The PRIMA programme is an Art. 185 initiative supported and funded under Horizon 2020, the European Union's Framework Programme for Research and Innovation'

Deliverable title	D3.3 Selected Mediterranean sea fennel germplasm (at least 1 ecotype) for cultivation
Deliverable Lead:	INRGREF
Related Work Package:	WP3
Related Task:	Task 3.4 Elaboration of morphological, chemical, and genetic data for potential identification of different ecotypes
Author(s)	Prof. Abdelhamid Khaldi
Dissemination level	CO
Due Submission Date:	MONTH 10 (30.03.2023)
Actual submission:	30.03.2023
Start date of project	30.05.2022
Duration	36 MONTHS
Summary of Deliverable D3.3 – Selected Sea Fennel Germplasm for Cultivation	After an extensive campaign of sampling, cataloguing, and characterizing wild sea fennel populations, SEAFENNEL4MED moved to a decisive step: the selection of ecotypes for experimental cultivation. Deliverable D3.3 documents this process, which combined morphological, chemical, and genetic analyses with advanced statistical tools (PCA, PLS, UPGMA clustering) to identify the most promising germplasm for farming and innovation. The consortium agreed to test two main ecotypes: - a local/regional Mediterranean ecotype from each partner country (Italy, Croatia, Tunisia, Türkiye), representing local biodiversity and traditional adaptation, and - an Atlantic ecotype, sampled in Brittany (France), offering a genetic contrast and an opportunity to compare resilience under Mediterranean conditions. For each ecotype, around 2,000 seeds were allocated to cultivation trials, with replication under different treatments. Experimental setups included bio-fertilized vs. unfertilized plots (Croatia, Tunisia, Türkiye) and bio-stimulated vs. non-stimulated conditions (Italy), ensuring that the impact of sustainable agronomic practices could be tested alongside genetic performance. Each trial was carefully designed with sufficient replicates (about 600 seeds per treatment) to guarantee scientific robustness.

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Versioning and Contribution History

Version	Date	Modified by	Modification reason
v1.0	20/03/2023	Abdelhamid Khaldi	First version
v2.0	30/03/2023	Abdelhamid Khaldi	Comments after peer reviewing process

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1. Selection of sea fennel ecotypes to be assayed for crop production

As agreed by all Consortium Partners involved in the production of sea fennel crops (Italy: P1 – UNIVPM and P3- RINCI for large scale production; **Croatia**: P5 – IACKR; **Tunisia**: P7 – INRGREF; **Turkey**: P8 – EGE), two ecotypes will be selected for the sea fennel cultivation trials, including:

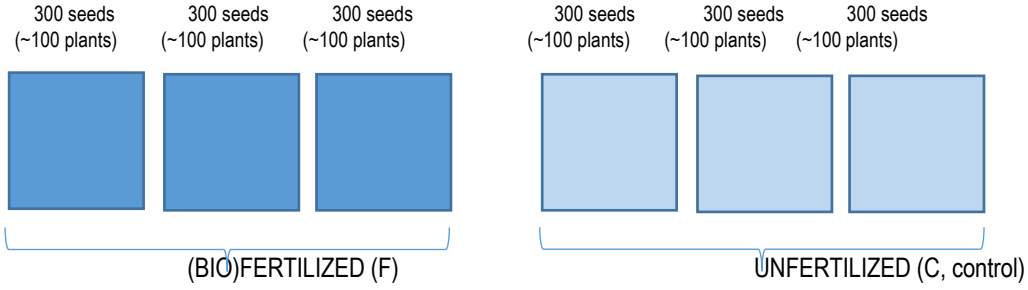
- 1 local/regional ecotype
- the Atlantic ecotype sampled by UNIBRE (P6).

Number of seeds to be collected for each ecotype was estimated based on the following consideration:

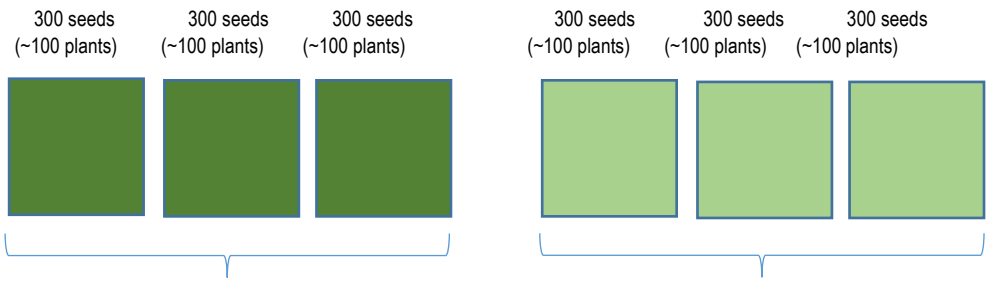
- **germination rate** of ~**90%**;
- the sowing of **3 seeds per pot** to obtain 1 sea fennel plant per pot;
- each experimental unit consisting of **100 plants**

Cultivation trials in CROATIA (P5) and TUNISIA (P7)

- **Ecotype 1 (Croatian / Tunisian ecotype): ~2000 required seeds**



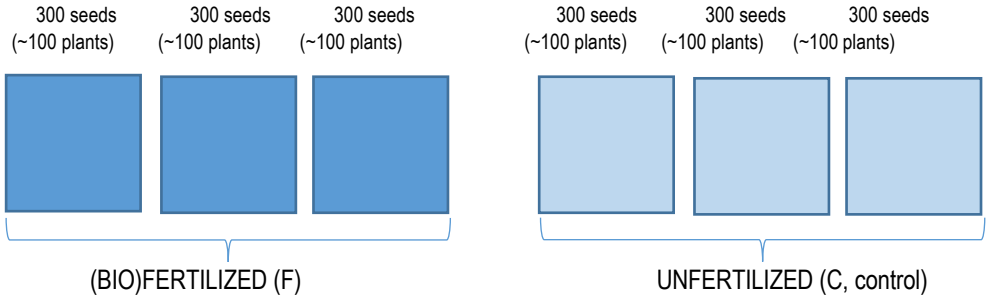
- **Atlantic ecotype: ~2000 required seeds for Croatia and ~2000 required for Tunisia**



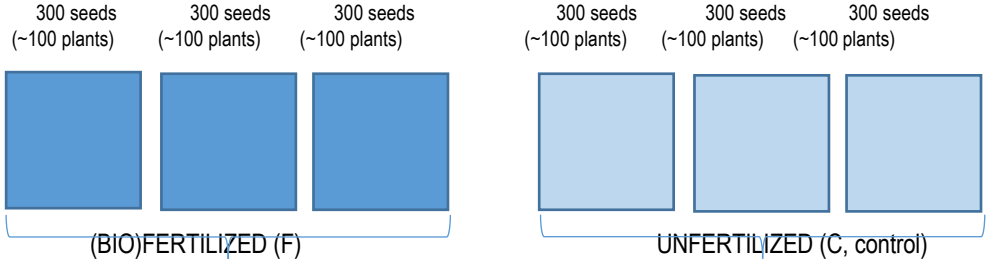
(BIO)FERTILIZED (F) UNFERTILIZED (C, control)

Cultivation trials in TURKYIE (P8)

- Turkish Ecotype **~2000 required seeds**

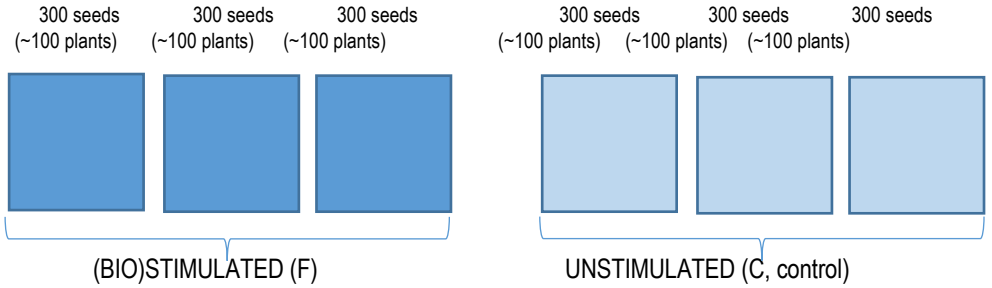


- Atlantic ecotype: **~2000 required seeds**



Cultivation trials in ITALY (P1)

Italian ecotype (Marche region ecotype): ~2000 required seeds



Atlantic ecotype: ~2000 required seeds