

## PRUNING STUDIES IN BER (*ZIZYPHUS MAURITIANA* LANK) UNDER DRYLAND CONDITIONS

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### ABSTRACT

The pruning study on Ber Cv. Gola revealed that the pruning at 4th secondary branches gave higher shoot length, fruit set, fruit weight as well as less fruit drop resulting in significantly higher fruit yield. Total soluble solids, acidity and ascorbic acid content were not influenced by the pruning treatments. The dry weight of pruned wood was maximum in pruning at 4th secondary branches.

### INTRODUCTION

Being drought and salt tolerant, ber plays an important role in stabilising farmer's income in drought prone regions. There was a progressive increase in the area of ber in Gujarat from 4300 hectare in 1985 to 8200 hectare in 1990. Ber fruits are born on each season's growth and hence, every year pruning is essential. Pruning intensities play vital role in inducing a good healthy growth leading to maximum fruit bearing area. Keeping this in view, an experiment was conducted to study the effect of different levels of pruning on growth, yield and quality of ber fruits under dryland conditions of North Gujarat.

### MATERIAL AND METHODS

The present investigation was carried out on Gola cultivar of ber at Regional Research Station, Gujarat Agricultural University, Sardarkrushinagar during 1986-87 to 1989-90. Forty rootstock plants were planted 8 x 8 m apart in the year 1984 and were budded in the next year. The experiment was laid out in a randomised block design with four replications and five pruning intensities viz., no pruning (control), pruning at 4th, 6th and 8th secondary branches and pruning at 90 cm length of shoot. The above pruning treatments were formed by cutting the portion of shoot beyond fourth, sixth and eighth secondary branches as well as 90 cm length of shoot respectively. Besides, this, dried and intermingling branches were also removed from their bases from all the experimental trees. Observations were recorded on shoot length, number of primary buds per cent fruit set and fruit drop. Average fruit weight and pulp stone ratio were recorded on the basis of ten fruits per treatment. The total soluble solids (T.S.S.) were measured with the help of hand refractometer. Acidity

and ascorbic acid were determined according to A.O.A.C. (1970). Dry weight of pruned wood was recorded for each treatment.

## RESULTS AND DISCUSSION

### **Growth characters :**

The maximum shoot length was observed following pruning at 4th secondary branches (Table 1). The increase in shoot length in pruning at 4th secondary branches may be attributed to more availability of reserved food because of less number of shoots left after pruning. Similar findings were reported by Sharma et al. (1980). The number of primary buds decreased as pruning intensity increased. The number of buds were maximum in control.

### **Fruit set and Fruit drop :**

The per cent fruit drop did not differ significantly among different pruning treatments. However, the maximum fruit set (11.17%) and minimum fruit drop (43.86%) could be seen in case of pruning at 4th secondary branches. This is in conformity with the results of Lal and Prasad (1980) and Bajwa et al. (1988).

### **Physical and chemical characters :**

Fruit weight was significantly influenced by the pruning levels. It is evident from the Table 1 that the fruit weight was improved in pruning treatments over no pruning, the maximum being 23.4 g recorded in pruning at 4th secondary branches. It was significantly higher over no pruning. The heavier fruit weight in pruning at 4th secondary branches is expected because of less number of fruits allowing higher food availability to individual fruit. Similar results were recorded by Yadav and Godara (1987).

The variation in pulp/stone ratio, T.S.S. acidity and ascorbic acid was nonsignificant indicating negligible impact of pruning treatments on chemical characters of ber fruits confirming earlier results of Gupta and Singh (1977).

### **Fruit yield :**

The fruit yield was maximum in pruning at 4th secondary branches across the years. It was consistently higher in each year over rest of the treatments. Among the pooled means, pruning at 4th secondary branches registered significantly higher yield (38.18 kg-plant) with increment of 28.12 per cent over no pruning and 21.12 per cent over rest of the treatments. The higher yield in pruning at 4th secondary branches may be due to longer shoot, higher fruits set, lower fruit drop and more fruit weight associated with nutrient availability. Thus the study has revealed beneficial effect of severe pruning.

Table 1. Effect of pruning on fruit yield and various attributes of ber

Treatment	Shoot* length	No. of prima- ry buds	Fruit set (%)	Fruit drop (%)	Fruit yield kg/ plant	Fruit weight (g)	Pulp/ stone ratio	T.S.S. (%)	Acidity (%)	Ascorbic acid mg/100 g pulp	Weight of dry pruned wood (kg/plant)
No Pruning	241	9.2	8.9	49.8	29.8	20.2	15.5	18.0	0.31	137	—
Pruning at 4th secondary	358	5.7	11.1	43.8	38.1	23.4	16.2	17.2	0.30	131	7.8
Pruning at 6th secondary	276	6.9	8.4	50.2	31.5	22.1	15.0	17.6	0.34	132	8.1
Pruning at 8th secondary	302	7.3	10.0	47.1	31.5	22.7	15.9	17.5	0.32	134	9.3
Pruning at 90 cm shoot length	279	8.8	8.9	48.6	31.5	22.9	16.3	17.6	0.31	136	8.5
CD 5%	45.0	0.8	N.S.	N.S.	5.3	1.5	N.S.	N.S.	N.S.	N.S.	1.2

\* Recorded only in 1989-90.

**Dry weight of pruned wood :**

The dry weight of pruned wood was significantly higher in pruning at 4th secondary branches than in pruning at 6th secondary branches and pruning at 90 cm shoot length but it was at par with that of pruning at 8th secondary branches.

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