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| **Questionnaire according to Commission Decision 94/741/EC for the report of the Member States on the transposition and implementation of Directive 86/278/EEC on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture, amended by Directive 91/692/EEC** **Reporting year 2022** |
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| **Please provide the following contact information and complete the grey text boxes:** |
| **Institution/Organisation you are representing** | The Finnish Environment Institute |
| **Country your Organisation is representing** | Finland |
| **Your Name (Family Name, Surname) Example: Einstein, Albert** | Häkkinen, Eevaleena |
| **Your email address** | Eevaleena.hakkinen@syke.fi |
| **Your Phone Number (+International Dialing Code - Local Number) Example: +352 9876 12345** | +358 295 251 200 |
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| **Support** |
| Should you have any questions please do not hesitate to contact us. The best way to contact us is via our functional email address: estat-waste-statistics@ec.europa.euPlease specify your contact details and indicate what your question is about: e.g. registration in CIRCA, use of the eDAMIS system, waste concepts.With kindest regards,the Waste Data Centre Team at EurostatEUROPEAN COMMISSION - Eurostat - Environment StatisticsL-2920 LUXEMBOURG<http://ec.europa.eu/eurostat/waste>  |
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| **Submission** |
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| **There is no need to repeat information already supplied but please indicate clearly where and when that information was provided.** |
|   |   |
| **I. INCORPORATION INTO NATIONAL LAW** |
| **1. (a) Has the Commission been provided with details of the current laws and regulations in force to incorporate the Directive as amended into national law? (Yes/No)** | Yes  |
| **1. (b) If the answer to (a) above is ‘No’, please state the reasons why:** |
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| **2. (a) If national measures have been adopted pursuant to Article 5 to ensure that sewage sludge may not be used in soils with concentrations of one or more heavy metals that exceed the agreed limit values, has the Commission been notified of these measures? (Yes/No)** | Yes  |
| **2. (b) If the answer to (a) above is ‘No’, please state the reasons why:** |
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| **2. (c) If national measures have been adopted that are stricter than those provided for in the Directive, has the Commission been notified of these measures pursuant to Article 12? (Yes/No)** | Yes  |
| **2. (d) If the answer to (c) above is ‘No’, please state the reasons why:** |
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| **II. IMPLEMENTATION OF THE DIRECTIVE** |
| **1. Please quote any specific conditions which have been deemed necessary for the protection of human health and the environment in accordance with the first indent of Article 3 (2), when using sludge residues from septic tanks and other similar installations for the treatment of** **waste water for agricultural purposes.** |
| According to the Section 11 a of the Ministry of Agriculture and Forestry Decree 24/11 on Fertilizer Products (as amended by Decrees 12/12 and 7/13), the provisions concerning the use of sludge from waste water treatment plants apply also to sludge from septic tanks and waste from earth closets. Only exception is sludge from septic tanks and waste from earth closets that originate from living on the farm in question, from other activities of the farm or from other dwellings near the farm, provided that the recovery of the sludge does not need an environmental permit in accordance with the Environment Protection Act (527/2014). In this exceptional case the septic tank sludge and earth closet waste has to be treated by lime stabilization, composting or anaerobic digestion (thermofilic or mesofilic). If using mesofilic anaerobic digestion, the sludge has to be hygienized, composted, thermally dried or treated in some other similar manner before or after the digestion process. The provisions of Section 11 a of the Ministry of Agriculture and Forestry Decree concern fertilizers that contain more than 10 % of waste water treatment sludge, sludge from septic tanks or waste from earth closets (amendment 21/15). |
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| **2. (a) With regard to Article 5, please complete the following table, stating whether any of the information given is an estimate:**  |
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| --- | --- | --- | --- | --- |
| Metal | Article 5 (1) | Article 5 (2) (a) | Article 5 (2) (b) | Comments and/or reasonsfor the derogation |
| Concentration in soils | Concentration in sludges | Application in agriculture |
| Directive Annex I A | National limit values | Directive Annex I B | National limit values | Directive Annex I C | National limit values |
| mg/kg dry matter | mg/kg dry matter | mg/kg dry matter | mg/kg dry matter | kg/ha/year | kg/ha/year |
| Cadmium | 1 to 3 | 0,5 | 20 to 40 | 1,5 | 0,15 | 0,0015 | Regarding the Åland Islands the limit values are Sludge 1,5 and Appl.in agric. 0,0015 |
| Copper | 50 to 140 | 100 | 1000 to 1750 | 600 | 12 | 0,6 | Article 5(2)(a), Copper and Zinc concentrations in sludges: Exceeding of these maximum concentrations in sludge can be allowed if the soil is proven to be poor in Copper or Zinc. The maximum concentration of harmful metals in the soil, specified in table 1 of Annex V of the Ministry of Agriculture and Forestry Decree 24/11 on Fertilizer Products (as amended by Decree 12/12), may however not be exceeded.Article 5(2)(b), Copper and Zinc application in agriculture: Loads of Copper and Zinc (considered as a nutrient) shall not be more than twofold if the soil for which the sludge is to be used is poor in nutrient in question. This, however, must not result in higher concentrations in the soil than those specified in table 1 of Annex V of the Ministry of Agriculture and Forestry Decree 24/11 (as amended by Decree 12/12).Regarding the Åland Islands the limit values are Sludge 600 and Appl.in agric. 0,6 |
| Nickel | 30 to 75 | 60 | 300 to 400 | 100 | 3 | 0,1 | Regarding the Åland Islands the limit values are Sludge 50 and Appl.in agric. 0,05. |
| Lead | 50 to 300 | 60 | 750 to 1200 | 100 | 15 | 0,1 | Regarding the Åland Islands the limit values are Sludge 100 and Appl.in agric. 0,10. |
| Zinc | 150 to 300 | 150 | 2500 to 4000 | 1500 | 30 | 1,5  | Article 5(2)(a), Copper and Zinc concentrations in sludges: Exceeding of these maximum concentrations in sludge can be allowed if the soil is proven to be poor in Copper or Zink. The maximum concentration of harmful metals in the soil, specified in table 1 of Annex V of the Ministry of Agriculture and Forestry Decree 24/11 on Fertilizer Products (as amended by Decree 12/12), may however not be exceeded.Article 5(2)(b), Copper and Zinc application in agriculture: Loads of Copper and Zinc (considered as a nutrient) shall not be more than twofold if the soil for which the sludge is to be used is poor in nutrient in question. This, however, must not result in higher concentrations in the soil than those specified in table 1 of Annex V of the Ministry of Agriculture and Forestry Decree 24/11 on Fertilizer Products (as amended by Decree 12/12).Regarding the Åland Islands the limit values are Sludge 800 and Appl.in agric. 0,80. |
| Mercury | 1 to 1.5 | 0,2 | 16 to 25 | 1 | 0,1 | 0,001 | Regarding the Åland Islands the limit values are sludge 1 and Appl.in agric. 0,001 |
| Chromium | — | 200 | — | 300 | — | 0,3 | Regarding the Åland Islands the limit values are Sludge 100 and Appl.in agric. 0,10. |

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| **2. (b) If the option proposed under Article 5 (2) (a) has been chosen, please indicate the maximum quantity of sludge that may be applied to the soil per surface unit per annum (in tonnes of dry matter per hectare per annum).** |
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| **2. (c) If any less stringent limit values for heavy-metal concentrations in soils have been permitted in accordance with Annex I A, footnote 1, please complete the following table, stating whether any of the information given is an estimate.**  |
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| --- | --- | --- | --- | --- | --- | --- |
| **Metal** | Numberof sites | Surface area covered (ha) | Soil type(including hydrological characteristics) | pH | New limit value(mg/kg dry matter) | Comments and/or reasons for the derogation(use a separate sheet if necessary) |
| **Cadmium** |  |  |  |  |  |  |
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| **Copper** |  |  |  |  |  |  |
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| **Nickel** |  |  |  |  |  |  |
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| **Lead** |  |  |  |  |  |  |
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| **Zinc** |  |  |  |  |  |  |
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| **Mercury** |  |  |  |  |  |  |
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| **Chromium** |  |  |  |  |  |  |
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| **2. (d) If any less stringent limit values for heavy-metal concentrations in soils have been permitted in accordance with Annex I A, footnote 2, please complete the following table (the first three columns are not obligatory):**  |
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| **Metal** | Numberof sites | Maximum quantity of sludge authorized(tonnes dry matter) | Soil type(including hydrological characteristics) | pH | New limit value(mg/kg dry matter) | Comments and/or reasons for the derogation(use a separate sheet if necessary) |
| **Copper** |  |  |  |  |  |  |
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| **Nickel** |  |  |  |  |  |  |
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| **Zinc** |  |  |  |  |  |  |
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| **2. (e) If any less stringent limit values for heavy-metal concentrations in soils have been permitted in accordance with Annex I C, footnote 1, please complete the following table, stating whether any of the information given is an estimate.**  |
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| --- | --- | --- | --- | --- | --- | --- |
| **Metal** | Numberof sites | Surface area covered (ha) | Soil type(including hydrological characteristics) | pH | New limit value(mg/kg dry matter) | Comments and/or reasons for the derogation(use a separate sheet if necessary) |
| **Cadmium** |  |  |  |  |  |  |
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| **Copper** |  |  |  |  |  |  |
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| **Nickel** |  |  |  |  |  |  |
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| **Lead** |  |  |  |  |  |  |
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| **Zinc** |  |  |  |  |  |  |
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| **Mercury** |  |  |  |  |  |  |
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| **Chromium** |  |  |  |  |  |  |
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| **3. (a) With regard to Article 6, please briefly describe the technologies employed for treating sludge.** |
| Anaerobic digestion, aerobic digestion, lime stabilization, composting, and chemical oxidation. *The Åland Islands:* Anaerobic digestion, aerobic digestion, lime stabilization, composting and drying. |
| **3. (b) Have rules been drawn up to ensure that analyses are carried out at more frequent intervals than those provided for in Annex II A (1)? (Yes/No)** | Yes  |
| **3. (c) If the answer to (b) above is ‘Yes’, please give further details.** |
| According to Annex 4 of the Government Decree on Waste 978/2021, in order to monitor quality fluctuations, samples of sludge intended for use in agriculture shall initially be taken at short intervals. If there is little fluctuation in results during the first year, analysis frequency can be reduced. The frequency of analyses shall be determined by the size of the sewage treatment plant as follows:

|  |  |
| --- | --- |
| Population equivalent  | Frequency of analyses/year |
| First year | Later years |
| >100 000  |  ≥12 |  ≥4 |
| ≤10 000 - <100 000 |  ≥6  |  ≥3 |
| ≤2 000 - <10 000 |  ≥4 |  ≥2 |
| ≤500 - <2 000 | ≥ 1 | ≥ 1 |
| < 500 | ≥ 1 | at least once every two years |

Whenever the quality of the incoming sewage water is altered significantly, the frequency of analyses shall be increased to at least the level required during the first year.*Regarding the Åland Islands:* See the report for the period 1995-1997. No rules have been drawn up. |
| **3. (d) Have conditions been laid down for authorizing the injection or working into the soil of untreated sludge (Article 6 (a))? (Yes/No)** | No |
| **3. (e) If the answer to (d) above is ‘Yes’, please give further details.** |
| Injection of untreated sludge is not authorized. |
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| **4. With regard to Article 7, please indicate, where appropriate, the length of the period during which it is forbidden to use sludge on grassland before it is grazed, and on forage crops before harvest.** |
| Sludge may not be spread on grasslands before it is grazed or on forage crops before harvest (Section 11 a of the Ministry of Agriculture and Forestry Decree 24/11 on Fertilizer Products, as amended by Decrees 12/12 and 7/13).*Regarding the Åland Islands:* On grassland it is permitted to use sludge just before sow, but it is not permitted to grow potatoes, root-crops and vegetables until at least five years have passed after spreading the sludge. |
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| **5. (a) Have any reduced limit values or, where appropriate, any other measures, been authorized at national level where the pH of the soil is below 6, as provided for in Article 8? (Yes/No)** | Yes |
| **5. (b) If the answer to (a) above is 'Yes' please complete the following table:**  |
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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Metal** | Cadmium | Copper | Nickel | Lead | Zinc | Mercury | Chromium |
| **Reduced limit value**(mg/kg/dry matter) | 0,5 | 100 | 60 | 60 | 150 | 0,2 | 200  |
| **Other Measures** | Sludge may be used only on cultivated soil with a pH value above 5.8. If lime-stabilized sludge is used, the pH value of the soil shall be above 5.5. (Ministry of Agriculture and Forestry Decree 24/11 on Fertilizer Products (as amended by Decree 7/13), Section 11 a)  |

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| **6. (a) If appropriate, indicate which types of analysis are carried out, pursuant to Article 9, on soil parameters in accordance with Annex II B (1), other than those mentioned in Annex II B (3) (pH and heavy metals).** |
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| **6. (b) State the minimum frequency of soil analysis (Annex II B (2)).** |
| If there is any doubt that the concentrations of heavy metals in the agricultural soil are too high, the first samples shall be taken before the sludge is spread for the first time. If, based on the loads of heavy metals, there is reason to assume that the maximum concentrations of heavy metals may be exceeded, a new analyze shall be made within five years. (Ministry of Agriculture and Forestry Decree 24/11 on Fertilizer Products (as amended by Decrees 12/12 and 7/13), Section 11 a and Annex VI)*Regarding the Åland Islands:* Every 5th year. |
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| **7. On the basis of the data contained in the records referred to in Article 10, complete the following tables, stating whether the information given is an estimate.**  |
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|  |  |  |
| --- | --- | --- |
|  | Dry matter(tonnes/year) | Surface covered(optional) |
|  2021 |  2022 |  |  2019 |  2020 | 2021 |
| **Sludge produced by the** **waste water treatment plants** | 155 211 | 154 397 |  |  |
| **Sludge used in agriculture** | 59 563 | 60 466 |  |  |  |  |

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| SLUDGE USED IN AGRICULTURE Average content (mg/kg dry matter) |
| **Parameters** |  2021 | 2022 | - |
|  METALS |
| **Cadmium** | 0,55 | 0,56 |  |
| **Copper** | 291 | 235 |  |
| **Nickel** | 35 | 26 |  |
| **Lead** | 7 | 10 |  |
| **Zinc** | 343 | 409 |  |
| **Mercury** | 0,19 | 0,28 |  |
| **Chromium** | 104 | 32 |  |
|  |
| **Nitrogen (total N)** | 42 000 | 31 658 |  |
| **Phosphorus (total P)** | 16 600 | 20 159 |  |

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| **8. State the number of cases in which exemptions under Article 11 have been granted.** |
| Exemptions concerning the required frequency of analyses of sludge/year have been granted to waste water treatment plants with less than 2000 person equivalents (see answer to question 3(c)). There are approx. 200 plants with 100-2000 person equivalents in Finland.*Regarding the Åland Islands:* No sludge was used in agriculture if the sludge is produced in ordinary waste water treatment plants. |
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| **9. National websites for dissemination of the consolidated records in accordance with Article 10(2)** **Provide links to national websites where records referred to in Article 10(1) are made available and easily accessible to the public in a consolidated format.**  |
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