

[P1] Field Crop Production

Thu. Sep 9, 2021 12:15 PM - 2:00 PM Room 1 (Poster) (Field Crop Production)

1:15 PM - 2:00 PM

[P1-20]Effect of *Phytophthora sojae* Inoculation on Soybean — Mortality as Affected by Environmental Factors and Growth of Survived Plant

*Nominated for Presentation Awards

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Loss of soybean production due to *Phytophthora* stem and root rot (PSR) is serious, but the information on cultivation methods to reduce the PSR damages is limited. The objectives of this study were (1) to investigate major factors on the mortality rate due to PSR, and (2) to evaluate the effect of the pathogen existence and flooding on the traits of survived plants. (1) The seedlings of soybean cultivar 'Enrei' were inoculated with two *Phytophthora sojae* isolates (Ps060626-4-1 and Ps060710-3-1) in three different ways, like compulsory inoculation to injured hypocotyl under high relative humidity (CIH), or that under low humidity (CIL), or exposing uninjured plant to inoculum suspension under low humidity (EIL). The ratio of dead plants was highest in CIH (0.81) followed by CIL (0.65), and EIL (0.38). This result suggested that the mortality of soybean could be promoted by injury and high relative humidity. (2) The seedlings of soybean cultivar 'Enrei' were inoculated with the two pathogen isolates under non-flooded and flooded conditions and its effects on the growth of the plants were quantitatively evaluated. In all nine experiments except one, the inoculation caused maximum root length (MRL) to be significantly shorter. The interaction between inoculation and flooding influenced MRL and shoot dry weight. The results indicated that soybean seedlings grew more poorly when the plants survived from *P. sojae* attack compared to plants without the pathogen inoculation.