

Governmental policies and measures regulating nitrogen and phosphorus from animal manure in European agriculture

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ABSTRACT This paper discusses governmental policies and measures that regulate the use of animal manure in the European Union (EU-15). Systematic intervention by governments with European agriculture in general started at the end of the 19th century. Major changes in governmental policies on agriculture followed after the establishment of the EU and its Common Agricultural Policy (CAP) in 1957. Environmental side effects of the large-scale intensification of agricultural production were addressed following the reform of the CAP and the implementation of various environmental regulations and directives from the beginning of the 1990s. The Nitrate Directive approved in 1991 has exerted, as yet, the strongest influence on intensive livestock production systems. This directive regulates the use of N in agriculture, especially through its mandatory measures to designate areas vulnerable to nitrate leaching and to establish action programs and codes of good agricultural practice for these areas. These measures have to ensure that for each farm the amount of N applied via livestock manure shall not exceed $170 \text{ kg} \cdot \text{ha}^{-1} \cdot \text{yr}^{-1}$. These measures have large consequences, especially for countries with intensive animal agriculture, including The Netherlands, Belgium, Denmark, and Ireland. The mean livestock density in these countries is between 1.5 and 4 livestock units/ha, and the average amounts of N in animal manure range from 100 to 300 kg/ha of agricultural land. More than 10 yr after approval of the Nitrate Directive, there appears to be a delay in the implementation and enforcement in many member states, which reflects in part the major complications that arise from this directive for intensive livestock farming. It also reflects the fact that environmental policies in agriculture have economic consequences. The slow progress in the enforcement of environmental legislations in agriculture combined with the increasing public awareness of food safety, animal welfare, and landscape maintenance call for a more fundamental change in EU agriculture.

Key Words: Environment, Manure, Nitrogen, Phosphorus, Policies

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Implications

Agriculture in Europe is increasingly affected by policies and measures. The effectiveness of these environmental policy and measures is still limited, whereas the economic cost associated with their implementation is often high. Differences in national and regional responses to the European Union policies and measures, partly due to delays in implementation and enforcement, may affect the perceived competitiveness of farmers among member states, which is then used as an argument for further delaying the

implementation of environmental policies and measures. Such delays and the low environmental effectiveness and low economic efficiency limit the confidence in current environmental policies as instruments to achieve sustainable agriculture. Clearly, dealing with environmental policies and measures in agriculture is still a fairly new policy field with many imperfections. The modest effectiveness of current environmental policies combined with the recent increased public awareness of food safety, animal welfare, biodiversity, and landscape maintenance warrant a more fundamental change in EU agriculture.

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