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FLAX (*Linum usitatissimum* 'AC Watson, Omega, Rahab 94, and Webster')

Pasmo; *Septoria linicola*

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Flax cultivar response to fungicide application for the control of pasmo disease, 2002.

Four cultivars, AC Watson, Omega, Rahab 94, and Webster, were selected for evaluation in a field at the Langdon Research Extension Center in spring. Seven rows spaced 6-inches apart were planted with a double-disk Hege drill in plots 16 ft. long in a randomized complete block design with four replicates arranged as a cultivar x fungicide factorial on 7 May. Border plots of Rahab 94 were planted between treatment plots to minimize drift potential to adjacent plots. Recommended production practices for Northeast North Dakota were followed. Straw collected from flax fields infested with pasmo in 2001 was distributed in alleys between blocks prior to emergence. Treatments were applied by CO_2 backpack sprayer at 18 gpa with hydraulic nozzles XR8002 oriented downward from horizontal at growth stage 6 about five days before first flower on 9 July. On 19 July the height that the pasmo had progressed upward on the plant was recorded along with the plant height. A pasmo height index ((visible Pasmo height/plant height)*100) was calculated. A second visual pasmo progression was recorded on 27 July. Plots were harvested with a Hege plot combine 4 September and the grain sample cleaned and processed for yield. Data was analyzed with the general linear model (GLM) in SAS. Least significant differences (LSD) were used to compare means at the 5% probability level.

Pasmo disease progressed up the plant at progressively different rates among cultivars. Differences in yield among cultivars were measured. Rahab 94 and AC Watson produced greater yields than Webster and Omega. The cultivar Omega had stand reduction that reduced yield. This was likely associated with defect of seed coat allowing disease to reduce stand specific to yellow seed colored cultivars. All planting rates were based on pure live seed, determined by in vitro blotter paper test. Yield was positively affected by the fungicide application of Quadris. Quadris significantly increased yield over the untreated, Ronilan, and Sulfur. Other fungicide applications were not different from the untreated.

Cultivar or Fungicide	Pasmo Progression 19 July	Plant Height	Pasmo Progression Index	Pasmo Progression 27 July	Yield
rate/acre	inches	inches		inches	bu/ac
Cultivar averaged across fungicides					
AC Watson ……...	9.2	17.1	53.5	14.2	10.3
Omega ……..	6.0	16.2	37.3	11.9	3.9
Rahab 94 ……..	9.4	16.8	56.6	13.4	10.4
Webster ……	8.9	18.6	47.8	13.4	4.9

Fungicide averaged across cultivars

Untreated ……....		8.9	17.3	51.2	14.3	7.0
AMS 21619 480 SC 5.7 fl oz ..		8.6	16.9	50.8	13.3	7.9
Quadris 2.08 SC 9.6 fl oz. …...		8.1	17.6	46.7	12.9	9.6
Ronilan 50 EG 12 fl oz ……		8.1	16.8	48.0	12.9	5.5
Sulfur 80W 5 lb ……...		8.1	17.1	47.0	12.5	6.9
Cult	LSD	0.9	1.0	5.1	1.5*	1.6
Fung	LSD	NS	NS	NS	NS	1.7
C. V. %		17	9	17	18	33

* Significant at 0.1 probability level for mean comparisons.

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