



<p>Title</p> <p>Levy on mineral phosphorus in animal fodder and on mineral fertilizer P</p>
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<p>Description of measure</p> <p>Up to 90% of fodder-P is excreted by animals and needs to be disposed of as organic fertilizer. Phosphorus uptake in pork and poultry can be increased by adding enzymes ('fytase') at the wholesale level. By introducing a levy there will be an incentive to make better use of phosphorus available in manure and other organic fertilizers, thus reducing mineral fertilizer use and phosphorus leaching to the Baltic Sea. Levy base is the phosphorus contents in commercial production and/or import of animal fodders and in mineral fertilizers for use by agriculture.</p> <p>Levy revenues can be used to finance the costs of transport and spreading of organic fertilizers and manure and/or to reduce other farmland taxes. Levy can create more flexibility for farmers in choosing measures, so that command-and-control efforts can be scaled down.</p> <p>It will help curb excess 'insurance' fertilization and prospective increases in mineral fertilizers.</p>
<p>Activity:</p> <p>Agriculture</p>
<p>Pressure:</p> <p><i>Input of phosphorous</i></p>
<p>State:</p> <p>Nutrients</p>
<p>Extent of impact:</p> <p>Coastal waters/sub basins/Baltic scale</p>
<p>Effectiveness of measure</p> <p>Based on the experience with Denmark's levy on phosphorus in animal fodder at a rate of DKK 4 or €0.54 per kg P, a demand elasticity of minus 0.6 can be estimated.</p> <p>It secured a reduction in fodder-P of about 2,000 tonnes annually. The annual leaching rates are variable and depend on local circumstances, but assuming a 5% rate the short term annual reduction in leaching amounted to 100 tonnes P for Denmark.</p> <p>Denmark accounts for about half the annual phosphorus manure from pork and poultry in BSR countries, so reintroducing and extending the levy to other countries would yield an estimated short term annual reduction of about 200 tonnes P.</p> <p>Extending the levy to P in mineral fertiliser could amplify this effect, as annually 235,000 tonnes of P in mineral fertilizers are applied to farmlands in BSR countries, with a gross nutrient balance of 34,000 tonnes P in surplus. Assuming a 5% annual loss rate a short-term annual leaching of 1,700 tonnes from agricultural land can be estimated.</p> <p>A levy of €0.5 per kg P would increase the price of mineral phosphorus fertilisers with 33 per cent. Assuming the same price elasticity as for nitrogen fertiliser (minus -0.4) this should lead to a reduction in the application of P with 13.5 per cent or 32,000 tonnes, whereby the gross nutrient balance surplus of phosphorus at basin scale would be practically eliminated. This assessment is for Danish price levels, see proposed rate adjustments below.</p>
<p>Cost, cost-effectiveness of measure:</p>

At the present cost of about €1.5 per kg of mineral phosphorus in animal feed, the levy will increase feed costs by 33%, while fytase could be added at a cost of €0.25 per kg P.

#### Feasibility:

With full recycling of revenues back to farmers to support better use of manure and organic fertilizers and to lower other taxes (e.g. farm land taxes) the measure should be entirely feasible.

Levy needs implementation in national law, but HELCOM could provide a standardized framework and guidance on levy rates for countries to adopt.

Levy rate to be subject to adjustment with the EU correction coefficients for differences in price levels (purchasing power parities), whereby it would be lower in Poland and the Baltics and higher in Nordic countries (e.g. PL: €0.23; LT: €0.27; LV: €0.28; EE: €0.34; DE: €0.40; SE: €0.44; FI: €0.48; DK: €0.54).

#### Follow-up of measure:

Phosphorus levy would complement other and targeted measures for improving local water quality.

#### Background material:

The animal feed mineral phosphorus tax in Denmark (Study for European Commission)

<https://ieep.eu/uploads/articles/attachments/ccbf12fc-48fa-4ddf-8d6d-4413357ae01e/DK%20Phosphorus%20Tax%20final.pdf?v=63680923242>

#### References

Söderholm P och Christiernsson A, 2008. Policy effectiveness and acceptance in the taxation of environmentally damaging chemical compounds, *Environmental Science & Policy* 11:240–252.