

Manure and nutrient management in grasslands

Goal

Sustainable manure and nutrient management in permanent grasslands

Short description of the measure

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:

- a) the appropriate periods and procedures for the application of fertilizers;
- b) the adequate capacity and construction of storage facilities for fertilizers.

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.

Organic fertilizers are recommended and therefore the possibility and advantages of their use must always be considered. 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) (Figure 1). Rapid incorporation after application decreases losses of nitrogen as ammonia (Shepherd et al., 2002) (Figure 2).



Figure 1 – Dung heap composting. Photo credits: © pixabay.com

In order to prevent nutrient run-off into existing water bodies, manure must not be applied on:

- a) water-saturated or flooded soils;
- b) deeply frozen soils;
- c) soils covered with snow.

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.



Figure 2 – Application of organic fertilizer.

Timeframe

(When to start a measure and anticipated time for implementation)

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.

How auditors can assess if the measure has been implemented with good quality?

- Adequate application of organic fertilizers must have followed the provisions listed in Council Directive 91/676/EEC;
- Evidence on the amount of livestock manure applied should be available, illustrating that the limit of 170 kg/ha or higher (if the Member State requires so) of nitrogen was respected;
- Evidence on the prioritization of organic fertilizers (relative to the use of synthetic fertilizers) should be available;
- Existing buffer zones, next to the water bodies, of at least 10 meters or higher (if the Member State requires so) where no fertilizer is applied, must be observable and measured;

	<ul style="list-style-type: none"> Evidence on the existence of adequate storage facilities (considering the size of the farm, the production level and regional environmental risks) should be available.
Additional information the auditor needs for verification (if any)	<ul style="list-style-type: none"> Keeping an updated manure management plan, in order to support decision-making regarding when and where to apply solid or liquid manure, is one of the good agricultural practices included in the practice codes published by Member States and therefore, requesting and verifying the management plan is also advisable.
Effects on biodiversity (ecosystems, species, soil biodiversity)	 <ul style="list-style-type: none"> Clean and healthy water bodies allowing for richer and more stable trophic webs of plant and animal communities; Higher Soil Organic Matter (SOM) allowing for richer soil and insect biodiversity.
Indicator/key data	<ul style="list-style-type: none"> Nitrogen concentration measured in the soil; Phosphate and potash concentrations measured in the soil; SOM measured in the soil; Soil biodiversity; Flora and fauna observed in local water bodies.
References	<ul style="list-style-type: none"> 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, 1–13. 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.

Further information: [Knowledge Pool](#)

This Action Fact Sheet belongs to the training package for auditors of standard organisations and companies and was developed within the project LIFE Food & Biodiversity (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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