



New techniques for evaluation of water stress and drought effects in crop and rangeland plants

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Abstract:

Temperature and water regimes are the main factors that affect the growth, development, and yield of plants growing in arid and semi-arid regions. Consequently, any change in climate will likely have a major influence on plants growing in these areas. For example, a 1-3 °C rise in temperature can shift growth to 5-14 days earlier, which may result in growth initiation during the last week of February. This shift may be critical for the growth of vegetation where growth would be shifted to a period of more intensive rainfall and lower air temperatures, resulting in declines in total biomass production. This may be particularly important for sedges (*Carex* spp.), a main fodder crop in Central Asia, which have previously been shown to exhibit considerable reductions in height during the last 30 years. Use of deep soil columns for evaluation of water stress effects on plant growth represent an improvement over pots because soil columns are deeper, hold more soil, and better approximate field water dynamics. As a result, several randomized treatments can be effectively established with soil columns within a small area. In addition, new techniques using Watermark sensors have been developed to more precisely monitor levels of water stress in soil columns. The combination of



these techniques will allow careful statistical comparisons to be made to precisely evaluate water stress effects in arid plants.

Biography:

Muhtor Nasyrov is currently working as a Vice Rector, International Relations and Dean, Faculty of Natural Science, Samarkand State University Samarkand, Uzbekistan.

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1. New techniques for evaluation of water stress and drought effects in crop and rangeland plants