Nitrogen Application Rates On Individual Crops As Determined By Allowable N Surplus Of Dutch Dairy Farms. (A03-vanevert090344-Poster)

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Abstract:

The Dutch government limits agricultural nitrogen pollution by requiring farmers to keep book of all nitrogen and phosphorus entering the farm or leaving it and levying a fine if the N or P surplus exceeds an allowable surplus. The requirement to calculate a farm gate surplus enables effective monitoring but it does not provide information on nutrient surpluses and nitrate leaching on the individual crops on a farm - information which is needed to estimate nitrate leaching to groundwater. The objective of our work is to deduce N application rates and N surpluses for maize and pasture on dairy farms in The Netherlands from the allowable farm gate surplus. We constructed a model, FARMMIN, that simulates crop production levels and nutrient flows on a mixed dairy farm. The Dutch dairy industry was represented by 85 unique combinations of soil and region (superfarms). Minimization of costs by adjusting management for these superfarms shows that regulation has significantly reduced N application rates compared with those five years ago; that current regulations allow individual farmers to adapt management specifically to their farm; and that further reductions in allowable surpluses would pose problems for farmers.

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