Effect of Pasmo on the Yield of Certain Flax Varieties

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Pasmo, caused by Septoria linicola (Speg.) and Garasini [= Mycosphaerella linorum (Wr.) Garcia Rada & Stevenson] which appears as lesions on the stems and leaves of flax plants (1) may reduce the yield of seed (7) and the quantity and quality of the oil extracted (8). No varieties of flax are known to be highly resistant or immune to the disease, but in certain years some varieties appear to be more heavily infected than others (2). The work reported herein was undertaken to determine the effect of pasmo upon varieties of flax currently grown for seed.

MATERIALS AND METHODS

In 1957 and 1958 four varieties of flax, B5128 (C. I. 980), Marine (C. I. 1135), Norland (C. I. 1176), and Redwood (C. I. 1130), were grown in 18-foot triplicate rows and inoculated with spore suspensions of S. linicola. These varieties are susceptible to pasmo. However Marine is considered less susceptible than the other varieties (5). Three different inoculation treatments were made: (1) at both the 6- to 8-leaf stage and early bloom stage, (2) at early bloom only, and (3) at the stage of boll formation. Chemical control of the disease was attempted by spraying with a pyridinethione compound, that was only partly effective, at the rate of 1.5 pounds per acre after every half inch of rain. An untreated check was included with the treatments. A split-plot design with three replicates was used with inoculation treatments in the main plots and varieties in the subplots. Main plots were isolated by strips of wheat 8 feet wide surrounding each plot. Spore suspensions of 40,000 to 50,000 spores per ml. were applied to the plots with a power sprayer. The spore suspensions were made by soaking infected flax straw in water, to which the wetting agent polyethylene glycol monolaurate was added at the rate of 10 ppm.

Notes were taken on the center rows. After harvest the flax was air dried, threshed by rolling the heads between rubber rollers, and cleaned at low air velocity to save as much of the seed as possible.