THE ROLE OF WATER FACTOR IN MODELLING CATEGORISATION AND EVALUATION OF LAND USEFULNESS FOR CULTIVATION OF ENERGETIC CROPS

Key words: energetic plants, soil-water conditions

Summary

Methodical assumptions adopted in modelling categorisation and evaluation of land usefulness for cultivation of energetic crops and its cartographic computer visualisation are presented in this paper. The study was based on database on marginal soils elaborated and available in the IMUZ containing spatial data on cropland soils, their agricultural usefulness, protective status and on the distribution of precipitation and land relief.

Performed studies showed differentiation of water demands in energetic plants cultivated in Poland. They also confirmed the rightness of adopted principles of categorisation and applied diagnostic models and proved a possibility of parameterisation of land division into three groups according to different water demands of analysed plants:

I – grounds useful for plants preferring good soil moisture and sensitive to precipitation deficits – the common osier (Salix viminalis L.), the giant knotweed (Reynoutria sachalinensis (F. Schmidt) Nakai), the reed canarygrass (Phalaris arundinacea L.);

II – grounds useful for plants tolerating variable soil moisture and less sensitive to precipitation deficits – the prairie cordgrass (Spartina pectinata Bosc ex Link), the Chinese silvergrass (Miscanthus sinensis gigantea J.M. Greef & M. Deuter);

III – grounds useful for plants tolerating limited soil moisture and resistant to precipitation deficits – the Virginia mallow (Sida hermaphrodita (L.) Rusby), the Jerusalem artichoke (Helianthus tuberosus L.), the big bluestem (Andropogon gerardi Vitman), the Amur silvergrass (Miscanthus sacchariflorus (Maxim.) Hackel).

The database on marginal soils allows for cartographic visualisation (in the regional scale) of the distribution of soils with variable water conditions appropriate for growing energetic plants and for making a balance of their surface area.

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