

Relationship between precipitation and timing application of fungicide for control of soybean purple seed stain¹

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summary

For timing application of fungicide to control the purple seed stain of soybean economically, the precipitation during growth stages of soybean and incidences of purple stain were surveyed and analyzed. The experiments were conducted from summer crop 1987 to spring crop 1990 at Chian, Hualien. The soybean cultivar Hualien No.2 was used, and its seeds with 40% infection were sowed. A randomized complete block design with four replications was adopted. There were seven treatments:(1) seed disinfested, (2)V4 stage sprayed, (3)R2 stage sprayed, (4)R4 stage sprayed, (5)R6 stages sprayed, (6)V4,R2,R4, and R6 stage sprayed, (7)nonsprayed check. The fungicide 50 % benomyl WP was dusted at the ratio of 4:1000 or sprayed 1:1000. Those crops (summer 1987, 1988, spring 1989) with lower precipitation got lower disease incidences (<11%), and the other crops which had higher precipitation got higher disease incidences (21-31%). Results indicated that the full bloom stage (R2 stage) was the dominant and critical infection period. The precipitation which promoted the relative humidity above 90% around 7:00 a.m. during R2 stages would promise the infection of the pathogen. The R6 stage was the period of colonization, the higher precipitation induced the higher disease incidence. The R2 stage was suggested to be the optimal, and the R6 stage to be the suboptimal stage for controlling the purple seed stain of soybean. Seed disinfestation and foliar spray during R4 stage had no effect on purple stain. The yield and weight of 100-seed of soybean were not reduced by infection of purple stain.

(Key words: Soybean, Glycine max, Purple stain, Purple speck, Cercospora kikuchii Precipitation, Relative humidity, Growth stage, Fungicide, Timing application.)

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