

WP2 : IPM APPROACHES TO COMBAT PARASITISM (INRAT team)

Several strategies have been employed to control *Orobanche spp.* Physical, cultural, chemical and biological approaches have been explored but none of them alone has proven to be enough effective, economical and applicable as desired. Different approaches using chemical and biological resistance inducers, herbicides and intercropping with inhibitory crops and products were tested in this work to combat *Orobanche* on faba bean.

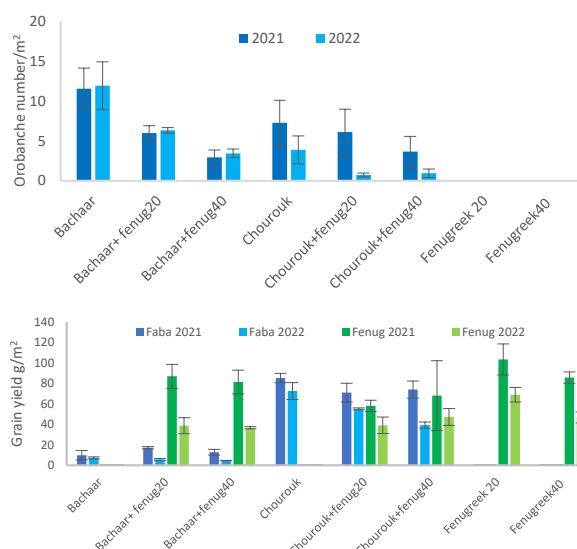
DID YOU KNOW ?

In Tunisia, a National Committee for *Orobanche* was created in February 2021. The principal activities are to prospect new infested zones and follow-up and control the already infested by *Orobanche*; to stimulate stakeholders engagement and to establish a national strategy to control *Orobanche*.

A. Effect of Intercropping with fenugreek on *O. foetida* infestation on faba bean

Results of the two cropping seasons showed that the two doses of fenugreek used (20 and 40 seeds per m²) decreased significantly the *Orobanche* number in the susceptible and resistant faba bean varieties. In general, the use of fenugreek as intercropping culture did not improve significantly the grain yield especially for Chourouk. The higher fenugreek production and the significant decrease in *Orobanche* seeds in the soil compensated the absence of significant faba bean grain yield increase.

No significant differences in the grain yield of faba bean and fenugreek between the two doses of fenugreek. Consequently, the dose 20 seeds of fenugreek per m² is recommended.

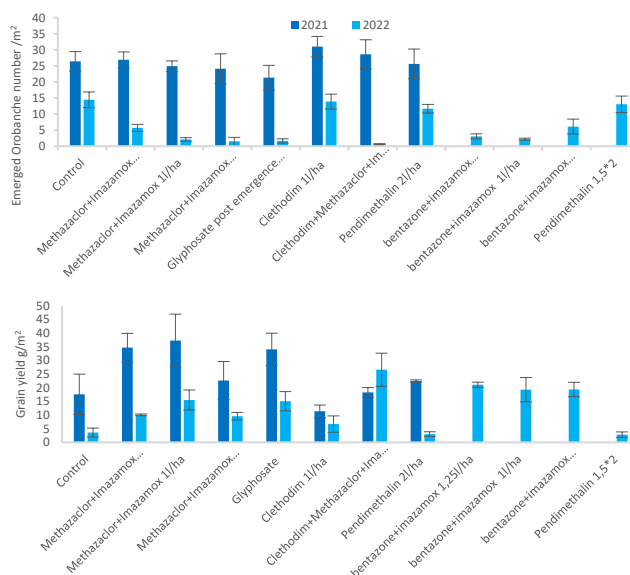


B. Testing the effect of different herbicides to control *O. foetida* on faba bean

In 2021, only Nopassarn and Glyphosate improved significantly the grain yield. No significant decrease in *O. foetida* number was observed with all herbicides. However, in 2022, all used herbicides (except Clethodim and Pendimethalin) decreased significantly *Orobanche* number and improved the grain yield of faba bean. A further herbicide experiment will be conducted in 2023 for results confirmation.



Herbicides field experiment at Oued Beja

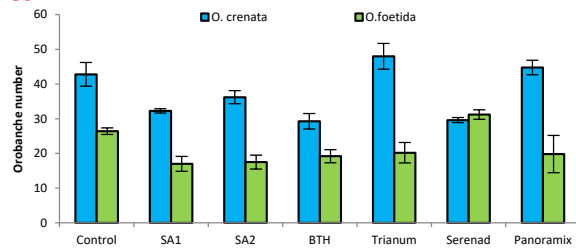


Effect of some herbicides on emerged *Orobanche* number and faba bean grain yield at Oued Beja

C. Testing the effect of some chemical and biological inducers to ameliorate the resistance of faba bean to *O. foetida* and *O. crenata*

In pot experiment, especially Salicylic acid SA (0.1 and 1 mM), BTH and Serenad treatments decreased the number of *O. crenata* tubercles.

For *O. foetida*, all treatments except Serenad reduced Orobanche tubercle number.



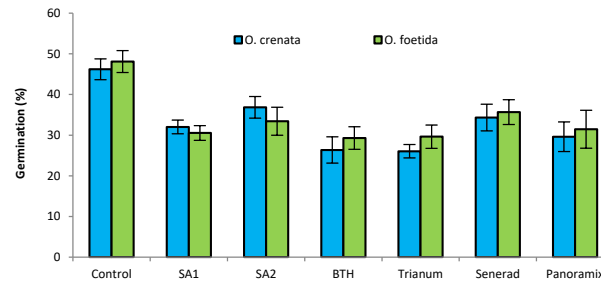
Effect of some chemical and biochemical resistance inducers on tubercle number in pot experiment



Pot experiment



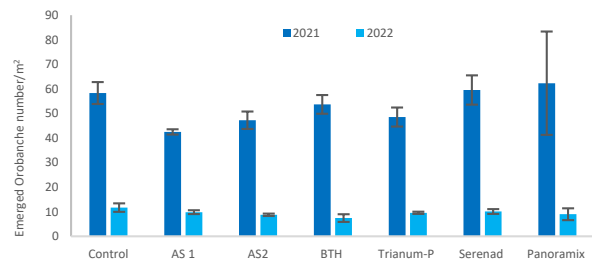
Petri dish experiment



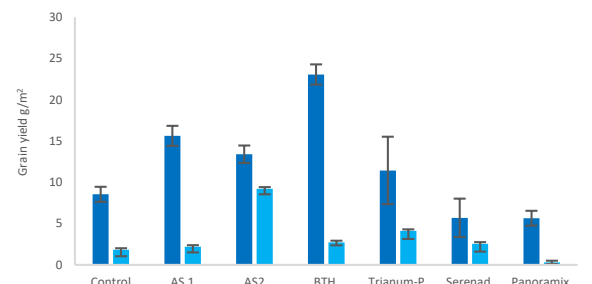
Effect of some chemical and biochemical resistance inducers on *O. foetida* and *O. crenata* germination in petri dish experiment

In petri dish experiment, all products decreased significantly Orobanche seed germination.

In field experiment, results of the two cropping seasons showed that especially priming with BTH or SA (0.1 and 1 mM) reduced significantly the emerged Orobanche number and induced higher yields compared to the untreated control.



Effect of some chemical and biochemical resistance inducers on emerged orobanche number and faba bean grain yield at Oued Beja



Priming field experiment at Oued Beja

Contact