Environmental subsidies inadequate for agricultural nutrient load reduction

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About half of Finland's contribution to the nitrogen and phosphorus load on the Baltic Sea comes from agriculture. Agriculture is thus considered to be of key importance in efforts to improve water quality. However, a recent doctoral study shows that nutrient abatement measures currently being undertaken in agriculture are not sufficient to meet the targets set.

MTT Agrifood Research Finland researcher Janne Helin explored in his dissertation the effectiveness and costs of various means for reducing the nutrient load generated by Finland's agriculture. The focus was on economic analysis. In addition to various measures undertaken on the fields, the study evaluated abatement options such as reducing the nutrient balance through feeding changes on dairy farms.

The analysis relied on numerical models based on microeconomic theory for calculating the combined effects of the studied measures, for both animal husbandry and crop farming.

Benefits of filter strips already exhausted?

The costs of nutrient abatement varied greatly, depending on the level of abatement, environmental factors, the market situation and production sector. Creating permanent plant cover on erosion-sensitive areas such as steep slopes where nutrients are easily leached is a relatively low cost means of nutrient abatement. This, however, was not enough to attain the percentagewise relatively high abatement targets.

"Furthermore, filter strips and buffer zones have already been set up at the most vulnerable locations through the environmental subsidy system, so nutrient abatement will not be as easy in the future," explains Helin.

For cultivated fields carrying less of a runoff risk, plant cover is not as effective a tool for nutrient abatement.

"Extensive green fallow does decrease the nutrient load, but it is costly, either for society or for the farmers," says Helin.

Unattainable targets?

The Government Resolution on Water Protection Policy Outlines to 2015 sets the bar high for nutrient abatement. The nutrient load from agriculture is expected to be reduced by one third from what it was between 2001–2005.

"Achieving such a significant reduction in the phosphorus load remains challenging," says Helin.

Answers have been sought in animal husbandry, but the impact of changing livestock feeding practices is not enough for attaining national abatement targets or meeting the timetable of the EU Water Framework Directive. In dairy production, increasing the area of grassland and reducing the use of artificial fertilisers were shown to be the economically most sensible means.

More information: Read the complete report: www.mtt.fi/mtttiede/pdf/mtttiede24.pdf

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