

INFLUENCE OF GREEN FRUIT PICKING AND NUTRIENT SOURCES ON FRUIT PRODUCTION IN OKRA (*ABELMOSCHUESCULENTUS*[L.] MOENCH)

The success of okra cultivation necessarily depends on the realisation of its full yield potential. Okra being a vegetable crop of indeterminate growth habit, periodical picking of fruits will influence its bearing capacity and sources of nutrients used, its fruit production and yield.

The field experiment was carried out at the Instructional Farm, College of Agriculture, Vellayani during October 1994 to January 1995 in a strip plot design with combinations of four different numbers of green fruit pickings : zero (H_1), two (H_2), four (H_3) and six (H_4) pickings and four sources of nutrients : 12 t FYM + 110:37:73 kg N:P₂O₅:K₂O (chemical fertilizers) ha⁻¹ (S_1), inorganic fertilizers substituted and given as poultry manure (S_2), as vermicompost (S_3) and reduced dose of FYM, 6 t + 110:37:73 kg N:P₂O₅:K₂O (chemical fertilizers) ha⁻¹ (S_4) as treatments. Okra variety Kiran was sown at a spacing of 60 x 30 cm. Full dose of farm yard manure, phosphorus, potassium and half the dose of nitrogen, through different sources were applied basally and the remaining half 30 days after sowing. The cultural operations were done as per the recommendations of the Kerala Agricultural University (KAU, 1993). Picking of green fruits was done seven days after pollination on alternate days as per treatments fixed and observations on the length, girth and yield of fruits were recorded. The remaining fruits were left to mature for seed.

Periodical picking of green fruits was found to stimulate the fruit production in okra (Table 1). The total number of fruits per plant increased with increase in number of pickings. Maximum number of fruits per plant was observed with six pickings (11.58) and this was nearly twice that produced under no fruit picking (6.57). This is because, constant

harvesting of fruits from the plant resulted in better translocation of food materials to the growing point, enhancing flower bud formation and fruit production rather than accumulating in the developing fruits (Grewal *et al.*, 1974). In plants in which no green fruit picking was done, Kolhe and Chavan (1967) reported that growth was diverted from the height to the development of fruits and seeds causing stunted growth. Plants grew taller with regular removal of fruits and Sajitharani (1993) observed a positive correlation between the height and number of fruiting nodes. The green fruit number and weight per plant were significantly high with six fruit pickings but the corresponding differences in length and girth of fruits were not significant. Hence it can be concluded that the increased weight of green fruits plant⁻¹ was actually contributed by the increased number of green fruits and not by the size of the fruit.

Green fruit pickings also significantly affected the weight of mature fruits per plant. Maximum weight of mature fruit was recorded in those plants from which no green fruit was harvested (35.76 g). Similar observations on the progressive decrease in the mean weight of mature fruits with increase in the number of fruits harvested for vegetable were reported by Shanmughasundaram (1950). Picking of green fruits reflects adversely on the total fruits that are to mature on the plant. The total yield of fruits per plant on dry weight basis was also significantly high with higher number of green fruit pickings confirming the reports that periodical picking of fruits stimulated more fruit production in okra.

The total number of fruits per plant, green fruit number per plant and length and girth of fruits were not significantly influenced by the sources used. Weight of green fruits per plant,

Table 1. Effect of green fruit picking and nutrient sources on the fruit production in bhindi

Treatment	Length of fruit, cm	Girth of fruit, cm	No. of green fruits plant ⁻¹	Weight of green fruit g plant ⁻¹	Weight of mature fruit g plant ⁻¹	Total no. of fruits plant ⁻¹	Dry fruit yield, g plant ⁻¹
Green fruit picking							
H ₁	-	-	-	-	35.76	6.57	35.76
H ₂	19.00	5.60	3.44	107.97	23.20	7.40	39.87
H ₃	18.68	5.63	5.59	179.84	19.90	10.37	46.88
H ₄	18.17	5.68	8.00	255.44	16.24	11.78	52.68
F	0.54 TM	0.19 ^{ns}	108.86 ^{**}	31.68 ^{**}	21.28 ^{**}	23.02 ^{**}	7.67 ^{**}
CD	-	-	0.76	45.34	5.58	1.63	8.65
Sources							
S ₁	18.85	5.60	5.92	195.00	27.71	9.31	47.78
S ₂	18.32	5.60	5.67	174.75	19.86	8.41	39.81
S ₃	17.91	5.57	5.33	158.33	20.22	8.92	38.29
S ₄	19.38	5.76	5.79	196.25	27.30	9.42	49.32
F	1.44 TM	1.19 ^{ns}	1.37 ^{ns}	1.80 ^{**}	6.48 ^{**}	0.61 TM	5.42 [*]
CD	-	-	-	-	5.57	-	7.64

Table 2. Combined effect of fruit picking and nutrient sources on the weight of mature fruits per plant

Sources / fruit picking	S ₁	S ₂	S ₃	S ₄	Mean
H ₁	47.39	24.96	30.16	40.56	35.76
H ₂	24.98	21.84	19.43	26.53	23.20
H ₃	21.50	17.01	17.20	23.91	19.90
H ₄	16.98	15.65	14.10	18.21	16.24
Mean	27.71	19.86	20.22	27.30	-

weight of mature fruits per plant and total fruit yield per plant were significantly high in combined application of 12 t farm yard manure or 6 t farm yard manure with chemi-

cals giving on par values. The improved performance in the combined use of organic and inorganic sources may be attributed to the better availability and uptake of nutrients (Saravanan *et al.*, 1987). Kurup (1994) opined that the combined application may result in a balanced C/N ratio within the plant and this might have increased the synthesis of carbohydrates which resulted in vigorous growth and better fruit production.

The interaction effect was not significant in almost all characters except the weight of mature fruits per plant (Table 2). Plants in which no green fruit picking was done, the treatment receiving 12 t farm yard manure + chemical fertilizer gave the highest yield per plant whereas when two fruit pickings were done, 6 t farm yard manure + chemical ferti-

lizers recorded the highest value followed by 12 t farm yard manure + chemical fertilizers. Plants in which four and six pickings were done, showed no significant variation in the weight of mature fruits per plant, whatever the source used.

From the results it can be concluded that green fruit picking improved fruit production in okra but when intended for seed, leaving the entire fruits to mature would give highest yield. Among the sources, an integrated use of farm yard manure with chemical fertilisers is best.

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