

Determining Irrigation Program of Tomatoes Irrigated by Subsurface Irrigation in Menemen Conditions

(Main Project: Determining Water Saving Irrigation Program for Irrigated Plants Under Limited Water Conditions)

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| Research Area | Soil and Water Resources and Environment A13 |
| Research Program | Improvement of Water Use Efficiency |
| Executive Institute | International Agricultural Research and Training Center |
| Supporting Institute/s | International Agricultural Research and Training Center |
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| Project Summary: <p>Nowadays large proportion of soil and water resources are used for agricultural production. Despite the steadily increasing world population on the contrary soil and water resources are declining due to various different reasons. Providing people's needs can be achieved with the protection and improvement of water and soil resources and obtaining more products per unit area with less water. In order to achieve to expected benefits from irrigation practices, it need to select the appropriate irrigation method, designing and installing irrigation system in accordance with the requirements and system should be managed accordingly.</p> <p>China is a leader in the world tomatoes production. China is being followed by India, USA and Turkey respectively. Water is one of the most important input for tomatoes production. Lack of information in tomatoes production, using the inappropriate agricultural techniques and some deficiencies in growing areas affect yield and quality of tomatoes adversely. The quantities of water need by plant vary according to growth period and region and creating irrigation schedule is very important. In the growing season yield and quality of tomatoes can vary depending on amount of water applied in production stages. In case of excessive irrigation flower cast, reduction of fruit formation and reduction some quality parameters may be occur while it can be seen better some quality parameters but low yield in incomplete water applied by irrigation.</p> <p>This study aims to find water use efficiency and optimum irrigation program according to data on yield and some quality parameters acquired by applying subsurface drip irrigation on processing tomato for paste production and dried consumption. There will be four different application levels according to field moisture capacity percentages (as follows 100%, 75%, 50% and 25% of field moisture capacity). After the plantation the field will be irrigated up to field capacity, different level applications will take place after the middle-breaking. Soil moisture level will be measured with a profile probe device. Irrigation water level will be the necessary amount to make up for the lost moisture in the root zone to increase it back to field capacity. In this study some yield and quality parameters (weight, length, diameter, firmness and color of the fruit, vitamin C, dry matter, pH, total phenolic matter, anti-oxidant activity, total sugar and sugar fraction analysis) will be determined. Water use efficiency, irrigation water use efficiency and plant water use will also be determined in subsurface drip irrigation for processing tomato. It is aimed to save water as much as possible and determine the optimum irrigation program for highest and best yield in processing tomato, which is widely cultivated in our country. At the end of the study irrigation methods will be economically analyzed and results acquired will be shared with the producers and relevant state institutions.</p> <p>Key words: Subsurface drip irrigation, processing tomatoes, evapotranspiration, deficit irrigation</p> | |