



# Annual Report 2016



Department of Animal Production and Health

# **ANNUAL REPORT 2016**

**Department of Animal Production and Health**

**Peradeniya**

**Sri Lanka**

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# ANNUAL REPORT – 2016

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## PREFACE

Presently demand for foods of animal origin in the country is in increasing trend due to upgrading of living standards of people. As the main technical arm of the Ministry of Rural economy, Department of Animal Production and Health (DAPH) is responsible for ensuring availability of quality foods of animal origin according to the demand of the country. Therefore DAPH is carrying out provision of technical guidance and statutory functions related to livestock sector in the country. Accordingly, upgrading and maintaining a healthy animal population, providing required inputs, quality assurance of animal products, animal feed and veterinary pharmaceuticals are the main functions implemented by different divisions of DAPH with collaboration of provincial DAPHs and other livestock stakeholders. As such department facilitates for increased production and productivity improvements in the sector and thereby to achieve sector goals identified in the Livestock Master Plan particularly in the dairy sub sector while supporting poultry, goat and swine sub sectors.

At present mega dairy operations are being established in the country with as public private partnership. Therefore technical innovations are much needed to achieve expected growth standards in the dairy sector. The poultry sector in the country is in growing trend as last year and is self-sufficient in chicken meat and eggs at current purchasing power levels. However, chicken meat and eggs are yet to be available at competitive prices for further expansion of this industry and to compete in the global market. The growth in Swine and Goat sectors are more or less static and needs more attention.

This 2016 Annual Report of DAPH highlights status of livestock sub-sectors and progress of all programs/projects implemented and activities carried out by the department during the year 2016. Most of livestock sector support services/programs are jointly implemented by the National DAPH and Provincial Departments of Animal Production and Health (PDAPH). Therefore province-wise performance and the progress have been presented in this report wherever necessary.

I am thankful to all Directors and their staff in the department for extending their fullest cooperation for successful accomplishment of programs planned for the year 2016. Special word of appreciation goes to Dr. K.D. Ariyapala - Director and the staff of Livestock Planning and Economics Division for taking efforts in compiling and publishing this document within the stipulated time.

**Dr. R.M. Ariyadasa**  
Director General  
31 March 2017

# DEPARTMENT OF ANIMAL PRODUCTION AND HEALTH

## VISION

Be the premier organization leading the livestock sector towards socio - economic development of Sri Lanka

## Mission

Provide technical guidance and support to achieve sustainable development in the livestock sector by maintaining a healthy animal population and enhanced productivity ensuring food safety and contributing to food security.

## 1. INTRODUCTION

The Department of Animal Production and Health (DAPH) was established under the Ministry of Rural Industrial Development in September 1978. At present DAPH functions under the Ministry of Rural Economy.

Most of DAPH's field level functions have been devolved to nine Provincial Departments of Animal Production and Health (PDAPH) headed by Provincial Directors.

The DAPH provides technical leadership, expertise and back-up services to Provincial Departments of Animal Production and Health (PDAPH) and other livestock industry stakeholders. The department also implements a range of statutes pertaining to the livestock sector under the provisions of Animals Act, Animal Diseases Act and Animal Feeds Act. A total of 325 Divisional Veterinary Offices scattered throughout the country handle delivery services, managed by veterinarians, which are functioning under PDAPH and are the main functional units of the DAPH. In line with the policy decision taken by the government to expand veterinary network to strengthen service delivery system at grass root level, divisional veterinary offices are being established at every Divisional Secretariat level at present. Similarly a policy initiative was taken in 2006 to expand veterinary investigation network by establishing a Veterinary Investigation Centre (VIC) at each District level. 25 VIC's have been

established at District level by end of 2016.

### **Objectives of the DAPH**

1. To assure an efficient preventive and curative animal health service.
2. To promote optimal utilization of animal genetic resources.
3. To enhance utilization of quality animal feeds and feed resources.
4. To promote growth and development of the animal feed industry.
5. To conduct research and development towards a sustainable livestock industry.
6. To develop technically competent human resources.
7. To ensure efficient and effective information dissemination and technology transfer.
8. To formulate, monitor and evaluate livestock development projects and programs.
9. To assure safety of products of animal origin.
10. To promote and facilitate good animal husbandry practices.
11. To ensure welfare and wellbeing of animals.
12. To ensure efficient management of departmental activities.

The DAPH has eight (08) functional divisions; six (06) technical divisions and two (02) support service divisions. Sub-units of DAPH are mostly located peripherally, functioning under different divisions of the DAPH.

### **Animal Health Division**

*Main Responsibility:* Surveillance, prevention and control of scheduled and emerging animal diseases of economic importance by implementing suitable control strategies and eradication programs.

*Sub Units:*

Veterinary Investigation Centres (VIC's) located at:

Ampara, Anuradhapura, Badulla, Batticaloa, Chilaw, Matale, Galle, Jaffna, Hambantota, Homagama, Kalutara, Kegalle, Kundasale, Matara, Nuwara-Eliya, Pannala, Polonnaruwa, Ratnapura, Trincomalee, Vavuniya, Welisara, Wariyapola Monaragala, Mankulam and Kilinochchi.

### **Animal Breeding Division**

*Main Responsibility:* Development of livestock genetic and feed resources.

*SubUnits:*

Central Artificial Insemination Station - Kundasale.

Artificial Insemination Centre - Polonnaruwa.

Goat Breeding Stations -Imbulandanda and Thelahera.

### **Human Resource Development Division**

*Main Responsibility:* Development of human resources, skills development and dissemination of information required for further growth of the livestock sector.

*Sub Units:*

Institute of Continuing Education for Animal Production and Health - Gannoruwa.

Sri Lanka School of Animal Husbandry-Kundasale.

Sri Lanka School of Animal Husbandry -Seppukulama.

Livestock Knowledge Centre, Getambe.

Livestock Technology Park, Gannoruwa.

### **Veterinary Research Institute**

*Main Responsibility:* Plan and execute research programs and to provide technical products and specialized services to fulfill the needs of livestock industry.

*Sub units:*

Central Poultry Research Station - Karandagolla.

Animal Virus Laboratory - Polgolla.

### **Livestock Planning and Economics Division**

*Main Responsibility:* Formulation of livestock development programs/projects and monitoring and evaluation of livestock development programs/projects implemented by national/provincial DAPH and appropriate agencies.



### **Veterinary Regulatory Affairs Division**

*Main Responsibility:* Implementation of statutes pertaining to the livestock sector.

*Sub units:*

Animal Quarantine Stations (Colombo, Katunayake, Hambantota and Mattala)

Veterinary Regulatory Affairs (c.u.) (from 2016 August), Mrs. V.P.K. Pilapitiya, Director - Administration, Mr. K. Sarath, Chief Accountant, Dr. K.D. Ariyapala, Director - Livestock Planning and Economics (c.u.), Dr. S.S.P. Silva, Director - Veterinary Research (c.u.) and Dr. W.W. Abeygunawardhena, Director - Animal Breeding (c.u.).

### **Administration Division**

*Main Responsibility:* Proper management of resources and ensuring smooth functioning of the Department.

The Organization structure of the DAPH is shown in *Annex I*.

### **Finance Division**

*Main Responsibility:* Efficient management of finances allocated to the Department.

### **Members of the Directorate**

Members of the Directorate in 2016 were as follows:

Dr. D.R.T.G. Rathnayake, Director General (up to 2016 April) and Director - Animal Breeding, Dr. (Mrs.) T.A.C. Tiskumara, Director General (from 2016 April), Additional Director General - Livestock Development, A. Sivasothy, Additional Director General - Animal Health, Dr. M.D.N. Jayaweera, Director - Animal Health (c.u.) (from 2016 July), Dr. (Mrs.) R. Hettiarachchi, Additional Director General - Veterinary Research (c.u.) (from 2016 October), Mr. R.M.L. Rathnayake, Director - Human Resource Development (c.u.), Dr. (Mrs.) H.M.T.K. Ratnayake, Director -

## 2. LIVESTOCK SECTOR REVIEW

### 2.1. Dairy Sector

The Dairy Sector has been identified as the priority sector for development among other livestock sub sectors in the country. Cattle and Buffalo population in the country in 2016 has been recorded as 1.35 million and 0.42 million respectively (Source: LPE Division, DAPH). Domestic milk production recorded as 453.84 million liters (Source: LPE Division, DAPH). It accounts to 14% increment compared to the previous year.

Number of milk chilling centers in the year totaled up to 284. Milk collection in the country has shown a moderate progress in the year 2016. The amount of milk collected by 13 main milk processors in the formal milk market in the year amounted to 230.74 million liters which is an increase of 5.33% over the 2015 volume of 218.44 million liters. Around 32.4% and 18.7% of milk collected in the country was from the Central Province and the North-Western Province respectively.

The average price including Cost, Insurance and Freight (CIF) prices (LKR) of imported dairy products in 2015 and 2016 were as follows:

	2015 (Rs./MT)	2016 (Rs./MT)
Whole milk powder	392,879.41	364,710.36
Skim milk powder	362,711.39	295,760.83

(Source: Department of Customs)

Average farm-gate price per liter of milk in 2016 was around Rs.66.32 Average cost of production of one liter of milk in up country and mid country in 2016 was recorded as Rs. 31.99 under intensive management systems. (Source: LPE Division, DAPH)

Form of powdered milk out of milk and Milk products imported was 84.92% which had 1.5 % of fat.

Import of dairy products amounted to 99,593.43 MT in 2016, an increase of 15.3% over the corresponding figure of 86,327.48 MT in 2015 (Source: Department of Customs). Out of total dairy products imported into the country in 2016, full cream milk powder amounted to 84,578.45 MT which was an increase of 16.6% when compared with 72,487.82 MT in the year 2015. Similarly, import of non-fat milk powder at 9,436.68 MT in 2016 showed an increase of 1.75% from the 2015 import volume of 9,271.19 MT. Total import bill on dairy products reached Rs.36.33 billion in 2016.

International market prices of whole milk powder showed a decrease towards the end of the year.

Comparison of prices in 2015 and 2016 is as follows:

**International market prices of dairy products (2015 - 2016)**

Product	Price USD/MT			
	2015 (Avg.)		2016 (Avg.)	
	Jan.	Dec.	Jan.	Dec.
Whole milk powder	2,725.00	2,325.00	2,187.50	3,268.75
Skim milk powder	2,144.00	1,813.00	1,768.75	2,218.75

*(Source: <http://future.aae.wisc.edu>)*

Total availability of milk and milk products in the country had been 1166.49 million liters of Liquid Milk Equivalent -LME (domestic production and imports) and the per-capita availability was recorded as 152.40 ml/day in year 2016.

imported from Netherland (43.24%), USA (33.69%) and UK (23.06%).

## 2.2. Poultry Sector

Average price of a day-old broiler chick had been Rs.104.38 in 2016 ranging from Rs.70.00 in December to Rs.130.00 in August & September. Average farm-gate price of live broiler recorded as Rs.266.42/Kg with the lowest price of Rs.180.00/Kg (December) to the maximum price of Rs.335.00/kg (September).

### 2.2.1. Broiler Industry

### 2.2.2. Layer Industry

Procurement of broiler grandparents and parents recorded as 20,950 and 1,377,409 respectively during the year 2016, out of which 1,043,985 were locally purchased parents. However 137.16 million broiler chicks were produced within the country, recording a 5% increment compared to 130.62 million production in 2015.

Layer industry was recording a positive growth during the year. Imports of layer parents recorded as 117,548 in the year 2016. Pullet chick production was recorded 8.76 million which was 7.29 million in year 2015. Average pullet chick price was recorded as Rs.164.35 in June and was ranging from Rs.120.00 in January to Rs.206.25 in September, 2016. Eleven (11) layer breeder farms were in operation during the year and Bovans-Brown, (21.71 %), DeKalb white (20.77%), Bovans WL (20.14%), Shaver brown 8561 (8.18%), Lohman -Brown (6.39%) and Hyline (3.72%) were the

32 broiler breeder farms were in operation during the year and the broiler breeder strains chosen by them were Hubbard (45.13%), Cobb (30.02%), and Indian River (21.76%). Majority (75.79%) was purchased from local Grand Parent (GP) farms which is three (03) in number and the rest was

main layer breeder strains imported by these farms. Majority of these imports were from Netherland (73.34%) and Germany (11.91%).

Farm gate price of table eggs (brown) ranged from Rs.12.00 (May) to Rs.16.50 (April). Average farm-gate price for the whole year recorded as Rs.13.46 which is 2.15% increment from the previous year. Average Retail price of brown and white eggs recorded as Rs.15.04 and Rs.14.16 respectively. Total egg production of the country recorded as 2304.06 million eggs which included 5% of village chicken eggs.

### 2.2.3. Poultry Feed Industry

Total animal feed production in the country estimated as 1,078,039.63 MT which is 16% increment compared to previous year (932,589.37 MT) (Source: DAPH). Ninety six per cent of the animal feed produced in the country is used for poultry industry (1,033,851.1 MT) and produced both by commercial feed producers and farmers themselves. Twenty three (23) registered poultry feed manufacturers were in operation during the year and commercial poultry feed production in the country was estimated as 620,310.65 MT which is 24% increment compared to 501,819.5 MT in year 2015. Total self-mixed poultry feed production has also been increased by 4% compared to previous year amounting to 413,540.44 MT.

### 2.2.4. Poultry Processing Sector

Eight (8) poultry processing establishments were in operation during the year 2016. Estimated chicken meat

production in 2016 at 182.69 '000MT recorded an increase of 11% over the 2015 volume of 164.45. Total value added meat products manufactured by processing establishments amounted to 10,939.49 MT in the year, a decrease of 7.5% over the 2015 volume of 11,825.04 MT. Out of this production in 2016, a major portion (92.9%) consisted of chicken meat based value added products.

### 2.2.5. Exports

Export of chicken meat and chicken meat products recorded as 1473.03 MT in the year; an increase of 392.71 MT from the previous year's volume of 1,080.32 MT. (Source: Dept of Customs). Bulk of these chicken meat and chicken meat products were exported to Maldives, India, and Seashells. Export of table eggs at 4.1 million decreased further by recording a 3.1% drop from the corresponding figure of 4.2 million in 2015. A total of .25 million day-old chicks were exported during year 2016 recording a 29.4% decrement compared to .34 million in year 2015. A total of 68,940 hatching eggs were exported during the year 2016 compared 2,112,620 in year 2015 (Source: AQ Station, Colombo).

### 2.2.6. Imports

Import of poultry meat recorded 252.59 MT, and decrease of 57.3% from the year 2015 (591.57MT) (Source: Department of Customs). 54.63 MT liquid eggs and 8.78 MT egg powder imported to the country during 2016.

(Key data pertaining to the Industry in 2016 are given in Annex II)

### 2.3. Swine Sector

Swine sector is one of the main livestock sub- sectors which placed next to the poultry and dairy sectors in Sri Lanka. More than 10,200 farmers are engaged in swine farming as an income generating activity.

Total pig population in Sri Lanka has been recorded as 0.12 million in 2016 (Source: LPE Division, DAPH)

Estimated pork production in the country had been 7280 MT during the year 2016 (Source: LPE Division, DAPH). A total of 0.588 MT of pork have been imported into the country in 2016 and 7.31 MT of pork and pork products have been exported (Source: Department of Customs).

Monthly average retail price of pork was recorded as Rs.596.16 per kg in the year 2016 ranging from Rs.558.00/kg in December to 624.40/kg in February (Source: DCS).



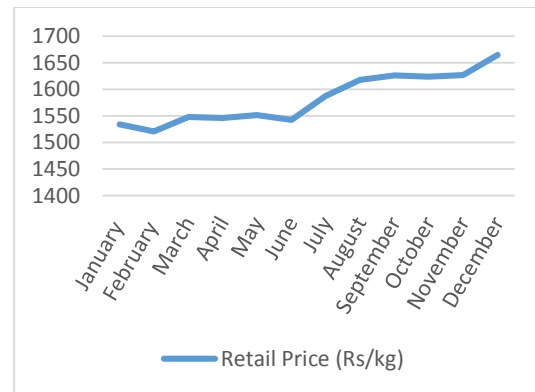
Source: DCS

**Figure 2.1: Monthly Average Retail Price of Pork- 2016**

### 2.4. Goat sector

Goat farming is concentrated mainly in dry and intermediate zones of the country where about 80% of goat population is distributed. Goat population in 2016 recorded as 495,000. (Source: LPE Division, DAPH) and number of sheep & goat farms in the country recorded as 61,944. (Source: LPE Division, DAPH).

Average cost of production of mutton was Rs. 279.75 in year 2016. Average retail price of mutton in the country reported as Rs. 1582.41/kg in the year 2016 ranging from Rs.1520.66/kg in February to 1664.72/ kg in December. A total of 485.16MT of mutton had been imported into the country during the year 2016. (Source: Department of Customs). Change of average retail prices of mutton is shown below. (Figure2.2).



Source: DCS

**Figure 2.2: Retail Price Changes of Mutton 2016**

### 3. ANIMAL HEALTH DIVISION

#### 3.1. Introduction

Sri Lanka is progressing in the socio economic perspectives and living standard of people in growing trend due to which their food habits are also changing. Since that the demand for livestock products are on the increase and the concern on quality and safety also follows the same trend. Therefore the quality of livestock operations and livestock products should be guaranteed. The communicable diseases of livestock, zoonotic diseases transmitted to human through livestock and hygiene of livestock and livestock products should be kept under investigation.

International organizations such as World Health Organization (WHO), World Organization for Animal Health (OIE), Food and Agriculture Organization (FAO), the key agencies those who monitor and coordinate programmes on food safety, food hygiene, public health related activities in global perspective have established minimum standards required to prevent global disasters on above disciplines.

Prevention of entry and spread of communicable animal diseases and guarantee the safety of food of animal origin is one important item in their agenda. Sri Lanka has to maintain such standards according to the international treaties they have entered. Island wide well webbed veterinary investigation and

diagnostic system network is an essential prerequisite to implement these policies

The Division of Animal Health is responsible for ensuring required animal health status for development of the livestock industry in the country. Animal Health Division has the national unit located at Head Quarters of Department of Animal Production and Health with its component namely Vaccine Bank and Veterinary Store located at Getambe. Its peripheral units namely Veterinary Investigation Centres are established at district level.

#### Functions of the Division

The following major tasks were earmarked to be carried out during the year 2016.

- Formulation and implementation of Special Programs against identified exotic, emerging and re-emerging animal disease
- Strengthening GIS based disease surveillance and animal disease database.
- Design, support, monitor and evaluate mass-scale preventive vaccination programme.
- Provision of laboratory back-up service for disease diagnosis.
- Establishment and maintenance of district based Veterinary Investigation network.

- Compilation and dissemination of animal health related information locally and internationally.
- Functioning as the animal disease notification focal point to World Organization for Animal Health (OIE).
- Initiation of Veterinary Public Health programs with special emphasis on zoonotic disease control and safety of food of animal origin.
- Maintenance of National level Vaccine Bank and Veterinary-Store.

- Planning and implementation of avian influenza surveillance programme and emergency preparedness against emerging, re-emerging and exotic diseases.
- Formulation and implementation of Veterinary Public Health policy in order to effectively control identified zoonotic diseases under 'One health' concept. Under VPH, Rabies control activities and prevention of Antimicrobial resistance activities have already launched

### Main Activities of the Division

The major activities performed during the year under review could be listed as follows:

- National level planning and involvement in animal disease control.
- Monitoring and evaluation of animal diseases status in the country and dissemination of animal health related information locally and internationally.
- Maintenance of Vaccine Bank, island wide distribution of vaccines and monitoring of livestock vaccination programme.
- Strengthening of Veterinary Investigation network for improved disease surveillance and laboratory back-up for disease diagnosis.
- Implementation of special programs for livestock health management and improvement.

### 3.2. Animal Disease Situation

#### 3.2.1. Bovine Diseases

##### a. *Haemorrhagic Septicaemia*

Hemorrhagic Septicaemia (HS) is an acute fatal septicaemic disease of cattle and buffaloes caused by *Pasteurella multocida* 6: B or 6: E. In Sri Lanka, since its first occurrence in 1955 it was recognized as the most important killer disease among livestock population. As such the vaccine was produced locally and annual mass-scale preventive vaccination was implemented effectively.



*Origin of outbreak:* It appears that the clinical cases of HS at Vakarai Veterinary range in the border of Ichchalanpaththu VS range

HS was reported in Seven (07) veterinary ranges during the year 2016 in Eastern province. These outbreaks were confined to Northern and Eastern provinces and laboratory confirmation was made by the Veterinary Research Institute. The cases numbered 485 with overall 94 deaths. The vaccination is practiced using the Alum precipitated and oil adjuvant vaccine which is produced locally in the country. During the year 2016 in all the animals in outbreak areas have been vaccinated against HS in the country through the Divisional Veterinary officers.

**b. Foot and Mouth Disease**

Foot and Mouth disease (FMD) was reported in year round manner at twenty four (24) veterinary ranges during the

year 2016. The cases numbered to 620 with overall 16 deaths. The total number of cases in bovine species numbered 752. The total number of cases recorded in the previous year (2015) was 1606 with 21 deaths. During 2016, FMD cases were reported in 14 district in the country. In Sri Lanka uncontrolled movement of cattle by traders, herdsmen and approved organizations without the knowledge of the veterinary authority has been recognized as the main factor in the spread of FMD. Hence, implementation of legislative measures pertaining to animal movement has to play a key role in this exercise of the spread, in addition to the immunization. The distribution of cases at different Districts level is shown in Table 3.

**Table 3.1: Spatial and Temporal Distribution of FMD in 2016**

	District	No. of VS range affected	No. of		Month(s) of Occurrence
			Cases	Deaths	
1	Kurunegala	03	41	0	January & June
2	Puttlam	01	5	0	October
3	Kilinochchi	01	3	0	January
4	Vavuniya	02	44	2	May & June
5	Bataloa	02	61	0	May & December
6	Ampara	02	11	0	June
7	Tricomalee	01	57	6	June
8	Polonnaruwa	02	140	1	March & July
9	Anuradhapura	02	76	1	June & August
10	Badulla	03	101	1	June & November
11	Monaragala	01	1	0	June, July & December
12	Gampaha	01	9	0	July & December
13	Kandy	02	67	0	November
14	Hambantota	01	8	0	August
	<b>Total</b>	<b>24</b>	<b>620</b>	<b>16</b>	

Source: Master Return of field Veterinarians



**b. Black Quarter (BQ)**

Sixty two (62) cases of Black Quarter and Twenty six (26) deaths were recorded in the country during the period under review. The overall fatality rate was found to be 42%. The cases were confined

mainly to Northern Province (Vavuniya, Thunukkai and Poonakary) and also found in Northwestern Province Karuwalagaswewa and Rasnayakapura. The distribution of cases at different Veterinary range level is shown in Table 3.2.

**Table 3.2: Spatial and Temporal Distribution of BQ in 2016**

	District	Veterinary Range	No. of		Month(s) of Occurrence
			Cases	Deaths	
01	Vavuniya	Vavuniya	21	12	August
02	Mulathive	Thunukkai	4	4	July
03	Killinochchi	Poonakary	31	10	September
04	Puttlam	Karuwalagaswewa	5	0	October
05	Kurunegala	Rasnayakapura	1	0	September
	<b>All Island Total</b>		<b>62</b>	<b>26</b>	

**d. Brucellosis**

Bovine brucellosis is an economically important disease of cattle and buffaloes and it adversely affects their reproduction. It is also zoonotic in nature and thereby causes disease in human. In Sri Lanka the disease is endemic in certain parts of Eastern and North Central Provinces and vaccination is practiced using the S-19 brucella vaccine which is produced locally in the country. During the year 2016 in total of 5,984 animals have been vaccinated against brucellosis in the country through the Veterinary Investigation Centers.

the *Mycobacterium bovis* in cattle and also it can affect other domestic animals as well as wild animals. Tuberculosis in human is not an uncommon feature in Sri Lanka and about 9000 new human cases of tuberculosis are notified every year in the country.

**e. Bovine Tuberculosis**

Bovine tuberculosis has been reported and confirmed in cattle population since year 2012 and new cases were reported in year 2016 too. The causative organism is

Control program on Bovine Tuberculosis has been implemented at national level and a base line data establishment was initiated during the year 2013. Cattle reared at farms belong to National Livestock Development Board (NLDB) and animals with signs of emaciation, continuous coughing, and continuous temperature have been screened with the Comparative Tuberculin Purified Protein Derivative (PPD) test to detect the positive animals. The screening programme revealed the following results shown in Table 3.3

**Table 3.3: Details of Tuberculosis Screening Programme in 2016**

Veterinary Investigation Centre	Govt. Farms	Private Farms tested	No. of animals screened with PPD	No. of Test positives	No. inconclusive
Nuwaraeliya	03	08	141	17	
Ratnapura	00	21	172	00	03
Wariyapola	01	00	41	05	01
Dambulla	00	01	10	00	
Monaragala	00	01	18	01	
Anuradhapura	00	01	12	00	
Kundasale	01	00	20	01	02
Chilaw	00	02	19	00	

### 3.2.2. Poultry Diseases

Major poultry diseases reported by divisional veterinary surgeons in this year are Coccidiosis (270,208 cases), Infectious Bursal Diseases (326,565 cases), Avian Salmonellosis (46,269 cases), Fowl Pox (70,037 cases), Newcastle Disease (45,838 cases). Incidences of Salmonellosis is on the increase despite the efforts taken to control this disease of breeder farms.

#### a. Newcastle Disease

Newcastle disease (ND) is an endemic disease among poultry population of Sri Lanka for several decades and for which vaccine had been produced in the country for a long time in the past. Though vaccination against Newcastle disease is a commonly anticipated programme in the country, its application in the field especially among backyard population appears to be seldom practiced. Furthermore, most of the commercial operations usually do not strictly adhere to the recommended vaccination schedule to ensure

protection of birds throughout their lifespan.

Monthly distribution of reported cases of ND in 2016 has been shown in Figure 3.1. In overall 46,807 cases of Newcastle disease with 4,928 death was reported in the country with 10.5% fatality rate.

**Table 3.4: Distribution of Newcastle Disease (ND) - 2016**

Province	Cases	Deaths
Central	111	5
Eastern	12,111	1,358
North Central	21,725	2,833
Northern	1,890	268
Sabaragamuwa	7,331	149
Uva	209	12
Western	640	45
North -western	2,204	171
Southern	586	87
<b>Total</b>	<b>46,807</b>	<b>4,928</b>

Outbreaks of Newcastle disease were observed in all the Provinces during the year under review. Major outbreaks were encountered in Northern Province in spite of using the locally produced

vaccine in large scale. A total of 46,807 cases were recorded and 4,928 birds succumbed to death, whereas in the previous year there had been 101,165 cases with 6,509 deaths recorded in the country.

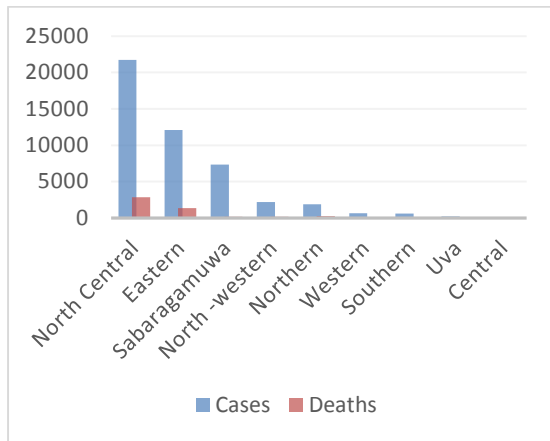


Figure 3.1: Distribution of Newcastle Disease - 2016

**b. Infectious Bursal Disease**

Infectious Bursal Disease (Gumboro disease) remained as a highly prevalent poultry disease affecting the avian population in the country. Spatial distribution of the disease indicates its presence in all the districts in the country. In overall 248,403 cases were recorded during the year with 3.87% fatality rate. The temporal distribution of the recorded cases have been shown below Table 3.5 and Figure 3.2.

**Table 3.5: Distribution of Infectious Bursal Disease**

Province	Cases	Deaths
Central	434	58
Eastern	6,801	435
North Central	6,325	543
North western	292,199	6,187
Northern	22,384	2,156
Sabaragamuwa	8,497	68
Southern	1,973	409
Uva	3,283	107
Western	2,348	566
<b>Total</b>	<b>344,244</b>	<b>10,529</b>

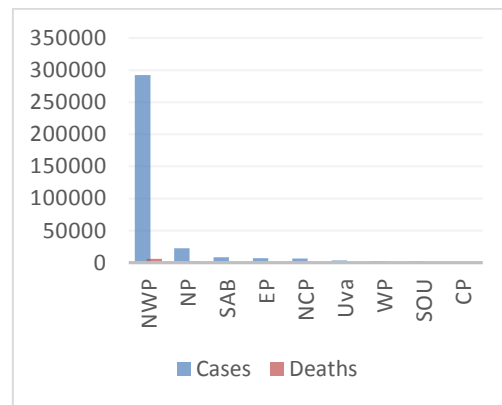


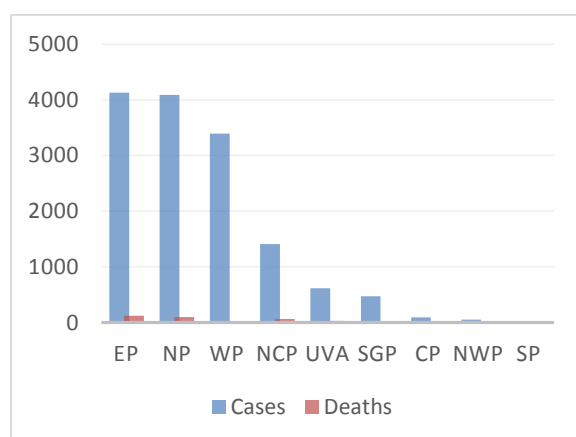
Figure 3.2: Distribution of Infectious Bursal Disease 2016

**c. Salmonellosis**

Salmonellosis in poultry is caused by mainly *S. pullorum* and *S. gallinarum*. In overall 65,716 cases were reported in the country during the year 2016 and 1290 deaths were reported in commercial poultry farm.

**Table 3.6: Distribution of Poultry Salmonellosis in Commercial Poultry Farms 2016**

Province	Cases	Deaths
Western	3,394	28
Uva	620	29
Southern	0	0
SGP	475	24
North Western	55	15
Northern	4,088	97
North Central	1,410	64
Eastern	4,132	120
Central	96	5
<b>Total</b>	<b>65,716</b>	<b>1,290</b>



**Figure 3.3: Distribution of poultry Salmonellosis 2016**

### 3.3. Veterinary Public Health Activities

As it was highlighted in the OIE PVS evaluation and the Gap Analysis, and the current need of the country, Animal Health Division had recognized the importance of embarking on implementing veterinary public health activities. In that context priority was given to Rabies control and mitigation activities of anti-microbial resistance (AMR). As the method of sustainability of all VPH activities at provincial level, with the agreement of Provincial directors, AH Division has proposed a

mechanism to establish Veterinary Public Health activities at the provincial level. In addition, as a measure to steer the VPH activities from the National Level, a Veterinary Public Health Unit was established under the Animal Health Directorate.

### 3.4. Rabies Control Programme

Based on the cabinet decision taken in 2016 and in far with the cabinet decision in 2012, DAPH has initiated the dog population control, rabies vaccination and responsible dog ownership awareness programs.—During the year 2016, in total of 75,832 dogs were vaccinated against rabies in pilot program of 18 VS Ranges. In line with the World Rabies Day 2016, two National Level Awareness Programs and a series of animal birth control programs as well as awareness programs were conducted with the support of Provincial DAPH. Approximately 860 dogs were sterilized under the program and 1300 school awareness programs were conducted.

### 3.5. Awareness program on Anti-microbial Resistance (AMR)

In line with the Global Action plan on Anti-microbial Resistance, Animal Health Division was involved in national level discussions and with the financial support of WHO received through Sri Lanka College of Microbiologists, and Sri Lanka Veterinary Association jointly organized five awareness programs for the benefit of Divisional Veterinary Surgeons employed under the Provincial Department of Animal Production and

Health. The program consisted of theme presentations conducted by identified resource persons followed by lengthy discussions. At the awareness programs; (1) Antimicrobial resistance in bacteria associated with animals and animal originated food: Evidence from recent local studies (2) Contribution of In-feed antibiotics to AMR (3) How to produce antibiotic free chicken” (highlight on nutrition) (4) Importance of bio-security to minimize AMR (5) Managing AMR at the Human-Animal Interface (6) Use of Antibiotics in veterinary practice” (highlight on the quantities imported to the country were discussed. 189 Divisional Veterinary Surgeons attended in the awareness programs.

### 3.6. Contagious Diseases Control

Preventive vaccination programs have been carried out against economically important major livestock diseases such as Foot and mouth disease (FMD), Haemorrhagic Septicaemia (HS) and Black Quarter (BQ) in ear marked locations in the country. BQ vaccine was produced locally in adequate amount to meet the demand for preventive as well as control vaccination in case of outbreaks. Haemorrhagic Septicaemia oil adjuvant vaccine was produced for mass-scale preventive vaccination and the Alum precipitated vaccine was produced

as an emergency pre requisite to control any outbreak of HS that could happen unpredictably. Six hundred thousand (600,000) doses of Foot and mouth vaccine (mono-valent, type ‘O’) was imported from India.

#### 3.3.1. Vaccination of Livestock

All the vaccine stocks were maintained at the Vaccine Bank and supplied to the Provinces as per the vaccination schedule. These were delivered in refrigerated vaccine transport truck and distributed at district level and in some occasions to the Veterinary ranges too. In total 633,150 doses of Foot and mouth vaccine and 171,998 doses of BQ vaccine have been supplied during the period under review as per shown in *Table 3.7*.

*Table 3.7: Issue of Vaccines to the Field in 2016*

Province	Type of Vaccine in doses	
	FMD	BQ
North Western	133,500	64,845
Eastern	185,110	50,556
North Central	129,150	30,812
Northern	90,000	56,059
Southern	50,000	0
Uva	40,000	3,003
Western	30,000	0
Central	20,000	0
Sabaragamuwa	15,100	500
<b>Total</b>	<b>633,150</b>	<b>171,998</b>

**Table 3.8: Province-wise Vaccination Targets and Achievements in 2016**

Province	FMD		BQ	
	Target	Achievement	Target	Achievement
North Western	155,305	144,808	78,376	32,203
Eastern	300,000	158,075	50,000	31,956
North Central	169,325	140,751	42,079	23,977
Northern	170,680	79,863	80,806	40,082
Southern	241,600	35,659	0	0
Uva	57,900	44,932	8,000	0
Western	98,600	78,618	0	350
Central	43,000	18,864	1,000	0
Sabaragamuwa	38,455	18,351	3,350	847
<b>Total</b>	<b>1,274,865</b>	<b>719,921</b>	<b>263,611</b>	<b>129,415</b>

### 3.3.2. Vaccination of Poultry

**Table 3.9: Vaccination against Newcastle Diseases using locally produced Vaccine**

Province	Vaccination
Western	450,000
Central	25,000
Southern	15,000
North Central	80,000
North Western	125,000
Northern	1715,000
Eastern	2186,200
Uva	33,800
Sabaragamuwa	0
<b>Total</b>	<b>4,630,000</b>

### 3.7. Special Animal Health Programs

#### a. Livestock Health Improvement Project

A special project had been initiated in year 2016 in selected dairy farms at districts where functioning Veterinary Investigation Centres are located in order to monitor the disease status closely and to assist to improve the health and production in these farms. The field level implementation was carried out through

the respective Veterinary Investigation Centres in these districts.

The Project envisaged at fulfilling the long term need of establishing active focal points for disease monitoring and surveillance at district level. The selected farms were identified with geo-reference, a database was developed with all relevant information and the farms were visited by the respective VIOO on a regular basis.

Under this project Two thousand and fourhundred sixty three (2463) dairy farms have been visited by the Veterinary Investigation Officers during the year 2016. Subsequently, 17,084 milking cows have been subjected to California Mastitis Test (CMT) for early detection of sub clinical mastitis.

Moreover, 5,356 liters of teat dip solution and 430liters of CMT Reagents were prepared at VICC and were distributed among these famers and relevant Veterinary Surgeons in order to improve the hygienic practices in these farms.

Samples that have shown high positive reactions to CMT have been further subjected to laboratory investigation. Bacterial cultures indicated the presence of *Staphylococci*, *Streptococci*, and *E. coli* species.

Antibiotic sensitivity tests (ABST) identified the antibiotic namely Neomycin, Enrofloxacin, Gentamycin, Streptomycin and Oxytetracycline as drugs of choice at different instances. It was recommended to use these drugs using the locally produced udder base as the vehicle for incorporating these antibiotics for preparation of more appropriate and economically beneficial udder infusions to be used at farm level. A total 5,235 vials of udder base was produced by the VICC in 2016. Furthermore, intra mammary preparations comprising the most appropriate antibiotics were prepared at some VICC and supplied for treating mastitis cases.

#### **b. Avian Influenza Surveillance Programme**

Avian influenza surveillance is a key component in emergency preparedness against the disease in non-infected countries and it plays a major role in early warning system against the introduction of this exotic disease. It also provides early information in probable emergence or re-emergence of Highly Pathogenic Avian Influenza virus in the country

The surveillance programme for the entire country is prepared, coordinated and monitored for its proper implementation. The field level

implementation is carried out by the Veterinary Investigation Officers.

There are three major components identified in the HPAI surveillance programme, the Clinical disease surveillance, Sero-surveillance and targeted Epidemiological surveillance. Clinical disease surveillance is carried out by field Veterinary Surgeons and District Veterinary Investigation Officers. In any suspicious situation, field investigations are carried out and established the cause.

Sero-surveillance is designed to monitor the antibody status in commercial layer and broiler operations. The sampling sites are identified at range level by Veterinary Surgeons according to the poultry population in that particular district under the DAPH Farm Registration Programme.

The surveillance program is repeated annually. There are 300 sampling sites identified in the country and 15 samples are collected at each site from eligible birds.

Epidemiological surveillance is undertaken to monitor mainly the migratory birds from 35 hot spots in 11 coastal districts in the country and village chickens in the adjoining locations. Fresh fecal samples and cloacal swabs of migratory birds, cloacal swabs and serum samples of backyard poultry and ducks, cloacal swabs of poultry in live bird market and poultry processing plants are collected by District Veterinary Investigation Officers. All the samples including serum, cloacal swabs are tested at

Veterinary Research Institute, Animal Virus Laboratory located at Polgolla.

A total of 4,968 serum samples were collected from commercial layer and broiler birds. Four thousand six hundred and fifty (4,650) fresh droppings were collected from migratory birds at hot spots. Four thousand and eighty five (4,085) cloacal swabs were collected from back-yard poultry in the vicinity of hot spots. A total of eight hundred and fifty (850) samples from live bird markets and two thousand and one hundred sixty five (2,165) samples from poultry processing establishment were collected during this year by District Veterinary Investigation Officers and subjected to virus isolation by inoculating chicken embryonated eggs. The results were found to be negative for the presence of avian influenza viruses.

### c. Salmonella Control Programme

All the Poultry Breeder farms having either parent birds or grandparent birds have to be in salmonella-free status in order to ensure the production and supply of salmonella-free chicks from their farms.

Accordingly these farms have been instructed to carry out regular screening programs to be followed by official verification by the relevant Veterinary Investigation Centers and the Veterinary Research Institute (VRI).

As the Salmonellosis is an economically important poultry disease, the Department of Animal Production and Health is implementing a Salmonellosis control program in poultry breeder

farms and hatcheries in the country. There were 55 poultry parent farms, 03 Grandparent farms and 40 hatcheries registered with the Department for the year 2016. These farms were instructed to carry out regular screening of every batch in particular age. Verification was carried out by relevant Veterinary Investigation Officers.

All the breeder flocks which were verified by the Veterinary Investigation Officers found to be less than 1% reactors for Salmonellosis and all the hatcheries were negative for Salmonella infection for this year. The three Grand Parents farms were subjected to verification by VRI and found to be free of Salmonella by the screening test

### 3.8. Veterinary Investigation Service

The concept of strengthening the laboratory back up for Veterinary services by providing Veterinary Investigation facilities at District level by District Veterinary Investigation Centres (VICC) was recognised in Year 2006. Since then continuous effort has been taken to ensure that these facilities are set up at each and every district. The new Veterinary Investigation Centers (VICC) constructed at Mankulam (Mullaithivu) and Kilinochchi during the 2016.

Establishment of new Veterinary Investigation Centres at Mannar and Kalutara districts were initiated during the year 2016 by identifying and clearing the lands for building construction.

Veterinary Investigation Centres focused mostly on animal disease investigation in order to support the disease surveillance



system in the country. There were 266 field level investigations carried out during the year 2016. Foot and Mouth Disease, Black Quarter, Hemorrhagic septicemia, Brucellosis, Babesiosis, Theilariosis and Mastitis in cattle and buffaloes; Newcastle Disease, Salmonellosis, Infectious Bursal Disease and Coccidiosis in poultry are some of the specific disease conditions diagnosed or/and confirmed at District Veterinary Investigation Centers during this period.

Veterinary Investigation Centers played the leading role in immunization of cattle against bovine brucellosis, bovine babesiosis, contagious pustular dermatitis (CPD) vaccination in goats; mastitis control programme in cattle; salmonella control programme in poultry breeder farms and avian influenza surveillance programme at national level. Detail information on activities performed at Veterinary Investigation Centers during the year 2016 has been shown in *Annexure III*.

### 3.9. Financial Progress

The capital and recurrent financial allocation and expenditure for the year 2016 are as follows.

	<b>Allocation (Rs. Mn)</b>	<b>Expenditure (Rs. Mn)</b>	<b>Achievement (%)</b>
Capital	106.15	104.17	98%
Recurrent	14.05	14.02	99.81%

## 4. ANIMAL BREEDING DIVISION

### 4.1. Introduction

Animal breeding division is responsible for national level livestock genetic improvement through facilitation of appropriate breeding techniques and logistic support.

Deep frozen semen is produced at Kundasale and Polonnaruwa Artificial Insemination centers for artificial insemination (AI) of cattle, buffalo and goat. In addition, field AI programs are facilitated by supplying semen of specific genetic merits imported from other sources. Semen sexed female offspring are also supplied to the provinces on demand. The national AI program is monitored and centrally assessed by the division. In addition, nutritionally balanced feeding and feed resource utilization for crossbred cattle and buffaloes in provincial level is promoted through supply and facilitation of seeds and planting materials.

Two goat breeding farms located at Thelahera and Imbulandanda maintain nuclease flocks of Jamunapari goat and generally issue stud goats for breeding purposes.

### *Main Functions of the Division*

- Conservation and sustainable utilization of Livestock Genetic Resources.
- Improving the genetic make-up through the use of Animal Reproductive Technologies.
- Enhancing the available feed resource base through the introduction of fodder resources.
- Development of skilled human resources in order to strengthen the animal breeding services.

### **4.2. Special Livestock Development Projects implemented during the year 2016**

#### **4.2.1. Livestock Breeding Project**

Livestock Breeding Project encompasses facilitation of national AI service, procurement of germplasm, conservation and sustainable utilization of AnGR, upgrading livestock & poultry and enhance feed resources utilization. Good quality semen is produced at Artificial Insemination centers located at Kundasale and Polonnaruwa and distributed to the Veterinary officers together with the liquid nitrogen which is required to maintain the keeping quality semen.

**a. Production of Semen (No. of doses)**

Species/Breed	AI Center	
	Kundasale	Polonnaruwa
Jersey	170,385	-
Friesian	90,653	-
Friesian x Sahiwal	73,063	-
Sahiwal	-	22,124
Murrah	-	6,846
Girolando	-	3,112
<b>Total</b>	<b>334,101</b>	<b>32,082</b>

**b. Import of Semen**

Generally, certain quantity of semen is imported from other sources mainly to maintain the genetic diversity in the crossbred cattle population in the country. Five hundred (500) doses of Jersey and Friesian and 5,000 doses Gerolando semen were imported during the year 2016.

**c. Distribution of Semen**

**Table 4.2: Breed-wise distribution of semen - 2016**

Species	Breed	Locally produced	Imported	Total
Cattle	Jersey	155,245	903	156,148
	Friesian	41,692	17	41,709
	Jersey x Sahiwal	57,454		57,454
	Sahiwal	23,485	70	23,555
	Girolando		4,503	4,503
	Jersey (sexed)		285	285
	Friesian (sexed)		50	50
Buffalo	Murrah	5,285	91	5,376
	Nili-Ravi		343	343
Goat	Boer	37		37
	Jamunapari	6,477	60	6,537
	Saanen	772		772
<b>Total</b>		<b>290,447</b>	<b>6,322</b>	<b>296,769</b>

**d. Artificial Insemination Service**

Artificial Insemination (AI) has been the proven and efficient reproduction techniques widely practiced in the island. Mainly cattle and less frequently buffaloes and goats are inseminated through the trained field staff of both state and private personals. The role of the DAPH is to facilitate and monitor the program. North-western and central

provinces were leading in the achievement of AI and the overall achievement of the country in cattle and buffaloes during the year 2016 were 88 of the target.

**Table 4.3: Targets, performance and achievement of AI - 2016 (Cattle and Buffaloes)**

Province	Target	Performance	Achievement (%)
Uva	26,025	24,664	95%
North Central	20,000	19,189	96%
Central	60,000	57,336	96%
Sabaragamuwa	7,741	7,852	101%
North Western	80,000	59,236	74%
Western	25,193	21,710	86%
Eastern	14,212	9,954	70%
Southern	15,500	11,624	75%
Northern	30,000	33,700	112%
<b>Total</b>	<b>278,671</b>	<b>245,265</b>	<b>88%</b>

### Pregnancy Diagnosis (PD)

Pregnancy diagnosis (PD) is performed by the range vet surgeon, usually, two months after insemination manually by per rectal examination to confirm the pregnancy. National achievement in PD during 2016 was 75,043.

**Table 4.4: Province-wise target, performance and achievement of PD - 2016**

Province	Target	Performance	Achievement (%)
Uva	14,504	11,849	82
Central	24,095	14,921	62
Eastern	7,535	5,907	78
Southern	9,250	5,881	64
Northern	7,502	5,459	73
North Central	7,625	4,697	62
Sabaragamuwa	4,321	3,487	81
Western	11,247	5,280	47
North Western	42,373	17,562	41
<b>Island Total</b>	<b>128,452</b>	<b>75,043</b>	<b>58</b>

### Calving

Calving resulted due to AI is usually reported by the field staff through the Veterinary Surgeon. Reported national such number of calving was 68,975 and it is 28.1% of the total number of inseminations.

**Table 4.5: Province wise target, performance and achievement of calving -2016**

Province	Target	Performance	Achievement (%)
Central	21,890	14,842	68
Uva	8,132	6,720	83
Southern	5,400	3,406	63
Sabaragamuwa	3,076	2,546	83
North Central	6,185	4,118	67
North Western	42,373	23,392	55
Eastern	5,264	3,207	61
Northern	7,440	5,752	77
Western	11,817	4,992	42
<b>Total</b>	<b>111,577</b>	<b>68,975</b>	<b>62</b>

### AI Training

Fresh training and refresher training are conducted by the DAPH to train and refresh both state and private AI Technicians as per the requests made by the range veterinary surgeons. All the competent AI Technicians are registered and issued a code number for easy monitoring purpose.

**Table 4.6: Training on AI for Field staff and students 2016**

Technician Category	No. Trained
Veterinary Surgeons	-
LDO (Fresh)	89
LDO (Refresh)	-
Private Tech (Fresh)	16
Private Tech (Refresh)	-
Diploma students: <i>Karandagolla</i>	80
LDO NLDB (Fresh)	-
LDO NLDB (Refresh)	-
<b>Total</b>	<b>185</b>

### e. Infertility Investigations:

The infertility cases in cattle/buffaloes reported by the range VSs are usually attended by the division and total of 456 such cases were attended during the year 2016.

### f. Oestrus Synchronization

Oestrus Synchronization programs are conducted or supported to the range VSs by the division and one such program was attended during 2016.

### g. Natural breeding improvement

Breeding improvement in large herds mainly in the dry zone districts under extensive management has no access to national AI facility and therefore, selected genetically improved stud bulls are provided to such farmers under 50% concession of the real value.

**Table 4.7. Issue of stud bulls selected and screened for common diseases 2016**

	Target	Achievement *
Cattle	75	84
Buffaloes	75	02
<b>Total</b>	<b>150</b>	<b>86</b>

\*Progress hampered due to lack of suitable stud bulls in the breeding farms

#### **h. Pasture development**

Facilitation of nursery development of provincial DAPH level was undertaken and total of six such nurseries were supported with technical directions and some inputs including seed and planting materials. Erection / extension of an electric fence of 7500 m was also completed at animal husbandry training center Seppukulama.

**Table 4.8. Progress of the pasture /fodder development activities 2016**

Activity	Target	Achievement
TOT on production and utilization (md)	25	15
New establishment of fodder in farm units and AI centers (ha)	8	14
Fodder nursery improvement (no.)	9	6
Fodder conservation as hay /Silage (Mt.)	10	12

#### **i. Goat development**

Division of Animal Breeding maintains two nuclear level goat farms with high genetic merits of *Jamunapari* goat breed at Imbulandanda division and at Thelahara in Karandagolla division. Main objective of the two nuclear goat farms, being the issue of stock for breeding purpose, 392 goats (229 stud goats and 163 female goats) have been issued to the farmers.

#### **j. Strengthening of Field level goat breeder farms**

As the Breeding stock produced in the two goat breeding farms is much lower than the annual demand, private breeding farms located in the various locations are also promoted to produce

suitable and genetically optimum quality kids by facilitation of providing specially selected stud goat for breeding season. It was then expected that small flock owners have the access for kids at reasonable rate. There were 199 number of studs such issues reported during the year 2016.

#### **4.2.2. Heifer Calf Rearing (HCR) project**

HCR project has been targeted to enhance the provision of proper nutrition for the heifer calves born as a result of AI. It is an island-wide project and cash incentives are provided to the farm owners of such registered heifers to motivate farmers for appropriate feeding of their heifers.

**Table 4.7: Physical Achievements of Heifer Calf Rearing Project 2016**

Activity	Unit	Target	Achievement*	
			No.	as%
Registration of AI born heifer calves	No of births	19,500	16,577	85
Farmer incentives	No of payments	3,500	4801	137
Monitoring of registered calves	No of calves	150	161	107

\*Targets were hampered due to incidence of Foot & mouth diseases prevailed during the year.

### 4.3. Financial Progress

The capital and recurrent financial allocation and expenditure for the year 2016 are as follows.

	Allocation (Rs. Mn)	Expenditure (Rs. Mn)	Achievement (%)
Capital	161.48	156.41	96.86%
Recurrent	2.65	2.00	99.81%

## 5. VETERINARY RESEARCH INSTITUTE

### 5.1. Introduction

Veterinary Research Institute (VRI) is the only national level Research Institute, involved in veterinary research, diagnostic, consultancy, teaching and technology transfer activities in the Livestock sector. In view of improving animal health and livestock production in the country a number of innovative livestock products have been developed and produced by the VRI to the farming community and other stakeholders of the industry. On the other hand diagnostic testing, laboratory and advisory services are carried out by the VRI with the intention of uplifting socioeconomic status of the livestock farming community. Basic and applied research are conducted in collaboration with various other national and international institutions in

order to explore the novel concepts and scientific advancements.

### Main functions of the VRI

- Carryout animal production and health research
- Production of Veterinary vaccines and other biological.
- Laboratory disease diagnostics and investigation
- Provide analytical facilities
- Provide referral laboratory facilities for the livestock industry and other institutions, both nationally and internationally.
- Provide inputs for Dairy, Poultry and other livestock sector
- Provide technology expertise.
- Support implementation of regulations and legislative enactments related to livestock sector.

### 5.2. Products and Services

The details of manufacture and issues of veterinary products by the VRI in 2016 are as follows.

#### 5.2.1 Products issued

##### a. Vaccines

Vaccine	Production (Doses)	Issues (Doses)
Hemorrhagic Septicemia (HS) (Oil/ Alum)	147,290	147,290
Black Quarter (BQ)	193,842	193,842
Foot and mouth disease (FMD)	178,395	178,395
Tick fever ( <i>Bivalent B bovis &amp; B bigemina</i> )	13,500	3620
Brucella	15,000	13,500
Newcastle Disease (ND)	5,873,200	5,873,000
Fowl cholera	356,400	356,400
Swine pasteurellosis	4,000	4,000
Wart vaccine	5	5



**b. Diagnostic reagents**

Reagent	Quantity Issued
CMT reagent (L)	42
Pullorum antigen (doses)	196,367
RBPT antigen (ml)	210
MRT (ml)	125

**c. Therapeutic reagents**

Reagent	Quantity Issued
Teat dip solution (L)	245
Udder infusion (Vials)	19,478

**d. Starter cultures**

Starter culture	Quantity Issued
Yoghurt culture (vials)	56
Curd culture (vials)	363

**e. Chicks issues from Central Poultry Research Station, Karandagolla**

Chick type	Number Issued
Day old chicks (Backyard Poultry)	120,920

**5.2.2 Services**

**a. Examination of specimens**

Specimen Type	No. of Samples
Blood smears for parasites	932
Faecal samples for parasites	196
Skin/Litter/Ticks/Intestinal samples for parasites	16
Litter/ bedding samples	59
Skin scrapings	62
Blood samples for disease diagnosis	13
Plasma/blood/serum for brucellosis, leptospirosis and pasturella	944
Tissue samples for histopathology	1,230
Tissue samples for microbiology	4,942
Milk samples for CMT	144
Milk & poultry samples for ABST	103
Serum samples for viral disease diagnosis	6,935
Tissue samples for viral disease diagnosis	43
Cloacal/fecal swabs, egg parts, chicken powder for viral disease diagnosis	13,682
Urine samples	4
Semen samples for trichomonas	20

Specimen Type	No. of Samples
Intestinal samples	9
Feed samples for microbiological quality	1,290
Day old chick samples	60
Fish samples for microbiology, parasites and PCR	3,336
Water samples for microbiology	121

**b. Analysis, identification and quality testing of samples**

Sample Type	No. of samples
Feed samples for proximate components and minerals	1,465
Mineral mixtures and blood samples for mineral analysis	377
Milk and Milk products samples for microbiological quality	160
Milk and milk products samples for compositional quality	1,340
Species identification using meat, skin and blood samples	97
Soil samples for chemical properties	707
Water samples for chemical properties	20
Plant samples for nitrate, oxalate and soluble carbohydrates	2,346
Seed samples for purity, germination and viability	8

**c. Field and laboratory investigations**

Investigation Type	No. of investigations
Field Disease Investigations	8
Postmortems	820
No. of Lab Disease investigations	527
Field Investigation into nutritional problems	25
HS-reference laboratory work- Serotyping of Pasteurella culture	
Ration formulation evaluations	40
Confirmation of contagious / Notifiable diseases	16

**5.3. Clients Registered at VRI**

Place of registration	No. of clients
Coordinating unit	3,074
Central Poultry Research Station	660
Animal Virus Laboratory	497

## 5.4. Research Projects

Research projects conducted during the year are as follows:

### 01. Suitability of palm kernel cake as a feed ingredient for poultry feeding

Principal Investigator: Dr. N Priyankarage

Collaborating Scientists: Dr. MWCD. Paliyeguru, Dr. WMPB. Weerasinghe

Duration: 2 years

Status of the project: Completed

### 02. Evaluation of nutritional status of shrimp and quality of available shrimp feeds in Sri Lanka

Principal Investigator: Dr. N Priyankarage

Collaborating Scientists: Dr. MWCD Palliyeguru, Dr. WMPB. Weerasinghe, Dr. APDG Pathirana, Dr. VRN. Munasinghe

Duration: 3 Years

Status of the project: Completed

### 03. Effectiveness of electrical conductivity(EC) on the diagnosis of subclinical mastitis in dairy cows and its relation with other mastitis detection methods

Principal Investigator: Dr. U L P Mangalika

Collaborating Scientists: Dr. PS. Fernando, Dr. MDN Jayaweera

Duration: 2 Years

Status of the project: Continued to 2017

### 04. Potential of Duck Weed and Azolla as low cost feed substitutes for farm animals in small scale farming in Sri Lanka.

Principal Investigator: Mrs. I K Leukebandara

Collaborating Scientists: Dr. N. Priyankarage, Mr. G.G.C. Premalal

Duration: 2 years

Status of the project: Continued to 2017

### 05. Comparative evaluation of adverse and anti - nutritional factors in common forage species grown in Sri Lanka

Principal Investigator: Mr. G G C Premalal

Collaborating Scientists: Dr. S. Premarathne, Dr. WMPB. Weerasinghe

Duration: 2 Years

Status of the project: Completed

### 06. Effects of use of improved fodder varieties as cattle feed

Principal Investigator: Dr. W M P B Weerasinghe

Collaborating Scientists: Mr. GGC. Premalal, Dr. N. Priyankarage, Dr. MWCD Palliyeguru

Duration: 3 Years

Status of the project: Continued to 2017

- 07. Evaluation of the quality of local fish meal in Sri Lanka, to examine a proper processing technology suitable for the country and to examine the effect of the locally processed fish meal on the production performances of broiler chickens.**

Principal Investigator: Dr. MWCD Palliyeguru

Collaborating Scientists: Dr. N. Priyankarage, Dr. WMPB. Weerasinghe

Duration: 1 Year

Status of the project: Continued to 2017

- 08. Preliminary study to compare production performance of village/indigenous chicken in two different management systems in Sri Lanka**

Principal Investigator: Dr. D M W C B Dissanayake

Collaborating Scientists: Dr. N. Priyankarage

Duration: 3 Years

Status of the project: Completed

- 09. Preliminary study to differentiate buffalo and cattle milk using PCR assay and develop a PCR based method to quality assurance of buffalo curd and yoghurt**

Principal Investigator: Dr. DM WCB Dissanayake

Collaborating Scientists: Dr. ULP Mangalika, Dr. KHDT. Kasagala

Duration: 2 Years

Status of the project: Continued to 2017

- 10. Isolation and identification of aflatoxin producing fungi and determination of total aflatoxin levels at different growing stages of maize plant and harvest in Anuradhapura district during Yala & Maha**

Principal Investigator: Dr. A P D G Pathirana

Collaborating Scientists: Dr. N. Priyankarage, Dr. SSP. Silva, Dr. PS. Fernando, Dr. R. Munasinghe

Duration: 2 Years

Status of the project: Continued to 2017

- 11. Determining dietary caution anion difference, grass tetany index and NIRS prediction of the composition of major forages in central province, Sri Lanka**

Principal Investigator: Dr. A P D G Pathirana

Collaborating Scientists: Dr. N. Priyankarage, Dr. ULP. Mangalika, Mr. GGC Premalal, Dr. SSP. Silva

Duration: 3 Years

Status of the project: Continued to 2017

- 12. Genotyping *Thielaria orientalis* complex found in Southern province, Sri Lanka and devising a control measure.**

Principal Investigator: Dr.S S Iddamaldeniya

Collaborating Scientists: Dr. NDS. Disanayake, Dr. KHDT Kasagala

Duration: 1Year

Status of the project: Completed

**13. Determining the prevalence of Neospora Caninum in bovines in Central and Uva province.**

Principal Investigator: Dr. N D S Dissanayake

Collaborating Scientists: Dr. Iddamaldeniya

Duration: 1 Year

Status of the project: Continued to 2017

**14. Investigation of Avian Mycoplasmosis infection in poultry production systems in North Western province.**

Principal Investigator: Dr.S M T S Manchanayake

Collaborating Scientists: Dr. N. Liyanagunawardhana, Dr. MAR Priyantha, Dr. KMSG. Weerasooriya, Dr. GIS. Perera, Dr. PS. Fernando, VIO Warakapola & Pannala

Duration: 3 Years

Status of the project: Completed

**15. Identification of Mycobacterium species from nasal secretion of PPD positive cattle by LAMP technique.**

Principal Investigator: Dr.P S Fernando

Collaborating Scientists: Dr. C. Gamage, Dr. KMSG. Weerasooriya, Dr. N. Liyanagunawardhana

Duration: 1 Year

Status of the project: Terminated

**16. Prevalence and diversity of Bovine Leptodpirosis in Kurunegala district.**

Principal Investigator: Dr.P S Fernando

Collaborating Scientists: Dr. Candika Gamage, Dr. G. Weerasooriya, Dr. N. Liyanagunawardhana, Dr. C Karunarathne

Duration: 2 Years

Status of the project: Completed

**17. Detection of Salmonella by multiplex polymerase chain reaction.**

Principal Investigator: Dr.N Liyanagunawardana

Collaborating Scientists: Dr. P. S. Fernando, Dr. K.M S.G. Weerasooriya

Duration: 2 Years

Status of the project: Completed

**18. Prevalence of different Salmonella spp in poultry wet markets & their public health & epidemiological relationship with Salmonella isolates of human origin.**

Principal Investigator: Dr.J K H Ubeyrathne

Collaborating Scientists: Dr. MDN Jayaweera, Dr. LGS Lokugalappatti, Dr. S. Wickramasinghe

Duration: 3 Years

Status of the project: Completed

**19. Introduction of oil adjuvant vaccine against Newcastle disease for Layers.**

Principal Investigator: Dr. H. Kothalawala

Collaborating Scientists: Dr. S. Puvanendiran, Dr. GA Gunawardena, Dr. SAE Abeyratne, Dr, WMP Bandara

Duration: 2 Years

Status of the project: Continued to 2017

**20. Genetic Characterization, Analysis of phylogenetic relationship, adaptation to grow in cell culture and development of quantitative assays for FMD isolates in Sri Lanka.**

Principal Investigator: Dr. S Puvanendiran

Collaborating Scientists: Dr. SAE Abeyrathna, Dr. H. Kothalawala

Duration: 2 Years

Status of the project: Completed

**21. Seroprevalence of Infectious bovine rhinotracheitis and bovine viral diarrhoea in dairy cattle in Sri Lanka.**

Principal Investigator: Dr. S Puvanendiran

Collaborating Scientists: Dr. H. Kothalawala, Dr. SAE. Aberathne, G. Rajapakse & C. Karunarathne

Duration:

Status of the project: Completed

**22. Development of flock screening rapid test for mycoplasma infection in poultry**

Principal Investigator: Dr. K M S G Weerasooriya

Collaborating Scientists: Dr. PS. Fernando, Dr. N. Liyanagunawardhana

Duration: 3 Years

Status of the project: Continued to 2017

**23. Formulation of effective organic acid blend to control common enteric disease, salmonellosis in poultry**

Principal Investigator: Dr. S.S.P. Silva

Duration: 3 Years

Collaborating scientists: Dr.PS Fernando, Dr. N Priyankarage, Dr. APDG Pathirana

Status of the project: Over

**24. Formulating effective methodologies to control protozoan parasites that infect livestock animals in Sri Lanka**

Principal Investigators: Prof. N. Yokohama, Dr. S.S.P. Silva & Dr. H. Kothalawala

Duration: 4 Years

Collaborating scientists: S. Puvanendiran, KACHA Kothalawala

Status of the project: Continued to 2017

### 5.5. Research Publications in 2016

Details of research publications are in *Annex IV*.

### 5.6. Financial Progress

The capital and recurrent financial allocation and expenditure for the year 2016 are as follows.

	Allocation (Rs. Mn.)	Expenditure (Rs. Mn.)	Achievement %
Recurrent	21.2	30.9	145.7*
Capital	99.5	94.7	95.17

\*Additional allocation were provided.

## 6. HUMAN RESOURCE DEVELOPMENT DIVISION

### 6.1. Introduction

The Main responsibility of Human Resource Development Division is to develop human resources in order to meet the present and future needs of the livestock sector.

HRD Division administers following seven (07) units.

- Institute of Continuing Education for Animal Production and Health (ICEAPH), Gannoruwa, Peradeniya.
- Sri Lanka School of Animal Husbandry (SLSAH), Karandagolla, Kundasale.
- Sri Lanka School of Animal Husbandry (SLSAH), Seepukulama, Anuradhapura.
- The Department Library, Gannoruwa, Peradeniya.
- Information Communicating Unit. / Hot Line.
- Livestock Knowledge center, Getambe.
- Livestock Technology Park.

### Main Functions of the Division

- Training and technology transfer
- Education and career development
- Livestock Promotion
- Entrepreneurship development and self- Employment support services
- Testing and Evaluation

### 6.2. Training and Transfer of Technology

#### 6.2.1. Training Conducted at ICEAPH

The ICEAPH strives to conduct year round training programs, Workshops, seminars to upgrade the Knowledge and improve the skills of the officers of this department and personnel of other organizations who are involved in the livestock industry activities.

Achievement of training conducted during 2016 at ICEAPH is given in *Table 6.1* and *Table 6.2*.

**Table 6.1: Details of Training conducted at ICEAPH**

Category	No. of Programs Planned	No. of Programs Conducted
AP& H Service Officers	34	18
Middle Level Officers	17	10
Development Officers	09	07
Supportive Staff	08	05
Others	08	09
<b>Total</b>	<b>76</b>	<b>49</b>

**Table 6.2: Progress of Training Conducted at ICEAPH**

Item	Target	Achievement
Number of trainees/ participants	1,882	1,449
Number of training man days	2,750	3,505



### 6.2.2. Special training conducted during the year

The special training conducted during the year 2016 is given below;

Name of the Program	No. of Program conducted	Number of participated	Man days
Induction Training	02	139	1,031
Training programs grade iii officer (APH)	03	145	730
Administration & financial Regulation	04	121	146
<b>Total</b>	<b>09</b>	<b>405</b>	<b>1,907</b>

### 6.2.3. Training at Sri Lanka School of Animal Husbandry (SLSAH), Seepukulama

At SLSAH, Seepukulama fourteen (14) training programs were conducted during the year and 865 trainees participated. Details are as follows.

Category of participants	No. of programs	No. of participants
Government officers	01	29
Farmers	09	456
Students	03	280
Diploma Students	01	100
<b>Total</b>	<b>14</b>	<b>865</b>

### 6.3. Educational and Career Development

#### 6.3.1. Sri Lanka School of Animal Husbandry (SLSAH) Karandagolla, Kundasale

The SLSAH, Karandagolla has been conducting two (02) year Diploma Programme in Animal Husbandry.

New batch for the academic year 2015-2017 was enrolled on 2015.08.31 Number of students for this programme is 82. The batch continued in the first academic year with the practical training. Final Exam (2<sup>nd</sup> year) was completed for the 2014 - 2016 batch. No. of out comers 68.

#### 6.3.2 Sri Lanka School of Animal Husbandry (SLSAH) Seepukulama, Anuradhapura

The SLSAH, Seepukulama has been conducting two (02) year Diploma Programme in Animal Husbandry.

New batch for the academic year 2016 - 2018 was enrolled on 2016.03.15 Number of students for this programme is 63. Students are continuing in the first academic year with the practical training.

Final Exam (2<sup>nd</sup> year) was completed for the 2014 - 2016 batch. No. of out comers 51.



Figure 6.1: Diploma students engaged in practical training

### 6.3.3. Internship Training for Veterinary Graduates

One (01) internship programme was conducted and completed in the year 2016. Details of these programs is given below.

Batch Number	No. of Internees	Date of commencement	Date of completion
DAPH/ICE/2016	68	2016.02.01	2016.08.01

### 6.3.4. Foreign Training

Details of overseas training received by DAPH officers in 2016 are given in Annex V.

### 6.3.5. Support for Post Graduate Training

During the year 2016, HRD Division supported in post graduate fellowships program given in Annex V - b.

### 6.4. Examinations

The HRD division is responsible for conducting examinations for Department officers. Details of examinations conducted by DAPH in 2016 are given in Annex VI.

### 6.5. Information and Publicity

#### 6.5.1. Publications in 2016

##### a. New Prints

Booklet	01
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##### b. Translated print

Booklets	02
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##### c. Reprints in 2015

Leaflets	02
Booklets	13

#### 6.5.2. Sale of Publications in 2015

No. of booklets/leaflets	39,327
No. of photographs (10" x 12" size)	18
No. of CD's	30

### 6.5.3. Mass Media Activities

The division continued broadcasting/ telecasting/ publishing programs and articles in various TV Channels/ Radio Stations/Newspapers. Details are given in *Table 6.3*.

**Table 6.3: Mass Media Activities in 2016**

Type of Media	No. of programs (planned)	TV/ Radio Channel/ News paper	No .of Telecasts/ Broadcasts/ Releases
TV	Sinhala - 06	ITN - Ranbimata Arunella	07
Radio	176	SLBC - Colombo - Sathwarawaya - 72 SLBC - Colombo - Wannamaradam - 03 Krushi FM WEB Radio - 60	135
News releases	08	News paper	04
Press conference	03	TV / Radio Channel/ News paper	02

### 6.5.4. Exhibitions

Details of exhibition participated in 2016 are as follows.

**Table 6.4: Exhibitions conducted / participated in 2016**

Category	Venue	No. of Days
National Level	" <i>Wasa visa nethi ratak</i> " Exhibition - BMICH, Colombo	03
	" <i>Yowun Puraya</i> " Exhibition - Air Force Camp, Seegiriya	05
	Farmer Training Programme & Exhibition (Nestle Lanka PLC) Sri Lanka School of Animal Husbandry - Seepukulama	01
	Liquid Milk Consumption Promotion Programme for Students - BMICH, Colombo	01
	Farmer Convention in Ampara Parallel to the National Food Programme - Ampara	01
	Presidential Mobile Service - Polonnaruwa	01
	Agricultural Exhibition - Nuwara Eliya	03
	Livestock Exhibition - Wilfred Senanayake Ground, Homagama	02
	Agricultural & Trade Exhibition Prime Expo 2016 - Embilipitiya	03

## 6.6. Entrepreneurship Development and Self - Employment support services

The Entrepreneurship development and support Training.

Topic	Venue	No. of Programs	No. of Participants
Small Scale Milk Processing	Livestock Technology Park	06	137
	Kundasale	02	52
	Gampola	02	48
	Undugoda	01	24
	Senapura	02	50
	Badulla	01	29
Milk, Meat, Eggs products	Vavuniya	01	29
<b>Total</b>		<b>15</b>	<b>369</b>

### Follow up Technical Training Programs

Topic	Venue	No. of Programs	No. of Participants
Small Scale Milk Processing	Boyagane	01	43
Large Scale Milk Processing	Galgamuwa	01	30
<b>Total</b>		<b>02</b>	<b>73</b>

## 6.7. The Department Library

The Department Library continued serving as the National level Library for Livestock industry related fields and Veterinary Science.

- Number of members in 2016 - 258
- Number of books/ reports received - 251

## 6.8. The Departmental Hot Line Service

The DAPH maintains a Hot Line Service (Tel: 081-2388463) to facilitate stakeholder needs. The details of performances in 2016 are given below.

	Activity	Number
1	Total number of clients served	1,406
2	Follow-up service	146
3	Clients directed to co-institutions	259
4	Publications issued to clients (Free issues)	1,027
5	Paper cuttings collected on livestock	693

### 6.9. Livestock Technology park

The details of performances are 2016 given below.

Project / Programme	Activity	Expanded Activities	Output target	Progress at the end of Year
Establishment of Livestock Technology Park	Demonstrate model livestock units to the public	Arrange and conduct demonstration sessions		14
		Facilitation of visitors		31,875
	Development and maintenance of different units Of the Livestock Technology Park	Improving of existing livestock units	100%	100%
		Construction of new farm units	100%	75%
		Purchasing of animals (buffaloes, Pigs, Quails, chicken, Cows)	100%	75%
	Development of Infrastructure facilities	Construction of store room	100%	100%
		Main Gate	100%	100%
		Construction of internal road	100%	100%
		Water Tank	100%	100%
		Security room	100%	100%

### 6.10. Financial Progress

The financial allocation for capital and recurrent projects/ activities for the year 2016 and actual expenditure are given below:

	Allocation (Rs. Mn)	Expenditure (Rs. Mn)	Achievement (%)
Capital	52.18	594.57	100%*
Recurrent	8.10	16.40	100%*

\* Additional Allocation were Provided