CACAO SURVEY 1929 - 30.

THE "NORTHERN RANGE".

TRINIDAD

Being a joint Thesis submitted by

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For Survey purposes the name "Northern Range" was given to that part of the island which lies north of the Eastern Main Road from Port of Spain to Sangre Grande and the Toco Main Road from Sangre Grande to Toco. Mountains and mountain ranges are shown very diagramatically on the map the general topography of the area being very hilly and ranges reaching in some parts an altitude of 3000 feet. Although the map is not a model of accuracy, it does give a very good picture of the sites that have been selected for Cacao farming. The main Cacao area is composed of small sections cut off from each other by arms of hills radiating from the general range running East and West. Each little valley is watered by a mountain stream and tracks in varying states of repair serve as access to the main Eastern Road, Cacao being transported there by motor, cart, pack or heading, according to road conditions and thence by rail or motor lorry to Port of Spain.
About 80 years ago, Sugar Cane was the principal crop grown in the valleys of the Northern Range. In Maraval, Diego Martin and Carenage valleys there were nine large sugar estates on the flat alluvial soils, cacao and coffee at that period being confined to the hilly parts where sugar cultivation was rendered difficult. When the boom in cacao occurred 50 or 60 years ago, sugar was abandoned and the greater part of this area was planted up in cacao. Further East is the valley of Santa Cruz which in 1854 "de Verteuil" records as being "the largest valley in Trinidad and being entirely covered with Cacao it contains some of the finest estates in the island". These estates were once exclusively owned by the Spaniards, the first settlers and proprietors of the land but the writer, mentioned above, states that between 1820 and 1850 the greater number of these estates changed hands and came under British or French control. At the present day, very few estates are run by owner occupiers and where such is the case they carry on by means of mortgages. The majority of estates are financed by British Capital with overseers of French or Spanish descent in charge. In consequence of this system of Tenure, accurate financial records are kept to enable owners to check and supervise the running of their estates. It was such records that enabled the Survey to attain its high degree of accuracy. The actual abstract forms used in the various estates are very similar in their main items though some go into more detail than others. A recognised standard system of grouping these various details of expenditure was drawn up and the final abstract headings used in the Analysis Sheets on Page 10 & 11 was arrived at.

Besides the taking of these records for the years 1926-27 - 1928-29 much general information was collected from each estate visited.
visited. This general information it is now proposed to discuss briefly under the headings which appeared in the Questionnaire.

1. TYPE OF SOIL.

It was extremely difficult to get any reliable information from the Planter regarding the type of soil on his farm, his usual reply was that there were good and bad fields. The question of soil types is considered of such importance however that a special study of this item was conducted by Professor Hardy and some useful information can be expected. Apart from the river flats where the soil is of a considerable depth and heavy texture, the greater part of the Cacao in the Northern Range is grown on shallow soils derived from micaceous schists, limestones and shales, the slopes suffering severely from soil erosion.

II. TOPOGRAPHY.

Looking at the map it can be seen that the Northern Range is ideally suited from this point of view. The radiating ranges of hills provide the necessary shelter from trade winds and also help to supply the partial shade so necessary for the successful cultivation of the crop.

FUNGOID DISEASES.

The principal disease found on all estates was Black Pod (Phytophtera Faberi). This fungus causes a very considerable loss especially in wet seasons and in wet areas where shade is too abundant but canker (the after effect of Black Pod) is the principal cause of loss on the Cacao farms. Witch broom so far, has not invaded this area.

INSECT PESTS.

The Cacao beetle (Steirastoma depressum) causes considerable damage to cacao trees especially in the drier districts. Thrips/
Thrips are increasing in number and causing havoc in areas where cacao is unhealthy due to exposure, drought or soil conditions unfavourable to the crop.

**HOW ESTABLISHED.**

Most planters were decidedly vague as to how their estate had been built up. The majority of "old" estates as we find them today have been built up from a nucleus by the purchase of surrounding small estates. Areas of more recent origin have been built up in the following way. The intending planter purchases crown lands and lets these out in small parcels of 3 or 4 acres to native contractors who clear and prepare the ground and plant cacao, taking care of it for about five years at the end of which time the trees are bearing. As a remuneration the contractor has the use of the ground to grow food crops and in addition is paid so much per tree (generally about 24d) by his employer. On each farm, details were taken of the youngest and oldest cultivations, the average for the whole plantation being also noted. The Northern Range averaged out as the oldest cultivation in the island, the actual figure arrived at being 59 years as the average age of 47 farms.

**DISTANCE TO NEAREST STATION.**

This was taken on all farms but since motor transport is now generally preferred the road distance to Port of Spain was also recorded so that transport costs could be suitably interpreted in the final analysis.

**RAINFALL.**

A record of the rainfall at the nearest gauge was taken for the three years under consideration. Cacao is grown under a rainfall varying from 50 to 120 inches. Rainfall and its effect on the prosperity of the industry has also been the subject of a special study.

**ACREAGE.**

Trinidad has not been accurately surveyed when compared/
compared with British standards and acreages are somewhat uncertain. In many cases the planter computed his acreage by dividing his tree count by 300. One of them found on walking round the farm afterwards that considerable tracts of the "area under cacao" was actually abandoned land or had been planted up by coffee, lines, coconuts, tonca beans etc. An attempt was also made to record the acreage under pasture, buildings etc., but acres are not familiar units with Cacao planters and this was often quite inaccurate.

CACAO.

Under the heading, information was obtained as to the number of pickets on the farm. "Pickets" is the local term used to indicate the possible number of trees in a given area. This, of course, varies with the planting distance but at 12' × 12' (the common distance apart) pickets work out at roughly 300. Having obtained the number of pickets, these were classified as far as information allowed, into full bearing, half bearing, quarter bearing, supplies and missing trees. In addition to this, information where available, was taken as to the number of coffee trees, coconuts, tonca beans etc., when such cultivations were worthy of note. Details of the type of shade tree with their distance apart was also noted down. Supplies and young trees are generally protected by tannias, cassava and later by bananas whilst permanent shade - almost universally the Erythrina - is always provided.

* 300 is the approximate number of trees per acre when the planting distance is 12 feet by 12 feet.
VALUATION.

This was the most difficult item to obtain from the planter, not because he was unwilling to supply the information but simply through lack of knowledge. No annual valuation is entered in their books and estimates showed a wide divergence of opinion especially as to the value of a Cacao tree. Buildings were taken separately, their number and size noted and estimated value recorded. Animals and dead stock were valued in detail. On asking the planter what he considered was the total valuation of his estate, the sort of answer received was "Oh, say £40,000 but I couldn't sell it for £10,000 now".-

LABOURERS.

Information was sought as to the number of labourers on the estate, resident and non-resident, whether East or West Indian and the wages paid to such labourers. To obtain some uniformity in this, the last pay in December was taken as an average for the year. Wages are remarkably constant, men being paid 4½ shillings and women 30 shillings per day.

MORTGAGES.

Only by means of mortgages have the majority of Cacao planters been able to carry on so that the industry in many cases has evolved for itself a system of tenancy comparable to the landlord and tenant system at home, interest on the mortgage being paid instead of rent. Many estates in the Northern Range have passed into the hands of business men in Port of Spain, through mortgage foreclosures and many more are mortgaged to over 50 per cent of their value. Since the actual planters are so very short of capital, their cultural and other operations are severely handicapped and an uneconomical system of farming is often necessarily pursued.
INTRODUCTION TO ANALYSIS TABLES.

In order to arrive at the Analysis Tables, which follow, the average working costs over the three years were calculated for each of the 46 estates. The estates were then arranged in order of efficiency, the test being the average cost of production per bag of Cacao on the estate. The 12 "Best Estates" are those with the lowest cost of production and the 12 "Worst Estates" are those with the highest cost. The "Average Estates" is based on the results of the whole 46 farms. Whilst recognising that an average over say seven or ten years would have again much more accurate and dependable results, time did not allow of going into such detail, even if the information had been available. Information was taken as to number of years for which records were available so that at some future date the survey may be extended with the greatest ease.
<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>Description</th>
<th>PER ACRE</th>
<th>PER 1,000 PICKETS</th>
<th>PER BAG</th>
</tr>
</thead>
</table>
### Economic Survey of the Cocoa Industry

**Sundry Details of Estates in the Northern Range**

Average for the Three Financial Years 1926-27 --1928-29.

**Department of Economics,**

**Imperial College of Tropical Agriculture,**

**May, 1930.**

<table>
<thead>
<tr>
<th>Item</th>
<th>Best Estates</th>
<th>All Estates</th>
<th>Worst Estates</th>
<th>Your Estate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Average</td>
<td>Total</td>
<td>Average</td>
</tr>
<tr>
<td>Cacao Acreage</td>
<td>2,090</td>
<td>174</td>
<td>11,146</td>
<td>242</td>
</tr>
<tr>
<td>No. of Pickets</td>
<td>588,915</td>
<td>49,901</td>
<td>3,050,305</td>
<td>66,314</td>
</tr>
<tr>
<td>Capital Valuation* $</td>
<td>476,742</td>
<td>39,729</td>
<td>1,904,811</td>
<td>41,410</td>
</tr>
<tr>
<td>Yield (Bags of 165 lb.)</td>
<td>3,264</td>
<td>272</td>
<td>13,125</td>
<td>285</td>
</tr>
</tbody>
</table>

**Yield in Bales:**

- per 1,000 Pickets: 5.55
- per Acre: 1.56
- Yield in lb. per Picket: .92
- Average price Per Fanega: 13.45
- Per cent Return on Capital: 6.02
- No. of Estates surveyed: 12

*In addition to Cacao, this Valuation includes all other Cultivation, Village lots, etc.*
INTERPRETATION & CRITICISM OF RESULTS.

The Northern Range has very distinct peculiarities and differences which mark it off from the other sections of the Island. It is the oldest Cacao growing area in the Colony and has suffered more from the depression than other sections. Here and there, planters are making an effort to maintain or improve the standard of cultivation but on the whole the effect of bad times is very evident. This is especially so in the case of small farms where brushing once a year is about the only treatment that Cacao receives. Taking the area as a whole, expenditure on cultivation is reduced to a minimum. Farmers realise that their yields are going down year after year but they are either unwilling to invest more capital in a business which gives such a poor return, or, in many cases, they are unable through lack of funds to take any steps to prevent depreciation of their properties. In consequence, the analysis figures arrived at require very careful interpretation; group averages tend to be misleading and special studies of the individual estates comprising the groups would be necessary before any definite conclusions could be arrived at. Unfortunately time did not allow of this close inspection and only generalisations can be made on the information at hand.

Taking the figures at their face value, one would say straight away that since the best estates spend less on cultivation per acre, one obvious remedy for the worst and average estates is to curtail the expenditure. It is more than likely, however, that in the "Best" group are farms where the absolute minimum is spent in this direction, the planter being content to reap what he can, regardless of the deterioration of his estate and on the other hand, in the worst group there may be farms where expenditure is abnormally high due to the fact that the farmer is making an honest attempt to bring back the/
the estate to some semblance of order and good cultivation. Yield is the main factor which determines the position of a particular farm on the efficiency list. The yield on the "Best Estates" is 5.55 bags for 1,000 as compared with 3.70 on the "Worst". The "Best Estates" according to the accepted criterion, may owe their superiority very largely to a favourable situation and a good soil. They may be no better organised or cultivated than farms under less favourable conditions but owing to the suitable natural factors the Cacao trees give yields which place such farms on a reasonable economic level.

In Management and Supervision, the worst Estates are spending much more per acre than the other two groups. Such estates are smaller in size than the average group but so also is the "Best" group so the size factor cannot be blamed for this. Expenses under this heading are high compared with Sangre Grande or Montserrat but this is accounted for by the fact that many of the farms in the neighbourhood of Port of Spain are used as residential estates by the owners and extra charges for servants, motor cars etc., have been charged to cacao.

Looking at Cultivation under the various headings the fact that the "Average" and "Worst" farms spend fully a dollar more per acre for Cutlassing as compared with the "Best" Group seems significant. This must be tempered however by the fact that in the "All Estates" Group is one very large estate with very high Cutlassing Costs per acre. It is useless to work on such individual items of cost without access to the details of the farms comprising the groups.

The fact that the most successful estates give more attention to and receive a larger income from intercultivated crops is worthy of note. This is mainly coffee and a possible opening seems to exist here in the substitution, in part at least, of coffee for the unprofitable cacao where conditions and circumstances will allow.
When compared with the Montserrat area, the total cultivation figures run on very similar lines but in the distribution of that cost, the Northern Range spends much more per acre on trimming & pruning and less on cutlassing and weeding. This suggests that trees in the Northern Range are older, more subject to disease, parasites, moss and vines. That less is spent on cutlassing may mean that estates are cultivated more extensively or that the soil is not so fertile. The total expenditure per acre is also much less in the Northern Range than in either Montserrat or Sangre Grande but even with this help the yields are so poor - the yield on the Best Estates in the Northern Range is considerably below the average yield of the other two areas - that the cost per bag is relatively high. The average estate cost per bag is £15.13; cacao is selling at £14.25 per bag so that with the addition of 40' for transport etc., the average estate in the Northern Range today is losing something like £1.25 per bag.

The only conclusions one can come to are, that the "Best" estates owe their position to the action of more favourable national factors whereby superior yields are obtained and secondly as far as the actual survey figures are concerned - to their revenue from intercultivated crops. Comparisons between "Best" and "Worst" are useless since so many disturbing factors exist.

Unless market conditions quickly assume a very much more favourable tendency, the majority of Northern Range estates must succumb to existing economic conditions. Only estates where natural factors, especially the fertility and suitability of the soil allow of good yields, - 5 bags per 1,000 and over - combined with a normal cost of production, can survive. Very little has been done so far on the manuring of cacao and it is just possible that the chemist may yet solve the problem but, with a continuance of present conditions, the area under cacao must contract. Unless the/
The planter is able to eke out his existence by means of intercultivated crops the sooner he realises his position and sums his attention, enterprise and what remains of his capital to some other means of earning a livelihood the better his chance of existence and the improvement of his financial position.

We hope that this outlook may prove to be too pessimistic and that some factor undiscovered by the writers will enable the planters of the Northern Range to weather their financial storms.