

Effects of N fertilization on growth and biomass production of taro crop¹

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Abstract

Taro (*Colocasia esculenta* (L.) Schott) is an important root crop in the tropical and sub-tropical area. Taro can be distinguished as wetland and upland crop according to water management. Under optimum conditions, taro develops a large leaf area and accumulates substantial amounts of dry matter in the corms. In order to support this high biomass production, providing enough N is necessary. The purpose of this study is to understand the effects of N rates on growth and biomass production of taro crop and to recommend the appropriate N fertilizer rate for taro production. Field trials showed that plant height, leaf area, biomass production, and corm yield are the most important growth characters affected by N application. Without N application, corm yield reduce to 4~6 t/ha for wetland taro, and 6~14t/ha for upland taro, and also reduce plant size and prompt maturity by 1~2 months. After applying appropriate N fertilizer, plant size is getting bigger, while the corm yield reach to 31~34t/ha and 21~23t/ha for wetland and upland taro, and in this case, corm yield increase 452~493% and 60~138%, respectively. Excessive N fertilization also favors top growth, but reduces the proportion of dry matter allocated to the corms. And therefore cause both partition rate and harvest index for corm lower. For 1st-year taro, the recommendation of N are 640 kg/ha and 340kg/ha respectively for wetland and upland taro, however, the amount of N recommendation for continuous taro are much higher. Nitrogen rate can be reduced if adjusting fertilization technique and water management according to the growth stage of taro.

Key words: Taro (*Colocasia esculenta* (L.) Schott), N application, Growth character, Biomass production, partition ratio, harvest index, Corm yield.

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