



RICEAlert - *Meloidogyne graminicola*, a potential threat to Portuguese rice production

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Meloidogyne graminicola (*Mg*) is the most serious plant-parasitic nematode of tropical rice production and was recently detected in Italy. Climate changes and the trade activity are promoting the northward movement of pests, which means that temperate rice agro-systems are likely to be affected. Therefore, it is important to anticipate *Mg* arrival and develop fast/reliable diagnostic methods, based on the analysis of the molecular dialogue established between *Mg* and plant hosts, for its identification/field detection, and development/selection of sustainable management strategies.



Meloidogyne graminicola <https://gd.eppo.int>

Sampling main Portuguese rice production areas

Assessment *Mg* prevalence in rice fields, along with other PPN.

Pathogenicity and nematode development

- Establishment of the levels of susceptibility of Portuguese rice cultivars to *Mg*.
- Determination of the *Mg* ability to penetrate and establish feeding sites.

Meloidogyne graminicola (*Mg*) cultures

Production of inoculum for the development of the different tasks.

Host molecular responses to *Mg* infection

- Understanding of the triggered host biological pathways that lead to a resistance response.
- Identification of resistant genes/pathways that can be used for breeding or control methods.

Loop-Mediated Isothermal Amplification (LAMP) optimization as *Mg* diagnostic tool

- Development and validation of a fast and efficient diagnostic tool for early *Mg* detection.
- Implementation of this technique in the diagnostic protocols of Nema-INIAV and NEMATOLAB.

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