

EFFECT OF PRUNING ON YIELD IN PEPPER (*PIPER NIGRUM* L.)

The pepper plant is capable of producing spikes on each axil opposite to the new leaf of a current season's growth. Therefore, induction of new growth means a chance of higher production. Chandy and Pillai (1979a) observed that in pepper there is a possibility of producing a spike in the axil of every fresh leaf. Chandy and Pillai (1977b) stated that the production of fruiting branches can be regulated by proper pruning techniques. Practically no work has been done on the pruning aspects of pepper. Therefore, the work on the pruning of laterals was taken up with the objectives of finding whether pruning increases the production of lateral shoots and yield and whether it is necessary to retain a large volume of unproductive shoots.

The studies on the effect of pruning on yield in pepper, *Piper nigrum* were carried out at the Pepper Research Scheme, Vellanikkara, Trichur for a period of fourteen months from December, 1980 to February, 1982 on the variety Panniyur 1. The vines trained on dead wood were six years old and received uniform cultural and manurial treatments. The experiment was laid out in randomised block design with the following treatments.

- T₁ Control (no pruning)
- T₂ Tipping of all laterals
- T₃ Pruning of unwanted terminal shoot growth
- T₄ Pruning 25% of length of last season's laterals
- T₅ Pruning 25% of length of two year old laterals
- T₆ Pruning 50% of length of last season's laterals
- T₇ Pruning 50% of length of two year old laterals

Under each treatment there were two standards and the experiment replicated six times. Twenty bearing and twenty non-bearing laterals were located from each plant in December 1980 and tagged separately. Treatments were carried out by April 25th following the receipt of the first premonsoon showers. The number of spikes produced from both bearing and non-bearing laterals selected in 1980 were recorded. Based on the flowering pattern in 1981 this was further classified into bearing and non-bearing laterals and from this the percentages of bearing and non-bearing laterals in 1981 were calculated. The number of spikes and weight of spikes from both the bearing and non-bearing laterals of the previous season were recorded.

T₃ recorded the maximum number of shoot production both from bearing and non-bearing laterals and was not significantly different from T₇. The least number of shoot production from the previous season's bearing laterals was in T₄ and that in the case of non-bearing laterals of previous seasons was in T₅. T₃ recorded the maximum number of bearing shoots and was significantly superior to the rest of the treatments. T₁ was the next best in the case of previous season

Table 1
Shoot production and spiking in pepper due to pruning

Treatments	Total shoots produced in 1981 from 20 shoots		Bearing shoots in 1981		Non-bearing shoots in 1981		Percentage of bearing in 1981	
	B	NB	B	NB	B	NB	B	NB
T ₁	24.67	25.08	12.17	11.92	10.50	13.17	49.32*	47.51
T ₂	23.00	23.83	9.97	9.92	15.08	13.92	34.83	41.61
T ₃	31.08*	33.67*	17.33*	18.33*	13.75	15.33	56.70*	54.46
T ₄	20.42	22.42	10.25	9.42	10.17	13.00	50.22**	42.38
T ₅	21.17	21.08	4.42	5.83	16.75	15.25	20.86	27.67
T ₆	24.17	24.42	2.33	8.16	14.83	16.25	38.62	33.48
T ₇	26.83*	29.83*	10.17	12.42	16.67	17.42	37.51	41.62
CD (0.05)	4.634	5.399	4.255	3.439	NS	NS	14.226	NS

Table 1 (contd...)

Treatments	Percentage of non-bearing in 1981		No. of spikes produced		Weight of produce (g)	
	B	NB	B	NB	B	NB
T ₁	50.68	52.49	13.42	13.00	100.91	103.29
T ₂	65.18*	58.39	8.83	11.83	75.26	79.88
T ₃	43.23	45.45	20.00*	21.08*	187.02*	169.69
T ₄	49.79	57.70	12.00	10.67	89.68	86.97
T ₅	79.14**	72.33	5.58	6.58	48.35	63.60
T ₆	61.38	66.55	10.58	9.83	81.41	86.29
T ₇	62.49	58.38	10.50	15.00	92.62	122.25
CD (0.05)	14.294	NS	5.879	7.657	54.323	NS

B = Bearing laterals of 1980

NB = Non-bearing laterals of 1980

bearing laterals and T_7 came next best in the case of previous season's non-bearing laterals. No significant difference was noted in the number of non-bearing shoots. Significant difference was noted in the percentage of bearing shoots from previous season bearing shoots. T_3 was the best and was on par with T_4 and T_1 . The previous season bearing shoots showed significant difference in percentage of non-bearing in 1981. T_6 followed by T_2 which were on par showed highest percentage of non-bearing shoots. T_3 recorded the maximum number of spikes and was significantly superior in the case of previous season bearing laterals whereas in the case of non-bearing laterals it was on par with T_7 . In both cases T_6 produced least number of spikes. In terms of weight of produce the highest yield was recorded in case of T_5 from both previous season bearing shoots (187.02 g) and non-bearing shoots (169.69 g) but was statistically significant only in the former case.

The pruning of unwanted terminal growth encourages development of lateral shoots and hence the higher production of spikes. Although there is no reported work on this aspect in pepper it is an established factor in grapes. Most severe pruning which was also on par with unwanted terminal shoot growth removal was inferior to other treatments in the case of spike production as the number of aborted spikes was more. Higher significant number of bunches due to pruning was reported in grapes by Subbiah (1969), Raveendran (1970), Bhujbal (1972), Chanana and Kumar (1974) and in mango by Rao and Shanmugavelu (1976).

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References

- Bhujbal, B. G. Effect of levels of pruning on load, sprouting yield and quality of Thompson seedless (*Vitis vinifera* L). *Indian J. Hort.* 29 (3 and 4) 298-301.
- Chanana, Y. R. and Kumar, H. 1974. Pruning studies on Sultana grapes. *Indian J. Hort.* 31 (2):165.
- Chandy, K. C. and Pillai, V. S. 1979a. Occurrence of abortive spikes in pepper *Piper nigrum* L. *Agric. Res. J. Kerala* 17(11): 148-150.
- Chandy, K. C and Pillai, V. S. 1979b. Functional differentiation of shoot system of pepper vine, *Piper nigrum* L. *Indian Spices* 16 (3): 8-11.
- Rao, V. N. M. and Shanmugavelu, K. G. 1976. Studies on effect of pruning in mango. *Progr. Hort.* 8(1):21-29.
- Raveendran, V. 1970. Further studies on bug regulation in grapes var. Anab-e-sahi. M. Sc. (Ag) thesis submitted to the University of Madras.
- Subbiah, R. 1969. Growth, cropping and quality of Anab-e-sahi grapes as influenced by regulation of bud number on the vine, M. Sc. (Ag.) thesis submitted to the Madras University.