

Impact of Different Cropping Systems on Seed Yield and Quality of Egyptian Cotton

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A two-year study was carried out at Sids Agricultural Research Station, Beni Sweif government, ARC, Egypt, during 2015/2016 and 2016/2017 seasons to evaluate seed, protein and oil yields, as well as oil quality of Egyptian cotton under different cropping systems. The treatments were the combinations between four winter cropping systems (double cropping systems of Egyptian clover and cotton, relay intercropping cotton with faba bean, onion or wheat) and three summer cropping systems (sole cotton, intercropping cowpea or sesame with cotton) compared in a split plot design with three replications. The legumes had positive effects on seed cotton yield and 100-seed weight, meanwhile these traits were negatively affected by intercropping cotton with wheat. Intercropping cowpea with cotton did not significantly affect seed cotton yield and 100-seed weight, meanwhile these traits were negatively affected by intercropping sesame with cotton. The interaction was significant for 100-seed weight in the second season only. The legumes significantly increased protein and oil yields of cotton plants, while wheat or onion significantly increased palmitic and stearic acids in cotton seed oil. Sole cotton significantly increased saturated fatty acids in cotton seed oil, while sesame or cowpea significantly increased oleic and linoleic acids in cotton seed oil. The interaction was significant for seed protein and oil contents, as well as, saturated and unsaturated fatty acids in cotton seed oil. Intercropping cowpea with cotton after Egyptian clover cutting achieved high seed cotton, protein and oil yields per ha with good percentage of unsaturated fatty acids of edible oil.

Keywords: Cotton, Cropping systems, Seed yield, Protein yield, Oil yield, Oil composition

Biography

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