Geophysical Research Abstracts
Vol. 20, EGU2018-13495-2, 2018
EGU General Assembly 2018

About factors influencing the distribution of soils into phosphorus fertility classes by AL-, DL-, and M3 methods

Avo Toomsoo, Meit Jürgens, Tõnu Tõnutare, Raimo Kõlli, and Karin Kauer
Estonian University of Life Sciences, Tartu, Estonia (tonu.tonutare@gmail.com)

According to plant available phosphorus (Pav) content the agricultural soils are divided into five fertility classes. Until today it have been developed and used a lot of methods for determination of soils' Pav. During the last fifty years the three diferent official Ppav determination methods are used in Estonia. The methods formerly used in Estonia were Egner-Riehm (DL) and Egner-Riehm-Domingo (AL) method. From 2004 for the official method of soil plant nutrients' determination is Mehlich 3 (M3) method. Due the differences in extraction solution's chemical composition and processing time, this methods extracts the different amounts of Pav from the same soil sample. Therefore all methods of Pav determination have their own gradation for dividing soils into the fertility classes.

The aim of our work was to compare the distribution of soils into fertility classes according the three Estonian official soil Pav gradations.

We were analyzed the content of Pav in more than 100 agricultural soil samples by AL-, DL-, and M3 methods. According to the Estonian soil Pav content gradations the soils are divided into five fertility groups.
Our results indicated, that there is more similarity between distribution of soils into P fertility groups by M3 and DL methods as compared with M3 and AL, and also DL and AL methods.
Thus the same soils may be classified as a low P content soil by one method, but as high Ppav content soil by another method. This phenomen indicates to existing inadequacy in used official gradations and therefore special attention must be paid into solving this problem.