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Yield and Advantages of Black Cumin (*Nigella sativa*) and Fenugreek (*Trigonella foenum-graecum*) Intercropping under Weedy and Weed-Free Conditions

Batool Mahdavi

Vali-e-asr University of Rafsanjan, Genetics and Plant Production, Iran

Abstract

Effects of different intercropping ration of cumin (*Nigella sativa* L.) and fenugreek (*Trigonella foenum-graecum*) on yield, yield components and oil percentage under weedy and weed-free conditions was investigated. Experiment was conducted as a factorial based on randomized complete block design with three replications in agricultural research farm at Vali-e-Asr University of Rafsanjan, Iran in 2015.The factors included combination of intercropping ratio: 25% black cumin + 75% fenugreek, 50% black cumin + 50% fenugreek, 75% black cumin + 25% fenugreek, black cumin sole crop, fenugreek sole crop, and weeds management: weed control (weed-free) and without control of weed (weedy). The highest plant height, thousand grain weight and seed oil percentage were obtained from intercropping treatments, however, growth and yield of both plants were greater in sole crop. Nonetheless, total relative yield (TRY) in all intercropping pattern was more than 1, indicating relative advantage of intercropping systems. The heights TRY was achieved in 25% black cumin +75% fenugreek (1.55) under weed control condition. The highest competition index of black cumin was achieved in 25% black cumin +75% fenugreek under without control of weed condition and in fenugreek was achieved in 25% black cumin +75% fenugreek under weed control condition. Intercropping system caused better weeds control, so that the number and dry weight of weeds was reduced in intercropping systems. The yield loss due to weeds was 87.2% in sole crop and in 25% black cumin +75% fenugreek, 75% black cumin +25% fenugreek and 50% black cumin +50% fenugreek were 34.8%, 27.1% and 25%, respectively. Overall, the result of this research revealed that intercropping at 25% black cumin +75% fenugreek furthermore to increased TRY improved weeds control.

Keywords: Competition index, intercropping, relative yield, sole crop

Contact Address: Batool Mahdavi, Vali-e-asr University of Rafsanjan, Genetics and Plant Production, Rafsanjan, Iran, e-mail: b.mahdavi@vru.ac.ir