



Tropentag, September 14-16, 2010, Zurich

“World Food System —
A Contribution from Europe”

Deficit Irrigation for Optimum Cotton Yield and Seed Quality

FARSHID GHADERI-FAR¹, FARHAD KHAVARI¹, BORHAN SOHRABI²

¹*Gorgan University of Agricultural Science and Natural Resources, Dept. of Agronomy, Iran*

²*Cotton Research Institute, Iran*

Abstract

Poor stand establishment of cotton seedling is one of the critical problems in Golestan Province of Iran that can reduce cotton yield. Seed quality is an important factor that can influence stand establishment. It is influenced by several factors including environmental conditions during seed development and maturation. In this study, the effects of different irrigation regimes on yield and seed quality of cotton (*Gossypium hirsutum* L.) with a drip irrigation system under field conditions in the northern Iran were evaluated along two years (2006 and 2007). After flowering, four irrigation regimes (0, 40, 70 and 100% of Class A pan evaporation (% PE)) were applied when the cumulative evaporation amount from class A pan reached approximately 40–50 mm.

The results revealed that seed cotton yield and seed weight generally increased with increasing irrigation levels. According to the results of this experiment, maximum cotton yields were achieved with 83 and 93% PE irrigation regimes in 2006 and 2007, respectively and the lowest seed cotton yield was obtained when irrigation was stopped at the flowering stage. Also, maximum seed weights were achieved at 100 and 63% PE, in 2006 and 2007, respectively. The results of this study show that although water limitation reduce cotton yield, the highest seed quality was observed for the 0%PE treatment. Thus, the effect of irrigation on germination and vigour was substantially less than that on yield. The results also indicate that an irrigation treatment of 40% PE would be the optimum for seed cotton yield and seed quality production under drip irrigation in northern Iran.

Keywords: Cotton, drip irrigation, seed quality