Pattamavadee Kunwanlee 2011: Sensitivity to Soaking Injury and Effect of Neem Oil Coating on Seed Quality of Different Soybean Varieties. Master of Science (Agronomy), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Associate Professor Wanchai Chanprasert, Ph.D. 105 pages.

Generally, soybean seed often meet a problem in the field when it rains before or after sowing seed resulting in soaking injury and different varieties of soybean differ in seed quality, soaking injury and storability. Therefore, this study compared germination capacity under soaking condition of 8 soybean lines/varieties of Kasetsart University Soybean Research Project and their responses to pure neem oil seed coating. Of these 8 lines/varieties, six lines are promising soybean lines and the other 2 are recommended varieties. The experimental design used in this study was 8 x 2 x 2 Factorial in CRD with 4 replications. Factor A was soybean lines/varieties, while factor B was neem oil coating (0 and 8 ml/1 kg seed) and factor C was germination condition (soaking 2 hours and non-soaking). This study was carried out in 2 growing seasons, i.e. dry season 2009 (October 2009 – February 2010) and rainy season (May 2010 – September 2010) and the storage period was 6 months under ambient temperature condition. The results showed that in dry season, seed quality and storability were lower than in rainy season. For dry season seed, ST2 34-1 was the most susceptible to soaking injury while KUSL3802-1, KUSL3802-4 and NS1 1-12 were quite tolerant to soaking injury. In rainy season, it was found that KUSL20004 and ST2 34-1 were more susceptible to soaking injury than other lines/varieties. Neem oil coating could reduce seed imbibition rate and protected the seed from soaking injury resulting in higher germination percentages and field emergence comparing to the non-coated seed in both seasons. Seed deterioration during 6 months of storage also occurred in a lower rate in neem-oil coated seed than that of non-coated seed.

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