

**POLICY NOTE 2007-08**  
**ANIMAL HUSBANDRY DEPARTMENT**  
**DEMAND NO. 6**

**INTRODUCTION**

Animal husbandry, agriculture and allied activities have been the core livelihood for majority of the rural people since time immemorial. It provides productive employment, especially self employment and the most valuable supplementary income to a vast majority of rural households, majority of whom are small and marginal farmers and landless labourers. Livestock provide increased economic stability to the poor masses. They act as cash buffer in case of small stock and as captive reserve in case of larger stock. Livestock provide quality animal protein to human population in the form of milk, eggs, meat and value added products. They provide draught power for agricultural operations, organic manure for agriculture and raw materials like skin, hides, blood, bone, hoof, horn, etc., for various industries.

During 2006-07, the gross value of output of livestock in the State is Rs.965.43 crores. The contribution of livestock sector to the Gross State Domestic Product is 3% and that to the agriculture and allied activities is 28%. The dairy and poultry sectors contributed significantly to this growth. During 2005-06, the estimated milk and egg production in the State was 54.74 lakhs MT and 6,223 millions respectively. Likewise, the per capita availability of milk/day and eggs/annum was 234 gms and 97 nos. respectively. The State contributes 5% of milk and 14% of egg production and stands 8th in milk production and 2nd in egg production in the country.

Animal husbandry is one sector which has high potential for growth. The potential of the sector needs to be exploited as this can play a key role in providing sustainable employment in their location itself and arrest migration of people to urban areas. As animal husbandry is an activity which can easily be taken up by rural communities as skill and resource requirements are minimal, inputs are locally available and marketing does not pose a major problem, it can act as an engine in poverty alleviation programmes by making assetless poor into income generating asset owing population. This will go a long way in not only augmenting food security, human security, empowerment of women and rural youths,

but will also help in triggering and invigorating the rural economy ultimately contributing significantly to the comprehensive socio-economic transformation of the State.

## **GENERAL ADMINISTRATION**

The Animal Husbandry Department is functioning under the overall control of Commissioner and Director of Animal Husbandry and Veterinary Services. The Commissioner is assisted by 3 Additional Directors and one Joint Director at the Commissionerate with allocation of different subjects. The State is divided into 24 regions and 65 administrative divisions. They are responsible for all the activities of the Department in their area of jurisdiction.

One Director in the cadre of Additional Director is in charge of the Institute of Veterinary Preventive Medicine (I.V.P.M) located at Ranipet, which is engaged in the production of various kinds of livestock and poultry vaccines and other biologicals. One Central Referral Laboratory for disease diagnosis, confirmation and monitoring is functioning at Chennai. The Central Referral Laboratory also coordinates the work of the Animal Disease Intelligence Units headed by Assistant Directors functioning in various parts of the State, engaged in disease surveillance and monitoring.

The Department also manages 8 Livestock Farms, 3 Sheep Farms, 20 Cattle Breeding and Fodder Development Units and 2 Poultry Disease Diagnostic Laboratories.

During 2006-07, to improve the administration in the Department the following measures have been taken.

- A total of 172 personnel including 30 Junior Assistants, 41 Typists, 4 Record Clerks, 93 Animal Husbandry Assistants, 1 Office Assistant and 3 Basic servants have been newly appointed. Of them, 62 were on compassionate grounds and 33 were retrenched employees of Human Census.
- A total of 117 technical staff including 80 Veterinary Assistant Surgeons to Assistant Directors, 2 Assistant Research Officers to Research Officers, 8 Assistant Directors to Deputy Directors, 24 Deputy Directors to Joint Directors and 3 Joint Directors to Additional Directors have been promoted. In addition 201 para technical staff and 120 ministerial staff have been promoted.
- 349 officials have been provided capacity building training at various institutions in the country.

- The Regional Joint Director of Ramanathapuram and Tirunelveli have been provided with cars at a cost of Rs.6.62 lakhs.
- Cell Phones have been provided to 130 officials in the Department at a cost of Rs.5.40 lakhs.

## FEED AND FODDER

Balanced feeding is essential to fully exploit the genetic potential of livestock. In the State, fodder production is still deemed ancillary to agricultural production. Crop residues mainly sorghum and paddy straws that are poor in nutritive value constitute the major fodder for livestock. The effects of better breeding and management can largely be negated, if the animals are not properly fed. Better feeding alone can bring about an increase of 30% in milk production.

	Dry Fodder (In Lakh MT)	Green Fodder (In Lakh MT)
Requirement	166.80	500.52
Availability	193.00	290.00
Shortfall	Sufficient during normal season	210.52
% Shortfall	Nil	42.06

The green fodder availability is restricted to selected areas and seasons. High population pressure on grazing lands has led to depletion and over exploitation of available grazing lands. In addition, rapid urbanisation has led to shrinking of grazing lands. Moreover, with the increasing pressure on land for growing food grains, oil seeds and pulses and diversified use of agriculture residues, the gap between the demand and supply of fodder is increasing. In fact, during the last 10 years, the area available for grazing has decreased from 1.24 lakh hectares to 1.13 lakh hectares, a decrease of 8.66% which has affected the fodder status in the State.

In order to increase the green fodder availability, the following activities are being carried out.

- ✓ To avoid degradation and depletion of grazing land by using it indiscriminately for other purposes, Government have ordered not to transfer the grazing land for other purposes unless alternate land of the same extent is developed as grazing land in the same district.
- ✓ 20,015 fodder seed minikits have been distributed to farmers free of cost.

- ✓ 50 acres of land in District Livestock Farm, Chettinad is being brought under silvipasture at a cost of Rs.19.45 lakhs. In addition, 5 silo pits each is being constructed in District Livestock Farm, Chettinad and Hosur at a cost of Rs.20.55 lakhs for storage of green fodder.
- ✓ Under the Western Ghat Development Programme, 1,474 acres of land is being brought under fodder cultivation at a cost of Rs.75.88 lakhs.
- ✓ Under the World Bank aided Emergency Tsunami Reconstruction Project, to increase the fodder security in the coastal districts, 2 Fodder Banks are being established.

During 2006-07, by the above activities, the availability of dry fodder and green fodder in the State has increased by 16.90 lakh MT and 26.50 lakh MT respectively.

During 2007-08, under the World Bank assisted Irrigated Agricultural Modernisation and Water-bodies Restoration and Management (IAMWARM) Project, it has been planned to bring 300 hectares of private land under fodder cultivation by supplying fodder inputs like Co3 slips, fodder cholam, stylo and kolukattai seeds to farmers interested in fodder cultivation.

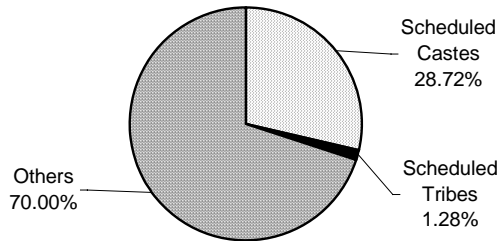
### **LIVESTOCK AND POULTRY POPULATION**

The total livestock population of the State is 249.41 lakhs which is 5.07% of the country's livestock population. The State accounts for 4.94% cattle, 1.69% buffaloes, 9.10% sheep and 6.58% goats to the country. According to the 17<sup>th</sup> Livestock and Poultry Census, the species wise distribution of livestock and poultry, their percentage to the total and density in the State is as follows.

Species	Population (In lakhs)	Percentage to total livestock	Density per sq. km.
Cattle	91.41	36.65	70
Buffalo	16.58	6.65	13
Sheep	55.93	22.42	43
Goat	81.77	32.79	63
Pig	3.21	1.29	2
Donkeys, Horses, Mules & Camels	0.51	0.20	-
<b>Total Livestock</b>	<b>249.41</b>	<b>100.00</b>	<b>191</b>

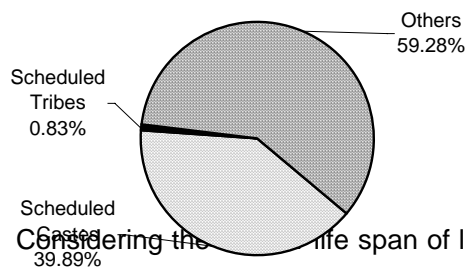
Dogs	27.17	-	21
Poultry	865.91	-	666

**Category wise Distribution of Livestock**



Of the total livestock, the livestock owned by Scheduled Castes, Scheduled Tribes and others are 65.54 lakhs, 8.92 lakhs and 174.95 lakhs respectively. Likewise the poultry owned by Scheduled Castes, Scheduled Tribes and others are 345.40 lakhs, 7.23 lakhs and 513.28 lakhs respectively.

**Category wise Distribution of Poultry**



Considering the life span of livestock, the livestock census is taken once in 5 years. The 18th Livestock Census is to be conducted shortly with 15.10.2007 as reference date as per the guidelines of Government of India.

## **LIVESTOCK FARMS**

Livestock farms are maintained for selective scientific breeding of specific species of livestock. They serve as demonstration farms and training centre for needy farmers. Moreover, it acts as a source for quality livestock to the farmers. There are 11 livestock

farms, out of which 3 are sheep farms. In addition, there is one farm exclusively for breeding poultry. The location of the farms are as follows:

Sl. No	Name of the Farm	Location
1	Exotic Cattle Breeding Farm	Eachenkottai, Thanjavur district
2	District Livestock Farm	Hosur, Krishnagiri district
3	District Livestock Farm	Abishekapatti, Tirunelveli district
4	District Livestock Farm	Udhagamandalam, The Nilgiris district
5	District Livestock Farm	Pudukottai, Pudukottai district
6	District Livestock Farm	Orathanad, Thanjavur district
7	District Livestock Farm	Chettinad, Sivagangai district
8	Livestock Farm	Korukkai, Thiruvarur district
9	Sheep Farm	Chinnasalem, Villupuram district
10	Sheep Farm	Mukundarayapuram, Vellore district
11	Sheep Farm	Sathur, Virudhunagar district
12	Poultry Farm	Kattupakkam, Kancheepuram district

To improve the breeding activities in cattle and buffaloes, the Exotic Cattle Breeding Farm, Eachenkottai and District Livestock Farm, Udhagamandalam and a part of District Livestock Farm, Hosur have been transferred to the Tamil Nadu Livestock Development Agency.

## **CATTLE AND BUFFALO BREEDING**

According to the 17th Livestock Census, the total breedable age female cattle and buffaloes is 41.17 lakhs and 9.01 lakhs respectively. Villupuram, Salem, Vellore, Tirunelveli, Thanjavur and Coimbatore districts accounts for 35% of the total breedable age female cattle while Erode, Namakkal, Salem and Thiruvallur districts accounts for 44% of the total breedable age female buffaloes.

The category wise cattle and buffalo breedable age female population during the 1994, 1997 and 2004 Livestock Census are as follows:

Sl. No	Category	Breedable age female population		
		15th Livestock Census 1994 (In lakhs)	16th Livestock Census 1997 (In lakhs)	17th Livestock Census 2004 (In lakhs)
<b>1</b>	<b>CATTLE</b>			
	Exotic	0.17	0.16	0.23
	Crossbred	8.05	9.91	25.66
	Native pure	5.25	5.05	1.80
	Indigenous	20.08	20.17	13.48
	<b>TOTAL</b>	<b>33.55</b>	<b>35.29</b>	<b>41.17</b>
<b>2</b>	<b>BUFFALO</b>			
	Murrah	0.28	0.24	0.62
	Graded	2.32	2.75	2.27
	Indigenous	11.93	10.90	6.12
	<b>TOTAL</b>	<b>14.53</b>	<b>13.89</b>	<b>9.01</b>
<b>3</b>	<b>BOVINES</b>	<b>48.08</b>	<b>49.18</b>	<b>50.18</b>

During the last 10 years, it can be clearly seen that the crossbred breedable age female cattle has increased substantially. This has resulted in an incremental increase in milk production. In fact, the average milk yield per crossbred animal per day has increased from 5.551 kg to 6.272 kg and buffalo from 3.583 kg to 4.161 kg during the last decade. This has resulted in increasing the annual milk production in the State from 39.76 lakh MT to 54.74 lakh MT and per capita availability of milk per day from 182 gms to 234 gms for the same period.

The policy followed for breeding of cattle and buffalo in our State is as follows:

- ☞ Cross breeding the local nondescript breedable female cattle by using the semen of dairy breeds like Jersey and Friesian.
- ☞ Grading local buffaloes by using the semen of Murrah bulls.

- ☞ Breeding crossbred cows with crossbred bull semen.
- ☞ Selective breeding of native pure breeds of cattle such as Kangayam and Umblachery in their respective breeding tracts.

As the above breeding policy was formulated during 1982, a new breeding policy for cattle and buffalo is being evolved taking into consideration the present and future requirements.

### **Artificial Insemination**

Artificial Insemination horizontally disseminates superior genetic resources in a population within a short period. With this in mind, to improve the milk production traits of cattle and buffaloes, to bring more returns to the farmers and to increase the State's milk production, artificial insemination with semen of high milk production traits is being carried out in 3,218 Artificial Insemination Centres functioning throughout the State.

In addition, to provide breeding services at the farmers' doorsteps, to increase the artificial insemination coverage and conception rate, the Department with the help of the Tamil Nadu Livestock Development Agency is involving itself in converting the stationary artificial insemination centres to stationary cum mobile artificial insemination centres. To further strengthen the above services in areas which could not be covered effectively, public private partnership will be encouraged by establishing Sub-basin Veterinary Units under World Bank assisted Tamil Nadu Irrigated Agriculture Modernization and Water-bodies Restoration and Management Project (IAMWARM), utilising the services of unemployed veterinary graduates. During 2006-07, 33.59 lakh artificial inseminations have been carried out by the Department.

### **Frozen Semen Production**

To cater to the needs of the Artificial Insemination Centres, 3 Frozen Semen Production Stations are functioning in the State. The Minimum Standard Protocol guidelines of the Central Government are strictly adhered to in these Frozen Semen Production Stations to produce quality semen. All the 3 stations are in the process of upgrading to ISO standards.

A total of 116 breeding bulls are maintained for semen production in the Frozen Semen Production Stations. During 2006-07, 19.58 lakh frozen semen straws were

produced in these stations. The above Frozen Semen Production Stations have been handed over to the Tamil Nadu Livestock Development Agency.

### **Liquid Nitrogen Production and Supply**

To freeze and store the frozen semen straws, liquid nitrogen is essential. Liquid nitrogen (LN<sub>2</sub>) plants function at Eachenkottai, Tirunelveli, Hosur, Uthagamandalam, Saidapet and Thiruparankundram producing liquid nitrogen. Moreover, to store and distribute the liquid nitrogen and frozen semen straws to various veterinary institutions and sub-centres involved in artificial insemination, 12 Frozen Semen Banks are functioning, one each at Vellore, Coimbatore, Madurai, Tiruchirapalli, Dharmapuri, Tirunelveli, Thanjavur, Cuddalore, Sivagangai, Chennai, Dindigul and Salem. During 2006-07, 2.30 lakh litres of LN<sub>2</sub> was produced in the above plants. The balance requirement was met by procuring through Tamil Nadu Medical Services Corporation.

### **CONSERVATION OF NATIVE BREEDS**

Tamil Nadu possess good native breeds like Kangayam, Umblachery, Burghur, Pulikulam and Alambadi cattle and Toda buffalo.

The strength of the above native breeds are:

- Thrive under harsh climatic conditions.
- Can be kept on low input system.
- Tolerance to tropical climatic stress.
- Superior feed conversion ability to poor quality forages.

The Department is in close coordination with the Tamil Nadu Livestock Development Agency, in not only protecting the above native breeds from further degradation but also in their conservation and improvement. In the departmental farms, 238 Kangayam and 299 Umblachery animals are being maintained. During 2006-07, 1.18 lakh artificial inseminations were carried out utilising the above semen. During 2007-08, it has been planned to carry out one lakh artificial inseminations utilising the semen of native breeds.

### **SHEEP AND GOAT DEVELOPMENT**

Sheep and goat rearing is a traditional rural economic activity and continues to be a primary source of income for the small and marginal farmers and landless labourers. It plays a significant role in the economy and nutrition of the above sects of people. Considering the

ever increasing demand for mutton / chevon even at a high cost, sheep and goat rearing is considered to be a highly remunerative occupation of the rural mass. Besides providing meat for human consumption and skin for leather industry, income is also derived through penning which is very common practice followed to fertilize the fields.

During the last two census period, sheep and goat population has increased by 6.35% and 27.45% respectively. Of the total sheep population, 40% is found in Erode, Tirunelveli, Salem, Virudhunagar, Vellore and Dharmapuri districts. Similarly, out of the total goat population, 43% is found in Erode, Salem, Villupuram, Nagapattinam, Tirunelveli, Namakkal, Thiruvarur and Perambalur districts. Tamil Nadu has sheep breeds like Kilakaraisal, Ramnad white, Vembur, Mecheri, Chennai red, Trichy black, Kurumbadu and Nilgiri and goat breeds like Kanni adu, Kodi adu, Molai adu and Salem black.

Utmost care is given to prevent economic loss to the farmers by mortality and morbidity of sheep and goats by periodical deworming, vaccination and treatment in all veterinary institutions, Kalnadai Padhukappu Thittam camps and under Assistance to States for Control of Animal Diseases programme. During 2006-07, 160.95 lakhs deworming, 130.52 lakhs vaccination and 68.29 lakhs treatment were carried out in sheep and goats.

In addition, the following sheep and goat breeds are maintained in the Departmental farms.

Sl. No.	Farms	Breed
1	District Livestock Farm, Hosur	Mandya, Corridale Cross, Kodivalli, Jamunapari
2	District Livestock Farm, Chettinad	Kilakaraisal, Jamunapari
3	District Livestock Farm, Pudukottai	Ramnad White, Jamunapari, Tellichery
4	Sheep Farm, Sathur	Vembur, Kilakaraisal, Kanni velladu, Kodivalli, Jamunapari
5	Sheep Farm, Chinnasalem	Mechery, Chennai red, Jamunapari

Quality progeny produced in the above farms are sold to local farmers to improve the progeny of local sheep and goats. A new breeding policy for sheep and goats taking into consideration the present and future needs is being evolved.

## **OTHER LIVESTOCK DEVELOPMENT**

**Piggery Development:** Pig farming has ample scope for providing self employment, improved nutrition and additional income to weaker sections of the society.

The pig breeds maintained in the Departmental farms are as follows:

Sl. No	Farms	Breed
1	District Livestock Farm, Hosur	Large White Yorkshire
2	District Livestock Farm, Abishekapatti	Large White Yorkshire, Landrace, Landrace Cross
3	District Livestock Farm, Chettinad	Large White Yorkshire
4	District Livestock Farm, Orathanad	Large White Yorkshire
5	District Livestock Farm, Pudukottai	Large White Yorkshire
6	Sheep Farm, Chinnasalem	Landrace Cross

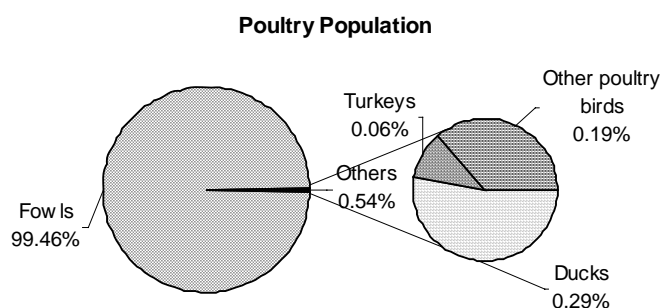
As on 31.03.2007, there are 98 boars, 136 sows and 225 young ones in the above units. During 2006-07, 1,697 pigs were sold to farmers. During 2007-08, it has been planned to sell more pigs.

**Horse Breeding:** To revive the breeding and to conserve the equine species, one horse breeding unit is functioning at District Livestock Farm, Hosur. Kathiawar and Thoroughbred horses are bred in this unit. The stallions' viz., Thoroughbred and Kathiawar are allowed for natural service. As on 31.03.2007, there are 6 stallions, 6 mares and 8 young ones in this unit.

**Dog Breeding:** Tamil Nadu possesses excellent dog breeds like Rajapalayam, Kombai, Chippiparai and Kanni. To preserve these native breeds and to propagate them, a Dog Breeding Unit is functioning at Saidapet, Chennai. As there is heavy demand for other breeds like Labrador and Doberman, these breeds were also added to the existing unit. The puppies are sold to the public. To create awareness and encourage the dog lovers to rear native breeds, the Department participates in the dog shows. As on 31.03.2007, there are 9 males, 12 females and 8 puppies in this unit. During 2006-07, Rs.5.00 lakhs was allotted for carrying out building repairs in the above unit and the work is under progress.

## POULTRY DEVELOPMENT

The total poultry population in the State is 865.91 lakhs accounting to 18% of the country's population. Of the total poultry population, desi and improved poultry comprise 54% and 46% respectively. The process of transformation of poultry farming from a mere backyard poultry to the present vibrant and dynamic commercial enterprise started from 1960 onwards with the introduction of deep litter system. In 1970s, introduction of modern scientific techniques and California cage system of poultry rearing has completely revolutionised the poultry farming in the State.



Poultry rearing is one of the important activities in the State. The development of poultry industry is significant in the State. This has been achieved by establishing Poultry Extension Centres, which act as demonstration farms and extension centres to provide training to take up poultry rearing. Moreover, Government's support for establishing poultry units and widespread immunization against Ranikhet disease contributed to development of poultry rearing as an industry. Poultry rearing which has been a cottage industry all along has now become a big industry by itself in many places in the districts of Namakkal, Salem, Erode and Coimbatore. In fact the Namakkal belt has emerged as the egg basket in the State contributing around 65% to the total egg production of the State. At present there are 5,123 broiler farms, 1,148 layer farms and 41 poultry hatcheries in the State. Of the total eggs produced in the State, the contribution of desi and improved poultry is 6% and 94% respectively. The introduction of three eggs per week in the Noon Meal Scheme will further boost the poultry industry in the State.

Ranikhet disease is one of the important diseases causing heavy mortality in poultry. To protect the poultry from this disease, the Department is providing vaccination against this

disease on specified days at the veterinary institutions and sub-centres every week and also in the camps conducted under 'The Kalnadai Padhukappu Thittam'. This apart, the Department also conducts a Statewide vaccination drive against Ranikhet disease during the month of February every year. During the year 2006-07, 248.75 lakh poultry have been vaccinated against Ranikhet disease.

**Assistance to State Poultry Farms:** To propagate backyard poultry with low input technology, to create additional avocations, employment opportunities and supplement the income of marginal farmers, landless labourers and other socially backward sector of the society and thereby improving their living standards, the Department is implementing a Central and State share scheme called 'Assistance to State Poultry Farms'. Under the above scheme, a total of 3,500 Vanaraja / Giriraja parent stock have been added in Poultry Farm, Kattupakkam and District Livestock Farm, Hosur. In addition, essential equipments like setter, hatcher, automatic vaccinator, incubator, etc., have been added in the above farms. Apart from this, 960 farmers have been given one day training on poultry rearing.

**Turkey Rearing:** Tamil Nadu possesses 0.51 lakhs of turkey in which the percentage share of Scheduled Castes and Scheduled Tribes is 10.45 and 0.57 respectively. To popularise turkey rearing and create awareness on turkey rearing as one of the profitable backyard business, turkey units are maintained in Poultry Farm, Kattupakkam and at District Livestock Farm, Hosur and Orathanad. As on 31.03.2007, 167 turkeys are maintained in the above units.

## **AVIAN INFLUENZA**

In the modern world, Avian Influenza is one of important zoonotic disease threatening mankind. Though the disease has not been reported in the State, the following preventive and precautionary measures have been taken by the Department after the outbreak of Avian Influenza in Maharashtra and Gujarat.

- ✓ A State level task force headed by Chief Secretary, Government of Tamil Nadu has been constituted. District level task force headed by District Collector has also been constituted in every district.
- ✓ All district Collectors and allied Departments like Public Health, Environment and Forest, Home, Public Works etc., have been sensitized regarding their role during outbreaks.

- ✓ 2,500 Personal Protective Equipment kits and other diagnostic kits have been stocked, to be used in the case of outbreaks.
- ✓ 200 Rapid Response Teams in the districts have been formed and trained.
- ✓ Tamil and English version of action plan Avian Influenza has been circulated to all District Collectors and farmers.
- ✓ All Veterinarians in the Animal Husbandry Department have been given training on Avian Influenza disease and its control measures.
- ✓ Weekly monitoring of commercial poultry farms, hatcheries and backyard poultry units for symptoms of Avian Influenza is being carried out.
- ✓ In addition, monitoring of bird sanctuaries is done in coordination with the Forest Department.
- ✓ 800 serum samples per month covering poultry farm, hatcheries, backyard poultry and sanctuaries is collected and sent to Southern Regional Diseases Diagnostic Laboratory, Bangalore for screening of Avian influenza.
- ✓ Government have earmarked Rs.50.00 lakhs for paying compensation to the farmers, if there is a need of destroying the birds.
- ✓ As relief measures, 1,21,500 MT of maize allotted by Government of India have been distributed to poultry farmers in the State at subsidized rate.

In addition, Government of India have approved the following measures to provide relief to poultry units:

- ➔ A moratorium of one year on repayment of existing principal and interest for term loans and working capital due to all scheduled banks, cooperative banks and Regional Rural Banks.
- ➔ Conversion of working capital into term loan. The first year of repayment would be after the expiry of moratorium period.
- ➔ Re-schedulement of term loans availed by poultry units over an additional period of two years from the agreed tenure of the term loan.
- ➔ Barring willful defaulters, Reserve Bank of India shall not to treat defaulted accounts as Non Performing Assets.

## **SPECIAL SCHEMES**

Growth in human population, rapid urbanisation, shrinking arable land, vagaries of monsoon, depleting water resources and oscillating returns from agriculture has resulted in farmers to shift to some kind of livestock rearing to earn a living. Hence for their sustenance, livelihood and productive employment, the Department is implementing various beneficiary oriented schemes.

### **1. Kalnadai Padukappu Thittam**

Kalnadai Padukappu Thittam is a novel scheme inaugurated on 18.01.2000 by the present Hon'ble Chief Minister Dr. Kalaingar at Thirukazhukundram in Kancheepuram district. Under this scheme, total health cover both preventive and curative is provided to livestock and poultry reared by farmers in remote villages where veterinary facilities are inadequate by conducting special camps.

The special camps are conducted at the rate of one camp per month in all the 385 Panchayat unions. During 2005-06, each camp was conducted at a cost of Rs.3,700/-. During 2006-07, additionally Rs.1,300/- was allotted for each camp and the camps are conducted at a total cost of Rs.5,000/- per camp. On the day preceding the camp, wide publicity is given regarding the place where the camp is to be conducted in the village and surrounding villages. Pamphlets and leaflets are also distributed regarding the various activities provided in the camp.

In these camps, various activities like health care, disease prevention, deworming, castration, artificial insemination, pregnancy verification, infertility treatment, etc. are carried out free of cost. A team of veterinarians and para-veterinarians working in the Panchayat Union and near by Panchayat unions are drawn for conducting the camps. The services of Tamil Nadu Veterinary and Animal Sciences University is also utilised in needy places.

In addition, an exhibition depicting various livestock diseases and preventive measures, fodder development measures are conducted for creating awareness among the farmers. During 2006-07, distribution of prizes was reintroduced with a slight modification i.e. instead of issuing prizes to best animal, prizes worth Rs.400/- per camp is being distributed to best calves.

During 2006-07, 2,695 camps have been conducted benefiting 37.44 lakh animals. The beneficiaries are all animal growers in the villages and near by villages where the

camps have been conducted. The scheme is very popular among the rural farming community as all the facilities are provided at the farmer's doorsteps free of cost.

## **2. Tamil Nadu Irrigated Agricultural Modernisation and Water-bodies Restoration and Management Project (TNIAMWARM)**

World Bank assisted Tamil Nadu Irrigated Agricultural Modernisation and Water-bodies Restoration and Management project involving various departments is to be implemented in the State from 2007 to 2013 for a period of 6 years. The main aim of the project is to improve the productivity per unit of water in agriculture and allied activities and enhance the farm income ultimately. For animal husbandry component, World Bank has allotted Rs.3,938 lakhs for implementing various schemes in the 63 sub-basins during the project period.

The objectives of the Animal Husbandry Department in the project are:

- ↻ To improve the production potentialities of livestock in the sub-basin.
- ↻ To provide veterinary services and breeding support at the farmers' door steps or nearest to the farmers.
- ↻ To ensure total health cover both preventive and curative.
- ↻ To improve the conception and calving rate in bovines.
- ↻ To reduce the gap between the requirement and availability of green fodder.
- ↻ To improve the knowledge level of the farmers on best animal husbandry practices / techniques.

The interventions by the department in the sub-basins are:

- Delivery of veterinary services and breeding support to livestock reared by farmers in unserved areas by establishing Sub-basin Veterinary Units, utilising the services of unemployed veterinary graduates.
- Improving the quality in delivery of veterinary services and diagnosis by strengthening the essential and needy infrastructure of veterinary institutions.
- Increasing the availability of green fodder by bringing more area under fodder cultivation.
- Ensuring total health care and improving the conception rate by conducting Infertility cum total health care camps and distribution of mineral mixture.
- Improving the know-how level of farmers on best animal husbandry practices / techniques by conducting various information, education, communication and training programmes.

- Updating the knowledge and skills of the veterinarians and para-veterinarians by various capacity building programmes.

During 2007-08, the project is to be initially implemented in 9 sub-basins Viz., Varahanadhi, Upper Vellar, South Vellar, Palar (Parambikulam Aliyar Project), Aliyar (Parambikulam Aliyar Project), Pambar, Arjunanadhi, Manimuthar and Kottakaraiyar

The following activities are to be carried out during 2007-08.

- ☞ Breeding support and veterinary services will be made available at the farmer's door steps or nearest to the farmers by establishing 50 Sub-basin Veterinary Units, utilising the services of unemployed veterinary graduates.
- ☞ The storage input facilities for bulk storing and transport of liquid nitrogen and frozen semen will be ensured by providing 12 Jumbo LN2 containers.
- ☞ Around 300 hectares of land will be brought under fodder cultivation by supply of fodder inputs like Co3 slips, kolukattai and stylo seeds.
- ☞ 600 Infertility cum total health care camps will be conducted.
- ☞ 5,000 beneficiaries will be provided with mineral mixture.
- ☞ Information, education and communication campaigns will be conducted by distribution of pamphlets and leaflets, erection of hoardings and carrying out wall paintings. In addition, 200 night meetings will be conducted.
- ☞ The knowledge level and skills of around 20,000 farmers in profitable livestock rearing will be improved by provided training.

### **3. Assistance to States for Control of Animal Diseases Programme (ASCAD)**

To control economically important diseases affecting livestock, "Assistance to States for Control of Animal Diseases programme (ASCAD) is being implemented with 75% central assistance except for one component "Training / Seminar" for which assistance is 100%.

During 2006-07, the following works have been carried out:

- ☑ 20.61 lakh animals covering Thiruvallur, Kancheepuram, Vellore and Villupuram districts have been protected against Haemorrhagic septicemia disease.
- ☑ 20.14 lakh animals covering Kancheepuram, Villupuram, Sivagangai, Thanjavur and Pudukottai districts have been protected against Black quarter disease.

- ☑ 40.52 lakh animals covering Cuddalore, Coimbatore, Dindigul, Thiruvannamalai, Theni, Tirunelveli and Vellore districts have been protected against Anthrax disease.
- ☑ 55.19 lakh animals in the State have been covered against Foot and Mouth Disease.
- ☑ 125.88 lakh sheep and goats in the State have been protected against Pesti-des-petits-ruminant disease.
- ☑ Rs.45.00 lakhs has been allotted for upgrading the Poultry Vaccine Laboratory to Good Manufacturing Practices standards at the Institute of Veterinary Preventive Medicine, Ranipet and the work is in progress.
- ☑ 60 Veterinary Assistant Surgeons and 60 Livestock Inspectors have been given capacity building training on various disease diagnostic methods.
- ☑ Rs.28.00 lakhs has been provided for purchase of materials required for preparedness and training of Rapid Response Teams against Avian Influenza.
- ☑ In addition, various pamphlets, leaflets and booklets on various diseases and prevention measures have been distributed to farmers.

#### **4. Western Ghats Development Programme**

The above programme is being implemented in 135 watersheds in Coimbatore, Dindigul, Theni, Madurai, Tirunelveli, Kanyakumari, Erode and Virudhunagar districts. Under this programme, a Farmers Training Centre has been constructed at District Livestock Farm, Abishekapatti. In addition, Mobile Veterinary Units, one at Vettaikaranpudur, Coimbatore district and another at Uthamapalayam, Theni district and one Animal Disease Intelligence Unit at Dindigul have been established to serve the people of the project area.

During 2006-07, a sum of Rs.95.50 lakhs was provided for implementing various schemes in the 135 water sheds of the above 8 Western Ghats districts, which includes Rs.5.18 lakhs for conducting training on poultry rearing and distributing one Giriraja poultry unit consisting of 10 pullets and one cock to 810 beneficiaries with 50% subsidy and Rs.14.44 lakhs for conducting training on cattle rearing and distributing one crossbred heifer calf to 270 beneficiaries at 50% subsidy. In addition Rs.75.88 lakhs was provided for developing 1,474 acres of grazing land by sowing stylo, cenchrus and subabul seeds.

#### **5. Hill Area Development Programme**

The above programme is being implemented in the Nilgiris District. Under this programme, one Frozen Semen Production Station at District Livestock Farm, Uthagamandalam, one Animal Disease Intelligence Unit at Udthagamandalam and two Mobile Units, one at Kothagiri and another at Gudalur have been established to serve the people in the hilly areas. During 2006-07, a sum of Rs.10.00 lakhs has been sanctioned towards creation of disease free zone in the project area by vaccinating 87,500 animals against Foot and Mouth Disease.

#### **6. Foot and Mouth Disease Control Programme**

This centrally sponsored scheme is in implementation in Kanyakumari district. Under this programme, all susceptible livestock in the project area are systematically vaccinated against Foot and Mouth Disease following Government of India guidelines. Up to 2005-06, Foot and Mouth Disease vaccination have been carried out in 5 phases. During 2006-07, one lakh Foot and Mouth Disease vaccination have been carried out in the project area as a 6th phase.

#### **7. Integrated Sample Survey Scheme**

Integrated Sample Survey Scheme covering all the districts is functioning in the State providing timely and reliable statistical data on livestock products like milk, egg, meat, etc. It also studies livestock management practices annually and seasonally in a regular and continuous manner. It helps to assess and monitor the impact of various animal husbandry development activities initiated and implemented by the Department. Besides, the survey provides base level data, which helps in planning future programmes.

The season wise estimated production of milk, egg, and meat during 2006-07 excluding the winter

season are as follows:

<b>Item</b>	<b>Summer</b>	<b>Rainy</b>	<b>Total</b>
Milk (Lakh metric tonnes)	17.99	19.24	<b>37.23</b>

Egg (Million Nos.)	29.42	26.91	<b>56.33</b>
Meat (Million Kgs)	19.70	20.21	<b>39.91</b>

In addition, the following pilot studies are being carried out.

- I. Estimation of meat production from unauthorised / unrecognised slaughter houses in Salem and Coimbatore districts at a cost of Rs.2.96 lakhs.
- II. Estimation of percentage of mortality rate in different species which die due to natural causes in 5 districts at a cost of Rs.3.14 lakhs.
- III. Estimation of yield rate of meat by-products like head, fat, blood, etc., at a cost of Rs.2.36 lakhs.

### **CO-OPERATIVE SOCIETIES**

Co-operative societies for breeding sheep, poultry, pig, etc., are functioning in the Department since 1964. The Commissioner and Director of Animal Husbandry and Veterinary Services is the functional Registrar of these societies. The objective of these societies is to improve the economic conditions of the weaker sections by making them members of the society. As on 31.03.2007, the Department has 445 societies in which 81 are active and 374 are inactive.

### **VETERINARY SERVICES**

Animal Husbandry Department plays a major role in providing superior health coverage, veterinary services and maintenance of economically 'healthy productive cycle'. These are the key to achieve positive progress in livestock production. Veterinary institutions have expanded from a small beginning of around 120 institutions during 1959-60 to 1,334 institutions during 2006-07 as detailed below:

#### **Veterinary Institutions**

Polyclinics	:	6
Clinician Centres	:	22
Veterinary Hospitals	:	139
Veterinary Dispensaries	:	1,167
Mobile Veterinary Units	:	55

The services provided in the above institutions are:

- ⇒ Artificial insemination
- ⇒ Pregnancy Diagnosis
- ⇒ Cases treatment
- ⇒ Vaccination
- ⇒ Deworming
- ⇒ Castration
- ⇒ Extension Services and
- ⇒ Implementation of various schemes

Of the above institutions, Polyclinics are functioning round the clock and provide specialized services in gynecology, surgery and medicine and have in-patient facilities. In-patient facilities are also available in all Clinician centres and Veterinary Hospitals. In addition X-ray facility is available in all the institutions functioning in district headquarters except at Namakkal and Thanjavur. Ultrasound scan facility is to be provided in Chennai, Coimbatore and Madurai polyclinics. Apart from this 1,829 Veterinary sub-centres are functioning to provide first-aid and breeding support through artificial insemination and pregnancy diagnosis to the livestock reared by farmers in the State.

During 2006-07, the following steps have been taken by the Government to benefit a large number of farmers in the State.

- ✓ 11 Veterinary Dispensaries and 30 sub-centres have been newly opened in needy places.
- ✓ Admission fee of Rs.5/- and daily treatment charges of Rs.5/- on first day and Rs.3/- on subsequent days for pet animals have been cancelled.
- ✓ A pet clinic has been opened at Adyar, Chennai to fulfill the long standing demand of pet owners of southern Chennai.
- ✓ The essential equipments like castrator, microscope, obstetrics kit, etc., is being replaced in all the 55 Mobile Veterinary Units at a cost of Rs.15.38 lakhs. In addition, vehicles in 6 Mobile Veterinary Unit have been replaced at a cost of Rs.25.38 lakhs.
- ✓ The needy equipments in 200 Sub-centres are being replaced at a cost of Rs.19.82 lakhs.

## **Veterinary Infrastructure Development through NABARD**

Many veterinary institutions in the State were functioning without adequate and proper infrastructure facilities, leading to non delivery of quality veterinary services to the public. Improved infrastructure will provide improved veterinary services, contributing to reduction in the incidences of animal diseases, thereby increasing the overall productivity, which can contribute significantly to rural development. Therefore with an ultimate aim of rural development, the Department's infrastructure is being developed with assistance from NABARD Rural Infrastructure Development Fund (RIDF).

☞ **RIDF X:** Government have accorded sanction for Rs.5,978.92 lakhs with assistance from NABARD RIDF X for the following works:

- ↳ Rs.4,380.38 lakhs towards construction of 89 Veterinary Dispensaries, 13 Veterinary Hospitals, 9 Semen banks, 23 Field monitoring units, 10 Disease Diagnostic Units, 97 dressing sheds, 152 In patient units and 19 X-ray units.
- ↳ Rs.1,374.54 lakhs towards providing needy equipments to 1,327 veterinary institutions and 18 diagnostic centres.
- ↳ Rs.224.00 lakhs towards providing essential furniture to 95 veterinary institutions and 17 diagnostic centres.

The works in 163 buildings have been completed and are available for use. The works in remaining buildings are being carried out at a fast pace. The essential equipments and furniture for the above buildings are also being provided. All the works will be completed during the current year.

☞ **RIDF XI:** The Government have accorded sanction for Rs.234.20 lakhs with assistance from NABARD RIDF XI for construction of bull sheds at Hosur, Udthagamandalam and Eachenkottai, Livestock farms and quality control laboratories at Livestock farms at Hosur and Udthagamandalam.

☞ **RIDF XIII:** The Department is preparing a detailed proposal for improving the cold chain network of vaccines, upgrading of all Vaccine Laboratories and Quality Control Division in Institute of Veterinary Preventive Medicine to Good Manufacturing Practices standards and construction of remaining veterinary institutions.

## **Emergency Tsunami Reconstruction Project (ETRP)**

World Bank Emergency Tsunami Reconstruction Project is being implemented in 13 coastal districts of the State at a cost of Rs.866.702 lakhs with the following objectives:

- Improving the infrastructure facilities and thereby improving the delivery of veterinary services in the coastal areas.
- Training and dissemination of best practices in livestock rearing, to provide alternative sustainable employment and income opportunities to the coastal communities.
- Ensuring fodder security through construction of fodder banks.

3 Veterinary Hospitals, 9 Veterinary Dispensaries, 13 District Veterinary Extension Centres, 2 Fodder Banks, 12 Community Based Veterinary Worker Centres and 70 Sub-centres are to be constructed. In addition, 4 damaged buildings are to be renovated. Totally 113 buildings are to be constructed. Work is under progress in 101 places. Moreover to make the above units completely functional, all essential equipments and furniture will be provided. In addition, as alternative livelihood opportunities, 82 local unemployed youths to be trained on first aid, deworming, vaccination and breeding support and 10,000 interested farmers to be trained on livestock rearing have been selected.

### **INSTITUTE OF VETERINARY PREVENTIVE MEDICINE, RANIPET**

Institute of Veterinary Preventive Medicine at Ranipet has been the back bone in meeting out the vaccine demand of the State. The institute is producing vaccines and other biological products required for the protection of livestock and poultry. At present, the institute is producing 5 types of bacterial vaccines, 5 types of viral vaccines, 7 diagnostic reagents, 9 pharmaceuticals and one diluent. In addition, Indian Council for Agriculture Research aided All India Coordinated Research Project (AICRP) on Foot and Mouth Disease is functioning in this institute to undertake investigation into Foot and Mouth Disease outbreaks and for virus typing.

The value of products produced during 2006-07 and anticipated value of production during

2007-08 are as follows:

Items	2006-07 (In lakh Rs.)	2007-08 (In lakh Rs.)
Bacterial vaccines	299.09	325.00
Viral vaccines	97.70	175.00
Diagnostics reagents	0.53	1.00
Pharmaceuticals	2.94	10.00
Diluents	3.45	4.50
<b>Total</b>	<b>403.71</b>	<b>515.50</b>

To meet the international standards in vaccine production, it is essential to upgrade the vaccine manufacturing labs to Good Manufacturing Practices (GMP) standards. As a first step, the poultry vaccine production laboratory is in the process of being upgraded to Good Manufacturing Practices standards under Assistance to States for Control of Animal Diseases (ASCAD) scheme. The remaining Vaccine Production Laboratories and Quality Control Division at the Institute are to be upgraded to Good Manufacturing Practices standards with NABARD assistance.

The works for strengthening the Poultry Vaccine Laboratory in the institute by providing additional essential equipments like vertical autoclave, egg incubator and automatic glass washer is being carried out at a cost of Rs.38.00 lakhs. Moreover to help the sheep growers against blue tongue disease, on a trial basis for the first time 8,000 doses of blue tongue vaccine has been produced and supplied to Tirunelveli and Thoothukudi districts. In addition, 60 Livestock Inspectors have been provided training on "Control of economically importance livestock diseases by vaccination" at the institute.

## **DIAGNOSTIC SERVICES**

Healthy livestock yields wealthy returns. In the four pillars of animal husbandry viz., breeding, feeding, management and disease control, disease control is the most important as this is the most critical factor affecting the productivity of livestock. Moreover, the benefits of improved breeds and better feeding can be negated by livestock falling prey to diseases. Besides causing a large number of deaths, they reduce the vitality and working efficiency of the animals considerably. As farmers generally show interest only in curative veterinary practice and not in prevention and control of diseases, the Department plays a

major role in disease prevention and eradication. Systematic control of diseases will progressively lead to its containment first and eradication ultimately.

**Animal Disease Intelligence Units:** Early forecasting of diseases and surveillance is essential to provide 'early warning signals' of outbreaks while epidemiology helps in systematic study of the distribution and determinants of health problems. For this purpose 19 Animal Disease Intelligence Units are functioning in the State as detailed below.

Sl. No	Animal Disease Intelligence Unit	Districts covered
1	Coimbatore	Coimbatore
2	Cuddalore	Cuddalore
3	Dindigul	Dindigul
4	Erode	Erode
5	Kancheepuram	Chennai, Kancheepuram, Tiruvallur
6	Karur	Karur
7	Krishnagiri	Dharmapuri, Krishnagiri
8	Madurai	Madurai, Theni
9	Nagapattinam	Nagapattinam, Thiruvarur
10	Salem	Salem, Namakkal
Sl. No	Animal Disease Intelligence Unit	Districts covered
11	Sivagangai	Sivagangai, Ramanathapuram
12	Thanjavur	Thanjavur, Pudukottai
13	Thoothukudi	Thoothukudi
14	Tiruchirapalli	Tiruchirapalli, Perambalur
15	Tirunelveli	Tirunelveli, Kanyakumari
16	Udhagamandalam	Udhagamandalam
17	Vellore	Vellore, Thiruvannamalai
18	Villupuram	Villupuram
19	Virudhunagar	Virudhunagar

The main role of the Animal Disease Intelligence Units are:

- ☞ Assisting field staff in disease diagnosis.

- ☞ Monitoring of disease outbreaks and helping field staff in containment of outbreak.
- ☞ Monitoring of livestock health in their area.
- ☞ Seromonitoring in vaccine programmes.
- ☞ Surveillance for Avian Influenza.

During 2006-07, the surveillance, monitoring and control activities for livestock diseases has been strengthened by establishing 4 new Animal Disease Intelligence Units at Krishnagiri, Nagapattinam, Karur and Virudhunagar at a cost of Rs.60.88 lakhs. Moreover, the infrastructure in all the Animal Disease Intelligence Units is being strengthened with assistance from NABARD RIDF X. During 2006-07, the above units have attended to 88 outbreaks and have tested 2.64 lakh specimens for disease diagnosis.

**Poultry Disease Diagnostic Laboratory:** To cater to the needs of the farmers in areas of high poultry production, 2 Poultry Disease Diagnostic Laboratories one at Andagalurgate, Namakkal district and the other at Erode are functioning. These are mainly involved in conducting post-mortem, testing of droppings, blood samples and other specimens for accurate diagnosis of diseases. In addition, they render technical advice to farmers for prevention, diagnosis and control of various infectious and parasitic diseases. During 2006-07, 1,317 poultry farms and 1,116 villages have been visited and 7,294 samples have been examined. The infrastructure in both the Poultry Disease Diagnostic Laboratories is being strengthened with assistance from NABARD RIDF X.

**Central Referral Laboratory:** Central Referral Laboratory is the apex laboratory which coordinates the work of Animal Disease Intelligence Units and Poultry Disease Diagnostic Laboratories and helps the field staff in diagnosis and allied activities. The laboratory is also involved in conducting Eliza test for Peste-des-petis-ruminants disease, screening of farm animals for various diseases, testing of export materials from animal origin and issuing health certificates. The laboratory plays a vital role in creating awareness among poultry farmers about Avian Influenza and trains field veterinarians (Rapid Response Team) to act in case of emergency. During 2006-07, 3,182 specimens have been examined for various diseases. In addition, 1,047 animals from Livestock Farms have been screened for Tuberculosis, Brucellosis, etc. Apart from this, 5,698 serum samples have been sent to

Southern Regional Disease Diagnostic Laboratory, Bangalore for screening of Avian Influenza.

### **Disease Eradication**

Control and eradication of many animal diseases is a must not only for profitable livestock production but also essential to make our livestock and livestock products globally acceptable. Presence of contagious diseases prevents our country in exploiting fully the international export market, as our livestock and livestock products should comply with the zoo-sanitary specification and standards prescribed by the Office International Epizootics (OIE) to freely enter and compete in world markets. The Department has made notable achievements in the control of various diseases.

The most important landmark and the major breakthrough is the stamping out of Rinderpest disease, which has been the greatest killer of bovines and sheep. This was achieved through implementation of Government of India scheme "National Project on Rinderpest Eradication". The State being declared "Rinderpest Free" from May 2004 onwards, remains the most important milestone in the successful disease control activities of the Department. From 1998-99, the Department is engaged in carrying out clinical surveillance and sero-surveillance activity to find out the presence of any hidden foci of Rinderpest infection and presence of Rinderpest antibodies. During 2006-07, 51,614 villages and 31,268 livestock routes have been checked for presence of hidden foci of Rinderpest disease. So far no lesions have been noticed.

The timely disease prevention, diagnosis and control activities have resulted in containment of various diseases. The total number of outbreaks of livestock diseases which was 436 during 2004-05 has decreased to 151 during 2005-06 and further decreased to 109 during 2006-07. This has lowered livestock mortality, increased the production potential and ensured better profit to farmers.

### **VETERINARY PUBLIC HEALTH**

Zoonotic diseases have emerged as a major public health concern in the modern era. With majority of the population living in rural areas and the farming system depending on livestock, the responsibility of animal health services in surveillance, prevention, control

and possible eradication of zoonotic diseases are matter of great importance. Some of the services related to these aspects are detailed below:

#### **(a) Canine Rabies Control Programme**

Rabies is one of the important zoonotic diseases affecting mankind since time immemorial. Dogs play a major role in transmission of the disease to livestock. Vaccination against rabies and pet hygiene is of immense importance in controlling this disease. With this aim, Canine Rabies Control Programme Units are functioning at Madurai and Tirunelveli.

The main work of these units are:

- Systematic, periodical door-to-door prophylactic vaccination of pet dogs against rabies after collecting the cost of vaccine
- Post exposure vaccination of all livestock including dogs free of cost, and
- Creation of awareness among the public through publicity and propaganda by distributing pamphlets and handbills and by conducting dog shows.

During 2006-2007, 6,965 vaccinations have been done in the above centres.

#### **b) Vaccination and Deworming**

The Department is conducting regular vaccination and periodical deworming of livestock and poultry reared in the State. By this, the chances of spreading of zoonotic diseases like Anthrax, Brucellosis, Taeniasis, Strongylosis, Amphistomiasis, etc. are prevented. Systematic deworming of livestock and poultry prevent the growth of parasites.

#### **C) Meat Inspection**

The Department is conducting meat inspection work in the 109 registered slaughter houses functioning under the control of the local bodies located throughout the State. By this, the chance of getting meat borne diseases like taeniasis, trichinosis and hydatidosis by the meat consuming public is almost eliminated.

### **EXTENSION SERVICES**

Extension and propaganda acts as a very important tool in imparting knowledge in basic and latest animal husbandry practices and disease diagnosis, which in turn can play a

vital role in solving many field problems and in containment of economically important diseases faced by farmers day to day. Moreover, it can make the schemes and programmes implemented by the Department more transparent to the public.

With the motto of "**Seeing is learning**" each and every opportunity is being utilised by the Department to enlighten the farmers on various animal husbandry practices and disease diagnosis. The Department is involving, itself in conducting exhibitions at various places during local festivals, fairs and other occasions to educate the public on the latest developments in animal husbandry activities and on veterinary public health.

Some of the Exhibitions in which the Department has participated during 2006-07 are:

- Summer Festival at Kodaikanal, Yercaud, Yelagiri and Cuddalore.
- All India Mango Festival at Krishnagiri
- Karthigai Theepam festival at Thiruvannamalai
- 33rd All India Tourist and Trade Fair at Chennai

In addition, information on best animal husbandry practices, diseases affecting livestock and their control and various developmental activities and schemes implemented in Animal Husbandry Department is broadcasted via All India Radio at 720 K.Hz frequency in 'Veendum Vayalum' programme on all Saturdays between 7.30 PM to 8.00PM.

### **ANIMAL WELFARE MEASURES**

To prevent cruelty to animals and to treat them ethically in a humane manner, the Government in coordination with Animal Welfare Board of India are addressing the problems of unethical treatment to animals.

Some of the important measures taken are:

- Society for Prevention of Cruelty to Animals (SPCA) has been established in all districts in Tamil Nadu.
- A State level coordination committee headed by Secretary, Animal Husbandry, Dairying and Fisheries Department, Government of Tamil Nadu has been constituted. District level coordination committees headed by District Collector have also been constituted in every district.

- A meeting with Tamil Nadu Animal Husbandry Butchers Association has been conducted regarding prevention of cruelty to animals and humane handling of animals during slaughter and transport.
- Steps are being taken to erect hoardings depicting do's and don'ts regarding humane handling of animals in livestock shandies and at vantage points, utilizing the services of People for Animals (PFA).
- Veterinary First Aid Centres have been constructed in 20 livestock shandies.

### **Animal Birth Control Programme**

To control the stray dog population by the municipalities and local body authorities, the Government of India has formulated the Animal Birth Control (Dogs) Rules.

The main objectives of this programme are:

- ⇒ Effective control of the population
- ⇒ Incidence of Rabies are reduced
- ⇒ Killing of healthy stray dogs are prevented

Under this programme, the stray dogs are caught in a human method, sterilized, vaccinated against rabies and let back in the same original place from where they were caught. Government have ordered implementation of Animal Birth Control programme in 5 corporations and 50 municipalities covering 2.03 lakhs dogs involving Municipal Administration Department, Animal Husbandry Department and Animal Welfare Board of India.

## **ELEVENTH FIVE YEAR PLAN (2007-08 to 2011-12)**

Taking in to consideration the strength and opportunities, eliminating the weaknesses and overcoming the threats in the 11th Five Year Plan, the following main objectives have been proposed:

- ↳ Improving the breeding support services by increasing the artificial insemination coverage in bovines and introducing artificial insemination in goats.
- ↳ Providing veterinary services and breeding support at the farmer's doorsteps through Public-Private Participation.

- ↪ Increasing the availability of green fodder by rejuvenation of pasture lands and bringing additional land under fodder cultivation in private lands.
- ↪ Strengthening the disease diagnostic, surveillance and monitoring activities.
- ↪ Improving the quality and self life of livestock vaccines by improving the cold chain network for transport of vaccines and upgrading all vaccine production laboratories in Institute of Veterinary Preventive Medicine to Good Manufacturing Practices (GMP) standards.
- ↪ Creation of cold storages under Public-Private Partnership for storage of livestock products.
- ↪ Improving the knowledge level of farmers and department officials by conducting various capacity building training programmes.
- ↪ Strengthening Management Information System (MIS) and extension services.

### **PERFORMANCE OF SCHEMES IMPLEMENTED DURING 2006-07**

- Four Animal Disease Intelligence Units have been established at Krishnagiri, Nagapattinam, Karur and Virudhunagar and are functioning. Vehicles have been provided to the above units. Funds for supply of equipments have been provided to Tamil Nadu Medical Services Corporation and the equipments are being supplied. The work will be completed in 2 months. Places for construction of separate buildings for the above units under NABARD assistance have been identified.
- Six Mobile Veterinary Units have been provided with new vehicles and the vehicles are in use. Funds for supply of equipments to 55 Mobile Veterinary Units have been provided to Tamil Nadu Medical Services Corporation and equipments are being supplied. The work will be completed within 2 months.
- Regional Joint Directors of Ramanathapuram and Tirunelveli have been provided with light motor vehicles.
- Under providing communication facilities to Regional Joint Directors and veterinary institutions located in taluk headquarters, 130 cell phones have been purchased and distributed to Regional Joint Directors and veterinary institutions located in taluk headquarters which do not have telephone facility and they are in use.
- Under strengthening of Poultry Vaccine Laboratory in the Institute of Veterinary Preventive Medicine, Ranipet by providing essential equipments, funds have been

provided to Tamil Nadu Medical Services Corporation and supply orders have been issued by them. Work will be completed in 3 months.

- Under construction of silo pits 5 each in District Livestock Farms, Hosur and Chettinad for carrying out integrated fodder development and bringing 50 acres of land in Chettinad farm under silvipasture, work entrusted to Public Works Department for construction of silo pits and the work will be completed in 3 months. One tractor has been provided to Chettinad farm to bring 50 acres of land under silvipasture. Remaining works are in progress and will be completed in 3 months.
- Under strengthening the functioning of 200 Veterinary Sub-centres in remote and hilly areas by replacement of equipments and machineries, funds for supply of equipments have been provided to Tamil Nadu Medical Services Corporation and supply orders have been issued by them. Work will be completed in 2 months.
- 10 new Veterinary Dispensaries have been opened. All required medicines have been provided. Equipments are being supplied by Tamil Nadu Medical Services Corporation. Work will be completed in 2 months.
- 30 new Veterinary Sub centres have been opened. All required medicines have been provided. Equipments are being supplied by Tamil Nadu Medical Services Corporation. Work will be completed in 2 months.
- Under Kalnadai Padhukappu Thittam, for providing veterinary services to livestock in remote villages, during 2006-07, up to March 2,695 camps have been conducted and 37.44 lakh livestock have benefited.
- A Pet Clinic at P.S. Kumarasamy Raja Salai, Adyar in Chennai has been opened and is functioning now.
- 250 Veterinary Assistant Surgeons have been selected through Tamil Nadu Public Service Commission. They will be posted in a month.
- 438 Department staff from various cadres have been promoted. 172 vacant posts have been filled.

### **NEW PART II SCHEME FOR 2007-2008**

It is proposed to augment green fodder production in District Livestock Farms, Orathanad and Abishekapatti by bringing an additional 100 acres under fodder cultivation at a cost of Rs.60.00 lakhs.

## **TAMIL NADU LIVESTOCK DEVELOPMENT AGENCY**

The National Project for Cattle and Buffalo Breeding (NPCBB) was formulated by the Government of India to develop and increase the productivity of cattle and buffaloes. To implement the project in Tamil Nadu, the Tamil Nadu Livestock Development Agency has been established as an autonomous State Implementing Agency to co-ordinate all the breeding activities in cattle and buffaloes. The Tamil Nadu Livestock Development Agency is implementing the National Project for Cattle and Buffalo Breeding in Tamil Nadu since 9-1-2003.

### **AIM**

- ❖ The primary aim of the Agency is to increase the milk production and the per capita availability of milk to 250 gm through the increase in number and improving the quality of cattle and buffalo.
- ❖ To bring all the breedable age female cattle and buffaloes under breeding programme by making available breeding facilities like artificial insemination and bulls for natural service.
- ❖ To increase the breedable female bovine under artificial Insemination coverage annually by 7% and 9% of the total breedable population of cattle and buffalo respectively.

### **PROJECT COMPONENTS**

1. Quality control of goods and services at sperm stations, semen banks and training institutions
  - a. Strengthening of Institutions.
  - b. Laying down standards for bulls/semen.
2. Introduction of quality bulls with high genetic merit
  - a. Field performance recording programme through selected dairy co-operatives, breeders' associations, etc.
  - b. Intensification of Progeny Testing Programme.
  - c. Setting up of Open Nucleus Breeding System through Multiple Ovulation and Embryo Transfer (MOET)

3. Promotion of private mobile artificial insemination practice for door-step delivery of artificial insemination services.
  - a. Training of artificial insemination workers.
  - b. Support for acquisition of frozen semen and artificial insemination equipment.
  - c. Regular supply of frozen semen and liquid nitrogen at reasonable cost.
4. Conversion of existing Stationary Artificial Insemination Centres into Mobile cum Stationary Centres
  - a. Provide portable frozen semen containers.
  - b. Supply of quality genetic inputs.
  - c. Authorise private artificial insemination practice at farmers' doorsteps.
5. Establishing computer network for close monitoring.
6. Institutional restructuring for managing production and supply of genetic inputs and liquid nitrogen on sustained basis.
7. Streamlining storage and supply of liquid nitrogen.
8. Setting up of infrastructure for bulk transport and bulk storage.
9. Conservation of indigenous breeds.
10. Other allied activities.

This year a sum of Rs.497.50 lakhs has been sanctioned by Government of India for the activities of the Tamil Nadu Livestock Development Agency.

### **ACTIVITIES DURING 2006-07**

#### **1. Strengthening of Frozen Semen Production Stations**

- a. The four sperm production stations of Tamil Nadu are being strengthened by providing essential equipments required for the frozen semen laboratories as per the Minimum Standard Protocol (MSP) laid down by Government of India. During 2006-07, the sperm stations have been provided with sophisticated equipments like programmable biological freezers, integrated automatic filling, sealing and printing machines, digital photometers, phase contrast microscopes, differential interference contrast microscopes, inkjet printers on frozen semen straws, autoclaves, hot air ovens etc., at a cost of Rs.600.10 lakhs. Applications have been submitted to Bureau of Indian Standards (BIS), Chennai

for acquiring ISO (International Standards Organisation) certification for Exotic Cattle Breeding Farm (ECBF) Eachenkottai and District Livestock Farm, Ooty.

- b. 74 Quality breeding bulls /bull calves of Jersey, Crossbred Jersey, Holstein Friesian, Crossbred Holstein Friesian and Murrah breed have been procured.

Sl. No.	Bulls/bull calves procured for	Breed	Number of bulls/bull calves procured
1	Exotic Cattle Breeding Farm, Eachenkottai	Crossbred Jersey	26
		Murrah Buffaloes	33
2	District Livestock Farm, Ooty	Holstein Friesian	5
		Jersey	4
		Crossbred Holstein Friesian	5
		Crossbred Jersey	1
<b>Total</b>			<b>74</b>

- c. The District Livestock Farm (DLF) Ooty, Exotic Cattle Breeding Farm (ECBF), Eachenkottai and the Semen production station along with the Embryo Transfer Laboratory of the District Livestock Farm, Hosur are being transferred to the Tamil Nadu Livestock Development Agency for effective breeding of cattle and buffaloes and thereby increasing the milk production in the State.

**Frozen semen production at the Semen Production Station in Tamil Nadu (in lakhs)**

Year	Total production in District Livestock Farm (DLF), Hosur, DLF, Ooty & Exotic Cattle breeding Farm, Eachenkottai	Nucleus Jersey and stud Farm NJSF (TCMPF)	Total
2005-06	18.15	15.33	33.48
2006-07	19.58	17.32	36.90

## **2. Strengthening of artificial insemination network in the State by establishing new Mobile Artificial Insemination Centres**

- a. 11 new Artificial Insemination Centres have been established with self-employed Veterinary Graduates to do doorstep artificial insemination work during the year. A total of 138 self employed veterinarians have taken up doorstep artificial insemination.
- b. 127 rural youth were trained to take up doorstep artificial insemination work during the year. A total of 498 rural youths have been trained to perform doorstep artificial insemination work.
- c. 43 retired Veterinarians / Livestock Inspectors have been provided with necessary infrastructures during the year to carry out artificial insemination at farmers' doorstep. A total of 61 retired personnel have taken up doorstep artificial insemination work.
- d. In the State, the artificial insemination done by Animal Husbandry Department, Tamil Nadu Co-operative Milk Producers' Federation and private artificial insemination workers trained by the Tamil Nadu Livestock Development Agency has increased from 45.82 lakhs in 2005-06 to 46.37 lakhs in 2006-07. Thus Tamil Nadu retains the first position in the number of artificial insemination done among the states of the country.

## **3. Conversion of Static Artificial Insemination Centres into Mobile Artificial Insemination Centres.**

- a. 500 Stationary Artificial Insemination Centres of Animal Husbandry Department have been converted into Mobile cum Stationary Artificial Insemination Centres during the year and a total of 771 Mobile cum Stationary Centres are functioning.
- b. 227 Stationary Artificial Insemination Centres of Tamil Nadu Co-operative Milk Producers' Federation Limited (TCMPF) have been converted into Mobile Artificial Insemination Centres to carry out doorstep artificial insemination work and the total mobile centres functioning are 1886.

## **4. Strengthening and streamlining of liquid nitrogen distribution**

- a. The semen distribution stations have been provided with 300 liquid nitrogen containers and 25 frozen semen containers.
- b. Bulk liquid nitrogen storage silos of 3000 Liters capacity have been installed in 10 places of Tamil Nadu viz Coimbatore, Tiruchirapalli, Salem, Vellore, Dharmapuri, Madurai,

Tirunelveli, Thiruvannamalai, Erode and Chennai to streamline and ensure uninterrupted liquid nitrogen supply to all the Artificial Insemination Centres of Tamil Nadu.

### **5. Training Programmes**

- a. Tamil Nadu Livestock Development Agency has arranged and sponsored the trainings of 200 veterinarians at Madras Veterinary College and 100 para-veterinarians at Exotic Cattle Breeding Farm, Eachenkottai and Southern Regional Demonstration and Training Centre of National Dairy Development Board during 2006-07 to improve animal breeding service.
- b. Professional Hi-tech training has been imparted to 33 field Veterinarians at Training Institute of Kerala Livestock Development Board.
- c. 4 staff working in frozen semen production laboratories have been trained in frozen semen production at Sabarmathi Ashram Gaushala (SAG), Bidaj Gujarat.
- d. 20 veterinarians and 29 Extension Workers have been trained at Central Frozen Production and Training Institute, Hessarghatta for the implementation of field performance recording programme.

### **6. Progeny Testing Scheme**

This programme is implemented by Tamil Nadu Cooperative Milk Producers' Federation with the financial assistance from the Tamil Nadu Livestock Development Agency with headquarters at Erode. It is implemented through 160 Dairy Co-operative Societies federated to 8 District Co-operative Milk Producers' Unions (DCMPU) covering 15 revenue districts. The 3<sup>rd</sup> batch has been completed and results are awaited. The fourth and fifth batches of bulls are under test.

### **7. Field Performance recording of Elite animals**

Elite Crossbred Jersey cows numbering 1,600 have been selected from more than 300 Milk Producers' Co-operative Societies of 7 District Co-operative Milk Producers' Unions covering 13 revenue districts. All these cows are put under milk recording after screening for diseases like Tuberculosis, Johnes diseases and Brucellosis and inseminated with proven bull semen. These cows will be utilized for production of quality breeding bulls.

## **8. Embryo Transfer Technique**

This programme is implemented through the Tamil Nadu Veterinary and Animal Sciences University (TANUVAS). A total of 99 transferable embryos of cross bred jersey cattle have been collected and 21 have been transferred and 5 pregnancies have been confirmed. The rest of the embryos have been preserved for future transfers. The embryos are planned to be transferred in the cows available at Exotic Cattle breeding Farm, Eachenkottai, District Livestock Farms, Ooty and Hosur.

## **9. Conservation of indigenous breeds of cattle and buffalo**

The frozen semen doses of Kangayam and Umblachery breeds are made available in the native breeding tracts of the breeds. During the year 2006-07, a total of 1.16 lakh artificial inseminations in Kangayam and 0.02 lakh artificial inseminations in Umblachery breeds were performed in their respective native tracts.

## **10. Propaganda and Publicity**

Tamil Nadu Livestock Development Agency is sponsoring a 30 minutes/week programme over Prasar Barathi (AIR) Chennai. The programme is titled as 'Kalnadai Selvam' and is being aired on every Saturday at 7.30 p.m. The programme contents include, talk by experts, discussion on animal husbandry topics interviews with experts and interviews with farmers. The programme is being aired throughout the year.

Messages on animal husbandry practices and techniques have been passed on to the farmers by participating in exhibitions arranged for extension purpose.

## **11. Establishment of Andrology Laboratory**

An Andrological laboratory is being established at Madras Veterinary College with financial assistance from the Tamil Nadu Livestock Development Agency for ensuring the quality of frozen semen straws produced and distributed.

## **LIVESTOCK INSURANCE SCHEME**

Tamil Nadu Livestock Development Agency has been identified as the State Implementing Agency for the implementation of Livestock Insurance Scheme in the state which is being implemented in 100 districts all over India.

A total of 1 lakh high yielding cattle/ buffaloes was targeted to be insured during the year 2006-07 in 5 districts viz Salem, Coimbatore, Erode, Namakkal and Vellore. 50 % of the cost of premium was given as grant and paid to the Insurance firm by the Government and 50% of the cost has been borne by the farmers.

During the year 2006-07, a sum of Rs.6.88 crores has been released by Government of India and 90,072 animals have been insured under this scheme.

### **PERFORMANCE OF SCHEMES IMPLEMENTED DURING 2006-07**

- Livestock Insurance scheme has been implemented in the 5 districts of Coimbatore, Erode, Namakkal, Salem and Vellore. A total of 90,072 high yielding milch cattle and buffaloes were insured.
- Under National Programme for Cattle and Buffalo Breeding scheme, 498 rural youth have been trained and given artificial insemination equipments and cryocan. Out of this 150 youth have been supplied with 40 litres of liquid nitrogen and 100 frozen semen straws. The distribution to the rest of the youth is being undertaken.
- To identify and treat bovines with fertility problems, 750 special infertility camps have been conducted in 385 blocks in the State. 1,08,896 cattle and buffaloes belonging to 83,709 farmers have been treated in these camps.

### **ACTIVITIES FOR 2007-08**

1. Conducting National Seminars.
2. Strengthening of Frozen Semen Production Stations.
3. Strengthening of artificial insemination network in the State
4. Establishment of new private Artificial Insemination Centres.
5. Conversion of the Stationary Artificial Insemination Centres into Stationary cum Mobile Artificial Insemination Centres.
6. Strengthening and streamlining of liquid nitrogen distribution.
7. Training Programmes for Para Veterinarians and Workers.
8. Progeny Testing Scheme.
9. Field Performance Recording Programme.

10. Conservation of indigenous breeds of cattle and buffalo. Conservation of Bargur, Alambadi and Pulikulam breeds shall be initiated and implemented over a period of 5 years.

11. Propaganda and Publicity

12. Management Information System

### **FUTURE PLANS**

Tamil Nadu Livestock Development Agency has planned to increase the artificial insemination coverage of breedable female cattle by 7% and that of breedable female buffaloes by 9%, annually and to improve conception rate by 1%, every year through its participating agencies like Animal Husbandry Department, Tamil Nadu Cooperative Milk Producers' Federation Limited, the Tamil Nadu Veterinary and Animal Sciences University and the Tamil Nadu Livestock Development Agency.

Year	Targeted % of Breedable population covered		Animals to be covered under artificial insemination (in lakh)		No. of artificial insemination to be done (in lakh)	
	Cattle	Buffalo	Cattle	Buffalo	Cattle	Buffalo
2007-08	47.00	30.00	19.35	2.68	48.30	6.38

### **ELEVENTH FIVE YEAR PLAN (2007-08 to 2011-12)**

In the XI Five Year Plan, the following programmes have been proposed:

- ↪ Buffalo Calf Development programme.
- ↪ Programmed breeding of Buffalo.
- ↪ Identification of breedable female bovines by tagging and providing animal passbook.

# **TAMIL NADU VETERINARY AND ANIMAL SCIENCES UNIVERSITY**

## **INTRODUCTION**

India being the agriculture based country, the livestock avocation is an important source of income for rural people leading to their economic independence. The livestock sector has shown steady growth over the past with a present contribution of more than 26 per cent of total agriculture output.

The Tamil Nadu Veterinary and Animal Sciences University (TANUVAS) was established on 20.9.1989. It is first of its kind in India. The credit of starting this University goes to the present Hon'ble Chief Minister Dr.Kalaignar. The following are the objectives of the TANUVAS.

- ◆ To impart education to undergraduate, post-graduate and doctoral students in different fields of Veterinary and Animal Sciences and Fisheries Sciences.
- ◆ To carry out research in animal and fish production, protection and products.
- ◆ To disseminate knowledge on important technologies to line Departments and farming community for the sustenance and growth of livestock, poultry and fisheries in the State.

In the past, TANUVAS has made remarkable change in the livestock, poultry and fisheries development with farmer's participation such as breed improvement programmes, cross breeding with exotic germplasm, production system research, technology refinement and farming system development to enhance productivity, profitability and sustainability, food and nutrition security, environmental safety and optimize resource use efficiency per unit. Consistent research efforts resulted in improvement of vaccines for livestock and poultry. The diagnostic kits for diseases of livestock, poultry, shrimps and fishes were also perfected. Human resources form the most valuable assets of any progressive organization. Continuous efforts are in process to improve their competence. In order to enhance the efficiency and accountability, short term monitorable target is set for each scientist with concurrent evaluation.

## **EDUCATION**

The details of students admitted for the year 2006-2007 to the various academic programmes of the University are given below :

Courses	M.V.C., Chennai	VC & RI., Namakkal	FC & RI., Thoothukudi	Total
B.V.Sc.,	139	66	-	205
B.F.Sc.,	-	-	28	28
M.V.Sc.,	65	35	-	100
M.F.Sc.,	-	-	17	17
Ph.D. (Veterinary)	18	5	-	23
Ph.D. (Fisheries)	-	-	1	1
B. Tech (Food processing)	19	-	-	19
P.G. Diploma in Business Management	-	-	-	-
P.G. Diploma in Bioinformatics	3	-	-	3
P.G. Diploma in Companion Animal Practice	1	-	-	1
P.G. Diploma in Veterinary Laboratory diagnosis	-	-	-	-
M. Phil in Biotechnology	4	-	--	4
<b>Total</b>	<b>249</b>	<b>106</b>	<b>46</b>	<b>401</b>

Students are provided with scholarship / fellowship / assistantship from the funds of State, Indian Council of Agricultural Research, Government of India and other agencies.

#### **Internship Allowance**

This Government enhanced the Internship allowance for B.V.Sc. students from Rs.1,150/- to Rs.1,650/- during the year 2006-07.

#### **New Course introduced**

- ❖ Undergraduate degree programme viz. Bachelor of Technology [B.Tech.] (Food Processing) programme with four years duration and admission strength of 20 students has been introduced newly.

- ❖ Two Post Graduate diploma courses viz Companion Animal Practice and Veterinary Laboratory diagnosis of one year duration with admission strength of 6 students each have been introduced for B.V.Sc. graduates.

## RESEARCH

Indian Council of Agricultural Research, New Delhi has sanctioned the following new schemes at a

total cost of Rs.330.53 lakhs to this University.

- Construction of Farmers Hostel at the main campus of Tamil Nadu Veterinary and Animal Sciences University at a cost of Rs.150 lakhs
- Strengthening of Directorate of Extension for providing technological backstopping for Krishi Vigyan Kendras at a cost of Rs.3.05 lakhs
- Development and strengthening of State Agricultural Universities at a cost of Rs.88 lakhs
- Construction of administrative building at Krishi Vigyan Kendra, Namakkal at Rs.45.13 lakhs
- Construction of staff quarters at Veterinary College and Research Institute, Namakkal at Rs.44.35 lakhs

Department of Science and Technology, New Delhi has accorded sanction for a sum of Rs.310.30 lakhs to strengthen the existing Central Animal Feed and Food Residue Laboratory, Madhavaram as a National facility for pharmacovigilance on drug residue and other toxic xenobiotics in Veterinary Products.

During 2006-07, the following 2 Part II Schemes have been implemented in this University:

1. Construction of building for the Avian Disease Laboratory at the Veterinary College and Research Institute, Namakkal at a cost of Rs 48.00 lakhs.
2. Establishment of Small Ruminant (Sheep & Goat) Research Station at Veterinary University Training and Research Centre, Tirunelveli at a cost of Rs. 39.73 lakhs.

During 2006-07, Dept. of Animal Biotechnology, Madras Veterinary College is identified as State Centre for screening Chickunguniya infection by Reverse Transcriptase Polymerase Chain Reaction Technology in human beings by the Government of Tamil Nadu in collaboration with Corporation of Chennai.

Under University Plan, 90 Plan Schemes with the financial outlay of Rs.2,244.92 lakhs funded by Government of Tamil Nadu are in operation for strengthening the infrastructure facilities for higher studies, innovations, research infrastructure and dissemination of knowledge. 81 external funded research programmes worth Rs.1,975.73 lakhs are in operation currently in this University.

## **SALIENT RESEARCH ACHIEVEMENTS IN ANIMAL SCIENCES**

### **ANIMAL PRODUCTION**

- **Core Laboratory:** For conducting molecular genetic research and for establishing DNA repository of 6 cattle breeds and 3 sheep and goat breeds is established in the Core Laboratory, Dept. of Animal Genetics and Breeding, Madras Veterinary College, Chennai. All the microsatellite loci are found to be polymorphic in cattle and in sheep breeds screened in the study.
- **Embryo transfer in Toda buffaloes (Collaborative Project) :** The project achieved the objective of maintenance of Toda buffalo bulls and cows under farm environment which are semi wild, ferocious in nature and are not accustomed to semi intensive management. The embryo transfer technology in Toda buffalo was standardized. 26 embryos were collected and cryopreserved for further use.
- **Strengthening of infrastructure for embryo transfer at Madhavaram :** The infrastructure for embryo transfer was strengthened. The technology of direct transfer of embryos to the recipient cows was adopted successfully. A total of 146 embryos were collected, out of which 99 were of transferable quality. On an average 11.2 total embryos and 7.6 transferable embryos were obtained per flushing. 91 transferable embryos were cryopreserved for direct transfer. 21 recipients were implanted with embryos. 6 pregnancies have been established with an average conception rate of 29 per cent.

- **An economic analysis of livestock farming in tribal areas of Tamil Nadu:** The annual income per tribal household was worked out to Rs.44,241.50 of which crop share was the highest (49.75 %), followed by Livestock (25.37%) and non-farm income (24.89%). The analysis of income inequality indicated that livestock income was stable when compared with crop and non-farm income.
  
- **Ostrich Unit at Livestock Research Station (LRS), Kattupakkam :** Under this adoptability study, 24 Ostrich birds (9 males and 15 females) have been so far adopted well to the prevailing climatic conditions of Tamil Nadu. Due to change in the feeding rations, the birds had shown good mating behaviour in the adults. A new incubator imported from Florida, USA has been installed at Livestock Research Station, Kattupakkam for hatching Ostrich eggs. Fifty eight number of chicks were hatched out utilizing the new incubator.
  
- **Development of Agroforestry models :** Under the scheme entitled “Economics of integrating goats in dryland farming system in Dharmapuri district – A pilot study” functioning at Veterinary University Training and Research Centre, Dharmapuri, a total of 2.0 acres of land was reclaimed and the following models were established for educating the beneficiaries
  1. Glyricidia + Sesbania hamata – Silviculture system
  2. Mango + Sesbania hamata – Horticulture system
  3. C. Ciliaris + Sesbania hamata pasture
  4. Sorghum + Sesbania hamata over seeding
  5. Glyricidia silviculture

The model fodder plots so far established were maintained with regular watering, manuring and weeding.

Under the scheme on All India Co-ordinated Research Project on Agroforestry functioning at Livestock Research Station, Kattupakkam, three agroforestry units viz. Horticulture system, Sesbania sesban agrisilvi system and Silviculture system were established in Kattupakkam farm.

## **ANIMAL HEALTH**

- **Pharmacokinetics of Sparfloxacin in Broiler Chicken** :The result of the study revealed that an oral dose of 20mg/kg of sparfloxacin for every 24 hours is suggested in chicken for successful clinical outcomes.
- **Seroprevalence study of Peste des petits ruminants in sheep and goats in Namakkal, Salem and Erode districts of Tamil Nadu** : This study revealed that the seroprevalence of PPR was more in Salem district when compared to Namakkal and Erode districts by both VNT and c-ELISA. It is suggested that c-ELISA can be preferred over VNT for large-scale screening of PPR in sheep and goats, because of its rapidity and simplicity.
- **Development of diagnostic methods for peste des petits ruminants** :This project envisaged the development of diagnostic methods for PPRV. A recombinant clone harboring the truncated nucleoprotein of PPRV was obtained from Indian Institute of Sciences, Bangalore and the expressed nucleoprotein was used for the development of assays for both antigen and antibody detection and quantification. The lateral flow method for qualitative detection of PPRV antibody is ideal for use as a field-based kit. An antigen-competition ELISA has also been developed as a 'lab-based' second tier test for PPRV antigen detection.
- **Anti-oxidant effects of turmeric in Aflatoxin induced liver damage in chicken** : Turmeric can be supplemented at 1000 ppm to counter the effect of aflatoxicosis in the feed. However, further studies are needed to confirm the use of turmeric for its possible anti- aflatoxin effects
- **Pulmonary pathology in Bovines with special reference to Tuberculosis** : A total of 112 lung tissues samples were collected from slaughter house and 9 from necropsied animals. Tuberculosis was noticed in 8 animals. The tuberculous nodules were found in the pleura, diaphragm, lung and bronchial and mediastinal lymph nodes. The study revealed the occurrence of M.bovis and chronic progressive form of tuberculosis.
- **Adhoc Scheme on Economic Evaluation of Metabolic Diseases in Bovines** : A total of 211 metabolic disease cases were studied. The economic effects of the metabolic diseases – milk fever and ketosis appear to be substantially enormous that the poor

farmers might not withstand. As these disorders occur at the most productive stages of lactation, they result in heavy economic losses to the farmers. The economic loss due to reduction in milk output per affected animal in milk fever and ketosis conditions was found to be Rs.393 and Rs.404, per annum respectively.

## CLINICS

Hospital cases and clinical materials provide an excellent exposure of research and clinical materials to the students and research scholars. The hospital services are provided at Madras Veterinary College Hospital, Veterinary University Peripheral Hospital, Madhavaram and Veterinary College and Research Institute, Namakkal of the Tamil Nadu Veterinary and Animal Sciences University. Pet animals like dogs and cats, large animals like cattle, buffalo and horses and small ruminants viz., sheep and goats, wild animals and birds are treated for various disorders.

Species	Chennai		Madhavaram	Namakkal
	O.P.	Mobile		
Horse	1600	41	5	---
Cattle & Buffalo	14319	410	2317	5432
Sheep & goats	1769	299	869	2152
Dogs	40620	3306	9083	3590
Cats	888	221	48	---
Poultry	1647	---	816	---
Others	491	56	265	231
<b>Total</b>	<b>61334</b>	<b>4333</b>	<b>13403</b>	<b>11405</b>

## INPATIENT FACILITIES

At the Madras Veterinary College Hospital, a separate inpatient unit is provided for both large and small animals. One hundred and eighteen large animals 192 small animals were admitted as inpatients for various ailments. A separate quarantine unit for keeping animals under observation for rabies is functioning.

At Veterinary College and Research Institute, Namakkal, 802 large and small animals were admitted as in-patients and treated. A separate quarantine unit for keeping animals under observation for rabies is also functioning.

## **EXTENSION IN ANIMAL SCIENCES**

### **Krishi Vigyan Kendras (KVKs)**

Three Krishi Vigyan Kendras funded by Indian Council for Agricultural Research, New Delhi are functioning at Kattupakkam, Kundrakudi and Namakkal. During 2006-07, 1266 on and off campus trainings on various animal husbandry and fishery practices were given to 38,758 beneficiaries. For the benefit of the farming community, 537 awareness programmes were also organised.

### **Rural Information Technology Initiative**

Nine Village Information Centres have been established by this Directorate. These centres have facilities such as computer with accessories, printer, modem, telephone connection, self learning interactive CDs on various skill oriented programmes including Animal Husbandry and Fisheries, internet and e-mail facilities, Audio / Video equipments and library. Out of Nine Centres, three centres are established in collaboration with International Development Research Centre (IDRC), Canada and functioning at Kuzhumani (Tiruchirapalli), Puthuthamarai (Madurai), Chitteri (Vellore). These centres are linked with the Veterinary University Training and Research Centres of Tiruchirapalli, Madurai and Vellore.

The other six centres are established in the households of Self Help Group Women in collaboration with UNESCO and are functioning at Aminjikai and Pallikaranai of Chennai District, Kancheepuram and Rail Nagar of Kancheepuram District, Varakkalpattu and Kandarakottai of Cuddalore District.

The information needs of farming community such as details of the districts, livestock management, home science, fisheries, medical facilities, banking facilities, and news are made available in these centres for the Information access of the public.

### **Distance Education**

All the ongoing Distance Education Courses of the University are being monitored and evaluated by the Distance Education Cell. A new course on "Livestock and Poultry Farm Manager" has been launched during 2006-07.

Through the Distance Education Programme, the University is offering courses in goat farming (3 months), dairy farming (6 months) Livestock and Poultry Farm Manager (6

months) in Tamil and a course on Animal Welfare (one year) in English for the farmers and entrepreneurs.

#### **Other outreach activities**

The University has organised various training programme, Mass Contact Programme, farm visits, exhibitions, Farm Radio School Programme, disease investigation programme, consultancy and other advises benefiting 63,867 farmers, extending health care services by treating 1,57,686 animals including testing of specimens/ samples, vaccination, infertility etc.

#### **SALIENT RESEARCH ACHIEVEMENTS IN FISHERIES SCIENCES**

- **Prototyping of raceway based third generation shrimp production technology:** Nursery raceway trials conducted for shrimp production have proved that the nursery raceway technology can be adopted successfully with survival over 80%. Sustaining water quality in raceways even at the high stocking density levels through bioremediation technique could be possible with the continuous and optimum addition of phytoplankton and yeast based fermented products. The study reveals that it is economically viable, technically feasible and eco-friendly.
- **Studies on the influence of natural products as growth promoters in tiger shrimp:** This study suggests that dietary administration of natural product garlic could enhance growth and prevent disease outbreaks in tilapia and tiger shrimp by improving their defense mechanism.
- **Influence of botanical additives on the growth and colouration of goldfish:** The effect of three botanical additives (coriander, mint and amaranth leaves) on the growth and body colouration of the goldfish. The experiment was conducted in both adult and juvenile goldfish for 60 days. The percentage of colour obtained in adult goldfish was high in amaranth fed fishes at 1 per cent and three per cent levels when compared to other treatments and control. The juveniles fed with coriander leaves added feed recorded the maximum percentage of colour development followed by those fed with mint.

- **Establishment of Cryopreservation Unit to enhance fish seed production:** The seed production of Indian major carps were improved by establishing cryo-preservation unit. The cryo-preservation was carried out in Liquid Nitrogen (-196°C).
- **Anti-bacterial activity of chitosan and its use in fish preservation:** The findings of the research reveal the potential for application of chitosan for fish preservation and to extend the shelf life of fish.
- **Molecular Typing of bacterial pathogens from farmed shrimps:** Shrimp farm water, sediment, shrimp larvae and hatchery water samples were collected from Tamil Nadu and its neighbouring coastal states, Andhra Pradesh and Kerala. Bacterial isolates were collected from these samples and biochemical characterization of these bacterial pathogens was carried out.

### **Technologies released**

- 19 Veterinary Products / strains / vaccines and 8 Fishery Products developed by the scientists of the Tamil Nadu Veterinary and Animal Sciences University were released during the Farmers' meet held at Livestock Research Station, Kattupakkam on 14.09.2006. To cite a few of our Products are : TANUVAS RUSITEC., Namakkal Quail-1, Inactivated fowl cholera vaccine, Hydropericardium syndrome agar gel immuno diffusion test kit, Homologus vaccine for PPR ruminants etc.
- TANUVAS RUSITEC - an apparatus developed by the Department of Animal Nutrition, Madras Veterinary College, Chennai - 7 has been transferred to M/s. Eaga Tools and Instruments, Chennai for the purpose of commercialization by entering Memorandum of Understanding (MoU) between the Tamil Nadu Veterinary and Animal Sciences University and M/s. Eaga Tools and Instruments, Chennai.
- TANUVAS inactivated fowl cholera vaccine and TANUVAS inactivated Ranikhet disease virus vaccine developed by the Directorate of Animal Health Studies had been transferred to M/s. Biovet Pvt. Ltd., Bangalore for the purpose of commercialization by

entering Memorandum of Understanding (MoU) between the Tamil Nadu Veterinary and Animal Sciences University and M/s. Biovet Pvt. Ltd., Bangalore

So far seven products have been filed in the patent office to obtain patents.

### **PERFORMANCE OF SCHEMES IMPLEMENTED DURING 2006-07**

- The B.Tech course has been introduced and 19 students were enrolled.
- Post Graduate Diploma course in Companion Animal Practice for B.V.Sc. graduates had been introduced.
- Post Graduate Diploma course in Veterinary Laboratory Diagnosis for B.V.Sc. graduates had been introduced.
- The Internship allowance for B.V.Sc. students had been enhanced from Rs.1,150/- to Rs.1,650/-.
- Construction of building for Avian Disease Laboratory at Veterinary College and Research Institute campus at Namakkal had been entrusted to Public Works Department (PWD) and the work is in progress.
- Infrastructure facilities for the establishment of Small Ruminant (sheep and goat) Research Station like construction of sheep and goat sheds have been started at Rs.5.00 lakhs. 93 Vembur sheep and 96 Jamunapari goat have been purchased at a cost of Rs.4,99,700 and maintained at the Centre. Rs.1,56,750 worth of equipments were purchased. For cultivation of fodder, 2 acres of land was ploughed and ready for cultivation and in 7 acres the bushes were removed and land levelling is under progress.

### **POLICY FOR THE YEAR 2007- 08**

- ☞ PG diploma course in wild animal disease management
- ☞ Establishment of new faculty – Food Science
- ☞ Establishment of Department of Fishery Biotechnology, Fisheries College and Research Institute, Thoothukudi
- ☞ Conservation of native Germplasm
- ☞ Vaccines, biologicals, diagnostics, immuno-stimulatory adjuvants

- Development of modern vaccines based on genome of antigen and mechanism of antibody production
- Development of rapid, reliable, sensitive and specific molecular diagnostics for infectious diseases
- Immunopotentiators for stimulating sustained immune response
- ☞ Bioinformatics
  - Strengthening of bioinformatics by providing advanced softwares for molecular modeling and protein structure prediction.
  - Creating advanced facilities for proteomics and genomics.
  - Creation of wetlab

### **New Part-II Schemes for 2007-08**

The following two schemes have been proposed under Part II for the year 2007-08.

1. Establishment of an “Ethno Veterinary Herbal Research and Training Unit for Livestock Health Care” at Veterinary University Training and Research Centre, Thanjavur (ultimate cost Rs.18.00 Lakhs)
2. Development of Vaccine against Coliform Mastitis (Ultimate cost Rs.17.01 lakhs)

### **ELEVENTH FIVE YEAR PLAN (2007-08 to 2011-12)**

#### **VETERINARY**

- ❖ Establishment of new Veterinary College and Research Institute at Tirunelveli
- ❖ Establishment of livestock production techno-park
- ❖ Establishment of buffalo bull mother farm and male calf rearing with farmers’ participation at Livestock Research Station, Kattupakkam
- ❖ Field based genetic improvement of Mechery sheep at Mechery Sheep Research Station, Pottaneri
- ❖ Survey and conservation of indigenous germplasm of cattle, sheep and goat
- ❖ Avian germplasm preservation laboratory at Poultry Research Station, Nandanam
- ❖ Establishment of extended graduate programme at Livestock Research Station, Kattupakkam

## **FISHERIES**

- ❖ Development of shrimp disease vaccine
- ❖ Identification of new fishing ground in offshore regions
- ❖ Monitoring of coastal pollution and control in the Gulf of Mannar
- ❖ Biofeed for culture of fishes / shrimps
- ❖ Breeding and rearing of marine ornamental fishes
- ❖ Establishment of Centre of Excellence in Aquaculture
- ❖ Establishment of new Fisheries College and Research Institute at Thanjavur

**Tmt. P. GEETHAJEEVAN**  
Minister for Animal Husbandry