

The effect of drip irrigation on potato yield and quality.

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Abstract : The aim of this research was verification of drip irrigation effect on potatoes under conditions of higher regions in the Czech Republic. Potato Research Institute in Havlíčkův Brod realized a project directed to evaluation of new technological procedures for effective water management under drought conditions between 2016 and 2017. Growing technology using drip irrigation combined with fertigation was verified. After the planting irrigation pipes were put under the soil surface on the ridge top. Two cultivars differing in vegetation duration were used for planting - early cultivar Monika and medium-early cultivar Jolana. Eight variants of irrigation combined with N fertilization were established. A technique for irrigation management was determined based on soil conditions. Nitrogen fertilization during season was done in two variants: 120 kg N ha⁻¹ prior to planting and 60 kg N ha⁻¹ at planting +60 kg N ha⁻¹ in four irrigation rates (15 kg N ha⁻¹ for each). In the trials an effect of irrigation on all studied factors was detected. Potato yield was significantly increased in variants with irrigation compared to nonirrigated variants. There were no differences found between full and split N rate application. Drip irrigation increased volumetric soil moisture on optimal level for potato plant growth. A device was constructed for burying drip pipes under soil surface on the ridge top, which could be also used for pipe extraction after haulm desiccation before potato harvest.