

Country Report

for Latvia

Implementation and status of priority measures

Baltic Compass WP3

Cover Note

In order to keep the focus of the data collection narrow, we are not interested in collecting information on EU regulatory requirements that are common to the BSR. Instead please focus on those requirements that are specifically national or local in design. For example, do not cover Nitrates Directive requirements that are common BSR (eg N-limit) but DO cover the way that action plans have been devised, what they include and how they operate.

To avoid repetition, if the information you are supplying in a section is common to several measure then please provide a description on one form only and then make links back to this form.

1. Promoting long-term grass cultivation of arable land

Cultivation of grass or legume/grass crops on arable land with high/low inputs of nitrogen (N) and phosphorus (P) and high/low outputs of feed, food or other services can reduce nitrogen and phosphorus leaching and surface run-off losses as well as soil erosion, compared with annual crops on arable land.

Crop rotations including **permanent grass or legume/grass crops** can decrease N leaching with 50%, compared with crop rotations dominated by annual crops.

Describe this measure in your country if different : There is no such measure defined in Latvia

1. Is there any official quantified goal that states to what extent this measure should be implemented?

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above?
 "0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it?
 "0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments:

2. Vegetative cover in autumn and winter of arable land

Annual winter crops, such as winter wheat or winter rape, can provide a vegetative cover that actively takes up available nitrogen and phosphorus from the soil more efficient than annual spring crops at a seasonal period with high precipitation and cool climate.

Catch crops can be under-sown in the main crop, simultaneously with, or just after the sowing of this crop. When the main crop is harvested, the catch crop has an established root system ready to take up nitrogen from the soil during late summer and autumn. Nitrogen that otherwise could have been leached is then taken up and incorporated into plant material. The catch crop is then ploughed-in as late as possible in autumn or in spring. Perennial ryegrass (*Lolium perenne* L.) as a catch crop is an effective measure to reduce N leaching in spring cereal crop production. The use of catch crops has reduced N leaching by 50% or more in several studies. The effect of the catch crop on N leaching depends on precipitation and drainage conditions, available N amounts in soil and how successful the establishment of the catch crop was.

Describe this measure in your country if different : “Reduction of erosion” - support for farmers available to increase proportion of agricultural lands covered by vegetation, to promote mitigation of erosion processes and preservation of plant nutrients in soils.

1. *Is there any official quantified goal that states to what extent this measure should be implemented?* **Yes**

- *If "Yes";*
 - a) *specify quantity and unit:* 50% of the arable land environmentally vulnerable areas
 - b) *if applicable, what year to be realized?* 2004 (initially 30%) at the 2008 started 50%
 - c) *give reference(s):* Cabinet of Ministers Regulations No.531, Action Programme for Environmentally Vulnerable Areas.
- *If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit:* [redacted]

2. *To what extent is this measure implemented today in relation to goal set above?* **8**
 "0"=Not at all; "10"=Goal already reached

3. *If goal is not reached; how do you judge the possibilities to fulfill it?* **10**
 "0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country: Easy to reach. Climate changes can influence process, for example rainy autumn. Small farms could avoid implementation, since they are not so educated and informed about regulations.

Is this measure regulated in legislation? **Yes** *If "Yes", national* *or regional* *rules*

Reference(s) to legislation:

Cabinet Regulations No.33 (11.01.2011) “On water and soil protection against pollution caused by nitrates from agricultural sources”

Action programme for sensitive areas (responsibility of the Ministry of Agriculture and Ministry of the Environment). According to the Nitrate directive, in May 2004 the Action programme was approved for particularly sensitive territories requiring high demands regarding water and soil protection from the nitrate pollution caused by agricultural actions.

Comments: Set only for Zemgale region which is nominated as environmentally vulnerable area in Latvia.

Is this measure entitled to economic subsidy? Yes If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules: Rural development plan 2004-2006. Riga, November 30, 2004. (prot. Nr.68 76.§)

Comments: Applicable to all territory of country. Plant cover for Nitrate vulnerable area 75% required, for the rest of territory 50%.

The last year for support measure 2010. Support stopped due to lack of finances.

3. Soil tillage management

3.1. Reducing soil tillage by conversion from ploughing to minimal or no cultivation management systems or conversion from deep ploughing to shallow ploughing can reduce mineralization of organic matter in soil. Type of techniques can be, i.e. using discs or tines to cultivate the soil, or direct drill into stubbles (no-till).

Describe this measure in your country if different : Included as recommendation in Good Agriculture Practice

1. *Is there any official quantified goal that states to what extent this measure should be implemented? No*

- *If "Yes";*
 - a) *specify quantity and unit:*
 - b) *if applicable, what year to be realized?*
 - c) *give reference(s):*
- *If "No", what is your expert opinion of the desirable level in 5 years?*
quantity and unit: Around 20% of arable land could be cultivated with reduced soil tillage

2. *To what extent is this measure implemented today in relation to goal set above? 7*
 "0"=Not at all; "10"=Goal already reached

3. *If goal is not reached; how do you judge the possibilities to fulfill it? 7*
 "0"=Impossible; "10"=Very good

Comments: Scientifically based evaluation of efficiency of measure is lacking in Latvia. There are still negative influences - pesticides must be applied in higher extent. Plant diseases and pests are observed more often.

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? No If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? **Yes** If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules: RURAL DEVELOPMENT PROGRAMME FOR LATVIA 2007–2013, Axis 1. Promotion of the competitiveness of Agricultural and Forestry sectors, Modernisation of Agricultural Holdings

Comments: Indirect support to the implementation of measure. Support to the investments in machinery, technologies.

3.2 Time-of the year effects. By postpone tillage actions from autumn to spring, the mineralized nitrogen will be available for uptake by the established spring crops, which also will provide surface cover.

Describe this measure in your country if different : Stubble fields in winter period

1. Is there any official quantified goal that states to what extent this measure should be implemented? **Yes**
 - If "Yes";
 - a) specify quantity and unit: **32 000 Ha**
 - b) if applicable, what year to be realized? **Every year in planning period**
 - c) give reference(s): RURAL DEVELOPMENT PROGRAMME FOR LATVIA 2007–2013
 - If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit:
2. To what extent is this measure implemented today in relation to goal set above? **10**
"0"=Not at all; "10"=Goal already reached
3. If goal is not reached; how do you judge the possibilities to fulfill it? **10**
"0"=Impossible; "10"=Very good

Comments: 59000 Ha applied for the measure

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country: Interest for measure is much higher as planned

Is this measure regulated in legislation? **No** If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? **Yes** If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules: RURAL DEVELOPMENT PROGRAMME FOR LATVIA 2007–2013, Axis 2

Comments:

4. Fertilisation management

4.1. Adapting amounts applied for both chemical fertilizer and manure.

Animal density is a tool to express the number and type of animals kept at the farm in relation to the arable area available for spreading their manure. The tool is used to balance amounts of produced N and P in manure to available spreading area at the farm in order to avoid surplus application of N and P with manure.

Considering crop requirements of N and P in the fertilising plan is a prerequisite for avoiding excessive applications. Nitrogen and P content in manure shall be considered in the fertiliser plan in order to adapt the need of chemical fertilizers and avoid excessive applications.

Sampling and analysing N and P in manure gives information of the N and P concentration and the distribution of plant available-N and organic-N. Then the effect of the manure can be valued in the fertilising plan. Manure characteristics can vary a lot. Liquid manure is a general term that denotes any manure from housed livestock that flows under gravity and can be pumped. Liquid manure can have a high proportion of plant available N (NH₄-N + NH₃-N) of total-N content. Solid manure is a general term that denotes any manure from housed livestock with large amounts of bedding that does not flow under gravity, cannot be pumped but can be stacked in a heap. Solid manure can have a high proportion of organic-N of total-N content.

Sampling and analysing N and P in arable soil gives information of soil fertility concerning these nutrients, which should be considered in the fertilising plan in order to avoid excessive fertilizer applications or deteriorated soil fertility.

Describe this measure in your country if different :

1. Is there any official quantified goal that states to what extent this measure should be implemented? **Yes**

- If "Yes";
 - a) specify quantity and unit: **~ 25 % of arable land in Latvia**
 - b) if applicable, what year to be realized? **2008**
 - c) give reference(s): **Action Plan for Nitrate Vulnerable Area**
- If "No", what is your expert opinion of the desirable level in 5 years?
quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above? **5**
"0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it? **7**
"0"=Impossible; "10"=Very good

Comments: Success of level of implementation will depend on rise of awareness and increase of education level of farmers, as well as more active and professional work of controlling authorities.

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

*Is this measure regulated in legislation? **Yes** If "Yes"; national or regional rules*

Reference(s) to legislation:

Cabinet Regulations No.33 (11.01.2011) "On water and soil protection against pollution caused by nitrates from agricultural sources"

Action programme for sensitive areas (responsibility of the Ministry of Agriculture and Ministry of Environmental Protection and Regional Development). According to the Nitrate directive, in May 2004 the Action programme was approved for particularly sensitive territories requiring high demands regarding water and soil protection from the nitrate pollution caused by agricultural actions.

Comments: Fertilising plans mandatory should be elaborated only for Nitrate Vulnerable area, Zemgale region in Latvia.

Is this measure entitled to economic subsidy? Yes If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules: RURAL DEVELOPMENT PROGRAMME FOR LATVIA 2007–2013, Axis 1. Promotion of the competitiveness of Agricultural and Forestry sectors, Modernisation of Agricultural Holdings

Comments: Indirect subsidies - support for investments in manure application and fertilising technologies.

4.2. Calculating nutrient balances on farm- and/or field level

Calculating N and P inputs/outputs and balances on farm and/or field level is a performance tool and a policy tool for assessing the environmental impact. The tool can also be used to monitor and evaluate the impacts of alternative manure and chemical fertilizer management practices and technologies on N and P use at the farm. When farm N and P balances can be linked to within-farm N and P sources and flows, there is a good possibility to identify the weakest link and possible improvements on the farm. The tool can be used to assess the risk of ammonia losses from manure management and the risk of N leaching losses to water.

Describe this measure in your country if different : Maximum amount is limited for N 170 kg/ha. Also amounts of P and K are calculated. Plans are mandatory for Sensitive areas. Development of fertilization plans of cultivated plants and accounting of fertilizer usage (effective in particularly sensitive territories) Farmers who apply fertilisers for 20 ha or more, and grow vegetables, fruit trees or berries 3 ha or more - prepare and implement fertiliser plans. Plans must be made based on soil agrochemical mapping data, which is not older than 5 years. Fertilization plan must be developed and submitted to State Plant Protection Service yearly until May 15. If developed fertilizer plan of the cultivated plants specifies or faces significant changes (for example, the planned ha of winter corps change) corrected fertilizer plans are submitted no later than within 10 days after the planned change. Fertiliser plans must be stored at least for 3 years. In each farm, the annual amount of organic fertilisers used in farmland areas shall not exceed 170 kg nitrogen/ha, which equals 1.7 livestock units per hectare. The maximum allowable nitrogen fertiliser norms for different crops:

- Field and pasture grasses 190 (kg / ha)
- Grasslands with a high prevalence of legume 35 (kg / ha)
- Winter wheat 180 (kg / ha)

- Winter barley 150 (kg / ha)
- Winter triticale 140 (kg / ha)
- Winter rye 130 (kg / ha)
- Spring wheat 170 (kg / ha)
- Spring barley 130 (kg / ha)
- Oats 110 (kg / ha)
- Sugar-beet 190 (kg / ha)
- Potato 150 (kg / ha)
- Rape oil production 200 (kg / ha)
- Linseed 60 (kg / ha)
- Legumes 40 (kg / ha)
- Maize 160 (kg / ha)
- Strawberries 120 (kg / ha)
- Fruit trees 130 (kg / ha)
- Carrots 160 (kg / ha)
- Other Vegetables 220 (kg / ha)
- Cultivated grassland 240 (kg / ha)

Maximum levels of nitrogen fertilizer rates may be exceeded if the balance of the field intensity of nitrogen (n) does not exceed 120%.

1. Is there any official quantified goal that states to what extent this measure should be implemented? **Yes**

- If "Yes";
 - a) specify quantity and unit: **25% of arable land (Nitrate vulnerable territory)**
 - b) if applicable, what year to be realized? **2008**
 - c) give reference(s): **Action Programme for Nitrate vulnerable Areas**
- If "No", what is your expert opinion of the desirable level in 5 years?
quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above? **3**
"0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it? **7**
"0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? **Yes** If "Yes"; national or regional rules

Reference(s) to legislation: Cabinet Regulations No.33 (11.01.2011) "On water and soil protection against pollution caused by nitrates from agricultural sources"

Action programme for sensitive areas (responsibility of the Ministry of Agriculture and Ministry of the Environment). According to the Nitrate directive, in May 2004 the Action programme was approved for particularly sensitive territories requiring high demands regarding water and soil protection from the nitrate pollution caused by agricultural actions.

Comments:

Is this measure entitled to economic subsidy? No If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments: Cross Compliance Consultations through Agriculture Advisory Centre.

4.3. Avoiding the spreading of chemical fertilizers and manure during high-risk periods.

The timing of chemical fertilizer and manure application is a key factor to have a high plant nutrient use efficiency. Poor timing is one of the most important sources of large N leaching loads.

Describe this measure in your country if different :

In sensitive territories (set in line with the Nitrates Directive) solid manure, liquid manure, slurry and sewage sludge shall not be spread between 15 November and 1 March.

Restrictions on applying any type of organic and chemical fertilisers (for all territory):

- a) fertilisers shall not be spread on frozen, over-moist and snow-covered soil;
- b) in case of alluvial and flood endangered areas, fertilisers shall be spread only after the end of the potential flood season; in the aforementioned areas chemical fertilisers shall be spread only during vegetation period of cultivated plants;
- c) on slopes fertilisers shall be spread not closer than 50m from the coastline of a water course or water body provided that the slant of the slope towards the water course or water body exceeds 10 degrees;
- d) fertilisers may be spread on slopes if the field is covered in vegetation or fertilisers are immediately dug into the soil;

1. *Is there any official quantified goal that states to what extent this measure should be implemented? Yes*

- *If "Yes";*
 - a) *specify quantity and unit: 100 % arable land*
 - b) *if applicable, what year to be realized? 2004*
 - c) *give reference(s): Cabinet Regulations No.33, 11.01.2011, Recommendations of Good Agriculture Practice*
- *If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit: [redacted]*

2. *To what extent is this measure implemented today in relation to goal set above? 7*

"0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it? **7**
 "0"=Impossible; "10"=Very good

Comments: Climate and human factor influence reaching of the goal.

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? **Yes** If "Yes"; national or regional rules

Reference(s) to legislation: Regulations of Cabinet of Ministers Nr.33, 11.01.2011 "Regulations for water and soil protection from the nitrate pollution caused by agriculture activities", Regulations of Cabinet of Ministers Nr.628, 27.07.2004, "Special environmental requirements for polluting action in animal housings"

Comments: Limitations for manure application are set for all country territory, but more specified and stricter rules are applied for nitrate sensitive area (Zemgale).

Is this measure entitled to economic subsidy? **Yes** If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules: RURAL DEVELOPMENT PROGRAMME FOR LATVIA 2007–2013, Axis 1. Promotion of the competitiveness of Agricultural and Forestry sectors, Modernisation of Agricultural Holdings

Comments: Indirect subsidies - support for investmets in manure application and fertilising technologies, manure storages.

4.4. No or reduced P-fertiliser for high soil P fields or part of fields.

When the soil P values increase beyond agronomical optimum ranges, there is a reasonable consistence pattern whereby P leaching increase significantly. However, P leaching has large spatial and temporal variations and can be influenced by several factors interacting with each other. It is therefore important to consider site-specific factors to be able to find measures to reduce P leaching.

Describe this measure in your country if different : There is no such measure defined in Latvia

1. Is there any official quantified goal that states to what extent this measure should be implemented? No

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above?
 "0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it?
 "0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments:

5. Improved spreading technology of manure and chemical fertiliser

5.1 Site-specific dosage. In all fertiliser application, the use of **Global Positioning System** (GPS) signals for the purpose of determining the device's current location on earth can improve the possibilities for a controlled and proper distribution. GPS devices provide latitude and longitude information, and some may also calculate altitude. GPS in combination with **steering aid systems** means that the fertiliser can be spread with a minimum of bare spots and overlaps. The simpler variant of the steering aid system is called **guidance**, where a ramp with a series of LEDs shows whether the driver is located right on line or if he should adjust to the right or left. **Auto steer** is an automated steering system where the driver does not need to actively steer the vehicle except perhaps in curves or when turning. With the use of GPS technology, it is also possible to map different properties in the field, and later on use this information e.g. for **site specific spreading** of fertilisers.

Describe this measure in your country if different : There is no such measure defined in Latvia

Only spreading methodology is defined in legislation. No requirements for GPS management systems.

1. Is there any official quantified goal that states to what extent this measure should be implemented? **No**

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit: **2**

2. To what extent is this measure implemented today in relation to goal set above?
 "0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it?
 "0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country: Testing of spreading equipment is required by legislation starting from 2011.

Is this measure regulated in legislation? If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? **Yes** If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules: Indirectly measure is subsidized: RURAL DEVELOPMENT PROGRAMME FOR LATVIA 2007–2013, Axis 1. Promotion of the competitiveness of Agricultural and Forestry sectors, Modernisation of Agricultural Holdings

Comments:

5.2 Combined drilling is when seeding and fertilisation is done with one and the same machine in one working operation. A drilling machine with normal distance between the drill coulters is equipped with coulters for chemical fertilisers placed in front of the drill coulters between every other row. Fertiliser coulters are placing chemical fertiliser a few centimetres deeper than the seeds.

Chemical fertiliser placed at this depth, provides good conditions for the crop to take up the added nutrients. This procedure is, in addition to time savings and a better nutrient utilization, reducing competition for plant nutrients from weeds and reduces the risk of nutrient surface runoff. Phosphorus in fertilizers binds quickly to soil particles and is thus less exposed to leaching.

The recommended nitrogen ration at a given harvest level can be reduced by 10 kg N / ha, if combined drilling is applied (Albertsson, 2010). Leaching will probably be reduced by 1-2 kg N/ha compared with other fertilization techniques.

Describe this measure in your country if different : There is no official requirement for use of combined drilling. Farmers introduce technology themselves, since consider this as economically efficient production technology.

1. Is there any official quantified goal that states to what extent this measure should be implemented? **No**

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years?
quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above?
"0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it?
"0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? **No** If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? **Yes** If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules: RURAL DEVELOPMENT PROGRAMME FOR LATVIA 2007–2013, Axis 1. Promotion of the competitiveness of Agricultural and Forestry sectors, Modernisation of Agricultural Holdings

Comments: Indirect subsidies - support for investmets in technologies.

5.3 Incorporation of manure and chemical fertiliser may be achieved with equipments such as discs or cultivators depending on soil type and soil conditions. Usually the incorporation is done in a separate working operation. The manure/ chemical fertiliser must be completely incorporated within the soil to achieve maximum efficiency. As regards liquid manure, incorporation should be made quickly after spreading as ammonia losses takes place immediately after spreading.

This method will help to prevent the exposure of manure to the surface runoff and drain-flow losses. It will also increase the utilisation of manure nutrients compared with surface application.

Describe this measure in your country if different : Incorporation is defined only for application of manure in Nitrate Sensitive areas. After spreading over the arable land, solid manure shall be incorporated into the soil within 24 hours, liquid manure and slurry - within 12 hours (sensitive areas). In autumn the liquid manure for field fertilizing can be applied only together with plant leftowers after harvesting (stubbles, chopped straw, mass of grassland roots), applying tillage or ploughing. Fertilisers can be spread on slopes if the

field is covered in vegetation or fertilisers are immediately dug into the soil.

1. Is there any official quantified goal that states to what extent this measure should be implemented? **Yes**

- If "Yes";
 - a) specify quantity and unit: **~ 25 % of arable land in Latvia**
 - b) if applicable, what year to be realized? **2004**
 - c) give reference(s): **[redacted]**
- If "No", what is your expert opinion of the desirable level in 5 years?
quantity and unit: Regulations of Cabinet of Ministers Nr.33 and 628

2. To what extent is this measure implemented today in relation to goal set above? **5**
"0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it? **8**
"0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? **Yes** If "Yes"; national or regional rules

Reference(s) to legislation:

Comments: Regulations of Cabinet of Ministers Nr.33, 11.01.2011 "Regulations for water and soil protection from the nitrate pollution caused by agriculture activities", Regulations of Cabinet of Ministers Nr.628, 27.07.2004, "Special environmental requirements for polluting action in animal housings".

Is this measure entitled to economic subsidy? **Yes** If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules: RURAL DEVELOPMENT PROGRAMME FOR LATVIA 2007–2013, Axis 1. Promotion of the competitiveness of Agricultural and Forestry sectors, Modernisation of Agricultural Holdings

Comments: Indirect support for purchase of machinery

5.4 Liquid manure. Distribution uniformity of liquid manure has improved significantly with the introduction of **band spreading** technology, where the manure is discharged just above ground level in strips or bands through a series of hanging or trailing pipes attached to a boom. As the liquid manure is distributed laterally via a ramp, good lateral distribution uniformity is achieved. The spread in the longitudinal direction can also be kept at a constant level by means of the pumping equipment which is part of the equipage. Some newer spreaders are also equipped with a **control system** that automatically adjusts the output to the driving speed, which will keep the application rate to the desired level.

Injection of liquid manure means that it is applied directly into the active layer of soil, either in open or in closed slots. In the latter case manure is fully covered after injection, by closing the slots with press wheels or rollers fitted behind the injection

tines. Closed-slot injection is more efficient than open-slot for decreasing the ammonia emission. To obtain this added benefit, soil type and conditions must allow effective closure of the slot.

Describe this measure in your country if different : There is no such measure required. Only few farms has introduced band spreading or injection systems. Due to high investments.

1. Is there any official quantified goal that states to what extent this measure should be implemented? **No**

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years?
quantity and unit: **5%**

2. To what extent is this measure implemented today in relation to goal set above?
"0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it?
"0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? **Yes** If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules: RURAL DEVELOPMENT PROGRAMME FOR LATVIA 2007–2013, Axis 1. Promotion of the competitiveness of Agricultural and Forestry sectors, Modernisation of Agricultural Holdings

Comments: Investment support for purchase of technology.

5.5 Solid manure. In solid manure handling, **disintegration equipment** has been developed that breaks the manure better and gives greater working width and more uniform spreading laterally. Distribution of solid manure in the longitudinal direction and opportunities to set the intended application rate still leaves much to be desired.

Describe this measure in your country if different : There is no such measure introduced in Latvia

1. Is there any official quantified goal that states to what extent this measure should be implemented?

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above?
 "0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it?
 "0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments:

5.6 Manure spreading and NH₃ emissions – general measures. Variables significantly affecting NH₃ emissions after spreading of manure are soil water content, air temperature, wind speed, manure type, dry matter content of manure, total ammoniacal nitrogen content of manure (TAN=NH₃-N+NH₄-N), application method and rate and manure incorporation. Losses of NH₃ can vary between 3 to 90% of the NH₄-N applied with manure.

Describe this measure in your country if different : described in Good Agriculture Practice Recommendations

1. Is there any official quantified goal that states to what extent this measure should be implemented? **Yes**

- If "Yes";
 - a) specify quantity and unit: **~ 25 % of arable land**
 - b) if applicable, what year to be realized? **2004**
 - c) give reference(s): **Good Agriculture Practice Recommendations**
- If "No", what is your expert opinion of the desirable level in 5 years?
quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above? **5**
"0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it? **8**
"0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? **Yes** If "Yes"; national or regional rules

Reference(s) to legislation:

Comments: Codes of Good Agriculture Practice (responsibility of the Ministry of Agriculture) first edition in 1999, update in 2008 CGAP is comprehensive collection of practical advice, recommendations and legislation covering the main fields of agricultural activity and applicable on a voluntary basis on the whole territory of Latvia. Part of the requirements is obligatory and embedded in legislation for sensitive areas.

Is this measure entitled to economic subsidy? **No** If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments:

6. Avoiding the application of chemical fertilisers and manure to high-risk areas

Examples of high risk areas on arable land are those: with a significant slope, with flushes draining to a nearby watercourse, soils with cracks over field drains, fields adjacent to water or fields with phosphorus values beyond agronomical optimum ranges.

Describe this measure in your country if different : There is no specific measure introduced in Latvia, recommendations described in Good Agriculture Practice.

1. Is there any official quantified goal that states to what extent this measure should be implemented? **Yes**

- If "Yes";
 - a) specify quantity and unit: **~25% of arable land**
 - b) if applicable, what year to be realized? **2004**
 - c) give reference(s): **[redacted]**
- If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit: **[redacted]**

2. To what extent is this measure implemented today in relation to goal set above? **5**
 "0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it? **6**
 "0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? **Yes** If "Yes"; national or regional rules

Reference(s) to legislation: Regulations of Cabinet of Ministers Nr.33, 11.01.2011 "Regulations for water and soil protection from the nitrate pollution caused by agriculture activities", Regulations of Cabinet of Ministers Nr.628, 27.07.2004, "Special environmental requirements for polluting action in animal housings"

Comments:

Is this measure entitled to economic subsidy? **No** If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments: There is no economical subsidy, but instead fine if farmers do not follow requirements.

7. Measures to optimize soil pH and improve soil structure

Measures to improve soil fertility and soil structure can increase the crop's plant nutrient use efficiency and decrease the risk of N and P leaching and surface run-off. Such measures can be liming for improved soil structure or liming for optimizing soil pH.

Describe this measure in your country if different : One of the Code of Good agriculture practice measures defines that plant leftovers after harvesting must be incorporated in to soil, to improve soil structure.

1. Is there any official quantified goal that states to what extent this measure should be implemented? **Yes**

- If "Yes";
 - a) specify quantity and unit: **75 % of arable land needs to be limed**
 - b) if applicable, what year to be realized? **not identified**
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years?
quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above? **2**
"0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it? **4**
"0"=Impossible; "10"=Very good

Comments: High financial resources are needed for liming of soils, but currently there is low availability.

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? **Yes** If "Yes"; national or regional rules

Reference(s) to legislation: Codes of Good Agriculture Practice (responsibility of the Ministry of Agriculture) first edition in 1999, update in 2008.

Comments: CGAP is comprehensive collection of practical advice, recommendations and legislation covering the main fields of agricultural activity and applicable on a voluntary basis on the whole territory of Latvia. Part of the requirements is obligatory and included in legislation for sensitive areas.

Is this measure entitled to economic subsidy? **No** If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments: Motivating action - Support payments are available only if CGAP recommendations are followed. If farmers does not follow the requirements, area payments will be reduced.

8. Adapted feeding

8.1 Adopting phase feeding of livestock

Livestock at different growth stages or stages of the reproductive cycle have different optimum nutritional requirements. Greater division and grouping of livestock on the basis of their feed requirements allows more precise formulation of individual rations. This increases the animal's nutrient use efficiency and results in reduced excreted amounts of nitrogen and phosphorus in fresh animal faeces and urine.

Describe this measure in your country if different : There is no defined amounts and regulations for feeding. Only Animal welfare regulations sets rules for animal feeding.

1. Is there any official quantified goal that states to what extent this measure should be implemented?

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above?
 "0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it?
 "0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments:

8.2 Reducing dietary nitrogen and phosphorus intakes

Farm animals are often fed diets with higher than recommended contents of nitrogen and phosphorus as a safeguard against a loss of production arising from a deficit of these nutrients. A surplus intake of nitrogen and phosphorus is not utilised by the animal and is excreted with faeces and urine, leading to a larger N and P content in the manure. Therefore a ratio balancing of nutrients in feed is a key factor to both ensure animal health and production requirements and minimizing adverse environmental impacts. To improve nutrient use efficiency purchased as well as home-produced feed components need careful management and analysis of nutrient content and dietary value.

Describe this measure in your country if different : There is no defined amounts and regulations for feeding. Only Animal welfare regulations sets rules for animal feeding.

1. Is there any official quantified goal that states to what extent this measure should be implemented?

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above?
 "0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it?
 "0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments:

8.3 Phytase supplementation

Supplementation of synthetic phytase to pig feed reduces the need for the addition of mineral phosphate. Phytase increases the availability of phosphorus in the feed and allows total phosphorus contents to be reduced without affecting productivity. With the addition of phytase the phosphorus content of the feed can be reduced by up to 30% for pig feed.

Describe this measure in your country if different : There is no requirements. If Latvia uses, then only voluntarily entrepreneur decides due to economical reasons.

1. Is there any official quantified goal that states to what extent this measure should be implemented?

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above?
 "0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it?
 "0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments:

8.4 Wet feed and fermentation

Endogenous phytase in grain can be activated by wetting the pig feed some time before feeding thereby reducing or even eliminating the need for mineral phosphorus supplementation. This means that pig production with wet feed systems should be able to utilise feed with lower phosphorus content than normally recommended.

Fermentation of the feed can reduce the need for mineral phosphate supplementation. Fermentation occurs naturally in wet feed after a certain amount of time. The fermentation process is difficult to manage and the method is still to be developed.

Describe this measure in your country if different : There is no rules for wet feed and fermentation in Latvia.

1. Is there any official quantified goal that states to what extent this measure should be implemented?

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above?
 "0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it?
 "0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments:

9. Reducing ammonia losses in stable

Key emissions to air from animal housing emissions are ammonia (NH₃), odor and dust. The level and variation of ammonia emissions from animal housing are determined by many factors, which also interact. Factors influencing ammonia emissions from animal housing are:

- Increased nitrogen use efficiency.
- Decreased emitting areas with manure in the stable.
- Avoiding high temperature in stable and manure
- Adapting airflows along manure surfaces.
- Use and choice of bedding material.

Describe this measure in your country if different : no obligatory regulations or recommendations. Farmers voluntarily decide about measures, to reduce odour of manure and save costs.

1. Is there any official quantified goal that states to what extent this measure should be implemented?

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above?
 "0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it?
 "0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? No If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? Yes If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules: The only subsidy is support to the reconstruction and construction of agriculture facilities from the RDP 2007-2013.

Comments: Support for investments in agriculture holdings.

10. Storage of manures

Adequate collection and storage facilities provide the possibility to choose a time to apply manure to fields when the crops can utilize N and P and there will be fewer occasions when lack of capacity forces the farmer to spread manure at unsuitable times.

Manure storage must be of such a quality that it prevents N, P and manure losses. The main influencing factors on the ammonia losses from storages are manure properties (pH, dry matter content) temperature and wind conditions, filling technology, storage time, and for liquid manure storage ratio surface: volume, crust formation and mixing methodology.

Ammonia losses can be sharply reduced if the air directly above the liquid manure store is prevented from circulating. A method that efficiently reduces NH₃ losses is to cover the liquid manure stores with, for instance, a roof, a floating plastic cover or a stable natural crust. If the liquid manure storage is filled underneath the cover, this can be kept intact even during filling, which reduces the risk of NH₃ losses.

From storages with solid manure, especially if composting take place with high temperatures, NH₃ losses could be high. Peat included in the bedding material will reduce NH₃ losses during storage. Roofs on solid manure storages could be an effective measure to reduce ammonia losses from solid manure storages. Additionally, a roof keeps rainwater away,

which could prevent nutrient leakage from the manure pad if it has insufficient or lacking drainage leading to a collection pit.

Describe this measure in your country if different : Capacity of manure storage shall enable accumulation of the collected manure for solid manure - at least six months, for liquid manure and manure water reservoirs – for seven months. If liquid manure or solid manure storage capacity is too small to meet requirements, the farmer must contract other farm or other entity with adequate capacity or deliver manure for processing outside farm. Manure collection and disposal systems in farms must be constructed of waterproof material that is resistant to the farm activities and possible machinery caused damages.

1. *Is there any official quantified goal that states to what extent this measure should be implemented?* **Yes**
 - *If "Yes";*
 - a) *specify quantity and unit:* **100 % of farms in Nitrate vulnerable areas starting from 5 animal units**
 - b) *if applicable, what year to be realized?* **2008**
 - c) *give reference(s):* **Action Plan for Nitrate Vulnerable Areas**
 - *If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit:*
2. *To what extent is this measure implemented today in relation to goal set above?* **6**
"0"=Not at all; "10"=Goal already reached
3. *If goal is not reached; how do you judge the possibilities to fulfill it?* **7**
"0"=Impossible; "10"=Very good

Comments: Financing for investments is needed, as well as farmers education level and responsibility should be improved.

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? **Yes** *If "Yes"; national* *or regional* *rules*

Reference(s) to legislation:

Comments: Regulations of Cabinet of Ministers Nr.33, 11.01.2011 "Regulations for water and soil protection from the nitrate pollution caused by agriculture activities", Regulations of Cabinet of Ministers Nr.628, 27.07.2004, "Special environmental requirements for polluting action in animal housings"

Is this measure entitled to economic subsidy? **Yes** *If "Yes"; national* *or regional* *subsidy rules*

Reference(s) to subsidy rules: RURAL DEVELOPMENT PROGRAMME FOR LATVIA 2007–2013, Axis 1. Promotion of the competitiveness of Agricultural and Forestry sectors, Modernisation of Agricultural Holdings

Comments: There is available support for agriculture production investments.

11. Constructed wetlands for nutrient reduction/retention

11.1 Sedimentation ponds

Small surface flow wetlands designed primarily to retain phosphorous. This is achieved by retaining eroded phosphorous bound to aggregates and particulate materials in the run-off water by optimizing the conditions for sedimentation processes. To some extent phosphorous and other nutrients are reduced due to biological and chemical decomposition and transformation processes as well as plant uptake.

A sedimentation pond is suitable for establishment in highly intensive small-scale agricultural areas. The ponds are relatively small representing approximately 0.1 – 0.5 % of the run-off area. The sedimentation pond is constructed for instance by widening a section in a ditch into a sedimentation pond slowing down the speed of the run-off water hence increasing sedimentation.

A sedimentation pond is often designed as a serial combination of (i) a sedimentation basin with a water depth of 1-1.5 m representing 20-30% of the total area of the sedimentation pond where the main sedimentation of larger particles takes place, followed by (ii) a wetland filter covered with typical wetland plants providing good conditions for sedimentation of smaller particles. In case the area is highly sloped it is suitable to include an overflow area followed by a second wetland filter prior to the outlet to further induce the sedimentation efficiency.

The accumulated sediments in the sedimentation basin need to be removed on regular basis for maintenance.

Describe this measure in your country if different : There is no such measure applied in Latvia

1. *Is there any official quantified goal that states to what extent this measure should be implemented?*

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit:

2. *To what extent is this measure implemented today in relation to goal set above?*
 "0"=Not at all; "10"=Goal already reached

3. *If goal is not reached; how do you judge the possibilities to fulfill it?*
 "0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments:

11.2 Constructed wetlands

Large free water surface wetlands are designed and constructed primarily for removal of nutrients, e.g. nitrogen and phosphorous and other pollutants from run-off water through sedimentation, biological and chemical transformation and degradation and plant uptake. Constructed wetlands have additional benefits, i.e. improved biodiversity, water storage capacity, resource recovery, irrigation possibilities and production of crop biomass.

Constructed wetlands are established, or re-established, to receive water from large run-off areas in arable as well as agricultural areas. The run-off area should be represented by at least 50 percent intensive agricultural land use with the constructed wetland covering approximately 0.5–4 % of the total run-off area.

An important characteristic is the establishment of typical emerges and submerges wetland vegetation. A constructed wetland provides heterogenic water regimes and environments. It is common with a mixture of areas with (i) permanently high water level, more or less covered with typical wetland vegetation, as well as (ii) periodically waterlogged areas with low water level. The water regime can also vary over the year.

Describe this measure in your country if different : There is no such measures applied in Latvia

1. Is there any official quantified goal that states to what extent this measure should be implemented?

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above?
"0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it?
"0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments:

12. Buffer-zones along water areas and erosion sensitive field areas

Buffer zones are uncultivated areas between fields and water courses, main ditches, ponds, lakes or gulfs. Buffer zones are also to be implemented in erosion sensitive field areas such as around surface water wells or surrounding field areas with high ground water levels.

Buffer zones reduce the speed of water surface run-off mitigating losses of eroded aggregates, soil particles, and particulate phosphorous and other soil borne pollutants. They also decrease the risk of freshly spread manure and pesticides to reach the water environment. Buffer zones are an especially important measure in areas with eroding problems. Buffer zones also provide conditions for biological and chemical transformation of pollutions as well as plant uptake.

The buffer zones are under permanent plant cover of dense grass or vegetation. Buffer zones are situated on former agricultural land and have a width of 5-20 m. They are not allowed to be cultivated, fertilized or sprayed with herbicides or pesticides. The vegetation should be kept dense and plants should be established if needed for maintenance.

Describe this measure in your country if different : Protective zones (for all Latvia territory) – in 10 m from rivers and watercourses application of fertiliser and plant protection products is prohibited. It is forbidden to store solid manure in piles on fields where surface runoff and plant nutrients leakages are possible. Manure piles shall be placed no closer than 30m (in sensitive areas 50 m) from river, stream, ditch, drainage systems, wells or wells, which are sources of drinking water.

1. Is there any official quantified goal that states to what extent this measure should be implemented? **Yes**

- If "Yes";
 - a) specify quantity and unit: **100 % of lands in all Latvia**
 - b) if applicable, what year to be realized? **2004**
 - c) give reference(s): **Law on Protective Zones**
- If "No", what is your expert opinion of the desirable level in 5 years?
quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above? **5**
"0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it? **8**
"0"=Impossible; "10"=Very good

Comments: Education of Farmers is needed and compensation for land where restrictions are set.

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? Yes If "Yes"; national or regional rules

Reference(s) to legislation: Rural development plan 2007 - 2013, measure Agroenvironment.

Comments: The objective of the sub-measure - protection zones is to improve application of environmentally friendly agriculture production methods in Environmentally sensitive areas and within regions with high land cultivation intensity.

Is this measure entitled to economic subsidy? Yes If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments: "Establishment of buffer belts" - Implementation of the sub-measure "Establishment of buffer belts" in especially vulnerable territories by creating grassland buffer belts for both surface water sites and fields reduced run-off of plant nutrients from agricultural lands.

Added measure; no and title

Description of measure

Describe this measure in your country if different :

1. *Is there any official quantified goal that states to what extent this measure should be implemented?*

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit:

2. *To what extent is this measure implemented today in relation to goal set above?*
 "0"=Not at all; "10"=Goal already reached

3. *If goal is not reached; how do you judge the possibilities to fulfill it?*
 "0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments:

Added measure; no and title

Description of measure

Describe this measure in your country if different :

1. Is there any official quantified goal that states to what extent this measure should be implemented?

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years? quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above?
 "0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it?
 "0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments:

Added measure; no and title

Description of measure

Describe this measure in your country if different :

1. Is there any official quantified goal that states to what extent this measure should be implemented?

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years?
quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above?
"0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it?
"0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments:

Integrētie - [http://www.lad.gov.lv/lv/es-atbalsts/tiesie-maksajumi/integretas-darzkopibas-ieviesana-un-veicinasana-\(idiv\)/](http://www.lad.gov.lv/lv/es-atbalsts/tiesie-maksajumi/integretas-darzkopibas-ieviesana-un-veicinasana-(idiv)/)

Description of measure

Describe this measure in your country if different :

1. Is there any official quantified goal that states to what extent this measure should be implemented?

- If "Yes";
 - a) specify quantity and unit:
 - b) if applicable, what year to be realized?
 - c) give reference(s):
- If "No", what is your expert opinion of the desirable level in 5 years?
quantity and unit:

2. To what extent is this measure implemented today in relation to goal set above?
"0"=Not at all; "10"=Goal already reached

3. If goal is not reached; how do you judge the possibilities to fulfill it?
"0"=Impossible; "10"=Very good

Comments:

Comments on why the goal is easy/difficult to reach, what are the most important parameters in your country:

Is this measure regulated in legislation? If "Yes"; national or regional rules

Reference(s) to legislation:

Comments:

Is this measure entitled to economic subsidy? If "Yes"; national or regional subsidy rules

Reference(s) to subsidy rules:

Comments:

List of used words

Agricultural land (also **agricultural area**) denotes the land suitable for agricultural production, both crops and livestock.

Arable land is land under temporary agricultural crops, temporary meadows for mowing or pasture, land under market and kitchen gardens and land temporarily fallow (less than five years). The abandoned land resulting from shifting cultivation is not included in this category.

Permanent crops - land cultivated with long-term crops which do not have to be replanted for several years; land under trees and shrubs producing flowers, such as roses and jasmine; and nurseries (except those for forest trees, which should be classified under "forest")

Permanent meadows and pastures - land used permanently (five years or more) to grow herbaceous forage crops, either cultivated or growing wild (wild prairie or grazing land).

References

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Definitions of agricultural words can be found in the FAO glossary

<http://faostat.fao.org/>

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