



Agrogeological effects of drought vulnerability

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Drought means such lack of water in a given area, when the precipitation and the water sources are not enough to satisfy the demand. The harmful effects of drought depend on the sensibility and vulnerability of the area.

In KREYBIG L.'s (1938) opinion, the effects playing role in the development of drought are the follows:

„1. lack of precipitation and the unfavourable distribution of that,

2. the different water management capabilities of the different soil types,

3. inefficient cultivation and fertilization methods without the water- and nutrient managements of the soil taken into consideration, and finally

4. producer systems not suitable for the water management attributes of soils and plants.”

From these reasons the lack of precipitation and the inefficient cultivation were considered as dominant, but it proves to be true that the drought vulnerability are basically determined by the formation and the connection of the soil–parent material–groundwater system, and also the water management capabilities (water swallowing, impermeability and water holding capacity). Beyond that, producer systems worked up efficiently for the agrogeological characteristic of the area and for the water management of the plants play an important role.

Based on our observations, in spring and in summer the lack of precipitation does not mean the lack of moisture in the given area, and the precipitation surplus in winter and spring does not means avoiding drought. Precipitation could be stored, drained or evaporated depending on the geological buildup of the area. So to establish the drought vulnerability of an area, it is necessary to know, that whether it can receive and store the precipitation for a shorter or longer period and how much it could be. It follows that, these geological (agrogeological) factors should be searched:

1. permeability and impermeability of the formations above the groundwater level,

2. water raising capacity of the formations above the groundwater level,

3. water storing capacity of the formations above the groundwater level,

4. clay content and clay mineral spectrum of the formations above the groundwater level,

5. presence of salt affected formations and the tendency to salinization of the formations above the groundwater level,

6. depth of the groundwater above sea level,

7. speed and direction of the groundwater flow.

Our presentation will show the first results coming from the research of these factors on Csongrad County, situated in the SE part of the Great Hungarian Plain. This area is one of the most vulnerable territories from drought point of view in our country, and also it has a high importance in agriculture with variable geological and pedological buildup.

References

Kreybig L. 1938: Az aszály és a víz, különös tekintettel az öntözővíz hasznosítására (in Hungarian). — Budapest, Egyetemi ny., 27 p.

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