

FIELD SCREENING OF FUNGICIDES ON THE CONTROL OF PHILIPPINE CORN DOWNY MILDEW DURING WET SEASON UNDER NOAC CONDITIONS

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Seven fungicides applied singly or in combination were tested for their efficacy against downy mildew on susceptible and resistant corn varieties. Apron 35 SD when applied to IPB Var 1, the resistant variety provided excellent protection from the disease with zero infection from fourteen to forty-two days after emergence. However, when Apron 35 SD was applied to UPCA Var 3, the susceptible variety 4.32 to 2.47 per cent infection were observed from fourteen to forty-two days after emergence. The untreated IPB Var 1 sustained 35.80 per cent infection while the untreated UPCA Var 3 had the significantly highest infection of 96.30 per cent.

Downy mildew had considerably reduced grain yield of IPB Var 1 and UPCA Var 3. The untreated UPCA Var 3 produced the significantly lowest grain yield of 0.68 ton per hectare whereas the untreated IPB Var 1 yielded 2.92 ton/ha. The application of Apron 35 SD on both varieties resulted in the significantly highest percentage of productive plants, shelling per-

centage, number of large ears, and in the significantly lowest percentage of non-productive plants. On IPB Var 1 all other fungicide treatments except Apron 35 SD resulted in percentage of infection comparable with that of the untreated control. However, the application of Daconil 75 WP on IPB Var 1 resulted in grain yield of 4.45 ton/ha which is comparable with that of the Apron 35 SD treatment. Daconil-treated plants had higher percentage of productive plants and lower percentage of non-productive plants. Although the application of Duter and the Duter/Dithane M-45 on IPB Var 1 resulted in lower percentage of infection, the yield was lower compared with that observed from the Apron 35 SD treatment. The heavy phytotoxic effect of Duter reduced the percentage of productive plants and increased the percentage of non-productive plants.

IPB Var 1 showed higher percentage of productive plants, ear number classified as medium and grain yield than UPCA Var 3. The two varieties, however, did not differ in height, percentage of non-

productive plants, ear number classified as small and large, and shelling percentage.

Regression analyses showed that the increase in grain yield due to increase in infection was significantly higher for IPB Var 1 than for UPCA Var 3. For every one per cent increase in downy mildew infection yield decrease by -0.067 ton/ha for IPB Var 1 and -0.039 ton/ha for UPCA Var 3. For every decrease of IPB Var 1 ranges from -0.041 to -0.093 ton/ha and -0.047 to -0.039 ton/ha for UPCA Var 3. There was a highly negative correlation between grain yield and infection of -0.97 for IPB Var 1 and -0.98 for UPCA Var 3. The strength of association between grain yield and percentage of infection is 94.09

per cent for IPB Var 1 and 96.04 per cent for UPCA Var 3.

The prevailing temperature, relative humidity and rainfall in the area favored disease development.

Economic analysis showed that the application of Apron 35 SD resulted in grain of 4.45 ton/ha for IPB Var 1 which is equivalent to a net income of ₱2,425.09/ha. The same fungicide treatment on UPCA Var 3 resulted in a net income of ₱1,333.89/ha. A net income of ₱784.67/ha was realized from the Daconil treatment on IPB Var 1, but a loss of ₱2,228.08/ha resulted when Daconil was applied to UPCA Var 3. All other fungicide treatments and the untreated control proved unprofitable resulting in losses ranging from ₱127.05/ha to ₱3,884.93/ha.