Deutscher Tropentag, October 9-11, 2002, Witzenhausen

"Challenges to Organic Farming and Sustainable Land Use in the Tropics and Subtropics"

Field Survey on *Orobanche* Infestation of Faba Bean in Tunisia

Nadjia Zermane[1], Jürgen Kroschel[2], T. Souissi[3], M. Kharrat[4]

[1] *University of Kassel, Institute of Crop Science (INK), Germany*

[2] *University of Hohenheim, Institute of Plant Production and Agroecology in the Tropics and Subtropics, Germany*

[3] *Institut National d'Agronomie de Tunisie (INAT), Laboratory of Botany, Tunisia*

[4] *Institut National de la Recherche Agronomique de Tunisie (INRAT), Laboratory of Food Legumes, Tunisia*

Abstract

In Tunisia, faba bean (*Vicia faba* L.) is a major food legume grown for human consumption, as green pods or dry seeds, as well as for animal feed. However, the yields remain very low due to several constraints. In some areas, one of the most important constraints to faba bean production is the infestation with parasitic weeds of the genus *Orobanche*. To gain more information about the distribution and the impact of the parasitic weed, field surveys were carried out in April and May 2000 and 2001 in the major legume cropping areas of Tunisia mainly in the governorates of Nabeul, Béjà and Bizerte. These three governorates represent 54 % of the total faba bean growing area in Tunisia and contribute 62 % of the total production of this crop. 152 faba bean fields were investigated and the intensity of the *Orobanche* infestation was estimated using a scale from 0 to 6. Moreover, 90 farmers concerned by the *Orobanche* problem were interviewed to learn about their knowledge of the parasitic weed, their perceptions of the *Orobanche* problem and the control methods used.

Two *Orobanche* species were found infesting faba bean in the surveyed regions: *O. crenata* Forsk. which spreaded through the governorates of Nabeul and Bizerte and *O. foetida* Poiret which occurs only in the governorate of Béjà. *Orobanche* was present in 45 % of the surveyed faba bean fields. The infestation levels varied from low (rating scale 1 and 2, 43 % of the infested fields), to moderate or strong (rating scale 3 and 4, 29 %), to very strong (rating scale 5 and 6, 28 %). Average yield losses of faba bean due to *Orobanche* infestation was about 25.1 % in the three governorates. The infestation with *Orobanche* is considered by 70 % of the interviewed farmers as a very serious problem and 52 % of them observed an increasing infestation over time. Due to *Orobanche* the area allocated to faba bean is decreasing since many farmers gave up faba bean production. Thus, 84 % of the interviewed farmers in Nabeul have already abandoned faba bean production and 40 % in Bizerte intend to do it in the near future. The farmers' knowledge about the biology of the parasitic weed was very poor, 80 % of them did not know how *Orobanche* was reproducing and have never seen its seeds and 52 % have never seen the *Orobanche* underground stages. In general, no control methods are used by farmers except hand-pulling in case of low infestations. When asked about their interest to test different control methods, the majority of the farmers opted for chemicals (100 %), trap and catch crops (78 %) and resistant varieties, even small seeded ones (64 %).

Keywords: Control methods, field survey, *Orobanche* spp., Tunisia

Contact Address: Nadjia Zermane, University of Kassel, Institute of Crop Science (INK), Steinstraße 19, 37213 Witzenhausen, Germany, e-mail: nzermane@hotmail.com