

## 500 scientists create top 10 list of plant-damaging fungi

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This shows *Botrytis cinerea*. Credit: Jan A. L. van Kan

Almost 500 international experts have worked together to develop a ranking system of the ten most important phytopathogenic fungi on a scientific and economic level. The rice blast fungus (*Magnaporthe oryzae*) sits at the top of the list.

A survey conducted on 495 international researchers resulted in a list containing the most important phytopathogenic fungi. Each researcher chose three that they thought to be most significant and the most voted then formed the list.

Said list has been published in the journal *Molecular Plant Pathology* and each one of the [species](#) mentioned is analysed by an expert in the field.

One of those experts is the Spaniard Antonio Di Pietro from the department of genetics in the University of Cordoba. He describes the fungus *Fusarium oxysporum* which sits in fifth place on the list.

"Most of the [pathogens](#) on the list attack cereals like rice, wheat and maize. This is logical considering the huge importance of these crops in world agriculture", explains Di Pietro.

"Nonetheless, it is important to highlight the presence of the fungi in second and fifth place on the list (*Botrytis cinerea* and *Fusarium oxysporum*, respectively). These are generalist, wide-ranging pathogens which can cause damage in more than one hundred different [crop species](#)" the researcher adds.

Receiving almost double the votes of the second fungus, the first on the list is the rice blast fungus (*Magnaporthe oryzae*). Experts have highlighted the economic significance of this species as it can devastate [rice paddies](#) which are the food base for [half the world](#)'s population.

In second place is the fungus 'botrytis bunch rot' or 'grey mould' (*Botrytis cinerea*). This impacts in a variety of areas as it is a wide-ranging pathogen. It is also one of the few species on the list that also has a beneficial use due to its role in some stages of [wine production](#).

## **Threat to global agriculture**

In third place are the species that include the genus Puccinia, which mainly affect wheat crops, whilst in fourth and fifth place are two species from the Fusarium genus (*Fusarium graminearum* and *Fusarium oxysporum*). The first of these mainly damages cereal plantations whilst the latter can affect very different crops such as tomato, cotton or banana.

Other cereal pathogens, namely *Blumeria graminis* and *Mycosphaerella graminicola* are in sixth and seventh place on the list.

In eighth place are species from the *Colletotrichum* genus which in particular affect plants with economic importance such as fruit and ornamental plants.

The corn smut fungus or huilacoche (*Ustilago maydis*) is an edible [fungus](#) native to Mexico. This is in ninth place due to its scientific interest and not for its economic impact as it does not have particularly devastating effects. This species and that which sits in tenth place; *Melampsora lini*, have important uses in the study of the molecular bases of plant immunity and infection processes.

Di Pietro highlights that with this list "the authors are trying to inform the public about the importance of phytopathogenic fungi as they represent a growing threat to [global agriculture](#)".

**More information:** Ralph Dean, Jan A. L. Van Kan, Zacharias A. Pretorius, Kim E. Hammond-Kosack, Antonio Di Pietro, Pietro D. Spanu, Jason J. Rudd, Marty Dickman, Regine Kahmann, Jeff Ellis and Gary D. Foster. *Molecular Plant Pathology*. Volumen 13, mayo de 2012. [DOI: 10.1111/J.1364-3703.2011.00783.X](https://doi.org/10.1111/J.1364-3703.2011.00783.X)

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