4.1.5 Mutiti Alice (2001). Effect of harvest date on seed quality and potential longevity of two soybean (*Glycine max* (L.) Merr.) varieties. (Supervisors: Dr. D. M. N. Mbewe and Mr. S. S. Mwale).

The need for preservation of crop species is being widely recognized. This requires that seeds possess good initial quality and potential to be stored for long periods. Time of harvest of soybean seed has been identified as the main factor affecting quality and potential for long term storage. However, there exists no clear recommendation for time of harvest that ensures that these two attributes are achieved. This study was done to establish the optimum time of harvest for soybean in order to produce seed with the best quality and highest possible potential for longevity. The experiment was done using a split-plot design with four replications in which the factor of variety was assigned to the main plots and harvest dates were randomly assigned to the subplots. Two soybean varieties, Hernon-147 and Kaleya, and six times of harvest after seed podding (7, 14, 21, 28, 35 and 42 days) were used. Parameters measured at each harvest included seed dry matter content, initial seed moisture content, germination of fresh and dried seed, initial seed vigour and the accelerated ageing test was conducted. Seed was artificially aged at each harvest for varying periods (1, 2, 3, 4, 5, 6 and 7 days) after which germination and vigour tests were done. The results showed that variety had significant effect on vigour of artificially aged seeds and dry matter content of the seeds. Time of harvest had significant effect on all the parameters that were measured. Seeds of both varieties attained physiological maturity at 28 days after podding, but the amount of dry matter at physiological maturity differed significantly between the two varieties. Onset of germination in fresh seeds was observed at 7 days after podding and in dried seeds at 14 days after podding for both varieties. Seed germination and vigour improved with time of harvest, being optimal at 28, 35 and 42 days after podding. Seed with high potential for long term storage was observed at 35 and 42 days after podding, when moisture contents are low enough (20% to 14%) for harvesting. This stage coincided with the commercial soyabean harvest time (16% to 12% moisture), an indication that this recommendation could also be used for soybean seed grown for long term storage.