**Tropentag, September 17-19, 2018, Ghent**

"Global food security and food safety:
The role of universities"

# Comparison of Different Types of Agroforestry on Soil Sustainability and Food Production in Oak Forests of Zagros Region, Iran

Somayeh Homayounfar[1], Ali Mojab Ghasroddashti[2], Reza Shirazizadeh[3]

[1] *Yasouj University, Dept. of Forestry,*
[2] *Ferdowsi University of Mashhad, Dept. of Agronomy, Iran*
[3] *Islamic Azad University, Shiraz,iran, Dept. of Industrial Engineering,*

**Abstract**

Iran is located on arid and semi-arid climatic belt with less than 250 mm annual rainfall while the Zagros forests of Iran (6 million hectares equal to 41.9 % of Iran's forests) have around 600 mm annual rainfall and limiting factor for agriculture is lack of suitable land. Zagros region has considerable biological complexity with 20222 villages, 12 million population, and about 22 million livestock. Multifunctional management of these lands can be useful in solving problems related to population growth and food shortages. More than 60 percent of the Zagros forests are classified in the thin forest (canopy cover = 5–25 %), which can be used for the cultivation of cereals and legume understory of forest trees and the planting of gardens in sloping lands. Currently, there are 850,000 hectares of wheat cultivation in the understory of Zagros forests, which is needed to organise these lands for long-term planning. Also to balance food security and water scarcity and to achieve self-sufficiency in Iran, it should use the capacity of oak forests. The main goal of this study was comparing four crops (wheat, barley, lentil, and chickpea) and their effects on the soil. The case study was Meleh Siah region is located in the Chawar district of Ilam province, Iran. These forests consist mainly Brant's oak (Quercus brantii Lindl.) stands, but there are species of pistachio, hawthorn and Montpellier maple. A two-year experiment was conducted and crops cultivated as agroforestry under trees canopy. The results showed that the cultivation of lentil and chickpea is more economically feasible than wheat and barley, and also a most critical role in preventing erosion by increasing organic matter in the soil.

**Keywords:** Agroforestry, Food production, oak forests, soil Sustainability

**Contact Address:** Ali Mojab Ghasroddashti, Ferdowsi University of Mashhad, Dept. of Agronomy, Azadi Square, 91775-1163 Mashhad, Iran, e-mail: mojab@stu.um.ac.ir