STEMPHYLIUM PURPLE SPOT OF ASPARAGUS

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Purple spot of asparagus, caused by *Stemphylium vesicarium*, has been noticed in the Manawatu and Horowhenua regions for the past several seasons. For unknown reasons, the disease became more common during last season (1986). Asparagus processors will not accept any spear with more than three purple spots on it. This has resulted in large quantities of spears being rejected.

The disease has been reported in the U.S.A (Lacy 1982; Falloon *et al* 1984) and England (Falloon *et al* 1984). In New Zealand, although purple spot has been present for some time, it has not been recorded. However, *Stemphylium* has been reported to cause leaf spot of asparagus, a disease causing leaves to drop during summer (Menzies 1980). This note describes purple spot on asparagus, pathogenicity of fungal isolates and fungicide testing for disease control.

Symptoms

Purple spot appears as oval to elliptical (3 x 1 mm) purple margined spots with slightly sunken brown lesions in the centre. These spots, predominantly found at the stem base, occur singly. In severe cases, the spots may occur in clusters, resulting in blotch lesions. The spots may also occur further up the stem, causing the spear to be deformed.

Pathogenicity

Fungi were isolated from field-grown diseased asparagus spears onto agar media, and after subculturing, were identified as *Stemphylium vesicarium* Wallr. Pathogenicity was tested using asparagus spears, injured by pricking the stems with a sharp scalpel. These spears were inoculated with spores (10^4 per ml) and mycelial suspensions of the fungus. The spears were then placed in a sealed moistened plastic box to maintain high humidity and held at room temperature ($21 \pm 3^\circ\text{C}$). Typical symptoms of purple margined spots were observed on the stems 5 days after inoculation. Uninoculated spears remained disease-free. *Stemphylium vesicarium* was isolated from the inoculated spears.

Fungicide Screening

Healthy field-grown asparagus spears (2-3 days old) were washed in tap water and used for screening fungicides (Table 1) by surface application and systemic treatment techniques (Cheah 1986).

Penconazole and propiconazole gave complete inhibition of growth with the systemic technique but only propiconazole provided total control with the surface technique (Table 1). Other fungicides were less effective but some still provided reasonable disease control.

Purple spot of asparagus has caused significant losses and can become more severe in the early spring when the weather is cool and wet (Falloon *et al* 1984). These tests showed that two systemic fungicides, penconazole and propiconazole, were highly effective for control of the disease. If they prove to be effective in the field these fungicides could be applied during early spring before harvesting in a manner similar to that for metalaxyl for *Phytophthora* rot control. (Nikoloff 1984; Falloon *et al* 1985; Cheah 1987). Field evaluation of these fungicides for purple spot control is warranted.

An alternative method of control is to remove the dead infected fern during the winter, burning or burying it, in order to reduce the overwintering inoculum. However, further studies on the epidemiology of *S. vesicarium* on asparagus are required to better understand the disease.

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TABLE 1: Effect of fungicides on growth of *Stemphylium* on asparagus spears in laboratory.

Common name (ppm)	Fungicide Trade name	Lesion growth (mm)	
		Surface application	Systemic soak
benomyl 500	Benlate 50WP	14.3	10.3
bitertanol 500	Baycor 50WP	2.7	3.2
DPX H 6573 500	Nbl	5.0	6.5
mancozeb 1500	Manzate 80WP	17.7	19.3
penconazole 500	Topas 10EC	7.3	0*
propiconazole 500	Tilt 25EC	0*	0*
S3308L 500	Nb2	5.5	5.0
untreated control		19.3	21.7
LSD (P = 5%)		4.5	4.1

* Zero result was not included in the analysis of variance.

Nbl: bis (4-fluorophenyl) methyl (1H-1, 2, 4-triazol-1-ylmethyl) silane

Nb2: 1- (2, 4-dichlorophenyl) -4, 4-dimethyl -2- (1, 2, 4-triazol-1-penten-3-01)

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