

VIHTA model -management of runoff waters from arable land

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Eutrophication of surface waters due to nutrient load from arable land is among the major environmental concerns caused by agriculture in Finland. During the past years, national and international research has produced a large amount of information about the amount of nutrients loads as well as about the reductions caused by the protective measures. The mitigation measures for the growing environmental problems are diverse, among other things (1) wetlands (2) sedimentation basins, (3) buffer zones (4) surface liming, (5) controlled drainage and (6) lime filter drainage has been put to use in Finland. The aim of this study is to create a decision-making system (VIHTA model), which will assist in selecting the best agro-environmental protective measure in reducing nutrient loads for entering the surface waters and thus improving water quality. The practical questions concerning the decision making problems has been defined by interviewing the potential planners/users of the model. The input data has been collected by summarising the current knowledge about the protective measures and their impacts on water protection. The most important variables affecting the current load caused by runoff waters has been chosen based on expert judgement and modelling. In this paper, the following subjects will be discussed: (1) implementation of the model to practical problems (2) structure of the model (3) current state i.e. the quality and quantity of the runoff water according to the properties of the area (4) determination of reduction gained with the protective measures.