

Forgotten disease still lurks in more than half of English wheat fields

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An often-overlooked cereal disease capable of causing yield losses of up to 30% could be lying unnoticed in more than half of English wheat fields, according to a leading agricultural researcher.

According to Dr Rumiana Ray, associate professor of plant pathology at the University of Nottingham, the fungus *Rhizoctonia cerealis* is traditionally associated with the stem base disease, sharp eyespot, causing lodging and empty white ears.

However, research at the University has revealed it can also cause damping-off much earlier in the season, she says, in which germinating seeds rot away in the soil, leading to reductions in crop emergence and plant numbers.

"Rhizoctonia is a soil-borne risk," explains Dr Ray. *"It is well known that other important seedling diseases associated with Microdochium and Fusarium species cause damping-off and reductions in plant stand, but we didn't know Rhizoctonia cerealis can do the same."*

A further study by the University of Nottingham of over 100 English wheat fields revealed that 54% contained *Rhizoctonia cerealis* in the soil. That rose to 57% in the North, while the Midlands had a massive 65% of wheat fields infected, and the East had 47%.

“Ultimately, *Rhizoctonia* can cause yield losses in cereals of up to 30%,” says Dr Ray. “However farmers rarely, if ever, target the disease for specific treatment. Instead, control usually relies on any cultural methods that the farm may be using at the time.

“Of these, it is unlikely that drilling date has much effect on *Rhizoctonia cerealis*, although diversity of crop rotation and cultivations will have some effect.”

Other research at the University of Nottingham has examined the effect of seed treatment use on the disease.

In a field experiment inoculated with *Rhizoctonia cerealis*, wheat emergence was boosted by up to 23% compared with untreated seed when a seed treatment based on the SDHI fungicide sedaxane was used. Under high pressure from the disease, the treatment also increased root length by 50%, restoring it to almost the same length as in uninfected plants.

“The seed treatment proved very effective at protecting seedling growth and increasing establishment through reductions of disease caused by all three pathogens - *Rhizoctonia cerealis*, *Microdochium* and *Fusarium*,” says Dr Ray. “The greatest yield increases were seen against *Rhizoctonia cerealis* and *Microdochium nivale*.

“A big question has been which is the worst pathogen at the seedling stage - *Fusarium*, *Microdochium* or *Rhizoctonia*? From inoculated trials it appears it is both *Rhizoctonia cerealis* and *Microdochium nivale*. *Rhizoctonia cerealis* has been forgotten, but it should not be overlooked.”

According to Dr Jonathan Ronksley, field technical manager for sedaxane seed treatment manufacturer, Syngenta, this research sheds important new light on this hidden disease.

Tags:

Seed treatment

Wheat

Rhizoctonia