

DO NOT APPLY FERTILIZER TO HIGH RISK AREAS - UK23

first DRAFT

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Description

Do not apply fertilizers at any time to any field areas with direct flow paths to both surface and ground water courses (e.g. areas with a dense network of open drains draining to a nearby watercourse, areas characterized by highly permeable soils, low field capacity soils or shallow aquifers, aquifer recharge areas and areas where preferential flow can occur.

(What high risk areas are should be better stated – they may be different for N and P)

Rationale, mechanism of action

The risk of N and P fertilizer pollution of surface and groundwater is greatly reduced by not applying these substances to high risk areas because from these areas great amounts of the applied substances can reach water bodies.

Besides, in the long term not applying fertilizers will also reduce soil fertilizer reserves that in periods when there are no crops on the soils are available for being lost.

Applicability

Easy to be implemented. Strongly dependent on land use; while in fact it can be imagined not to apply fertilizers to grassland with a very dense network of open drains; farmer resistance can be foreseen in case of application to lands similar from the hydrological point of view, where more valuable crops (e.g. orchards and vegetables) are cropped. Farmers may be frightened by the possibility to loose part of their yield and income.

Another problem might be the difference between critical areas for N and P pollution. While in fact critical areas for N can be large areas (e.g. the whole aquifer recharge areas) critical areas for P are generally smaller and more suitable to the application of this BMP.

Effectiveness, including certainty

Because the high risk areas make a relevant contribution to the total loss the non-application of fertilizer to these areas will be highly effective.

For nitrate and phosphorous: See UK report [1].

Time frame

More rapid for N and less for P fertilizers because of the possibility for soil particles bound P to become available for mobilization.

In case organic manures are simultaneously applied to the soil, the effect of not applying mineral fertiliser will be considerably reduced.

Environmental side-effects / pollution swapping

In case organic manures are simultaneously applied to the soil, an increased risk of pollution from N and P compounds besides that from FIOs and BOD will occur.

Relevance, potential for targeting, administrative handling, control

Depends on how large critical areas are in a particular zone.

Control requires soil N and P analysis that are not difficult in itself, but may be difficult to be performed on a regular basis in some countries. For this reason farmers might fill in documents declaring the non-application and controllers from local agricultural offices might perform spot controls.

Costs: investment, labor

The costs might be calculated as a balance between different items: money saved not buying and applying fertilizers and money lost because of lower yields.

The cost per ha strongly varies according to the price €/t of the particular crop considered and the consequent value of the yield lost, and to the value of the fertilizer and of the labor and machinery saved. The price of all these items varies from country to country.

References

- [1] Cuttle, S., Macload, C., Chadwick, D., Scholefield, D., Haygarth, P., Newell-Price, P., Harris, D., Shepherd, M., Chambers, B. & Humphrey, R. (2006) An Inventory of Methods to Control Diffuse Water Pollution from Agriculture (DWPA) USER MANUAL. Defra report, project ES0203, 115pp. p. 49
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