Global climate change impacts on crop production in Hungary

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Abstract

Global climate change is one of the major issues today. There is a continuous rise in temperature escorted by the increasing frequencies of weather anomalies. In case of Hungary two facts can be observed in the Carpathian basin; in first place the ascending levels of temperature rise, with a magnitude of 1 °C. The other is the decreasing trend-line of annual precipitation according to what, during one century 83 mm rainfall has disappeared. Human activities are significantly altering the natural carbon cycle. During the past two centuries human activities such as the burning of fossil fuels and deforestation have accelerated, and both have contributed to a long-term rise in atmospheric CO_2.

The negative effects of climate change can be limited by changes in crops and crop varieties, improved water-management and irrigation systems, adapted plant nutrition, protection and tillage practices, and better watershed management and land-use planning. Deforestation processes should be stopped, and deforested areas be converted into vegetation complexes or arable systems of CO_2 sink pattern. The global potential of carbon sequestration through crop production, land use and soil management practices may offset one-fourth to one-third of the annual increase in atmospheric CO_2. Major conclusions of the study:

- Improved management techniques and practices may offset 1/3-1/4th of annual CO_2 increase.
- Energy uses based on fossil fuel combustion should be controlled globally.

Key words: climate change, carbon sequestration, soil management practices