

Studies of paspalum scorch disease in Victoria

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Paspalum scorch disease was first recorded in Australia in November 1978. It has since been reported to be present and causing substantial losses in irrigated pastures in New South Wales and Victoria. As very little was known about the biology of the causal organism and the losses have not been adequately quantified studies were initiated on the biology of the pathogen and the losses caused in the irrigated Goulburn Valley region of Victoria.

The disease is characterised by symptoms on the leaves; these change colour from pale green to ash-grey and finally become necrotic and shrivel up. Black fruiting bodies (pycnidia) are more evident on the necrotic tissue. Symptoms may commence along any part of the lamina but are more frequently observed moving downwards from the leaf tip. The causal organism is a fungus *Scolecosporiella spraugei*.

Methods

Conidia were obtained by immersion of infected leaves in sterile water. The effect of temperature on spore germination was studied by placing aliquots of spore suspension onto sterile distilled water agar, potato dextrose agar or malt extract agar and incubating in the dark in temperatures between 5°C and 40°C. The effect of temperature on growth was measured by placing a single germinated spore onto 20mL PDA or MA plates and incubating at different temperatures. Leaves of healthy paspalum plants were sprayed with a conidial suspension (10⁷/ml) and incubated at 100% r.h. for 48h and left in a glasshouse for symptoms to develop. Estimates of potential losses were obtained from two 10cm² samples collected fortnightly from three farms. The infected and total leaf area diseased was measured by means of a leaf area meter prior to drying in an oven at 105°C to constant weight.

Results and discussion

Conidia germinated at temperatures between 10°C and 37°C; no germination occurred at 5°C or 40°C; germination increased when spores were streaked out and in the presence of nutrients. The optimum temperature for germination was 20-25°C. Colony growth was slow, 23mm after six weeks at 25°C. The optimum temperature for growth was 25°C and pycnidia were produced after 5wk. Inoculated plants developed symptoms after 28 days and pycnidia were apparent 2-4 days later.

Disease measurements between November 1983 and February 1984 indicated that diseased tissue amounted to 21% of dry matter of paspalum in the samples.

The results indicate that spores of the fungus are capable of being released following irrigation of paspalum dominated pastures. The conidia are able to infect intact tissues. The optimum temperatures for germination and growth coincide with the conditions that favour growth of the host. The long incubation period for symptom production has yet to be explained.

Further studies on the losses caused by this disease are in progress.