Summary

Method of determining potential yield zones in precision agriculture

The dynamic developement of technology in precision agriculture enables, among others, application of precise and variable doses of: fertilizers, pesticides, seed material, variable working depth of machines, intelligent soil sampling and measurement of the harvested crop. The basis for applying above-mentioned solutions is the knowledge of the spatial diversity of soil and topographic conditions within one field.

In 2015-2018, research was carried out on the determination of homogeneous zones of potential yield in arable fields. Data on crop yields: corn, winter wheat and winter oilseed rape from 45 fields were collected by combine harvesters at three farms located in south-west of Poland. Spatial data was collected on the studied fields by using: soil electromagnetic conductivity maps (ECa), numerical terrain models (altitude, slope, exposure direction) and satellite maps of the NDVI vegetation index. The obtained data and yield maps were subjected to statistical analysis in order to determine the zones of potential yield in agricultural practice.

Key words: precision agriculture, yield maps, soil electromagnetic conductivity, digital terrain model, potential yield zones.