Republic of Latvia

Cabinet

Regulation No. 184

Adopted 11 April 2023

**Procedures for Obtaining and Collecting Information on the Fertility Level of Agricultural Land and the Changes Therein, and also for Recognising Providers of Services of Agrochemical Research of Soils**

*Issued pursuant to*

*Section 10, Paragraph two, Clause 1 of the Law on Agriculture and Rural Development*

**I. General Provisions**

1. The Regulation prescribes the procedures for:

1.1. obtaining and collecting information on the fertility level of agricultural land and the changes therein (hereinafter – the information);

1.2. recognising providers of services of agrochemical research of soils (hereinafter – the service provider).

2. The State Plant Protection Service (hereinafter – the Service) shall obtain information:

2.1. when carrying out agrochemical research of soils;

2.2. when receiving data from recognised service providers on the agrochemical research of soils.

3. The fertility level of agricultural land shall be characterised by the following characteristics:

3.1. type and texture of soil;

3.2. soil water conditions;

3.3. topography;

3.4. degree of stoniness;

3.5. agrochemical characteristics:

3.5.1. key characteristics – soil organic matter content, exchange reaction (pH), content of phosphorus (P2O5) and potassium (K2O) used for plants;

3.5.2. supplementary characteristics – content of exchange magnesium (Mg), calcium (Ca), sulphur (S), and microelements.

4. The agrochemical research of soils shall constitute a set of activities which includes the following stages:

4.1. development of a draft plan for field works by using digitalised soil maps;

4.2. taking of soil samples according to a draft plan for field works;

4.3. testing of agrochemical characteristics of soil samples in an accredited laboratory by using the soil testing methods published on the Service’s website;

4.4. entry and maintenance of the obtained data in the database of the agrochemical research of soils for the Agricultural Land Management System of the State Information System for Monitoring of Agricultural Plants (hereinafter – the database of the agrochemical research of soils);

4.5. assessment of the obtained data according to assessment groups of agrochemical characteristics of agricultural land (Annex 1).

**II. Recognition of the Service Provider**

5. The Service shall recognise the service provider in the following types of services:

5.1. service A where the service provider prepares a draft sampling plan and takes soil samples in compliance with the requirements of this Regulation by using the Service’s application for agrochemical research of soils, and also prepares and delivers samples for testing in a reference soil laboratory indicating the recognition number;

5.2. service B where the service provider takes soil samples in compliance with the requirements of this Regulation, indicates the recognition number in documents of agrochemical research of soils, and exports testing results to the database of the agrochemical research of soils. Samples shall be submitted for testing to one of the following accredited laboratories:

5.2.1. a reference soil laboratory;

5.2.2. a laboratory which is recognised and authorised to perform analyses for agrochemical research of soils in accordance with the laws and regulations regarding implementation of the functions of a reference soil laboratory and which is indicated in the list of recognised laboratories available on the Service’s website;

5.2.3. a foreign laboratory whose soil testing methods are compatible and results are comparable with the soil testing methods indicated on the Service’s website.

6. In order for the Service to take the decision to recognise the service provider, the service provider shall submit the following to the Service:

6.1. a submission indicating data on the submitter – the name, registration number, legal address, telephone number, e-mail address, and type of the service to be provided, i.e. A or B;

6.2. information on the equipment at the disposal of the service provider;

6.3. a confirmation that the staff of the service provider has become acquainted with the requirements for taking soil samples and exchanging information with the Service (Annex 2).

7. The service provider shall, in accordance with the laws and regulations regarding the price list of paid services provided by the Service, cover expenditures related to the conformity verification thereof for the provision of services of the agrochemical research of soils.

8. The Service shall, within a month after receipt of the submission, examine the submitted documents, assess conformity of the service provider with the requirements referred to in Sub-paragraphs 6.2 and 6.3 of this Regulation to verify the capacity thereof to provide the service referred to in Paragraph 5 of this Regulation, and in case it conforms to the respective requirements:

8.1. shall take the decision to recognise the service provider;

8.2. shall publish information on the recognised service provider on its website by indicating its name, registration number, legal and actual address, type of the provided service, i.e. A or B, the allocated recognition number, and date.

9. In order for the Service to publish up-to-date and reliable information on its website, the recognised service provider shall, within three working days, inform the Service if the information to be published on the website has changed or the service provider terminates its activity.

10. The Service shall carry out a supervisory review of the recognised service provider once a year.

11. The Service is entitled to take control samples of soils in fields of the service provider and compare the obtained results with the samples taken by the recognised service provider in order to ascertain quality performance of works according to the type of service referred to in Paragraph 5 of this Regulation.

12. The recognised service provider shall pay for the supervisory review in accordance with the laws and regulations regarding the price list of paid services provided by the Service.

**III. Obtaining Information Upon Request of the Land Owner or Legal Possessor**

13. A land owner or legal possessor shall apply for the agrochemical research of soils in one of the following ways:

13.1. submitting a submission to the Service by indicating data on the submitter – the name of a legal person, registration number, legal address, telephone number, e-mail address thereof or the given name, surname of a natural person, personal identity number, address of the place of residence, telephone number, and e-mail address thereof, and also contact details of the person who will cooperate with the Service, and the area within which the agrochemical research is required, the information to be indicated additionally in materials of agrochemical research, the means of receipt of results, the name of each field applied for the agrochemical research or the crop, area, cadastre or field block number thereof, and characteristics to be tested;

13.2. in the electronic service system of the Rural Support Service;

13.3. at the recognised service B provider.

14. In the case referred to in Sub-paragraphs 13.1 and 13.2 of this Regulation, the Service shall enter into a contract with the land owner or lawful possessor for conditions for obtaining information for the agrochemical research of soils.

15. The land owner or lawful possessor shall pay for the agrochemical research of soils according to the price list of the service provider or in accordance with the laws and regulations regarding the price list of paid services provided by the Service.

**IV. Obtaining Information in a Representative Sample Frame of Agricultural Holdings**

16. For the purpose of obtaining information, the Service shall establish a representative sample frame of agricultural holdings (hereinafter – the sample frame) in all State planning regions by using the following selection criteria:

16.1. the State planning region;

16.2. the municipality;

16.3. the specialisation of the holding, i.e. arable farming, livestock farming, horticulture, and the farming system, i.e. organic or integrated.

17. The Service shall enter into a contract with the land owner or lawful possessor for obtaining information within the area of sample frame and conditions for obtaining field history of the specific area.

18. The Service shall determine the following agrochemical characteristics of soil in fields of the sample frame:

18.1. exchange reaction (pH);

18.2. soil organic matter content;

18.3. phosphorus and potassium used for plants;

18.4. exchange magnesium.

19. In order to obtain information on any changes in the fertility level of agricultural land, the Service shall carry out repeated agrochemical research of soil in specific fields of the sample frame every five years.

20. If any of the land owners or lawful possessors has changed in the sample frame, the Service shall enter into the contract referred to in Paragraph 17 of this Regulation with the new land owner or lawful possessor if they continue the previous specialisation of the holding and farming system. If the land owner or lawful possessor does not wish to continue the previous specialisation and system or does not wish to enter into the contract, the Service shall select another holding with the same specialisation and farming system as that of the previous holding for the sample frame in a specific municipality.

**V. Procedures by Which the Service Shall Carry Out the Agrochemical Research of Soil**

21. Based on the submission referred to in Sub-paragraphs 13.1 and 13.2 of this Regulation, the Service shall develop a draft plan for field works taking into account the data of digitalised soil maps and the cultivated crop and using an appropriate computer program for geographic information system.

22. Soil samples shall be taken according to the draft plan for field works by using the Service’s application for agrochemical research of soils. Field information shall be assessed when taking soil samples in accordance with Annex 3 to this Regulation.

23. Soil samples shall be delivered to a reference soil laboratory for testing.

24. The reference soil laboratory shall enter testing results into the database of the agrochemical research of soils where the results are assessed in accordance with Annex 1 to this Regulation.

25. The data obtained from analysis and their assessment shall be added to the geospatial data set in the geographic information system for the database of the agrochemical research of soils.

26. The Service shall, upon request of the land owner or lawful possessor, provide the following materials of the agrochemical research of soil electronically, in paper format, or in the form of \*.shp file:

26.1. forms containing information on the actual numerical value and optimum numerical value of analyses of each sample, assessment of the actual numerical value, for acid soils – the recommended dose of calcium carbonate, and also information on the type of land use, type and texture of soil, elemental contour area (ha), and also information on the weighted average numerical value of each agrochemical characteristic of field if such value is necessary for the land owner or lawful possessor;

26.2. digital maps of the agrochemical research of soils.

**VI. Collection of Information**

27. In using data from the database of the agrochemical research of soils, the Service shall prepare a report on the fertility level of agricultural land and publish it on its website:

27.1. by 1 March each year – in respect of results of the agrochemical research of soils in the previous year;

27.2. the year following the five-year cycle – in respect of results of the agrochemical research of soils in the sample frame;

27.3. the year following the second cycle of agrochemical research – in respect of changes in the fertility level of agricultural land in comparison with the previous five-year cycle in the sample frame.

28. Reports on the fertility level of land and changes therein shall collect and analyse information broken down by types of land use on the State planning region and national levels.

29. The following shall be stored in the database of the agrochemical research of soils:

29.1. results of the agrochemical research of soils;

29.2. summaries of the fertility level of land and changes therein.

**VII. Closing Provision**

30. Paragraphs 7, 12, and 15 of this Regulation regarding the price list of paid services provided by the Service shall come into force on 1 July 2023.

Prime Minister A. K. Kariņš

Minister for Agriculture D. Šmits

**Annex 1**

Cabinet Regulation No. 184

11 April 2023

**Assessment Groups of Agrochemical Characteristics of Agricultural Land**

Table 1

**Segmentation of the soils of fields, grasslands, pastures, and permanent crops into groups**

**by soil organic matter content (%)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Soil organic matter content | Mineral soils | | | | Other soils |
| texture | | | |
| M | sM | mS | S |
| Insufficient | < 3.0 | < 2.5 | < 2.0 | < 1.5 | – |
| Optimum (sufficient) | 3.0–3.5 | 2.5–3.0 | 2.0–2.5 | 1.5–2.0 | – |
| Increased | 3.6–10.0 | 3.1–10.0 | 2.6–10.0 | 2.1–10.0 | – |
| Humus soil | – | – | – | – | 10.1–20.0 |
| Peat humus | – | – | – | – | 20.1–50.0 |
| Peat (K) | – | – | – | – | > 50 |

Designations: M – clay, sM – loam, mS – loamy sand, S – sand.

Table 2

**Segmentation of the soils of fields, grasslands, pastures, and permanent crops into groups**

**by soil reaction in 1 M KCl suspension**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Soil reaction | Soil organic matter content (%) | | | | | | | | |
| < 5.1 | | | | 5.1–50.0 | | | | > 50.0 |
| Texture | | | | | | | | |
| M | sM | mS | S | M | sM | mS | S | K |
| Normal | > 6.5 | > 6.3 | > 5.8 | > 5.5 | > 6.2 | > 5.9 | > 5.6 | > 5.3 | > 5.0 |
| Slightly acidic | 6.1–6.5 | 5.8–6.3 | 5.6–5.8 | 5.3–5.5 | 5.8–6.2 | 5.6–5.9 | 5.4–5.6 | 5.1–5.3 | 4.9–5.0 |
| Moderately acidic | 5.7–6.0 | 5.4–5.7 | 5.1–5.5 | 4.9–5.2 | 5.4–5.7 | 5.2–5.5 | 5.0–5.3 | 4.7–5.0 | 4.5–4.8 |
| Acidic | 5.3–5.6 | 5.0–5.3 | 4.6–5.0 | 4.5–4.8 | 5.0–5.3 | 4.8–5.1 | 4.5–4.9 | 4.2–4.6 | 4.0–4.4 |
| Strongly acidic | < 5.3 | < 5.0 | < 4.6 | < 4.5 | < 5.0 | < 4.8 | < 4.5 | < 4.2 | < 4.0 |

Designations: M – clay, sM – loam, mS – loamy sand, S – sand.

Table 3

**Segmentation of the soils of fields, grasslands, and pastures into groups**

**by the moving phosphorus content in 0.02 M calcium lactate solution (P2O5 mg kg-1)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Content in soil | Soil organic matter content (%) | | | | | | | | | |
| < 5.1 | | | | 5.1–20.0 | | | | 20.1–50.0 | > 50.0 |
| Texture | | | | | | | | | |
| M | sM | mS | S | M | sM | mS | S | M, sM, mS, S | K |
| Very low | ≤ 40 | ≤ 35 | ≤ 30 | ≤ 25 | ≤ 60 | ≤ 55 | ≤ 50 | ≤ 40 | ≤ 80 | ≤ 100 |
| Low | 41–80 | 36–70 | 31–60 | 26–50 | 61–120 | 56–110 | 51–100 | 41–80 | 81–160 | 101–200 |
| Moderate | 81–160 | 71–130 | 61–120 | 51–100 | 121–240 | 111–220 | 101–200 | 81–160 | 161–305 | 201–365 |
| High | 161–270 | 131–220 | 121–185 | 101–155 | 241–410 | 221–375 | 201–340 | 161–255 | 306–520 | 366–620 |
| Very high | > 270 | > 220 | > 185 | > 155 | > 410 | > 375 | > 340 | > 255 | > 520 | > 620 |

Designations: M – clay, sM – loam, mS – loamy sand, S – sand.

Table 4

**Segmentation of the soils of permanent crops into groups**

**by the moving phosphorus content in 0.02 M calcium lactate solution (P2O5 mg kg-1)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Content in soil | Topsoil | | | | | | | | | |
| Soil organic matter content (%) | | | | | | | | | |
| < 5.1 | | | | 5.1–20.0 | | | | 20.1–50.0 | > 50.0 |
| Texture | | | | | | | | | |
| M | sM | mS | S | M | sM | mS | S | M, sM, mS, S | K |
| Very low | ≤ 90 | ≤ 85 | ≤ 80 | ≤ 70 | ≤ 110 | ≤ 105 | ≤ 100 | ≤ 90 | ≤ 150 | ≤ 180 |
| Low | 91–130 | 86–125 | 81–120 | 71–110 | 111–150 | 106–145 | 101–140 | 91–130 | 151–200 | 181–260 |
| Moderate | 131–250 | 126–240 | 121–240 | 111–230 | 151–250 | 146–240 | 141–230 | 131–220 | 201–340 | 261–430 |
| High | 251–350 | 241–345 | 241–341 | 231–330 | 251–450 | 241–430 | 231–410 | 221–380 | 341–530 | 431–770 |
| Very high | > 350 | > 345 | > 341 | > 330 | > 450 | > 430 | > 410 | > 380 | > 530 | > 770 |

Designations: M – clay, sM – loam, mS – loamy sand, S – sand.

Table 5

**Segmentation of the soils of fields, grasslands, and pastures into groups**

**by the moving potassium content in 0.02 M calcium lactate solution (K2O mg kg-1)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Content in soil | Soil organic matter content (%) | | | | | | | | | |
| < 5.1 | | | | 5.1–20.0 | | | | 20.1–50.0 | > 50.0 |
| Texture | | | | | | | | | |
| M | sM | mS | S | M | sM | mS | S | M, sM, mS, S | K |
| Very low | ≤ 50 | ≤ 45 | ≤ 40 | ≤ 30 | ≤ 75 | ≤ 70 | ≤ 65 | ≤ 55 | ≤ 105 | ≤ 125 |
| Low | 51–100 | 46–90 | 41–80 | 31–60 | 76–150 | 71–140 | 66–130 | 56–110 | 106–205 | 126–250 |
| Moderate | 101–200 | 91–180 | 81–160 | 61–120 | 151–300 | 141–280 | 131–260 | 111–220 | 206–410 | 251–500 |
| High | 201–340 | 181–305 | 161–270 | 121–205 | 301–450 | 281–420 | 261–390 | 221–330 | 411–700 | 501–840 |
| Very high | > 340 | > 305 | > 270 | > 205 | > 450 | > 420 | > 390 | > 330 | > 700 | > 840 |

Designations: M – clay, sM – loam, mS – loamy sand, S – sand.

Table 6

**Segmentation of the soils of permanent crops into groups**

**by the moving potassium content in 0.02 M calcium lactate solution (K2O mg kg-1)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Content in soil | Topsoil | | | | | | | | | |
| Soil organic matter content (%) | | | | | | | | | |
| < 5.1 | | | | 5.1–20.0 | | | | 20.1–50.0 | > 50.0 |
| Texture | | | | | | | | | |
| M | sM | mS | S | M | sM | mS | S | M, sM, mS, S | K |
| Very low | ≤ 110 | ≤ 105 | ≤ 100 | ≤ 90 | ≤ 135 | ≤ 130 | ≤ 125 | ≤ 115 | ≤ 185 | ≤ 230 |
| Low | 111–170 | 106–165 | 101–160 | 91–150 | 136–210 | 131–200 | 126–180 | 116–170 | 186–285 | 231–355 |
| Moderate | 171–260 | 166–255 | 161–250 | 151–240 | 211–360 | 201–340 | 181–310 | 171–280 | 286–490 | 356–605 |
| High | 261–360 | 256–335 | 251–350 | 241–340 | 361–450 | 341–430 | 311–400 | 281–370 | 491–620 | 606–765 |
| Very high | > 360 | > 335 | > 350 | > 340 | > 450 | > 430 | > 400 | > 370 | > 620 | > 765 |

Designations: M – clay, sM – loam, mS – loamy sand, S – sand.

Table 7

**Segmentation of the soils of fields, grasslands, and pastures into groups**

**by the exchange magnesium content in 0.02 M calcium lactate solution (Mg mg kg-1)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Content in soil | Soil organic matter content (%) | | | | | | | | | |
| < 5.1 | | | | 5.1–20.0 | | | | 20.1–50.0 | > 50.0 |
| Texture | | | | | | | | | |
| M | sM | mS | S | M | sM | mS | S | M, sM, mS, S | K |
| Low | < 160 | < 140 | < 110 | < 90 | < 240 | < 200 | < 160 | < 130 | < 320 | < 380 |
| Moderate | 160–270 | 140–240 | 110–180 | 90–150 | 240–360 | 200–300 | 160–240 | 130–190 | 320–460 | 380–510 |
| High | > 270 | > 240 | > 180 | > 150 | > 360 | > 300 | > 240 | > 190 | > 460 | > 510 |

Designations: M – clay, sM – loam, mS – loamy sand, S – sand.

Table 8

**Segmentation of the soils of permanent crops into groups**

**by the exchange magnesium content in 0.02 M calcium lactate solution (Mg mg kg-1)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Content in soil | Soil organic matter content (%) | | | | | | | | | |
| < 5.1 | | | | 5.1–20.0 | | | | 20.1–50.0 | > 50.0 |
| Texture | | | | | | | | | |
| M | sM | mS | S | M | sM | mS | S | M, sM, mS, S | K |
| Low | < 260 | < 250 | < 230 | < 210 | < 380 | < 365 | < 330 | < 300 | < 580 | < 690 |
| Moderate | 260–370 | 250–340 | 230–310 | 210–290 | 380–490 | 365–450 | 330–410 | 300–370 | 580–690 | 690–760 |
| High | > 370 | > 340 | > 310 | > 290 | > 490 | > 450 | > 410 | > 370 | > 690 | > 760 |

Designations: M – clay, sM – loam, mS – loamy sand, S – sand.

Table 9

**Segmentation of soils into groups**

**by the exchange calcium content in 1 M KCl extract (Ca mg kg-1)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Calcium content | Soil organic matter content (%) | | | |
| < 5.0 | 5.1–20.0 | 20.1–50.0 | > 50.0 |
| Low | < 1000 | < 1500 | < 2500 | < 3000 |
| Moderate | 1000–1500 | 1500–2250 | 2500–3750 | 3000–4500 |
| High | > 1500 | > 2250 | > 3750 | > 4500 |

Table 10

**Segmentation of soils into groups**

**by the sulphur content in 1 M KCl extract (S mg kg-1)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sulphur content | Soil organic matter content (%) | | | |
| < 5.0 | 5.1–20.0 | 20.1–50.0 | > 50.0 |
| Low | < 6.0 | < 9.0 | < 15 | < 18.0 |
| Moderate | 6.0–10.0 | 9.0–15.0 | 15.0–25.0 | 18.0–30.0 |
| High | > 10 | > 15.0 | > 25.0 | > 30.0 |

Table 11

**Segmentation of soils into groups**

**by the boron content in hot 0.1 % MgSO4 extract (B mg kg-1)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content group | Clay, loam | | Loamy sand, sand, gravel | | Soils rich in organic matter | Peat |
| Soil organic matter content (%) | | | | | |
| up to 5.0 | 5.1–20.0 | up to 5.0 | 5.1–20.0 | 20.1–50.0 | > 50.0 |
| mg kg-1 | | | | | |
| Low | < 0.6 | < 0.9 | < 0.3 | < 0.45 | < 1.1 | < 1.6 |
| Moderate | 0.6–1.2 | 0.9–1.8 | 0.3–0.6 | 0.45–0.9 | 1.1–2.2 | 1.6–3.2 |
| High | > 1.2 | > 1.8 | > 0.6 | > 0.9 | > 2.2 | > 3.2 |

Table 12

**Segmentation of soils into groups**

**by the copper content in 0.05 M EDTA-Na2 extract (Cu mg kg-1)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content group | Clay, loam | | Loamy sand, sand, gravel | | Soils rich in organic matter | Peat |
| Soil organic matter content (%) | | | | | |
| up to 5.0 | 5.1–20.0 | up to 5.0 | 5.1–20.0 | 20.1–50.0 | > 50.0 |
| mg kg-1 | | | | | |
| Low | < 1.5 | < 2.0 | < 1.0 | < 1.5 | < 3.0 | < 4.5 |
| Moderate | 1.5–3.0 | 2.0–4.5 | 1.0–2.0 | 1.5–3.0 | 3.0–6.0 | 4.5–8.5 |
| High | > 3.0 | > 4.5 | > 2.0 | > 3.0 | > 6.0 | > 8.5 |

Table 13

**Segmentation of soils into groups**

**by the manganese content in 0.05 M EDTA-Na2 extract (Mn mg kg-1)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Content group | pH KCl | Clay, loam | | Loamy sand, sand, gravel | | Soils rich in organic matter | Peat |
| Soil organic matter content (%) | | | | | |
| up to 5.0 | 5.1–20.0 | up to 5.0 | 5.1–20.0 | 20.1–50.0 | > 50.0 |
| mg kg-1 | | | | | |
| Low | < 6.0 | < 20 | < 30 | < 15 | < 25 | < 45 | < 45 |
|  | > 6.0 | < 40 | < 60 | < 30 | < 45 | < 85 | < 120 |
| Moderate | < 6.0 | 20–40 | 30–60 | 15–30 | 25–50 | 45–90 | 45–90 |
|  | > 6.0 | 40–80 | 60–120 | 30–60 | 45–90 | 85–170 | 120–240 |
| High | < 6.0 | > 40 | > 60 | > 30 | > 50 | > 90 | > 90 |
|  | > 6.0 | > 80 | > 120 | > 60 | > 90 | > 170 | > 240 |

Table 14

**Segmentation of soils into groups**

**by the zinc content in 0.05 M EDTA-Na2 extract (Zn mg kg-1)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Content group | pH KCl | Clay, loam | | Loamy sand, sand, gravel | | Soils rich in organic matter | Peat |
| Soil organic matter content (%) | | | | | |
| up to 5.0 | 5.1–20.0 | up to 5.0 | 5.1–20.0 | 20.1–50.0 | > 50.0 |
| mg kg-1 | | | | | |
| Low | < 6.0 | < 1.5 | < 2.5 | < 1.0 | < 1.5 | < 3.0 | < 4.5 |
|  | > 6.0 | < 2.5 | < 4.0 | < 2.0 | < 3.0 | < 5.5 | < 8.0 |
| Moderate | < 6.0 | 1.5–4.0 | 2.5–6.0 | 1.0–3.0 | 1.5–4.5 | 3.0–9.0 | 4.5–12.0 |
|  | > 6.0 | 2.5–5.0 | 4.0–7.5 | 2.0–4.0 | 3.0–6.0 | 5.5–11.5 | 8.0–15.5 |
| High | < 6.0 | > 4.0 | > 6.0 | > 3.0 | > 4.5 | > 9.0 | > 12.0 |
|  | > 6.0 | > 5.0 | > 7.5 | > 4.0 | > 6.0 | > 11.5 | > 15.5 |

**Annex 2**

Cabinet Regulation No. 184

11 April 2023

**Requirements for Taking Soil Samples and Exchanging Information with the Service**

**I. Equipment and technical capabilities**

1. Soil probes or machinery for taking soil samples in the 0–20 cm subsoil layer.

2. Application for agrochemical research of soils of the Service (applies to the service A).

3. A container for mixing initial samples.

4. Packaging for placing, storage, and transportation of soil samples.

5. Sample labels or other solutions for marking samples.

**II. Sampling**

1. Prior to taking soil samples, a draft sampling plan shall be prepared.

2. The draft sampling plan shall specify boundaries of elemental contour areas taking into account the following:

2.1. the type and texture of soil indicated in the digitalised soil maps:

2.1.1. it shall be acceptable to combine different types of soil within the limits of the group of type and texture of soil in case of detailed contours (Tables 1 and 2);

2.1.2. if the different type or texture of soil cannot be combined and its area is smaller than one hectare, a sample shall be taken from the dominant soil;

Table 1

**Groups of soil types**

|  |  |
| --- | --- |
| Soil type | Designation |
| **Automorphous** |  |
| 1. Podzols, marine salty | P, J |
| 2. Carbonate turf | Vkr, Vki, E1Vk |
| 3. Podzolic turf and continuous-cultivated soils | Pv, E1Pv, K, R |
| 4. Brown forest | Bk, Bn |
| 5. Moderately and severely eroded | E2Pv, E2Vk |
| 6. Alluvial | Ak, Ap, Agr, A |
| **Semihydromorphous** |  |
| 7. Turf gley and gleyic, delluvial, alluvial gley and gleyic | D, Vgk, Vg, VG, Ag, AG |
| 8. Podzolic turf gley and gleyic | Pgv, Pg, PG |
| 9. Humus gleyic turf and gley, humic alluvial areas | Vgt, VGt |
| 10. Humus podzolic gley and gleyic | Pgt, PGt |
| **Hydromorphous** |  |
| 11. Lowmoor peat, lowmoor peat gley, peat turf gley and peat podzolic turf gley, transitional mire | VGT, PGT, AT, Tz, Tzg, Tp, Tpg |
| 12. Highmoor peat and highmoor peat gley | Ta, Tag, Ts, TGs |

Table 2

**Soil texture**

|  |  |
| --- | --- |
| Groups of soil texture | Designation |
| 1. Clay | M, Mp, M1 |
| 2. Loam | sM, sMp, M2, sM2, sMp2, sM3, sMp3 |
| 3. Loamy sand | mS, mSp |
| 4. Sand | S, sS, iS, Gr, mGr, D |
| 5. Peat | l, vd, vj, n |

2.2. type of land use – the contour may not include different types of land use;

2.3. natural boundaries of field – the contour may not combine areas separated by rivers, amelioration collecting ditches, motor roads, etc.;

2.4. elemental contour area may not exceed 6 ha.

3. Samples may be taken not earlier than month after liming or fertilisation of soil.

4. In a hilly terrain, a soil sample shall be taken separately from the eroded and from the deposited part or part which is dominant in the elemental contour.

5. Soil samples may not be taken in atypical places, such as places where manure or straw has been stacked, collecting ditch banks, blindfurrows and deadfurrows, molehills, places where surface waters have accumulated, and other atypical places of field.

6. Components of organic fertilisers, undecayed plant parts, earthworms, insects, fertiliser pellets, and other impurities may not enter a soil sample.

7. In fields, grasslands, and pastures, samples shall be taken from subsoil to a 20-cm depth, creating an average soil sample from at least 15 to 20 individual probes which have been performed by moving along the longest diagonal of the elemental contour.

8. In case of the elemental contour planned in orchards:

8.1. approximately 10 trees shall be selected, and they shall be evenly distributed along the whole area concerned;

8.2. two probes shall be performed in the root protection area of each selected tree – one on the side of space between rows of trees while the other in the row between trees. Probes shall be performed in the same direction on the side of space between rows of trees and in the same direction in the row between trees;

8.3. for berry bushes probes shall be made in spaces between rows.

9. For the purpose of preparing an average soil sample, individual probes (at least 15–20) shall be carefully mixed, and a sample of 0.3–0.5 kg for mineral soils and a sample of 0.5–1 kg for peat soils shall be taken and sent to a laboratory (so that it would weigh 250–300 g in air-dry condition), the rest shall be discarded.

10. Each elemental contour shall be numbered.

**III. Submission of Information to the Service – Service A**

1. The service provider shall enter into the database of the agrochemical research of soils information on the holding, the specialisation and farming system thereof, the date of sampling, the given name and surname of a person sampling, the total number of samples, and the characteristics of each sample to be analysed.

2. During sampling, the service provider shall indicate in the Service’s application for agrochemical research of soils the dominant soil type of each elemental contour according to Table 1 in this Annex, the texture according to Table 2 in this Annex, and the field information in accordance with Annex 3 to this Regulation.

**IV. Submission of Information to the Service – Service B**

1. The service provider shall indicate information on the holding, specialisation and farming system thereof.

2. The service provider shall submit the following data on agrochemical research of soils:

2.1. a draft plan for field work divided into elemental contours where each contour has been allocated a unique identifier – in the form of \*.shp file;

2.2. a track line for sampling of each elemental contour with a unique identifier allocated thereto – in the form of \*.shp file;

2.3. analytical results of all soil samples of the elemental contour in any of the following file formats – \*.xls, \*.xlsx, \*.csv, and \*.xml where:

2.3.1. data are arranged in rows;

2.3.2. the first column of each row contains the unique identification number;

2.3.3. analytical results are arranged in columns including columns before each column of analytical results which contain the method employed, measurement unit, and chemical form of the characteristic (element or oxide).

**Annex 3**

Cabinet Regulation No. 184

11 April 2023

**Field Information**

Table 1

**Code of the type of land use**

|  |  |
| --- | --- |
| Type of land use | Code |
| Fields | 1 |
| Pastures | 2 |
| Grasslands | 3 |
| Orchards (0–20 cm) and berry bushes | 4 |
| Subsoil (21–40 cm in orchards) | 5 |
| Kitchen gardens | 6 |
| Set-asides | 7 |
| Forest and (or) bushes (rough agricultural land) | 8 |

Table 2

**Assessment code of the degree of stoniness**

|  |  |
| --- | --- |
| Degree of stoniness | Code |
| No stones | 1 |
| Rare stones | 2 |
| Stony gravel areas | 3 |
| Piles of stone, individual large stones | 4 |
| Many stones of different sizes | 5 |

Table 3

**Assessment code of relief**

|  |  |
| --- | --- |
| Relief | Code |
| Plain areas | 1 |
| Undulating plain | 2 |
| Smooth slope – slight erosion | 3 |
| Steep slope – medium and high erosion | 4 |
| Very steep slope (scarp) | 5 |

Table 4

**Assessment code of soil water conditions**

|  |  |
| --- | --- |
| Soil water conditions | Code |
| Normal | 1 |
| Periodically wet | 2 |
| Wet | 3 |
| Very dry | 4 |