

Study on the Agro-Meteorological Indices at Different Phenological Stages and Growth Analysis of New Potato Genotypes

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In order to study agro-meteorological indices at different phenological stages and growth analysis of new potato genotypes in autumn planting in Khuzestan province, an experiment was conducted for one year (2014-15) in farms of Behbahan region. This research was conducted in randomized complete block design including five genotypes (Sante, Khavaran and Javid cultivars and two advanced clones) with three replications. Tubers were planted at early October and harvested at late February. The results indicated that the duration of vegetative stage was short but tuber bulking stage was long, the maturation stage was not observed. Heliothermal unit requirements at sprout development, vegetative growth, tuber initiation and tuber bulking stages (depend on genotypes) were 2663.41 to 3332.03, 1581.32 to 1731.86, 1194.2 to 1218.1 and 3491.24 to 3602.58-degree day hr⁻¹, respectively. Photo thermal unit requirement from planting to harvest was 15909.22-degree day hr⁻¹. Tuber growth rate and crop growth rate increased during early growth stage, reached maximum value and afterward decreased. The maximum relative growth rate for all genotypes was observed during early growth stage. Due to the highest thermal use efficiency and heliothermal use efficiency, tuber and crop growth rate of Khavaran cultivar increased, so that this cultivar produced the highest yield.

Keywords: Crop growth rate, Growth degree days, Hilothermal unit, Photothermal index, Photothermal unit.

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