

EFMA

CODE OF BEST AGRICULTURAL PRACTICE

NITROGEN



The growth and harvest of any crop takes nutrients from the soil reserves which must be replenished. Nitrogenous fertilizers contain the most essential crop nutrient in a high quality mineral form, which can be applied with precision. The objective of this code is to encourage the responsible use of nitrogen containing fertilizer and prevent contamination of the atmosphere or aquatic environment.

Nutrient Budget

Farm nutrient budgets should be set to determine the amount of fertilizer nitrogen considering the nitrogen required by the crop and the crop-available nitrogen in soil.

Crop requirement should be estimated with reference to field experiments and approved recommendations considering the variety, expected yield, crop quality and N content.

Soil nitrogen content at the end of winter is very variable and can be measured by soil sampling and analysis or estimated with reference to soil type and previous crop. Nitrogen mineralized during the growing season from organic matter also contributes to the budget.

Availability of soil nitrogen varies with time and depends on the source of organic matter, the soil characteristics and local weather.

Availability of fertilizer nitrogen also varies with time and depends on the fertilizer type, form (liquid or solid) and application technique.

Nitrogen compounds are transformed naturally in the environment and can generate leachable soil nitrate. Nitrogen containing fertilizer should be used to meet the crop demand and avoid excessive leakage.

Fertilizer Plan

When making a fertilizer plan, the nutrient value of the farm's own recycled materials should be considered first. Manures, slurries and crop residues should be prioritized and mineral fertilizer purchased as a supplement.

Nitrogen interacts with other nutrients: phosphate, potash, sulphur and the micro-nutrients. A balanced fertilizer plan should ensure the correct amount of each nutrient.

The most appropriate and efficient fertilizer should be selected and the calculated dose should take account of the content, chemical form and utilization rate of the nutrient components, considering the soil characteristics and the nutritional requirements of the crop.

Applications of fertilizer should be timed according to periods of nutrient uptake by the crop. Several split dressings may be required, especially for winter crops, to maximize nutrient uptake and prevent losses. In irrigated systems, split dressings should follow watering.

The fertilizer should be applied precisely, using the most appropriate technology for broadcasting, spraying or placement. Spreaders should be calibrated and used with fertilizer of good spreading properties.

The plan has to be revised if extreme weather conditions persist or crop growth and development is disrupted.

Fertilizer Practice for Water Protection (a)

An EU Council directive was adopted in 1991 with the objective of reducing water pollution by nitrates. Among other actions, the EU member states are implementing codes of good agricultural practice which advise or regulate on the following:

- “1. periods when the land application of fertilizer is inappropriate;
2. the land application of fertilizer to steeply sloping ground;
3. the land application of fertilizer to water saturated, flooded, frozen or snow-covered ground;
4. the conditions for land application of fertilizer near water courses;
5. the capacity and construction of storage vessels for livestock manures, including measures to prevent water pollution by run-off and seepage into the groundwater of liquids containing livestock manures and effluents from stored plant materials such as silage;
6. procedures for the land application, including rate and uniformity of spreading, of both chemical fertilizer and livestock manure, that will maintain nutrient losses to water at an acceptable level.”

Fertilizer Practice for Water Protection (b)

Member States may also include in their code(s) of good agricultural practices, rules on the following:

- “7. land use management, including the use of crop rotation systems and the proportion of the land area devoted to permanent crops relative to annual tillage crops;
8. the maintenance of a minimum quantity of vegetation cover during (rainy) periods that will take up the nitrogen from the soil that could otherwise cause nitrate pollution of water;
9. the establishment of fertilizer plans on a farm-by-farm basis and the keeping of records on fertilizer use;
10. the prevention of water pollution from run-off and the downward water movement beyond the reach of crop roots in irrigation systems.”

Source: EU Council directive concerning the protection of waters against pollution caused by nitrates from agricultural sources, annex II (91/676/EEC)



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