A simulation model of rice sheath blight epidemics (I) Structure and model development

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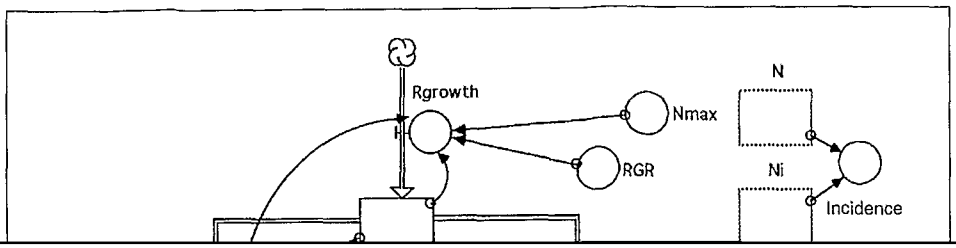
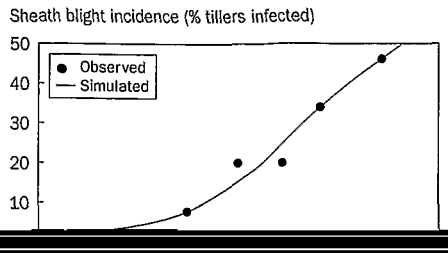


[RGR]) was assumed to adequately represent total tiller growth; 2) tillers may recover from infection, and a rate of disease recovery (Recov) was included; 3) severe infection on individual tillers may lead to their death, and a rate of tiller death (Rmort) was included; 4) tiller senescence (Tsen)



The results of the simulation indicate that this system model has the potential of adequately describing ShB epidemics, and may serve as a basis for further improvement (Figure 2). Experiments are currently under way at IRRI to further assess the performance of the model and to

to diseases, and the slower the epidemic when it enters the polycyclic phase.

This behavior of the model indicates that it is sensitive to variation in r_s. Future development of the model must consider the effect of time-dependent factors on variation in r_s so as to reflect variation of environment under which ShB epidemics develop. This suggests that the polycyclic nature of ShB must be considered a key characteristic of the disease for its management, and that measures taken in the course of a cropping season should prove effective. It also indicates a comparatively high sensitivity of the model to variation in the aggregation parameter, and experiments are necessary for its estimation. ■

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