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Wheat take-all research

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Work that could eventually lead to wheat varieties receiving take-all resistance ratings is well under way at Rothamsted Research.

Screening of 30 lines of Russian diploid **Einkorn wheat (*Triticum monococcum*)** had shown none suffering from the usual foliar diseases of mildew, rust or septoria, noted Kim Hammond-Kosack.

Already the gene conveying resistance to the latter had been identified, leading to hopes that breeders might incorporate it into new varieties.

"But there are also some very exciting prospects for take-all resistance," said Prof Hammond-Kosack.

PhD student Vanessa McMillan said that among 16 of those lines tested in pots and in the field over three years, seven displayed take-all resistance similar to that in rye and triticale.

One of the problems of testing for take-all resistance was the variability of inoculum in soils, explained Ms McMillan. But Rothamsted's long-standing research into the disease meant the status of its soils was well understood. "We do have some pretty uniform fields."

That had allowed her to embark on a programme of screening 45 varieties, including those from the Recommended and National Lists as both first and third wheats. The aim was to try to detect any differences in take-all and how they might influence its increase.

"Already we've found some huge differences in how they affect build up." **Cadenza** encouraged take-all by only 10% a year - with **Hereward** the figure was 60%, she noted.

Even without fully-resistant varieties such work should soon produce a range of ratings which growers could use to plan and position their choices more effectively, Prof Hammond-Kosack believes.

"I think that within a couple of years we should be able to come up with some useful ratings for resistance, even if they only range from two to five."

Helping growers avoid take-all patches had environmental as well as economic benefits, she added. Every patch meant inefficient use of sprays and applied nitrogen, the latter having important implications within **NVZs**.

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