

OBSERVATIONS ON THE RESPONSE TO CLEAN PRUNING AT HIGHER ELEVATIONS

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Alton Estate is situated in the Maskeliya District at an average elevation of 4,500 feet with an average annual rainfall of 100 inches derived from both South West and North-East Monsoons. These observations are applicable to properties where the standard of pruning, *i.e.* a clean well preserved frame has not been maintained for many years. The points raised are applicable to higher elevation seedling tea and would require modification in mid-and low-country, and for V.P.

First of all let's ask, "Why is a tea bush pruned at all?"

If this is answered correctly, it may encourage the planter to take more care over one of the fundamental pieces of work on an estate, which in the past, and which still is on many properties a neglected science of routine importance. Also no comprehensive scientific investigation has been undertaken during the past 15 years.

The reasons are—

1. To lower the bush after a period of 3, 4, or 5 years to enable leaf to be harvested economically and easily by man.
2. By pruning, we allow the bush a rest period, which permits it to invigorate itself whereby yield increases in a "new" field.
3. By pruning, new wood is developed from which crop is harvested during its subsequent flushing period. New wood is developed on which to prune during the next cycle.
4. To increase the size of frame, thus increasing yield.
5. Advantage is taken to attend to bush sanitation by removing ferns and moss, an important function in maintaining a healthy bush.

When pruning is undertaken what should be the object of the task?

1. To produce a healthy vigorous frame.
2. To enable the branches forming the plucking table to have uninhibited sap flow.
3. To promote new branches for future frame development and replacement of old "worn out" branches.
4. To make every bush earn its "keep" thus avoiding "passenger" bushes.
5. To promote a healthy root system which is complementary to a vigorous and healthy frame.

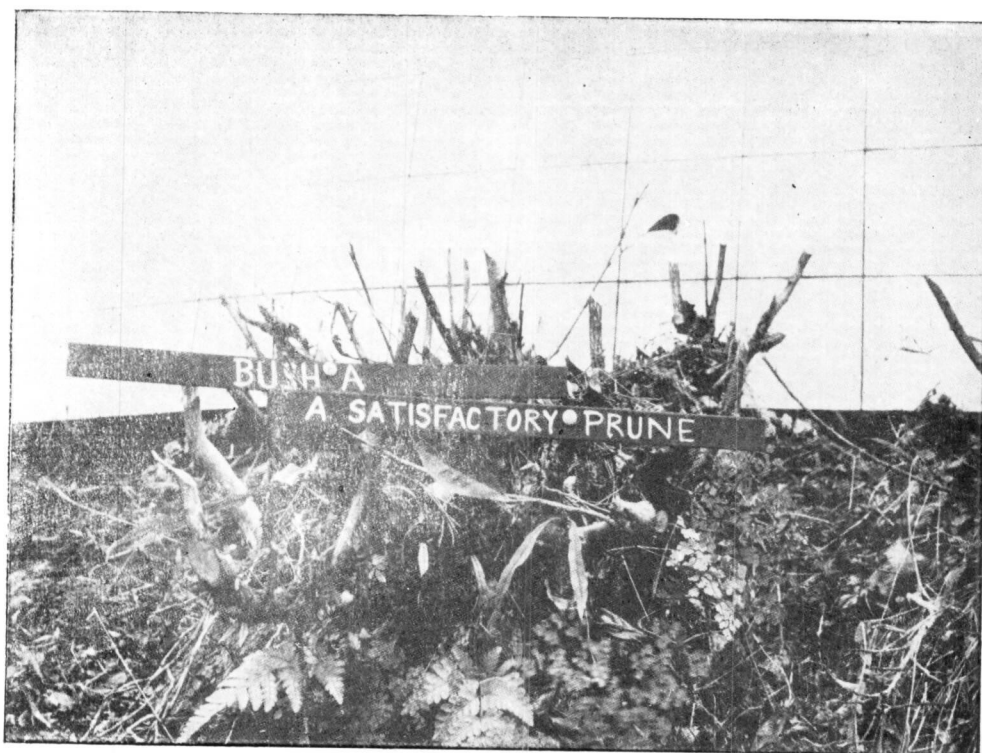


Figure 1. Bush A. An apparently satisfactory prune; but note fern and bamboo grass obscuring knotted branches from pruners' view. Background Scale in six-inch divisions.



Figure 2. Bush A after ferning. Knotted branches necessitating removal can now be seen.

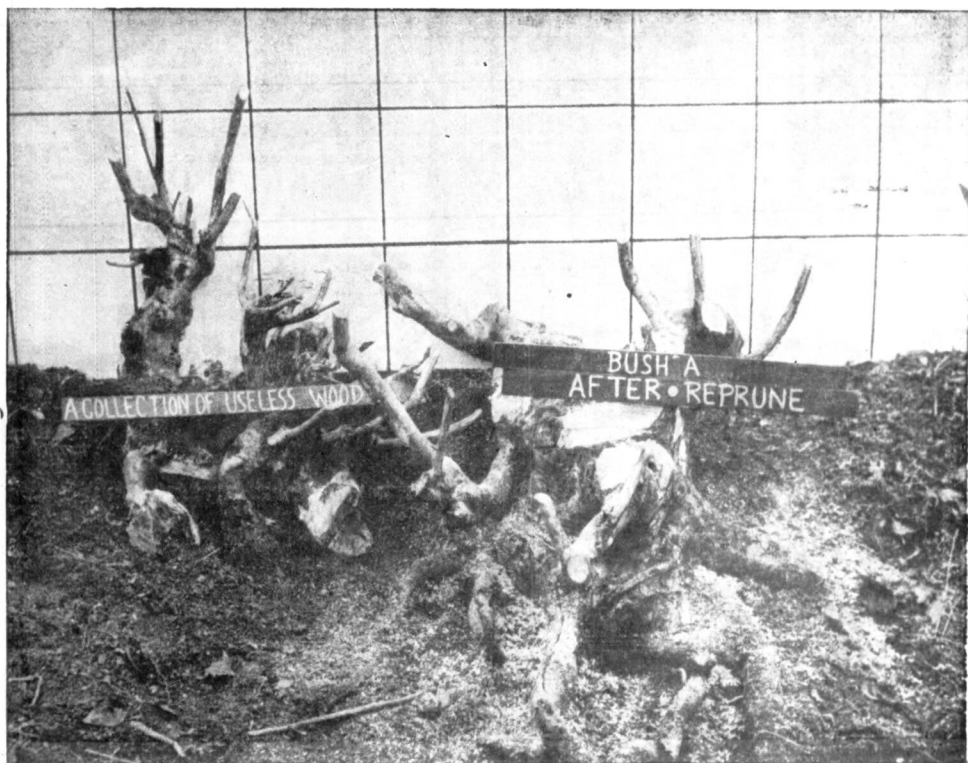


Figure 3. Bush A after heavy saw prune. On left, the calloused, unproductive old branches.



Figure 4. Bush showing multiple knots. Note absence of healthy branches.



Figure 5. An extreme case of knotting and callousing affecting the trunk. A collar prune is necessary.



Figure 6. An extreme example of hollowed main limbs and trunk. Note few healthy branches.

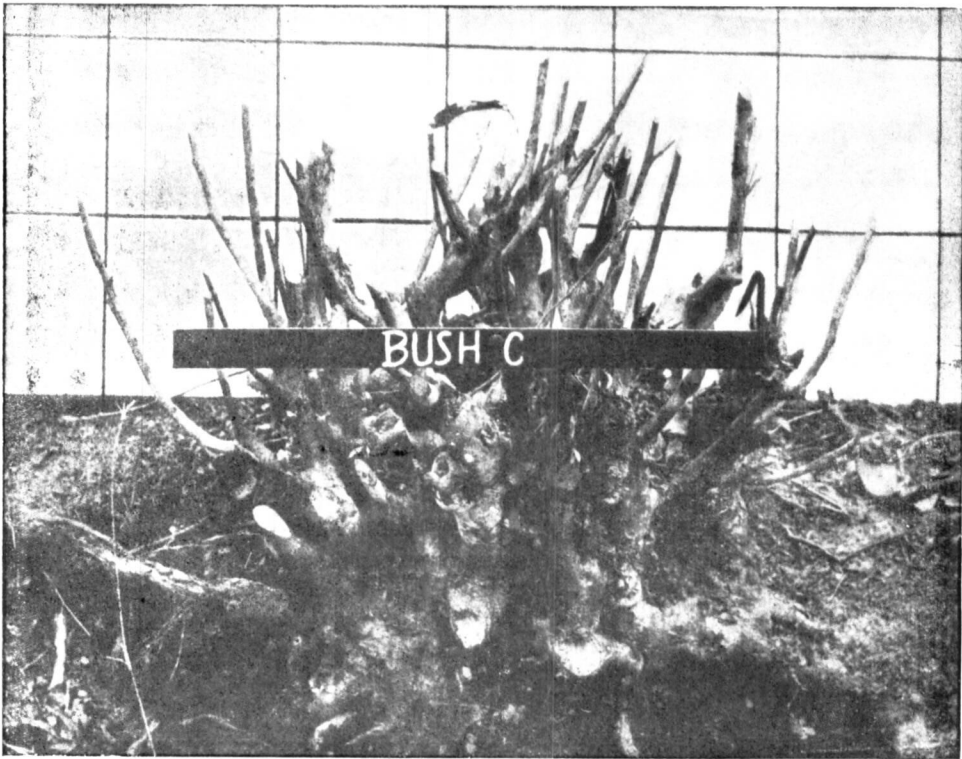


Figure 7. Bush C, showing congestion of knotted branches.

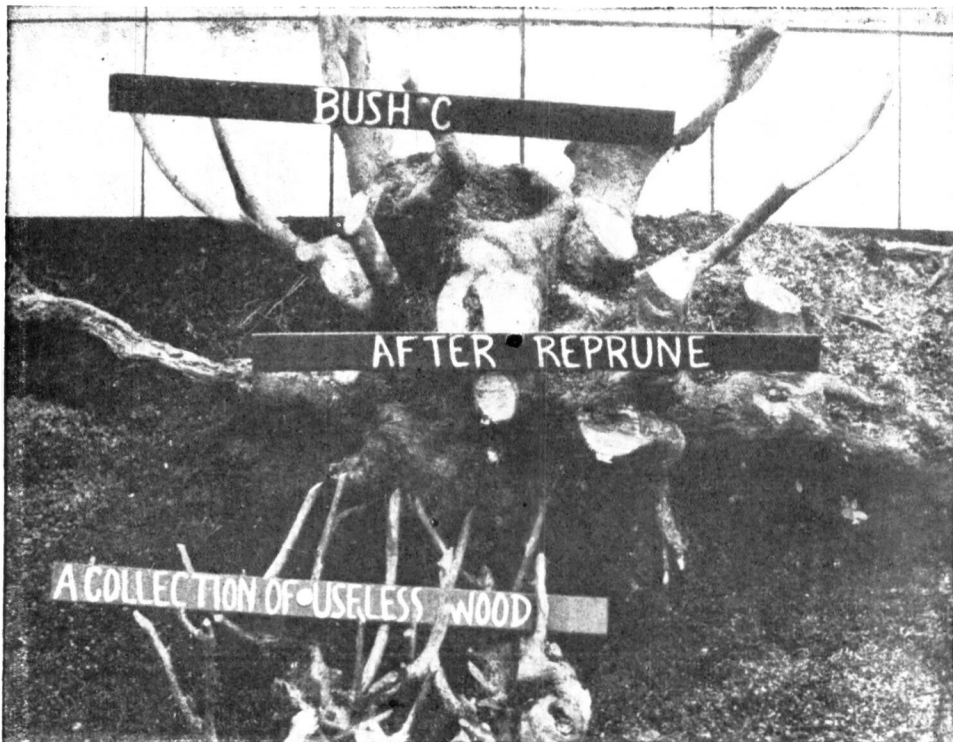


Figure 8. Bush C after a heavy saw prune. Note lack of healthy branches in bush centre.

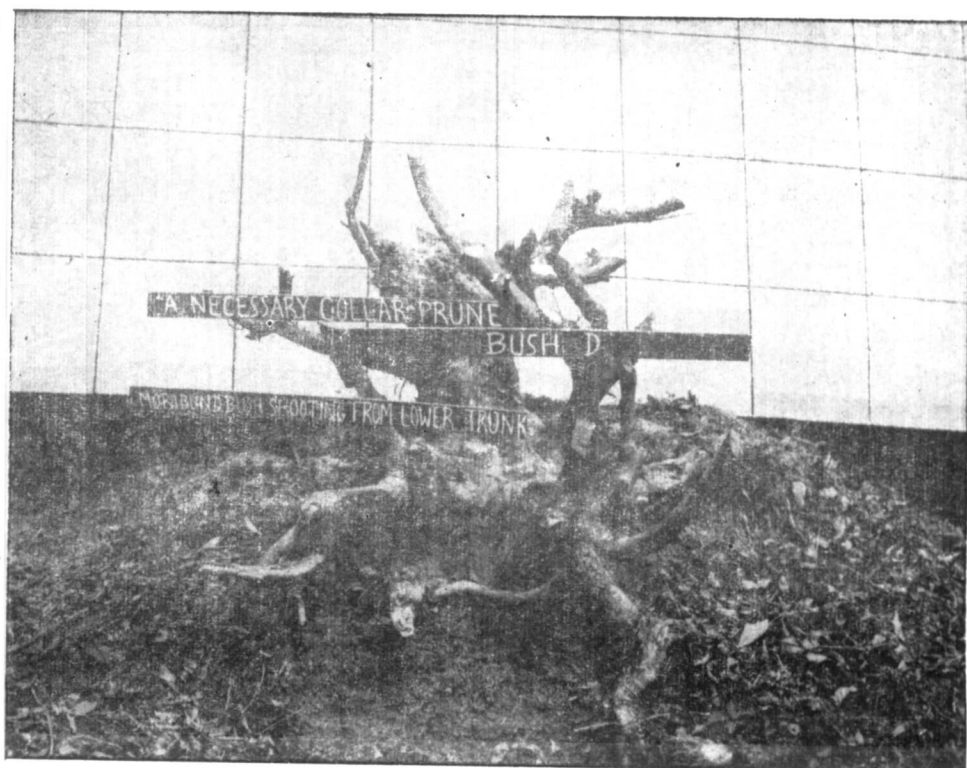


Figure 9. Bush D. Note healthy branches arising from below main trunk.

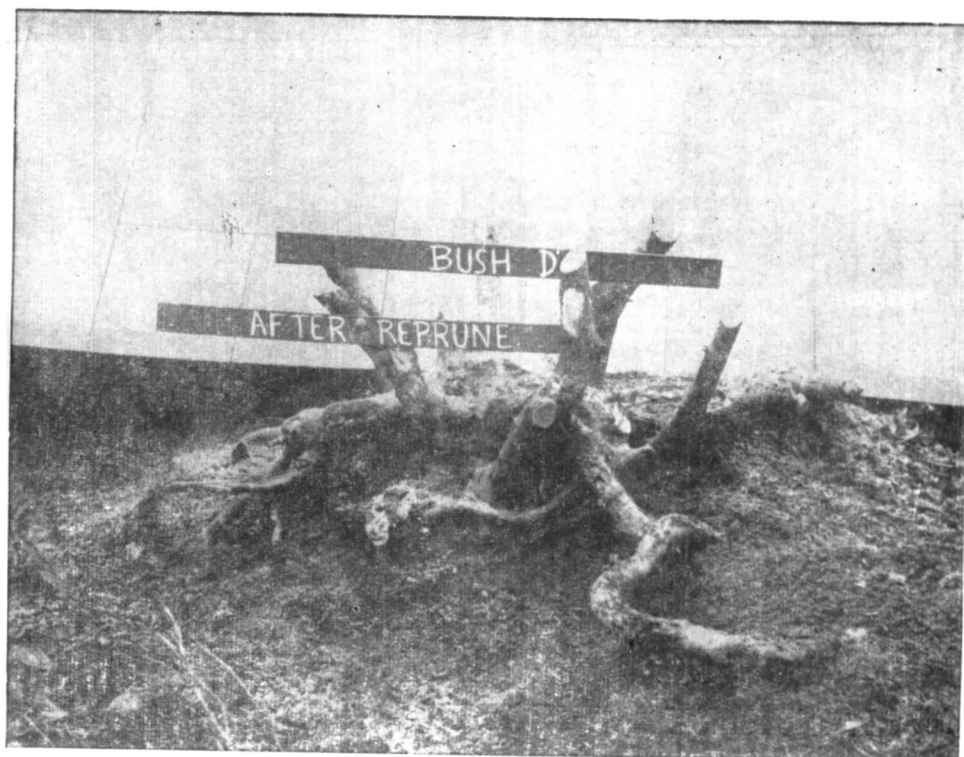


Figure 10. Bush D having been given a new lease of life by removing the trunk, to allow lower branches to develop.

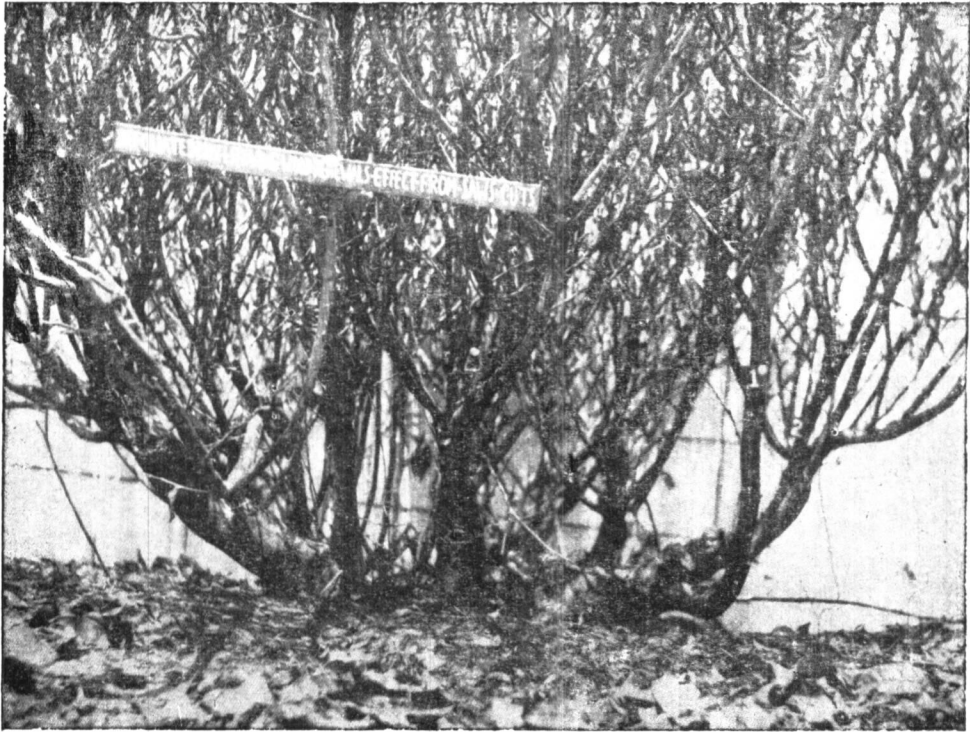


Figure 11. 34 months after saw pruning: at least 15 new, vigorous, branches. Bush defoliated for purposes of photography.

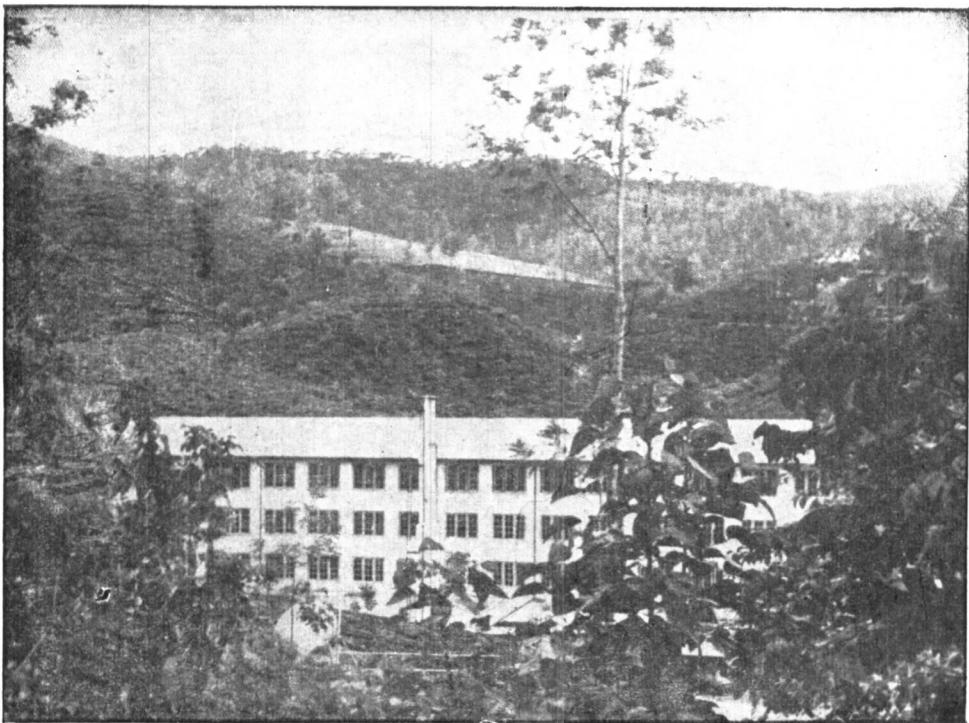


Figure 12. Field A. 6, right centre, 21 months after vigorous "clean out" 1961. Cover restored.

How often does one see what appears to be a well pruned bush, only to find after ferning a base full of dead wood, calloused and knotted branches. See Figures 1-3.

Where it can be observed from inspection that multiple-knotted branches retard sap flow and where the branch has served its most productive life it should be removed. See Figures 4 and 5. This often has the effect of promoting 2 new branches where one existed previously.

And how often is the bush left to struggle for survival with depreciating health only to be treated similarly during the next cycle; the basic cause of weak bushes and the reason for 70% of the yield in a field being obtained from 50% of the bushes. See Figure 6.

There comes a time when each bush requires reconditioning to overcome past negligence, to enable the producer to offset ever-rising cost of production which can only be met by increasing yield and efficiency. See Figures 7-10.

Why should it be necessary to undertake this type of work?

1. Inability in the past to maintain a sufficiently high standard of work.
2. Lack of close supervision during previous prunings; on nearly all estates bushes along the road sides are beautifully pruned, only to find tea ready for uprooting and replanting 20 yards off the footpath.
3. A fixed estimated task and cost figure which has to be maintained when perhaps a more liberal figure would prove an all round advantage, provided of course sufficient supervision is available to see the money is put to the best use.

Of course, the drastic work illustrated is not advocated in normal circumstances and could be achieved in a more leisurely way by removing one or two unproductive branches from each bush during each pruning, which should be normal practice. After a clean prune it is necessary to spray Limbux in order to maintain bush sanitation. So many planters throw up their hands in horror at the mention of a saw in the pruning field, but if it is used intelligently with close personal supervision, the results are most rewarding. The bush illustrated in Figure 11 shows a typical example of new frame formation. The cover of tea is soon restored, as shown in Figure 12, after a very clean prune.

Generally, it has been observed that after a clean prune entailing considerable saw work, yield compares with that obtained during the previous cycle for the first 9-10 months.

Thereafter, rapid increases occur. It is very necessary to ensure that liberal applications of artificial manure are applied initially, say 12.75 N. per 100 lbs. to allow for wood renewal and rebuilding of the frame. Also, a fairly late tipping to develop the frame, but ensuring that manure is applied in anticipation of crop. It has been found necessary to adjust the manure rates perhaps twice during the year at no time allowing the rates to drop below 10 lbs N per 100 lbs made tea during any 3 or 4 months' period, especially during the second year.

It would be interesting if research could be undertaken to investigate manure responses, in relation to healthy and vigorous bush frames, compared to poor frames, and root development in each case. Although the annexed yield figures and N.P.K. application rates are not based on scientific standards for analytical purposes they do indicate progress made by clean pruning to a layman.

Alton Estate—Yield Trends

GROUP 1.—*Bushes received 25% clean-out. Pruned 1959.*

<i>Field; Acres</i>	<i>Previous Cycle : Yield; Months</i>	<i>Nitrogen : lb p.ann.; Ratio</i>	<i>Present Cycle : Yield; Months</i>	<i>Nitrogen : lb p.ann.; Ratio</i>
A. 2B	2367	84	3624	96
26	47	13	52	12
A. 5	2526	84	3414	96
24	47	12	51	13
BF. 5	1962	72	2882	84
24	42	12	46	12

GROUP 2.—*Bushes received 50–75% clean-out. Pruned 1959.*

A. 2A	2367	84	4095	108
26	47	13	52	11
K. 5	2706	84	4636	120
24	45	11	52	11
K. 8	3405	96	5224	132
24	49	11	50	11

GROUP 3.—*Bushes received 50–75% clean-out. Pruned 1960.*

A. 8A	3043	72	4276	156
22	49	10	38	12
K. 2	2792	72	2997	108
24	51	12	36	11
BF. 3	2271	72	2167	84
21	50	13	33	11
K. 4	3677	96	3260	108
21	52	11	34	1

GROUP 4.—*Bushes received virtually 100% clean-out. Pruned 1961.*

K. 6	3333	96	1484	120
23	53	12	20	13
BF. 4	2090	72	1485	84
22	46	14	28	14
A. 6	2784	72	1701	120
25	52	11	21	12

NOTE: Field A.8A (Group 3) received extra NPK from April 1962 for experimental purposes. Poor response in Group 1 to increased manure.
In Group 3 the nitrogen level is high, due to over-anticipation of yield increase.