GAEUMANNOMYCES GRAMINIS VAR. *TRITICI* INFECTION OF COUCH – ASSOCIATION WITH TAKE-ALL IN A FIRST-YEAR WHEAT

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Surveys of fields in New Zealand for *Gaeumannomyces graminis* var. *tritici* (*Ggt*) soil DNA inoculum levels have found low soil *Ggt* levels prior to the sowing of a first wheat where fields are preceded by a non-*Ggt* host. First wheats in these fields generally have low levels of take-all (take-all index <20 out of a maximum value of 100). An exception to this was a first-year wheat field (T1) that had been preceded by a crop of canola (non-*Ggt* host), but had a take-all index >20 and more than 70% of plants infected with take-all. Post-harvest investigation of the field found rhizomes of *Elytrigia repens* (couch) with dark lesions present over large areas in the field. A glasshouse bioassay of couch rhizomes either pre-treated with glyphosate (T1 RU^+) or not (T1 RU^-) was undertaken, using a control of *Ggt*-free rhizomes sourced from glasshouse-grown plants. The bioassay showed that T1 couch caused severe take-all and therefore was a probable source of *Ggt* inoculum during the preceding season. The RU^+ and RU^- rhizomes did not produce significantly different levels of take-all infection from each other.

DISEASE PROGRESS OF SHARP-EYESPOT IN WHEAT FIELDS

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Sharp eyespot (caused by *Rhizoctonia cerealis)* is a common disease of autumn-sown wheat (*Triticum aestivum*) crops in New Zealand. Forty-three survey fields throughout Mid and South Canterbury were monitored for progress of sharp eyespot disease. Each field was sampled at least four times (each sample a month apart) for the five months leading up to ripening stage of crop growth. Disease incidence and severity increased between each sampling date, but the greatest increase occurred between the last two sampling dates. Sharp eyespot was recorded in all fields sampled, but there was no obvious association between incidence (the percentage of plants infected) and severity (degree of penetration of lesions through leaf sheaths and into stems). Some fields recorded high incidence but with few lesions penetrating through to stems, while others had lower incidence, but with greater severity. The forty-three fields were comprised of fourteen cultivars. Wheat cultivars are known to differ in their level of resistance to sharp eyespot, and data for the fourteen cultivars were examined to determine if there were consistent differences in disease progress between cultivars. As seen in field trials comparing cultivars, cv. Regency had a constantly low level of disease.