

## **Influence of extreme drought on winter wheat yield**

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Based on scenarios of climate change according to the IPCC methodology for Croatia it is predicted change of mean annual air temperature and change of rainfall (scenario IS92a and IS92e). According to the results of water balance calculation for lowland Croatia it is possible to presuppose that lack of water in soil during summer months will enlarge for 30 up to 60% compared to present situation. At the same time, duration of period with temperatures above 10°C will be longer for 25 to 40 days. For efficient adaptation of agriculture to climate change, surely up to possible dimensions of that adaptation, it is important to invent and to continuously perform research programs in agriculture. In a long term field trial with different nitrogen fertilization rates we have compared winter wheat yields under treatments fertilized with 0, 100, 150, 200, 250 and 300 kg N ha<sup>-1</sup>. in years 1997, 2000 and 2003. Winter wheat yields in 1997 and 2000 were realized under average rainfall and temperature regime, while 2003 was extremely dry and hot, especially during the period of winter wheat vegetation. These extreme weather conditions adversely influenced winter wheat yields. According to these results we can conclude that in the case of dry years winter wheat production cannot be maintained at satisfactory level. Nitrogen use efficiency is also lowered and this increases the probability for nitrogen loss to ecosystems and also to negative economic results in winter wheat production.