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## Growth and Yield Response of Maize Irrigation and Fertigation Cultivation Using Subsurface Drip System in Spring and Summer Seasons

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### [Introduction]

This study was performed to investigate treatment according to irrigation and fertigation in two seasons (spring and summer) maize growth and yield using a subsurface drip system.

### [Material and Methods]

Maize (cv. Ilmichal) was cultivated in spring (May - July 2022) and summer (June - September 2021). Half of the standard fertilization (N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O: 14-3-6 kg/10a) amount was applied as a basal fertilizer, and subsurface drip irrigation and fertilization treatment were carried out at V 6 and flowering periods with N 0 (only irrigation), N 4, N 6, N 8, N 10 kg/10a and control (non-treatment) for each nitrogen concentration. Each treatment was conducted in a randomized block design with three replication.

### [Results and Discussion]

As a result of the fertilization treatment, canopy height, stem diameter, leaf length, leaf width, and ear height, indicators of above-ground growth, increased as nitrogen fertilization concentration increased in both spring and summer cultivation. The yield of ear length, ear width, ratio of kernel set length to ear length, and green ear yield, which are components of yield, were highest in N 10 treatment in spring and summer and tended to increase as nitrogen fertilization concentration increased. Also, the growth of the spring using fertigation cultivation was better than in summer, and the yield was 25-47% higher. Therefore, in this study, when cultivating maize in spring and summer, half of the standard fertilization amount was applied as basal fertilizer, and when nitrogen fertilization was applied as much as N 10 kg/10a fertilizer using a subsurface drip system, the yield increased by 41% and 37% compared with control.

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