

Winter wheat crop yield estimates based on processing of images from NOAA and Landsat-7 satellites

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Remote sensing data acquired from different satellite have wide scope for agricultural applications owing to their advantages. In particular, the Landsat-7 images, having the high spatial resolution, provide the information on location of fields of winter wheat and about their condition at the fixed moment of time. The AVHRR/NOAA images, having the high temporary resolution, allow to look after dynamics of change of a spectral characteristics of crops. Combination of these data with agrometeorological information and land use scheme allow to obtain reliable spectral parameters for forecasts of winter wheat crop yield. The executed researches for 2001 – 2004 to prove terms of account of NDVI depending on phenological phases of plants for forecasting of a winter wheat yield. Taking into account quantitative distinctions of spectral characteristics of a winter wheat, weight contribution of this culture in allocated crop rotation fields and AVHRR-NDVI (normalized difference vegetation index) growth profiles, the attempt was carried out for winter wheat condition monitoring and for crop yield forecasting at the regional level (Mironovsky, Barishevsky and Yagotinsky regions of the Kiyv oblast (central part of Ukraine) as an example). The close correlation ($r^2 = 0,7-0,8$) between yield of a winter wheat and NDVI integrated for spring growing season was established. Linear regression dependence has appeared more preferable to forecasting, but it requires check on a lot of the data.