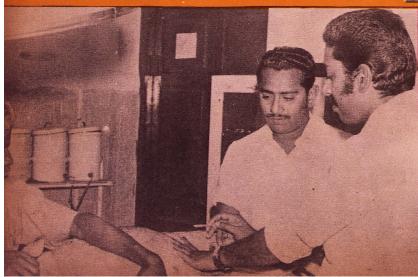


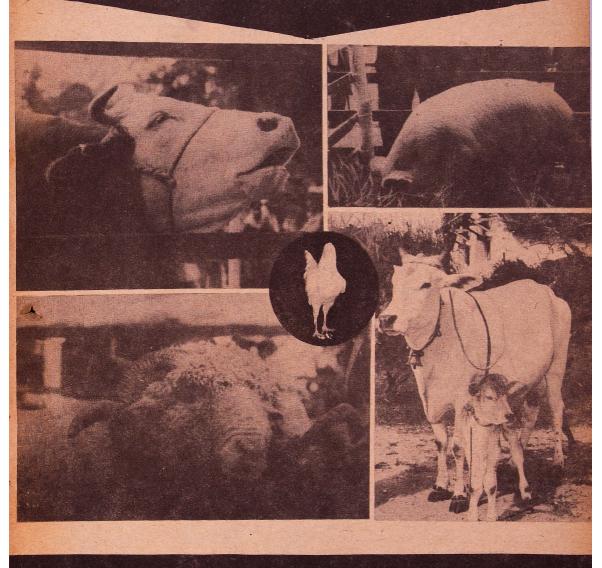




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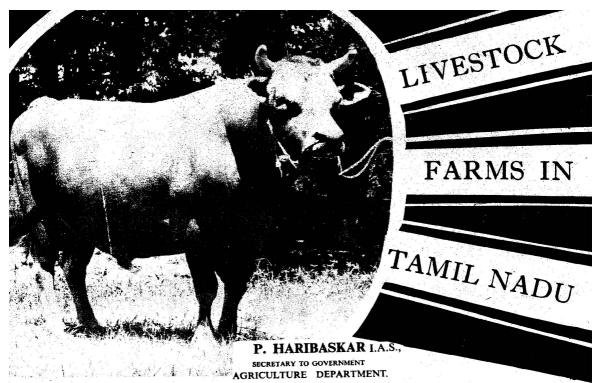


Tamil Arasu

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The Livestock Farms in Tamil Nadu have been playing a pivotol role in the field of Livestock improvement with a special emphasis on cattle and Sheep development as These farms serve as its core. nerve centres for the propagation on modern method of Animal Husbandry package of practices to the breeding, feeding and management aspects. The Livestock farms have been well disbursed all over the State thereby contributing for a healthy growth of Animal Husbandry Departmental activities. Each one of these farms have special significance in so far as breed of choice, location and objectives. It is only in the fitness of things that these farms have been oriented as a catalyst for improving the livestock wealth of the entire state by the provision of the much valued seed material which form the basis for almost all animal husbandry Departmental activities such as providing breeding bulls, Rams and pigs will be worth while to dwell at length the activities that are being carried on in the different livestock farms in the state.

District Livestock Farm, Hosur.

This is the oldest and one of

way back in the year 1828 as a Remount Depot by the Military authorities for rearing horses. Subsequently the farm was taken over by the Agriculture Department in the year 1924 and then in 1938 handed over to the Animal Husbandry Department, with the object to maintain the purity of the breed and conduct research on this line. The farm is situated in a picturesque location about 6 kms. from Hosur in Hosur Denkanikotta Road in Dharmapuri District with an added advantage of over 3000, above sea level. The topo-graphical and climatical conditions are impeccable, the farm extending over an area of no less than 1,641.41 acres, the symbolic of natures gift. The farm puts forth the appearance of having spread with a green carpet, during the mid-summer season with its 930 acres of pastures, and also fulfils the requirements of hay and fodder to the animals.

The main object of the farm

various aspects of Animal Husbandry for the B.V.Sc., students and other Animal Husbandry courses.

The farm serves as a seed centre for grading up of local breeds with pure bred cattle, sheep, pigs and poultry.

The purity of the Sindhi breed is synonymous with the name of the District Livestock Farm, Hosur. The farm not only caters to the need of our State but also other States in the country. The Hosur cattle farm also serves as a model farm in Livestock improvement and fodder production and its excellence is proved by the continuous visitors both from within and outside the country who are captivated by the activities that are carried in the

District Livestock Farm, Chettinad.

The District Livestock Farm, Chettinad is situated 15 kms. from Karaikudi ,on the Karaikudi-Puducan be briefly stated as raising of kottai road in an area 1907.32 pure breeds in Sindhi cattle, Mandya, acres. The farm was started on Corriedale cross in sheep, white 4.6.1957 with the object of accelarayorkshire in pigs, and white leghorn ting livestock improvement and in poultry besides producing high fodder development in southern pedigree bulls, rams, boars and districts. The main breeds maincocks for the purpose of grading tained in this farm are Tharparkar up of local breeds. This also pro- in white cattle and Murrah among the best Livestock Farms started vides practical training in the Black cattle. Apart from this, Kilakarisal breed of sheep, Large white Livestock Farm, where milch cows, yorkshire pigs and W.LH breed of poultry are also maintained.

This farm serves the needs of the various schemes like K.V.c., I.C.D.P., etc., by supplying purebred seed materials for the grading up of local breeds of Livestocks.

District Livestock Farm. Abisheka-patty:

The District Livestock Farm, Abishekapatty is functioning from 15.4.64 and is situated at Abishekapatti in Tirunelveli-Tenkasi Road, 8 Kms. from Tirunelveli. farm is located in an area of 1969.83 acres.

The main object is to produce cross bred milch animals with exotic breed of Jersey and local breed of Gir, to produce murrah bulls for breeding, and for Fodder Production. The Exotic blood level of the milch animals produced is aimed at 5/8 level.

of Breeding Bulls, boars, poultry, for various panchavat Union Schemes and Departmental schemes likeK.V. C., I.C.D.P., etc. and for the fodder Development Schemes. Kilakarisal breed of sheep is maintained in this farm and rams are distributed to the various schemes.

This farm was taken over from the erst while Pudukottai state in 1951 in order to produce stud Bulls and to increase milk production. Subsequently an area of about 990.57 acres at Machuvadi forest was taken over in the year 1957 and developed The Dairy area is run

cows of advanced pregnancy and suckling calves are maintained.

The main object of the farm is to improve the quality of bulls, Rams, Boars by selective breeding and supply of good perigreed bulls, rams etc., to public and to various panchayat union for intensive cattle, poultry, sheep and piggery development activities in rural areas and to increase milk and egg production to meet the growing demands of the public.

A programme for cross breeding of Sindhi cow with Jersey bulls is implemented in the farm with a view to increase the production of milk.

The surplus milk produced in the dairy is distributed to the public. This particular item of service done by this farm has gained significance and reputation from the public.

Kilakarisal and Mandya breeds The farm caters to the needs of Sheep are maintained in this farm and produces seeded rams to sell them to the Public through Panchayat Unions and other departmental units. Large white yorkshire breed of big and W.L.H. breed of Poultry are maintained and distributed for Livestock Development to the public.

District Livestock Farm Pudukottai: District Livestock Farm, Orathanad.

The Farm is situated in the Village of Orathanad 22kms. from Thanjavur on Thanjavur-Pudukottai Road in an area of 253:67 acres. The farm was originally the property of chatram department instituted for charity purposes by the Maharaja of Serfoji, and taken in Pudukottai Town, as part of over by the Department on 27.1.65.

The main object of this farm is to maintain pure breeds of Murrah and. Sindhi and to supply pure bred bulls of the above breeds for the Livestock Developmental programmes in Tamilnadu and to maintain exotic breeds of poultry to infuse ideas in the minds of the public on the aspect of poultry rearing on modern scientific lines.

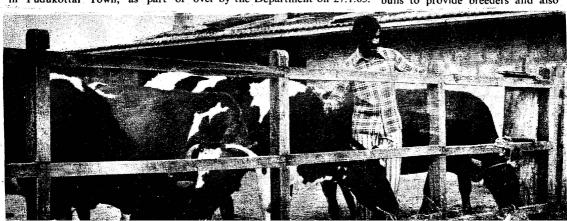
This farm serves the purpose of a demonstration centre for the activities of AHD., including fodder development aspects to the ryots and and Dairy farmers also imparts training to the Animal Husbandry education and farmers' training course. The requirements of wholesome milk to the public is also partially met.

Livestock Farm. Korukkai.

This farm is situated in Korukkai of Thiruthurai Poondi village Taluk in Thanjavur district. about 8 kms. from Thiruthura poondi and originally the farm was an annexure to the District Livestock Farm. Orathanad.

The main object of the farm is to develop and preserve, by line breeding, the umblachery breed of Cattle which is a drought type of animal useful for Agricultural purposes in Thanjavur District.The farm also aims at evolving a viable economic cow capable of yielding 1500 to 2000 kgs.of milk per lactation suited to agroclimatic conditions of this area through cross breeding using one exotic breed and as well as through triple cross with one Indian Milch breed and one exotic breed.

The farm supplies good quality pure breed umblachery breeding bulls to provide breeders and also



provides good quality fodder slips to farmers in and around the farm.

The Ootacamund Municipal Farm was taken over by the Animal Husbandry Department on 1.9.61 and developed as District Livestock Farm on scientific lines. The farm is situated 5 kms. away from Ootacamund town in Municipal limits on the old Mysore road in an area of 129.38 acres.

The object of the farm is to develop and maintain a base farm for milch cattle development in the Nilgiris District including production of Cross breed cows to upgrade the local cattle of Nilgiris with exotic bulls of Holsterin Fresian.

The Farm supplies pure breed and cross breed bulls to the A.I. units and also to provide breeders for breeding purposes. Whole-some milk is made available to the public through Ootacamund Cooperative Milk Society at reasonable rate. Improved pigs are reared and sold both for breeding and for Slaughter to the Panchayat Unions as well as to the public. Fodder Develop ment is also undertaken with improved variety of fodder crops so as to serve as a model farm to the farmers.

Sheep Farm, Sattur is functioning since 1.1.70 and is situated in the river flanks of Arjuna river and Vaipar River 5 Kms. from Sattur on the Sathur-Nenmeni road.

The object of the farm is to study the performance of pure kilkarisal, Ramnad white and vembur breed of sheep to suit local conditions from scientific points of view to augment food production through multiplication of livestock and to determine the economic trials of vembur breed of sheep.

Male stock is distributed to the ryots through Panchayat Union Schemes and development schemes like S.F.D.A., S.A.P., D.P.A.P., etc., to upgrade their flocks.

Sheep Farm Chinnasalem:

Sheep Farm, Chinnasalem is located at the junction of Salem and South Arcot District border on the Salem-Madras Highways, 75Kms. from Salem and 240 Kms. from Madras in an area of 1866.50 acres.

Mecheri breed of sheep is maintained in this farm since this breed is very popular among the sheep breeders and ryots of this tract. Jamunapari breed of Goat is also raised since this is a dual purpose breed for both milk and meat production. Drought breeds of Alambadi and Hallikar of Mysore State were maintained in this farm

to the departmental units for breeding purpose.

also maintained in this farm.

and poultry to the Panchayat Union is handed over to the Dairy Develop-Schemes and other Departmental ment Department for distribution. Schemes like SFDA, SAP, IRDP A fodder Farm is also maintained DPAP.

Fodder production Unit is also established and fodder slips legu- Animal Husbandry minaous fodder seeds are being activities are carried on in a well distributed to the Farmers.

Poultry Earm: Kattupakkam:

A Poultry farm at Kattupakkam near Madras City in the G.S.T. Road is situated with a view to increasing the Poultry production in the State and thereby reducing the gap in the availability of the eggs and poultry meat which will help to curb the deficiency of animal protein among the population This farm is one of the two major chick hatcheries functioning in the state to cater to the needs of the various Poultry Extension Centres situated in the state under the Animal Husbandry Department.

Day old chicks of WLH breed is produced at this farm and distributed to the various centres. This also looks after the needs of various poultry development schemes that are being implemented in the state.

Exotic Cattle Breeding Farm: Eachenkottai

The exotic cattle breeding farm was established at a Centrally sponsored scheme at Eachenkottai in order to meet the demand for cross bred cattle of the exotic breeds which are required for the genetic improvement of the local cattle and the successful implementation of the various cattle development schemes in our state. The object of the farm is to produce and supply pure breed exotic bulls for crossbreeding through Artificial Insemidemonstrate proper nation to methods of Animal Husbandry and fodder production, to supply pure breed bulls to the progeny testing scheme at Hosur and to strengthen extension work in the District on the basis of the facilities developed at the Farm.

A frozen Semen Bank is being installed in the farm to prepare and distribute frozen Semen to the field in the advent of introduction of Frozen Semen Technology

Government Dairy Farm: Madhavaram:

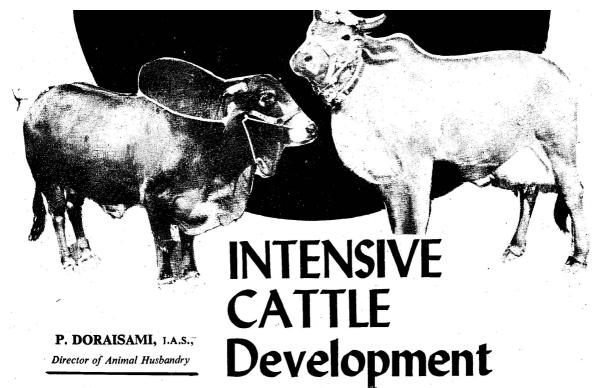
A portion of the Madhavaram Pureline W.L.H. and Hybrid Dairy Farm has been taken over poona pearl breeds of Poultry are by the Animal Husbandry Departmaintained in this Farm. To en- ment from the Dairy Development courage pig breeding among the Department, and it is functioning public white york shire pigs are since 1-7-79. The Units of milch animals are maintained by the De-The farm supplies sheep, pigs partment and the milk produced as part of Livestock Farm.

> It is only befitting that the Department organised and well knit manner based on sound and scientific principles of breeding, feeding and management incorporating the latest advancements and techniques. Thus they serve as multi purpose units of not only as demonstration centres on modern methods of Animal Husbandry but also invariably acting as a source of supply of superior germplasam to the field.

> The spectacular progress and acheivement in livestock management and development by the Livestock Farms have stood the test of time. This has been brought forth in an efficaceous manner by the exhibts of these farms winning universal acclaim and laurels in the District, Regional, State and All India level cattle and Livestock Shows on several occassions.

> Realising the useful service rendered by these livestock farms for the improvement of livestock developmental activities, the Government have decided to start one such livestock farm in each District of the Tamil Nadu.

Apart from this, the prestiguos drought breed of Tamil Nadu, Kangayam breed, requires all encouragement and the purity of the breed have to be maintained in tact. With this view the Government of Tamil Nadu have decided and establish a farm solely for this purpose in Kangayam. For streamlining the administrative and accounting procedure in the Livestock farms so as to make them function as viable units, the Government have constituted a committee with the Secretary to Government, Agricultural Department as its chairman and Director of Animal Husbandry as Member-Secretary, Deputy Secretary to Government (Planning), Finance Department, Additional Director of Animal Husbandry (Planning and Administration) additional Director of Animal Husbandry



HE main object of the Intensive Cattle Development Project is to enhance milk production and raise the income of farmers in the area. With the idea of improving the quality of cattle and raising their productivity with regard to milk Government of India sanctioned under crash programme Intensive Cattle Development Project schemes in the country during 1964. In Tamil Nadu three such project were functioning in the milk shed areas of Coimbatore, Madras and Madurrai which were merged with the regular activities of the departmens in 1970.

Considering the importance of achieving a break through in milk production, Instensive Cattle Development Project was revised by the Government of Tamil Nadu in its original pattern with some Accordingly modifications. following five Intensive Cattle Development Projects are functioning presently.

- 7. 1.74 Madurai
- 22,10.75 Thanjavur
- Tirunelveli 1.10.75

- 4. Pudukottai
- 3. 2.77
- 5. Trichy
- 1.11.78

These projects are introduced with specific object to increase the milk production in milk shed areas by planned cross breeding and grading up of indigenous cattle with exotic jersey bulls etc., and grading up of buffaloes with Murrah buffalo bulls.

The object of Intensive Cattle Development Project may be briefly mentioned as follows:--

Oobjects

- Cattle Breeding. 1.
 - Augmenting feed and Fodder resources, so as to provide adequate nutrition for the cattle, thereby exp loiting their genetic potential and breeding efficiency fully.
- Creating a sizable pocket of high yielding milch cattle.
- Infusing confidence among ACTIVITIES UNDERTAKEN farmers in the Dairy Industry as to its profitability.

Castrating the scrub bulls to avoid the degradation of the exotic inheritance infused in indige uous. through scientific breeding programme.

The area of operation, which is otherwise known as milk shed areas is selected having the breedable age of cows and buffaloes as the main criteria.

Each Intensive Cattle Development Project with 100 Sub-Centres, covers one lakh of breedable cows/she buffaloes and the projects with 50 Sub-Centres cover, 50,000 breedable cows/the buffaloes. Each group of 25 sub-centres are attached to a Regional Artificial Insemination Centre where pedigreed bulls are maintained, semen collected preserved and systematically supplied to the Sub Centres. Under the Intensive Cattle Development Project, jersey breeding bulls are used for cross breeding white cattle and Murrah Buffaloe to grade up the local buffaloes population.

As one of the main object

of Intensive Cattle Development BREEDING Project is to create a sizable pocket of high yielding milk cattle, the following activities are undertaken term policy. Although time conto achieve the same.

- Cross breeding of indigenous cattle with jersey and upgrading of buffaloes with Murrah through Artificial Insemination is intensively adopted.
- Increased cultivation high vielding and nutritious fodder and leguminous crops, parrenial grasses like guinea, pusa NB 21, BN2 and leguminovs crops like lucerne are encouraged to augment the fodder production.
- With a view to discourage the sale of heifer calves with high milk potential from Intensive Cattle Development Project area and for stepping up milk poduction in the area and for further breeding, a scheme to subsidise the heifer calves born to Artificial Insemination has lities. been introduced.
- Health cover is provided to the cattle in Intensive ject area to protect them from the ravages of cattle diseases and to treatment for common ailments.

Development of cattle is a long suming, it contributes a good lot to the nation's wealth over a period of time. The primary factor involved in augmenting milk production is improving the quality of cows and buffaloes. Any amount of improved practice and increased desired inputs will not lead to results, unless the basic genetical make up of the animals concerned HEALTH COVER: is improved. The Project therefore aims at a net work of Artificial Insemination sub-centres at the rate of one for every 1000 heads of cows and buffaloes of breedable age.

To fulfil this important activity seman of high yielding exotic bulls is used to cross breed the local cattle. Indiscriminate breeding is avoided by elimination of all scrub bulls.

At present in all the Intensive to ensure their availability Cattle Development Projects, jersey and Murrah Buffaloe bulls are being maintained. It is also proposed to restrict the level of exotic blood in local cows to 62.5% to preserve their disease resistant qua-

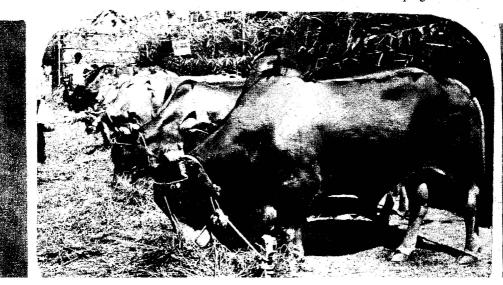
Foods and Fodder Development:

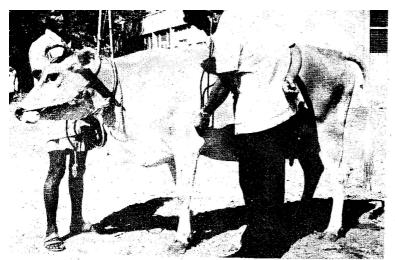
Feeding of cows is an important Cattle Development Pro- aspect and accounts for a major portion of maintenance cost. Unless a cow is properly fed on scientiafford fic lines, she will neither yield to her full capacity nor will breed regularly. There is no awakening among the people about the need to raise green and leguminous fodder for cattle. To encourage fodder production, distribution of seeds and slips is being made. In addition uptodate information on the scientific methods of raising fodder, plant protection methods etc. are imparted to the ryots. Distribution of seeds, slips etc. at half cost and chaff cutter at subsidised rates is also encouraged.

Healthy cattle is the pride of the nation. Productivity and fertility is closely related to the health condition of the animals. health cover to the cattle is provided through the sub-centres functioning under Intensive Cattle Development Prevention is better than Project. cure and hence preventive vaccinations against contagious diseases are done. Deworming of young calves is done on an intensive scale to reduce the calf mortality due to verminous infestation. Sterillity problems are tackled by the technical officers.

Extension Work:

Extension activities are the back bone in the implementation of any welfare programme. The people should be properly educated on various topics pertaining to improved Animal Husbandry practice. In the Intensive Cattle Development Projects, this is achieved through Cattle shows, Calf rallies and exhibitions arranged regularly. Mass contact programme are also held





in interior villages, very frequently. Training centres are also organised in cattle breeding.

Assessment and evaluation:

The Statistical cell of Project, Collects and compiles data on various aspects of Project work and analyse the data and the results are employed for applying the correctiues wherever necessary and for correct appraisal of the achievements.

The surveys and studies relating to

- 1. Annual Survey of Livestock Census.
- 2. Annual Survey of Milk Production.
- 3. Annual income of a farmer

are undertaken from maintenance of cattle during each year per head of cattle prior to establishment of intensive Cattle Development Proiect and after establishment of the project.

Milk yield survey:

According to the Bench Mark Survey conducted during 77-78, Milk Yield of the cows and buffaloes in the Intensive Cattle Development Project areas were as follows:-

The objective being to raise the level of milk yield, this development programme registers a continuous evaluating machinery to assess objectively at every stage how far the objectives have been achieved in all spheres by initiating surveys and studies. The milk recording survey is a major exercise undertaken to study and assess the impact of the development activities of the project in furtherence of enhancing the level of milk production. By these studies it is envisaged to find out the average milk yield of cows and buffaloes per day, and to estimate the total output of milk both for cows and buffaloes in the project.

The total population in all the five Intensive of these calves will be able cattle population of these Intensive Cattle Development Pro jects varies from 40% to 50%. Intensive cattle Development Project varies from 20 to 25%. In Madurai Intensive Cattle Develop- for further development. ment Project the calving percentage is more than 25%. In Tirunelveli Intensive Cattle Development Project the percentage is 25%, and in Tanjore it is 23%. Trichy Intensive Cattle Development was started only during 1978-79 and the calving percentage could be assessed later.

Considering the All India average percentage of calving rate for white cattle and black cattle which are 40-45% and 30-35% respectively the actual average of the Intensive Cattle Development Projects in Tamil Nadu are not upto the level. The main reason being that these Intensive Cattle Development Projects are in the early stages of their organisation and operation which will pick up in due course. Besides there are some bottle recks in the feed back of information due to administrative lapses. By taking all out and effective measure it is All India aimed to achieve the figures very shortly.

Calf subsidy

Nobody can deny the fact that to-day's calves are tomorrows cows. Therefore they have to be properly taken care of. Selected heifer caves of both white and black cattle born of Artificial Insemination at the age of 6 months are included in calf subsidy scheme. this scheme, calf owners are being paid a subsidy of Rs. 10/- per month. The calves will be continued in the scheme till they attain the age of 3 years or the date of maturity whichever is earlier. An arrear breedable cattle subsidy of Rs. 5 per month, for each paid in Cattle Development Project areas aggregate for the period they were is 4,79,095 as per the latest figures under the scheme, when the The average coverage of the breed-milch animals calve. This scheme prevents the drifting away of heifer calves with high milk potential from the Intensive Cattle Develop-The calving percentage in all these ment Project area thus ensuring their availability for stepping up milk production in the areas and

> The advent of Intensive Cattle Development Projects have heralded a new era in the boosting of milk production, particularly in milk shed areas in and around the cities and towns which holds a good promise for the future.

,	Madurai	Tanjore	Pudukottai	Tirunelveli
Average yield per day				
Cows	3.50	1.732	0.780	1.942
Buffaloes	3.62	2.329	1.670	1.463
Day Production:			* * E	
Cows	1,01,418	51,887	9,418.	91,479
Buffaloes	79,235	31,835	13,138	
				4.1

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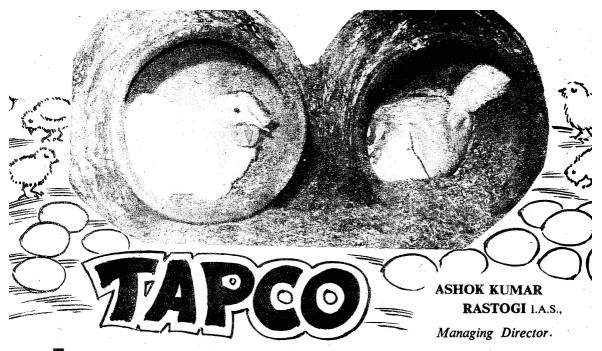
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he Tamil Nadu Poultry Develop and the quality of poultry feed mixed ment Corporation Limited (TAPCO) in these units are maintained TAPCO was started on 12-7-1973 the main aim to implement Poultry Development Programmes in the which is exercising rigid quality State ensuring at the same time their economic viability. The Corporation also undertakes marketing of The giant Feed Mixing Plant ineggs and meat in the state to stabilise the prices and to assure a reasonable income to the farmer.

ACTIVITIES:

The activities of this Corporation are broadly classified as (A) Commercial and (B) Extension.

Feed Mixing Units, Marketing Centres and Hybrid Chick Hatcheries at Arasur (Coimbatore District) and Kappalur (Madurai District) comprise the commercial wing. Extension wing comprises TAPCO Farm and Extension Centres.

POULTRY FEED MIXING UNITS:

- (1) Nandanam (Madras)
- (2) Kottapattu (Trichy)
- (3) Kappalur (Madurai)
- (4) Tiruppur (Coimbatore)

These four Poultry Feed Mixing Units are engaged in the production of balanced poultry feed using industrial and agricultural by-products

with is having its own Feed Analytical Laboratory at Nandanam (Madras) control in the purchase of quality feed ingredients and mixed feed. stalled at Feed Mixing Unit, Nandanam is capable of producing 4 M.Ts. of poultry feed per hour. uniform price for TAPCO's feed has been fixed for the benefit of the poultry farmer.

> - The feed produced and sold during the last 3 years is furnished hereunder:

> > Feed Pro-

Feed Sold

Year

	duced(M.T)	(M.T)
1976-77	4,918	4,827
1977-78	5,772	5,402
1978-79	5,650	5,600
1979-80 (From Apri to Decem-	1 79	
ber'79)	5,385 -	5,396

MARKETING CENTRES	C	RETAIL OUTLETS
(1) Madras		78
(2) Chingleput		11
(3) Vellore		3
(4) Salem	i.	6,
(5) Madurai		4
(6) Trichy		4
(7) Tirunelveli		3
(8) Coimbatore	:	11
TOTAL		120

These Marketing Centres provide necessary inputs to the farmers such as quality chicks, balanced feed, technical expertise and collecting back the produce such as eggs and spent birds for marketing. As a policy, flat procurement rate is adopted which enables to quote flat selling rates for several bulk buyers including Government Institutions as also the Central Government Institutions like Railways and Defence Units. Priority for procurement in Tamil Nadu is given as usual to remove middlemen and the produce are procured from the farmers directly.

MODERNISATION OF EXISTING DRESSING PLANT AT ADAYAR

A project was drawn up to modernise the existing Dressing Plant at Adayar at a cost of Rs. 1.76 lakhs with a capacity to dress 250 birds per hour with a view to provide Chicken meat to the consumers more hygienically. The civil works is nearing completion and the plant will be switched on shortly.

SALES PROMOTIONAL ACTIVITIES:

In order to cater to the Market in Madras City to meet growing demand for Poultry Products, a deal has been finalised to purchase 1,58,000 eggs per week from 17 farmers in NELLORE in Andhra Pradesh on contract purchase price of 33 paise per egg throughout the year. By this, the egg selling price is also kept at a constant level to a certain extent. Another contract for purchase of 30,000 eggs per week from Andhra Pradesh State Meat and Poultry Development Corporation Limited, Hydera bad is under negotiation. By this, the turnover in egg will be increased to 97.66 lakhs numbers in a full year in Madras City alone. A beginning has been made for the supply of eggs to other states by supplying eggs to Car Nicobar Islands in the Union Territory of Andhaman and Nicobar Islands. So far. 4 shipments of eggs (1000 Nos. each) have been despatched.

TAPCO'S SNACKATERÍA:

TAPCO has opened Canteens at Secretariat and in Madras Corporation premises for serving dishes made out of Poultry Products to the public at reasonable rates.

Encouraged by the Public response for the above said canteens a "SNACKATERIA - DRIVE-IN-RESTAURANT" has been constructed at the junction of Anna Salai and Thiru-vi-ka-Road (Thousand Lights) at cost of Rs. 1.05 lakhs and is to be opened shrotly. This will be the first of its kind ever to be put up in Madras by a Public Sector Undertaking.

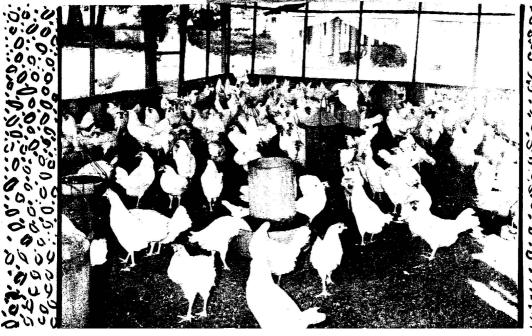
SELLING OF PORK / PORK PRODUCTS:

Besides selling poultry products, TAPCO sells pork and pork products also. Pork is procured from Animal Husbandry Department, and Pork Products are purchased from MAFCO, BOMBAY. The following pork products are sold in the retail outlets of TAPCO:

(a) Salami; (b) Cocktail sausages; (c) Hot dogs; (d) Frank Furter; (e) Bacon; (f) Ham; (g) Chickenn-Ham.

SALES STRATEGY:

To increase turnover in districts also, 11 additional booths and 3 Meat shops are proposed to be opened.



A strategy has been evolved for Madras Marketing Unit with an aim to project its sales as far as possible thro' its own outlets. Under this strategy, it has been proposed to open two new Zonal Offices, 20 "Meet at Meat Shops" and 7 Canteens in thickly populated

TURNOVER:

The turnover particulars for the last three years are as follows:

residential areas in Madras City.

YEAR	Sale of Eggs (In Nos) LAKHS	Sale of Chicken (Inkgs)
1976-77	137.07	29,144
1977-78	180.30	67,421
1978-79	228.34	1,33,245
1979-80 (4/79to11/79)	150.17	1,01,640

REGIONAL OFFICE AT NAMAKKAL AND SERVICE CENTRE AT ERODE:

TAPCO is having a Regional Office at Namakkal and a Service TAPCO GROWER FARMS AND Centre at Erode. These Centres are functioning in order to develop poultry Industry in and around Salem, Periyar and Coimbatore districts by arranging all inputs like chicks, quality poultry feed etc., procuring the produce of the farmers and furnishing technical expertise etc.,

CHICK HATCHERY AT ARASUR (COIMBATORE DISTRICT):

This hatchery which has been hitherto rearing Poona Pearls parent stocks of egger and broiler has now switched over to rearing of 'Babcock' strain of egger parents and 'COBB' Broiler parents. The first batch of "Babcock" egger chicks was know how and health coverage to released on 15.8.1979. The first the birds reared in and around batch of "COBB" Broiler chicks those centres. will be released during February '80.

COMMERCIALISATION OF **EXISTING CHICK HATCHERY** AT KAPPALUR (MADURAI DISTRICT):

The pureline Hatchery at Kappalur was converted into a Commer-

cial Hatchery and "HH 260" parent by public. To overcome this and to stocks (Egger) obtained from Central reduce the loss and make these therein. The project is estimated to construct additional rearing spaces to cost Rs. 27.08 lakhs. Assets so that their rearing capacity can worth to Rs. 5.61 lakhs are already be increased. The project is estiavailable. So far, Government of mated to cost Rs. of Rs. 7.50 lakhs for investment in awaited to the said project. A sum of Rs. scheme. 2.50 lakhs is expected from Government during the current year. The balanced cost (Rs. 11.47 lakhs) will be met from institutional finance.

The performance details are as follows for the two hatcheries put to-gether:-

> No. of chicks Produced (In numbers)

1976-77	1.52 lakhs
1977-78	4.26 lakhs
1978-79	3.88 lakhs
1979-80 From 4/79 to	

YEAR

12/79)

EXTENSION CENTRES

- 1. Chengalpattu.
- 2. Kottapattu (Trichy) 3. Perundurai (Periyar
- District) 4. Seshanchavadi (Salem

4.68 lakhs.

District) 5. T. Kallupatti (Madurai

District)

These five centres rear day old chicks and supply to the poultry farmers, Government Institutions and to other schemes like special Animal Husbandry Programmes, Integrated Rural Development Programme, Applied Nutrition Programme and other schemes etc. These centres also provide technical

Since these centres are mainly service oriented and dedicate themselves in promoting Poultry Industry in rural areas it could not be run as economically viable units. Due to limited rearing space available, birds could not be reared in large numbers and supplied to the needy though TAPCO birds are preferred

Poultry Breeding Farm, Hasser-centres at least self supporting ghatta (near Bangalore) are housed ones, a scheme has been drawn up 5 lakhs and Tamilnadu have released a sum Government financial assitance is push through the



The acievements in this sphere of activity are listed below:-

Year	No. of Birds so (In Nos.)
1976-77	1.28 lakhs
1977-78	1.72 lakhs
1978-79	1.07 lakhs
1979-80 (From 4/79 to 12/79)	2.24 lakhs

The one Grower farm at Adayar will be exclusively utilised to keep the birds before slaughtering them. The broilers required by the Madras Marketing centre will be reared at Grower farm and Extension Centre at Chengalpattu and transported to Adayar for dressing.

SCHEMES IMPLEMENTED BY TAPCO:

(i) SPECIAL ANIMAL HUSBAN-DRY PROGRAMME POULTRY DEVELOPMENT:

This scheme sponsored by the Government of India is implemented by TAPCO in the four Districts viz. North Arcot ,Chengalpattu, Salem and Madurai. The scheme sanctioned in 1976-77, envisages the establishment of 6000 poultry units at the rate of 1500 Poultry units in each District. Under the scheme, subsidy is given at 25% to a small farmer and 33 1/3% to a Marginl farmer and Agricultural landless labourer on the total capital cost of the Poultry Unit. The rest of cost has to be raised thro' institutional finance from Nationalised or Co-operatione Banks.

The scheme has been sanctioned initially for a period of 3 years from 1976-77 onwards .It is continued in the current year also by Government of Tamilnadu with the funding pattern of sharing the subsidy expenditure by Government of Tamilnadu, and Government of India on 50: 50 basis.

So far as many as 1675 farmers have benefitted under the scheme. A sum of Rs. 24.22 lakhs was released towards subsidy. During the currect year 2,000 more farmers will be benefitted and a total sum of Rs. 30 lakhs is to be released as subsidy for which Government Orders have been received very recently. Ten Nationalised Banks, Two Co-operative Central Banks and One State Land Development Bank are actively participating under the scheme.

OTHER SCHEMES IN WHICH TAPCO IS PARTICIPATING

(1) INTEGRATED RURAL DEVELOPMENT PROGRAMME

One of the schemes contemplated under "Integrated Rural Develop-ment Programme", is to establish poultry units in the area covered by Small Farmers Development Agency. Under this scheme Tapco has undertaken the supply of necessary inputs such as quality chicks, and poultry feed. The scheme is to be implemented by the concerned District Collectors in co-ordination with Small Farmers Development Agency and Block level agencies. Poultry Units under this scheme have been established in Kanya-



kumarı District, where it has been implemented with great vigour.In Trichy District, the scheme is gaining momentum.

(2) STATE LAND DEVELOP-MENT BANK SCHEME: **CHENGALPATTU**

Under this scheme, the State Land Development Bank has prepared a project for the setting up of 30 egger units and 10 Broiler Units in and around Sriperumbudur IMPORTANT ACHIEVEMENTS (Chingleput District) and Poonamallee areas. The egger unit will consist of 250 birds and broiler units 200 birds each.

From TAPCO, chicks and feed are supplied to the said beneficiaries. All other assistance is given by the State Land Development Bank. So far, 3 Broiler Units have been established in Senthamangalam Village in Sriperumbudur.

DUCK PROJECT:

Government of Tamilnadu have entrusted the establishment of Duck Farm near Madras to TAPCO at a total cost of Rs. 16.94 lakhs. The Duck Farm will be located at Madhavaram Milk Colony which has been selected for that purpose. Site for the farm, has been selected and 25.36 acres, in Madhavaram Milk Colony have been requested for transfer to TAPCO from Animal Husbandry Department. The farm will be established as soon as Govern ment of India arrange for the free supply of "Khaki Campbell' ducklings and sophisticated hatchery equipments under arrangements with Overseas Development Agency of United Kingdom.

BELT AREA DEVELOPMENT PROGRAMME:

The main object of this project is to rehabilitate the landless labourer and marginal farmers and strengthen them economically so that their migration into city in search of job is prevented. This will cover the suburban area of 80 Kilometers of Madras City. A scheme has been drawn up to establish 1000 Poultry Units at a total cost of Rs. 33.04 lakhs and the proposals are under the active consideration of the Government.

ASSISTANCE TO GOVERNMENT OF SAUDI ARABIA TO IMPROVE THE EXISTING STATUS POULTRY FARMING IN THAT COUNTRY:

Government of India, at the instance of the Government of Saudi Arabia have proposed TAPCO to assist that country to improve their existing status in Poultry Farming. Government of Tamil nadu, have also agreed for this and communicated this to Government of India. Government of India has already been addressed to inform the nature and scope of work involved in the assignment and on receipt of particulars further action will be initiated.

- Government of Tamilnadu with effect from April '79 have exempted levying of S.T., S.C. on the live birds sales as a measure of reducing additional burden on the farmers and to encourage poultry farming in Tamilnadu.
- Tamilnadu Electricity Board has agreed to charge the power used for poultry farming under LowerTariff IV (a) which will work at to be 50% less than the normal electric charges.
- The insurance coverage has been introduced for Special Animal Husbandry Programme Scheme.
- TAPCO Feed is LS.I. marked.

FINANCIAL

Subject to provision for taxation and other charges andreserves, it is expected that the current year profit (tentative) will be Rs. 3.75 lakhs as against the profit of Rs. 2 lakhs expected for the year 1978-79.



Milk is very important in the Human dietary. Tamil Nadu possesses a total of 105.54 lakhs of White Cattle and 29.58 Lakhs of Black Cattle, of which29,21,569 and 14,59,436 are reported to be breedable Cows and Buffaloes respectively, as per the Cattle Census conducted by the Department of Statistics in 1977. There has been an increased trend in milk production of Cows and Buffaloes as per the sample survey conducted during 1977 and the per capita availability of Milk is reported to have gone up from 63 Grams in 1974 to 104 Grams in 1977. In spite of the increase in the per capita of availability of milk in Tamil Nadu, the ideal requirement



of milk advocated by Nutrition experts of Indian Council of Medical Research is 280 Gms. per individual per day and we have to go a long way to reach this target. This could be achieved by the TNDDC and the Department of Animal Husbandry in Tamil Nadu only by adopting improved methods of breeding, and Animal Husbandry practices.

Livestock Development is no more a primitive profession of the Rural poor or the backward section of the Community. Cattle Development has taken deep roots in Tamil Nadu. Tamil Nadu being a fairly extensive State, with different agro-climatic conditions, various Cattle Development Programmes adaptable to the local conditions have been taken up by the TNDDC as well as the State Department of Animal Husbandry and a great leap forward has been struck in the establishment of the basic infrastructure requirements in accelerating the productivity of the milch cattle. TNDDC also has played a key role in this regard.

TNDDC was set up as a Limited Company on 4.5.1972 and commenced its operation from 1.7.1972 The Corporation procures raw—milk from the farmers through the Producers. Cooperative Societies from ten Districts in the State and after standardisation of Fat percentage ,the Corporation markets fluid milk and milk products in Madras and Madurai Cities and a few other urban centres in Tamil Nadu. In 1972-73 TNDDC procured 125.50 lakhs its. of milk from the farmers and in 1978-79 it had procured 784.38 lakh lits of milk. TNDDC was marketing 221.16 lakh lts. of milk in 1972-73 and in 1978-79 it had marketed 1,037.84 lakh lts. of milk. The growth rate in procurement of milk and marketing of milk has been phenomenal. The daily average of liquid milk marketed in 1972-73 was 81,000 lts. per day and this has gone upto 2,84,000 lts. per day in 1978-79 and projections for 1980-81 is that it will go upto 3.48 lakh lts. per day. TNDDC* was directly benefitting about 4,239 farmers as on 1.7.73 lopment of Rural areas and provision of employment when it started on its operation and as on 1.7.1979 opportunities to the rural poor, the TNDDC is actively is that the amount paid to the farmers by TNDDC the interests of the Producers of milk are safeguarded. of Coop. Producers' Societies as on 30.1.1978 and it is forming more number of Coop. Producers' Societies at the Village level, and also catalysing the efficient functioning of District level Milk Producers' Unions in Tamil Nadu. The success of the TNDDC depend also to a large extent on the financial assistance received from the Government of India under "Operation Flood-I" programme.

Regarding the programme of Cattle Develop-ment, the TNDDC believes in direct marketing of various Technical Inputs like Artificial Insemination, Veterinary Health coverage, preventive vaccination work etc. As on 1.7.1978 the TNDDC was operating 154 Veterinary Routes, 36 Mobile Veterinary Unions and 10 Emergency Veterinary Units. The number of Artificial Insemination done to help production of cross-bred Cattle, was 2,28,735 as on 1.7.1978 and the TNDDC has been successfully following up and verifying the success of their Artificial Insemination Pro-TNDDC has gramme in the field. Recently, the launched on a massive programme of Artificial Insemination, through Frozen Semen Technology. Thus it may be seen that the TNDDC has played a vital role in development of Dairying in important milch cattle tracts of Tamil Nadu, and thereby has benefitted directly many Small/Marginal Farmers and Agricultural Labourers

In keeping with the National objectives of devethe number of farmers who were benefitted by the assisting the Farmers directly by various developmental TNDDC was approximately 3 lakhs. Again analysing activities like massive cross breeding programme with the performance of the TNDDC from the point of view Frozen Semen, formation of large number of Producers' of income to the farmers, the salient feature to be noticed Coop. Societies at the Village level etc. to ensure that was Rs. 130.60 lakhs in 1972-73, and this has gone Those cattle development activities contribute directly upto nearly 1,365.11 lakhs in 1978-79 and it is hoped to improve the productivity of the animals and thereby that in 1980-81 the payment to the farmers by TNDDC improve the living conditions of the rural masses. In would be of the order of about Rs. 2,056 lakhs. The the field of improved technology relating to Cattle above analysis shows the direct impact of the operation Development in Rural areas, a great leap forward has of the TNDDC on the income of the farmers of Tamil-been initiated by the TNDDC by introducing Frozen Nadu .TNDDC has also been responsible for the organi- Semen for Artificial Insemination in the various districtssation of about 2000 numbers of "ANAND PATTERN" and with the assistance of IDC (Indian Dairy Corpora tion) a Frozen Semen Bank has been set up at Ooty in the Nucleus Jersey Farm complex and with the facilities like five liquid Nitrogen Plants to be located in different focal points in Tamil Nadu, a massive network of cross breeding programme, with an emphasis on follow up action and the verification of the success of the programme is taking place. Recently the TNDDC has been comtemplating an ambitious programme of covering all the Districts in Tamil Nadu by organising Producers' Coop. Societies of "ANAND so that by 1984, 12 lakhs of milch PATTERN" cattle of breedable age, owned by the Members of about 4,500 Producers' Coop. Societies in Tamil Nadu could be covered so that Milk Production can be expected to go up to about 35 lakhs lts. per day, increasing the per capita availability to about 130 Grams per day. The above approach is a very ambitious approach and tireless and unceasing efforts in Cattle Development creating Farmers' Organisations, heavy capital investments in putting up milk processing facilities, etc. are required. By such an ambitious programme, the Corporation also hopes to reverse the trend of flow of milk to the main Metropolis of Madras and Madurai and to ensure that all Urban and Semi-urban centres of Tamil Nadu are also benefitted by getting good quality milk. The TNDDC is doing its best to achieve the above objectives and it is hoped that the best is yet to be.



THE MADRAS VETERINARY COLLEGE

he Madras Veterinary College was started in the The Institution was affiliated to the Madras University in 1936. It was the first Veterinary College in India of techniques and adoption of improved to offer a B.V.Sc. Degree in Veterinary Science and Animal Husbandry:

On the recommendations of the first Indo-American RUMENOTOMY: Team on the Agricultural Research Education, the affiliated to the Tamil Nadu Agricultural University and harm. from December 1976, the Madras Veterinary College is a constituent Unit of the Tamil Nadu Agricultural University.

Apart from imparting education in B.V.Sc. Degree Course, the Madras Veterinary College offers M.V.Sc. Degree Course in 16 Department and Post-Graduate Degree (Ph.d). in the following 9 Departments -

- 1. Animal Genetics.
- 2. Animal Nutrition.
- 3. Anatomy.
- 4. Microbiology & Bio-Chemistry.
- 5. Dairy Science.
- 6. Obstetrics & Gynaecology.
- 7. Parasitology.
- 8. Poultry Science.
- 9. Pharmacology.

Currently Trimester pattern of education has been introduced for the Doctorate Programme also.

From 1.9.79, two new Departments viz. Department of Clinics and Department of Animal Disease Investigation & Control have been started.

At present there are 24 departments in the Madras Veterinary College.

A well equipped Hospital is also attached in the Madras Veterinary College which functions throughout day and night catering to the public.

Apart from imparting education in Veterinary and Animal Husbandry Sciences, research work is also undertaken in all the Departments of the College. In is perfected and practiced in the field with good results. addition, there are 4 farms under the Director of Ressearch (Animal Sciences) which are helping the P.G. of benefit.

The graduates of this institution are spread all over India and abroad and they have been well equipped with modern knowledge to face any problem on Veteri- technique is simplified so that any one in the field could nary and Animal Husbandry aspects.

THE ROLE OF MODERN SURGICAL TECHNIQUES DEVELOPMENT LIVESTOCK

Dr. E. I. RAJENDRAN, M.V.Sc., Professor of Surgery & Rrs., Madras Veterinary College.

A decade back surgery was confined to major year 1903, when it offered a three year Diploma Course hospitals and the impact of modern research and G.M.V.C.(Graduate of the Madras Veterinary College.) technique were not felt in the field, where major part of our livestock are located. Due to the perfection methods, the present day Veterinary Surgeons are able to perform useful surgery in the field. A few operations that are perfected at this College are mentioned below:

The operation was not thought of ten years back Madras Veterinary College was upgraded as a "Regional by the field Veterinarians. It is performed for re-Centre for Post-Graduate Education & Research" in moving poisonous materials from the rumen when the year 1958. The Master of Veterinary Science they accidentally consume poisonous stuff, in case of (M.V.Sc. Degree Programme) in various departments foreign bodies as metallic and plastic objects in the was a phased one and by 1962, 16 Departments had started the course. Since 1974, the College stands some foreign body in the stomach which can cause surgical the latest With in the standing operated be can a cow position without any restraint using para vertebral anacsthesia. Shock or any other complication is encountered and the administration is safe. The operation could be completed in an hour and the results are good and many surgeons perofrm this operation in remote villages.

URETHROTOMY:

A common condition seen in male cattle in obstruction of the urinary passage with stones formed in the bladder in young and old animals. If the condition is not relieved in time mortality can occur. No proper surgical technique was available a decade back. Research at this institution resulted in a two stage operation by which a polyethaline tube is introduced into the bladder by urethrotomy to be followed by a second operation to remove the stone. The technique is made simple and it is followed in the field by enterprising Veterinarians.

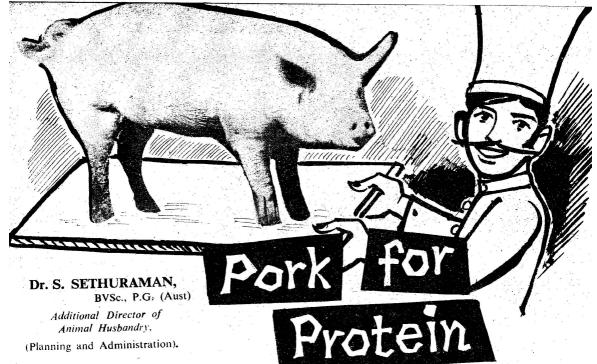
ORTHOPEDICS:

Fracture of long bones is a common occurrence in livestock. Proper approach and techniques were lacking some years back. At present the reduction of any fracture by suitable anaesthesia, better immobilisation techniques including fixation by open method is taught to students who practice it in the field. An added addition to this branch is Patellar Demotomy a simple operative technique perfected to relieve the chronic displacement of patella, a very common condition in village animals.

DEHORNING:

The present day cross bred animals have weak horns. If they are allowed to develop they get injured at some stage of their life or the horns cause injury to neighbouring animals. The technique of nipping these horns in the bud by painless method with electrocautery VASECTOMY:

Heat detection is a problem in cross bred cows Students and staff to undertake research programmes and buffaloes. Proper timing of insemination is essential for successful conception. Detection of heat and inducement to heat can better be achieved by a bull which has a proper sex desire. With this aim a teasing bull is made by Vasectomy operation. The



ONSIDERING the number of habitual meat eaters in our country, Pork eaters are very much less and really this is a discouraging factor for the Piggery Development. The main reason is the religious taboo in pork eating. It is a well known fact that thousands of infants, children and pregnant ladies are deprived of the valuable nutritive diet which they have to consume for building up good health. Malnutrition is in abundant and the Government is considering all the aspects to provide good nutritive food to this vulnerable group at a cheaper rate. One main ingredient in any diet is the protein, either animal or vegetable protein. In foreign countries, such protein difficiency conditions are seldom seen since their staple food is meat and meat products. Animal protein can be produced and made available to weaker sections more éasily than vegetable protein. One of the rich source of animal protein is pork and its products. The barrier in consuming pork by the people of Tamil Nadu is being slowly removed by educating them about the usefulness of pork by extension methods. Still much has to be done in this aspect.

Whenever we talk of pork to the people, they immediately think fulness of the same.

of our black country pigs which live on garbage and other unwanted materials.

Piggery Development has been taken up by our Government on a large scale during the last decade and we have made some achievements if not in a great deal. The rural people who rear country pigs have been educated to rear their pigs under hygenic condition with the available shelter for them. Once the habitual meat eaters are convinced that pigs can be reared like other Livestock, the false opinion prevailing among them can be got

Under Piggery Development, introduction of exotic breed of pigs have been taken up by the Tamil Nadu Government. The main reasons for rejecting the pork of the country pigs as already stated, is the environment under the rearing of pigs in Tamil Nadu tions started during earlier years section of the society because of Chertinad, Pudukottai, Abisheka-the very meagre resources and in-patti, Sheep Farm, Chinnasalem, tense backwardness. Slowly others have taken up this section of Livestock Development and started realising the profitability and use

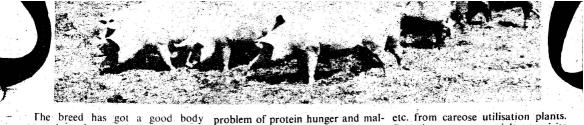
The introduction of Exotic boars of pigs is done mainly to increase the production of pork and also to get rid off the unaesthetic colour of the country pigs. Under this scheme, in the block, exotic boars were distributed under subsidised cost. When this had gained momentum, small units comprising of 4 gilts and one Boar were distributed under Piggery Development Schemes.

Production of exotic breed of pigs in Large numbers for supply to the public for rearing and multiplication is an important item in the development of piggery.

During the year 1974-75 Tamil Nadu Government had sanctioned one Piggery Development Centre and it was established at District Livestock Farm, Ootacamund with a foundation stock of 23 animals.

Besides the District Livestock which they are reared. As such Farm, Ootacamund, Piggery secremains in the hands of socially are functioning in the District Livebackward and economically weaker stock Farm, Hosur, Orathanad, Sattur and Veterinary Hospital, Saidapet.

> The Common Exotic breed. reared is large white yorkshire.



The breed has got a good body length, early maturity, greater litter size and above all the optimum back fat thickness.

With a view to popularise pork eating among the rural mass the Animal Husbandry Department encouraged setting up of 'Pork Clubs' during early seventies. Eventhough this was not a success, it has created an awareness about the nutritive value of the pork and its products.

Of late people have started realising the nutritive value, the taste and comparatively cheaper cost of pork than that of mutton and chicken.

The nutritive value was increased no doubt mainly due to the cross beeding programmes envisaged by the Animal Husbandry Department. The people get to know about the taste due to the demonstration done at the places like Tradefairs, and other exhibitions and pork clubs, where the tasty, cooking methods were demonstrated by which the pork used to sell as hot cakes.

The alarming increase in the cost of mutton and chicken have obviously made the price of pork as a comparatively cheaper one for the quantity they get.

When we consider the serious

nutrition vis a viz the cost of mutton and chicken there is a great need for developing pork industry in our country. Pigs do play a vital role in this respect because of their high rate of prolificacy, shorter generation intervals, fast growth rate and greater feed conversion efficiency. When put on proper footing the prok industry in India could solve the problem of malnutrition at a comparatively lesser cost to a greater extent and also give a profitable subsidiary income to the rural folk.

There are of course several constraints in piggery Development which cannot be lost sight of. They

- Though pork is considered as staple food, pork eating is considered as a taboo.
- Pigs compete with human beings in consuming cereals
- Pig rearing is at present in the hands of people who are considered socially low.
- Desi Pigs are allowed to feed on filth etc. and can easily transmit verminous beings.

feeds like the meat meal, bone meal piggery development on a large scale.

But the most essential perquisite while organising piggery Development programmes is the establishment of suitable retail outlets and establishing pork dressings and processing plants in suitable places in the State.

This aspect is fulfilled to some extent amongst the city dwellers by opening a retail meat shop at Veterinary Hospital, Saidapet.

The Piggery Development work has been taken up on a large scale among the tribal population of the State since they are habitually rearing pigs. Under integrated tribal development programme the following number of units have been distributed.

1976-77 52 Units 0.11 lakhs 1977-78 105 Units

82 Units 0.21 1978-79

Under the Block integrated Programme Rural Development Piggery Development has been taken up and is being implemented in the

Hence, for overcoming the infestation among human social taboo and to provide wholesome meat at a comparatively low cost and at the same time to create All the above problems can be more employment potential for tackled by educating the masses the economically weaker section, and providing alternative substitute the Government have envisaged





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The domesticated Water-buffalo is the key animal in the cereal dominated economy of Peninsula. It forms a maior source of milk and butter fat in India. With the increase in human population and consequent rise in the demand of cereals, milk, butter fat and meat, there has been a rapid expansion of buffalo population. According to F.A.O. production year book 1971, the total buffalo population of the world is 124,54 millions of which nearly 56% of the population (70 millions) are

of our country. Zaffarabadi breed is seen in Gujarat State. In Surat district in Gujarat and in Maharashtra State, Surati breed is seen. In Baroda and Mahsana Districts. Mahsana breed is seen. Murrah breed is found in Western Uttar Pradesh, Delhi, Haryana and Punjab of the northern region of our country. In Deccan tract of Nagpur region of Maharashtra and adjoining areas of Andhra Pradesh and Madhya Pradesh, Nagpuri or Ellichpuri breed is found. In Nilgiri Hills an indigenous Toda breed of buffalo is seen.

-the horns are massive and in females they are lighter and long. Body colour is dark ashy or almost black. The lower extremities are generally dirty white upto hock.

Environment::-

The distribution of buffaloes in our country depends upon the environment and the environment includes the elements of climate, land forms and soil which are interdependent on each other and they influence individually and collectively on its life and beha-



located in Indian Peninsula. In India its population is 54.2 millions which forms about 44% of the world population. India is the largest breeding country in the world and for every one buffalo there are 3.5 cattle in our country. In Tamif Nadu the buffalo population is 2.85 millions and they are kept chiefly for milk production.

Breeds:

Many breeds of buffaloes are seen distributed in different parts

Distribution:

In Tamil Nadu, Murrah buffaloes are reared and maintained in several farms at Orathanadu, Pudukottai, Chettinadu, Tirunelveli, Hosur, Kattupakkam and Coimbatore. Indian buffalo is a massive animal with a large body relatively small ears and some what tubular in form with only a few hairs on their Dr. S. VENKATAYAN, margin with large number in the shape of horns separated by a wider Professor of Physiology, space on the forelead. In bulls,

vioural pattern. The environmental temperature and rain fall in our country vary from region to region. In places where the rainfall ranges between 150 cm. and 200 cm. per annum (hot-humid areas) swamp buffaloes are distributed and they are mainly draft type of buffaloes

M.V.Sc.

Madras Veterinary College.





and the principal crop cultivated is paddy and buffaloes in such areas are smaller in size and are mainly used for draft purpose for paddy cultivation. In places where the rainfall ranges between 25 cm. and 150 cm. per annum (warm subhumid to hot dry areas) river buffaloes thrive well and the principal crops cultivated in these areas are wheat, millet, groundnut, and cotton and in these areas dairy buffaloes thrive mostly.

Thus we notice in our country two distinct bioclimatic zones existing and they are responsible for the distribution of two different types of buffaloes. In drier areas where better feeding resources exist, dairy buffaloes thrive well and in wetter areas where nutritional insufficiency, exists, only draft type of buffaloes are seen.

Climate:-

Climate is the kind of weather that any place has year after year. The climate and climatic elements affect the organism directly and indirectly through their influence on its total environment. The climatic complex regulates the composition of soil, types of farming and the production and quality of grasses, legumes and other plants. 'The climatic element that influences the buffaloes directly is the heat. The factors that influence heat are temperature, humidity, air movement and radiant energy. The comfort zone for Indian buffaloes is between 60°F and 70°F. Outside the comfort zone they will increase the metabolic rate either to keep them warm or to dissipate heat.

Humidity is low in summer and higher during rainy season.

At a high environmental temperature the humidity of air will affect the evaporation of water from the skin. The evaporation of water from the skin will depend upon the quantity of sweat produced by the buffaloes. In buffaloes the number of sweat glands are few compared to white cattle. There are 160 sweat glands per square centimeter on the skin whereas in Indian in buffaloes cattle there are 3171 sweat glands per square centimeter. Hence buffalo sweat glands do not play significant role in heat regulation. To compensate this, buffaloes resort to swimming or wallowing during the heat of the day in summer. In Tamil Nadu air temperature during winter does not go far below compared to North India and the buffaloes withstand the winter air temperature without adverse effect on their milk production.

Solar radiation:

Solar radiation consists of visible, ultraviolet and near-red radiations besides radiation reflected from its surroundings. The long wave infra red radiation also heats up the surrounding objects which in turn heats up the animal body. The intensity of solar radiation varies with latitude, altitude, changing conditions of the atmosphere, altitude of the sun and the reflectivity of the ground. Heat is gained by the animal by the intensity of sun-shine, altitude of the sun shape and orientation of the animal and reflectivity of the coat. The skin and animal coat affect heat exchange with the environment and their efficiency in heat dissipation under hot conditions is dependent on colour (pigmentation) of the skin, thickness of the skin and colour

of the hair çoat. The buffalo hair coat consists of bristle like stiff hairs distributed very thinly and unevenly over its body. In adult the major portion of the body is devoid of hairs. Hence the epidermis takes up the heat regulating function of the hair coat. The thickness of the skin in buffalo is twice that of cattle and it increases with age. The thickness of the skin protects the animal against heat. The colour of the skin and haircoat also play a significant role in the absorption of solar radiation. The buffalo has a dark pigmented skin and dark coloured hair coat which absorb solar radiation during summer. An exposure of a buffalo under hot sun for one hour will tend to increase its body temperature and hence it is very sensitive to exposure to sun. During summer the heat gained from higher environmental temperature and the metabolism of heat of feed digestion in the animal is greater than the rate of heat dissipation and it results in reduction of their feed intake during day. During cooler hours of the night they tend to lose surplus heat and tend to graze during night. It will be useful to allow buffalloes for grazing during night

Guide Lines:

For better rearing and breeding of buffaloes when buffalo farming is contemplated, adequate provision must be made to ward off dissipation of excess heat from animal. There must be facilities for wallowing and bathing. Adequate supply has to be provided. Whereever possible, there must be provision for splashing of water and artificial shower. Well-ventilated housing has to be provided. Trees have to be planted to give adequate shade to protect the buffaloes against direct solar rays. Wet gunny bags have to be placed on the back of buffaloes during summer months. Spongy porous covering like rubber or acetate sponges to hold moisture can be kept over the back of the animals. The adoption of the above mentioned methods facilitating better heat dissipation during summer months will go a long way in mitigating to a certain extent the environmental thermal stress which influence adversely the breeding and milk production programmes in buffaloes thereby increasing the breeding efficiency and improving milk production buffaloes in our State.



Special Animal Husbandry programme:-

Sheep Husbandry plays a major role in the rural economy of Tamil The bovine population of is fairly high and Tamil Nadu the mutton produced by them provides the people the much needed animal protein required for the maintenance of proper health for a large number of people in our State. Sheep has an added advantage over other classes of livestock in that, it adapts to the varying climatic conditions in different places very well. Besides the mutton produced by them, certain other products obtained from sheep such as wool, skin etc. are products of great significance which contribute to the National wealth. Sheep also enriches the soil fertility by the manure produced by them.

Sheep farming provides employment opportunities to a large section of the population particularly to the weaker sections, of the community in hilly, drought prone and dry areas. Sheep rearing in rural areas is being rapidly developed since it is a subsidiary occupation. The breeds that are found in Tamil

agroclimatic regions excepting heavy rainfall areas. Because of their ability to graze very close to the roots of herbage, sheep can utilise spares and low set vegetation on which other species of livestock may not be able to subsist.

Sheep droppings improve the fertility of soil considerably and penning of sheep in harvested fields (sheep folding) brings in additional income to the flock owners. Since sheep rearing does not require any large investment in buildings and equipment, it offers good scope for exploitation.

The sheep available State is predominently of hairy type. The woolly sheep forms about 10 to 15 percent. They are mainly found in Nilgiris district and the hilly areas in the districts of Coimbatore, Madurai, Salem, Trichi and South Arcot. The sheep in the Nilgiris are of fine woolly type, while those of Coimbatore district. are of coarse woolly type. The woolly sheep in parts of Trichy and adjoining areas in South Arcot District are black in colour. on a mixed farming basis in all Nadu are Madras Red, Trichy

Black, Kilkarisal, Ramnad White, Vembur, Mecheri, Nilgiri sheep etc.

The State had 6.1 per cent of the total cattle population of Indian union. The percentages for specific groups were 5.1 for buffaloes, 15.8 for sheep, 5.8 for goats, 7.8 for others. Eventhough Tamil Nadu possesses 23.4 million heads of livestock and 12.97 million of poultry, the per capita availability of foods of animal origin is far below the nutritional standards advocated for normal well-beings. The per capita availability of milk is only 63 gms. per head per day for the State as against: 300 gms. considered necessary for the balanced diet. Against the per capita requirement of meat of 40. gms, per day the availability is only 26 gms. leaving a gap of 14 gms. The magnitude of the problem is huge.

PROGRESS IN SHEEP DEVELOPMENT

Animal Husbandry Programme for cattle development based on All India pattern like All India Key Village Schemes, Intensive Cattle Development Project etc. Intensive have functioned creditably in Tamil. have been made to increase the productivity of sheep except in recent years when we have introduced sheep development programmes on a small basis like ARDC Sheep Scheme, sheep development under Special Animal Husbandry Programme, Hill Area Development Programme and Drought Prone Area Programme. These are explained briefly below. These schemes have already started yielding good results. There is heavy demand for the supply of good quality sheep.

With a view to encourage traditional sheep breeders and other progressive agriculturists intrested in sheep breeding to undertake such occupation, so as to enable them to get the maximum profit in sheep breeding activities and improve their economic conditions. Tamil Nadu Government have sanctioned a scheme for the development of sheep breeding in Tamil Nadu by establishing 39 Sheep Breeding Cooperative Societies in the districts of Tirunelveli, Salem, Madurai, North Arcot, Chingleput, Ramanathapuram and Dharmapuri. The total cost of the scheme is Rs. 8.308 million. The contribution of Agricultural Refinance Development Corporation to the scheme is Rs. 3.821 million. The Government contribution towards the share capital to the societies is Rs. 1.274 million. The expenditure of staff, medicines, furniture, equipment, typewriter, vehicles etc. is Rs.3.212 million which is given by the State Government as assistance.

Hill Area Development Programme:

Under this scheme, the Central Planning Commission has approved among other things, the scheme for the establishment of 4 sheep Breeding Cooperative Societies and 400 field sheep units through loan and subsidy to farmers and landless poor at a total cost of Rs. 1.5 million

Nadu. However no major effort in the Fifth Plan period in Nilgiris district during 1975-76. The scheme envisages the setting up of four sheep breeding cooperative societies with 100 members each.

Drought Prope Area Programme

Under this programme during 1978-79 itself, 1112 sheep units in Dharmapuri district and 326 sheep units in Ramanathapuram have been established and subsidy of Rs. 10.27 lakhs and Rs. 2.43 lakhs paid to the weaker sections of the community respectively in these districts. The total number of sheep units subsidised during 1976-77, 1977-78 and 1978-79 were 3413 with subsidy of Rs.26.21 lakhs. During 1979-80, it is proposed to establish 170 sheep units in Ramanathapuram district and sheep units in Dharmapuri district with a government subsidy of Rs. 1.78 lakhs and Rs. 5.00 lakhs respectively.

Tribal Development Programme:

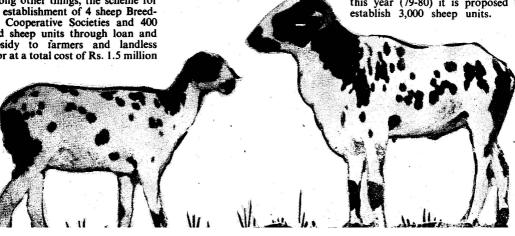
2377 tribals spread over the districts of Noth Arcot, South Arcot, Dharmapuri, Salem and Tiruchi districts have been benefitted under this programme by establishing 2377 sheep units paying government subsidy of Rs. 16.80 lakhs during 1976 77, 1977-78 and 1978-79. During 1979-80, it is proposed to establish 700 sheep units spread over the districts as mentioned above with a subsidy of Rs. 5.50 lakhs.

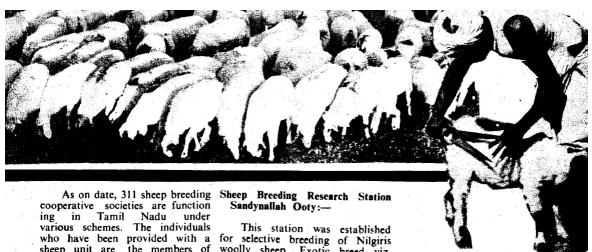
Special Animal Husbandry Programme

At the instance of Government of India, the Animal Husbandry Department formulated a Special



the implementation in certain districts approved by Government of India in Tamil Nadu. Among other programmes, sheep production programme is under implementation in the districts of Salem. North Arcot and Tirunelveli for the benefit of 9,000 small/marginal farmers and agricultural labourers. As per the scheme, the selected small farmer will receive a subsidy amount to 1/4th of the capital investment of a sheep unit and marginal farmer and agricultural labourer will receive 1/3rd of the capital investment of the sheep unit of Rs. 3,000/- During 1976-77, 1977-78 and 1978-79,5359 sheep units have been established and a sum of Rs. 48.58 lakhs as subsidy paid to small marginal farmers and agricultural labourers. During this year (79-80) it is proposed to





sheep unit are the members of these societies. Health cover viz. deworming etc. are undertaken by the extension staff of the Animal Husbandry Department.

Sheep Farm and Sheep Units:

Two exclusive sheep farms and four sheep units attached to the Government Livestock Farms are distributing superior presently breeding stock of recognised South Indian breeds to sheep farmers.

Sheep Farm, Sattur:-

The breeds that are maintained in the farm are:-

1. Vembur. 2. Ramnad.

The performance of the progeny is studied in the farm.

Sheep Farm Chirnasalem:

Mecheri breed is maintained in the farm.

Sheep Unit, District Livestock Farm, Chettinad, Abishekapatti and Pudukottai.

Kilakarisal breed is maintained in these farms.

Sheep Unit, District Livestock Farm, Hosur:

The breed maintained in the farm is Mandya. Only rams of exotic breed viz. Corriedale are reared in this farm for crossbreeding with Mandya sheep. The performance of the progeny at different levels of exotic blood is evaluated in the farm.

woolly sheep. Exotic breed viz. Romney Marsh and Marinos were introduced to raise nuclear stock and for cross-breeding with local Nilgiris sheep.

Marinos had a better nicking ability and their progeny with Nilgiri sheep excelled in performance. The introduction of Romney Marsh proved a failure with unsatisfactory performance in the farm as a pure breed for crossbreeding Russian Marino are now maintained in the farm. This farm is now under the control of Tamil Nadu Agricultural University, Coimbatore. The farm has expanded its orbit of activities in all aspects of sheep production and is recognised as done of the premier institutions for fine wool development in India. The farm has a highly equipped wool analysis laboratory.

ROLE OF SHEEP IN LEATHER INDUSTRY

When we examine the composition of India's export trade, it will be seen that hides and skins hold the third position among the export products. Hides and skins exports consists of raw skins, leather, leather manufactures and allied products which amounted to Rs. 1896 million during 1972-73 and Rs.1942 million in 1973-74 which is Rs. 9.7% and 7.8% of the total export for the respective years. The value of hides and skins exported touched Rs. 3132.59 million during 1976-77.

During 1976-77, Madras port accounted for the export of hides and skins to the value of Rs. 1,751.76 million. This amount of export is more than 70% of the total value of hides and skins exported from India. The value of sheep and

goats skins alone is Rs. 1244.63 million and this is 71.05% of the total value of hides and skins exported from Madras Port for this period. The above facts will clearly present that Tamil Nadu holds a very unique position in the leather industry of India and a major contributor for India's world supremacy in leathers. The main species of animals which account for leather production in Tamil Nadu are sheep and goats. This favourable position of Tamilnadu in the leather export composition deserve to be improved by strengthening the sheep production and marketing in villages and modernisation of slaughter houses to accelerate the quality of leather exports.

A popular variety known as Red Hair sheep skins is exported Red. Hair in large quantities. sheep are found only in certain parts of Southern region and mainly in Tamil Nadu. Their skins command premium prices and are used for best quality garment leathers.

Goat skins produced in Tamil nadu are of very high quality and value. As we proceed towards North, the quality of skins gradually goes down with the result that the value of Tamilnadu goat skins may be about 2 times that of goat skins of the same size produced in Northern most parts.

The Central Leather Research Institute, Madras is now a world recognised body and houses many eminent leather technologists. Its fortunate location in Tamilnadu, which has the most important tanning centres in India is of much benefit to the trade.



PROPOSED PROGRAMME FOR SHEEP DEVELOPMENT

Besides implementing various sheep production schemes under Special Animal Huspandry Programme, Drought Prone Area Programme, Tribal Development Programme, S.F.D.A., I.R.D.P. etc., a project has been drawn up for the purpose exclusively for the sheep development with the assistance of World Bank and Agricul-

tural Refinance Development Corporation in Tamil Nadu. The project comprises of two major components. The first, the core of the project will involve the organisation of sheep farmers and improving the extension service specifically for sheep production and improving the quality of sheep through the introduction of exotic germ plasmd for sustained improvement in sheep production. The second would lay the base for marketing of sheep and sheep products through moderni sation of slaughter houses, organisation of marketing channels, both for inland utility and export oriented production. The special identity of this project is the delivery of all goods at the villages and integrated rural development of small scale and cottage industries based on sheep production.

The following are the objectives of the proposed projects:—

- 1. To increase the productivity and quality of sheep by scientific breeding through introduction of exotic sheep breeds and Artificial Insemiration.
- 2. To increase the production of quality mutton.

- To increase the contribution of Animal Husbandry
 - Sector to State income from 6% level to 12%
- 4. To generate more employment opportunities for unemployed rural population and provide adequate employment for under employed people in villages through development of small scale and cottage industries based on sheep production.
- To double the income of agricultural labourers marginal and small farmers through sheep by increasing its productivity and proper marketing of sheep and sheep products.

The proposed projects envisages the improvement of the productivity of sheep by altleast 25% and enhancement of their value by another 25%

Such pragmatic planning and vertical approach in sheep development programme will vastly improve the economy of the sheep man who belongs to the neglected and downtrodden society of Tamil Nadu.

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A MILESTONE IN

VETERINARY BIOLOGICAL

PRODUCTION

In recent times, there is large scale development of livestock under various developmental schemes sponsored by State and Central Government, as Intensive Cattle Development Project, Small Farmers Developmental Agency, Marginal Farmers' Development Agency, Hill Area Developmental Projects etc. For these schemes to succeed and to get maximum benefit from these schemes, proper health-cover should be provided. One aspect of this health cover is to protect the livestock from various infectious diseases. The Institute of Veterinary Preventive Medicine, Ranipet, plays a prominent role by manufacturing the vaccines required for prevention of these diseases. These products are supplied free to the stock owners in the State through Departmental Veterinary Institutions. The vaccinations are also being done free. This Institute is one of the foremost Institutions of its kind in the country besides the Indian Veterinary Research Institute at Izatnagar, Uttar Pradesh. The biological products manufactured in this Institute have built up a good reputation and are in great demand among stock owners, private poultry breeders and many State Governments.

HISTORY:

The Institute of Veterinary Preventive Medicine was established in 1932 at Madras exclusively for the purpose of production of anti-rinderpest serum against rinderpest which was raging in severe form at that time. Under postwar reconstruction programme, the meat dehydration factory with an area of 129 acres at Ranipet was acquired by the State Government and the Institute is functioning in these premises since 1948.

PRESENT ACTIVITIES:

The activities of the Institute can be categorised into production of biological products, disease investigation and research. Dr. C. V. NARAYANA RAO

M.V.Sc.

Director, Institute of vety.

Preventive Medicine, Ranipet.

(i) PRODUCTION OF BIOLOGI-CAL PRODUCTS:

From a modest beginning in 1932, the Institute has gradually developed and expanded its activities in the course of last 46 years and is now manufacturing 26 products comprising of vaccines (both viral and bacterial), diagnostics and diluents.

As per livestock census 1977, in Tamil Nadu the total livestock population is about 24.14 million which is made up of 13.87 million cattle, 5.28 million sheep and 4.20 million goats and 6.78 lakhs pigs.

Among the diseases affecting cattle, sheep and goats, rinderpest is the most dreadful disease. For protecting the indegenous cattle, goat tissue rinderpest vaccine is produced (GTRV). To proect the crossbred cattle, sheep and goats, production of tissue culture rinderpest vaccine (TCRV) was taken up in 1971. This Institute is first among the State units to produce this vaccine besides the National Institute at Izatnagar, Uttar Pradesh. About 67 lakhs of Tissues Culture Rinderpest Vaccine are being produced annually to meet the requirements of Tamil Nadu and neighbouring State of Kerala, Pondicherry of Union territory and Karnataka.

Among the bacterial diseases of cattle, Haemorrhagic Septicaemia (H.S.) Black Quarter (B.Q) and Anthrax are endemic in certain tracts with disposition seasonal occurrence. Anthrax in addition to cattle, affects sheep. By handling carcasses of animals died of anthrax, human beings are also affected and they develop malignant pustules. Better quality alum precipitated vaccines against Haemorrhagic Septicaemia (H.S.) and Black Quarter (B.Q.) were developed and issued for the first time in India from this Institute in 1959. About 30 lakhs doses of Haemorrhagic Septicaemia (H.S.) and 23 lakhs doses of Black Quarters (B.Q.) vaccines are produced annually. About 3 lakhs doses of Anthrax vaccine are supplied every year.

Vaccines are also produced against enterotoxaemia in sheep and bovine lymphangitis in cattle.

Brucellosis is a disease affecting men and animals. It is an occupational hazard and mostly cattle attendants, veterinarians, slaughter house workers and laboratory personnel are exposed to this malady. In human beings, it causes intermittent fever with head ache and pain in the joints. In animals it causes abortion. The disease is also of economic importance to the animal industry due to loss of valuable calves, reduction in milk yield and female stock becoming sterile. In bullocks it reduces the working capacity. A systematic survey conducted in livestock in our State reveals that the disease is endemic in the villages adjacent to the Western Ghats in the district of Coimbatore, Madurai and Tirunelveli. To control the spread of this disease extensive calf-hood vaccination is carried out in these areas Brucella abortus S19vaccine produced in this Institute.

Sheep Pox is an important disease of sheep with a mortality rate of 20%, the morbidity rate is also high. Apart from deaths, economic loss from this disease is considerable in terms of loss of mutton inferior quality of skin and wool. To combat this disease, cell culture vaccine using a local strain of sheep-pox virus was evolved and the same was released by on 18.10.1978 in the Livestock Show at Ooty.

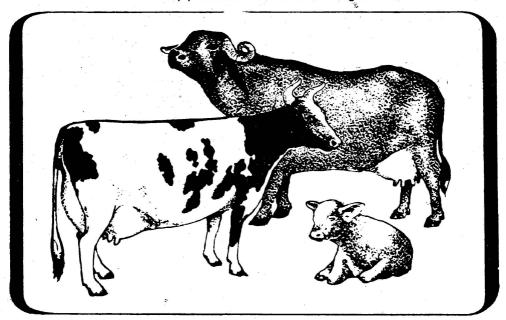
Rabies is primarily a disease of Canines and man is only accidental host and gets the disease by bite of dogs. In India about 3 million people undergo antirabies treatment annually and the cost involved is around Rs. 306 million, considering the cost per course of post-exposure treatment and work loss incurred by patients. To control rabies in man, it is essential to control the disease in dogs. With this view "Rabies Vaccine" (LEP) is produced in this Institute from January 1978. Till now the rabies vaccine used in dogs was given for seven days for probhylaxis.

Further, recently Tamil Nadu Government has enacted a legisPHOSPHORUS ENRICHED

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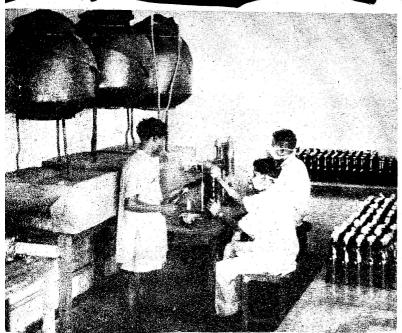


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lation, making it compulsory for the dog-owners to get their dogs vaccinated against rabies to get the license from the local bodies.

During the last 3-4 years, poultry industry has made great strides in the State. As per 1977 census, our poultry population is about 14.34 millions. The major impediment to successful poultry farming is occurrence of diseases as Ranikhet disease, Coccidiosis, Marek's disease and Fowl Pox. At present, the Institute manufactures vaccines against Ranikhet Disease and Fowl Pox. It has made a name in the production of these vaccines as seen from the enormous demand private from other States and breeders. About 16.50 million doses of poultry vaccines are produced every year.

Diagnostics to detect diseases as brucellosis and coryza (Mycoplasmosis) in poultry are also produced. For artificial insemination, semen diluents are prepared and supplied to field staff.

About Rs. 6 lakhs worth of vaccines are being sold to other State Governments and private parties every year in addition to meeting the entire requirements of Tamil Nadu.

QUALITY CONTROL:

With the inclusion of Veterinary Biologicals under the Drugs and Cosmetics Act 1940 as per the third amendment to the rule 1964, the production of biologicals at this Institute comes under the purview of State Drugs Controller. A separate Test and Quality Control section carries out the various tests prescribed before the product is issued from the Institute.

(ii) DISEASE INVESTIGATION SECTION:

There are three officers in charge of disease investigation of cattle, sheep and goats and poultry. They help the field staff in diagnosis, treatment and control of diseases. They also carry out epidemiological studies of various diseases of livestock in the State which will help them to forecast the occurrence of diseases so that advance preventive steps can be taken. Clinical materials received from field staff are also processed and results communicated. The field staff manning the clinical laboratories are also given training in examination of clinical materials and in latest techniques in disease investigation. A recent contribution of this section is the confirmation of a disease causing heavy mortality in ducks as "Duck Plague"

(iii) RESEARCH:

Apart from production of biological products, continuous research work is being carried out in each section to improve the quality of existing vaccines and to evolve new vaccines.

This Institute is one of the five regional centres in which Indian Council of Agricultural Research Project for carrying outepidemiological studies on Foot and Mouth Disease is functioning. This centre is the typing centre for Foot and Mouth Disease virus isolates made from Tamii Nadu, Kerala and Pondicherry.

There is a well maintained library catering to the needs of technical staff working in the Institute.

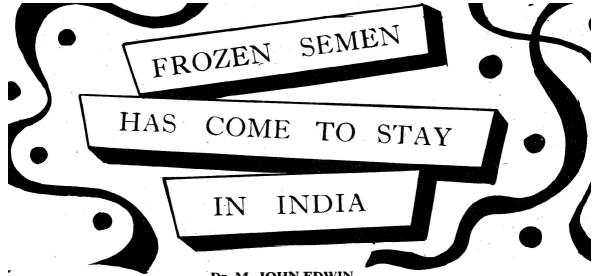
FUTURE PROGRAMMES ENVISAGED:

The importance of the killer disease 'Marek's Disease in poultry has been recognised and a laboratory for production of Marek's disease vaccine has been set up. Production of experimental batch of vaccine is under way.

Foot and mouth Disease in cattle is of major economic importance. The losses by way of reduction in milk yield, loss of calves and reduction in working capacity of work bullocks are considerable. At present, the vaccine against this disease is produced at Indian Veterinary Research Institute, Izatnagar and by some private companies. Preliminary work has already been un-dertaken to produce this vaccine at this Institute.

At present canine distemper vaccine is being imported at prohibitive cost. Canine distemper is a viral disease of young dogs below the age of 1 year. It is proposed to manufacture this vaccine at the Institute and save valuable foreign exchange.

Steps have been taken to produce vaccine against Duck Plague, the incidence of which has been recorded recently in our State.



About 70% of the world cattle population is at present found in the developing countries, but this proportion only contributes 21% of the world milk production. This low level of porductivity can be explained not only by the difficulty of raising cattle in these regions but also in many cases by the poor genetic quality of the cattle populations. Through artificial breeding mass improvement of a large population could be achieved in a shorter time. Hence artificial insemination has been accepted as a policy and it is being practised, all over the world.

Method followed at present:

Till recently semen was collected from superior bulls, volume increased by mixing with suitable semen diluents and stored at 5°C in the refrigerator, thereby lifespan of the sperms are prolonged. For short distant transportation, semen is shipped in a thermos flask filled with ice. This type of preservation is known as 'liquid semen', as the semen is in a liquid state. This system has gained popularity all over the world for the simple reason that cost of the equipment utilised is economical. No doubt this method can efficiently be used with good fertility rate as long as there is no fluctation in storage temperature and it is utilised within few hours. Under field conditions liquid semen should normally be used within 48 hours from the time of collection from the bull. Beyond this time, the fertilising capacity of spermatozoa is reduced. This results in wasting of nearly 50% of the semen Dr. M. JOHN EDWIN,

Dr. U. S. KRISHNA MURTHY, Ph.D.

Department of Animal Genetics. Madras Veterinary College, Tamil Nadu Agricultural University.

collected from superior bulls imported from other countries.

Development of frozen semen technique

(sub-zero). This problem could not only to a limited extent. be tackled so easily, for the reason that mammalian spermatozoa do not 3. Plastic straw technique: survive such cold temperatures. A new era has been unfolded by the British scientists when they discovered that glycerol gives Cryoprotection to the spermatozoa against sub-zero temperatures. This ushe-red the new method of semen preservation known as 'Deep Frozen Semen'. The semen here is in a frozen state (solid form). The introduction of frozen semen has brought sweeping changes in laboratory processing, packaging, storing and shipping of semen.

Different methods of packaging of frozen semen

Frozen semen is processed, packed, preserved and utilised in

M.V.Sc. three different systems.

1. Pellet semen:

In pellet freezing semen is frozen in the form of pellets, roughly to the size of an asprin tablet and preserved in liquid nitrogen. At the time of insemination pellet is thawed in semen diluent and-used with glass insemination catheter.

2. Glass ampoules:

In this system, semen is filled Attempts were made by scient- into glass ampoules, sealed, frozen tists to evolve a better storage and preserved in liquid nitrogen. method wherein the spermatozoa At the time of insemination, the could be kept in a state of suspended ampoule is thawed, cut open and animation, so that its longevity could the semen is drawn into glass in-be prolonged. This object could semination catheter and used. Due be achieved by subjecting the sper- to certain practical difficulties the matozoa to very low temperatures above two systems are being used

This is the most popular method of freezing semen and it is adopted in more than 60 countries all over the world. This technique involves the use of "straws" made of Polyvenyle Chloride. Straws are available in 20 different colours which aids in positive identification of bulls. Semen is filled into these straws either manually or by using an automatic machine which can fill 12,000 straws per The filled ,sealed straws are frozen in liquid nitrogen vapour and preserved in liquid nitrogen, for long term storage. This being the economical and efficient method it is being adopted in all the existing Frozen Semen Banks in India.

Cryogenic agents used for frozen There are reports that Semen .

In the beginning solid CO2 (Carbondioxide) at 79°C was used as the cryogenic agent for freezing and preservation of semen. In the year 1964 liquid nitrogen at 196°C has replaced the use of solid CO2. Liquid nitrogen has a low temperature of -196°C and it is the fourth coldest substance known. At this low temperature of storage practically there is no metabolic activity of spermatozoa and it thrives for several years.

Advantages of frozen semen in our Country

Frozen semen has got a greater role to play in tropical countries, where agroclimatic conditions varies from place to place. These factors are likely to affect the storage temperature of liquid semen during transport. Introduction of frozen semen will reduce the wastage of superior germplasm collected from the few bulls, available, because, no semen is discarded due to its age. The storage potential of semen will be prolonged to several years.

calves have been obtained from frozen semen stored as long as 14. years. Introduction of frozen semen considerably. Instead of once in 20-30 days. This system Development

selective mating possible, as the countries. cattle owner or the inseminar can have the choice of any bulls semen. be kept in a small frozen semen container. Frozen semen can safely be used in outbreak of diseases like inventory will be simplified.

healthy Frozen semen has come to stay in India.

At present there are eight well will reduce the number of bulls established frozen semen Banks in maintained per cow population by India engaged in deep freezing of nearly 50%. With the existence bovine semen. In Tamil Nadu one of poor transport system in this Frozen Semen Bank with facilities country. this new system will, cer- for conducting research is functiontainly cut down transportation costs ing in Madras Veterinary College daily of Tamil Nadu Agricultural Universupply of liquid semen to the field sity, since 1973. Another unit is A.I. Centres, frozen semen in and located in the Nucleus Jersey Farm. liquid nitrogen can be supplied Ooty, under the Tamil Nadu Dairy Corporation. How will enforce better temperature con- ever there are certain constraints in trol of semen during transport and introducing this system on a large storage, resulting in better frertility scale. Difficulties are being experienced in importing of frozen semen containers, liquid nitrogen plant Frozen semen will introduce and other accessories, from other

But no problem is unsurmoun-This is made practicable as more table as our Indian technologists than 700 doses of frozen semen can have already come out with certain equipment which need little more perfection. The day is not far off when all these equipments could be foot and mouth (semen frozen manufactured indigenously which earlier to the disease outbreak could will revolutionize, the artificial breedbe supplied). Last but not least ing in India. Hence there is no doubt book-keeping on semen sales and that frozen semen has come stay in India.

LIQUID NITROGEN REFRIGERATORS AND CONTAINERS USED FOR STORING FROZEN SEMEN AND LIQUID NITROGEN







S.N.RAJAH Executive Secretary Madras S.P.C.A

The first Society for the Prevention of Cruelty to Animals was formed in Liverpool, England in the year 1860. When Queen Victoria evinced a keen interest in the activities of the society and agreed to be its Patron, the name of the Society was changed into Royal Society for the Prevention of Cruelty to Animals and its headquarters was shifted to London. The Patron of the Society has till now been the King or the Queen of England.

The Englishmen formed similar Societies all over the British Empire in the later half of the nineteenth century. The SPCAs at Bombay, Calcutta and Madras were founded almost simultaneously in the 1870s.

The Madras SPCA was estabblished in 1878. His Grace the Duke of Buckingham and Chandos the then Governor of Madras Presidency, was its first Patron and Rt. Rev. F. Gell, Lord Bishop of Madras was its first President. The Society was registered under the Registration of Charitable, Scientific and

Literary Societies Act of 1860. The objects of the Society are "the prevention and suppression of crueland improper treatment of animals and the amelioration of their condition generally."

According to the Constitution of the Society, the Governor of Tamil Nadu is the Patron of the Society and a sitting or retired Judge or Chief Justice of the Tamil Nadu High Court is invited to be its President. Mr. Justice T. Ramaprasada Rao has been the President from 1971. There is a S.P.C.A. in every district headquarters in Tamil Nadu. These were started as Branches of the Madras SPCA but, later, in order that the local population might be induced to take active interest in their activities were made into independant and self supporting units.

The Madras SPCA has a band of eight Inspectors who are full time employees of the Society. These Inspectors are vested by the State Government with certain from the public.

Police powers and are detailed to enforce the Prevention of Cruelty to Animals Act (Central Act of 1960) according to which overloading of animal drawn vehicles, employing sick or deformed animals to work, abandoning a domestic animal, needlessly killing or mutilating an animal and such other acts are offences punishable with a fine or imprisonment. The SPCA Inspectors patrol the city, detect such offences and prosecute the offenders in a Court of Law. The fines resultant from such prosecutions are appropriated to the State Government which, in lieu of such fines, gives an annual: grant of Rs. 30,000/- to the Society.

The Madras SPCA enjoys rental income from its properties. This, together with the annual grant of Rs. 30,000/- by the State Government and income from membership subscription totals 'Rs. 50,000/-per year which is just 50% of the annual expenditure of the Society incurred on salaries to its employees, overhead expenses, maintenance of its various services to animals in distress, payment of taxes etc. The other 50% is met from donations from the public



Though the Madras SPCA was established in the year 1878, it was only in 1898 that the Society acquired 16.5 grounds of land on Vepery High Road and it was in the year 1900 that the building which has since housed the Society was built with the aid of a munificent donation by the Rajah of Venkatagiri, Rajah Venugopala Bahadur.

The Madras SPCA is considered to be a model SPCA in this country and has been hailed as a pioneer in animal welfare work. The first Veterinary Hospital in Madras City was established by the Madras SPCA in the year 1900 in its own premises on Vepery High Road. A Home for stray dogs was established by the Society in the year 1906 and for the first time in India, stray dogs were put to death by electrocution at the Lethal Chamber which was part of the Society's Home for stray dogs. The equipment of the Society's Veterinary Hospital was given away free to the Government when it opened its own Veterinary College and Hos pital on Vepery High Road in 1904. Similarly the electrocutor machine was given away to the Madras Corporation when it opened its Lethal Chamber for stray dogs on Basin Bridge Road in the year 1911. This machine continues to do service till to-day. The Madras Pinjrapole-Shelter for old and infirm animalswas established in the year 1908 by the Madras SPCA and was later given away to the Mahajan Society for maintenance. To-day the Mad-

years. To-day, the Society runs a free veterinary hospital in its premises with an uptodate operation theatre attached to it. It maintains a free ambulance service for animals in distress. It has a Dogs' Hostel consisting of 13 spacious kennels and people who go out of Madras City on a short holiday can leave their dogs in the Hostel during their absence. In the year 1968, the Society opened the first Beauty Parlour for pet dogs in India and named it 'PINK PARLOUR'. The Pink Parlour undertakes hair cutting, nails trimming, grooming and shampoo-bathing of pet dogs and has been a great success.

With regard to special projects, the Society launched a project for the rescue and rehabilitation of wantonly abandoned bull calves. Milkmen in the city have obviously no use for bull calves and therefore abandon them at street corners so that they may die a death due to hunger, thirst and exposure. The Madras SPCA rescued and rehabilitated more than 250 of such calves during the year.

The Society celebrated its Centenary in the year 1978 and has taken up as its Centenary year project the 'Project ABC'. 'ABC' stands for Animal Birth Control and is aimed at reducing the population of stray dogs and cats in the city which not only suffer themselves but also are carriers of dangerous diseases. The Madras SPCA undertakes the sterilisation of dogs and cats and concentrates on sterilising as many destitute animals as possible. These animals are found homes. In carrying out this project, the

Society is being helped with a

sizeable grant by the Animal Welfare Board of India.

The Royal SPCA, London which is the mother of SPCAs, has been rendering invaluable help to the Madras SPCA. It has donated two ambulance vans to the Madras SPCA and has been a source of inspiration to the Madras Society.

A unique facet of the Madras SPCA's activities has been its' distress service'. An Inspector is on telephone duty from 8 a.m. to 7 p.m. to receive calls from members of the public who might notice any animal in distress. On receipt of the call, the Inspector rushes to the spot in the ambulance van and transports the animal to the nearest veterinary hospital. On an average, about one hundred such distress calls are received every month over the telephone at the headquarters of the Madras SPCA.

In fact, the distress service of the Society has been so good that it has created for the Society and its cause an ocean of good-will from the animal lovers of the city.

The Madras SPCA has always believed in the efficacy of human education in promoting in man feelings of kindness and sympathy to all living beings, including animals. Such reformation can be brought about more easily in young minds because bias and prejudice are not entrenched in them. The Society, therefore, engages itself in doing continuous human education propaganda among school children by holding for them oratorical, essay and painting competitions on subject pertaining to animals and their welfare and by organising 'Kindness Clubs' in schools. The Society also has a Students' wing comprising of enthusiastic college students.

It is the duty as well as an obligation of each one of us to contribute actively to the promotion of animal welfare. Kindness to animal is more than an ideal. In this world of stress and strife among individuals and nations, we cannot afford to ignore the need for kindness. From Kindness to animals it is but a short step to kindness to fellow human beings.

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