

### Melon *Fusarium oxysporum f.sp. melonis* (Fom) ISF Project

The Melon *Fusarium oxysporum f.sp. melonis* (Fom) ISF project aimed to enhance the classification of resistance to *Fusarium oxysporum f.sp. melonis* race Fom: 2 in melons by introducing an intermediate level. The study, involving 14 laboratories, focused on factors influencing resistance expression, validating protocols, and establishing official claims.

Results showed consistent outcomes for control varieties (Marianna, Charentais-Fom-2, Védreantais, Charentais-Fom-1). However, interpretations varied for intermediate phenotypes like Perlita, leading to discordance between labs. Isolate dependency and temperature effects were observed.

Attempts to define a clear borderline between high resistance (HR) and intermediate resistance (IR) proved challenging. A statistical approach using Pathostat demonstrated advantages over a straightforward disease index (DI) method.

For consistent and harmonized results, the proposal suggests using aggressive isolate F185, the warm condition (24°C/24°C), and Perlita as an IR/R control. Two classes for DUS and three for market communication are proposed.

Consistent results were observed for two resistance levels, while inconsistency arose with three levels. Perlita is suitable for distinguishing between susceptible and intermediate/resistant. Adaptations to UPOV guidelines/CPVO protocols are proposed.

The following conclusions were agreed:

- Consistent results between labs with 2 resistance levels
- Inconsistent results between labs with 3 resistance levels
- Perlita is needed/suitable to define the border between S and IR/R
- Perlita does not provide decisive information to separate IR and HR
- There is no need to adapt the differential host table on the ISF website because Perlita is not a differential.
- There is a need to adapt the UPOV guideline/CPVO protocol, adding Perlita as a resistant control and explaining how to use Perlita for validation of the experiment, and for interpretation of the observation obtained from varieties that are different from susceptible and resistant control varieties. A proposal for a new wording of the UPOV protocol can be found in the final report.

This document summarizes key findings and proposals from the project, aiming to provide clarity and uniformity in interpreting *Melon Fusarium oxysporum* f.sp. *melonis* (Fom) race Fom: 2 resistance levels.

Additional details and the full report can be found in the following link <https://worldseed.org/document/melon-fusarium-wilt-fom-isf-project-report/>