

PHYSICAL PROPERTIES OF SOILS IN NATURAL AND
ANTHROPOGENIC ECOSYSTEMS

P. Sukhanova, O.A. Pidvalniy

Uman National University Horticulture

The anthropogenic impacts on soils suppressive capacity of groundwater systems to maintain homeostasis and, consequently, reduce the productivity of farmland. In the global ecological sense, they lead to the following consequences: agrophysis degradation, exhaustion, etc.

This confirms the relevance of a comprehensive ecological monitoring groundwater systems for substantiation of the necessity of finding an ecology-tolerant models of soil utilization – alternative of intensive agriculture.

The goal – the grading of soil physical parameters in the natural and anthropogenic ecosystems, located in Mankivskiy natural-economic area of Averagdydniprovska-Bug district of Forest-steppe rightbank province of Ukraine in the context of ecological monitoring of groundwater systems in Ukraine.

An experimental piece of work made in 2010 and 2011 to research fields (man-made ekotops) of educational and scientific production Department Of National University of horticulture and natural ekotop – meadow.

In accordance with the purpose of work defined: 1. soil moisture – thermostat-weight method. Stocks available moisture – for relevant formulas involving soil moisture indicators of sustainable withering plants and soil density. 2. The state of aggregation of soil – of the Savvinova method.

The obtained data were treated using the General accepted methods of variation statistics in including ANOVA.

As a result of studies confirmed the presence of agrofisic soil degradation processes of anthropogenic origin in agroecosystems, even based on replacing fertilizer agroecology reasonable sowing change:

- Compared with natural in anthropogenic ecosystems increases ($p > 0.95$) contents of large structural components of soil (> 10 mm).

- In man-made ecosystems, especially in the upper soil layer (0 – 10 cm) significantly ($p > 0.95$) increases and the content of the so-called "in dust" faction (< 0.25 mm): 0,96% – in a natural ecosystem, 4,26 and 6,14 in anthropogenic.

- The content of agronomically-valuable fractions of soil size 0,25 – 10 mm in the agroekosystems significantly ($p > 0.95$) lower than in natural. Particularly in the middle layer of the soil (10-20 cm) – on 10,04-10,24%.

- The value soil moisture indicator depends of ecosystems type and season research. In summer (July) in the natural ecosystem at 10,3-18,24 mm lower than in man-made. In the field of organyc-mineral fertilization system on 7,94 mm lower than in the field without fertilization. In autumn (October) – the highest – 22,44 and 24,74 mm.