INCIDENCE OF THE 'BLACK GOO' FUNGUS, *PHAEOACREMONIUM CHLAMYDOSPORUM*, IN DECLINING GRAPEVINES IN NEW ZEALAND

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Infection of grapevines by *Phaeoacremonium* species, thought to cause young vine decline, is currently causing concern to grape growers worldwide. Symptoms of the disease include chlorotic, sparse and stunted leaves, late bud-burst, uneven growth and undersized trunks, which show internal discolourations and frequently exude shiny, black, tarry substances ('black goo'). This study investigated prevalence of the disease within commercial vineyards in selected grape-growing areas. Grape growers, largely from Marlborough but also from Nelson, Canterbury and Gisborne, contributed vines with decline symptoms for further observation and isolation. Characteristic internal staining of vine trunks was found, usually below the graft union, in 84% of the 70 vine samples. Isolations onto selective agar found *Phaeoacremonium* spp., most commonly *P. chlamydosporum*, in 54% of vines and in 20 of the 27 vineyards sampled. Incidence may have been higher but 26% of wood specimens also contained other, fast-growing fungi which overgrew the wood tissues, interfering with attempts to isolate the slow-growing *Phaeoacremonium* spp. Isolations from roots of the 33 most severely infected vines found 14 to be also infected with *Cylindrocarpon destructans*, which causes a root rot called 'black foot'. Further studies are needed into young vine decline and into the epidemiology and control of *P. chlamydosporum*.

MORPHOLOGY AND DENSITY OF A CROP INFLUENCES ITS WEED SUPPRESSION ABILITY

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Six crops (rape (*Brassica napus*), turnip (*Brassica campestris*), lupin (*Lupinus angustifolius*), beans (*Phaseolus vulgaris*), maize (*Zea mays*) and ryecorn (*Secale cereale*)) of varying canopy architecture and plant population densities (0, 0.5, 1, 2 and 4 times the optimum sowing rate) were grown in a field trial in the 1999–2000 growing season, to evaluate their ability to suppress a natural infestation of weeds. The crops varied in architecture from those with horizontally arranged rosettes to those with an upright leaf growth habit. The study revealed that at high densities, crops respond differently in reducing weed biomass accumulation. This agroecological study showed that by selecting crops with rapid canopy closure and by sowing them at increased population densities, the germinable weed seed population in the soil was reduced, and the in-crop weeds were suppressed. It is suggested that farmers can reduce or eliminate herbicide use by choice of crop and manipulation of plant population.