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2041

= *Phakopsora pachyrhizi*

CHEMICAL CONTROL OF SOYBEAN RUST . 4

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SUMMARY

The germination percentages of urediospores were 14, 14, 0.3, 0, 16, 2.7, 3.7, 1, 0.7 on 1% water agar contained 2,000ppm active ingredient (a.i.) 2-Chloroethyltrimethylammonium chloride (CCC), 100ppm 2,4-Dichlorophenoxyacetic acid (2,4-D), 12ppm 3-Indoleacetic acid (IAA), 55ppm α -Naphthalene acetic acid (NAA), 20 ppm a.i. 1-(butylcarbamoil)-2-benzimidazole carbamic acid, methyl ester (Benlate), 15 ppm Sankyo Bordeaux, 500 ppm a.i. 2,3-Dihydro-5-carboxanilide-6-methyl-1,4-oxathjin-4,4-dioxide (DCMOD, Plantvax 75W), 4 ppm a.i. Dithane M-45, 20 ppm a.i. O-Methyl benzoid acid amilide (MBAA, BAS 3050F), respectively. The germ tubes were distorted with Benlate above 4 ppm a.i.

The resultant data of foliage application indicated that all growth regulators increased the weight of one thousand seeds from infected soybeans except that of 1500 ppm a.i. CCC. Spray of either 1 ppm NAA or 100 ppm a.i. CCC were particularly effective in this respect. One ppm 2,4-D significantly decreased defoliation of infected plants with high degree of infection and produced the nearly equal number of flowers to healthy plants, however, the yield was less since less effective percentage of mature pods was obtained. Efficacy of growth regulators reached maximum on third day after application, then gradually decreased. Chemical injury was

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observed in the soybean plants treated with 1,500ppm a.i. CCC, 100ppm NAA, 10ppm 2,4-D or 1,000 ppm a.i. MBAA.

All the fungicides tested, i.e. Benlate, Sankyo Bordeaux, Plantvax 75W, Dithane M-45, MBAA, not only decreased the disease incidence and defoliation but also increased 1,000 seeds weight which was higher than that of control. The least disease incidence was obtained by applying either Dithane M-45 or Benlate. Foliage spray with Benlate caused the same percentage of defoliation as that of healthy plants. With regard to the yield, 100 ppm a.i. Benlate and 200-fold or 400-fold dilution of Dithane M-45 were recommended for control of soybean rust. Sankyo Bordeaux was nearly as effective as the abovementioned fungicides, but it contained phenylmercuric acetate which was not permitted to use for the foliage application on this island.