

**POLICY NOTE 2010-11**  
**ANIMAL HUSBANDRY DEPARTMENT**  
**DEMAND NO. 6**

**INTRODUCTION**

The livelihoods of most rural and low income communities in developing countries are to a large extent based on agriculture / livestock / poultry. The Animal Husbandry sector plays a vital role in providing subsidiary employment to rural folk and guaranteed household income to landless agricultural labourers, small and marginal farmers. The majority of livestock population in the State is concentrated in villages. Animal Husbandry also contributes to many other social spin offs like slowdown of rural-urban migration, the empowerment of women and protection of the environment.

Livestock provide 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. Livestock products have been known for generations to be a pathway for income generation by the poor.

The trends in consumer demand for livestock products are driven primarily by growth in human population, increases in income and urbanization and associated changes in consumption patterns. 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.

Comprehensive veterinary assistance and health cover is provided to all livestock and poultry in the State through a network of 1,374 veterinary institutions, 444 Upgraded Veterinary Sub centres and 1,385 Veterinary Sub centres in the State. Animals in remote villages also get veterinary assistance through 55 Mobile Veterinary Units. Veterinary diagnostic services is provided by a network of laboratories at district level through

20 Animal Disease Intelligence Units at State level through one Central Referral Laboratory and 2 Poultry Disease Diagnostic Laboratories at poultry intensive districts.

The State is undertaking upgradation of local stock of cattle and buffaloes by Artificial Insemination using exotic and cross breeding bulls through 3,258 Artificial Insemination Centres. The systematic implementation of the crossbreeding programme in cattle has led to a remarkable increase in the crossbred cattle population from 21.41 lakhs to 50.99 lakhs during the 1997 to 2004 census periods.

To improve the quality of veterinary services, the department has taken steps to fill up all existing vacancies. The department has appointed 412 Junior Veterinary Assistant Surgeons and 57 Veterinary Assistant Surgeons will be appointed shortly, thereby ensuring the availability of Veterinarians to provide better services to livestock and farmers.

Owing to the concerted efforts of the department, the milk production which was 55.60 lakh tonnes during 2006-07 increased to 56.73 lakh tonnes during 2008-09, an increase of 2%. Likewise, during the same period, the estimated egg production increased from 8041.521 million numbers to 8809.774 million numbers, an increase of 10%. Estimated meat production increased from 220 million kg in 2006-07 to 419 million kg in 2008-09, an increase of 90%. During the year 2008-09, the per capita availability of milk is 235 grams per day and egg is 133 numbers per annum.

Livestock and poultry sectors are becoming increasingly important in the growth of agriculture in developing economies. The contributions made by animal husbandry including poultry to both agriculture and Gross Domestic Product (GDP) have risen at a time when the contribution of agriculture to GDP has fallen. During the year 2008-09, the gross value of output of livestock in the State was Rs.14,489.98 crores. The contribution

of livestock sector to the Gross State Domestic Product is 2.88% and to the agriculture and allied activities it is 26.89%. The value of leather and leather products exported from Tamil Nadu was Rs.5,827.51 crores. The State contributes 5.23 % of total milk production and 15.83% of total egg production and stands 9th in milk production and 2nd in egg production in the country.

Thus, the efforts of the department have resulted in the overall increase in production of milk, meat and eggs in the State which consequently has provided additional income to farmers in villages thereby improving rural economy.

#### **AIMS OF THE DEPARTMENT**

- ▶▶ Augmenting the production potentialities of livestock and poultry and thus increasing the production of milk, egg and meat.
- ▶▶ Providing necessary and timely modern veterinary assistance and health cover to the livestock and poultry.

- ▶ Implementing various Central and State Government Schemes for the upliftment of rural poor.
- ▶ Providing information and training on basic and latest animal husbandry practices.
- ▶ Protecting human health by preventing major zoonotic diseases of animals.

### **GENERAL ADMINISTRATION**

The department, which had its origin in 1892 as Civil Veterinary Department to provide veterinary aid to needy farmers, was subsequently renamed as Animal Husbandry Department in 1948, with the main objectives of treatment and prevention of livestock diseases. Since then, this department has widened its activities.

At present, the Animal Husbandry Department is headed and governed by the Commissioner of Animal Husbandry and Veterinary Services. The Commissioner is assisted by 3 Additional Directors, one Joint Director and five Assistant Directors in the Commissionerate and 26

Regional Joint Directors in the Districts. The State is divided into 26 regions, each headed by a Regional Joint Director and 65 administrative divisions, each headed by an Assistant Director.

An officer in the cadre of Additional Director functions as the Director of the Institute of Veterinary Preventive Medicine (IVPM), Ranipet which produces veterinary vaccines and diagnostics. One Central Referral Laboratory for diagnosis, confirmation and monitoring Animal Diseases functioning at Chennai, also coordinates the work of 20 Animal Disease Intelligence Units headed by Assistant Directors functioning in various districts of the State. The department also manages eight Livestock Farms, three Sheep Farms, one Poultry Farm, one Fodder Farm, 20 Cattle Breeding and Fodder Development Units and two Poultry Disease Diagnostic Laboratories.

During 2009-10, the following measures have been taken to improve the administration in the department:

1. To strengthen the functioning of the Animal Husbandry Department, 57 Veterinary Assistant Surgeons were selected through TNPSC and will be appointed soon in Veterinary Dispensaries. 444 Grade-I Veterinary Sub-Centres have been converted into upgraded Veterinary Sub Centres. 412 Junior Veterinary Assistant Surgeons selected through TNPSC have been newly appointed in the upgraded Veterinary Sub Centres.
2. Government have permitted to recruit and train 200 individuals in District Livestock Farm, Hosur and post them as Livestock Inspectors. 221 Grade II Livestock Inspectors have been promoted and posted as Livestock Inspectors Grade-I.
3. For appointment of Animal Husbandry Assistants, 111 Casual Labourers were brought under regular establishment as Animal Husbandry Assistants.

4. A total of 53 Officers including 5 Additional Directors, 12 Joint Directors, 29 Deputy Directors, one Deputy Director (Personnel), 4 Administrative Officers, one Senior Research Officer and one Research Officer were promoted. In addition to this, 59 Ministerial Staff were also promoted.
5. A new Regional Joint Director's office exclusively for Tiruppur District has been established on 14.09.2009 for better administration.
6. A total of 138 officials have been provided capacity building training on various technical aspects at various institutions in the country.
7. To create awareness among farmers regarding fodder cultivation, model fodder cultivation plots in the premises of veterinary institutions have been laid out.

### **VETERINARY SERVICES**

Animal health care services and prevention of animal diseases is a priority for maintenance of a

healthy stock for optimum production. Protective and promotional activities of the Animal Husbandry Department are being conducted through various institutions such as, Veterinary Poly Clinics, Veterinary Hospitals, Veterinary Dispensaries, Mobile Veterinary Units, Upgraded Sub Centres, Sub Centres etc.,

#### **(a) Veterinary Institutions**

Veterinary Institutions have expanded from a humble beginning of around 120 institutions during 1959-60 to 1,374 institutions during 2009-10. At present, the veterinary institutions comprising 6 Polyclinics manned by Assistant Directors, 22 Clinician Centres manned by Clinicians (Assistant Directors), 139 Veterinary Hospitals manned by Veterinary Surgeons (Assistant Directors) and 1,207 Veterinary Dispensaries manned by Veterinary Assistant Surgeons provide a wide spectrum of Veterinary services.

Polyclinics are functioning in six Municipal Corporations namely, Chennai (Saidapet), Madurai

(Thallakulam), Coimbatore, Tirunelveli, Salem and Tiruchirapalli. These provide specialized services in Gynaecology, Surgery and Medicine and have X-ray and inpatient facilities. Besides these six institutions, the institutions at Pollachi, Vellore, Dindigul, Erode, Kancheepuram, Thoothukudi are also equipped with X-ray facilities. Apart from regular treatment, these institutions are also conducting Artificial Insemination for improving the local cattle and buffaloes and are also providing health care through vaccination and deworming. The problems of infertility are also taken care of by these institutions.

During 2009-10, to expand the veterinary health services, 444 Sub centres were upgraded as Upgraded Veterinary Sub centres manned by Junior Veterinary Assistant Surgeons.

#### **(b) Mobile Veterinary Units**

55 Mobile Veterinary Units manned by Veterinary Assistant Surgeons provide veterinary health services like vaccination, deworming and

breeding coverage like artificial insemination to livestock reared by farmers residing in remote areas who face difficulties to reach veterinary institutions. These Units go around their area of operation on a scheduled programme. The services provided by these Units are well recognized by the public as they provide benefits at the doorsteps of the farmers. During the year 2009-10, 3.79 lakhs of livestock were treated by these Units.

**(c) Sub-Centres**

These centres are headed by Livestock Inspectors and provide first-aid to ailing animals besides carrying out Artificial Insemination for cows and she buffaloes. They also conduct pregnancy verification and yearly livestock and poultry census enumeration work of their sub-centre area. Their services are also utilized for vaccination and deworming with the technical guidance of Veterinary Assistant Surgeon. At present, 1,385 Sub Centres and 444 upgraded Sub Centres are functioning in various parts of the State.

The species wise work done in the above veterinary institutions during 2009-10 is as follows:

(In lakhs)

Species	Cases treated	Castration	Vaccination	Deworming	Artificial Insemination
Cattle & Buffalo	101.02	2.24	127.64	39.08	38.05
Sheep & Goat	81.27	6.00	37.35	202.91	-
Dog	6.29	0.11	1.60	2.56	-
Poultry	11.03	-	303.21	4.49	-
Others	2.91	0.07	-	2.02	-
<b>Total</b>	<b>202.52</b>	<b>7.62</b>	<b>469.80</b>	<b>251.06</b>	<b>38.05</b>

**FEED AND FODDER**

Nutrition plays very important role in our day to day lives towards better health. The same is true for livestock as well. Rather, it is more important since it is directly linked with efficient reproduction and milk production.

Feed and fodder are the major factors in enhancing farm animal productivity. The economic viability of livestock husbandry depends on sources

of feed and fodder as feeding cost constitutes 65-70% of the total cost of livestock farming. Balanced feeding alone can bring about an increase of 30 percent in milk production. The green fodder resources for livestock are mainly derived from grazing in grass lands and pastures, fodder crops from cropped lands, weeds, bund grasses, tree leaves and mixed forages. Crop residues, mainly sorghum and paddy straws which are poor in nutritive value, constitute the major fodder for livestock. The total area available for grazing in the State is 1.10 lakh hectares.

The availability of green fodder has been restricted to selected areas and seasons. Rapid urbanization has resulted in shrinking of grazing lands. Besides, with the increase in the pressure of land for growing food grains, oilseeds and pulses, the gap between the demand and supply of green fodder has very much increased. To promote fodder development, the Government have ordered not to transfer the grazing lands for other purposes unless alternate land of the same extent is developed for

grazing in the same district. An outlay of Rs.1014.575 lakhs has been provided for fodder development during eleventh plan in the State.

Based on 2004 livestock census, the deficit of green fodder in the year 2009-10 has been worked out as 20.10% to total demand. The State was in comfortable position with regard to availability of dry fodder. As against the total requirement of 166.80 lakh tonnes of dry fodder, the total availability in the State was estimated at 175.609 lakh tonnes in 2008-09. However, the estimated total availability of green fodder stood at 399.900 lakh tonnes and shortfall was 100.620 lakh tonnes. Keeping this in view, the department has been carrying out fodder development work under various schemes.

- ❖ To enable the landless families and poor farmers to take up animal husbandry activities, establishment of community feed and fodder banks with the help of Self-Help Groups are being encouraged.



- ❖ Distribution of fodder seed minikits free of cost is also undertaken. During Kharif and Rabi seasons of 2009-10, 21,494 and 6,125 minikits of fodder seeds of different crops respectively have been distributed to farmers.
- ❖ The department has fodder seeds, slips and tree seedling Production Units in Padappai Seed Farm and District Livestock Farms at Hosur, Chettinadu, Abishekapatti, Eachenkottai, Chinnasalem and Udthagamandalam.
- ❖ Cultivation of perennial high yielding fodder grass like Cumbu-Napier, Co3, Co4, Para grass, Kolukattai grass, Guinea grass and Congo signal grass and fodder cereals like Sorghum, Maize and Bajra are being encouraged. Cultivation of Cow pea, Stylosanthus and Co<sub>3</sub> grass in coconut and mango groves as inter crop is also being encouraged.

- ❖ Distribution and cultivation of fodder seed minikits free of cost, fodder crops and tree seedlings cultivation in Veterinary Institutions are being taken up in the State.
- ❖ Fodder slips are supplied to the interested farmers from these Departmental Farms for augmenting fodder production. During 2009-10, 190.960 lakhs of fodder slips, 32.50 kgs of fodder seeds and 0.083 lakh of tree seedlings were distributed to farmers.

#### **Under TN IAMWARM Project**

- ❖ To meet out green fodder shortage, 2,668 hectares of land under Tamil Nadu Irrigated Agricultural Modernization and Water-bodies Restoration and Management project (TN IAMWARM) have been developed with fodder crops in the years 2007-08 and 2008-09. During 2009-10, 2,538 hectares of private land were developed with fodder crops.

### **Under National Agriculture Development Programme (NADP)**

- ❖ The Green fodder production, in an area of 1,091 acres under irrigated condition, fodder seeds and fodder trees in 252 acres and pasture land development in 1,366 acres has been taken up in six District Livestock Farms. A total of 59,030 MT of fodder is expected to be produced. Apart from this, a total of 2,470 lakh fodder slips are expected to be produced and supplied to the farmers for raising fodder in their own lands.
- ❖ Further, fodder cultivation is also being undertaken in an area of 1,540 acres of farmers' lands. A total of 1,84,800 tonnes of green fodder will be produced in a total area of 1,540 acres. It is expected that the project will have positive impact through demonstration effect and encourage the farmers to take up fodder cultivation.

### **Provision of chaff cutters to avoid wastage of fodder.**

- ❖ Livestock, when fed with green fodder tend to waste a lot of these precious feed. Further, when the fodder is chopped and fed, the utilization of the fodder (both green fodder & dry fodder) is enhanced and the feed conversion efficiency also increases.
- ❖ Chaff cutters are being provided to 6 departmental farms to chop the fodder thereby reducing wastage.

### **Silo for sugarcane tops.**

- ❖ The sugarcane tops are wasted after harvest of sugarcane as they are burnt in the field itself.
- ❖ This biomass can be used as feed for cattle. The sugarcane farmers will be encouraged to ensile the post-harvested green sugarcane tops to supplement their animal feed during summer. The sugarcane tops will be chopped and put into silo pits measuring 7x7x4 cubic feet along with urea and

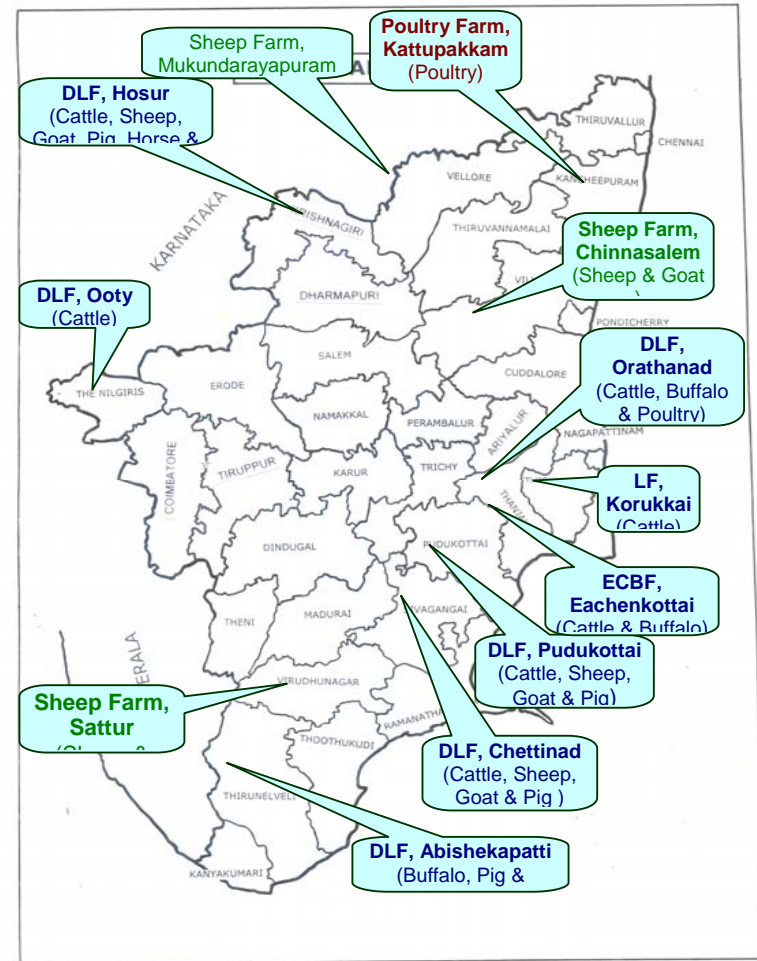
molasses to augment the nutritive value and palatability.

- ❖ The department is in the process of establishing 221 silo pits in 12 sugarcane intensive districts of Coimbatore, Cuddalore, Dharmapuri, Erode, Krishnagiri, Nagapattinam, Namakkal, Salem, Thanjavur, Thiruvannamalai, Tiruvarur and Vellore.

### LIVESTOCK FARMS

This department maintains 11 Livestock Farms, out of which 3 are Sheep Farms. In addition to these, one Fodder Farm and one Farm exclusively meant for breeding Poultry are also being maintained. The farms are maintained for selective scientific breeding of specific species of livestock and serve as demonstration farms and training centres for farmers. Moreover, they function as a source for quality livestock to the farmers.

### SPECIES MAINTAINED IN DEPARTMENT FARMS



## NEW FARM POLICY

The Government of Tamil Nadu has evolved a new farm policy for maintaining breeds of livestock at the 11 District Livestock Farms, land development and fodder cultivation in wider extent in the Farms. For this, it is proposed to propagate the livestock breeds at their native tracts, restricting the number of breeds to one or maximum of two in each farm depending on its location so as to avoid genetic mismatch and to maintain the purity of the germplasm.

The local and growing demand in the livestock market will be considered for this purpose and emphasis will be given to produce and sell as many animals as possible for breeding especially the males to the farmers through the State Livestock Farms. It is also proposed to take up land development by utilizing the area available in the farms for fodder cultivation to demonstrate the technology, convince farmers on such alternate

crop patterns for their land to augment profitability, supply the required slips and seeds to improve the quality and quantity of fodder supply in the State.

According to the new farm policy, the following are the livestock breeds that will be maintained in the department farms:

Sl. No	Name of the Farm	Species to be maintained
1	Exotic Cattle Breeding Farm, Eachenkottai (Thanjavur district)	<b>Cattle</b> - Jersey, Cross bred Jersey, Umbalachery, & Murrah Bulls
2	District Livestock Farm, Hosur (Krishnagiri district)	<b>Cattle</b> - Cross bred Jersey, Crossbred Holstein Friesian, Jersey, Red Sindhi, Kangeyam <b>Sheep</b> - Mecheri, Trichy Black, <b>Goat</b> - Kodi aadu, Tellicheri <b>Pig</b> - Large White Yorkshire <b>Poultry</b> - Giriraja, Aseel, White leghorn, Turkey <b>Horse</b> - Kathiawar, Thorough bred
3	District Livestock Farm, Abishekapatti (Tirunelveli district)	<b>Cattle</b> - Cross bred Jersey, Sahiwal <b>Sheep</b> - Kilakaraisal <b>Pigs</b> - Large White Yorkshire, Landrace, Landrace Cross <b>Poultry</b> - Nandanam Colour broiler

Sl. No	Name of the Farm	Species to be maintained
4	District Livestock Farm, Udhagamandalam (The Nilgiris district)	<b>Cattle</b> - Jersey, Cross bred Jersey, Holstein Friesian, Holstein Friesian Cross
5	District Livestock Farm, Pudukottai (Pudukottai district)	<b>Cattle</b> - Jersey Cross, <b>Sheep</b> - Ramnad White, <b>Goat</b> - Jamunapari, <b>Pig</b> - Landrace
6	District Livestock Farm, Orathanad (Thanjavur district)	<b>Buffalo</b> - Murrah <b>Pig</b> - Large White Yorkshire
7	District Livestock Farm, Chettinad (Sivagangai district)	<b>Cattle</b> - Jersey Cross, Tharparkar, <b>Sheep</b> - Ramnad White <b>Goat</b> - Jamunapari <b>Pig</b> - Large White Yorkshire
8	Livestock Farm, Korukkai (Tiruvarur district)	<b>Cattle</b> - Umbalachery
9	Sheep Farm, Chinnasalem (Villupuram district)	<b>Sheep</b> - Mecheri, Madras Red, <b>Goat</b> - Tellicheri, Salem Black,
10	Sheep Farm, Mukundarayapuram (Vellore district)	<b>Sheep</b> - Madras Red
11	Sheep Farm, Sathur (Virudhunagar district)	<b>Sheep</b> - Vembur <b>Goat</b> - Kanni
12	Poultry Farm, Kattupakkam, (Kancheepuram district)	<b>Poultry</b> - Nandanam colour chicken / CARI Nirbheek, Nandanam Turkey - I

## NEW BREEDING POLICY

The department is following the revised breeding policy for cattle and buffalo to improve the milk production in livestock and to sustain growth in the dairy sector.

- ❖ Selective breeding of native breeds is to be followed in Erode, Coimbatore, Karur and Dindigul districts for Kangeyam and in Nagapattinam, Tiruvarur and Thanjavur for Umbalachery and for lesser known breeds like Pulikulam, Bargur, Alambadi and Malaimadu in their respective breeding tracts.
- ❖ Crossing of low yielding non-descript cows with Jersey or Holstein Friesian depending on the agro-climatic conditions. In addition to the use of purebred Jersey, high pedigreed Indian milch breeds Red Sindhi and Tharparkar may also be used. Likewise, Sahiwal breeds may be used in place of Holstein Friesian.
- ❖ Jersey crosses are to be bred with bulls of 50% Jersey inheritance and Holstein Friesian crosses

are to be bred with bulls of 50% Holstein Friesian inheritance by *inter se* mating.

- ❖ Upgrading of Non-descript and Graded buffaloes with Murrah.
- ❖ Pure breeding of Toda buffaloes in the high ranges of the Nilgiris.

### **CATTLE AND BUFFALO DEVELOPMENT**

The total cattle population of 91.41 lakhs accounts for 36.65% of total livestock in the State. Cattle comprises 84.64 % of the total bovines reared in the State. The exotic, crossbred, indigenous and native pure account for 0.44%, 55.79%, 6.01% and 37.76% respectively. Buffalo comprises 15.36% of the total bovine population and 7 % of the total livestock in the State.

Non-descript animals have low production traits but higher disease and thermal resistant traits whereas the exotic breeds have higher production but lower resistant traits. Therefore, appropriate blood level crossing is derived and crossbreeding is being carried out.

### **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 (MSP) guidelines prescribed by the Government of India are strictly adhered to in these Frozen Semen Production Stations to ensure production of quality semen. All the 3 Stations are in the process of upgrading to ISO standards.

A total number of 238 breeding bulls of Jersey, Holstein Friesian, Sindhi, Crossbred, Kangeyam, Umbalachery and Murrah are stationed in these Farms and mini straws are produced in all the Frozen Semen Production Stations. During the year 2009-10, 11 bulls were purchased and 78 breeding bulls which were not upto the Minimum Standard Protocol were culled to improve the quality of the Frozen Semen Straws produced in the above farms.

### Breeding Bulls

SI No.	Name of the Farm	Jersey	HF	Jersey Cross	HF Cross	Red Sindhi	Umbalacheri	Kangeyam	Murrah	Total
1	Exotic Cattle Breeding Farm, Eachenkottai	31	-	50	-	-	1		47	129
2	District Livestock Farm, Hosur	-	-	26	4	18	-	14	-	62
3	District Livestock Farm, Udhagamandalam	19	7	19	2	-	-	-	-	47
	<b>Total</b>	<b>50</b>	<b>7</b>	<b>95</b>	<b>6</b>	<b>18</b>	<b>1</b>	<b>14</b>	<b>47</b>	<b>238</b>

During 2009-10, 31.78 lakhs Frozen Semen Straws were produced in the above Frozen Semen Production Stations.

### Frozen Semen Production

(In lakhs)

SI. No	Frozen Semen Station	Production 2009-10	Proposed target 2010-11
1	Exotic Cattle Breeding Farm, Eachenkottai	10.99	11.55
2	District Livestock Farm, Hosur	11.69	10.00
3	District Livestock Farm, Udhagamandalam	9.10	9.10
	<b>Total</b>	<b>31.78</b>	<b>30.65</b>

### LIQUID NITROGEN PRODUCTION AND SUPPLY

Five Liquid Nitrogen Plants to produce Liquid Nitrogen for freezing and storing semen straws are functioning in the State with 2 nos. at Eachenkottai, 1 each at Hosur, Udhagamandalam and Saidapet (Chennai). 12 Frozen Semen Banks are functioning one each at Coimbatore, Salem, Dharmapuri, Dindigul, Madurai, Sivagangai, Tirunelveli, Tiruchirapalli, Thanjavur, Cuddalore, Vellore and Chennai to store and distribute liquid nitrogen and frozen semen straws to various veterinary institutions involved in Artificial Insemination.

During 2009-10, 1.42 lakhs litres of liquid nitrogen was produced in the above plants.

### Liquid Nitrogen Production

(In lakhs)

SI. No	Liquid Nitrogen Plants	No. of Plants	Production 2009-10	Proposed target 2010-11
1	Exotic Cattle Breeding Farm, Eachenkottai	2	0.61	0.85
2	District Livestock Farm, Hosur	1	0.62	0.75
3	District Livestock Farm, Udhagamandalam	1	0.06	0.30
4	Saidapet	1	0.13	0.15
	<b>Total</b>	<b>5</b>	<b>1.42</b>	<b>2.05</b>

## ARTIFICIAL INSEMINATION:

The department introduced Artificial Insemination with liquid semen of exotic and graded breeds since 1948. Further, with the introduction of frozen semen during 1975, liquid semen was gradually replaced and all the Artificial Insemination Centres started using frozen semen from 1993 onwards. Artificial Insemination work is being carried out at 3,258 Centres functioning in the State.

Animal Husbandry Department is procuring high quality Frozen Semen Straws with high yielding germplasm through Tamil Nadu Livestock Development Agency (TNLDA) to improve the milk production potential of breedable animals and for faster multiplication of genetically superior milk production traits in the State. Artificial Insemination is being carried out at 3,258 Artificial Insemination Centres functioning in the State. Apart from the above institutions, this work is also being carried out in the camps organized for this purpose, "Kalnadai Padhukappu Thittam" camps and in remote

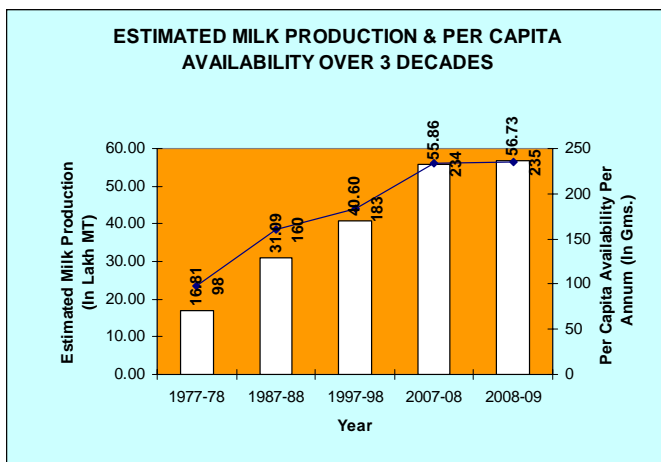
villages, through mobile veterinary units, by private Artificial Insemination workers trained by Tamil Nadu Livestock Development Agency and by utilising the services of unemployed veterinary graduates under World Bank assisted Tamil Nadu Irrigated Agriculture Modernization and Water-bodies Restoration and Management Project.

During 2009-10, 38.05 lakhs of Artificial Inseminations were done and it is proposed to carry out 39.00 lakhs Artificial Insemination during 2010-11.

Year wise Artificial Insemination particulars are as follows:

Sl. No	Work done	Breed	(In lakhs)			
			2007-08	2008-09	2009-10	2010-11 Proposed Target
1	Artificial Insemination	Cattle	32.19	33.35	35.52	36.30
		Buffalo	2.60	2.45	2.53	2.70
		<b>Total</b>	<b>34.79</b>	<b>35.80</b>	<b>38.05</b>	<b>39.00</b>





### CONSERVATION OF NATIVE BREEDS

The Native pure breed accounts for 6.01% and indigenous breed accounts for 37.76% of the total cattle population. Native breeds are unique in their adaptation to agro-climatic conditions of their habitat and management practices. They not only thrive under harsh climatic conditions and very low input system but also produce albeit at subsistence level. Moreover, they possess favourable genetic traits like tolerance to tropical climatic stress, superior feed conversion ability to poor quality

forages and resistance to some of the tropical diseases.

Tamil Nadu is known for its native breeds like Kangayam, Umbalachery, Burghur, Pulikulam, Alambadi cattle and Toda buffalo. The department in close coordination with Tamil Nadu Livestock Development Agency is not only protecting the above native breeds from further degradation but also ensure their conservation and improvement. The department is maintaining 1 Umbalachery and 14 Kangayam breeding bulls for frozen semen collection.

During 2009-10, 1.89 lakh Artificial Inseminations were carried out utilizing the Kangayam and Umbalachery semen. During 2010-11, it has been planned to carry out 2.00 lakh Artificial Inseminations utilizing the semen of native breeds.

### SHEEP AND GOAT DEVELOPMENT

Sheep and Goat Husbandry is an important subsidiary animal husbandry activity in the State. It

is the primary source of income for majority of landless agricultural labourers and supplements the income of small and marginal farmers. It provides meat and milk for human consumption and wool and other products for human / industrial use. Moreover, it also earns the much needed foreign exchange through export of leather products. In addition, sheep and goat manure play an important role in enriching soil fertility. As per 17<sup>th</sup> Livestock Census, Tamil Nadu accounts for 55.93 lakhs sheep and 81.77 lakhs goats.

Quality rams/bucks and ewes/does produced in the departmental farms are sold to local farmers to improve the progeny of local sheep/goat and also for breeding purposes. As on 31.03.2010, a stock of 99 rams, 1,477 ewes, 525 lambs and 41 bucks, 287 does, 90 kids are maintained in the Departmental Farms. During 2009-10, 563 sheep and 218 goats were sold to the farmers.

### **Intensive Health Cover Programme**

Sheep and goats are reared mainly by grazing thus making them highly vulnerable to parasitic infestations. These infestations cause many health problems in them like weight loss, delayed maturity, high mortality rate, low fertility rate etc., apart from making them susceptible to other infections. To overcome the above deleterious effects, the department is implementing an Intensive Health Cover Programme since 1982-83. Under this Programme, the sheep maintained by farmers are dewormed periodically to overcome the problems due to parasites. During 2009-10, drugs worth of Rs.40.00 lakhs were used to deworm the sheep.

### **PIGGERY DEVELOPMENT**

Pig farming has ample scope for providing self employment, improved nutrition and additional income to weaker sections of the society. Large White Yorkshire pigs are bred in the District Livestock Farms at Orathanad, Hosur,

Abishekapatti, Chettinad and Pudukottai. As on 31.03.2010, 22 boars, 155 sows and 336 piglets are maintained in the above farms. During 2009-10, 1,910 pigs were sold in the Farms.

### **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 Thorough bred horses are bred in this Unit. The stallions viz., Kathiawar and Thorough bred are allowed for natural service. At present, 6 stallions, 7 mares and 5 young ones are maintained in this Unit.

### **DOG BREEDING**

Our State has the privilege of having excellent dog breeds like Rajapalayam, Kombai and Chippiparai. To preserve these native breeds and to propagate them, a Dog Breeding Unit was established at Saidapet, Chennai during the year 1980-81. As there is heavy demand for other breeds like Labrador and Doberman, these breeds

were also added to the existing unit during the year 1997-98. The puppies bred in this Unit are sold to the public.

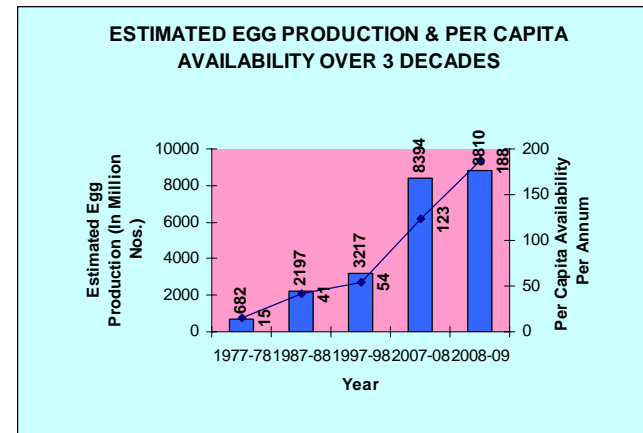
At present, the following breeds are maintained in this unit.

Sl. No	Breeds	Adult		Pups	
		Male	Female	Male	Female
1	Rajapalayam	3	5	-	9
2	Chippiparai	1	1	-	-
3	Doberman	2	3	-	-
4	Labrador	2	1	-	-
5	Dalmatian	-	-	1	1
6	Rottweiler	-	-	1	2

### **POULTRY DEVELOPMENT**

Poultry farming has undergone a transformation from being mere backyard unit to the present vibrant and dynamic commercial enterprise. Poultry farming took a step ahead with the introduction of deep litter system during the late 1960's. The introduction of new scientific techniques, new strains of poultry and California cage system have revolutionized the industry.

The process was speeded up with the help of Poultry Extension Centres, which acted as demonstration farms and extension centres providing training to farmers to take up poultry farming. Moreover, widespread immunization against Ranikhet disease and easy availability of quality feeds etc. also contributed to development of poultry rearing as an industry. Poultry rearing which had 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. There is a good potential for export of eggs, egg products and frozen chicken meat from our State to Gulf countries, Russia etc. The Tamil Nadu poultry industry contributes 16.5% of country's total poultry export.



### BACKYARD POULTRY DEVELOPMENT

Though poultry farming has developed into a big industry, eco-friendly backyard poultry rearing is also practised in the State as a profitable traditional backyard enterprise. It still continues to be the livelihood preposition of several poor farmers in the rural areas and contributes to 4% of the total egg production in the State. Backyard poultry rearing consists of 5 to 10 birds per household and is reared with little investment. The household gets meat and eggs from these birds. Birds are on free range and feed on worms, insects, waste grains, white ants etc. and they convert the farm and

kitchen waste into egg and meat. These birds are very susceptible to the highly fatal Ranikhet disease. 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 'Kalnadai Padukappu Thittam'. Apart from this, the department also conducts a Statewide Two Weeks Vaccination drive against Ranikhet disease during the month of February every year.

The number of poultry vaccinated under Special Ranikhet Vaccination Camps stood at 37.95 lakhs in 2008-09 and at 38.05 lakhs in 2009-10. The egg production rose from 8044 lakhs in 2006-07 to 8394 lakhs in 2007-08 and further to 8810 lakhs in 2008-09. The percentage of increase was 4.35% for 2007-08 and 4.96% for 2008-09. The per capita availability of egg had improved from 123 in 2006-07 to 128 in 2007-08 and further to 133 in 2008-09 against the required level of 180.

## **TURKEY REARING**

As per the 17<sup>th</sup> Livestock Census, Tamil Nadu has 0.51 lakh of turkey in which the percentage share of Scheduled Castes and Scheduled Tribes is 10.45 and 0.57 respectively. With the aim of creating awareness on turkey rearing as one of the profitable backyard businesses and to popularize it as rural farming and to create self-employment, the department is maintaining Turkey Units at the Poultry Farm, Kattupakkam. The Government have sanctioned Rs. 68.00 lakhs to develop the Turkey Units at Poultry Farm, Kattupakkam. At present, 191 turkeys are maintained in the above Unit.

## **AVIAN INFLUENZA**

Avian Influenza is one of important zoonotic diseases 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 Northern States.

- Active surveillance work is carried out by Veterinary Assistant Surgeons visiting the poultry farms in their jurisdiction regularly for ensuring poultry health / mortality reporting.
- The bird sanctuaries are visited by Veterinarians in Animal Disease Intelligence Units assisted by Forest Department for the surveillance work, especially to monitor the movement of migratory birds.
- Targeted sera samples are collected from all districts and are regularly sent to Southern Regional Disease Diagnostic Laboratory, Bangalore through Central Referral Laboratory, Chennai for screening. So far, 12,547 samples have been tested.
- In case of unusual sickness and death in poultry, clinical samples are collected and sent to High Security Animal Disease Laboratory at Bhopal.
- Two Poultry Disease Diagnostic laboratories one at Andagalurgate (Namakkal) and another at Erode are being upgraded to BSL

- II at a cost of Rs.22 lakhs each in order to screen the samples collected from poultry sera in our State itself.
- Government of India have sanctioned the establishment of a Bio-Security Level IV Laboratory at Padappai near Chennai in Tamil Nadu. An extent of 30 acres of land has been handed over to Government of India for setting up the laboratory. This prestigious project is being sanctioned for the purpose of certifying Tamil Nadu as a zone free of Avian Influenza, in case of outbreaks of bird flu in other parts of the country, so as to facilitate uninterrupted export of eggs, chicks and their products.
- A State High Level Task Force, headed by Chief Secretary to Government of Tamil Nadu, is monitoring the surveillance and preparedness of the State for tackling Avian Influenza.
- Three hundred Rapid Response Teams (RRT) have been formed in the State and

adequately trained to combat any outbreak of Avian Influenza and prevent spread of the disease by culling of birds and disinfection.

- A State fund of Rs.50.00 lakhs has been kept in reserve for giving compensation for the birds culled in case of emergency.
- A sum of Rs.85.33 lakhs has been allotted for training in preparedness, control and containment of Avian Influenza. So far, 1,880 Veterinarians, 1,075 Para Veterinarians, 3,000 Animal Husbandry Assistants and other departmental staff for RRT were trained. A sum of Rs.7.67 lakhs was sanctioned for training the village representatives and so far, 1,601 persons have been trained.

## **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, to provide employment, to enhance the participation of the poor in livestock rearing and as part of Poverty Alleviation Programmes, the department is implementing various beneficiary oriented schemes.

## **I STATE SPONSORED SCHEMES**

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

'Kalnadai Padukappu Thittam' is a novel scheme inaugurated on 18.01.2000 by Hon'ble Chief Minister Dr. Kalaignar at Thirukazhukundram in Kancheepuram District.

Under this Scheme, total health cover both preventive and curative is provided to livestock and poultry reared by farmers by conducting special camps in remote villages where veterinary facilities are inadequate. On the day prior to the camp, ample publicity is given in the village and surrounding places informing the place where the camp is to be conducted. Pamphlets and leaflets are also distributed regarding the various services provided during the camp.

Special camps are conducted at the rate of one camp per month in all the 385 Panchayat unions at a cost of Rs.4200/- per 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. In the calf-rally, prizes worth of Rs.400/- per camp are being distributed to best calves. The above camps are conducted under the direct supervision of the Divisional Assistant Directors and monitored by the concerned Regional Joint Directors. A team of Veterinarians and Para-Veterinarians working in the Panchayat Union and nearby Panchayat Unions is drafted for conducting the camps. The services of Tamil Nadu Veterinary and Animal Sciences University are also utilised in needy places.

In addition, exhibitions depicting various livestock diseases and preventive measures, fodder development measures etc. are conducted for creating awareness among the farmers. During 2009-10, 5,500 camps were conducted in which

67.60 lakhs livestock and poultry were provided veterinary health services against various animal diseases and 9.30 lakh farmers were benefited. During 2010-11, it is proposed to conduct 5,500 camps at a cost of Rs.4,200/- per camp. All animal growers in the villages and nearby villages where the camps are conducted will continue to be benefited out of these camps. Since all the services are provided at the farmers' doorsteps free of cost, this Scheme is very popular among the rural farming community.

**Kalnadai Padukappu Thittam (2008-09 and 2009-10)**

Sl. No	Details	2008-09	2009-10	2010-11 (Proposed)
a.	No. of camps conducted	5500	5,500	5,500
b.	No. of animals benefited			
	Cattle	18,46,487	18,63,285	20,00,000
	Buffaloes	2,62,205	2,39,462	2,90,000
	Sheep	16,73,564	18,30,389	18,50,000
	Goats	16,69,387	17,14,339	17,50,000
	Other Livestock	42,857	52,251	60,000
	Poultry	9,08,631	10,60,095	11,00,000
	<b>Total</b>	<b>64,03,131</b>	<b>67,59,821</b>	<b>70,50,000</b>
c.	No. of farmers benefited	6,38,400	9,30,142	10,00,000



d.	Fund Utilized (In lakhs)	231.00	231.00	231.00
e.	Average animal attendance/camp	1,164	1,229	-
f.	Calf Rally (No. of calves participated)	1,42,698	2,17,283	-

## 2. NABARD (Rural Infrastructure Development Fund)

Infrastructure is the key to improve veterinary services, with a consequent increase in overall productivity, growth and rural development. The Government accorded sanction for Rs.5,978.92 lakhs with assistance from NABARD Rural Infrastructure Development Fund X to improve the infrastructure in the department, out of which Rs.4,380.38 lakhs was utilised for construction of 71 Veterinary Dispensaries, 10 Veterinary Hospitals, 9 Semen Banks, 23 Field Monitoring Units, 9 Disease Diagnostic Units, 82 Dressing Sheds, 146 In-patient Units and 17 X-ray blocks. The equipments worth Rs.1374.54 lakhs were purchased and supplied to veterinary institutions and diagnostic centres and Rs.224.00 lakhs utilized for purchase of furniture to

111 newly constructed veterinary institutions and disease diagnostic centres.

Government have accorded sanction for Rs.332.50 lakhs with assistance from NABARD Rural Infrastructure Development Fund XI for construction of bull sheds at Hosur, Udhagamandalam and Eachenkottai District Livestock Farms and Quality Control Laboratories at Hosur and Udhagamandalam. Construction of Quality Control Laboratories at District Livestock Farm, Hosur and Udhagamandalam and Bull Shed work at Exotic Cattle Breeding Farm, Eachenkottai were completed.

## II. WORLD BANK ASSISTED PROJECTS

### 1. Tamil Nadu Irrigated Agricultural Modernization and Water-Bodies Restoration Management (TN IAMWARM PROJECT)

Animal Husbandry Department is one of the line departments involved in implementation of the World Bank assisted Tamil Nadu Irrigated Agricultural Modernisation and Water-bodies

Restoration and Management Project. The project is being implemented in the State from 2007 to 2013 for a period of 6 years. The prime objective of the project is to increase income of the farmers by improving the utilization of each and every unit of water resource in agriculture and related activities. For animal husbandry component, the World Bank has allotted Rs.39.30 crores 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-basins.
- To provide veterinary services and breeding support at the farmers' doorsteps or nearest to the farmers.
- To ensure total health cover, both preventive and curative.
- To improve 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:

- ❖ Establishment of Cluster Sub basin Veterinary Extension Units to provide veterinary services and breeding support to livestock reared by farmers in unserved areas by 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 Fertility cum

total health care camps and distribution of mineral mixture.

- ❖ Improving the knowledge level of farmers on best animal husbandry practices / techniques through various mass communication and training programmes, propaganda and publicity methods.

During 2007-08, the project was implemented in 9 sub-basins at a cost of Rs.2.39 crores. During 2008-09, in addition to the above 9 sub-basins, 15 more sub-basins were taken up for implementing this project at a total cost of Rs.3.53 crores. The following activities were carried out during the years 2007-08 and 2008-09.

- 65 Cluster Sub-basin Veterinary Units have been established to provide breeding support and veterinary services at the farmers' doorsteps utilising the services of Unemployed Veterinary Graduates on Public Private Partnership.
- 2,668 hectares of private land have been brought under fodder cultivation by providing

fodder inputs such as Co3 slips, maize and kolukattai grass seeds to the farmers free of cost.

- 60 Demos on Azolla cultivation have been conducted and Azolla inputs have been provided to 600 farmers free of cost.
- 1,380 Fertility cum total veterinary health care camps have been conducted.
- 1,490 Farmers' interactive meetings have been conducted.
- 7.73 lakhs sheep and goats have been dewormed periodically free of cost.
- Training on best animal husbandry practices have been provided to 9,825 farmers.

The following activities were carried out during 2009-10 in 9 sub basins (phase I) 15 sub basins (phase II) and 20 sub basins (phase III) at a total cost of Rs.4.34 crores.

- ❖ 57 Cluster Sub-basin Veterinary Units have been established to provide breeding support and veterinary services at the farmers' doorsteps.

- ❖ Artificial Inseminations were carried out to 2.20 lakh animals.
- ❖ 2,538 hectares of private land have been brought under fodder cultivation by providing fodder inputs such as Co3 in 427 hectares, Sorghum in 1223 hectares, Maize in 733 hectares and Kolukattai / Stylo in 155 hectares to the farmers free of cost.
- ❖ 40 Demos on Azolla cultivation were conducted and Azolla inputs were provided to 400 farmers free of cost.
- ❖ 780 Fertility cum total veterinary health care camps have been conducted.
- ❖ 515 Farmers' interactive meetings have been conducted.
- ❖ 9.11 lakh sheep and goats have been dewormed periodically free of cost.
- ❖ Training on best animal husbandry practices have been provided to 6,225 farmers.

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

The Tsunami waves that struck Tamil Nadu caused devastation in 13 coastal Districts. By way of providing relief and alternative livelihood, the Government accorded sanction of Rs.866.702 lakhs with assistance from World Bank to take up improvement of infrastructure facilities, fodder security and training in animal husbandry activities.

Under the above Scheme, 9 Veterinary Dispensaries, 3 Veterinary Hospitals, 13 District Veterinary Extension Centres, 2 Fodder banks, 12 Community Based Veterinary Worker Centres and 62 Sub centres were established. These institutions were equipped with necessary infrastructure facilities. In addition, as alternative livelihood opportunities, 82 local unemployed youths were trained on first aid, deworming, vaccination and breeding support. Besides these, 10,000 interested farmers were trained on livestock rearing.

### **III. CENTRALLY SPONSORED SCHEMES**

#### **1. National Agricultural Development Project (NADP)**

##### **During the year 2007-08**

For tracking of the movement of animals to trace their origin and spread of disease outbreak, 9 lakh breedable female bovines were ear tagged at a cost of Rs.157.00 lakhs.

Under this Project, the following components were undertaken.

##### **During the year 2008-09**

- ✓ Sheep rearing was introduced as a sustainable alternative livelihood opportunity to farmers, by supplying 20+1 sheep unit with concentrates @ 250 gm/day/animal for 6 months for one Self Help Group @ one Self Help Group /block for 362 blocks at a total outlay of Rs.85.43 lakhs.
- ✓ Awareness was created in using sugarcane tops as enriched silage for cattle feed by constructing 221 silo pits in 12 sugarcane

growing districts at a total outlay of Rs.56.405 lakhs.

- ✓ 8 Mobile Disease Diagnostic Laboratories were purchased to undertake spot diagnosis and eradication of diseases even in remote areas, at a total cost of Rs.96.00 lakhs.
- ✓ Tracking the movement of animals at a cost of Rs.217.69 lakhs by ear tagging of 13.73 lakhs breedable female bovines are under progress.
- ✓ Motorised (10 HP) chaff cutters with blowers were provided to 6 District Livestock Farms to increase the feed efficiency of cattle at a total cost of Rs.8.286 lakhs
- ✓ Awareness was created among farmers about the importance of feeding green fodder to animals, by cultivating fodder at the rate of 4 acres/block at 50% subsidy with a total cost of Rs.76.365 lakhs
- ✓ Mitigating fodder shortage by developing fodder cultivation in 2,709 acres of land in 6

District Livestock Farms at a total cost of Rs.449.88 lakhs is in progress..

**During the year 2009-10**

- ✓ Genetic upgradation of livestock through 7 Departmental Livestock Farms at a total cost of Rs.385.03 lakhs.
- ✓ Purchase of 8 Mobile Disease Diagnostic Laboratories to undertake spot diagnosis and eradication of diseases even in remote areas, at a total cost of Rs.96.00 lakhs.
- ✓ Development of small ruminants in 55 blocks of 4 Districts with feed cost and insurance cost at 50% subsidy for Rs.247.50 lakhs
- ✓ Provision of 8 Walk-in-coolers for maintaining cold chain of vaccines at a total cost of Rs.152.00 lakhs.

**2. Assistance to States for Control of Animal Diseases (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 and with 25 % of State share. For "Training / Seminar" component, 100 % assistance by Government of India is given as grant.

**Vaccination Particulars - (2007-08 to 2009-10)**

**(in lakhs doses)**

Sl. No	Vaccine	2007-08		2008-09		2009-10	
		Target	Achievement	Target	Achievement	Target	Achievement
1	Anthrax	30.00	31.51	31.95	35.15	25.00	27.42
2	Black Quarter	20.00	20.00	20.90	21.11	6.00	6.37
3	Haemorrhagic Septicaemia	20.00	20.00	16.23	20.46	4.00	4.00
4	Foot and Mouth Disease	83.50	82.06	183.00	169.14	192.00	110.00
5	Peste Des Petis Ruminants	60.00	43.44	81.82	55.77	15.00	15.00

**ASCAD - Financial Outlay**

Sl. No	Year	Project cost (Rs.in lakhs)
1	2007-08	824.77
2	2008-09	1869.85
3	2009-10	2121.25

Under Immunization Programme, 97% of targeted livestock population in the State has been covered, which has resulted in effective control of outbreak of diseases. The total number of outbreak of livestock diseases has come down from 316 in the year 2007-08 to 19 in the year 2008-09 and further to 15 in the year 2009-10. The Foot and Mouth Disease which causes major loss to livestock owners, has been controlled by double vaccination in the year 2008-09 and the outbreak of the disease was 'nil' during the year 2009-10. The implementation of ASCAD Scheme from the year 2004-05 to this year has the salutary effect on control of animal diseases in the State.

### 3. Foot and Mouth Disease Control Programme

Foot and Mouth disease is a devastating viral disease with high morbidity. The livestock affected with Foot and Mouth disease cause loss to the nation's economy due to reduction in milk yield, reduced working efficiency, sterility and reduction in the value of skin and hides.

To carry out Foot and Mouth disease vaccine and control programme in a phased manner, this 100 % centrally sponsored Scheme was implemented in Kanyakumari District from 2003-2004 at 81 revenue villages covering 23 Veterinary Dispensary areas in all the 9 blocks. This has resulted in effective control over Foot and Mouth Disease in that area due to the coverage of entire population in a planned manner.

#### FMDCP - Financial Outlay

Sl. No	Year	Project cost (Rs.in lakhs)
1	2005-06	40.61
2	2006-07	12.88
3	2007-08	10.00
4	2008-09	5.00
5	2009-10	5.00

### 4. 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, Self

Help Groups and other socially backward sectors of the society and thereby improving their living standards, the department is implementing a Central and State Share Scheme (80:20) at the Poultry Farm, Kattupakkam. The Government sanctioned Rs.68.00 lakhs to develop Turkey Units and a sum of Rs.34.00 lakhs was released as 1st instalment in 2008-09. Further, a sum of Rs.34.00 lakhs has been sanctioned to develop infrastructure and supply birds at the District Livestock Farm, Abishekapatti.

### 5. Integrated Sample Survey Scheme

Since 1977, the Government of India provides grant in-aid to the State on 50:50 sharing basis for the implementation of the Scheme, covering all the districts. It is being conducted for the estimation of major livestock products such as milk, meat and eggs and to study the Animal Husbandry attendant practices of livestock in the State. Since the livestock products have attained much importance for the purpose of planning and

are considered as one among the major economic indicators, this survey is continued as a regular feature.

The season wise estimated production of milk, egg and meat during the year 2009-10 is as follows:

Item	Summer season	Rainy season	Winter season	Total
Milk (Thousand tonnes)	1835.842	2040.977	1901.293	<b>5778.112</b>
Egg (Lakh numbers)	31499.346	37775.445	39201.074	<b>108475.865</b>
Meat (Thousand tonnes)	149.311	161.801	149.674	<b>460.786</b>

### 6. Livestock Census

Considering the shorter life span of livestock, the census on livestock, poultry, agriculture implements and fisheries is conducted once in 5 years since 1951. It provides Animal Husbandry Statistics to serve as a base for planning and monitoring developments in the field of Animal Husbandry and Veterinary Sectors. The 18th Quinquennial Livestock and Poultry Census was



carried out by the department of Animal Husbandry in 2007 with a financial allocation of Rs.18.00 crores with 15.10.2007 as the reference date.

The details of 17th Livestock Census are as follows:

Species	17 <sup>th</sup> Census 2004 (in lakhs)
Cattle	91.41
Buffalo	16.58
Sheep	55.94
Goat	81.77
Horses and Ponies	0.25
Pigs	3.21
<b>Total Livestock</b>	<b>249.42</b>
Dogs	27.16
Rabbits	0.67
<b>Total Poultry</b>	<b>865.91</b>

### 7. Hill Area Development Programme (HADP)

The Scheme is being implemented in the Nilgiris District since 1975. During the year 2008-09, the Union Planning Commission, Government of India sanctioned Rs.39.50 lakhs for implementing Schemes in Animal Husbandry sector under Hill Area Development Programme. Under this

Programme, power fencing has been provided around the District Livestock Farm, Udthagamandalam for a circumference of four kilometers. Farmers' Training Centre has been constructed at Veterinary Hospital, Udthagamandalam. Construction of new building for Veterinary Dispensary at Thummanatty is under progress. Animal Disease Free Zone in The Nilgiris is maintained for the 4th year.

### 8. Co-operative Societies

Co-operative societies for breeding sheep, poultry, pig etc., are functioning in the department since 1964. The Commissioner 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 31.03.2010, 268 societies have been registered, out of which 81 societies are active.

## **DISEASE PREVENTION, DIAGNOSIS, CONTROL AND ERADICATION**

'Healthy livestock leads to healthy nation'.

Several livestock diseases contribute to decreased production and death, which has a direct impact on food security and rural economy. The bacterial and viral diseases cause heavy morbidity and mortality whereas protozoan and gastro intestinal parasitic diseases cause production losses. 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. Systematic control of diseases will progressively lead to its containment first and eradication ultimately. Information about the prevalence rate and disease burden of the State's livestock population is critical in the fight against livestock diseases and this forms the basis for planning and initiating disease prevention and control strategies through optimal utilisation of funds, veterinary resources and man power.

## **A) DISEASE PREVENTION:**

### **Institute of Veterinary Preventive Medicine, Ranipet (IVPM)**

This department is giving paramount importance to the prevention of diseases in livestock and poultry. The Institute of Veterinary Preventive Medicine, Ranipet, Vellore District 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, 5 diagnostic reagents, 4 pharmaceuticals and one diluent. In addition, Indian Council for Agriculture Research aided All India Coordinated Research Project (AICRP) on Foot and Mouth Disease is under operation in this Institute to undertake investigation into Foot and Mouth Disease outbreaks and for virus typing.

The vaccines and diagnostics produced in the institute are:

Sl. No	Details	2007-08	2008-09	2009-10	
				Target	Production
1.	Black quarter vaccine (in lakhs doses)	28.46	23.72	10.00	10.08
2.	Haemorrhagic septicaemia vaccine (Alum Precipitated) (in lakhs doses)	30.24	18.98	10.00	7.12
3.	Enterotoxaemia vaccine (in lakhs doses)	2.37	1.19	2.00	1.78
4.	Anthrax Spore vaccine (in lakhs doses)	43.16	35.56	30.00	23.62
5.	Brucella abortus vaccine (in lakhs doses)	0.08	0	as per demand	0
6.	Ranikhet disease 'K' vaccine (in lakhs doses)	678.04	516.33	500.00	549.35
7.	Ranikhet disease 'F' vaccine (in lakhs doses)	0	19.90	as per demand	0
8.	Duck Plague vaccine (in lakhs doses)	111.94	110.00	80.00	165.37
9.	Ranikhet Lasota vaccine (in lakhs doses)	105.20	144.00	as per demand	0
10.	Sheep Pox vaccine (in lakhs doses)	3.53	3.09	as per demand	0
11.	Brucella abortus plate antigen (ml)	1,000	1270	1500	1520
12.	Brucella abortus plain antigen (ml)	10,500	4000	5000	5000

13.	Brucella abortus milking test antigen (ml)	1,000	300	1000	810
14.	Salmonella pullorum coloured antigen (ml)	0	1310	1000	2890
15.	California Mastitis test reagent (ml)	2,300	2000	2000	5000

The vaccine and diagnostics produced by the institute during 2009-10 are as follows:

(Rs. in lakhs)

Items	Production 2009-10
Bacterial vaccines	118.30
Viral vaccines	89.07
Diagnostics reagents	0.49
Diluents	1.51
Pharmaceutical Products	0.76
<b>Total</b>	<b>210.13</b>

To meet the international standards in vaccine production, it is essential to upgrade the vaccine manufacturing laboratories to Good Manufacturing Practices (GMP) standards. As a first step, the poultry vaccine production laboratory

is upgraded to Good Manufacturing Practices (GMP) 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.

## **B) DIAGNOSTIC SERVICES**

The department is giving utmost importance to this component of work. "*Animal Health is Nation's Wealth*". Outbreaks of diseases cause huge economic loss to the farming community by way of livestock mortality and decreased productivity. However, a disease surveillance system is essential to provide early warning of outbreaks while epidemiology helps in systematic study of the distribution and determinants of health problems. This department is monitoring the disease situation in the State through a network of 20 Animal Disease Intelligence Units spread throughout the State, 4 Mobile Laboratories, attached to Animal Disease Intelligence Units one

each at Madurai, Vellore, Tirunelveli and Coimbatore and 2 Poultry Disease Diagnostic Laboratories one at Andagalurgate (Namakkal district) and another at Erode. These Units are all functioning under the technical guidance of Central Referral Laboratory, Saidapet, Chennai.

### **i) Animal Disease Intelligence Units:**

20 Animal Disease Intelligence Units functioning in the State are as follows:

<b>Sl. No</b>	<b>Animal Disease Intelligence Unit</b>	<b>Districts covered</b>
1	Coimbatore	Coimbatore, Tiruppur
2	Cuddalore	Cuddalore
3	Dindigul	Dindigul
4	Erode	Erode
5	Kancheepuram	Chennai, Kancheepuram, Tiruvallur
6	Karur	Karur
7	Krishnagiri	Krishnagiri
8	Madurai	Madurai, Theni
9	Nagapattinam	Nagapattinam, Tiruvarur
10	Salem	Salem, Namakkal
11	Sivagangai	Sivagangai, Ramanathapuram
12	Thanjavur	Thanjavur, Pudukottai
13	Thoothukudi	Thoothukudi
14	Tiruchirapalli	Tiruchirapalli, Perambalur, Ariyalur

15	Tirunelveli	Tirunelveli, Kanyakumari
16	Udhagamandalam	Udhagamandalam
17	Vellore	Vellore, Thiruvannamalai
18	Villupuram	Villupuram
19	Virudhunagar	Virudhunagar
20	Dharmapuri	Dharmapuri

The main functions 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.

Apart from the above, the Animal Disease Intelligence Units are keeping vigil on the movement of the migratory birds around Bird Sanctuaries and Water bodies and watch for any alarming deaths among birds to observe for incidence of Avian Influenza. During 2009-10, 3,64,239 specimens have been tested by the above Units.

## ii) 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 in 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 poultry diseases. In addition, they render technical advice to farmers for diagnosis, prevention and control of various infectious and parasitic diseases. During the year 2009-10, 1,285 poultry farms and 1,023 villages have been visited and 7,581 samples have been examined.

Now, Government of India has decided to set up BSL II laboratories in each State to screen and dispatch morbid samples as part of routine surveillance and samples collected from unusual mortality of poultry. The Poultry Disease Diagnostic Laboratory at Andagalurgate and Erode are the two laboratories to be upgraded as BSL II labs in our State. For setting up of BSL II labs, Rs.22.00 lakhs

has been allotted to each Poultry Disease Diagnostic Laboratory for the various components as follows:

1. Modification of the laboratory (BSL II facility) : Rs.8.00 lakhs
2. Laboratory equipments : Rs.12.50 lakhs
3. Recurring expenditure on consumables etc. : Rs.1.50 lakhs

The upgraded labs will also test serum samples as preliminary screening for Bird flu virus and forward the positive samples to Referral Laboratories for further confirmation.

### **iii) Central Referral Laboratory:**

To co-ordinate the work of Animal Disease Intelligence Units and Poultry Disease Diagnostic Laboratories and to help the field staff in diagnosis and allied activities, one Central Referral Laboratory is functioning at Polyclinic Complex, Saidapet, Chennai. The timely diagnosis and confirmation of the diseases helps in containing the disease and protecting other animals by prompt treatment and vaccination. During 2009-10, 2,155 specimens

received from the field have been tested and results communicated. ELISA test for PPR, Brucellosis and Johne's disease, screening of farm animals for Tuberculosis, Johne's disease and sexually transmitted diseases, screening of animals for Brucellosis and BSE surveillance have also been carried out in this laboratory.

This laboratory also deals with testing of export materials from animal origin and issuing of health certificates. This laboratory plays a vital role in creating awareness among poultry farmers about Avian Influenza and trains field veterinarians and para veterinarians and Rapid Response Teams to act in case of emergency. As per the Government of India guidelines, during 2009-10, 12,547 samples have been sent to SRDDL, Bangalore for screening of Avian Influenza.

### **C) DISEASE CONTROL AND ERADICATION**

As systematic and periodical vaccination is the key for prevention and control of various livestock diseases causing huge economic loss to the farmers, the department is giving prime

importance to this component of work by vaccinating the susceptible livestock and poultry in all veterinary institutions. All the veterinary services are provided by camps conducted under "Kalnadai Padhukappu Thittam", Mass Contact Programmes and ASCAD Scheme.

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 fully exploiting 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.

During the year 2009-10, 469.80 lakhs vaccinations have been carried out. During the year 2010-11, it has been planned to carry out 500.00 lakhs vaccinations through veterinary institutions and under other Programmes.

## VACCINATIONS

(In lakhs)

Sl. No.	Vaccination	Target 2009-10	Achievement 2009-10
1	Haemorrhagic septicemia	4.00	5.81
2	Black quarter	6.00	8.79
3	Anthrax	25.00	29.04
4	Foot & Mouth Disease	192.00	99.96
5	Peste-des-petis-ruminants	15.00	16.90
6	Enterotoxaemia	2.40	2.25
7	Sheep pox	1.80	2.19
8	Ranikhet K	273.54	301.45
9	Others	1.75	3.41
	<b>Total</b>	<b>521.49</b>	<b>469.80</b>

The timely and regular prophylactic vaccination of susceptible animals in the endemic areas has reduced the disease outbreaks in the State. Now, with the eradication of Rinderpest and containment of bacterial and viral diseases and several other steps taken, the State is steadily moving towards the goal of freedom from major animal diseases.

## VETERINARY PUBLIC HEALTH

Health care of livestock and poultry is very important for economic production of products for human consumption. The health care of pets, aviary and wild life is very important in the context of their close association to mankind for companionship and recreation. Nevertheless, the health care of all the animals and birds associated with human beings is of prime importance to prevent the occurrence and spread of zoonotic diseases. Zoonoses are those diseases and infections, which are naturally transmitted from animals to humans and vice versa. Some of the services related to these aspects are detailed below:

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

Rabies is a viral disease of zoonotic importance. The disease is mainly prevalent in the stray dog population and is transmitted to mankind or livestock or pet dogs due to the bite by dogs. The disease has higher occurrence in urban, semi-urban and in rural villages in the stray dogs. The saliva of the affected animal contains the virus and therefore

a deep bite results in possible transmission mostly from dogs. Thus, elimination of canine rabies constitutes the most effective means of controlling transmission to human beings and other livestock.

With this aim, Canine Rabies Control Programme Units are functioning at Madurai and Tirunelveli with the following objectives:

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

During the year 2009-2010, a total number of 6,438 vaccinations have been done in the above centres.



**b) Mass Vaccination and Deworming:**

The department is conducting regular vaccination and periodical deworming of livestock and poultry reared in the State. Therefore, spreading of zoonotic diseases like Anthrax, Brucellosis, Taeniasis, Strongylosis, Amphistomiasis etc., is greatly reduced, besides breaking the life cycle of parasites for which the human beings act as permanent or intermediate host.

During the year 2009-10, 164.99 lakhs livestock and 303.21 lakhs poultry have been vaccinated. Apart from this, 34.15 lakhs cattle, 4.93 lakhs buffalo, 107.55 lakhs sheep, 95.36 lakhs goats, 2.56 lakhs dogs and 4.49 lakhs poultry have been dewormed.

**C) Meat Inspection:**

Regular meat inspection work is conducted by the department in the 107 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 in meat consumers is almost eliminated.

During 2008-09, 1.914 lakh Bovines, 34.948 lakh Ovines and 0.140 lakh Pigs have been slaughtered and 20,541 tonnes of beef, 41,821 tonnes of mutton and 670 tonnes of pork have been produced.

**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.

The department is also 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.

Every year, the department also participates in the All India Tourist and Trade Fair conducted at Chennai and also in the Co-operative Week Celebrations. Latest information to farmers is carried through mass media like Television, All India Radio and the Press. In addition, leaflets, folders, pamphlets, newsletters and bulletins on the latest animal husbandry activities and emerging diseases are distributed to the public during the “Kalnadai Padukappu Thittam” camps, fairs, festivals and local shandies conducted in various parts of the State to create awareness among the farmers. Regular weekly broadcasts on animal husbandry are made through All India Radio.

During the year 2009-10, the Government allocated a sum of Rs.3.13 lakhs to the Animal Husbandry Department towards conducting fairs and the department participated in the following fairs:

- Dindigul - Kodai Vizha  
Kodaikannal
- Yercaud - Kodai Vizha

- Krishnagiri - Mangani Vizha
- Villupuram- Kodai Fair  
Kalvarayan Malai
- Cuddalore - Silver Beach Fair
- Vellore - Yelagiri - Kodai Vizha
- Thiruvannamalai - Deepathiru Vizha
- Chennai - All India Tourist  
& Trade Fair
- Madurai - Govt. Chithirai  
Exhibition
- Tirunelveli - Govt. Exhibition

A sum of Rs.79,860/- was allocated for the department to take part in Republic Day Parade pageantry at Chennai.

### **ANIMAL WELFARE MEASURES**

It has been rightly said by Gandhiji “The greatness of a nation and its moral progress can be judged by the way its animals are treated”. To prevent cruelty to animals and to treat them ethically, the Government in coordination with Animal Welfare Board is addressing the problems of unethical treatment to animals in a three-pronged approach.

- ❖ At the Market Place
- ❖ During Transport
- ❖ In the Slaughter Houses

As per section 38 of the Prevention of Cruelty to Animals Act 1960 enacting Prevention of Cruelty to Animals Rules 2001, in every district of Tamilnadu a Society for Prevention of Cruelty to Animals (SPCA) with the following objectives has been formed:

- ➔ To rescue and take care of all animals in the district and administer the PCA Act 1960.
- ➔ To register cases of cruelty to animals and produce the offenders before the court for conviction.

Around 92 Animal Welfare Organisations recognised by the Animal Welfare Board of India for implementing various animal welfare activities are functioning in Tamilnadu. The Government have constituted State Level Coordination Committee and District Level Coordination Committees to oversee the enforcement of Prevention of Cruelty to Animals, Rules.

### **Tamil Nadu Regulation of Jallikattu Act 2009**

Jallikattu is conducted in the villages of Southern Districts of Tamil Nadu every year during Pongal/Harvest seasons as a part of the festival celebrations for the 400 years and more. The District Administration conducts the Jallikattu in the Districts.

To regulate the Jallikattu, so as to ensure the safety of animals, participants and spectators, a bill was introduced in the Legislative Assembly on 21.07.2009 and after enactment, the act has been published as Tamil Nadu Regulation of Jallikattu Act on 07.08.2009. Accordingly, Jallikattu events are conducted from the month of January to May in 12 Districts, namely Ariyalur, Dindigul, Karur, Madurai, Namakkal, Pudukottai, Salem, Sivagangai, Thanjavur, Theni, Tiruchirapalli, and Virudhunagar. The above said Act came into force from 26<sup>th</sup> August, 2009 onwards.

### **Implementation of Schemes during 2009-10:**

1. The outbreak of Avian Influenza in the Northern States of our country has caused the decline of poultry / poultry product exports since 2006. The poultry industry of Tamil Nadu was also affected greatly during the phase of outbreak, even though the State was free from the outbreak. Therefore, it was decided to take up compartmentalization of poultry production in the State. Under this Programme, it was decided to evaluate 141 layer farms in poultry belt districts by an Evaluation Committee with a protocol prepared based on Office International Epizootics (OIE) guidelines.
2. For networking the offices of Animal Husbandry Department through server and client computers, action is being taken through ELCOT to purchase 100 computers at a cost of Rs.44.00 lakhs.

3. To purchase 5 Nos. Semi Auto Analyzer with one kit to each Unit for Animal Disease Intelligence Units at Karur, Virudhunagar, Krishnagiri, Dharmapuri and Nagapattinam at a cost of Rs.12.50 lakhs, action is being taken through TNMSC.
4. To purchase Haeme Analyser with one kit to each unit for Central Referral Laboratory, Saidapet and Animal Disease Intelligence Units at Tirunelveli, Madurai, Coimbatore, Erode, Salem and Vellore at a total cost of Rs.35.00 lakhs, action is being taken through TNMSC.
5. To purchase Uriscan with one kit to each Unit at a total cost of Rs.3.50 lakhs for Animal Disease Intelligence Units at Tirunelveli, Madurai, Coimbatore, Erode, Salem, Vellore and Central Referral Laboratory, Saidapet, action is being taken through TNMSC.
6. To purchase two Monopan balance for Central Referral Laboratory, Saidapet at a

cost of Rs.3.00 lakhs, action is being taken through TNMSC.

7. To purchase one Dark Field Microscope for Central Referral Laboratory, Saidapet at a cost of Rs.5.00 lakhs, action is being taken through TNMSC.
8. To purchase 2 Nos. deep freezers to Central Referral Laboratory, Saidapet at a cost of Rs.1.00 lakh, action is being taken through TNMSC.
9. For quick communication between the Animal Disease Intelligence Units in the Districts with the State headquarters in respect of disease surveillance, out break and diagnosis, Fax Machine is provided to all the Animal Disease Intelligence Units at a total cost of Rs.2.00 lakhs.
10. The Government have passed order for reducing the Artificial Insemination charges from Rs.15/- to Rs.10/-, so as to benefit cattle owners who are mostly poor in economic status.

## **NEW PROGRAMMES FOR THE YEAR 2010-11**

During 2010-11, it is proposed to carry out Fodder Development Activities in District Livestock Farms and Private lands under 975 acres, for that purpose Rs.127.50 lakhs is sanctioned and it is a 100% Centrally Sponsored Scheme

### **UNDER PART II SCHEME**

It is proposed to strengthen the disease diagnosis and surveillance facilities of Animal Husbandry Department to establish the networking under e-Governance and to improve the infrastructure facilities of needy Sub centres at a total cost of Rs.100.15 lakhs.

1. It is proposed to purchase Haeme Analyser with one kit for each unit at a total cost of Rs.30.00 lakhs to Animal Disease Intelligence Units at Tiruchirapalli, Dindigul, Dharmapuri, Kancheepuram, Virudhunagar and Cuddalore.

2. It is proposed to provide Uriscan with one kit for each unit at a total cost of Rs.3.00 lakhs to Animal Disease Intelligence Units at Tiruchirapalli, Dindigul, Dharmapuri, Kancheepuram, Virudhunagar and Cuddalore.
3. For networking the offices of Animal Husbandry Department through server and client computers, it is proposed to provide 87 computers to Veterinary Institutions, Clinician Centres and Institute of Veterinary and Preventive Medicine, Ranipet at a cost of Rs.39.15 lakhs.
4. It is proposed to provide furniture to 144 upgraded Veterinary Sub centres and 56 Veterinary Sub centres at a cost of Rs.28.00 lakhs.

**Proposed plan for the year 2010-11 under National Agricultural Development Project (NADP)**

<b>S. No.</b>	<b>Scheme Components</b>	<b>Total Cost (in lakhs)</b>
<b>I</b>	<b>FODDER DEVELOPMENT:</b> Fodder Development through Departmental Farms Fodder Seed Farm, Padappai	16.35
<b>II</b>	<b>IMPROVEMENT IN LIVESTOCK HEALTH</b> Productivity improvement of Livestock through supplementation of minerals	14.40
<b>III</b>	<b>GENETIC UPGRADATION OF LIVESTOCK</b> Development of Small Ruminants	297.00
	<b>TOTAL COST</b>	<b>327.75</b>

**TAMIL NADU LIVESTOCK DEVELOPMENT  
AGENCY POLICY NOTE 2010-11**

**INTRODUCTION**

Tamil Nadu Livestock Development Agency (TNLDA) has been established as an autonomous State Implementing Agency to implement the National Project for Cattle and Buffalo Breeding (NPCBB) in Tamil Nadu and is functioning since 09-01-2003.

The primary aim of the Agency is to increase milk production and per animal productivity.

The objective of the agency includes bringing all the breedable female cattle and buffaloes under defined breeding programme through artificial insemination and natural service in a phased manner.

**OBJECTIVE**

1. Quality control of goods and services in breeding.
2. Supply of quality genetic inputs.

3. Introduction of quality bulls with high genetic merit for frozen semen production.
4. Intensification of Progeny Testing Scheme (PTS)
5. Identification of elite cows through Field Performance Recording Programme (FPRP).
6. Increasing the breeding facilities;
  - Establishing new mobile AI centres by training rural youth and equipping them
  - Encouraging Door-step delivery of breeding services
  - Facilitating stationary AI centre to perform mobile AI work by conversion of existing Stationary Artificial Insemination Centre into Mobile cum Stationary Centre.
7. Support for acquisition of frozen semen and artificial insemination equipment.
8. Streamlining storage and supply of liquid nitrogen.
9. Conservation of indigenous breeds.

10. Human Resources Development through regular training.

### **QUALITY ASSURANCE**

The Minimum Standard Protocol (MSP) of the Government of India for frozen semen production stations is implemented in the State, The semen stations are periodically evaluated by the Central Monitoring Unit of Government of India to ensure quality semen production.

### **PROCUREMENT OF QUALITY INPUTS FOR GENETIC UPGRADATION**

During the year 2009-10, 7.99 lakhs frozen semen straws produced from bulls of superior genetic quality were purchased and supplied to the Department of Animal Husbandry.

### **ACTIVITIES UNDERTAKEN DURING THE YEAR 2009-10**

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

- a) To strengthen the Liquid nitrogen storage at frozen semen stations, two liquid nitrogen

bulk storage silos have been installed at District Livestock Farm, Hosur and Exotic Cattle Breeding Farm, Eachenkottai, Thanjavur.

- b) The modification of bull sheds and the frozen semen laboratory has been taken up at District Livestock Farm, Uthagamandalam
- c) The modification of bull sheds and establishment of quarantine facility at Exotic Cattle Breeding Farm, Eachenkottai, has been taken up.
- d) 3 Holstein Friesian bull calves & 6 Crossbred Jersey bull calves for District Livestock Farm, Udhagamandalam, and 2 Crossbred Jersey bull calves for Exotic Cattle Breeding Farm, Eachenkottai have been procured.

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

- a) 22 Rural youth were trained to take up doorstep artificial insemination work during the year 2009-10 and action has been



initiated to establish new mobile Artificial Insemination Centres through them.

- b) 13 Retired Veterinarians / Livestock Inspectors have been provided with necessary facilities during the year to carry out artificial insemination at farmers' doorstep.
- c) 4 self-employed Veterinary Graduate and 72 rural youth have been provided with necessary equipment to carry out artificial insemination at farmers' doorstep.

### **3. Strengthening and Streamlining of Liquid Nitrogen and Frozen Semen Distribution**

To strengthen the Liquid nitrogen storage at the semen banks, two bulk liquid nitrogen storage Silos have been installed at the District Co-operative Milk Producers' Unions at Salem and Villupuram.

### **4. Strengthening of Semen Banks**

Civil works have been carried out in Cattle Breeding and Fodder Development Units of the

Department of Animal Husbandry at, Coimbatore, Erode, Salem, Thiruchirapalli, Madurai, Tirunelveli, Thiruvannamalai Vellore and Chitlapakkam (Kancheepuram).

### **5. Distribution of Young Breeding Bulls For Natural Service**

19 breeding bulls have been procured and distributed to beneficiaries for natural service purpose.

### **6. Training Programmes**

Tamil Nadu Livestock Development Agency has arranged and sponsored the following training programmes during the year 2009-10.

- a) 5 Veterinarians of Department of Animal Husbandry and 2 veterinarians of Tamil Nadu Co-operative Milk producers' Federation, working in Frozen Semen production stations were trained in Practices for clean semen production at the Central Frozen semen production and Training Institute, Hesserghetta, Bangalore.

- b) 2 Veterinarians of Department of Animal Husbandry have been trained in Quality Control of Bovine semen at Sabarmati Ashram Gaushala, Bidaj, Gujarat.
- c) 3 Veterinarians of Department of Animal Husbandry and 1 veterinarian of Tamil Nadu Co-operative Milk Producers' Federation Limited have been trained in Breeding Bull Management, Frozen Semen Technology and Artificial Insemination at BAIF, Pune.
- d) 48 veterinarians of Department of Animal Husbandry have been given refresher training at Madras Veterinary College on "Current trends in managing infertility in bovines".
- e) 56 Village level workers have been given retraining on bovine breeding at the training centres of the District Co-operative Milk Producers' Union at Vellore, Salem, Villupuram and Madurai.
- f) 22 rural youth have been trained to take up Artificial Insemination work.

## **7. Progeny Testing Scheme (PTS)**

Progeny testing of fourth batch of 13 Crossbred Jersey bulls has been completed. The fifth batch of 23 Crossbred Jersey bulls and sixth batch of 20 Crossbred Jersey bulls are under progeny testing programme implemented by the Tamil Nadu Cooperative Milk Producers' Federation with the financial assistance from Tamil Nadu Livestock Development Agency.

## **8. Field Performance Recording Programme (FPRP)**

This programme is implemented by Tamil Nadu Cooperative Milk Producers' Federation with the financial assistance from the Tamil Nadu Livestock Development Agency. During the year 2008-09, under the second set, 1336 elite Crossbred Jersey cows have been enrolled from more than 150 Milk Producers' Co-operative Societies of 7 District Co-operative Milk Producers' Unions covering 13 revenue districts. From the elite

cows enrolled, high yielding cows were selected and inseminated with proven bull semen and the bull calves born to these cows are selected and reared for semen production in the semen stations. 2 calves from the first set and 6 bull calves born under second set of the programme have been procured during the year 2009-10.

### **9. Propaganda and Publicity**

A weekly 30 minutes programme titled as 'Kaalnadai Selvam' is being sponsored by TNLDA and aired over Prasar Barathi (AIR) Chennai on every Saturday at 7.30 p.m. The programme contents include talk by experts, discussion on Animal Husbandry topics and interviews with experts and farmers.

### **10. Assistance to Private AI workers**

22 rural youth have been given assistance of Rs.6000/- per year as support during the initial period of one year.

### **11. Infertility Camps**

658 Cattle and buffalo fertility camps have been organised by the Department of Animal Husbandry and Tamil Nadu Co-operative Milk Producers' Federation limited and 160650 animals of 84413 farmers, attended these camps.

### **LIVESTOCK INSURANCE SCHEME**

The centrally sponsored Livestock Insurance Scheme is being implemented by Tamil Nadu Livestock Development Agency. During the year 2009-10, under the third phase, insurance of milch cattle and buffaloes has been taken up in 15 districts viz., Coimbatore, Erode, Salem, Namakkal, Trichy, Thanjavur, Madurai, Dindigul, Thirunelveli, Thiruvannamalai, Cuddalore, Dharmapuri, Krishnagiri, Villupuram and Vellore with a target of insuring 2 lakh from the month of January 2010. 50% of the premium amount is provided as grant and paid to the Insurance firm by the Government and 50% of the premium amount is borne by the farmers

**POLICY NOTE FOR THE YEAR 2010-2011  
TAMIL NADU VETERINARY AND ANIMAL  
SCIENCES UNIVERSITY**

**INTRODUCTION**

The Tamilnadu Veterinary and Animal Sciences University (TANUVAS) was established during the year 1989, the first of its kind in the country and the brainchild of the Hon'ble Chief Minister Dr.Kalaignar M. Karunanidhi with the following objectives:

- ◆ To impart quality education to undergraduate, post-graduate and doctoral students in different fields of Veterinary and Animal Sciences, Fisheries Sciences and Food Processing Technology.
- ◆ To carry out research in livestock, poultry and fish production, protection and value addition.
- ◆ 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.

**UNITS OF TANUVAS**

The constituent units of TANUVAS are given in Annexure.

**ACTIVITIES OF TANUVAS**

The activities of TANUVAS in the area of Education, Research, Clinics and Extension activities are outlined below:

**EDUCATION**

Details of students admitted during the year 2009-2010 at TANUVAS are furnished below.

Courses	Madras Veterinary College, Chennai	Veterinary College and Research Institute, Namakkal	Fisheries College and Research Institute, Thoothukudi	Institute of Food and Dairy Technology, Koduvalli	Total
B.V.Sc. & AH	145 *	85	-	-	230
B.F.Sc	-	-	36 **	-	36
B.Tech. (FPT)	-	-	-	19	19
M.V.Sc	63	10	-	-	73
M.F.Sc	-	-	19	-	19
Ph.D. (Veterinary)	12	8	-	-	20
P.G. Diploma in Companion Animal Practice	1	-	-	-	1
P.G. Diploma in Veterinary Laboratory Diagnosis	1	-	-	-	1

M. Phil in Bio-technology	8	-	-	-	8
<b>Total</b>	<b>230</b>	<b>103</b>	<b>55</b>	<b>19</b>	<b>407</b>

\* including four NRI students and one FN student

\*\* including one NRI student

- ★ TANUVAS Specific Mineral Array for Regions of Tamil Nadu (SMART) - Mineral Mixture developed and released.
- ★ “National facility for Pharmacovigilance Laboratory for Animal Feed and Food safety” was inaugurated at a cost of Rs. 3.00 crores.
- ★ The 13<sup>th</sup> convocation of TANUVAS was held on 20.11.2009 at Kalaivanar Arangam Chennai. Two hundred and thirty-four veterinary graduates were awarded degree certificates.
- ★ The inaugural ceremony of Silver Jubilee Celebration of Veterinary College and Research Institute, Namakkal along with XXV Annual Convention of the Indian Society for Study of Animal Reproduction (ISSAR) and International Symposium on “Expanding the Horizons of Reproductive Technologies

for Augmenting Fertility in Farm and Pet Animals in the Global Scenario” was held at Veterinary College and Research Institute, Namakkal. Totally, 410 scientists including 6 foreign delegates participated in the symposium.

- ★ International Poultry Expo and Conference entitled “Technological advances in Poultry production, health and management” was organized at Veterinary College and Research Institute, Namakkal. Totally, 64 stalls put up by 53 leading poultry oriented companies and 5200 visitors visited the stalls during the expo.
- ★ Three faculty members of TANUVAS received Young Scientist Award.

## RESEARCH

### Externally Funded Schemes

Thirty-six external funded research programmes at a total outlay of Rs. 1485.26 lakhs have been sanctioned during 2009-10.

### **Plan Schemes**

Under University Plan, 83 Plan Schemes with the financial outlay of Rs.3,358.37 lakhs funded by the Government of Tamil Nadu are in operation for strengthening the infrastructure facilities for higher studies, innovations, research infrastructure and dissemination of knowledge.

### **Part II Schemes**

During 2009-10, the following two Part-II Schemes have been implemented at TANUVAS:

1. Development of an Inactivated Swine fever virus vaccine at a cost of Rs. 32.00 lakhs
2. Empowerment of rural women through rotational goat and desi fowl rearing at Rs.18.00 lakhs

### **AGREEMENTS SIGNED**

- a. Memorandum of Understanding has been signed between TANUVAS and GALVmed, UK in order to commercialize TANUVAS vaccines for usage at global level.

- b. Memorandum of Understanding has been signed between TANUVAS and M/s. Globion Pvt. Ltd., Hyderabad for commercializing the oral pellet vaccine for New Castle Disease. Subsequent to this, the seed virus along with technology has been transferred and Rs. 10.00 lakhs has been received by TANUVAS as one time lumpsum grant.
- c. Memorandum of Understanding has been signed between TANUVAS, Chennai and Foundation for Revitalization of Local Health Traditions (FRLHT), Bengaluru for facilitating collaborative research, education, training and extension activities on Ethno Veterinary Medicine
- d. Memorandum of Understanding has been signed between TANUVAS, Chennai and Institute of Animal Health, Crompton (BBSRC) to work on Coccidiosis.

## **RESEARCH ACHIEVEMENTS IN ANIMAL SCIENCES**

### **ANIMAL HEALTH**

#### **Mesenchymal stem cell therapy in induced mice skin burn wounds**

Bone marrow derived cellular isolation for pluripotent Mesenchymal Stem Cells (MSC) have been standardized and characterized for pluripotent MSC markers. These cells marked for lineage tracking were used for cellular transplantation in the wound sites in mice models. The presence of GFP expression both *in vivo* and *in vitro* for more than 30 days have been confirmed. The contribution of MSC in enhanced healing of mice skin wounds is being carried out. Adaptation of MSC to a native biomaterial is being standardized.

#### **Production and characterization of monoclonal antibodies against street rabies virus**

The brain tissue samples were processed for isolation in Murine Neuroblastoma (MNA) cells. The pooled suspensions of dog, goat and calf separately were injected into mice and two

passages were made. Simultaneously, cloning of N and G genes of street rabies virus was done in pTriEx vector for further expression in prokaryotic / insect cell system. The developed monoclonal may be used for diagnostics development and also for therapeutic use in the future.

#### **Production, evaluation & standardization of Vero cell adapted live *attenuated peste des petits ruminants* (PPR) virus vaccine under field conditions.**

Fifty thousand doses of PPRV vaccine was produced in vero cells. RT-PCR amplification of H gene of PPRV vaccine virus was done to carry out sequence analysis. A portion of the H gene was amplified. Two parts of the H gene were amplified and sequenced for a field isolate. Four sets of PPRV N gene specific primers were designed and tested in RT-PCR to find out the sensitivity of PPRV detection. One primer set N<sub>4</sub> was found to be most sensitive and could detect PPRV even in 1:1000 diluted vaccine virus samples.

### **Development of a multivalent oral vaccine against chicken coccidiosis using local isolates”**

Ten attenuation trials were carried out in chicken using the 10 field isolates of *Eimeria tenella* collected from Coimbatore, Namakkal, Pakkam, Vellore, Tiruchitrampalam, Thanjavur, Nellore, Chittoor, Bangaluru and Nagpur. A marked reduction in the prepatent period from 142 to 136 hours with reduction in the gross lesion score from +3 to +1 were also observed in most of the field isolates subjected to attenuation indicating reduction in virulence. Molecular analysis of various *Eimeria* species were carried out using ITS and SCAR primers for *E.tenella*, *E.brunetti*, *E.maxima*, *E.acervulina*, *E.necatrix* and *E.mitis* to evaluate the molecular changes during attenuation.

### **ANIMAL PRODUCTION**

#### **Preparation of Dietetic frozen bifido yoghurt.**

Frozen yoghurt is a dessert similar to ice cream but lower in fat. Frozen bifido yoghurt is a unique way of combining the characteristics of ice

cream and the therapeutic character of yoghurt. Incorporation of *Bifidobacterium bifidum*, a probiotic organism with traditional yoghurt will be highly beneficial to the consumers. Bifido yoghurt made with artificial sweeteners will not only be highly beneficial in exerting probiotic and possible therapeutic effects but also in avoiding health risks associated with caloric sweeteners.

#### **Formulation of a sugar free icecream**

Sucralose could be satisfactorily used in the preparation of acceptable quality ice cream replacing even upto 100 percent of sugar. Further, it was observed that a maximum of 50 percent of Acesulfame k with sugar and 75 percent of Neotame with sugar could be satisfactorily used in the preparation of good quality ice cream.

#### **Development of synbiotic ice cream**

About 100 ml of control, probiotic and synbiotic ice creams were served to the volunteers for 15 days and their faecal samples were analyzed for pH, *L. acidophilus* and coliform counts on days 0, 7 and 15. Consumption of probiotic and



synbiotics in ice cream significantly reduced the faecal pH. There was no significant difference in the pH within the synbiotic treatment groups. Probiotic supplemented ice cream gave significantly higher faecal *L. acidophilus* counts than the control group on days 7 and 15. Honey and inulin incorporated synbiotic ice cream gave significantly higher faecal *L. acidophilus* count than the maltodextrin incorporated synbiotic ice cream on days both 7 and 15. Incorporation of probiotic or synbiotic in ice cream significantly reduced the faecal coliform count compared to control. Inulin and honey incorporated synbiotic ice cream fed groups had significantly higher reduction in the faecal coliform count than the maltodextrin synbiotic ice cream fed group.

#### **Validating the research on mineral map of Tamil Nadu**

Four different combinations of mineral mixtures were formulated with inclusion of cobalt in all the area specific mineral mixture.

- (A) Calcium, phosphorus, cobalt, copper, zinc and magnesium for districts of Coimbatore, Kancheepuram, Kanyakumari, Madurai, Nagapattinam, Sivgangai, Thiruvallur, Thoothukodi, Trichy, Thiruvarur, Thiruvannamalai and Virudunagar
- (B) Calcium, phosphorus, cobalt, copper, and zinc for districts of Dindigul, Dharmapuri, Erode, Namakkal, Salem, Thirunelveli, Villupuram and Vellore
- (C) Calcium, phosphorus, cobalt, and copper for districts of Cuddalore, The Nilgiris, Karur, Krishnagiri, Perambalur and Theni
- (D) Calcium, phosphorus, cobalt, copper and magnesium for districts of Pudukkottai, Ramanathapuram and Thanjavur.

#### **CLINICAL SERVICES**

TANUVAS is offering clinical services to the pet and livestock owners round the clock and the details are given below :

### Out-patient Cases treated during the year

2009-2010

Description	Hospitals		
	Madras Veterinary College, Vepery, Chennai	Veterinary University Peripheral Hospital, Madhavaram	Veterinary College and Research Institute, Namakkal
Canine	50485	9810	5268
Bovine	13450	2323	3356
Feline	1728	176	146
Equine	1851	127	52
Caprine/Ovine	4422	813	2518
Avian	1440	589	1617
Others	483	191	127
<b>Total</b>	<b>73859</b>	<b>14029</b>	<b>13084</b>

#### **Inpatient facilities**

- ⊕ In Madras Veterinary college teaching hospital at Vepery, 209 large and 211 small animals were admitted and treated as in-patients for various ailments.
- ⊕ At Veterinary College and Research Institute, Namakkal, 2138 large animals were admitted and treated as in-patients.

- ⊕ A separate quarantine unit to house animals suspected for rabies is functioning, in Vepery and Namakkal.

#### **Infrastructure and facilities available**

1. Laparoscope Illumination & Documentation unit
2. Canine Laparoscope
3. Ultra Sound Scanner - Veterinary Linear Scanner with rectal probe
4. Ophthalmology with Phaco Emulcifier
5. Oxygen generator
6. Colour Doppler Ultrasound-SSD-3500 SV
7. Real Time Harmonic Volume Mode Probe
8. Trinocular Microscope with digital photo micrographic attachment
9. Flexible Fibroscope for Deep Lung Examination and Urethrocytoscopy for male dogs

## Laboratory services

- **National facility for Pharmacovigilance  
Laboratory for Animal Feed and Food  
safety**

This laboratory is involved in analysis of Mycotoxins, Pesticide residues in animal feed and food substances. During 2009-10, 3052 samples were analysed for mycotoxins and pesticide residues. Out of the 1124 samples tested for aflatoxin, 191(17%) samples were positive for aflatoxin. Of the 807 samples tested for multitoxin, citrinin and ochratoxin A, 672 (83%) were positive for multitoxin and 31 (4%) were positive for citrinin. Of the 126 samples tested for antibiotic residue (Furazolidone-Furaltadone), 3 (2%) were positive. Nitrate test was done to 12 samples of which 10 were positive and four samples done for nitrite test, of which all the four were positive. The results were communicated to the entrepreneurs / farmers so as to enable them

to formulate their animal / poultry feed free from toxic residues.

- **Animal Feed Analytical and Quality  
Control Laboratory, Namakkal**

A total of 2256 poultry and livestock progressive farmers from various parts of Tamil Nadu and other states were advised regarding analysis of feed ingredients and feeds and were counseled on various problems in feeding practices. During the reporting period, 13,730 samples were tested and 33,118 analyses done at this laboratory.

- **Leptospirosis Research Laboratory,  
Madhavaram**

A total of 10,316 human serum samples and 433 animal serum samples from suspected cases were screened by Microscopic Agglutination Test (MAT) for detection of leptospiral antibody. Out of 10,316 human samples tested, 8,494 (82.34%) were found positive. The predominant serogroup was

Australis followed by Autumnalis and Javanica. Out of the 433 animal samples tested, 304 (70.21%) samples were found positive. The predominant serogroup was Autumnalis.

### EXTENSION ACTIVITIES

The Directorate of Extension Education is functioning with the objective of planning and execution of all outreach programmes of the University in close coordination with other line departments / agencies such as the Dept. of Animal Husbandry, Tamil Nadu Co-operative Milk Producers' Federation Ltd., Tamil Nadu Livestock Development Agency and other Government organizations. The activities undertaken by the Directorate of Extension Education are furnished below.

### Training Programmes Conducted during 2009-2010

Title of the Training Programme	No. of Training Programmes		Beneficiaries				Total
			SC/ST		Others		
	On campus	Off campus	Men	Women	Men	Women	
Dairy farming	103	178	862	2556	3333	3953	10704
Sheep & Goat farming	91	70	617	737	2110	852	4316
Poultry Farming	66	34	364	542	1626	639	3171
Turkey Farming	32	5	110	41	423	163	737
Japanese Quail farming	17	8	92	44	291	122	549
Pig farming	24	7	166	69	649	100	984
Rabbit farming	19	7	71	148	239	113	571
Milk and Milk products	7	22	136	208	341	565	1250
Home Science	20	29	40	86	247	695	1068
Horticulture	44	36	257	425	1309	1101	3092
Integrated livestock farming	36	53	568	1615	897	1487	4567
Fish farming / Ornamental fish culture	35	26	98	100	645	949	1792
Crop Science	2				42	34	76
Agricultural Engineering	31	65	337	381	1298	979	2995
Feed and Fodder Cultivation	19	9	75	76	387	169	707
Animal Science	31	12	174	194	719	344	1431
Calf rearing	2	5	15	14	32	20	81

## Other Extension Activities

Farmer's Queries	
By Post	7305
In Person	18162
By Field Visit	6606
By Telephone	8152
By Email	487
By Touch Screen	2666
<b>Radio Programmes</b>	<b>71</b>
<b>Television Programmes</b>	<b>85</b>
<b>Exhibitions</b>	<b>152</b>
<b>TOTAL</b>	<b>43686</b>

## Technologies developed :

### Products

#### 1. **Multi-nutrient Blocks for Small ruminants**

The technique of preparation of Multi-nutrient Blocks for Small ruminants was standardized by the Department of Animal Nutrition, VC & RI., Namakkal. The Cost of the block is Rs.7.00 per kg. Level of intake: Sheep – 19 g per day / animal and Goats - 24 g per day / animal. This will supplement the nutritional value for better growth in small ruminants.

#### 2. **Mini laboratory type extruder**

The mini laboratory type extruder was fabricated at a cost of Rs. 1.82 lakhs per unit with an output capacity of 20 kg per hour at the Department of Animal Nutrition, VC & RI., Namakkal. Using this machinery, extrusion of grains, full fat soya, pet foods etc could be carried out.

#### 3. **Traditional styled meat pickle from spent hen meat**

Development of traditional styled meat pickle from spent hen meat was standardized at the Department of Meat Science and Technology, VC & RI., Namakkal. The technology focuses on the use of spent hen meat in preparation of value added product pickle.

#### 4. **Pet food incorporating dry rendered spent hen meat**

Development of pet food incorporating dry rendered spent hen meat was standardized at the Department of Meat Science and Technology, VC & RI., Namakkal. The

technology focuses on the utilization of spent hen meat in pet food.

### **Vaccines**

- 5. Inactivated multivalent (pentavalent) bluetongue vaccine**  
Inactivated multivalent (pentavalent) bluetongue vaccine (containing BTV serotypes 1, 2, 15, 18 and 23) was developed at Vaccine Research Centre- Viral Vaccine, Chennai. Vaccinated sheep did not show any adverse reactions and there was no occurrence of BT in vaccinated sheep.
- 6. Inactivated vaccines against necrotic enteritis**  
Inactivated vaccines against necrotic enteritis for chicken was developed at the Department of Veterinary Microbiology, VC & RI., Namakkal and found suitable to control necrotic enteritis in meat type of chicken. Vaccination against necrotic enteritis and probiotic in broilers gave higher body weight

gain than broilers vaccinated alone to control necrotic enteritis.

### **Diagnostic kits**

- 7. PCR diagnostic kit For detection of Monodon baculovirus (MBV) in shrimps**  
For detection of Monodon baculovirus (MBV) in shrimps, PCR diagnostic kit was developed at Vaccine Research Centre,- Viral Vaccine, Chennai.

### **Others**

- 8. Pulsed Electro Magnetic stimulator**  
Pulsed Electro Magnetic stimulator has been fabricated for enhancement of fracture healing in canines at VUTRC, Madurai. This was found to be superior to non invasive techniques in enhancement of femoral fracture healing with minimal periosteal callus without any complication.
- 9. Inhalation anaesthetic protocol for large animal surgeries**  
Inhalation anaesthetic protocol for large animal surgeries was standardized at the Department of Clinics, VC & RI., Namakkal.

This can be very useful for the farm animals like cattle, buffaloes, sheep and goats in performing complicated large animal surgeries.

## **RESEARCH ACHIEVEMENTS IN FISHERIES SCIENCES**

### ⌘ **Development of Sperm Bank**

Male fishes from different regions have been utilized for milt collection which will be used for cryopreservation. Through the cryopreserved spermatozoa of outbred stock, we can prevent inbreeding and improve hatchability. This will result in the production of genetically improved quality seeds for further development into broodstock. In due course, the genetic improvement can be brought in the seeds produced in hatcheries of Tamil Nadu.

### ⌘ **Lobster production through fattening technology for women empowerment in southern districts**

Seven training programmes were organized for eleven groups of women from different Self Help Groups and entrepreneurs of four

southern coastal districts of Tamil Nadu viz. Ramanathapuram, Thoothukudi, Tirunelveli and Kanyakumari. Two hundred and eighteen members of SHG belonging to the above coastal areas participated in the training.

### ⌘ **Analysis of fishing practices of Gulf of Mannar Biosphere Reserve**

Quantitative and qualitative data on bycatch of trawl net fishing were documented. Thirty five genera of fishes were recorded from trawl net bycatch from Thoothukudi coast. *Saurida* spp., *Upeneus* spp., *Leiognathus* spp., *Odonus* spp., *Therapon* spp., *Chirocentrus* spp. and *Johnius* spp. were dominating in the bycatch. Trawl catch discards were recorded 60-70 percent from the catches below 50m depth and 40-50 percent from the catches above 50m depth.

### ⌘ **Employment generation for rural Self Help Group women through training on ornamental fish culture**

A total of 170 rural women Self Help Group members of Thoothukudi, Alwarthirunagari and

Srivaikundam blocks have been trained on freshwater ornamental fish culture for the creation of self employment opportunities. Five women Self Help Group members established cottage level adoption for ornamental fish culture and breeding practices after gaining knowledge from the training

#### **SCHEMES IMPLEMENTED DURING 2009-10**

- ◆ During 2009-10, Rs. 28.00 Lakhs was sanctioned to develop an Inactivated Swine fever virus vaccine. In this scheme, a suspected case of swine fever outbreak reported at Veppur and Vengaivasal were attended and tissue materials were collected. Classical Swine fever (CSF) virus was confirmed by Polymerase chain reaction (PCR).
- ◆ During 2009-10, Rs. 18.00 Lakhs was sanctioned towards Empowerment of rural women through rotational goat and desi fowl rearing. In this Scheme, the villages for

implementation and selection of beneficiaries were identified

#### **NEW PART-II SCHEMES FOR 2010-11**

The following Part II schemes proposed by TANUVAS are under active consideration by the Government for the year 2010-11.

1. Empowerment of tribal women and women Self Help Groups through rabbit, poultry and sheep farming in the Nilgiris district at a total cost of Rs.20.50 lakhs
2. Production of low cost progesterone vaginal sponges anaestrous dairy animals at a total cost of Rs. 9.50 lakhs.
3. Quality monitoring and certification centre for fishery products at a cost of Rs.20.00 Lakhs

#### **FUTURE THRUST AREAS**

##### **Veterinary**

- ⇒ Development of biotechnology based vaccines for the control of livestock and poultry diseases



- ↻ Mastitis control and eradication
- ↻ Stem cell research for development of cell therapy
- ↻ Conservation of native breeds of cattle in their own breeding tract
- ↻ Ethno Veterinary Medicine

### **Fisheries**

- ↻ Conservation of biodiversity of endangered marine species
- ↻ Conservation measures for precious fisheries resources such as sacred chank, coral reefs and sea mammals.
- ↻ Production and breeding of exportable marine ornamental fishes such as clown, damsel and aravana fishes.

## **ANNEXURE**

### ☞ **COLLEGES**

Madras Veterinary College, Vepery, Chennai  
 Veterinary College and Research Institute, Namakkal  
 Fisheries College and Research Institute, Thoothukkudi  
 Institute of Food and Dairy Technology, Koduvalli, Chennai

### ☞ **CENTRES OF ADVANCED STUDIES (CAS)**

Veterinary Clinical Medicine, Ethics and Jurisprudence, MVC., Chennai  
 Poultry Science, Veterinary College and Research Institute, Namakkal

### ☞ **CENTRE OF EXCELLENCE**

Centre of Excellence in Animal Biotechnology and Immunology, MVC., Chennai

### ☞ **RESEARCH STATIONS**

Sheep Breeding Research Station, Sandynallah, Udthagamandalam  
 Mecheri Sheep Research Station, Pottaneri, Salem  
 Livestock Research Station, Kattupakkam, Kanceepuram  
 Institute of Animal Nutrition, Kattupakkam, Kancheepuram  
 University Research Station, Madhavaram, Chennai  
 Institute of Poultry Production and Management, Chennai

☞ **VETERINARY UNIVERSITY TRAINING AND RESEARCH CENTRES**

1. Coimbatore
2. Dharmapuri
3. Dindigul
4. Erode
5. Karur
6. Madurai
7. Melmaruvathur
8. Parakkai
9. Cuddalore
10. Rajapalayam
11. Salem
12. Thanjavur
13. Tirunelveli
14. Tiruppur
15. Tiruchi
16. Vellore

☞ **VETERINARY UNIVERSITY REGIONAL RESEARCH CENTRE, PUDUKOTTAI**

☞ **FISHERIES' TRAINING AND RESEARCH CENTRE**

1. Thanjavur
2. Parakkai, Kanyakumari District

☞ **AVIAN DISEASE LABORATORY**

1. Namakkal
2. Thalaivasal

☞ **LABORATORIES**

- Animal Feed Analytical and Quality Control Laboratory, Namakkal
- National facility for Pharmacovigilance Laboratory for Animal Feed and Food safety, Chennai
- Central. University Laboratory, Madhavaram Milk Colony, Chennai
- Leptospira Diagnostic Laboratory, Madhavaram Milk Colony, Chennai
- Shrimp Disease Diagnostic Laboratory, Madhavaram Milk Colony, Chennai

- Bacterial Vaccine Research Centre, Madhavaram Milk Colony, Chennai
- Viral Vaccine Research Centre, Madhavaram Milk Colony, Chennai
- Centralised Instrumentation Laboratory, Madras Veterinary College, Chennai
- Centralised Clinical Laboratory, Madras Veterinary College, Chennai
- Animal facility at Biosafety level 2 (WHO standard), Madhavaram Milk Colony, Chennai

☞ **FARMERS' TRAINING CENTRES**

1. Kancheepuram
2. Tiruvarur
3. Theni

☞ **KRISHI VIGYAN KENDRAS**

1. Namakkal
2. Kattupakkam
3. Kundrakudi

**PONGALUR N. PALANISAMY**  
**Minister for Rural Industries and Animal Husbandry**