

## **Managing inputs of nutrients to avoid insufficiency or excess MAINTAIN II**

**Bujnovsky R., Fotyma M. Fertilizer recommendation schemes officially used in the Czech Republic, Latvia, Poland, Slovak Republic and United Kingdom, p. 5**

### **Abstract**

The systems of fertilizer recommendation officially used in four Central European Countries and in the United Kingdom are briefly described. Fertilizer rates for crops grown in a theoretical crop rotation (sugar beet, spring barley, oilseed rape, winter wheat) were calculated for 111 different soils using each country's system. There were often large differences in fertilizer recommendations generated by each system. The reasons for the differences in the calculated nutrient rates are discussed. **Key words:** fertilizer recommendations, fertilizer rates.

**Klir J., Cermak P. Standard figures for manure composition and N-manure equivalents, p. 32**

### **Abstract**

In this paper the collation of existing standard data on manure composition and nutrient equivalents is presented and discussed. The main task of the survey of exist-ing data was to assess the typical nutrient values of manure and factors affecting the availability of plant nutrients that could be used in a fertilizer recommendation system. The results of the comparison between countries showed that it was not possible to develop a unified set of standard analyses for manure composition. There are large differences in nutrient contents between countries caused by many factors, including nutrient concentrations in different fodder, different feeding regimes, different housing etc. Because of diverse climatic conditions, the nutrient equivalents of manure differ also.

**Key words:** manure composition, nutrient equivalents

**Jadczyzyn T. Model for calculation the amount of nutrients in manure “SFOM”, p 40**

**Abstract**

Algorithms used in a model for calculating the amount of nutrients in manure produced at the farm level, as well as manure quantity and composition, are presented. The basis for calculations are standard values of excreta production from different animal categories and the quantity of straw used for bedding. The only input data required from the user is the number of livestock in the farm. Calculated amounts of nutrients in manures ex storage can be used for mineral fertilization planning.

**Key words:** animal production, organic fertilizers, modeling

**Shepherd M. Nutrient losses from manure after application, p. 51**

**Abstract**

Results are presented that show (a) the interaction of ammonia, nitrate and nitrous oxide losses after manure applications (b) that the relative losses can be decreased by management practices and (c) that fertilizer NPK inputs can be decreased after manure applications with no loss of yield (sometimes a yield increase). Loss pathways for ammonia volatilization and nitrate leaching have to be estimated to provide an estimate of the N supply capacity of manures following application to land. Methods for achieving this are presented.

**Key words:** ammonia volatilization, nitrate leaching, nitrous oxide, manure, nitrogen.

**Karklins A. Model for the calculation of nutrient off take by crops “OFFTAKE”, p. 63**

**Abstract**

The concept of calculation of so-called unit offtake of mineral nutrients by crops is presented. The preliminary data concerning standard values for nutrients offtake by selected crops as provided by collaborating countries are included. The further development of the OFFTAKE model is briefly discussed.

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**Key words:** nutrients offtake, nitrogen, phosphorus, potassium

**Igras J. A model for nutrient balance calculation, p. 75**

**Abstract**

Two methods of nutrients budgeting at the farm level - soil surface nutrient balance and farm gate nutrient balance, are briefly described. The focus is on the links between the elements of soil surface nutrient balance and other models presented in this issue (SFOM and OFFTAKE). The supplementary data for calculating farm gate nutrient balances according to Polish standards are included in the Annexes.

**Key words:** soils surface nutrient balance, farm gate nutrient balance, standard figures for nutrient balances

**Fotyma M., Fotyma E. Development of fertilizer recommendations algorithms, p. 81**

**Abstract**

This paper suggests some practically oriented approaches to fertilizer recommendation systems or, rather, decision support systems for sustainable nutrient management at the farm level. In CE Countries, commonly used systems were based upon the modified soil surface balance approach. However, a system exploiting the idea of 'effective nutrient balance' is under development and is described.

**Key words:** fertilizer recommendation, nutrient balance, effective nutrients