

## ORIGINAL ARTICLES

# Furthering the Supply and Consumption of Livestock Produce in Ceylon

(A Review of the Present Position and of Plans for the Future)

BY

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**T**HE present and future importance of livestock to the economy of Ceylon is not always fully appreciated. While the use of modern machinery will undoubtedly play an increasingly important part in the reclamation and development of lands for cultivation and, under favourable circumstances for tractor operation, in intensifying production from lands already cultivated it is clear that unless there is a radical change in the system of land tenure, cattle, and in particular buffaloes, are likely to continue for many years to come to be the main source of power available to the local cultivator. The advent of a modern road system and the motor truck has undoubtedly reduced the need for the use of oxen for long distance road haulage but even so the use of draught cattle for short distance haulage, especially on low country coconut estates, seems unlikely to further diminish in the foreseeable future.

The development of intensive livestock husbandry to provide a source of animal products for human food in Ceylon has, for a number of reasons, remained secondary to the use of livestock for draught purposes. It is now evident that well organised efforts will have to be made to improve the position in order to meet, by an increase in the local production of crop and livestock produce, both the need for an improvement in the present diet in Ceylon and the steadily mounting requirements of a rapidly increasing population much of which at present has to be met by importation.

As regards improving the diet the very high incidence of human tuberculosis, which mars an otherwise fairly good health record, demonstrates the need of a higher plane of nutrition through an increased consumption of food-stuffs, especially those supplying proteins of high biologic value, by a large proportion of the population.

The need for an increased consumption of proteins locally can be clearly shown by making a comparison with other countries. It has been calculated that in Ceylon the average daily protein intake per capita is 43·2 grams of which only 10·6 grams are of animal origin. By the same method of computation Burma, also a predominantly Buddhist country, is shown to have

a total protein intake of 66·5 grams per person of which 27·7 grams are of animal origin. In Denmark, a country in which the population may be regarded as having an optimum nutrition level the total protein intake and the proportion of it of animal origin is some  $2\frac{1}{2}$  and  $5\frac{1}{2}$  times respectively than in Ceylon.

The recent drop in the value of estate crops, which form some 95 per cent. of the total exports and from which Government derives some 60 per cent. of its revenue, coupled with the necessity of subsidising imported foodstuffs has focussed attention on the urgency of increasing, by all possible means, the local production of cereal and secondary crops such as onions and chillies, which figure prominently in the local diet. This has tended to some extent to mask the need for the increased consumption of animal produce and the seriousness of the position as regards the future availability of livestock produce from overseas sources.

The bulk of the country's milk requirements which have been greatly increased of late years by the establishment of Milk Feeding Centres, is at present of imported origin and for the most part consists of powdered skim milk from Australasia, obtained as a by-product of the butter industry. International statistics show that butter is being gradually replaced in the diet of the Western world by substitutes of vegetable origin and that the milk formerly used for butter manufacture is being increasingly utilised for direct liquid consumption in the country of origin or for manufacturing products, having a higher sale value, such as whole milk powder. This indicates that Ceylon should not rely on obtaining large quantities of skim milk powder, at its present relatively low price, for any considerable period of time ahead.

The supply position as regards eggs is of concern in-so-far as, with decreasing availability and increased value on the world's markets, imports into Ceylon during recent years have very markedly increased. Despite efforts to increase local production, egg imports in 1951 rose by some 50 per cent. over those in the previous year and reached the record high figure of 24,000,000. Imports for the first six months of 1952 are estimated to be over 15,000,000. As from November 1, 1952, imported eggs must be stamped as such.

Mention also must be made of the supply position as regards meats. The import of cattle into Ceylon for slaughter has been prohibited for some time chiefly as a safeguard against the re-introduction of rinderpest. Periodic outbreaks of this disease have, in the past, caused serious livestock mortality and it is obviously desirable that the present embargo on imports of cattle be continued. Although the present local demand for beef cannot by Western standards be regarded as very great there are indications that it may be sufficient to cause a serious drain on the present and potential supplies of draught animals especially buffalo, many thousands of which are now required annually for Settlement Schemes.

The present supply of locally-reared goats is insufficient to meet the country's needs especially those of the Moslem population, and imports of goats from India are at present taking place at the rate of from 6,000 to 8,000

per month. In view of the availability of suitable goat food locally, especially in the drier zones of the Island, and the desirability of stopping imports of live goats from the disease aspect, it is obviously advisable for Ceylon to endeavour to become self-sufficient in goat flesh at as early a date as possible.

### NEED FOR LONG-TERM PLANNING

In the past the need for increasing livestock productivity in Ceylon, especially of milk, has received the attention of a number of committees, local technicians and of visiting experts. Their conclusions have been recorded in a number of reports (1) (2) (3) (4) (5) (6) (7) which for the most part indicate the major shortcomings of the policies which have been pursued from time to time, stress what seemed desirable and in some instances made specific recommendations for action especially as regards the development of the State-operated livestock farms. Probably the most valuable of the more recent reports is that of Wright (6) made following his visit to Ceylon in 1945. This report, as stated in its preface, was primarily intended to furnish a basis for the long-term development of cattle breeding and milk production in the Island. The report stressed that in the past the attempts at livestock improvement, especially by the introduction of exotic breeds, failed to take sufficient cognisance of the environmental conditions under which improved livestock would have to be kept and of the need for a long-term and systematic approach to the many associated problems, especially that of providing suitable fodders for high yielding stock. The report mentions the paucity of reliable information on which to base future activities.

It was with this background in mind and with the prospects of obtaining overseas technical and financial aid from organisations, such as the Food and Agriculture Organisation of the United Nations, and the Colombo Plan, that the staff of the Department of Agriculture recently prepared a plan for the long-term development of the local livestock industry which has been submitted to Government as a basis for future livestock activities. This plan is in accord with the recommendations (8) of the International Bank Mission which visited Ceylon in 1951. The advice of the Mission "to remedy the present backward state of animal husbandry" is a "very long-term policy covering say 25 years"; "a survey of existing livestock population and potential and the paying of special attention to the breeding of cattle and the development of milk supply".

The Department's long-term plan re states and elaborates previously accepted policy aims in the light of existing circumstances, and provides for their periodic review during the period of 24 years covered by the plan. Its implementation programme makes provision for the continuity of the present activities of the Livestock Division of the Department with any modifications found necessary as a result of a survey of present animal husbandry status. It sets out the sequence of action it has planned to achieve in four periods, each covering six years which will coincide with the periods chosen by Government for its general development programmes. The programmes for the periods

subsequent to the first are in outline and will be revised and elaborated in the light of progress achieved and any modification of general policy which may be found necessary owing to changing circumstances.

In order to implement these programmes a series of Working Plans will be prepared. These will be drawn up, as found necessary, at a level and in sufficient detail to allow their easy implementation. It is hoped by the use of these Working Plans to keep the programmes essentially objective in character and free from the elaborate detailing of action which undoubtedly would, in many instances, prove difficult to follow in the years to come and might eventually lead to their abandonment.

### **FIRST SIX-YEAR PROGRAMME**

Expressed briefly the programme for the first six-year period (1953-8) calls for the following new activities :—a detailed survey of the present animal husbandry position in the zones of the Island having differing environment, and an appraisal of development potential; the establishment of three animal husbandry research centres (one in the dry zone, one in the low country wet zone and one in the montane area); the development of a Veterinary Research Centre with increased laboratory facilities for the preparation of veterinary biologics; the formation of a new section of the Livestock Division to deal with Animal Production; the strengthening of the Animal Husbandry and Veterinary Extension Services; the establishment of local centres to enable annual courses of training in Animal Husbandry and Veterinary Hygiene to be given to both officials and non-officials; the overseas training of additional technical personnel especially those required for research activities; the development of the milk and poultry industries, and a pilot scheme approach to a number of projects which if successful might prove of considerable economic importance to the country.

### **ANIMAL HUSBANDRY RESEARCH**

It has been decided to incorporate animal husbandry research with the crop investigations which are to be carried out at the new Dry Farming Research Station at Maha Illuppallama (North-Central Province) which is being established with the aid of a grant of £250,000, sterling made by the New Zealand Government under the Colombo Plan. It is intended to instal a psychrometric chamber at this centre which will allow the carrying out of fundamental climatic stress studies with livestock, especially with cattle. In view of the previous disappointing results, especially in the low country wet zone with exotic breeds of milch cattle considerable importance is attached to the outcome of this work. The availability of a psychrometric chamber should greatly facilitate breeding and environmental interaction studies which will include cross-breeding between indigenous and exotic breeds and efforts to develop local types of cattle which appear to have possibilities for milk production especially when kept by small producers.

The choice of a dry zone rather than a wet zone centre as the site for a psychrometric chamber has been influenced by the fact that while it is relatively easy to artificially simulate wet zone conditions by the addition of water vapour to a dry atmosphere it is much more difficult to remove moisture from a wet atmosphere in order to simulate dry zone conditions.

Concurrently with the breed environment work it is intended to carry out nutrition studies especially as regards the use of cut fodder crops for cattle and browse drops for goat feed. It is increasingly appreciated that in the past, when introducing improved livestock into an area far too little attention has been paid to improving the available fodder supply. While the direct effects of climate have undoubtedly played an important part in the low country wet zone in limiting production, especially from European type cattle, the poor nutritional value of deceptively lush tropical vegetation is also a limiting factor and probably accounts, to a considerable extent, for the poor performance of the Indian breeds of milch cattle which have been introduced into the wet zone.

Some research work with poultry has already been started and this will be expanded. As in the case of cattle the main task will be to develop types suited to the conditions under which they will be kept. It has been realized for some time that the rate of improvement being attempted with poultry, especially in some of the more backwards areas, is probably far too rapid.

There seems no point in giving small-scale peasant producers well-bred poultry, capable of producing 200 or more eggs per annum, if they are to be neglected and only allowed access to feed which will permit them to lay, say, from 50 to 100 eggs per year.

#### STATE LIVESTOCK FARMS

At present the Livestock Division is directly responsible for the management of six of the major livestock farms which cover over 15,000 acres, carry some 4,000 head of stock, and employ on an average about 650 labourers. In addition there are other stations, some of which have considerable numbers of milch animals, which come under the control of the District Agricultural officers. The direct control of cattle farms by the Livestock Division has on the whole proved very successful. Already a very noticeable improvement (9) has been achieved in the production of fodder crops on these farms in an effort to provide a continuity of supply for consumption by livestock throughout the year. This coupled with the improved fertility and health of the stock has resulted in increased milk yields which are rapidly reducing the financial losses previously experienced with these farms.

Carefully kept production and breeding records are now being supervised and analysed and form a basis for the programme, already embarked upon which involves the progeny testing of young bulls in the main herds. (10).

It is hoped that in the near future the Livestock Division will be able to assume direct responsibility for the management of further stations and in particular the two Government-operated dairies in the vicinity of Colombo.

At the present time considerable emphasis is being placed on the running of the Government livestock farms so as to produce on an economic basis the maximum amount of livestock produce, especially milk, for sale. It is realized that in the future, especially when the results of the survey of animal husbandry status and potential in the country become available, that renewed attention will have to be paid to meeting the specific needs of livestock keepers, in the differing environment zones, for breeding livestock especially for stud bulls. At present, for example, as a result of the establishment of large dairies of European cattle during war years the Department is able to produce far more bulls of European breeds than for which a demand exists. It is, however, at the same time unable to meet the full demand for stud bulls of the Zebu breeds imported from India.

The present policy, and that which it may prove desirable to adopt in the future, need not prove inconsistent provided adequate forethought is given to the periodic reorientation of activities necessary to meet changing needs. Actually the original aims of many of these stations may well prove to coincide very closely with those which will be required in the future. These aims appear more likely to be fulfilled now that experience has been gained in developing management techniques which allow subsidiary livestock products to be produced and sold on an economic basis.

#### **PILOT SCHEME APPROACHES**

If animal husbandry, of a much more productive nature than in the past, is to be successfully integrated with crop husbandry so as to effectively minimise the dependence of Ceylon on importation of foodstuffs, it is deemed desirable that concurrently with research there should be a pilot scheme approach to a number of projects which, if they could be successfully adopted on a large scale, might prove of considerable consequence to the economy of the country. Several of these projects will probably need overseas aid, both as regards capital, finance and technical advice, even in their pilot stage. Falling in this category is a project calling for the establishment of a model milk producing colony and processing plant, on lands well outside but within easy reach of Colombo, on the lines of that at Aarey, Bombay State, to which milk producers, unfavourably situated in urban areas of Colombo, for the production of fodders or the rearing of young stock, would be induced to move.

Another project calls for the establishment of Village Livestock Units in association with rural youth clubs and school activities. Each of these units would have facilities for keeping 25-50 head of milking stock and for the rearing of their progeny. In addition to milking and rearing sheds, fodder stores, and a communal silo each unit would have a water supply and a fenced area for fodder growing. Milk produced on these co-operative units would be sold to Milk Feeding Centres at present relying on the use of imported skim milk powder.

One project which has already been started on a small scale, and which should be capable of development on a much larger scale on a self supporting basis, is that of making use for animal husbandry of undeveloped areas of the

dry zone which will not be required for intensive settlement for some years to come. Preliminary trials in the underbrushing of jungle, by the use of goats, are already in progress at Polonnaruwa and these will be extended as rapidly as possible. It is intended that goat grazing in these areas shall be properly controlled and that the goats should not be permitted to degrade the land by uncontrolled grazing as has taken place in parts of India and in certain Middle East countries. By making a systematic approach to the use of these undeveloped lands which in the latter stages would involve levelling and drainage, it is hoped to have the soil suitably ameliorated before intensive settlement takes place. In addition to developing ground pasturage attention will be paid in suitable areas to the establishment of deep-rooted bushy legumes for livestock feed, which from trials already conducted, appear to hold considerable promise.

Another project which may prove of considerable consequence to the development of animal husbandry on low country estates is the establishment of a fodder processing plant which is to be run in association with the new Government Vegetable Oil Refining Factory. This fodder processing plant, the equipment for which is already on order, will be capable of turing out some 40,000 tons of processed compound fodder per annum in the form of compressed nuts, poultry pellets or meal. This fodder will consist of the chemically extracted poonac, mixed with what other foods may become available locally (fish meal, rice bran, &c.). The Department of Agriculture hopes to obtain a smaller unit capable of producing up to 5 tons per hour of fodder, through which it can experiment in producing suitable feed mixtures using local food-stuffs. The availability of molasses and other by-products from the local sugar industry at present being fostered would prove of especial value to this project.

#### CONTROL OF LIVESTOCK DISEASES

The position in Ceylon as regards the control of the more serious livestock diseases may be regarded as reasonably satisfactory when compared with that in other Eastern countries. Rinderpest has been eradicated and anthrax is fairly effectively controlled. Foot-and-Mouth and Ranikhet (Newcastle) disease are, however, endemic and undoubtedly considerably lower livestock productivity. A condition known as lumber paralysis, which often proves fatal, has largely negatived attempts at improving the local goat, both for milk and meat production. Although a good deal has been found out recently about this disease, especially as regards the causative agent, no means of control have yet been found.

An investigation is to be made in connection with the survey of animal husbandry into the seasonal and aerial incidence of parasitic and other chronic diseases of livestock which may lower livestock productivity just as seriously as epidemics of acute disease.

The desirability of developing the Veterinary Services so as to be in a position to cope more adequately with chronic and recurrent disease conditions is becoming increasingly appreciated. In addition to the need for a well equipped Veterinary Research Centre and for more adequate laboratory space and

equipment for the preparation of veterinary biologics, it is felt that the field service needs to be strengthened. If funds can be obtained it is planned to establish District veterinary centres and also to acquire mobile field units (with laboratory and staff accommodation) which should place the field staff in a much stronger position to take prompt action in the event of an outbreak of disease and also to take timely prophylactic treatment against recurrent disease. It is hoped to organise systematic campaigns aimed at eradicating, or at least effectively controlling, endemic diseases such as Foot-and-Mouth disease and Ranikhet disease of poultry.

## ENCOURAGING PRODUCTION AND OVERCOMING MARKETING PROBLEMS

### Dairy Products

An investigation is being made into the present position as regards milk production and consumption in urban areas especially in Colombo. This is intended to supplement information to be obtained as regards the overall milk supply and consumption situation under a preliminary Island-wide survey of animal husbandry. From these surveys it is hoped to determine the major limitations to new and increased production of milk and to devise ways of overcoming them.

A draft Bill to provide for the establishment of a Milk Board to promote the production, processing, and marketing of milk is at present under consideration by Government. This Bill follows the recommendations in the report of the 1944 Milk Committee, and also the outcome of the deliberations of an inter-departmental committee appointed by the Minister of Health in 1949.

Difficulties in obtaining supplies of concentrated fodder for feeding to high-producing dairy stock is known to be one of the major deterrents to increased production and the possibilities of channelising, to milk producers, the concentrated fodders which are to be produced by the Cattle Fodder Processing Plant, associated with the new Government Vegetable Oil Refining Factory, seem worthy of full exploration.

Once it seems likely that some of the major limitations to increased production can be overcome it should prove possible, through the implementation of the provisions of the Milk Act, to encourage capital investment in the increased production of milk by the guaranteeing of either a long-term minimum price, or a definite purchase price subject to periodic review. Special consideration is likely to be given to encouraging the production of milk on low country estates, especially on coconut estates, where considerable areas of pasturage are already or could be made available.

It should be possible for the Milk Board, to be set up under the Milk Act, to facilitate in many ways the flow of milk from the producing to consuming areas. Apart from taking direct action the Board will be in a position to give technical and financial aid to organisations such as the Colombo Co-operative Milk Union which has already received a substantial grant from Government for the purchase of modern milk processing plant.

The possibility of establishing a pilot milk colony to which dairymen established in unsuitable areas of Colombo will be induced to move, has already been commented upon. The Co-operative marketing of milk is being encouraged wherever possible in the countryside, especially where there is an outlet for it in nearby Milk Feeding Centres which otherwise would have to rely on dried skim milk powder.

A matter for future consideration is the possibility of establishing milk producing colonies on newly settled areas of the Dry Zone, especially those favourably situated for the rapid transport of milk to consuming areas or as regards the availability of cattle fodders (i.e., near a sugar cane growing area).

The experience gained by the operation of the montane dairy farms, Bopatalawa and Ambawela, is to be critically studied with a view to extending the keeping of high producing European cattle in those localities.

### **Poultry Production**

A similar survey to that being carried out in the case of the dairy industry is being attempted with poultry and, in view of the desirability of encouraging large-scale production, special attention is to be paid to the possibilities of increasing production on estates, especially under coconut and rubber. Small-scale trials in the keeping of poultry under a deep litter system at the Coconut Research Station (Western Division) and at the Wariyapola Farm (North-Western Division) appear to be proving successful.

With a shortage of grain for human consumption the supply of concentrated feed for large-scale poultry keeping ventures presents special problems. One solution may lie in the proposal to produce compressed poultry pellets (as a substitute for grain) at the Government Cattle Fodder Processing Plant. In addition to using chemically extracted poonac as a source of protein, the best use could be made of stored grains which become unfit for human consumption and of various local products such as fish meal which are available in rather limited quantities.

As in the case of the dairy industry it seems that the best way of stimulating the investment of capital in large-scale poultry farming ventures would be by providing suitable marketing facilities and by the giving of long-term guaranteed prices for produce.

A campaign to encourage the small-scale keeping of poultry by families is being intensified and special efforts are being made to interest school children in poultry keeping. If even a fraction of the household waste, which is at present scavenged by crows in urban areas, could be fed to domestic fowls a very significant increase in the local production of poultry produce could undoubtedly be achieved. One snag about the encouragement of small-scale poultry keeping is the fact that although it undoubtedly increases the local consumption of poultry produce it does very little to reduce the large imports of eggs which since the end of the war have tended to rise very rapidly.

As already stated research work as regards poultry husbandry will be aimed at producing types of stock suited to the needs of different classes of producers. It is felt that the many poultry fanciers in the Island might play an important part in supplying the needs of the ordinary poultry keeper for hatching eggs and breeding stock. One necessity is to persuade them to try to develop types of poultry suited to local requirements and not to worry about the keeping up of Western breed points for show purposes. With that in mind it is proposed to establish a Poultry Testing Station to which fanciers will be encouraged to send eggs for comparative hatching, rearing, and production trials.

### Meat Production

It is considered that with the present number of cattle in the country there should be no great difficulty in meeting the limited demand for meats. Nevertheless care will have to be taken not to offer marketing inducements which would be liable to seriously deplete the numbers of breeding stock or of draught cattle, especially buffalo.

It is hoped under the long-term plan, for the development of the local livestock industry, to make a systematic approach to the use of the undeveloped areas of the Dry Zone for both goat and cattle rearing. It is desired to develop management techniques which will ensure that the land is not exploited but rather ameliorated for eventual cultivation. To achieve this it is probable that in many areas of the dry zone more attention may have to be paid to the establishment of deep rooted bushy legumes, such as *lucaena glauca*, than to ground pasturage. One large-scale trial on a private estate, in the systematic use of *lucaena glauca* loppings for goat feed has shown that as many as 20 goats per acre can be maintained on very poor grade sloping land, unsuitable for cultivation.

A preliminary investigation is being made into the incidence of parasitic and other chronic diseases of livestock whose effect on livestock productivity, especially of meat, might be just as serious as spasmodic outbreaks of acute disease. A local investigator, Crusz, has shown (11) that the extent of amphistomes and other fluke infestation in cattle especially in buffalo is alarmingly high. McGaughey has expressed the opinion (11) that parasitism with many species of helminths is a major cause of the poor condition and low production of local livestock. It is evident that a systematic approach will have to be made towards combating livestock parasites, especially in the dry zones of Ceylon, if meat production is to be practised on an economic basis.

It is not considered that there is much scope locally for the rearing and feeding of slaughter cattle under intensive systems, although it is appreciated that if improved food supplies such as those which may become available from the establishment of a sugar industry, and suitable accommodation could be arranged, it might prove economic to give many cattle a period of intensive fattening prior to slaughter. Much of the livestock at present slaughtered locally, is only in store condition and gives a very low percentage of good

quality edible flesh. While the local practice remains that of using meats mainly as curried side dishes it seems unlikely that quality meat will ever command, on retailing, the price premium it does in some Western countries.

### SUMMARY

The future place of livestock in the economy of Ceylon has been reviewed.

The need for an improvement in the local diet by the increased consumption of more high-grade protein, especially that of animal origin, is shown.

Mention is made of the difficulties likely to be experienced in the future in obtaining supplies of livestock produce from overseas sources.

Previous attempts at improving the quality of livestock are mentioned and the need for a systematic approach to many livestock problems is emphasized if the local livestock industry is to be developed to meet the increased food needs of a rapidly increasing population.

The aims of a long-term (24-year) development plan prepared by the Department of Agriculture are outlined. The main items of the first six-year programme are described. Special attention is paid to the needs for livestock research and to the plan for the establishment of animal husbandry research centres in the three main climatic zones of the Island.

The present and future activities of the State-operated livestock farms are commented upon.

The advisability of making a pilot scheme approach to a number of development projects, which appear to hold considerable promise, is stressed. A number of such projects are described.

The present position as regards the incidence of livestock disease is favourably commented upon. The need to develop the Veterinary Services so as to be in a position to cope more adequately with chronic and recurrent disease, especially parasitism, is emphasized.

Means of encouraging production and overcoming marketing problems as regards dairy, poultry and meat products are dealt with in some detail.

### REFERENCES

- (1) Improvement of Cattle in Ceylon. F. A. Stockdale and G. W. Sturgess. Sessional Paper XXXII. Ceylon Government Press, 1928.
- (2) Animal Husbandry in Ceylon with a Survey of Livestock Breeding and Suggestions for Development. M. Crawford and others. Sessional Paper XXVII. Ceylon Government Press, 1933.
- (3) The Future of the Livestock Industry. E. Rodrigo and others. Sessional Paper XXVII. Ceylon Government Press, 1938.
- (4) Report of the Special Committee appointed to investigate the milk supply of Colombo. C. V. Aserappa and others. Municipal Printing Office, Colombo, 1939.

- (5) Report of the Ceylon Milk Committee. W. G. Wickremasinghe and others. Ceylon Government Press, 1944.
- (6) Report on the Development of Cattle Breeding and Milk Production in Ceylon. N. C. Wright. Sessional Paper XX, 1946. Ceylon Government Press, 1946.
- (7) Development of Cattle Farms. C. B. Turbet. Sessional Paper XI, 1949. Ceylon Government Press, 1949.
- (8) The Economic Development of Ceylon, Part II. Report of a Mission organized by the International Bank for Reconstruction and Development. Ceylon Government Press, 1952.
- (9) Administration Report of the Director of Agriculture for 1951. Ceylon Government Press, 1952.
- (10) A Programme of Progeny-testing Scindi Cattle at Polonnaruwa. P. Mahadevan. Trop. Agric. Vol. CVIII, No. 1, 1952.
- (11) Private Communication from Prof. C. A. McGaughey. Faculty of Veterinary Science, University of Ceylon.

**Table showing the Livestock Population from 1940-1951**

<i>Year</i>	<i>Cattle</i>	<i>Buffaloes</i>	<i>Sheep</i>	<i>Goats</i>
1940	1,125,104	567,717	59,969	269,812
1941	1,168,371	592,092	62,828	314,162
1942	1,120,138	589,950	58,804	286,719
1943	1,081,678	568,891	53,403	263,653
1944	1,039,752	535,025	58,963	262,066
1945	1,254,652	557,276	57,350	272,087
1946	1,067,659	593,267	68,673	278,219
1947	1,115,807	624,168	55,303	326,386
1948	1,133,461	658,468	48,449	369,622
1949	1,240,747	656,052	57,349	573,015
1950	1,105,447	522,418	43,627	370,091
1951	1,112,360	567,672	72,600	411,320

**Table showing the Number of Animals (including those Imported) slaughtered for Food from 1940-1951**

1940	134,065	8,310	8,421	102,827
1941	140,030	10,859	9,325	109,457
1942	175,776	18,370	7,577	133,803
1943	105,736	16,587	2,039	86,318
1944	93,918	5,351	2,157	72,845
1945	82,617	3,084	1,118	53,853
1946	92,385	9,200	3,087	39,551
1947	111,322	8,642	10,526	36,938
1948	131,298	7,650	12,272	79,777
1949	127,775	9,054	11,138	69,440
1950	147,458	10,453	36,497	114,757
1951	151,790	10,282	48,923	108,673



A good crop of subterranean Clover on Patana Land, Bopatalawa Farm



A good crop of Rye on the Cattle Farm, Bopatalawa



Tamankaduwa Type Cattle on grazing grounds on the banks of the Mahaweliganga