ASSET Series A (2001) 1 (1): 15-26

ASSET
An International Journal

SEED QUALITY DEVELOPMENT AND MAINTENANCE IN SOYBEAN (*Glycine Max* (L) Merr) GENOTYPES SOWN UNDER IRRIGATED AND RAINFED TROPICAL FIELD CONDITIONS

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ABSTRACT

Potential seed longevity among six soyabean genotypes was monitored under irrigated and rainfed tropical field conditions in Nigeria in 1996. Physiological quality was assessed by estimating the percentage germination and seedling emergence of seeds harvested from irrigated and rainfed plots. Seed quality assessment showed that soyabean seed germination generally declined at the end of seed-filling phase more rapidly under irrigated than rainfed field conditions. All soyabean cultivars flowered late, matured late, were taller and gave individually larger seeds under rainfed than irrigated conditions. Physiological quality was substantially reduced in early harvests by enforced desiccation in all cultivars irrespective of whether seeds were harvested from irrigated or rainfed plots, particularly for immature, green seeds harvested on or before the R6 reproductive phase. However, genetic differences were observed among cultivars with regards to the onset of desiccation tolerance. Soyabean seeds harvested within 10 days before and a few days after harvest maturity showed better qualities in terms of higher percentage, seed germination and seedling emergence when compared with seeds harvested at any other developmental phase. This observation is indicative of the fact that maximum physiological quality was not attained at physiological maturity in tropical (Nigeria) soyabeans. Rather, seed quality improvement continued days after harvest, maturity followed by subsequent decline probably due to dry weather conditions that persisted around this period.

Keywords: Genotypes, moisture, temperature, tropical soyabeans, seed quality maintenance.