

Agronomic Response of Four Philippine Soybean Cultivars to Temporary Flooding at Two Growth Stages

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Soil waterlogging is one of the major environmental stress factors that has a devastating effect on crop growth. This study was conducted to evaluate the response of popular Philippine soybean cultivars to waterlogging stress during early season (30 days after planting, DAP) and late season (beginning bloom, R1 stage) flooding. Response of cultivars to the timing of the stress at 14 d waterlogged duration was significant for seed yield and seed yield components. Based on seed yield damage index, PSB Sy1 was the most tolerant genotype followed by the landrace Manchuria; while PSB Sy6 and PSB Sy3 were most susceptible to waterlogging. The effect on soybean seed yield of the two waterlogging stress timings was statistically similar. The number of pods per plant, high percentage of seed-filled pods and the weight of seeds (per plant) were crucial seed yield components. Flooding stress caused decreases in root length and shoot dry matter partitioning in susceptible genotypes, whereas the tolerant PSB Sy1 (across waterlogging treatments) increased its root length, and leaf and stem-partitioned dry matter. It appears that the flooding tolerance mechanisms of soybean result in the differences in seed yield components.

Keywords: soybean, cultivar, waterlogging stress, yield components