

## **Effect of delay harvest on seed quality and germination of three varieties of soybean (Glycinemax) seeds**

### **ABSTRACT**

The loss in soybean seed quality owing to adverse environmental reasons is unavoidable, particularly in the tropics. Seed ability to germinate and produce a vigorous seedling is a significant characteristic for any seed-propagated crop. Seed deterioration is a harmful feature of agriculture crops which hindered quality seed of Soybean. Thus, the purpose of the study is to investigate the relationship between seed deterioration and physiological changes of delayed harvest soybean seeds. Three soybean varieties which are AGS-190, Cikurai, and Willis were used as planting in the field at Universiti Putra Malaysia as materials in this experiment. The seeds were harvested at harvest maturity HM (H1) demonstrating 95% of the pods have reached their mature brown color and 2-week delay after HM (H2). The experiment was conducted in a complete randomized design (CRD) with three replicates. The result showed that seed deterioration of larger seeded soybean varieties can be increased at a 2-week delay after harvest maturity stage. Seed quality of soybean was affected by field weather environment during harvest date. AGS190 was the most sensitive to adverse weather surroundings as shown by deterioration of seed quality at a 2-week delay after harvest maturity stage. Loss of seed viability and vigor demonstrated depending on harvest date and directly related to increase in the level of phomopsis sp. infection. Germination percentage, tetrazolium test seed viability and vigor are negatively correlated with electrical conductivity and phomopsis sp., while in small seeded varieties was less seed deterioration.

**Keyword:** Soybean; Seed quality; Delay harvest; Seed deterioration