Lime application increases the risk of take fall

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Application of lime is the standard method of raising pH of acidified soils to levels of improved productivity. Such a practice does not guarantee this improvement because conditions are also more suitable for some pathogens, notably take-all (Gaeumannomyces graminis var. tritici). Yield depressions in wheat due to take-all have been observed in central and southern NSW where soil pH (1:5 water) is raised above 5 (2) and at Rutherglen, Vic. (1), following liming.

Methods

At the Riverina-Murray Institute, Wagga Wagga, lime (2.5 t ha⁻¹) was applied in April 1984 to a clay-loam soil of pH (1:5 water) = 4.6, 0-10 cm. The area was successively cropped with barley and two wheat crops. The incidence of take-all was measured in December 1986.

Results and Discussion

The level of take-all is shown in Table 1.

Table 1. The effect of lime application on wheat tiller number, take-all incidence and silver grass biomass

Treatment	pH (0-10 cm)	Tillers ₂ (no. m ²)	Take-all (%)	Silver grass (g m ⁻²)
Nil .	4.6	132	27.8	183
2.5 t ha lime	5.2	120	67.3	281

The presence of a large biomass of silver grass (*Vulpia* sp.) provided a source of infection to the crop. At the higher pH level following lime application, conditions suitable for severe take-all occurred. These findings emphasise the importance of good agronomy in controlling grass weeds in order to maximise the benefits of soil amelioration.

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