



Tropentag, September 9-11, 2020, virtual conference

“Food and nutrition security and its resilience
to global crises”

Effect of Saffron-Mallow Intercropping Patterns in the Third Year on Possible Cooling of Corms for Climate Change Adaptation

SOROOR KHORRAMDEL¹, VIDA VARNASERI²

¹*Ferdowsi University of Mashhad, Agrotechnology, Iran*

²*University of Zabol, Agrotechnology, Iran*

Abstract

Intercropping is a traditional agricultural approach which is the growing of multiple plant species at the same time in the same location. Traditionally, intercropping has been used to enhance plant yield and the efficiency of the resource as well decrease risk. Intercropping has been shown to decline the risk of plant failure by increasing the plant yield stability over time. Intercropping creates biodiversity in the agroecosystems, and it is considered to make the ecosystems more resilient against environmental perturbations, thus improving food security. The current study was aimed to investigate the effects of intercropping patterns of mallow as a perennial medicinal plant on stigma yield and quality characteristics of saffron affected as possible cooling of corms for climate change and global warming mitigation. The experiment was carried out at Faculty of Agriculture, Ferdowsi University of Mashhad, Iran. Treatments were 15, 30, 45 and 60-cm row spacings for saffron from mallow planting rows and sole saffron and mallow cultivations. The results revealed that the impact of intercropping patterns with mallow was significant on yield indicators of flower indicators of saffron. In comparison between sole cultivation and intercropped saffron revealed that the highest values for flower number, dried stigma yield and yield of daughter corms were recorded for sole saffron cultivation with 81 flowers m^{-2} , 0.2115 g m^{-2} and 26.51 g m^{-2} , respectively. In comparisons amongst intercropping patterns, the highest value for dried stigma weight was related to 30-cm row spacings from mallow with 13.39 g m^{-2} . However, corcin, picrocrocin and safranal contents were not significantly affected by mallow intercropping patterns. The maximum land equivalent ratio was calculated for 15-cm row spacing with 1.77.

Keywords: Crocin, land equivalent ratio, stigma yield