POULTRY HUSBANDRY IN NORTH TRINIDAD WITH SPECIAL REFERENCE TO PEASANT POULTRY HUSBANDRY IN THE ST. AUGUSTINE AREA.

By E.G.B. Jones, D.I.C.T.A.

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Imperial College of Tropical Agriculture.
CONTENTS

INTRODUCTION ................................................. 1

PART I. Description of St. Augustine Areas .........

Land; Climate ........................................ 3

Water Supply; Population ............................... 4

Land Tenure; Housing ................................... 5

Communication; Food Supplies .......................... 6

General Economic Conditions ........................... 7

PART II. Agriculture in the St. Augustine Area ......

Northern Areas ......................................... 10

Southern Areas ......................................... 10

Cane Farming Area ....................................... 11

Rice Area ................................................ 12

Vegetable Gardens ........................................ 12

Effect of poultry upon the Agricultural System of the Area .. 12

PART III. Poultry Husbandry in North Trinidad ....

The necessity for the development of a Poultry Industry ......................................... 14

Poultry in North Trinidad

(a) Peasant Poultry Husbandry ......................... 15

(b) Backyard Poultry Husbandry ....................... 18

(c) Commercial Poultry Farming ....................... 24

Feed Supplies ........................................... 31

Marketing ................................................. 36

Government Aid to the Poultry Industry .......... 37

Trinidad Poultry Association ......................... 37

Investigational and Advisory Work ................ 38

PART IV. Suggestions for Investigation ............ 47

PART V. Summary and Conclusions .................... 50

Acknowledgments ........................................... 53

References ................................................. 53

Appendices ................................................ 54
INTRODUCTION.

The production of foodstuffs in Trinidad and Tobago is insufficient to meet the demands of the increasing population. As a result a large part of the Colony's food supply is imported from outside sources. The bulk of the locally grown foodstuff is produced by peasant farmers whose efficiency of production leaves much to be desired. It is, however, believed that food production could be greatly increased by the adoption of three measures:— (1) Increasing the efficiency of production of the peasant farmers; (2) Replacing "Shifting Cultivation" by a stable agricultural system; (3) By increasing the area under cultivation. These measures should be adopted into a system of Agriculture which would meet the needs of the Colony, maintain the fertility of the land, and utilize it to its maximum efficiency. Before such a system could be developed it is necessary to obtain a clear picture of Agriculture as practised in the Colony. Much information could be obtained by carrying out a number of surveys covering all aspects of Agriculture in the Colony. It would further be necessary to undertake a number of detailed investigation in order to obtain a more precise knowledge of many of the findings of the general surveys.

The Imperial College of Tropical Agriculture has realized the need for such investigation and has organised a system of surveys covering the field of peasant agriculture in the Colony. Surveys in the St. Augustine area are made by post graduate students to introduce them to the value of survey approach to the study of peasant agriculture in the Tropics. These surveys cover a single aspect of peasant agriculture in the area. The present survey aims at obtaining general information concerning poultry production in North Trinidad. Recommendations are made in the light of the information obtained.

The survey was undertaken during the period October 1949 to April 1950. The first few weeks were spent in carrying out a reconnaissance.
reconnaissance survey of the area so as to gain some knowledge of the local background. The rest of the time was spent in making visits to poultry keepers in several parts of North Trinidad. Visits were also paid to feed suppliers and to persons engaged in the sale of baby chicks. The work done by the Imperial College of Tropical Agriculture and the Department of Agriculture on poultry husbandry was studied.

In the original plan of this project it was proposed to study the behaviour of a number of peasant type fowls under improved conditions of housing, management and feeding. Unfortunately birds of suitable type were not secured and as a consequence that part of the exercise was dropped.
PART 1. Description of St. Augustine Area.

Land.

The St. Augustine Area mentioned in this survey covers an area of approximately 5 square miles. It is bounded on the North by the hills of the Northern Range; its Southern boundary is the Caroni River; it is bounded on the East by the Tacarigua River and on the West by the Southern Main Road. This area includes the built up areas: Tunapuna, Curepe, Monte Grande, St. Augustine, the Monastery at Mount St. Benedict, along with the peasant settlements at Pasea, Streatham Lodge and Lower St. Augustine.

The land is relatively flat rising rapidly at the Northern boundary into the hills of the Northern range.

There are four major soil types encountered in this area. These have been classified by Chenery as follows:-

1. St. Augustine Loam
2. River Estate Fine Sand
3. Streatham Lodge Fine Sand and Loam

The St. Augustine Loam and River Estate Fine Sand are free draining soils occupying the higher levels of the area. St. Augustine Loam is found principally north of the railway line which runs in an east to west direction. The River Estate Fine Sand is south of this railway line. The Streatham Lodge Fine Sand and Loam is to the south or fringing the St. Augustine Loam and varies in drainage status from free to impeded. The Pasea Clay is the principal soil type of the Area south of the Churchill-Roosevelt Highway. The drainage is classified as impeded.

These soils have been under cultivation for a number of years. The upper layers of the original soil profile have been lost leaving behind a soil low in fertility status.

Climate.

The average annual rainfall of the area is approximately 70". There is a marked dry season extending from January to May during which...
during which, over a period of 20 years, an average of 13.6 ins. rain has fallen. There is also a short ill-defined dry season; the Petit Careme occurring between September and October. The maximum temperature is 87°F. and the minimum temperature 68°F.

Water Supply.

Two rivers, the Tunapuna and the Tacarigua rise in the Northern Range and flow through the area. There is a weir at the lower end of the Tacarigua retaining water which is used to irrigate approximately 50 acres of the ricelands in the Lower St. Augustine Area. The ricelands in the other areas depend upon rain for irrigation water.

Water for domestic use is obtained from mains coming from the Hollis Reservoir. In the built up areas metered water is supplied to the houses. In the peasant settlement no water is laid on but stand pipes are placed along the roadside at intervals of approximately 300 yards.

Population.

The population of the area at the time of the 1946 census was 19,343 distributed as follows in the various sections:

<table>
<thead>
<tr>
<th>Location</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tunapuna</td>
<td>7328</td>
</tr>
<tr>
<td>St. Augustine</td>
<td>1274</td>
</tr>
<tr>
<td>Curepe</td>
<td>5574</td>
</tr>
<tr>
<td>Monte Grande</td>
<td>1257</td>
</tr>
<tr>
<td>Streatham Lodge</td>
<td>2230</td>
</tr>
<tr>
<td>Pasea</td>
<td>1065</td>
</tr>
<tr>
<td>St. John Village</td>
<td>387</td>
</tr>
<tr>
<td>Mount St. Benedict Monastery</td>
<td>162</td>
</tr>
</tbody>
</table>

Built up Areas

Peasant Settlements

In the built up areas the population is very mixed. In it are to be found persons of European, Chinese, Indian and African descent. These persons are largely non agricultural workers and are principally employed out of the district. In the Peasant Settlements the population is largely Indian in origin and are nearly all agricultural workers tilling their own holdings or working on the neighbouring sugar estates.
The Area is well supplied with Churches and places of worship. There are two Cinémas and several meeting halls.

Education is available up to the primary level at 7 grant-in-aid schools run by Government and the Christian Religious bodies. There is a domestic science school for East Indian Girls run by the Canadian Presbyterian Mission. There is no vocational school for boys.

School Gardens are attached to several schools in the area. These gardens function more as nature study demonstrations than as instruments for teaching agriculture. The district Field Assistant of the Agricultural Department assists in running the gardens which compete annually in an Island-wide school garden Competition. Schools of this area have won the trophy on several occasions.

Land Tenure.

Most of the land in the area is freehold. The land in the peasant settlements at Streatham Lodge and Pasea are however leased from the owners of these now abandoned estates. The land used for cultivation is principally at Streatham Lodge, Pasea and St. Augustine. These lands are rented at $10.00 per acre. The lower St. Augustine lands are freehold.

Housing.

In the built up areas houses are constructed of various materials; concrete, hollow tile and in a few cases of wood. The houses in the peasant areas are made with round wood frames and walled with a mixture of earth and tapia grass. The roof is usually thatched with timite leaves. In the past the houses were built with a rammed earth floor with the walls starting at ground level. The more modern houses have wooden floors raised off the ground. These tapia houses are said to be very durable and have lasted for as long as 60 years.

Communications.
Communications.

Trinidad Government Railway lines pass through the area in two directions. One line going east to serve North-East Trinidad, the other going southwards leading to Southern Trinidad.

There is a network of well surfaced roads ramifying throughout the area. Two main highways: the Eastern Main Road and the Churchill Roosevelt Highway, pass through the area. In addition there are a number of unsurfaced roads in the Pasea, Streatham Lodge and Curepe areas.

A bus service operates along the Eastern Main Road. Passengers are also carried by roving taxis which ply along the road throughout the day.

Freight transportation is by motor lorry and in many cases by horse and mule drawn carts. Peasant transportation is chiefly by animal drawn carts.

Food Supplies.

Two public markets are established in the area; one at Tunapuna and the other at Curepe; meat, fish, ground provisions and vegetables are sold in them. Most of the produce sold in these markets is not grown in the neighbourhood but is brought in from other areas of Trinidad.

There are also a large number of groceries selling imported foodstuff, vegetable oils etc.

Public Health Facilities.

There is a district hospital under the supervision of a District Medical Officer who is resident in the area. In addition there is a private nursing home and five private medical practitioners run daily clinics in the area.

Sanitation and public health is supervised by the Local Health Authority which supervises the building regulations and runs a scavenging service. A district sanitary inspector is employed in the area.

General Economic Conditions.
General Economic Conditions.

This area is approximately eight miles from Port of Spain which is increasing its population annually. As a result there is increased demand for housing and all lands within easy access to Port of Spain are rapidly increasing in value as potential housing sites. The St. Augustine area is no exception to this. In fact a large number of its inhabitants work in Port of Spain and its environs.

During the last war there was a boom in employment throughout the whole of Trinidad, caused chiefly by the construction of the United States bases. Almost all the available labour went to work on the American bases leaving a general labour shortage in the industries and services. There were consequently increases in the cost of services and of locally produced goods. To this was added the increased cost of imported articles occasioned by the war conditions. The whole cost of living increased. To keep down prices a Control organization was set up. This fixed the sale prices allowed to both importers and retailers on a percentage basis. There was money in circulation so the commercial community was able to turn over the available goods as rapidly as possible under the existing conditions. With the end of the war and the fall in employment on the American bases, together with the demobilisation of the local garrison, there was a slight slump. However, it appears that the mercantile community is quite unwilling to forego the large turn over of the war years and are using every means available to keep up their sales. This is leading to the creation, within the colony, of an economy based upon an inflated rather than on the true productive capacity of the people.

The peasant, in the St. Augustine area, is exposed to three great influences:— (1) The current inflated economy; (2) the rising value of land in the area and (3) to the poor fertility status of the land. On going through the agricultural areas there will be noticed
will be noticed many areas where the land has been left unworked. Some areas are left fallow as yields have declined. In other cases the peasant does not have enough capital available to work the land in such a way as to maintain himself and family. In the latter case the peasant deserts the holding for wage earning so as to assure himself of a large enough income. It is however usual for the peasant to work a small area in his spare time or when unemployed. If the peasant is to remain on the land his return should be large enough to provide him with an income as large as his wage earning brother. It would be only then that he would be persuaded to devote his full time and energies to his holding. In the case of the peasant in this area there is always the attraction of employment at relatively high rates of wages, and therefore it would be necessary to devise some system of agriculture for the area that would produce good enough returns to pay rent on high value land, and give the farmer an income equal to his wage earning brother. The Peasant Investigation now in progress at the College should be able to supply information as to the minimum acreage, type of farming and capital required that would be needed to produce such an income. It could be foreseen that there might be possibly an exodus of peasants from active agricultural labour to work in the new Industries now being considered. This might possibly leave those remaining with relatively larger blocks of land which could be farmed more efficiently. This efficiency would be only possible if capital was available to the peasant to enable him to make use of the latest developments and information available in the agricultural field.

The peasant usually is unable to obtain large quantities of capital required for development and usually does not possess the property demanded as collateral security for big loans. The Trinidad Government operates credit banks which only give loans which are guaranteed by attachments against property owned by the
peasant or a guarantor. Loans from commercial banks are also on the same basis. The whole idea, at the present time is to secure coverage of the loan and as a result only in few instances are loans given which are not gilt-edged investments. Under the present set up there is little provision for the peasant to obtain the necessary capital for the proper development of his holdings. It would therefore be necessary to implement some scheme whereby adequate credit facilities would be available to him. Within the organization of the existing Agricultural Loan organization could be developed facilities, similar to those of the Farm Credit Organization of the Department of Agriculture, which would give both long and short term loans on comparatively easy terms. The application of this cheap credit would need to be strictly supervised to see that it was used strictly for the purpose for which it was granted.

In addition Cooperatives should be fostered among the peasants. These Cooperatives could be used to purchase and operate mechanical equipment in the area. They could also handle the marketing of produce from the holdings together with purchase of fertilizers and supplies.

The peasant on the hillland areas plants crops to be reaped before those in the lowlands are available. As a result he enjoys relatively high prices and is able to be compensated for his labour under rather difficult conditions.

The chief crops planted are Corn, Pigeon Peas, Tomatoes, Rice Plant, Pedia Beans, Tannia, Yams, and Plantains.

Small amounts of hill rice are grown.

The Southern Area

The Southern Area is divided into three areas according to the crops grown:

a. The Cane Farming area
b. The Rice Area
c. The Vegetable garden Areas.

THE CANE FARMING AREA.
PART II. Agriculture in the St. Augustine Area.

The St. Augustine area contains two agricultural regions -
1. Holdings in the northern hills.
2. The holdings south of the Churchill Roosevelt Highway.

The Northern Areas.

A few peasants cultivate holdings in the hills overlooking the housing settlements. These peasants do not live on their holdings but live in the built up areas. In most cases the peasant transports his produce to and from his holding by pack donkeys. The areas cultivated are usually parts of abandoned cocoa estates. Holdings are rented on a yearly basis. The area is felled during the dry season and burnt. Pigeon peas and corn are then sown with the first rains. In some plots tomatoes were grown instead of corn. The holding is usually cultivated for two years after which it is allowed to revert to secondary bush while the peasant moves over to a new area. After a period of rest under lastro the area is reworked. Cultivation is in the majority of cases on slopes of between 45 and 60 degrees. Landslides are frequent in the area and no antierosion work is undertaken.

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1. The Cane Farming Area
2. The Rice Area
3. The Vegetable garden Areas.
The Cane Farming Area.

This area is on the higher sections of the land south of the Churchill Roosevelt Highway extending from Streatham Lodge eastwards to the Tacarigua river. Sugar Cane is planted in furrows during the early wet season. The planting material most commonly used is soldier tops: the terminal bud together with the first two nodes. "Soldier tops" are placed in pairs at the bottom of the furrow, inclined at an angle of about 45° to the soil surface. They are planted in pairs, 9 inches between each top. The distance between tops is 2 feet. Sweet potatoes or pigeon peas are planted on the ridges of the furrows which are approximately 3 feet apart. After reaping the pigeon peas or potatoes the ridges are broken to mould up the cane roots. In some instances farmyard manure is applied in the furrows before the ridges are broken. Reaping takes place in the dry season. In the case of plants the canes are 15 to 18 months old. Several ratoons are taken off one plot. No peasant canes are burnt. Fertilizers, principally a mixture of sulphate of ammonia and muriate of potash, are obtained from the Estates to which the peasant has contracted to deliver canes. The cost of this fertilizer is charged as an advance against the canes sold to the factory at harvest time. Very little attention is paid to the ratoon canes other than a light forking between rows during early ratoon growth. On the whole the standard of sugar cane cultivation in the area is very much lower than that of the neighbouring sugar estates.

Food crops are grown as an alternative crop upon some beds in the area. In some instances during the early part of the ratoon growth short term food crops are grown: Tannias, eddoes, sweet potatoes, were seen upon open beds while bodie beans, ochroes, and pigeon peas were interplanted between ratoon canes.
Rice Areas.

Rice is grown in the lower sections of the southern portion of the area. The main crop is planted during the wet season in June and reaped towards the middle of November. Irrigation water is available but only a small area was grown by the Department of Agriculture during the last dry season. The Department of Agriculture has a small area where variety and cultivation trials are undertaken. The Imperial College of Tropical Agriculture also has a small demonstration plot in this area. In some of the rice holdings, after the rice was cut the land is allowed to dry out and put up into small ridges. Upon these ridges were planted sweet potatoes, ochroes, tomatoes and egg plants which were grown in these holdings during the dry season. No manuring was done to the rice but fertilizer was placed upon some of the vegetable crops.

Vegetable Gardens.

The vegetable garden area is south of the Churchill Roosevelt Highway mainly in South St. Augustine and Curepe. In the majority of cases the peasant lives upon the holding worked. During the wet season these lands are planted with yam, tannias, eddoes, pigeon peas and the more hardy vegetable crops. During the dry season cucumbers, Chinese cabbage, egg plant, tomatoes were among the crops planted. Both farmyard manure and fertilizer are used.

The Effect of Poultry upon the agricultural system of the area.

Poultry are widely kept by peasants in the area chiefly foraging around the house lots and have little or no effect upon the agricultural system of the area. No peasant lived on a cane holding hence poultry had no influence upon the cane cultivation. The rice cultivation is in the lowest section of the land and there are no dwellings within the rice area. Poultry are alleged to damage the rice during the ripening season and for that season peasants in areas adjacent to rice fields usually sell their birds during that period. The vegetable gardens are around dwelling houses.
houses and are consequently most affected by the poultry. This influence is however negligible as not enough birds are kept for the droppings to have much manurial effect upon the crops. Moreover the birds may be a nuisance as they forage among the plants and may destroy young seedlings etc.

The description of peasant poultry in the area is given in Part III.

A study of the imports of poultry and poultry products into Trinidad and Tobago during the period 1850 to 1940 reveals that the annual importation of poultry products was valued at an average of $261,681. If this could be added the values of the locally produced poultry and eggs. At the time of the 1940 census there were 19,880 head poultry, 29,467 ducks and 2,784 turkeys. This population should produce annually not less than $200,200 worth of products. It could therefore be safely estimated that the present trade in poultry and poultry products is valued at between six and seven hundred thousand dollars per annum. This however does not represent the peak as there is an almost constant shortage of poultry products.

In addition at the present time approximately 75 percent of the imports of poultry products come from hard currency areas and it would be to the financial advantage of the colony if the industry were developed to the point where such imports would be greatly reduced.
PART III. Poultry Husbandry in North Trinidad.

The necessity for development of a Poultry Industry.

Throughout North Trinidad poultry are widely distributed, but despite this there is a shortage of poultry products. In addition the supply of fish and meat is also limited. Frozen meats are imported from various parts of the world to help supply the demand for animal protein. In fact the whole Colony is in short supply so far as protein rich foods are concerned.

Poultry are excellent suppliers of protein. In fact, poultry, in common with the lactating animals, are capable of producing food without being killed. Eggs are good sources of vitamins, some minerals and of high quality protein. Poultry meat is high quality, easily digestible protein and together with eggs are rated as protective foods and as such should find a place in the diet of every individual.

A study of the imports of poultry and poultry products into Trinidad and Tobago during the period 1946 to 1949 reveals that the annual importation of poultry products was valued at an average of $361,667. To this could be added the value of the locally produced poultry and eggs. At the time of the 1946 census there were 619,662 head poultry, 29,457 ducks and 2,784 turkeys. This population should produce annually not less than $300,000 worth of products. It could therefore be safely estimated that the present trade in poultry and poultry products is valued at between six and seven hundred thousand dollars per annum. This however does not represent the peak as there is an almost constant shortage of poultry products.

In addition at the present time approximately 70 percent of the imports of poultry products come from hard currency areas and it would be to the financial advantage of the colony if the industry were developed to the point where such imports would be greatly reduced.

__/ Appendix I
Appendix I gives details of the imports of poultry products for the years 1946 - 1949.

POULTRY IN NORTH TRINIDAD.

Poultry keepers in North Trinidad are divided into three classes:

(a) Peasant Poultry Keepers
(b) Backyard Poultry Keepers
(c) Commercial Poultry farms.

(a) Peasant Poultry Husbandry.

Peasant poultry husbandry was studied in the St. Augustine area. Visits were paid to peasants chiefly in the Lower St. Augustine, Curepe, and Streatham Lodge areas. In these areas nearly every householder kept a few fowls. There were no flocks larger than 20 adult birds. The average peasant owned between 6 and 10 adult birds.

The type of bird kept by peasants in this area was the small, unimproved bird of varying size and colour. However three distinct types were to be seen:

(1) The bare-necked bird
(2) The frizzled bird
(3) The ordinary type.

The bare-neck was seen among the birds of almost every flock. It was claimed by the peasants to be superior in its vigour and laying ability. Of the three types the bare-necked bird tended to be the largest. Peasants state that the bare-necked condition is dominant to the ordinary neck for wherever a bare-necked bird is mated with birds of normal feathering the majority of the progeny are bare-necked.

The frizzle was a fully feathered bird with the feathers standing erect as if the bird were disturbed. This type was not very common.
The ordinary bird was of varying size and colour. It, in common with the two other types, becomes broody after laying a clutch of eggs and normally will sit upon them if they are not removed. All three types are very active and are good foragers.

The egg production of these fowls varies considerably but no one was able to give any definite information as to the number of eggs produced. It was however estimated by one peasant who had 12 hens that he collected every day one or two eggs. It could be concluded that the annual egg production was somewhere in the vicinity of 60 to 80 eggs. After laying each clutch the hens become broody, often remaining on the nests for several days. If allowed to incubate eggs they sit well and are usually good mothers, often having chickens running behind them for several weeks. Williams (4) found that as high as 45.5% of the year was spent by peasant type poultry in brooding and rearing chickens. During this period no eggs are laid.

The Improved bird is not reared by the peasant. One peasant had Grade Black Giants and Leghorns which were the progeny of Improved birds that had been bought in previous years. This peasant claimed that the Improved bird is too hard to rear and dies easily, and for this reason is not worth keeping at least under existing conditions.

Hens are given eggs to incubate; the nests are usually placed upon a platform about 3 ft. above ground level. Chickens are hatched throughout the year but the best results were obtained during the early part of the dry season. Chickens are allowed to roam around with the hens and as a result several are lost. It was estimated by one peasant that out of 25 chickens hatched by 3 hens only 6 remained at the end of 6 weeks. The losses are chiefly due to predators - mongoose, rats, etc. and to disease.

Housing. Usually no form of housing was provided. The birds slept under any shade that was available or roosted in trees.
There was usually no fencing around the yards and the birds roamed far and wide. On account of this the peasants in areas adjacent to the rice fields found it necessary to get rid of most of their birds when rice started to ripen, as it was alleged that the birds damaged the rice.

**Feeding.** The average bird kept by peasants lives by foraging over a wide area. Formerly when locally grown rice was in less demand the peasant owned birds were fed upon padi. At the present time rice is in short supply as human food with the result that no padi is available for poultry feeding. Little or no corn is grown by the peasants of this area. The only food available to most birds is household scraps, which together with whatever vermin and weed seeds that would be collected constitutes the feed of the peasant flock. A few peasants state that they purchase, whenever it is available, mixed scratch grain - corn and oats in 50-50 mixture. This however is the exception rather than the rule.

Whatever food is given to the birds is scattered upon the ground which in nearly all cases is devoid of all vegetation. No water vessels are provided. The birds get their water supply from any pool or open body of water.

**Diseases and Pests.**

Fowl pox (Yaws) was stated to be very common. Many chickens were lost from pox but no adults. A mysterious disease was alleged to have killed many birds during December in the Curepe area. The birds were said to have appeared droopy and died soon after. Judging from the conditions under which the birds live this could probably be some form of "Fowl typhoid". A common complaint was the condition known as "pip" where the tip of the tongue gets hardened. If not removed the bird is unable to eat and dies. This pip is removed by rubbing it off with ashes, taking care not to damage the tongue.

Almost all birds are heavily infested with internal parasites.

Rats, mongoose
1 b. Peasant Poultry foraging in dung heap.

2 b. Hatching boxes used by peasants for housing hens during hatching periods.

3 b. Muscovy ducks' enclosure at I.C.T.A.
Rats, mongoose, chicken hawks along with the fowl thief, are the chief predators found in the area.

On the whole since little attention is paid to birds there is little information that could be obtained as to the real extent to which pests and diseases affect the peasant flock.

**Marketing.**

Peasants sold few eggs. Most of them claimed that the number of eggs obtained from the birds kept was not enough to satisfy their own demands. Occasionally, however, a few eggs were sold in the Tunapuna market at the prevailing prices which varied between 9 and 11 cents. Birds were sold usually at holidays by unit rather than by weight. The average price obtained for a cock averaging between 4 and 4½ lb., was said to be around $4.00. It was claimed that cocks were more readily sold than hens which were bought only as a second choice when cocks were not available. Few peasants sold birds to hucksters.

**Peasant poultry other than fowls.**

No peasants in the St. Augustine Area reared turkeys. The number of ducks kept was also small. Only 6 peasants were seen who owned ducks. There were usually not more than 4 adult ducks with ducklings trailing behind. The duck kept by the peasant was the brown and white Muscovy. Peasant ducks existed, in a manner similar to the fowls, foraging far and wide for whatever could be picked up to supplement household refuse.

(b) **Backyard Poultry Husbandry.**

A large part of the poultry in North Trinidad is kept by backyarders who live in built up areas and keep poultry as a hobby rather than as a business. Many of them have been keeping birds for a number of years and have acquired a fair amount of experience in handling birds under systems of management based chiefly upon information supplied in popular American poultry literature and in the booklets distributed by Feed Manufacturers.

/ Visits were paid
Visits were paid to backyarders in the St. Augustine Area. The birds reared were either pure bred Improved birds or grades showing varying degrees of their influence. It is a common practice for the backyarder to keep pure bred birds, in many cases keeping more than one breed or class of poultry.

The stock is usually obtained as day old chickens, either imported from the United States of America or produced by local hatcheries. In some instances purebred hatching eggs were also purchased and incubated under creole hens. The most popular breeds among backyarders were Leghorns and Rhode Island Reds. Birds of other breeds were also kept. There is the tendency to fancy strains among the individual breeds. Tom Barron, Hanson and Kauder are the most popular Leghorn strains; Parmenter Rhode Islands and Parks Plymouth rocks are the ones in the heavy breeds.

Housing is provided for all classes of birds. The type however was not uniform and varied from simple shelters to pens built in batteries, each tier with wire floor and removable dropping boards. In all cases feed and water utensils were provided. In all instances there was fencing around the area in which the birds were kept. In some instances the birds were confined to a definite section of the yard whereas in others they were free to roam, only confined by the boundary fences. This is a contrast to the peasant whose birds are allowed to roam freely over wide areas.

Feeding with balanced mashes is universal. Two brands of imported mashes - Purina and Full-o-Pep are used by nearly all backyarders. Larro, an American mash is regarded to be superior to those but is not on the market at the present time. A few poultry keepers use locally prepared mashes, but the majority complain that the local mashes are variable in quality and do not allow the birds to give their best performance. The imported mashes are preferred as they were always standard in quality and as a result good results were obtained.
Chickens were fed Starter for the first 6 weeks after which they were fed Growing Mash until they were 20 weeks old. Laying mash was fed after 20 weeks. Scratch grain was fed when available to all birds over 6 weeks. The supply of grain is limited so that the quantity and regularity with which grain is fed is very variable. Both locally produced and imported Scratch grain are used. Grit, usually imported Oyster shell is provided for birds of all ages.

The average egg yield obtained by the backyarders is said to be between 180 and 200 eggs for the heavy breeds of Improved birds and between 200 and 250 for the Leghorns. The aim of most of this type of poultry keeper is to keep up high production by standardised feeding and management. Birds are culled throughout the year as soon as their egg production falls. Replacements are made annually with chickens either hatched or purchased during the early months of the year.

One backyarder has crossed the bare-neck bird with Improved birds. A bare-necked cock was used upon Leghorn hens and the resulting bare-necked progeny interbred. The bare-neck hens were selected and mated to pure bred Rhode Island cocks. The bare-necked hens were then mated each year to Rhode Island Red cocks. This year it is intended to select a few bare-necked cocks for use instead of the pure bred Rhode Island Red. This poultry keeper claims that he has been able to obtain birds which are quite vigorous and give an average annual egg production of around 160 eggs.

**Poultry other than fowls.**

*Turkeys* are kept by few backyarders. The majority of birds raised are the unimproved local type; however a few Broad Breasted Bronze birds are also kept. The latter are not specially favoured as it is contended that the bird grows to a size not suitable to the local market. In cases where attempts are being made to grade up the local bird only a half bred Broad Breasted Bronze Tom is used.
Ducks. The types of ducks raised by small holders are:

(a) Muscovy
(b) Pekin
(c) Khaki Campbell.

The Muscovy and Pekin are very popular. The Khaki Campbell is now being tried by a few backyarders. Ducks are kept in small enclosures in the majority of cases no water other than for drinking is provided. No elaborate sheds were built for any ducks. Muscovys are allowed to set upon the eggs laid. Pekins however do not set so their eggs have to be incubated artificially. Ducklings are reared on wire for several weeks. No special duck mashes are used for any class of bird. Chick Starter is used for the first 6 weeks after which they are fed Laying mash which is also given to the adult ducks. Ducklings are sold at 3 to 4 months old.

Mr. W. de Freitas.

Mr. de Freitas of Tunapuna is a typical backyarder. He owns a drug store in Tunapuna and rears poultry as a hobby. He is a member of the Poultry Association and was a very successful exhibitor at the 1950 Poultry Show.

This backyarder keeps over 150 head of poultry in a yard with an area of less than 800 square feet.

He keeps fowls, ducks and turkeys. More than one of the Improved breeds of fowls are kept. In the case of the White Leghorns three strains, Kauder, Hanson and Tom Barron, are kept. Pedigree cockerels of each strain were imported, 3 months old, from the United States of America. These cockerels were from R.O.P. parentage with performances of 300 - 330 eggs per annum. These strains are kept pure.

Barred Plymouth Rocks, Cornish, Spanish and English Game are also kept pure. He also has a number of crosses all from Improved birds.

Three breeds of ducks are kept - Muscovy, Pekin and Khaki Campbell, in addition to local Turkey hens together with one half-bred Broad Breasted Bronze Tom.
The Pekin ducks were in a wired enclosure approximately 12 ft. square while the fowls were in wire floored cages. The Muscovy ducks and turkeys were allowed to roam in the spaces between the cages.

The birds were fed exclusively on Purina feeds. Growing mash was used instead of Starter by this poultry keeper. It was contended that the supply of Starter was not regular and it was easier to raise the chickens upon Grower as it was always possible to get an adequate supply of Grower. The layers and ducks were fed laying mash. Sometimes a 50/50 mixture of coconut meal and crushed corn was added to the laying mash at the ratio of 8 parts laying mash to 1 part of the mixture. This did not cause a decrease in egg yield. Grain is not fed regularly owing to the shortage in the supply of grain. On the average not more than a $\frac{1}{3}$ lb. of grain per head is fed per week. Oyster shell grit is used.

Fowl Pox (Yaws) was the most serious disease. This was controlled by a home-made mixture, the composition of which was regarded as a secret. Worms were controlled in all classes of poultry by the use of proprietary worm tablets. Condition powders were administered after every worming to bring the birds back into condition.

The average production was said to be between 250 and 280 eggs for Leghorns in their first year, those that remained in the second year often gave as high as 200 eggs. Continuous culling was carried out to remove all non productive birds.

Eggs were incubated in a 100 egg electric incubator during the early months of the year. Both fowl and duck eggs were incubated. Muscovy eggs were not incubated, but the duck was allowed to sit upon its eggs.

Both chickens and ducklings were raised in wire floored brooders. Chickens remain on the wire for eight weeks after which they are put on the ground. Muscovy ducklings which are regarded as
1. Battery Cages at Mount St. Benedict Monastery.

2. Section of duck enclosure at Mount St. Benedict Monastery.

3. Another view of duck enclosure at Mount St. Benedict.
being very delicate are removed from their mothers and placed in brooders where like the Pekin ducklings they remain for 12 weeks. Both breeds of ducks are sold at 12 weeks old.

Poultry at the Benedictine Monastery.

The largest flock of ducks is raised at the Monastery at Mount St. Benedict. Almost 200 ducks are kept in 8 enclosures, each approximately 500 square feet. Passing through each yard is a water pipe with a tap which drips into a concrete receptacle approximately 2 feet square. The water in the receptacle is the only water provided in the enclosure. At the upper end of the enclosure is a low shed open on the southern side.

Two kinds of ducks are kept: White Pekins and Black and White Muscovy. The Muscovys are allowed to lay in the enclosures and to sit upon the eggs. The Pekin eggs are collected and artificially incubated. Eggs are not allowed to be stored for longer than 7 days before incubation. The eggs are started under hens and then tested at the 10th day after which the fertile eggs are placed in the incubator. Ducklings of both breeds are reared in wire cages - a Muscovy duck is placed with a number of ducklings in a wire floored cage. After the ducklings have hardened off and learnt to eat, the duck is removed. Chick starter is fed for the first 6 weeks after which the ducklings are given a mash made up of rice dust, coconut meal and household refuse. The adult ducks are fed the same ration.

Ducklings are sold at 10 to 12 weeks old in the case of the Pekins and in the case of the Muscovys at 12 weeks.

Laying batteries.

The Monastery at Mount St. Benedict also keeps around 300 birds in laying batteries. The breeds kept are Leghorns, Barred Plymouth Rocks and a cross between Leghorn and Rhode Island Reds. The batteries are three tiered; with cages approximately 18 ins. square. The cages have sloping floors which allowed the eggs to roll.
Birds are usually in the cages for 1 year but the non producers are continuously culled. Birds remaining after one laying year are rested for two months before being placed in the breeding flocks. Eggs from this breeding flock are incubated to provide replacements. The birds are fed throughout their life on imported feeds.

(c) Commercial Poultry Farms.

Visits were paid to 5 large scale producers. The number of birds maintained varies from 2500 to 350 layers. These farms are operated by individuals who were former smallholders and had decided to invest money on large scale production. In all cases hired labour is employed. In one case the owner is employed elsewhere leaving the hired labour responsible for the routine management. In the other cases the owners carry out part of the labour of the undertaking. 200 adult birds is the average number attended by one man.

The amount of capital per hundred birds varies greatly. In 2 farms the capital investment is quite high chiefly in the form of elaborate housing and fittings. In the case of these farms the investment on building, land and fittings, apart from dwelling houses, is in the vicinity of $2500.00 per 100 birds. In the case of the three other farms the equipment and housing are not as elaborate and the investment involved is approximately $600.00 per 100 birds.

The operators lived on all the 5 farms which have running water and electricity laid on.

Improved birds are reared - Leghorns, New Hampshires, Rhode Island Reds and Barred Plymouth Rocks, are the breeds used. The most popular breed is the New Hampshire. An entire flock consisting of 2500 layers and 2000 young birds, is entirely composed of this breed. In addition New Hampshires were found on the other farms. Next in popularity is the Leghorn which is the major breed on three smaller farms. Rhode Island Red are next in popularity with the Barred Rock being found on one farm. The Barred Rock is maintained in small numbers
numbers on this farm to be used with New Hampshires and Rhode Island Reds in broiler production. The popularity of the New Hampshire is due to the fact that it has been recently selected by one grower for its early feathering, its ability to attain a fair body weight at 12 weeks, together with its moderately high egg-laying capacity. This operator intends to go in for large scale production of broilers the year round. From this farm the breed is rapidly spreading, replacing the Leghorn which it is contended will not allow the operators to cater for the demand for poultry meat.

Flocks are replaced annually using young chickens. Chickens were formerly obtained day-old from the United States of America but within recent times this supply has been greatly curtailed. All the Large scale producers have incubators which are used to incubate eggs from flock-matings. The largest poultry farm has three incubators giving a total capacity of over 13000 eggs. It is the ambition of this operator to produce 3000 chickens a week. Breeding facilities are also available at this farm which hopes to sell chicks at all ages. The present price for chicks is 40 cents day old. A charge for brooding is made in the case of the older chicks. In addition to locally hatched chicks a small amount of better quality chicks are imported. No licences are granted for the importation of chicks costing less than 70 cents U.S.A. currency. Some farms sell hatching eggs at $2.40 per dozen. A few adult birds are sold largely by the smaller operators.

Management: Chickens are brooded under electric hovers each capable of holding 400 chickens. The hover is usually set on the floor of a compartment of the brooder house. Approximately 225 square feet are allowed for brooding a batch of 400 chicks. The floor is usually covered with a thick covering of litter, usually wood-shaving. Feed and water utensils are placed on sheets of newspaper spread on the litter. The newspaper is changed daily. In one instance a wire floor raised 2 ins. above the floor replaced the litter. The hover temperature was started at 95°F. on the 1st day and gradually
reduced to room temperature in 1 week after which the current is disconnected in the day. On the largest farm 1000 chicken battery brooders are used together with the floor brooders, the heat being regulated in the same manner as described above.

The chickens are allowed to remain four weeks upon the brooder house floors after which they are placed in range shelters which are built with wire sides and floors. In two cases the range shelters are placed under citrus trees under which the birds are allowed to run. In another case they are confined to the range shelters until they are 9 weeks old after which the door of the shelter is left open and the birds allowed on the range. The range, in this case is without any shade as it is thought that the provision of shade results in the congregation of the birds under the shade with the result that the surrounding ground gets rapidly contaminated. When no shade is provided the birds spend the greater part of their time in the houses where they deposit the greater part of the droppings. The droppings fall through the wire floors and pass out of reach of the birds and in this way contamination of the range is lessened to a considerable extent.

Cockerels are removed at 10 to 12 weeks. The pullets are allowed to run together until they are put into the laying houses at 20 to 21 weeks. While in the laying houses the birds are, on all the farms, left confined throughout the day. In one case the birds are allowed out on a limited range for one hour in the afternoon when conditions are not wet. In one farm breeders were allowed range throughout the day.

**Feeding:** On all the farms imported mashes are used. The most popular breed in use was Purina. It is contended that the amount of capital involved was high and in order to make a success of the business the production should be kept up to a constant high level throughout the year. The experience is that the imported feeds especially Purina, are so blended that production is easily maintained.
1d. Rearing house at Five Rivers' Farm.

2d. Rearing houses on San Diego Poultry Farm (from the hills to the South).
There is no variation in composition from period to period and once the supply of feed is kept adequate there is no trouble in keeping the production of the flock up to a satisfactory level.

Imported chicken starter is used in all cases from the day old stage to 6 weeks of age. Growing mash is then substituted. The majority of importers use imported growing mashes. One poultryman, however, used Grower prepared by the Marketing Depot of the Department of Agriculture. Growing mash is fed *ad lib* in most cases. On one farm however oats are fed along with the mash. Enough oats that will be cleaned up in 10 minutes are fed in the morning. At 10 a.m. enough growing mash that will be cleaned up in 10 minutes are fed on all days except on Saturdays and Wednesdays. An evening feed of enough oats that will be cleaned up in 5 minutes, is given. It is claimed by this operator that this method produces with Leghorns, a strong and hardy pullet which is not subject to eggbound or prolapse when it starts to lay.

Layers are fed in two ways. On one farm only mash is used. In the others laying mash and scratch grain are fed. In most of the farms the laying mash is left in hoppers before the birds at all periods of the day. The hoppers are only refilled when empty. In one farm, the same one as mentioned in the case of the growing birds, the feeding schedule is as follows:– Enough oats that will be cleaned up in 10 minutes are given in the morning. Laying mash is then placed before the birds from 10 a.m. to 4 p.m. Hen chow, a mixed scratch grain is fed in the afternoon. On all the farms no green food was fed to the layers despite the fact that they are shut in the whole day. Oyster shell grit is provided in all cases, both for layers and growing birds.

The drinking water supply on all the farms is good. Most of the poultry houses are provided with water vessels which are kept filled from the pipe lines either by float valves attached to the pipes or by having a continuous flow running through a small funnel.
All watering vessels are built with a surrounding collecting basin covered by an expanding metal cover upon which the birds stand. Excess water is collected in the basin and drains away. This ensures that the water supply was at all times clean and the area around the water fountains kept dry. The fountains used for chickens and growing birds were the type with the reservoir inverted in a circular trough.

**Litter.** Litter is used in all the laying houses. This was either saw dust or shavings. In all cases it is allowed to build up. Fresh litter is placed upon the old one when it appears soiled. In one instance slaked lime is added to the soiled litter before adding the new litter.

**Housing.** Elaborate housing was provided on all the farms. The design of all the buildings left much to be desired when it is considered that the birds are being raised in a tropical country rather than in a temperate one. Most of the buildings were too dark for local conditions. In one case the feed room was placed at the eastern end of the buildings, and as a result blocked the morning sun. This house had very wide overhanging roof which extended over sides which were walled for almost two thirds of their height. The laying houses on the largest farm is built of hollow clay blocks and is divided into 16 compartments each capable of holding 150 birds. The feed room had 8 compartments on either side of it. The floors of the laying houses are usually made of concrete and on ground level. On one farm the floor is wooden and is raised 3 feet above ground level.

In all cases dropping pits are provided. These dropping pits are 15 ins. high and 6 to 8 ft. wide. Roosts are placed above the dropping pits 2 ft. apart. Below the roosts 2 ins. by 1 in. wire netting is placed to prevent the birds from coming into contact with the accumulated droppings which can be removed by lifting the frame bearing the roosts and the wire. On the two largest farms there are overhead trolleyways leading from the feed room to the east of the houses. These trolleys can carry 600 lb. of feed.

The Growing houses
1.e. Laying house (in foreground) on San Diego Poultry Farm (from hills).

2.e. Interior view of laying house at San Diego Poultry Farm showing feeding troughs and trapnest.
The growing houses on all the farms are usually 12' x 10' buildings with wired sides and wired floors. In one instance the houses are raised upon a frame 3 feet off the ground. This lower frame is also surrounded by wire mesh to prevent birds coming in contact with the droppings.

**Feed-troughs.** The most common of feed-troughs is made of stout galvanized iron. It is 4 to 5' long and is raised on a platform approximately 12" off the ground. The platform has a roost on each side upon which the birds stand while feeding. All the troughs have a hinged wire grating which prevents the birds from getting into the food.

For the younger stock the most commonly used type of trough is the rectangular galvanized iron trough with a slide lid in which circular holes are bored to allow the chicks to reach the food. On one farm a cylindrical self feeder is used suspended in the growing houses. As the birds grow the feeder is raised to keep pace with growth. On this farm water fountains are also suspended off the ground in the growing houses.

**Nesting arrangements.** The standard open front nest is used on the majority of farms. In one farm however a tunnel nest is used. The tunnel nest is built on the dividing walls between pens. The bird enters a corridor 1 foot wide which separates the nest from the wall. The opening of the nest faces the wall. Eggs are collected by raising a flap on the back of the nest. On one farm where trapnesting is carried on the nests are fitted with special metal fronts.

**Poultry rearing season.** Chickens are purchased or incubated in the period between December and April. This period coincides with the dry season of the year when rearing conditions are at their best. Chickens reared at this time come into lay after the moulting season which takes place around September to October. In this way they are able to lay for almost a full year before moulting. Birds that come into lay in February and March moult in September and consequently have a shorter laying season. It is contended that
1f. Another view of interior of laying house.

2f. Interior of chicken rearing house showing wire floors and feeding trough for young birds.
fertility drops after April and rises up again in November and December and as a result it is not economical to incubate eggs during the period April to November.

In most cases no trapnesting is carried out. The birds are examined from time to time and non layers thrown out on external appearance. One farm maintains special breeding birds from which eggs are incubated. The others use eggs from the laying flock which has cocks running among the hens. In the case of the largest producer the birds are now being trapnested and it is proposed to select birds of superior performance for future breeding work.

**Diseases.** The disease most commonly encountered is Fowl Pox (Yaws). In the case of the large scale producers some control is achieved by vaccination. Another common ailment was roup. **Coccidiosis** is also prevalent but is controlled by the use of I.C.I. Sulphamezathine. The largest operator claims that on his scale of operations the use of Sulphamezathine solution is prohibitive in cost so he is making efforts to obtain Purina starter with an amount of Sulphaquinoxaline already incorporated. This mash is already being used in the United States of America as a prophylactic against Coccidiosis. Feeding this mash, it is claimed would be a much easier and cheaper form of control of the disease. Cases of Lymphomatosis were observed after post mortem examination on the largest farm. A few birds also were noticed to suffer from Paralysis. This operator culls at the time that the birds are placed in the laying houses, all birds which show 'greyeye' lesions. In this way it is claimed the number of deaths from both paralysis and lymphomatosis have been reduced.

All the flocks are wormed as a routine treatment. The best operator worms twice using Purina Check-tabs, but Phenovis will be used in future as the supply of Check-tabs is no longer available. One worming is carried out at 10 weeks and the other at 20 weeks just before the birds are placed in the laying houses.

/ Production Costs.
Production Costs.

Estimated annual cost per 100 birds

- Cost of birds: $650.00
- Feeding: $870.00
- Grit and medicine: $60.00
- Labour: $364.00
- Depreciation on buildings etc.: $60.00

Total: $2004.00

In the above table an attempt is made to estimate the cost of maintaining the laying flock during one year. The cost of birds includes the purchase price of the chickens and cost of raising the chicken to laying age. 10% depreciation is allowed upon buildings and equipment.

Such a flock would produce eggs valued at around $2200.00. The non layers culled are sold throughout the year, and additional income is derived from that source.

Marketing.

Some operators sell their eggs direct to individual purchasers in addition to sale through the groceries. The operator of the two largest farms are making provision for starting the sale of dressed poultry. This will be distributed in the same manner as the eggs.

FEED SUPPLIES.

The Marketing Division of the Department of Agriculture runs a depot at St. Joseph where balanced rations for livestock are prepared utilizing local foodstuffs wherever possible. It is estimated that 16000 lb. of layers' mash is produced during each month. This mash is retailed at 6¢ per lb. from all the Government Produce Depots and is sold direct from the mixing Depot to the sugar estates.

Formula of the layers' mash is as follows:

- Rice Bran
Rice Bran 20%  
Wheat Bran 14%  
Corn 25%  
Fish Meal 10%  
Rice Sweepings 15%  
Oats 8%  
Bone Meal 2%  
Salt 1%  
Powdered Whole Milk 3%  
Bone Meal 2%

The analysis of this ration is: Moisture 11.52%; Dry matter 88.48%; Ash 11.06%; Crude Protein 18.09%; Crude fibre 5.86%; Ether Extract 7.22%; Nitrogen Free Extract 46.25%; Calcium 3.10% and Phosphorus 0.69%.

A Growing mash is also prepared for sale in Tobago and to a few large scale farmers. The sale price is $7.20 per 100 lb.:

The formula is:

Rice Bran 17%  
Crushed Corn 33%  
Flour 10%  
Crushed Oats 7%  
Milk Powder 7%  
Fish Meal 7%  
Cotton Seed Meal 7%  
Coconut Meal 7%  
Limestone 2%  
Bone Meal 1%  
Salt 1%  
Shark Oil 1%  

The analysis is as follows:

Moisture 12.43%; Dry Matter 87.37%; Ash 7.86%; Crude Protein 16.50%; Ether Extract 6.26%; Crude fibre 4.82%; Nitrogen Free Extract 51.93%; Calcium 3.15%; Phosphorus 0.62%.

/ Starter.
Starter. No locally blended starter was prepared by the Depot.

A Scratch Grain is blended and marketed at $7.74 per 100 lb. The composition of the mixture is:

- Corn .................. 40%
- Oats ................... 25%
- Rice Sweepings ......... 10%
- Wheat ................... 25%

Despite the fact that these rations are produced by the Department of Agriculture it is interesting to note that among the peasants in the St. Augustine area there is little knowledge of their existence. Among the backyarders there is a distinct reluctance to use the locally blended Mashes as it is contended that the composition varied so often that it is impossible to maintain their birds in such a way that they give their best performance. This view was also shared by the large producers who contend that in addition to the variability in the composition of the meal there are often shortages. As they must have a regular supply of standard feed to make their business a success the locally blended mashes are unsuitable for them at least at the present time.

There is also a small company mixing livestock rations using formulae similar to those of the Marketing Depot. Another company is about to start production in this field.

A study of the formulae used by the Marketing Depot reveals that the following ingredients are used:

1. Rice Sweepings
2. Rice Bran
3. Corn
4. Wheat
5. Wheat Bran
6. Wheat Flour
7. Oats
8. Fish meal
9. Bone Meal
10. Coconut Meal
10. Coconut Meal
11. Cotton Seed Meal
12. Milk Powder
13. Limestone
14. Salt
15. Shark Oil

The rice and rice byproducts are largely imported from British Guiana. A limited quantity of rice dust, a byproduct of milling, is bought from local mills. This rice dust varies in composition with the efficiency of the mill and the skill of the operator and is composed of husk, the bran and small quantities of broken rice. At the Depot the dust is placed upon a machine, which consists of a series of vibrating screens, where the husks are separated from the bran and the brewers' rice. The rice husks are discarded. The recovery of usable material is said to be around 30%. The cost of the rice-bran-brewers' rice mixture prepared in this way is 3.5$ per lb. The local rice plantings are inadequate to supply more than a fraction of the local demand for rice. There is however scope for expansion and at the present time a study is being made of that problem.

Corn is grown in Trinidad. The local annual crop is estimated to be in the vicinity of 3 million lbs. This grain is used for feeding all classes of stock and is insufficient to satisfy the local demand which has to be augmented by corn imported from Argentine, Venezuela and British Honduras. Only yellow corn is grown locally but both yellow and white corn are imported. The Marketing Depot has facilities for bulk storage of large quantities of corn which before storage is passed through rotary hot air driers where the moisture content is reduced to around 10%. After drying the grain is stored in large iron bins. At the time that the corn is being stored it is fumigated using Cyanogas. In this way, corn has been stored for over two years without loss. The corn imported by the Marketing Depot is the one usually stored to be used as a reserve.
reserve. The local crop which has a moisture content of much over 10% is used as soon as it is purchased in order to economise on the cost of drying and fumigation.

Wheat and wheat offal are imported from wheat producing areas chiefly Australia. A company has recently been established which will mill wheaten flour in Trinidad. This should be the source of a fairly adequate supply of milling offal.

The supply of oats comes from Australia and Canada.

A small quantity of fishmeal is prepared locally but the greater part is imported.

Coconut meal is locally produced but is used by all classes of livestock. The production from the two mills, at the present time, is incapable of satisfying the total demands for coconut meal.

Cotton Seed meal is imported as are also milk powder and bone meal.

Ground limestone is prepared locally. The salt is imported as crude rock salt and a certain amount of it locally ground.

Shark oil is locally prepared and is claimed to be of high vitamin potency.

Almost all the ingredients used by the Depot in composing its feeds are imported. In addition the home grown feeds are short in supply and are inadequate to supply present demands.

Proprietary feeds. Ready mixed feeds are imported chiefly from the Canadian subsidiaries of two large North American feed companies:- Ralston Purina and Quaker Oats Company. The annual imports of feed are limited as a consequence of the general policy for the conservation of hard currency. Annual Quotas are issued to feed importers, the Poultry Association and to a few poultrymen.

The following table shows the amount and value of feeds imported during the years 1946 to 1949.
Poultry mashes imported 1946 to 1949.

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1946</td>
<td>502½ tons</td>
<td>$150,918.00</td>
</tr>
<tr>
<td>1947</td>
<td>1948 tons</td>
<td>$278,959.00</td>
</tr>
<tr>
<td>1948</td>
<td>1859 tons</td>
<td>$253,290.00</td>
</tr>
<tr>
<td>1949</td>
<td>2721 tons</td>
<td>$271,190.00</td>
</tr>
</tbody>
</table>

The principal poultry feeds imported are (1) Chicken starter, (2) Growing mashes, (3) two types of Laying mashes — (a) an all mash for use without grain and (b) a high protein mash for use with grains. (4) Scratch grains, (5) Broiler chows and (4) small quantities of turkey feeds.

The prices varied with each shipment but was in the vicinity of $9.50 per bag of 100 lb. for Laying mash and $10.25 for a similar bag of Starting mash. Appendix II is a list of quotations C.I.F. Port of Spain for shipments around the beginning of 1950.

MARKETING.

There is good demand at all seasons of the year for poultry and eggs. The control price varied from $1.08 per dozen eggs in October 1949 to $1.32 per dozen in March 1950. Prior to December the price was $1.08 per dozen but representations were made to the Control Board by the egg producers and as a result the price was raised to $1.32. Large quantities of refrigerated eggs are imported which were sold at various prices from as high as $1.44 per dozen during December to as low as 88¢ per dozen during March. There is a preference shown by the local consumer for a freshly laid egg with the result that when locally produced eggs are available they are readily purchased even at a higher price than that of the frozen egg. Towards the end of April a fairly large supply of locally produced eggs was available with the result that it was possible to purchase eggs from the hucksters for as low as 96¢ per dozen, 36¢ below the present controlled price. The larger egg producers have not reduced their prices.
The demand for poultry meat is chiefly supplied by hucksters who sell unimproved birds in varying stages of fatness at the local markets. Frozen poultry is also sold by the grocers. The two largest poultry keepers are making efforts to supply part of this demand but are not yet important producers. There is a preference among purchasers for cocks which are said to be better fleshed than the hens. The price of poultry varied from 84¢ per lb. in October to 72¢ per lb. in May. During the Christmas season the price went up as high as $1.00 per lb. liveweight.

**GOVERNMENT AID TO THE POULTRY INDUSTRY.**

There has been severe limitation upon the importation of poultry equipment and feed from hard currency areas. Within recent times supplies have been imported from the United Kingdom at much greater cost than the American articles. Representations were made to the Government for some form of relief, and have resulted in the exemption of all poultry equipment and supplies from import duties.

**TRINIDAD POULTRY ASSOCIATION (1944).**

There is a very active Poultry Association which was established in 1944 with the following objects:

1. To encourage and maintain interest in the rearing and breeding of poultry in the colony.

2. To assist in the dissemination of knowledge of every feature of poultry life. Information is provided by the circulation of literature on poultry.

3. To assist in the importation of high-grade breeding stock and procuring supplies of poultry feeds and appliances.

The Association has been able to obtain an import quota for feed which enables its members to obtain regular supplies of feed from hard currency areas.

An annual show is run by the Association. The programme includes classes for Improved birds from the English, American and Mediterranean breeds along with classes for the bare neck bird, and for birds of mixed origin - Turkeys, Ducks and Pigeons are also shown.
shown. Challenge trophies are offered for (1) the best Rhode Island Red bird; (2) the best trio of Rhode Island Reds; (3) the best Barred Plymouth Rock Cock; (4) the best White Leghorn cock; (5) the best White Leghorn and (6) the member securing the highest aggregate number of points. This year the Show was well attended by the public and the standard of the exhibits was high. In addition to the exhibits there were demonstrations by the Department of Agriculture and by the Imperial College of Tropical Agriculture. Two large scale poultry farms ran stalls, one demonstrating mechanical plucking.

**INVESTIGATIONAL AND ADVISORY WORK.**

The Trinidad Department of Agriculture maintains at the Government Stock Farm at Valsayn, small flocks of Rhode Island Reds, Barred Plymouth Rocks and Leghorns. A number of breeds have been tried but these have been proved to be the most successful. The Rhode Island Red has been found to be the best doer of the three, being the easiest to rear and does not give a much inferior egg yield than the Leghorn. It also has the advantage over the Leghorn in that it is a bigger bird and consequently yields a more useful carcase after its value as an egg producer is gone. The Barred Plymouth Rock is also a fairly heavy bird but does not do as well as the Rhode Island Red under local conditions. The Leghorns lay well but have been found to be delicate. No New Hampshires are kept.

The aim of the Department is to produce purebred cocks for distribution to peasants. Hatching eggs and a limited number of chickens are sold. A small number of selected adult birds are sold at auction at the Annual sale.

All birds are trapnested and the flocks culled on their production. The policy is to produce a bird that would give uniform and persistent production throughout the year and which is also quite vigorous. It has been found necessary to import new blood
1c. Poultry at Government Stock Farm, Valsayn.

2c. Poultry house at I.C.T.A.
new blood periodically into the flock of purebred birds as without such importation the utility of the birds decreases.

The longest period over which flocks could be kept without the introduction of new blood is, under Stock Farm conditions, the 4th generation.

12 hens and a cock were run in small enclosures approximately 50' square with a house in the centre. The house was very simple in design, had a concrete floor, wire meshed sides and a galvanized iron roof. A few citrus trees are planted in each run. The runs are not rotated but are given a heavy dressing of lime annually.

Chickens are hatched during the early months of the year in two 100-egg electric incubators and reared in cages off the ground. All chickens are fed upon imported starter. No locally blended starter is used. A locally blended growing mash of composition similar to that prepared by the Marketing Division is used along with a similarly blended laying mash.

The chief disease encountered is Fowl Pox (Yaws). No vaccination is done at the Government Stock Farm. It is believed that the virus is transmitted by mosquito and for this reason all rearing cages are surrounded with mosquito-proof wire. Coccidiosis is a minor ailment during the rearing season. Mites and ticks are common.

Two types of Ducks are kept - the brown and white Muscovy and the Khaki Campbell. No special attention is being given to the ducks which wander around the poultry section of the Farm. The Muscovys are reported to do well while the Khaki Campbell is said to be a good layers but most of the eggs are infertile.

The Department of Agriculture maintains at its district demonstration station at El Reposo, small flocks of purebred poultry - Leghorns and Rhode Islands, which produce purebred hatching eggs for sale to the public. At the Land Settlement at La Pastora the demonstration holding
demonstration holding possess a flock of creole hens which are being mated with a purebred Leghorn Cock.

It is a practice of the Department to foster the use of purebred cocks by the exchange of common bred birds for a purebred cock. This, it is reported, has resulted in some improvement in many areas. The present aim is to stimulate the interest in grading up by making more cocks available to peasants each year.

**Imperial College of Tropical Agriculture.**

Since 1945 a flock of Rhode Island Reds has been established by the Imperial College of Tropical Agriculture. Day-old chickens were imported from the United States of America in April. In December of the same year pedigree cocks were imported from the United States of America. This flock was established to aid in instruction in Poultry Husbandry as well as research in the problems of nutrition and management. From an early stage it was decided to raise the flock utilizing local feedingstuffs as far as possible.

The Flock was trapnested and recorded. Drastic culling of all birds not producing efficiently, was carried out from early during the first laying year. Birds failing to produce 200 eggs were removed at the end of the first year.

Asem (1) examined the flock records up to June 1947 and made a study of the performance of the foundation stock as well as of the succeeding generations as regards maturity, egg production, body weight and egg colour.

The foundation stock started to lay between October and December 1945, consequently at June 1947 there were records of production for the 1st year and part of the second year of production. There were records for an unfinished year of production of the 1st generation and the start of production of the second generation. From the data it was demonstrated that the egg production deteriorated with each generation. The egg production was smaller in the
1st generation than in the foundation stock. The second generation showed a further fall in production. This evidence confirms the general belief that there is a gradual deterioration in egg production from generation to generation among Improved birds raised locally.

Following upon the lines of Asem's analysis a study of the egg production of both the foundation and the 2nd generation was made. 23 birds of the foundation stock remained at the end of the first laying year with an average production of 238.8 eggs; of these birds 6 remained at the end of the second year, the others after producing an average of 57.3 eggs in the second year, either died or were sold as non layers. 9 birds of the 2nd generation completed the first
laying year with an average production of 183.3 eggs; of these only 1 survived at the end of the 22nd month of lay, the other having died or were disposed of as non layers having produced an average of 63 eggs for the 10 months of the second year. From the performances of both sets of birds can be noticed that the average purebred hen has an active production life of only one year. Only exceptional members of both sets of birds showed any marked performance above average during the second year.

Average Monthly Egg Production over 2 year period.

This decline in egg production during the second year is of importance as it is usually from the second year hens that the breeding flock is selected. Judging from the indications shown, very few eggs will be produced by second year hens. It might be necessary
necessary under local conditions to establish some standard of selection whereby the value of the hen would be estimated at an earlier age than one year so as to enable a fairly large supply of hatching eggs to be collected before the hen's production starts to decline. This will only be a temporary expedient as selection would have to be carried out to eventually evolve a bird with a longer active laying life than one year.

All the mashes used for feeding poultry are blended at the College. The following are the formulae of two mashes now in use.

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<tr>
<th>Starter</th>
<th>Laying mash</th>
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<tr>
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<tr>
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<td>75 lb.</td>
</tr>
<tr>
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<td>Wheat Bran</td>
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<tr>
<td>Ground Oats</td>
<td>Rice Bran</td>
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<tr>
<td>10 lb.</td>
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</tr>
<tr>
<td>Rice Bran</td>
<td>Fish Meal</td>
</tr>
<tr>
<td>10 lb.</td>
<td>10 lb.</td>
</tr>
<tr>
<td>Linseed Meal</td>
<td>Ground Limestone</td>
</tr>
<tr>
<td>5 lb.</td>
<td>5 lb.</td>
</tr>
<tr>
<td>Pollards</td>
<td>Salt</td>
</tr>
<tr>
<td>5 lb.</td>
<td>1 lb.</td>
</tr>
<tr>
<td>Limestone</td>
<td>Cod Liver oil</td>
</tr>
<tr>
<td>2 lb.</td>
<td>...... 1 pint</td>
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</table>

Chickens are raised upon the above feeds and the layers apparently do well upon the laying mash. There is however a tendency for a number of birds to deposit large quantities of fat in the abdominal regions.

Ducks. A flock of Khaki Campbell ducks is maintained by the College. These birds are very good layers; individual birds laying as many as 29 - 30 eggs per month. The birds are raised on grass runs with simple shelters. No water other than drinking water is provided for them. The eggs are collected daily. It has been found that to obtain the best results it is not desirable to store eggs longer than 5 days before incubation. Ducklings are reared on a wooden platform under a hover at 9.5°F. After 10 days the heat is on only at nights. After 15 days the birds are put out in the open.

The young ducklings
The young ducklings are fed chicken starter which is moistened with goats' milk. Ducks grower is fed after 6 weeks:

**I.C.T.A. Duck Grower.**

- Maize 50 lb.
- Ground Oats 10 lb.
- Wheat Bran 10 lb.
- Fish Meal 10 lb.
- Coconut Meal 15 lb.
- Limestone 3 lb.
- Salt 2 lb.
- Cod liver oil .......... 1 pint

At 12 weeks the Drakes weigh around 57 ozs. and at 16 weeks 61½ ozs. Ducks at 12 weeks weigh 54½ ozs and at 16 weeks 58½ ozs.

All adult ducks are fed the following laying mash:

**Laying Mash.**

- Maize 75 lb.
- Wheat germ 8 lb.
- Rice bran 10 lb.
- Fish Meal 10 lb.
- Ground Limestone 5 lb.
- Salt 1 lb.

No work is done with Turkeys at the College.

**DISCUSSION OF FINDINGS.**

There are three classes of Poultry-keepers in North Trinidad.

(a) The peasant who keeps the unimproved bird usually paying little or no attention to housing, feeding and management.

(b) The backyadder who keeps improved birds under better conditions of management and feeding.

(c) A number of large scale producers who rear large numbers of birds using modern equipment and imported proprietary feeds.
The type of bird kept by the peasant is poor both in body size and egglaying capacity but it is a vigorous forager and is well adapted to the conditions under which it is raised. The large scale producer and the greater number of backyarders keep Improved breeds which require better systems of management. Leghorns, Rhode Island Reds, Barred Plymouth Rocks and New Hampshires are the predominating breeds. The Improved bird suffers a marked deterioration in the economic characters with every local born generation. It is generally regarded that it is uneconomic to maintain the strains longer than the 4th local generation and it is the practice to keep the flocks up to the desired level by frequent importations of breeding stock. The Improved birds also have the tendency to have an active productive life of only one year after which the level of egg production falls to a very marked extent. Similar information with regard to body size is not available. The behaviour of the Improved bird makes it necessary at the present time to have almost complete renewal of the flock each year. For the poultry industry to develop the birds must be good producers and must have a long enough production life to compensate for the high cost of renewals.

Feed is a limiting factor to poultry rearing in Trinidad. Peasant Poultry get little food other than what they pick up while foraging chiefly due to the fact that local grains are not available. Proprietary mashes are imported from hard currency areas and consequently the general policy for the conservation of dollars restricts the imports considerably. Attempts have been made to produce balanced mashes using ingredients easily procured on the local market. The composition of the local mashes is very variable due to inadequate and irregular supply of the ingredients. Almost all of the necessary proteins have to be imported as there are little or no locally produced protein concentrates available. In fact at the present time more than 70 per cent. of the ingredients used in the preparation of
preparation of locally blended mashes are derived from sources outside of Trinidad. Locally compounded mashes do not find favour with poultry keepers but are used with promising results by both the Department of Agriculture and the Imperial College of Tropical Agriculture.

Housing provided for poultry varies from elaborate colony houses to the shade of trees. The peasant rarely provides any shelter for his birds while the backyarder and the large scale producer builds houses and shelters based upon designs found in American poultry literature and which in some instances are unsuitable for local conditions.

American poultry literature has a marked influence upon the system of management used both by large scale producers and backyarders. Many practices are carried out which are not especially suited to tropical conditions. It is common practice on all the large farms to confine their layers even where it is possible to arrange range for them. The backyarders on the whole tended to rear too many birds in the limited space available.

Little knowledge as to the true extent and nature of the disease problem is available. The most common disease is Fowl Pox (Yaws) which attacks young chickens rather than old birds. Some attempt was made at control by vaccination with Fowl pox vaccine from U.S.A. sources.

The poultry work of the Department of Agriculture has lagged far behind the level of the backyarder and of the large scale producer. Not much work appears to have been done with the peasant whose standard of poultry husbandry is very low. Every effort should be made by the Department of Agriculture to overcome the existing limitations and so develop poultry rearing to the point where the constant demand for poultry products would be supplied.

PART IV.
PART IV. Suggestions for Investigations.

In order to foster the development of poultry rearing in the Colony it will be necessary to carry out investigations on the following lines:

(a) Improvement of the type of the peasant bird and the development of strains of Improved birds to suit local environmental conditions.

(b) The development of feedstuffs of ample quality and quantity to satisfy the needs of the poultry industry.

(c) The development of housing suitable to local environmental conditions.

(d) The development of economically sound systems of management.

(e) The control of the local diseases and parasites of Poultry.

(a) Improvement of the type of bird.

(i) Local birds:— Selections should be made among the peasant type fowls preferably the bare-necked to select birds of superior performance both in growth, vigour and egg-laying capacity. This would be a long term investigation from which progress would be slow. One advantage is that the local bird already possesses a certain degree of natural resistance to most of the poultry diseases encountered locally.

(ii) A study should be made on the effect of the use of purebred cocks upon peasant flocks. An attempt should be made to discover the highest grade that would be successfully raised under peasant systems of management. It should be the final aim to develop from such crossbred birds a bird incorporating the desirable economic characters of the Improved birds with the vigour of the peasant bird.

(ii) Purebred birds:—
(iii) Purebred birds: Flocks should be established in which selection would be carried out for economic characters, for resistance to disease and tolerance to the local climatic conditions. It has been seen from a study of the records of the I.C.T.A. flock that there is deterioration in productive capacity with each succeeding local born generation and also that there is a sharp drop in egglaying production after the end of the first year. Selection should be made having these problems in mind as they must be solved if the development of a large scale poultry industry based upon the local production of first quality chicks is to be established.

(b) The development of feedstuffs.

(i) Investigations should be carried out to produce balanced feeds using common local ingredients. These local feeds would be chiefly used by the peasant who should be encouraged to feed a balanced ration. Williams states that a good common fowl when fed balanced rations produces 164 eggs per annum as compared with the estimated average of 60 produced by peasant type birds. Attempts should be made to produce this ration in such a way that it would be available to the peasant throughout the year.

(ii) Trials should be undertaken to determine the usefulness, as poultry feedingstuffs, of wooly pyrol and other similar legumes which are rather easily grown.

(iii) A study should be made of the basic feed requirements of poultry under local conditions. The fact that the Improved bird deposits large quantities of fat in the abdominal regions leads one to believe that there is need for a more exact knowledge of the carbohydrate requirements of poultry in this region.

(iv) Detailed analysis of all available feedingstuffs should be made. These should include vitamin and bio-analyses which have not yet been undertaken. This information
information would lead to the composition of rations approaching the Imported mashes in efficiency.

(v) Sources of protein concentrates of animal proteins should be sought. Investigations should be carried out to develop the processing of slaughter house wastes and unsaleable fish to produce protein supplements.

(vi) A survey of the sources of feedingstuff necessary for the local blending of balanced ration should be made. Attempts should be made to regulate the supply of these ingredients so that the composition of the various mashes do not vary much.

(vii) Investigation should be carried out to study the use of surplus vegetables—cassava, yams etc.—to replace grain in poultry feeding. Hand in hand with this should be the development of a concentrate protein mineral and vitamin supplement to be used along with the vegetables.

(c) Improvement of housing and equipment.

There is room for a great deal of improvement in poultry housing in Trinidad. Simple structures should be devised to house poultry belonging to the peasant or the backyarde. Attempts should be made to develop houses for use on the large scale farms which would specially suit the local climatic conditions. Simple brooders and poultry equipment should be devised for manufacture locally.

(d) Management.

From the cost of production given by the large scale producers it would appear that poultry keeping as far as this country is concerned is not a very profitable undertaking. Profit seems to depend upon the sale price of the carcase of the birds after culling. This situation may possibly be due to faulty management. Studies should be undertaken to develop systems of management suitable to all classes of poultrymen.

/ From these studies
From these studies would evolve a system or system of management which would be suited to local conditions and would replace the present systems which on casual observation appear to have a great many faults.

(e) Control of Disease.

The loss suffered by all sections of the poultry industry due to disease and pests is considerable. A study should be made of this problem with a view to obtaining the exact nature and value of such loss. Simple and economic means of disease control should then be developed.

At the present time a large number of patent poultry medicines and tonics are widely used chiefly by the smallholder. It would be of some value to investigate the relative merits of these items so that a true picture of their usefulness could be obtained.

The production of Fowl-Pox vaccine should be developed.

PART V. Summary and Conclusion

Poultry keeping is widespread among the peasant population of the St. Augustine area and could easily be expanded to form an integral part of any farming system designed to fill the needs of the area. Poultry is said to be the first choice of the peasant as a livestock investment. It being a small unit which can be purchased without the outlay of much capital. Poultry has the additional advantage in that it can produce returns in the form of eggs without being killed. The labour of members of the peasant family—women and small children, normally lost on the holding, could be gainfully utilized by keeping a small flock on the holding. The standard of peasant knowledge of the management and housing of poultry is low and there is every need for inclusion of a direct program in the extension work to stimulate interest and encourage the improvement of peasant poultry husbandry.

An attempt has been made in this survey to show the factors controlling poultry keeping in North Trinidad. As far as the peasant is concerned
peasant is concerned the major factor limiting the number of birds kept is feed. Little or no feed is given to the birds which exist by foraging. The number of poultry kept is dependent upon the supply of grain which is inadequate to supply the demands of both of the livestock and human populations. It has been suggested that investigations be made to investigate the value of easily grown beans etc. as poultry foods and also the development of use of surplus vegetables as a substitute for grain together with the development of any necessary supplements for addition to the vegetables.

Housing and fencing among peasant poultry rearers is almost non existent. The lack of fences results in the limitation of the number of birds kept especially near the rice areas. The development of simple housing and yarding systems would remedy this situation. The bird kept by the peasant is a low producer. It has been suggested that attempts be made to improve the poultry population by (1) selection, (2) by grading using Improved cocks leading to the development of a bird incorporating the best features of both the Improved and the peasant type bird, and (3) by the development of strains of Improved birds selected to suit the local environmental conditions. With the peasant it might be discovered that his system of management is not good enough at the present time to suit a bird too highly graded to the Improved bird. In this event grade cocks which would be vigorous could be used in the first years, being replaced by purebred birds when the management has been improved.

The numbers of poultry kept by the smallholder and large scale producer is limited by the supply of imported proprietary mashers and feeds which come from hard currency areas. The supply of locally blended mashers is not constant, varying in quantity and quality from time to time. The supply of locally produced ingredients is limited and as a result large amounts of feedingstuffs are imported. For the development of a well established poultry industry it would be necessary to have a regular supply of standardised feeds.
It has been suggested that investigation be undertaken to develop such a standardized feed, together with the development of regular and adequate supplies of the essential ingredients. The supply of protein concentrates is limited and it is recommended that investigations be undertaken to develop local supplies of protein concentrates.

It is recommended that local strains of Improved breed be developed having in mind both the deterioration from generation to generation and the fall in egg-producing capacity after the pullet year. These two problems are of immense importance and would be a serious limitation to the expansion of the poultry industry as it would be necessary to have annual replacements of stock using large numbers of imported chicks. This would be costly and possibly uneconomic.

The systems of management practised both by backyarders and small scale farmers appears on casual observation to be faulty and could be improved. Recommendations are made to develop systems of management and housing which would be economically sound and well suited to local conditions.

The extent of the true importance of the disease problem is unknown. Fowl pox is the most common disease. It is recommended that the whole problem be studied and the necessary controls be evolved. The local production of Fowl Pox vaccine is recommended. It is further suggested that studies be made to determine the utility of the large number of tonics widely used by local poultry keepers.

There is a constant market for poultry products and eggs. This is supplied to a large extent by poultry products imported mainly from the United States of America and Canada. During the visits to the large producers the feeling was always expressed that a large allocation of hard currency should be released to them for purchase of equipment and feeds which they contend is more easily obtained in hard currency areas than elsewhere. In this way it is claimed the present necessity to import large quantities of poultry products from hard currency areas would be avoided. There is a Select Committee studying this problem at the present time.

/ To conclude
To conclude it must be stated that should the present limiting factors be overcome a thriving minor industry could be developed, and further it would also be possible with some degree of effort and education to encourage the peasant population to undertake poultry keeping as a profitable sideline which would provide increase both in income and available food supply.

ACKNOWLEDGMENTS.

The writer wishes to express his thanks to Mr. G.W. Humphrey Webb, Senior Lecturer in Animal Husbandry for his help and direction throughout the course of the survey. He also wishes to thank Mr. E.H. Achong, of the Animal Husbandry division of the College, Department of Agriculture, for his help on many occasions. Thanks are also expressed to the Officers of the Trinidad Department of Agriculture, especially to Mr. P. Dominique of the Government Stock Farm, for their assistance from time to time. He also thanks Mr. C. Arneaud, officer in charge of the Statistical Branch of the Trinidad Customs Department for his assistance in allowing him to examine the available statistics. The writer further wishes to express his sincere thanks to Mr. W.O. Constantine, Secretary of the Trinidad Poultry Association, through whose efforts it was possible to visit a number of poultrymen who were members of the Association. Last but not least thanks must be expressed to all the many poultry keepers interviewed for their help which in many instances meant loss of several hours of work.

REFERENCES.

2. Census Report of the Colony of Trinidad and Tobago, 1946.
## Imports of Poultry Products into Trinidad and Tobago 1946 - 1949

### Eggs in shell

(Great hundred) = 120.

<table>
<thead>
<tr>
<th></th>
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Total: 9512 $57,916

### Eggs not in shell:

Dried eggs etc.

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Total: 265½ $13,936

### Live Poultry.

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Total: 10054 $10,516

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Total: 2521½ $139,627

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The values are in pounds sterling (£) and the quantities are in thousands (k).
Appendix II.

Poultry Population of Trinidad (1946)

Fowls above 4 months .................. 619,662
Ducks .................................. 29,451
Geese .................................. 439
Turkeys ................................ 2,784
Guinea fowls ............................ 491
Pigeons ................................ 14,860
Others .................................. 2,120

Quotation for Poultry Feeds (Feb. 1950)

Ralston Purina Co., Montreal.

Prices per ton C.I.F. Port of Spain.

Startena ............................... $120.95 (Canadian)
Growena ............................... 113.45  "
Layena ................................. 112.45  "
Lay Chow ............................... 116.95  "
Hen Chow ............................... 102.95  "
Broiler Chow .......................... 118.95  "
Turkey Startena ....................... 132.95  "
Turkey Growena ....................... 118.95  "
Turkey Layena ......................... 115.95  "
Turkey Breedena ...................... 124.95  "

These prices are for lots of 500 bags or more.