

## The Agri-Environmental Instruments in Agricultural Policy to Reduce Nitrogen Pollution

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**Abstract :** Nitrogen is an important agricultural input that is critical for the production. However, the introduction of large amounts of nitrogen into the environment has a number of undesirable impacts such as: the loss of biodiversity, eutrophication of waters and soils, drinking water pollution, acidification, greenhouse gas emissions, human health risks. It is a challenge to sustain or increase food production and at the same time reduce losses of reactive nitrogen to the environment, but there are many potential benefits associated with improving nitrogen use efficiency. Reducing nutrient losses from agriculture is crucial to the successful implementation of agricultural policy. Traditional regulatory instruments applied to implement environmental policies to reduce environmental impacts from nitrogen fertilizers, despite some successes, failed to address many environmental challenges and imposed high costs on the society to achieve environmental quality objectives. As a result, economic instruments started to be recognized for their flexibility and cost-effectiveness. The objective of the research project is to analyze the potential for increased use of market-based instruments in nitrogen control policy. The report reviews existing knowledge, bringing different studies together to assess the global nitrogen situation and the most relevant environmental management policy that aims to reduce pollution in a sustainable way without affect negatively agriculture production and food price. This analysis provides some guidance on how different market based instruments might be orchestrated in an overall policy framework to the development and assessment of sustainable nitrogen management from the economics, environmental and food security point of view.

**Keywords :** nitrogen emissions, chemical fertilizers, eutrophication, non-point of source pollution, dairy farm

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