

Performace of mango-ginger (*Curcuma amada* Roxb.) under different levels of shade

B K JAYACHANDRAN & G SREEKANDAN NAIR

College of Agriculture

Kerala Agricultural University

Thiruvananthapuram - 695 522, Kerala, India.

Abstract

Field trials on the performance of mango-ginger (*Curcuma amada*) conducted at Vellayani (Kerala, India) for two seasons under varying levels of shade revealed that rhizome yield under open and 25 per cent shade were on par indicating that the crop is shade tolerant and is suitable for intercropping situations.

Key words: *Curcuma amada*, mango-ginger, shade, yield.

Mango-ginger (*Curcuma amada* Roxb., Zingiberaceae), a lesser known and under exploited spice crop, is a herbaceous perennial, cultivated as an annual in West Bengal, Assam, Konkan Coast, Andhra Pradesh, Tamil Nadu and Kerala in India. Rhizomes of mango-ginger are used as a flavourant in culinary preparations and also possess medicinal properties.

Mango-ginger resembles turmeric (*Curcuma longa* L.) in morphological characters but has a shorter crop duration. Though the shade tolerant nature of turmeric is known (Jayachandran *et al.* 1992; KAU 1992), no information on the shade response of mango-ginger is available. The present investigation was undertaken to study the influence of different levels of shade on growth and rhizome yield of mango-ginger.

Field experiments were conducted dur-

ing 1993 and 1994 at College of Agriculture, Kerala Agricultural University, Vellayani (Kerala, India). The experimental site (29 m above MSL, 8°5' North latitude, 77°1' East longitude) contained sandy clay loam soil with 184 kg available nitrogen, 34 kg available P_2O_5 , 104 kg available K_2O per ha and with a pH of 5.2. The experiment was laid out in a Randomised Block Design with four treatments, namely, 0 (open), 25, 50 and 75% shade and with five replications. Artificial shading was provided by placing dry coconut fronds 2 m above the plants during 1993 and by placing high density polyethylene nets 2 m above the plants during 1994. LICOR LI-188 B Quantum Radiometer with a photometric sensor was used for adjusting the shade during both the seasons. Rhizomes weighing 15 g were planted at a spacing of 20 cm x 30 cm in beds (1.2 m x 4 m) of 20 cm height.

Table 1. Influence of shade on performance of mango-ginger

Treatment	Plant height (cm)		No. of tillers per plant		Rhizome yield (kg per net plot)		
	1993	1994	1993	1994	1993	1994	Pooled
0 % shade (open)	87.3	91.9	2.6	2.8	6.34	7.65	6.99
25 % shade (low)	100.5	105.6	2.1	2.2	6.58	7.55	6.92
50 % shade (medium)	100.4	105.7	1.9	2.0	5.15	6.20	5.68
75 % shade (high)	97.3	102.4	2.0	2.1	4.54	5.71	5.13
CD (P = 0.05)	6.3	6.7	0.3	0.4	0.39	0.35	0.12

Cowdung (20 kg per bed) was applied before planting of rhizomes and the crop was raised without chemical fertilization. Mulching was undertaken with 10 kg green leaf per bed immediately after planting and was repeated after 2 months with the same quantity. Plant height and number of tillers were recorded 150 days after planting and the crop was harvested 180 days after planting.

Significant differences were observed on plant height, number of tillers and rhizome yield under open conditions and varying shade intensities. Plants grown under 25, 50 and 75 per cent shade regimes were taller than plants grown under open condition during both the seasons. However, production of tillers was reduced by shade. Similar results were also obtained in ginger and turmeric (Acla & Quisumbing 1976; Varughese 1989; Jayachandran *et al.*, 1991; Jayachandran *et al.* 1992).

In the present study the rhizome yield was not reduced significantly by providing 25 per cent shade, and the yield obtained from open and low shade (25 per cent) was on par. Thus mango-ginger could be classified as a shade-tolerant crop similar to turmeric. The results suggest that mango-ginger can be recommended for intercropping situ-

ations and as a crop component in homesteads where multi-species crops are grown.

References

- Aclan F & Quisumbing 1976 Fertilizer requirement, mulch and light attenuation on the yield and quality of ginger Phil. Agr. 60 : 183-191.
- Jayachandra B K, Meera Bai M, Abdul Salam M, Mammem M K & Kunjamma P Mathew 1991 Performance of ginger under shade and open conditions. Indian Cocoa Arecanut Spices J. 15 : 40-41.
- Jayachandra B K, Meera Bai M, Abdul Salam M, Mammen M K & Kunjamma P Mathew 1992 Influence of shade on growth and productivity of turmeric (*Curcuma longa* L.). Spice India 5 (4) : 2-3.
- Kerala Agricultural University(KAU) 1992 Final Research Report, ICAR Ad-hoc Scheme on Shade studies on cocout-based intercropping situations, Kerala Agricultural University, Thrissur.
- Varughese S 1989 Screening of varieties of ginger and turmeric for shade tolerance. MSc (Ag.) Thesis, Kerala Agricultural University, Thrissur.