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Yield of Amaranth (*Amaranthus* spp.) Grown in an Irrigated Area of Northern Thailand

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Abstract

Amaranth (*Amaranthus* spp.) have received during the last decades more attention due to its high nutritive value of the seeds and its ability to adapt to diverse environments. However, information about agronomic characters and yield performance in Thailand is very rare. The aim of this study was to evaluate the possibility to produce amaranth seeds under the climatic conditions of Northern Thailand. The experiment was carried out from November 2006 to March 2007 at the Department of Agronomy, Faculty of Agriculture, Chiang Mai University, Chiang Mai, Thailand. Eight varieties of amaranth were planted and their agronomic characters were studied. The seeds of the different varieties were harvested according to their maturity 90 to 101 days after germination (DAG). The vegetative growth of the plants was rapidly established and increased significantly after 56 DAG. The varieties “K432” and “Pestevny” showed photosensitivity to short-day length and their reproductive phases appeared about 20 days earlier than in the other varieties. Significant differences among varieties ($P < 0.05$) were observed for plant height, yield per plant, plant dry weight and harvest index (HI). Plant height varied from 38 to 102 cm, yield per plant from 1.05 to 5.95 g, plant dry weight from 4.5 to 19 g per plant and HI from 22.5 to 33.7. However, there were no significant differences in the thousand-kernel-weight. Five varieties (“AMR”, “Baernkraft”, “K266”, “K283”, “Rawa”) showed good agronomic properties (including no plant lodging) as well as good seed yield potentials ranging from 3.86 to 5.95 g per plant. It can be concluded that the studied amaranth varieties adapted well to the climatic conditions in the irrigated areas of Northern Thailand. Studies about the plant population density and various cultural practices are the next steps to introduce in the future amaranth for seed production.

Keywords: Agronomic character, amaranth, growth, yield