be used in accordance with the laws and regulations regarding the use, monitoring and control of sewage sludge and the compost thereof;

3.3. when storing and using livestock manure and fermentation residues, observe the following requirements:

3.3.1. livestock manure shall be stored inside and near animal holdings in accordance with the laws and regulations regarding special environmental requirements for performing polluting activities in animal holdings;

3.3.2. the amount of nitrogen applied with livestock manure in one hectare of agricultural land shall not exceed 170 kilograms per year, which conforms to 1.7 animal units;

3.3.3. to avoid exceeding the requirement laid down in Sub-paragraph 3.3.2. of this Regulation regarding the amount of nitrogen in one hectare of agricultural land, the amount of livestock manure and fermentation residues permitted for application shall be calculated based on the amount of nitrogen in livestock manure and fermentation residues. The area of agricultural land required for the application of livestock manure shall be calculated in compliance with Annex 1 to this Regulation. The amount of nitrogen applied shall be calculated in conformity with the nitrogen content in livestock manure indicated in Annex 2 to this Regulation or in accordance with the analysis results of livestock manure or fermentation residues which have been issued by an accredited laboratory in the field of fertilisers. Livestock and fermentation residue samples shall be taken before emptying of livestock manure or fermentation residue reservoir.

3.3.4. if the amount of nitrogen produced on the farm with livestock manure and fermentation residues exceeds 170 kilograms per hectare of agricultural land in a year, the operator shall prove with documents the transfer of the residue of livestock manure and fermentation residues produced to other farms or the use thereof in a different manner;

3.3.5. the operator shall register and record any applied, purchased, sold or otherwise used amount of livestock manure and fermentation residues and store the registration documents for at least three years;

3.3.6. solid manure and fermentation residues shall be incorporated into the ground within 24 hours after spreading, whereas liquid manure and urine – within 12 hours. Liquid manure, fermentation residues and urine shall not be integrated, if they are used as additional fertiliser;

3.3.7. in autumn liquid livestock manure, fermentation residues and urine shall be used for the fertilization of a field only together with harvest-leftovers (stubble, chopped straw, grassroot mass), by incorporating them into the soil by means of the decortication or ploughing method, or other equal method;

3.3.8. when building a new reservoir or re-building one for the storage of fermentation residues, it shall be intended that the capacity thereof provides for accumulation of the fermentation residues for at least eight months;

3.4. at sites where the groundwater level rises up to the surface of the ground, mineral fertilisers shall be used only after the subsidence of the groundwater level and the drying up of the field;

3.5. nitrogenous mineral fertiliser shall be used in basic fertiliser shortly before sowing or planting.

### **III. The Borders of Highly Vulnerable Zones, Criteria for the Designation and Procedures for the Management Thereof**

4. The borders of the highly vulnerable zones are the administrative zone borders of the municipalities of Dobele, Auce, Tērvete, Jelgava, Ozolnieki, Bauska, Vecumnieki, Iecava, Rundāle, Babīte, Mārupe, Olaine, Īekava, Baldone, Salaspils, Stopiņi, Ropāži, Garkalne, Carnikava, Saulkrasti, Sēja, Ādaži, Inčukalns, Sigulda, Krimulda and Mālpils, except the rural territory (or *pagasts*) of Valle and rural territory (or *pagasts*) of Kurmene of Vecumnieki municipality, the rural territory (or *pagasts*) of Lēdurga of Krimulda municipality, as well as the administrative territory borders of the cities of Jelgava, Rīga and Jūrmala.

5. The zones shall be recognised as highly vulnerable, if one of the following criteria for determining the pollution with nitrates is established:

5.1. the nitrate concentration in surface freshwaters, especially those used or intended to be used for the acquisition of drinking water, is 50 mg/l or more;

5.2. the nitrate concentration in groundwater is 50 mg/l or more;

5.3. inland waters of natural origin and coastal waters have become eutrophic;

5.4. during the monitoring of nitrates in surface water and groundwater, the information acquired confirms that the relevant zones comply or may comply with the criteria laid down in Sub-paragraphs 5.1., 5.2. and 5.3 of this Regulation, if the management procedures laid down in Paragraph 3 of this Regulation are not implemented.

6. In addition to the requirements referred to in Paragraph 3 of this Regulation, the following requirements shall be observed in highly vulnerable zones:

6.1. during the time period from 20 October until 15 March no livestock manure and fermentation residues shall be spread, but in respect of grass - from 5 November until 15 March;

6.2. mineral fertilizers containing nitrogen shall not be sown from 15 October until 15 March, in respect of other crops and grass - from 15 September until 15 March;

6.3. when using fertilisers, the maximum permissible norms of nitrogen for cultivated plants laid down in Annex 3 shall not be exceeded;

6.4. the operator managing the agricultural land with an area of 20 hectares and more, and grows vegetables, potatoes, fruit trees or fruit bushes in an area of three hectares and more, shall document the field history for each field and shall keep field history documentation for at least three years and, if using fertilisers:

6.4.1. each year in accordance with Chapter I of Annex 4 to this Regulation, shall prepare a crop fertilisation plan for each field not later than until the sowing or planting of a crop, for perennial sowings and plants - until the start of vegetation;

6.4.2. when preparing a crop fertilisation plan:

6.4.2.1. the data of the agrochemical research (mapping) of the soil or the data of agrochemical service providers shall be used, which are based on the results of soil analyses in an accredited laboratory. The data of the agrochemical research (mapping) of the soil and results of soil analyses may not be older than five years and aforesaid data shall be kept for at least five years;

6.4.2.2. when determining the necessity of nitrogen for a cultivated plant, the planned yield and its quality, nitrogen (nutrients) removal for the relevant plant, content of organic substance in soil, utilization coefficients of the livestock manure applied in the previous year, integrated after-harvest residues and green fertiliser, as well as post-impact of precrop (papilionaceous) and data regarding the mineral nitrogen content in soil, upon renewal of crop vegetation, if such data are at the disposal of a farmer; shall be taken into account;

6.4.3. all mineral fertilisers acquired on the farm shall be registered and documented, indicating the name, basic components and amount of the mineral fertiliser;

6.4.4. each year not later than until 15 May, shall submit a summary of the fertilisation plan for the cultivated plants to the State Plant Protection Service for the current year's harvest in accordance with Chapter II of Annex 4 to this Regulation;

6.5. in autumn and winter period at least 50 % of the agricultural land on a farm shall be occupied by grass areas (perennial grasses, winter crops, winter rapeseed, non-processed stubble-field, vegetable, beet for feed, sugar-beet stems (leaves)), except farms, where potatoes, fruit trees, berry bushes and vegetables are grown in at least 50 % of total area of sowings or plants;

6.6. on a slope:

6.6.1. if the slope gradient is from 5 to 7 degrees and the length of the slope exceeds 100 metres in the direction of a watercourse or water reservoir, fertilisers shall be incorporated directly into the soil after spreading;

6.6.2. if the slope gradient is from 7 to 10 degrees and the length of the slope exceeds 100 metres in the direction of a watercourse or water reservoir, the soil shall be handled across the slope direction and fertilisers shall be spread only if a field is covered with plants or if fertiliser is immediately incorporated directly into the soil;

6.6.3. where there is a bare fallow and where the gradient of the slope is more than 7 degrees, it is forbidden to spread and incorporate fertilisers;

6.6.4. where a the slope gradient is more than 10 degrees and the length of the slope exceeds 100 metres towards the direction of a watercourse or water reservoir, it is forbidden to spread and incorporate fertilisers.

#### **IV. Competence of Bodies**

7. An inspector of the State Plant Protection Service and an inspector of the State Environment Service has the right to be on the area of land of the land owner or user, informing the land owner or user accordingly, in order to control the observance of the requirements referred to in this Regulation according to the competence thereof.

8. The monitoring of nitrate in surface water and groundwater required for the implementation of the requirements of this Regulation shall be included in the monitoring programme of the

water state, which is a component of the Environmental Monitoring programme and is prepared in accordance with the laws and regulations regarding the monitoring of surface water, groundwater and protection zones and the formulation of a monitoring programme.

9. In order to evaluate the eutrophication of surface freshwaters and river estuaries (transitional waters), information which has been acquired when implementing the State Monitoring programme in compliance with the Environmental Protection Law shall be used.

10. The Ministry of Agriculture shall:

10.1. prepare and place the codes of good agricultural practice on the ministry's website and inform the European Commission thereon;

10.2. in co-operation with the Ministry of Environmental Protection and Regional Development, at least once every four years, evaluate the effectiveness of the management measures referred to in this Regulation, based on the results obtained when performing nitrate monitoring of surface water and groundwater, as well as the information regarding the implementation of the requirements of this Regulation obtained during the inspections;

10.3. according to its competence, provide information to the State limited liability company "Latvian Environmental, Geological and Meteorological Centre" (hereinafter – Centre) necessary in order to prepare the report for the European Commission, referred to in Sub-paragraph 16.2 of this Regulation.

11. State Plant Protection Service shall:

11.1. monitor and control the implementation of the requirements referred to in Sub-paragraphs 3.1., 3.3.2., 3.3.3., 3.3.4., 3.3.6., 3.3.7. and 3.4. and Paragraph 6 of this Regulation;

11.2. implement the monitoring of mineral nitrogen in soils;

11.3. establish and maintain databases on crop monitoring in the State information system regarding:

11.3.1. farms in highly vulnerable zones;

11.3.2. the monitoring of mineral nitrogen in soils;

11.4. upon renewal of crop vegetation, shall place information on its website regarding the monitoring of the content of nitrogen in soil and provide recommendations for adjusting the dose of additional nitrogen fertiliser.

12. Based on the summaries of the crop fertilisation plans, which have been submitted to the State Plant Protection Service in accordance with Sub-paragraph 6.4.4. of this Regulation, the following information shall be included in the database on crop monitoring in the State information system regarding farms in highly vulnerable zones:

12.1. the name of the legal person or the given name and surname of the natural person;

12.2. the actual address of the farm (land);

12.3. the total area of agricultural land;

12.4. the number of livestock (according to groups of animals and the methods of keeping thereof);

12.5. the planned amount of nitrogen, phosphorus and potassium applied together with the livestock manure and fermentation residues;

12.6. the planned amount of nitrogen, phosphorus and potassium applied together with the mineral fertiliser;

12.7. area of cultivated crops and planned harvest.

13. The following information shall be included in the database on the monitoring of mineral nitrogen in soils of the State Information System for Monitoring of Agricultural Plants:

13.1. the name and address of the monitoring farm;

- 13.2. the monitoring fields (name, co-ordinates, soil type and sub-type);
- 13.3. soil samples (number, depth of sample, granulometric composition, the content of nitrogen determined mg/kg and kg/ha);
- 13.4. the field history for each monitoring field;
- 13.5. meteorological data.

14. The Ministry of Environmental Protection and Regional Development shall:

14.1. at least once every four years shall review the borders of highly vulnerable zones, taking into account data acquired when implementing monitoring of nitrate in surface water and groundwater, and the compliance of the data referred-to with the criteria referred to in Paragraph 5 of this Regulation, and, if the pollution with nitrates has exceeded the criteria referred to in Paragraph 5 of this Regulation, shall submit appropriate recommendations to the Cabinet regarding a change to the borders of the highly vulnerable zones and, in co-operation with the Ministry of Agriculture, regarding additional measures for the prevention of pollution;

14.2. shall send a report to the European Commission:

14.2.1. regarding the designated highly vulnerable zones – once every four years;

14.2.2. regarding a change in the borders of highly vulnerable zones – within six months following the day of the approval of a change in the borders.

15. The State Environmental Service shall control the observance of the requirements referred to in Sub-paragraphs 3.2, 3.3.1, 3.3.5 and 3.3.8 of this Regulation.

16. The Centre shall:

16.1. in compliance with the laws and regulations regarding the requirements for the monitoring of surface water, groundwater and protection zones and the formulation of monitoring programmes, as well as according to its competence, organise monitoring of nitrate in surface water and groundwater in accordance with Annex 5 to this Regulation, in order to assess:

16.1.1. the agricultural activities and the impact on the environment and load on the waters by the pollution with nitrates caused thereby;

16.1.2. changes to the water quality in the long-term;

16.1.3. the eutrophic state of surface freshwaters, river estuary (transitional waters) and coastal waters;

16.1.4. the effectiveness of management measures and information acquired for the designation of highly vulnerable zones or the review of the borders thereof;

16.2. once every four years prepare a report for the European Commission regarding the protection of water and soil from the pollution with nitrates caused by agricultural activity (hereinafter – report).

17. The report shall include the following information:

17.1. maps, in which:

17.1.1. the current borders of the highly vulnerable zones and those designated in addition since the previous report, are indicated separately;

17.1.2. the waters referred to in Sub-paragraphs 5.1, 5.2, 5.3 and 5.4 of this Regulation are indicated with differentiating features;

17.1.3. the location of the surface water and groundwater monitoring stations, the data obtained from which are used for the preparation of this report, is depicted;

17.2. a report on the implementation of monitoring of nitrates in surface water and groundwater, indicating the number of surface water and groundwater monitoring stations, the

location, as well as the parameters analysed, the frequency of sample taking and the number of samples analysed in each monitoring station in each year referred to in the report;

17.3. an assessment of the nitrate monitoring results, including the nitrate concentration levels determined during the course of monitoring;

17.4. a report on the eutrophication of surface freshwaters, transitional and coastal waters;

17.5. the reasons due to which the borders of highly vulnerable zones have been changed, if this has occurred;

17.6. a report regarding the implementation of management measures in highly vulnerable zones;

17.7. forecasts as to how long it is anticipated to improve the quality of the water in which the nitrate concentration has exceeded the criteria referred to in Paragraph 5 of this Regulation, when implementing the designated management measures.

18. Within three months following the end of the reporting period referred to in Sub-paragraph 16.2. of this Regulation, the Centre shall prepare a report and send it to the Ministry of Environmental Protection and Regional Development and the Ministry of Agriculture for evaluation.

19. Within two months the Ministry of Agriculture and the Ministry of Environmental Protection and Regional Development shall evaluate the report prepared by the Agency and provide comments. The Centre, taking into account the comments provided, shall update the report within one month and send it to the European Commission within six months following the end of the reporting period referred to in Sub-paragraph 16.2. of this Regulation and place it on the Centre's website and in the central data stores of the European Environment Information and Observation Network (*Eionet*).

## **V. Final Provisions**

20. Cabinet Regulation No. 33 of 11 January 2011, Regulation Regarding Protection of Water and Soil from Pollution with Nitrates Caused by Agricultural Activity (*Latvijas Vēstnesis*, 2011, No. 13; 2013, No. 58), is repealed.

21. The report referred to in Sub-paragraph 16.2. of this Regulation for the years 2012-2015 shall be sent to the European Commission until 30 June 2016.

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

This Regulation includes 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 the area of agricultural land required for the application of livestock manure

1. The area of agricultural land (ha) required for the application of livestock manure shall be calculated, using the following formula:

$$L = \frac{\sum DV}{DV_p}, \text{ where}$$

$L$  – the area of agricultural land required for the application of livestock manure. ha;

$\sum DV$  – the total number of livestock on the farm, expressed in animal units;

$DV_p$  – permissible number of livestock units, calculated per hectare of agricultural land. In accordance with Sub-paragraph 3.3.2. of this Regulation  $DV_p = 1.7$  animal units.

2. The total number of livestock on the farm, expressed in animal units:

$$\sum DV = \sum_{j=1}^z DV_j \cdot n_j, \text{ where}$$

$z$  – the number of livestock groups (according to species and age in accordance with Table);

$DV_j$  – relevant number of animal units for one animal of a specific livestock species and age group (in accordance with Table);

$n_j$  – number of animals of a specific livestock species and age group on the farm.

3. Animal units (DV) of livestock.

Animal units calculated assuming that the livestock are in the holding for 365 days. For livestock living in pastures, the quantity of excrement released during pasture is taken into account.

No.	Livestock species and age group	Animal units (AU)
1.	Dairy cow	0.7
2.	Suckler cow with heifer	0.59
3.	Breeding bull (from the age of 12 months)	0.60
4.	Heifer (up to the age of 6 months)	
	1 animal	0.11
	1 place in the cattle-shed per year	0.22 <sup>1</sup>
5.	Heifer (between the age of 6-12 months)	0.35
6.	Breeding heifer (from the age of 12 months)	0.50
7.	Fattening young cattle (up to the age of 6 months)	0.20



8.	Fattening young cattle (from the age of 6 months)	0.45
9.	Sow with piglets	
	1 animal 1 brood	0.08
	1 place in the cattle-shed per year	0.19 <sup>2</sup>
10.	Sow without piglets	0.20
11.	Fattening pig (30-100 kg)	
	1 animal	0.03
	1 place in the cattle-shed per year	0.10 <sup>3</sup>
12.	Boar	0.18
13.	Gilt (85-180 kg)	
	1 animal	0.08
	1 place in the cattle-shed per year	0.15 <sup>4</sup>
14.	Separated piglet (7.5- 30 kg)	
	1 animal	0.007
15.	Goat with kids	0.13
16.	Sheep with lambs	0.13
17.	Horse	0.48
18.	Laying hen	0.006
19.	Broiler	
	1 broiler	0.0004
	1 place in the cattle-shed per year	0.003 <sup>5</sup>
20.	Turkey, goose	0.01
21.	Rabbit	0.024
22.	Emu	0.11
23.	Animal reared for fur	0.05
24.	Small animal reared for fur	0.018
25.	Deer	0.15

Notes.

1. Animal units per place in the cattle-shed are calculated, observing the following number of production cycles in a year:

<sup>1</sup> a heifer up to the age of 6 months – 2 cycles;

<sup>2</sup> a sow with piglets – 2.35 broods;

<sup>3</sup> a fattening pig – 3.2 cycles;

<sup>4</sup> a gilt – 1.85 cycles;

<sup>5</sup> a broiler – 6.5 cycles.

2. An operator shall calculate animal units taking into account the number of production cycles of the relevant animal holding in a year or the period of keeping the livestock.

Minister for Agriculture

Jānis Dūklavs

### Amount of Acquisition of Livestock Manure and Composition Thereof\*

No.	Livestock species, age group, type of keeping	Type of livestock manure	Acquisition per year, t*	Dry matter, %	One tonne of naturally wet manure contains, kg		
					N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
1.	Dairy cow, milk yield less than 6000 kg a year	Solid manure	13.0	20	5.4	2.6	3.9
		Liquid manure	17.0	10	4.1	1.4	2.8
2.	Dairy cow, milk yield from 6000 to 8000 kg per year	Solid manure	15.0	20	5.9	3.2	5.3
		Liquid manure	19.0	10	4.2	2.1	2.9
3.	Dairy cow, milk yield more than 8000 kg per year	Solid manure	20.0	20	6.0	2.9	4.3
		Liquid manure	26.0	10	4.4	2.2	3.3
4.	Suckler cow with calf	Solid manure	11.0	22	5.5	2.6	8.2
5.	Breeding bulls	Solid manure	14.0	20	4.3	5.5	4.2
6.	Heifer (up to the age of 6 months)	Solid manure	5.0	22	4.7	2.3	5.7
7.	Heifer (6 months and older)	Solid manure	8.0	18	4.7	1.8	3.9
8.	Fattening young cattle (6 months and older)	Solid manure	9.0	18	4.7	3.0	6.9
		Liquid manure	13.0	10	3.7	2.7	1.8
9.	Separated piglets up to 30 kg	Solid manure	0.25	25	6.4	6.2	2.6
		Liquid manure	0.4	7	3.8	3.3	2.2
10.	Sow with piglets	Solid manure	1.5	26	9.7	8.5	4.7
		Liquid manure	2.5	9.0	5.9	5.1	2.8
11.	Sow without piglets and boar	Solid manure	1.5	22	7.1	7.6	2.3
		Liquid manure	2.5	9	4.6	3.5	2.0
12.	Fattening pig (over 30 kg) and a gilt	Solid manure	1.0	21	6.3	4.3	3.0
		Liquid manure	2.0	8	3.4	2.3	1.6
13.	Goat with kids	Solid manure	2.4	25	5.4	3.1	8.3
14.	Sheep with lambs, deep cattle-shed	Solid manure	2.4	25	5.4	3.7	7.0

15.	Horse	Solid manure	10.0	25	4.7	2.4	3.8
16.	Laying hen	Manure without litter**	0.03	30	21.0	11.3	7.8
		Liquid manure	0.10	10	6.4	4.7	2.2
17.	Broiler	Solid manure	0.01	55	27.6	12.1	13.8
18.	Deer	Firm manure	1.2	26	7.8	5.5	4.8

Notes.

1. \* It is assumed that the livestock are in the holding for 365 days.
2. \*\* Manure without litter - semi-solid excrements of the livestock.

Minister for Agriculture

Jānis Dūklavs

## Maximum Permissible Norms of Nitrogen for Cultivated Plants

**Maximum permissible amount of nitrogen\*, which may be used for crops in one harvest period depending on the planned yield level**

### 1. Cereals, kg ha<sup>-1</sup> N

Cultivated plant	Harvest level, t ha <sup>-1</sup>			
	< 3.0	3-5	5-7	> 7.0
Winter wheat (180)	80	120	150	220
Rye (130)	65	95	130	160
Winter barley (15)	75	105	140	185
Winter triticale (140)	75	105	140	200
Spring wheat (180)	80	125	160	200
Spring barley (150)	65	100	135	170
Oats (110)	60	90	120	-

### 2. Other cultivated plants, kg ha<sup>-1</sup> N

Cultivated plant	Harvest level, t ha <sup>-1</sup>	Maximum permissible amount of nitrogen, kg ha <sup>-1</sup>
Winter rapeseed	< 2.0	90
	2.0-4.0	150
	4.0-5.0	190
	> 5.0	230
Summer rapeseed	< 2.0	90
	2.0-3.0	120
	3.0-4.0	160
	> 4.0	200
Maize, green fodder	< 40	110
	40-60	160
	> 60	200
Potatoes	< 30	90
	30-40	140
	> 40	180
Fodder beets, sugar beets	< 40	90
	40-60	150
	> 60	190

Grasses of fields and meadows, hay	< 4.0	80
	4.0-8.0	120
	> 8.0	170
Pastures, green fodder	< 20	100
	20-30	155
	> 30	240
Cabbages	< 45	135
	45-70	210
	> 70	240
Carrots	< 30	80
	30-50	130
	> 50	160
Onions	< 25	95
	25-45	170
	> 45	200
Beets	< 40	110
	40-60	170
	> 60	200
Cauliflower	< 20	110
	20-40	200
	> 40	240
Cucumbers	< 25	100
	25-40	160
	> 40	200
Marrow, pumpkin	< 30	90
	30-60	185
	> 60	215
Linseed		80
Fibre flax		40
Peas, beans and other pulses		40
Fruit trees, berry bushes		130
Strawberries		120
Grassland whose papilionaceous proportion is 50 % and more		50

Note. \* Soil whose content of organic substances at a layer of 0-30 cm is greater than 30 %, determining the maximum permissible norms, the amount indicated in the table shall be multiplied by a co-efficient of 0.7.

Minister for Agriculture

Jānis Dūklavs

## **Cultivated Plant Fertilisation Plan and Summary of Cultivated Plant Fertilisation Plans**

### **I. Cultivated Plant Fertilisation Plan**

1. The information to be included in the cultivated plant fertilisation plan is as follows:
  - 1.1. number or name of the field;
  - 1.2. area (ha);
  - 1.3. cultivated plant, planned yield (t/ha);
  - 1.4. calculated or specified in accordance with laws and regulations norm of nitrogen (N), phosphorus (P<sub>2</sub>O<sub>5</sub>) and potassium (K<sub>2</sub>O) (kg/ha);
  - 1.5. planned fertilisation aids:
    - 1.5.1. organic fertilisation aids (t/ha; t/per field) (for organic fertiliser the type shall be indicated, for example, cattle litter, liquid pig manure, straw, green manure);
    - 1.5.2. mineral fertiliser (kg/ha; kg/per field) (the basic components shall be indicated for mineral fertiliser);
  - 1.6. other information (optional).

### **II. Summary of cultivated plant fertilisation plans for the \_\_\_(year) harvest**

2. Name of a legal person or given name, surname of a natural person.
3. Legal address of a legal person or declared place of residence of a natural person.
4. Actual address of the farm (land).
5. Contact information: postal address, telephone number, e-mail address.
6. Information regarding a responsible person: given name, surname, position.

No.	Information to be indicated	Unit of measurement	In total	including in autumn	including in spring
1.	Agricultural land	ha		X	X
2.	Fertilised area	ha			
3.	Planned organic fertilisers (including fermentation residues)	t	X	X	X
3.1.		t			
3.2.		t			
...		t			
4.	Planned mineral fertilisers	t	X	X	X
4.1.		t			
4.2.		t			

...		t			
5.	Livestock according to species, age groups – cattle, according to milk yield groups	pieces	X	X	X
5.1.		pieces		X	X
5.2.		pieces		X	X
...		pieces		X	X
6.	Animal units	AU		X	X
7.	Animal units per hectare of land to be used in agriculture	AU/ha		X	X
8.	Area of agricultural land required for the application of livestock manure	ha		X	X
<b>Information regarding cultivated plant</b>					
No.	Cultivated plant	ha	Planned yield (t/ha)	X	X
1.				X	X
2.				X	X
3.				X	X
...				X	X

Responsible person \_\_\_\_\_

(given name, surname)

(signature\*)

Date \_\_\_\_\_

Notes.

1. The type of organic fertilizers shall be indicated in Paragraph 3 of the Table, for example, cattle litter, liquid pig manure, straw, fermentation residues.
2. The basic composition of the mineral fertiliser shall be indicated in Paragraph 4 of the Table, for example, ammonium nitrate 34% N, complex NPK 6-26-30.
3. The entries in Paragraphs 5, 6, 7 and 8 of the table shall only be made by those operators in whose management the livestock are.
4. \* The details of the document "signature" and "date" shall not be completed if the electronic document has been drafted in compliance with the laws and regulations regarding the drawing up of electronic documents.

Minister for Agriculture

Jānis Dūklavs

## **Requirements for the Monitoring of Nitrates in Surface Water and Groundwater**

1. Nitrate monitoring in surface water and groundwater (hereinafter – nitrate monitoring) in highly vulnerable zones, except the follow-up referred to in Annex 3 to this Regulation, shall be performed each year in order to determine the quality of groundwater and surface water and the changes thereto. For this purpose the following conditions for the frequency of sample taking and choice of monitoring positions shall be observed:

1.1. surface water samples shall be taken 4-12 times a year, and groundwater samples – at least once a year. Monitoring shall be performed at surface water monitoring positions at which a nitrate concentration greater than 50 mg/l was observed in the following year, at least 12 times a year;

1.2. surface water samples shall be taken from at least one monitoring position in each surface water facility included in each highly vulnerable zone:

1.2.1. according to the observation network, established in accordance with the Environmental Monitoring programme;

1.2.2. without changing the place of sample taking at least within a four year period, which is covered in the report referred to in Sub-paragraph 16.2. of this Regulation;

1.3. groundwater samples shall be taken in order that the information acquired shall plausibly describe the quality of ground water and artesian waters in the water facilities contained in all the highly vulnerable zones.

2. Nitrate monitoring shall also be performed each year in separate monitoring positions in the remaining territory of Latvia, in order to evaluate the long-term changes in water quality and to ensure additional information regarding the impact of agricultural activity on pollution with nitrates throughout the country. For this purpose the following conditions for the frequency of sample taking and choice of monitoring positions shall be observed:

2.1. surface water samples shall be taken 4-12 times a year, and groundwater samples – at least once a year;

2.2. all such surface water monitoring positions shall be included, which:

2.2.1. are found in places where rivers cross the State border, and which are included in *Eurowaternet* and other international observation networks;

2.2.2. are found in surface water facilities in which, due to the distributed pollution, there is a risk that the objectives of environmental quality specified in the Water Management Law will not be achieved;

2.2.3. are found in large river estuaries and water facilities, where the surface water is used for acquiring drinking water, using a water supply system;

2.3. take groundwater samples in all monitoring positions included in the Environmental Monitoring programme.

3. Once every four years a follow-up of nitrate concentrations in underground and surface freshwaters shall be performed throughout Latvia, in order to control the effectiveness of management measures and to evaluate the need to change the borders of highly vulnerable zones. Monitoring may be performed once every eight years in monitoring positions outside



highly vulnerable zones, where the nitrate concentration in all the samples previously taken has been less than 25 mg/l and no new conditions have arisen at the sample taking site, which may increase the content of nitrate in the water. The following conditions for the frequency of sample taking and choice of monitoring positions shall be observed in the follow-up:

3.1. surface water samples for determining nitrate concentrations shall be taken once a month, and more often in periods of flooding;

3.2. groundwater samples for determining nitrate concentrations shall be taken at least once a year;

3.3. the number of surface water monitoring positions which is proportional to the number of lake and river water facilities in each of the river basin areas shall be included, taking samples:

3.3.1. in at least one monitoring position in each surface water facility contained in the highly vulnerable zone;

3.3.2. outside the highly vulnerable zones – at least in one river monitoring position per 1000 km<sup>2</sup> of the State territory and at least 10 % of the lakes in the river basin area, which are separated as water facilities, including in all surface water facilities, which border the highly vulnerable zones;

3.3.3. outside highly vulnerable zones, the sample taking sites shall be chosen in order to include in the follow-up all the surface water facilities compliant with the ecological quality categories specified in regulatory enactments and so that they are in compliance with the division of surface water facilities according to ecological quality categories included in the river basin plans.

Minister for Agriculture

Jānis Dūklavs