

EFFECTS OF SPACING IN TARO (*COLOCASIA ESCULENTA*)

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SUMMARY

In Fiji taro is generally grown at spacings wider than 90 x 90 cm. Earlier experiments had indicated that closer spacings were superior only with the use of nitrogen fertilizer. Recent experiments have shown that yield can be more than doubled by closer spacings. Closer spacing increased corm yield per unit area and height of the plant but reduced the mean corm weight, the number of leaves and the number of suckers per plant. Spacing of 60 x 60 cm produced the highest yield of marketable size corms (over 450 gms). The yield was about 15 t/ha at 11 months maturity at this spacing, averaged over two sites and two seasons with several cultivars.

RESUME

Les espacements pour la culture du taro dans les îles Fiji dépassent généralement 90 x 90 cm. Des essais antérieurs avaient montré que des espacements plus étroits étaient plus satisfaisants seulement quand on utilise l'engrais azoté. Des essais récents ont montré qu'on peut doubler le rendement, et même plus, avec des espacements plus étroits. Des espacements plus étroits font augmenter le rendement en tiges bulbeuses par unité de surface de même que la taille de la plante, mais réduisent le poids moyen de la tige bulbeuse, le nombre des feuilles et le nombre de surgéons par plante. L'espacement de 60 x 60 cm donne le rendement le plus élevé de tiges bulbeuses commercialisable (plus de 450 g). Avec cet espacement on obtient environ 15 t/ha à 11 mois de maturité cette moyenne ayant été obtenue à partir de plusieurs cultivars essayés sur deux sites et deux saisons.

RESUMEN

En Fiji, la malanga se cultiva con espaciamentos mayores a los 90 x 90 cm. Los primeros experimentos habían indicado que los espaciamentos menores eran superiores sólo cuando se empleaba fertilizante nitrogenado. Experimentos recientes muestran que el rendimiento puede ser más que duplicados con espaciamentos mas cerrados. Tales espaciamentos incrementaron el rendimiento de cormo por unidad de área y la altura de la planta, pero redujeron el peso medio del cormo, el número de hojas y el número de hijos por planta. El espaciamento 60 x 60 produjo el más alto rendimiento de cormos de tamaño comercial (más de 450 gms.). El rendimiento fue alrededor de 15 t/ha a los 11 meses con ése espaciamento, como promedio de dos sitios y dos temporadas, con varios cultivares.

INTRODUCTION

Taro (*Colocasia esculenta* (L) Schott) is grown throughout the tropics and sub-tropics for its edible corms or leaves. The effect of spacing in this crop has been little studied and Plucknett *et al.*⁵ have reviewed this topic.

Taro in Fiji is grown mostly on the wet sides of the islands in either mixed or pure stands. In mixed stands, various crops including other root crops such as yams, cassava or sweet potato are grown together. The taro spacing used in this system has not been studied but it is both wide and very variable. With pure stands of taro two brief reports^{3,4} published about 1938 suggested the traditional spacing to be around 90 x 90 cm. In the 1968 census¹, a large number of plots of pure stands of taro were enumerated, but measurements of spacing and yield were obtained from only 91 of these, the results of which are now shown in Table 1.

The yields were recorded as yield of taro as marketed, i.e. the corms plus about 30-40 cm of petiole-base attached. The petiole base comprises about 25 percent of the total weight, so the yield of corms alone will be only about 75 percent of that shown in the Table. (All other yields shown in this paper are for corms only). Despite this, the survey strongly suggests that spacings wider than 120 x 90 cm (9,000 p/ha.) are usual in Fiji, and that within these limits there is a general trend of increasing yield with increasing plant population.

The table also shows that in Fiji, taro yields are very low (about 6 t/ha) in comparison with those recorded in other countries. Plucknett *et al.*⁵ reported yields of about 25 t/ha in the Philippines, 34 t. in India and 15-25 t. for upland taro in Hawaii. In both India and Hawaii, the crop is grown at much closer spacing than that in Fiji.

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