

V. P. CLEARINGS AT ST COOMBS

A. L. Elias

This article has been asked for, to bring to light information about the V.P. clearings on St Coombs Estate, in the hope that certain lessons that have been learned will be useful to planters who are about to undertake similar work. These lessons were bitter ones at the time, but it is often true that we learn more from mistakes than from successes, and certainly the later St Coombs plantings have benefitted from the experience gained. The success of the 1959 plantings is particular evidence of this. It is felt that as our replanting programme proceeds, even greater success, based on ever-increasing experience, will be achieved.

No. 1. Field planting 1953-54 areas

Block 41.—The first planting by vegetative propagation (V.P.) in Field No. 1 was done during the north-east monsoon in October 1953, when Block 41 (A.0.-R.3 -P. 6.13) was planted with Clone TRI 2024. The old tea was uprooted and the ground smoothed, pegged and holed. There was no rehabilitation.

Initially, 2,931 plants were put out, but at a census taken in February 1956, 28 months later, only 1,656 plants showed vigorous growth; there were 1,275 vacancies. In April 1956, all large plants were tipped at 2 ft and vacancies re-supplied with basket plants. *Tephrosia vogelii* was planted in every alternate row. The ravine between Blocks 41 and 43 was stoned and stone-banded as far as the grass area, as a soil conservation measure. This block has never yielded sufficiently well to justify a fraction of the money spent on it (Table 1.)

Block 60.—This block was planted with Clone TRI 2025 in June 1954 (A.1-R.0.-P. 29.75) after 2 years rehabilitation under Guatemala grass. Of 4,155 plants put out after trenching, 3,800 survived, leaving only 355 vacancies to be re-supplied.

TABLE 1.—Plantings in No. 1 Field from 1953-1957

Block No.	Clone No.	No. of bushes	AREA		Date of Planting	Yields, in pounds of made tea per acre				
			A.	R.		P.	1956	1957	1958	1959
41	2024	3,266	0	3	6.13	Oct. 53	71 (5 mths)	420	691	636 (5 mths) Pruned.
60	2025	4,299	1	0	29.75	June 54	262 (8 mths)	1036	1352	610 (5 mths) Pruned.
26	777	2,017	-	2	5.25	June 55	—	—	51 (2 mths)	399
28	2025	1,062	-	1	1.87	"	—	19 (2 mths)	274	1044
44	2024	3,274	1	0	18.63	"	—	22 (6 mths)	79 (8 mths)	227 (8 mths)
46	2024	3,514	-	3	37.12	"	—	28 (6 mths)	97 (8 mths)	156 (8 mths)
59	2025	209	-	-	8.50	"	—	—	—	—
30	2025	50	-	-	6.56	July 55	—	—	—	160 (4 mths)
43	2022	2,283	-	2	15.50	"	5 (2 mths)	145 (6 mths)	346 (8 mths)	530 (8 mths)
48	2024	130	-	-	7.87	June 56	—	—	—	240 (7 mths)
49	2016	4,578	1	1	17.12	"	—	—	—	241 (7 mths)
55	2022	2,217	-	2	1.56	"	—	—	—	376 (6 mths)
56	2022	2,297	-	2	27.62	"	—	—	—	383 (6 mths)
25	777	3,150	-	2	37.81	June 57	—	—	—	—
			<u>8</u>	<u>3</u>	<u>21.29</u>					

This block can be considered the only one where any degree of success with the original planting in No. 1 Field was achieved. In May 1956, all plants were tipped at 2 ft. *Tephrosia vogelii* was planted in every alternate row. All green manure and shade trees were manured. *Crotalaria* and pigeon pea were interplanted in every alternate row.

Later Plantings

Table 1 records the details, including yields, of Blocks 41 and 60 and twelve other blocks planted later, between June 1955 and June 1957. These data will be discussed later in comparison with plantings in Field No. 10.

No. 10 Field Planting 1952-54 Areas

To begin with, two areas were planted in Field No. 10, namely, a 2-acre block in 1952 and a 2½-acre block in 1954. The clones planted are given in Tables 2 and 3. Yield figures are given up to March 1960 in the case of the 1952 planting and up to April 1959 in the case of the 1954 planting, which was pruned from 27th to 29th April 1959, and thereafter reserved for clonal cuttings. These figures do not represent a true picture of relative yields because some rows of bushes of all the clones were allowed to grow up for providing cuttings. Clones were also used for the testing of fungicides and acaricides at various times.

TABLE 2.—Yields, in pounds of made tea per acre from plantings in Field No. 10 (2 acres) in May 1952

(The 1952 area was pruned between the 18th and 25th June 1957)

Clone No.	No. of bushes	July '54	July '55	July '56	Dec. '57	Jan. to Dec. '58	Jan. to Dec. '59	Jan. to Mar. '60
		to June '55	to June '56	to June '57	only			
2024	1,350	—	108 (a)	874 (b)	78	1970	1828	504
18	497	245	453	741	17	791	769	365
216	746	589	521	894	20	1270	1576	555
777	1,230	650	617	678	8	1089	1133	369
23	1,013	656	573	795	23	1341	1367	495
740	345	577	754	953	134	1818	1629	618
1528	240	1145	753	1238	15	1868	1367	306
1114	1,025	823	603	713	49	1744	1531	505
25	403	805	620	922	60	1683	1639	485
2024	1,136	1114	727 (c)	465 (d)	73	1118	983	348
777	1,080 (e)	—	—	316	12	950	1093	392

9,065 bushes = 4,532 per acre

(a) 2 months only (b) 9 months only (c) 9 months only (d) 7 months only, (e) planted April 1953.

TABLE 3.—Yields, in pounds of made tea per acre from plantings in Field No. 10 (2½ acres) in June 1954

(The 1954 area was pruned between 27th and 29th April 1959)

Clone No.	No. of bushes	June to Dec. 1956	January to Dec. 1957	January to Dec. 1958	January to April 1959
2024	3,454	190	719	1310	222
2025	2,117	171	642	1605	354
2016	1,477	137	499	830	221
2022	1,515	132	673	1191	187
2021	1,358	159	586	1050	197
25	732	48	338	790	178

10,653 = 4,261 bushes per acre

Discussion

Many of the plantings in Field No. 1 were complete failures and the condition of the plants at the end of 1956 gave cause for grave concern. Much time and money had been spent, but the results did not show the many visitors who came to St Coombs that replanting was either desirable, or a sound economic proposition. The plantings in Field No. 10, on the other hand amply demonstrated the vast possibilities of new planting. They were a complete success. The point at issue is therefore, why did the No. 1 clearings fail? There are many factors which in my opinion have to be considered. I make the following comparisons:—

1. SOIL.—Field No. 10 has a rich soil, with a fine structure, capable of holding considerable moisture, even during severe drought conditions. In Field No. 1, even after 3 years under Guatemala grass (*e.g.* Blocks 8A & 8B) the soil appears to be ~~dry, powdery and very friable, and incapable of retaining moisture.~~ Thus heavy rainfall is absorbed by the soil, but appears to drain away very rapidly and a few days of intense sunshine causes rapid drying to take place.

2. TERRAIN.—Field No. 10 slopes gently, with an aspect facing the morning sun and with no rock in the vicinity. Field No. 1 generally faces away from the morning sun with the exception of Block 60—Clone TRI 2025—where casualties were small. The whole area is steep, with much rock.

These are two of the major physical differences between the two areas, but I do not consider that they were the only reasons for the failure of these clearings. Apparently the policy adopted for replanting the two areas was precisely the same except that plants in Field No. 10 (1952 planting) were planted out by means of a Hersall transplanter. All other plants were forked out of the nursery (not basketed) and a small amount of soil was balled around the roots. These were then planted into holes cut within the site of the trench which had previously been filled with rotted Guatemala grass loppings. In Field No. 10 the plants survived and thrived. In Field No. 1 many did not survive and few thrived. Two reasons can be given for this failure.

1. From weather records, it is evident that immediately after planting took place in Field No. 1, 1955-56 planting, there was a 3-week period of dry weather. This was not so in the case of Field No. 10—1952 and 1954 planting.

2. The Guatemala loppings were not sufficiently rotted at the time of planting, thereby creating minor subsidences through sinkage from time to time, and as further rotting took place after planting, this would naturally damage the stems, create a cavity below the roots, retard growth and finally kill some of the plants.

Evidence that there was a lack of organization and of proper care and attention, in the early stages of preparation for planting, is also available. The contour lining does not appear to have been done very carefully and, on filling the trenches, considerable adjustment of the original lining was necessary. This in turn meant that some plants were not planted in the original trench.

These plantings were delayed for some reason (planted in each year in June and July, instead of in April and May). There does not appear to have been a definite programme for plants and re-supplying a particular area each year. It would therefore seem that a combination of factors caused the failure of these original plantings. Some of these factors were man-made, and it is evident that the area planted in 1957, Block 25 (Clone TRI 777), and the 1959 plantings have benefitted from the mistakes that were made previously.

In order to rectify the situation as it then was, it was decided that all blocks should be re-supplied with available plants. Where plants of the appropriate clone were in short supply, all the existing plants were to be removed and the whole block replanted with available material. Thus, in the case of Block 56, originally planted with Clone TRI 25, all the plants were uprooted and Clone TRI 2022

planted instead. Similarly in Blocks 48, 55 and 59 planted with Clone TRI 1114, all plants were uprooted and these blocks replaced as follows:

Block 48 with TRI 2024	} Basket plants were used in all cases.
" 55 " " 2022	
" 59 " " 2025	

The remaining blocks were all re-supplied in May/June, 1957, with basket plants of the same clone, after all original plants that were not up to standard had been removed and destroyed. The original plants and the subsequent supplies, despite the difference in age, do not now show any great difference in size. Records of the early stages of preparation for the 1955-56 plantings show that all blocks were trenched. Following re-supplying, all blocks were thatched with Guatemala grass from areas outside Field No. 1. All re-supplies were manured twice a year with T/175 mixture at 1 oz. per plant per application.

The system of forking out plants, balling the roots with earth and supplying in this manner was considered unsatisfactory, and it was decided that all plants should in future be basket plants. All these clearings now look extremely well and show great promise. Planting distances were 4' x 2', 4½' x 2', 5' x 2'.

Summary

The No. 1 clearings have proved to be a costly experiment, but it has proved an important point, namely, that it is unwise to replant any large area without first making a thorough examination of the land and laying down a definite programme. The mistakes made were as follows.

1. A thorough examination of the soil properties was not carried out prior to replanting. Soil tests for pH and for eelworm infestation should have been taken. It has recently been found that No. 1 clearings show a high degree of infestation with Meadow Eelworm, which, had it been known, would have indicated longer rehabilitation. It is important that soil conditions, weather conditions and aspect be given due consideration and the planting methods employed will therefore be dependent upon these factors.
2. Nursery organization must be of a very high order. In the case of the No. 1 plantings, this was not so. Small plants were put out on every occasion, adding insult to injury by balling the roots with earth. The chances of survival in the field were therefore slight even had the weather conditions after planting been perfect. It is most important that plants should be healthy and vigorous and at least one foot tall at the time of planting. Roots should be carefully preserved in transit and spread out evenly in the hole at the time of planting.
3. Trenching and filling the trenches with Guatemala grass loppings is a dangerous operation if the loppings do not break down and become part of the soil structure before planting operations commence. This caused trouble in all the plantings in Field No. 1. Holing is by far the best method and holes 18" deep by 8" have given satisfactory results.
4. Large gangs of labourers were employed in Field No. 1 immediately following planting. This should be avoided. The after-care of any new clearing should be the responsibility of a small trustworthy gang of labourers whose job throughout each month should be weeding, lopping green manure, thatching, tending plants, re-supplying when necessary, cleaning out drains, manuring and re-supplying shade. Damage to the young plants is reduced to a minimum if this method is strictly adhered to.

5. Field No. 1 is badly windswept during the south-west monsoon. However, no effort was made to establish some form of wind belt when these clearings were planted.
Wind belts of some type of rapidly growing feathery shade (*Sesbania*) should be established as quickly as possible.
6. In all these clearings green manures of the bush type were interplanted. This should be avoided, owing to the intense competition with the young tea plants in the initial stages of their growth. *Tephrosia vogelii* in particular is also a known host plant for Meadow Nematode.
7. There is evidence that, in Field No. 1, thatching was delayed. If thatching is to be done, as much thatching material as possible should be laid down immediately following planting to assist with moisture retention in the soil in case the weather suddenly turns dry.

In conclusion it must be said that the replanting of tea with vegetatively propagated material is still being improved. All work connected with replanting therefore deserves careful planning throughout the whole period from the initial uprooting, and the closest supervision until the tea is finally brought into bearing.