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## Effects of Seed Sizes and Varieties on Growth, Yield, and Oil and Protein Contents of Groundnut (*Arachis hypogaea* L.)

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### Abstract

Two experiments were conducted at upland farm of Yezin Agricultural University in Nay Pyi Taw, Myanmar during rainy season 2010 and winter season 2010–2011. The field experiments were laid out in a split-plot design with three replications. The main plot factor was the four groundnut varieties, which were Sinpadaethar 7, Sinpadaethar 8, Sinpadaethar 9, and Magway 15. The sub plot factor was the three seed sizes, which were graded as small, medium, and large with the use of different sizes of sieves.

The effects of groundnut varieties on the yield and other related characters were found to be obvious and significant. The higher pod yield, number of pods per plant, shelling percentage, harvest index, and oil content were observed to be highest in Sinpadaethar 7, and this variety should be recommended to be applied for effective production in terms of pod yield in rainy and winter seasons. The highest protein content was observed in Sinpadaethar 9 and Magway 15 in rainy and winter season, respectively.

The effects of size of planting seeds on plant characters were not as obvious as that of variety. The plants from large seeds indicated faster growth rate, especially in the initial growth stage as expressed in higher mean values of plant height, total dry matter, crop growth rate and harvest index in both season. At later growth stages, no significant differences were observed for the above parameters. Oil and protein contents were slightly affected by seed size. Yield components, harvest index and shelling percentage were not affected by seed size.

The interaction between varieties and seed sizes was not found in all observations. Therefore, choice of seed size or variety can be done independently for groundnut production. Based on the findings of this study on the effect of seed size on yield, it can be recommended that the smaller seeds can be used as the seed stock for groundnut growers whereas medium and large seeds can be used for their income.

**Keywords:** Groundnut, Myanmar, seed sizes, varieties, yield components