

Project title: Determining the effects of deficit irrigation with different irrigation methods on yield, quality and water use efficiency on second crop soybean cultivation in Aegean Region.

Research Area	
Research Program	
Executive Institute	International Agricultural Research and Training Center
Supporting Institute/s	TAGEM
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Research Period	01/09/2017-01/2019
<p>Project Summary: This project aims to form optimum irrigation program by determining water demand and water use efficiency in second crop soybean cultivation in Aegean Region. Effects of deficit irrigation with different irrigation methods on soybean yield, yield elements and quality criteria was studied.</p> <p>Water use efficiency levels of traditional irrigation methods, commonly used in Turkey in soybean irrigation, and water saving high-tech irrigation methods was evaluated.</p> <p>Soybean, raw material in feed industry, is a very important crop for our country. Benefiting from Aegean Region and second crop cultivation areas is necessary for self-sufficiency in increasing soybean cultivation. Soybean is an important alternative crop in irrigable lands in Aegean Region due to its yield potential and enhancing properties on soil structure.</p> <p>Water is one of the most important inputs for second crop soybean. Insufficient knowledge on soil-plant-water relations, improper cultivation techniques and deficiencies in growth media affect yield and quality negatively. Water demand can vary according to region and growth period. Second crop soybean demands more water in hot summer months. As maize and sunflower, cultivated mostly in summer in Aegean Region, also demand more water, it is a must to form the optimum irrigation program to save water and use it efficiently.</p> <p>Trails will be within trial pattern, with three repetitions on divided parcels in randomized blocks. There will be four different irrigation levels (100%, 75%, 50%, 25%) on subsurface drip irrigation, drip irrigation and border irrigation. Irrigation will start once 40% of useful moisture in full irrigation is used, this was apply to border irrigation once 50% of useful moisture was used. Some physiological development parameters (number of florescence days, plant height, number of physiological ripeness days, number of branches, first grain height, number of branches per plant, number of grains in plant) will be observed and yield and quality features (weight of one thousand grains, grain yield, oil rate and fatty acid composition) was determined. Outputs acquired from the study will contribute to essential studies such as plant breeding studies, irrigation timing and water-yield relation. Water saving high-tech irrigation systems will contribute to natural resource sustainability as these systems become more widespread in second crop cultivation areas. Optimum irrigation program will increase yield and profit. With increased soybean production our country will also increase its self-sufficiency and will no longer be dependent to other countries on this matter.</p> <p>Key words: Soybean, <i>Glycine max</i> (L.) Merrill, second crop, drip irrigation, subsurface drip irrigation, furrow irrigation, deficit irrigation</p>	