

Khin Hnin Thant 2009: Influence of Seed Kinds and Seed Lots on Quality and Storability of Oil Crops Seed under Local Environmental Condition. Master of Science (Tropical Agriculture), Major Field: Tropical Agriculture, Interdisciplinary Graduate Program. Thesis Advisor: Associate Professor Juangjun Duangpatra, Ph.D. 133 pages.

The influence of different seed kinds and seed lots of oil crops on seed quality and storage potential under local ambient condition were studied. Three kinds of oil crops: sesame (*Sesamum indicum* L.), peanut (*Arachis hypogaea* L.), and soybean [*Glycine max* (L.) Merrill] were used. The five seed lots of sesame were KU 18 (2006), KU 18 (2007), KU 18 (Contract Farmer, 2007), CPlus 2 (2006) and CPlus 2 (2007). KU 18 is black color and CPlus 2 is white color seed coat. For peanut, the four large seeded: Kaset 1, Kasetsart 50, Khon Kaen 4, Kalasin 2, and medium-seeded Tainan 9 including the five promising varieties of soybean: MJ 9518 2, MJ 9520 21, Morbi, KUSL 20004 and CM 60 were studied. Seed materials were stored for a period of 4 months from June to October 2008. Seed germination and vigor were determined at 0, 2 and 4 months after storage. Field emergence was conducted before and after 4 months storage.

Seed moisture content, seed germination, seed vigor as determined by first count germination, germination index, accelerated aging, electrical conductivity, field emergence percentage and field emergence index at initial before storage were higher than those of after storage. Seed quality and storage potential were different among seed kinds and seed lots. Seed or grain yield of sesame, peanut and soybean that planted from the initial before storage seeds gave higher yield than those that planted from after 4 months storage seeds.

Results also showed that seed quality of sesame as measured by germination, vigor and field emergence, KU 18 (2007) was the highest among all seed lots when stored up to 4 months. Black color seed coat and white color seed coat were different in seed quality and storage potential. The new sesame seed lots were better in seed quality and vigor than old seed lots. Sesame seeds that obtained from research station were better in viability and vigor than from farmer field production. According to germination, seed vigor and field emergence percentage, Kaset 1, Kasetsart 50, Khon Kaen 4 and Kalasin 2 peanut were higher quality and storability than Tainan 9. Tainan 9 was the lowest in seed quality and was totally damaged by groundnut borer (*Caryedon serratus* Olivier). Among the five seed lots of soybean, MJ 9518 2 was the best in seed quality and storability as measured by seed germination, seed vigor and field performance. Further research concerning the quality and storability of sesame, peanut and soybean cultivars should be carried out at different research farm and farmer field. It is also need to study concerning the quality and storability of different color of sesame seed. Seed storage duration in this study was short period, further experiment with longer storage duration should also be examined. Seed lots of sesame, peanut and soybean in this study were stored under ambient condition. Storage under the control condition should be considered for further study of new varieties.

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Thesis Advisor's signature