of females with better attractiveness and/or the use of branched male restorer lines would appear to offer more chance of increasing seed yields, both in the female rows and per overall area.

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SUNFLOWER HOLLOW SEEDEDNESS AND NITROGEN FERTILIZATION IN RELATION TO HARVESTING TIME.

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ABSTRACT

Field trials were conducted for three years at Ibadan to investigate the effects of harvesting time on hollow seededness in relation to nitrogen fertilization. Treatments consisted of six nitrogen levels — 0, 30, 60, 90, 120 and 150 kg/ha and five harvesting times — 3, 4, 5, 6 and 7 weeks after 'spearing'.

Results showed that hollow seededness was significantly influenced by harvesting time. Up to 50% of the seeds were unfilled when harvesting was done before five weeks after spearing. The percentage of unfilled seeds was significantly reduced five weeks after spearing. Hollow seededness was not affected by application of up to 90 kg/ha N. Increasing added nitrogen beyond 90 kg/ha significantly reduced seed and oil yields by increasing the proportion of unfilled seeds.

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EFFECT OF ACHENE (SEED) SIZE ON SUBSEQUENT GROWTH AND DEVELOPMENT OF HYBRID SUNFLOWER (*HELIANTHUS ANNUUS* L.).

EFECTOS DEL TAMAÑO DE AQUENIO (SEMILLA) SOBRE EL CRECIMIENTO Y DESARROLLO DE GIRASOL HIBRIDO (*HELIANTHUS ANNUUS* L.)

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ABSTRACT

Achenes of sunflower (*H. annuus*) were graded into four size classes (2 large, 3 and 4 intermediate and 5 small) and were compared in relation to germination, emergence, growth and development, plant morphological characteristics, yield components achenes and oil production/ha., pericarp, embryo and protein percentage and quality of harvested achenes for seed. The test was carried out under field conditions at two sowing depths (5 and 10 cm). Sunflower seedlings from small achenes were found to emerge more rapidly at both sowing depths and to have a smaller area of cotyledons. The latter were found to contain a low percentage of oil and higher germination energy, power and coefficient rate index. The mean emergence rate for the four degrees of achenes was higher at the 10 cm sowing depth. Size of achene and sowing depth had no effect on hypocotyl and taproot length and weight, sunflower growth and development, height and number of leaves per plant, ratio of plant height to number of leaves, stem diameter, head and unproductive head area, weight of achene per head, and 1,000 achenes weight, achene and oil production/ha., and pericarp, embryo and protein percentage of harvested achenes.

INTRODUCCIÓN

Con la incorporación de cultivares híbridos al gran cultivo del girasol (*Helianthus annuus* L.), se están comercializando aquenios de diferente calibración como semilla para un mismo cultivar. Ello ha originado inquietudes entre los productores de esta oleáginosa con respecto a la conveniencia de sembrar uno u otro tamaño de aquenio de determinado cultivar híbrido, dado que los antecedentes existentes en la literatura para esta especie no son suficientes y completamente concordantes entre ellos. De allí, que este estudio tenga por finalidad evaluar bajo condicioes de secano, los efectos de diferentes tamaños de aquenios sembrados a dos profundidades sobre el crecimiento, desarrollo, morfología, componentes del rendimiento y producciones de aquenios y