

Field screening of *Faba bean* genotypes against *Orobanche Crenata*

The Orobanches are mainly found in temperate regions and mainly in arid and semi-arid areas. Their main center of dissemination is the Mediterranean basin. Symptoms of the attack are stunted growth, wilting of the host plants, flower drop and consequently a considerable yield reduction of up to 100%. Genetic resistance and the development of Orobanche resistant/tolerant material remains the best long-term control strategy in adequation of the development of a resilient agriculture.

Did you know?

Orobanche species infests almost 16 million hectares of arable land in the Mediterranean region and western Asia

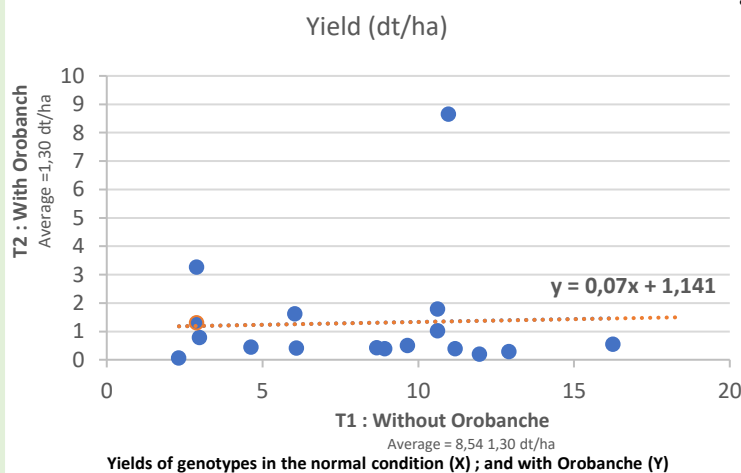
Resistance to parasitic plants can take different forms :

- Low stimulating power for Orobanche germination of host root exudates ;
- Lower sensitivity to substances emitted by broomrape germination;
- Insufficient or excessive production of molecules triggering sucker formation;
- Mechanical resistance to parasite penetration and establishment;
- Production of molecules toxic to the parasite

Objective: Analyzing genetic variability for tolerance/resistance to broomrape in a series of genotypes with a different range of geographical origins

Material and Methods : Thirty-two genotypes from Moroccan and foreign varieties were used for a field screening at the at the INRA experimental station in Marchouch during the season 2021-2022. The genotypes were randomized in a Split-plot design with two repetitions, each repetition is composed of 2 blocks one with Orobanche (T1) and the other without infestation (T2)

Results :



- the results of the evaluation of the genotypes in the two treatments, show that the broomrape reduces the yield of faba beans by 60%.
- The distribution of genotypes showed that most genotypes presented a low resistance which is reflected by a strong decrease in yield in the presence of Orobanche. Otherwise Genotypes 15 and 17 showed a stability of yield in both conditions which is explained by the resistance to Orobanche .



Faba bean infestation by Orobanche

- Anova showed significant to highly significant differences between genotypes for the majority of the agromorphological Traits including yield parameters. The differences between genotypes for the traits are very highly significant including : Total number of pods per plant, Total number of seeds per pod, Dry weight of seeds per plant, and Yield. Significant differences were observed between genotypes for Total dry weight of biomass per plant, and Hundred seed weight

- As to the interaction of the Genotype X Treatment, a very highly significant difference between genotypes was recorded for Total Number of pods per plant, Total number of seeds per plant, Dry weight of seeds per plant, and Yield and significant differences in the Dry weight of total biomass per plant, and Weight of one hundred seeds.

Significant to highly significant differences between genotypes were recorded in infestation parameters. This concerns Dry weight of broomrape plants per plant , Number of broomrape plants per host plant and Parasitism index.

Contact

