


## Manure and nutrient management in grasslands

<b>Goal</b>	Sustainable manure and nutrient management in permanent grasslands.
<b>Target group</b>	Farmers or advisors managing cattle or other ruminants in extensive systems with pastures.
<b>Description of the measure</b>	<p>Provisions for good agricultural practice codes regarding fertilization practices are listed in Council Directive 91/676/EEC, concerning the protection of waters against pollution caused by nitrates from agricultural sources (EEC, 1991), and should be consulted. These provisions cover:</p> <ul style="list-style-type: none"> <li>a) the appropriate periods and procedures for the application of fertilizers;</li> <li>b) the adequate capacity and construction of storage facilities for fertilizers.</li> </ul> <p>According to Annex III of the same directive, for each farm or livestock unit, the amount of livestock manure applied to the land each year (including by the animals themselves) must not exceed the limit of 170 kg/ha for nitrogen. Some Member States may have justified the need for a different limit and therefore, depending on the location at stake, regulations should be consulted.</p> <p>Organic fertilizers are recommended and therefore the possibility and advantages of their use must always be considered.</p> <p>Both liquid (also designated as slurry – a mixture of faeces, urine and water, with no significant quantities of bedding) and solid manure (from a variety of livestock species) should be applied after composting (which provides a dark, friable, stabilised, high dry matter final product). Rapid incorporation after application decreases losses of nitrogen as ammonia (Shepherd et al., 2002).</p> <p>In order to prevent nutrient run-off into existing water bodies, manure must not be applied on:</p> <ul style="list-style-type: none"> <li>a) water-saturated or flooded soils;</li> <li>b) deeply frozen soils;</li> <li>c) soils covered with snow.</li> </ul> <p>Buffer zones, between seasonal and permanent water bodies and the areas where organic fertilizers are to be applied, should respect a minimum of 10 meters in width, in order to be effective. These should be primarily composed of native vegetation and situated along each border of the water bodies. Some Member States may require larger buffer zones and therefore local regulations should be consulted.</p>
<b>Suitable sites</b>	<ul style="list-style-type: none"> <li>■ Farms with natural, permanent, semi-natural and sown pastures where cattle or other ruminants are kept and reared (in extensive systems).</li> </ul>
<b>How a good implementation</b>	<ul style="list-style-type: none"> <li>■ The amount of livestock manure applied did not exceed the limit of 170 kg/ha or higher (if the Member State requires so) of nitrogen;</li> </ul>

<b>looks like</b>	<ul style="list-style-type: none"> <li>Organic fertilizers have been given priority;</li> <li>Buffer zones of at least 10 meters or higher (if the Member State requires so) next to the water bodies, have been respected;</li> <li>Enough storage facility has been made available.</li> </ul>
<b>Effects on biodiversity</b> (ecosystems, species, soil biodiversity)	 <ul style="list-style-type: none"> <li>Clean and healthy water bodies allowing for richer and more stable trophic webs of plant and animal communities;</li> <li>Higher Soil Organic Matter (SOM) allowing for richer soil and insect biodiversity.</li> </ul>
<b>Other positive effects/benefits for the farmer</b>	<p>Adequate manure and nutrient management of pastures allows for:</p> <ul style="list-style-type: none"> <li>Higher SOM and therefore higher crop and pasture growth, yield and quality (palatability, digestibility and nitrogen content);</li> <li>The replenishment of phosphate and potash taken from the soil after cutting grass for silage or hay;</li> <li>Reduced impact on global nutrient cycles;</li> <li>Prevention of diffuse pollution.</li> </ul>
<b>Indicator/key data</b>	<ul style="list-style-type: none"> <li>Nitrogen concentration measured in the soil;</li> <li>Phosphate and potash concentrations measured in the soil;</li> <li>SOM measured in the soil;</li> <li>Soil biodiversity;</li> <li>Flora and fauna observed in local water bodies.</li> </ul>
<b>Risk and further recommendations</b>	<ul style="list-style-type: none"> <li>In order to be able to respect the adequate periods for organic fertilizer application, assuring enough storage capacity is essential.</li> </ul>
<b>Timeframe</b> (When to start a measure and anticipated time for implementation)	<p>In Central and Northern Europe, fertilization usually takes place from February to October. In Southern Europe, closer to the Mediterranean, the application of mineral fertilizers on rainfed, permanent and biodiverse pastures must take place before the productive cycle initiates, i.e., in August and September (installation and maintenance). The application of solid and liquid organic fertilizers should take place in the same period, but the former should only be applied during the installation (first seeding) stage, in order for incorporation into the soil to take place, while the latter may be applied during the installation and maintenance stages. In the same region, the application of mineral fertilizers on irrigated pastures rich in legumes also takes place in August and September, but maintenance may be performed in February and March. Both solid and liquid organic fertilizers must be applied exclusively during the installation stage. The application of liquid organic fertilizers during the productive cycle must be avoided as it may burn the young emerging plants.</p>
<b>Additional special resources/equipment/ skills needed</b>	<ul style="list-style-type: none"> <li>The minimum width for buffer zones should be assured through the use of the right machinery;</li> <li>The storage facilities for fertilizers must have the adequate capacity and con-</li> </ul>

	struction must follow the provisions listed in Council Directive 91/676/EEC
References	<ul style="list-style-type: none"> <li>EEC, 1991. Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources. Off. J. Eur. Communities L 375, 1–8.</li> <li>Shepherd, M., Gibbs, P., Philipps, L., 2002. Managing manure on organic farms. ADAS Gleadthorpe Research Centre and Elm Farm Research Centre, Mansfield and Newbury, UK.</li> </ul>

## Further information: [Knowledge pool](#)

This Action Fact Sheet belongs to the training package for advisors of standard organisations and companies and was developed within the project: “Biodiversity in Standards and Labels of for the Food Industry”. The main objective of the project is to improve the biodiversity performance of standards and sourcing requirements in the food industry by helping standard organisations to integrate efficient biodiversity criteria into their schemes and motivating food processing companies and retailers to include comprehensive biodiversity criteria into their sourcing guidelines.

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