



NATIONAL CENTRE FOR ANIMAL HEALTH
Department of Livestock • Ministry of Agriculture and Livestock
Serbithang, Thimphu, Bhutan



ANNUAL PROGRESS REPORT

2025 – 2026



National Centre for Animal Health
Serbithang, Thimphu | Department of Livestock, MoAL | Royal Government of Bhutan

National Centre for Animal Health, Annual Progress Report 2025-2026

Forward

It is my pleasure to present the Annual Report of the National Centre for Animal Health (NCAH) for the fiscal year 2025–2026. This report highlights the Centre's continued commitment to protecting animal health, strengthening veterinary services, and supporting Bhutan's livestock sector through disease prevention, surveillance, laboratory diagnostics, veterinary supply management, biological production, and the One Health approach.

The year presented significant animal health challenges, including outbreaks of several transboundary and endemic diseases that required coordinated national response. Through close collaboration among the Department of Livestock, field veterinary services, laboratories, local governments, and development partners, NCAH successfully coordinated timely surveillance, laboratory confirmation, outbreak investigation, emergency response, and disease containment measures. These collective efforts helped minimize the impact of disease outbreaks on livestock production, farmer livelihoods, and public health.

Alongside emergency response, the Centre continued to strengthen preventive animal health programmes and laboratory services. Progress in national vaccination campaigns, disease surveillance, antimicrobial resistance monitoring, and laboratory quality assurance reflects our commitment to building a resilient animal health system capable of responding to emerging and re-emerging disease threats. We also advanced Bhutan's long-term goals in rabies elimination, preparedness for transboundary animal diseases, and evidence-based disease control through strengthened epidemiological and diagnostic capacity.

Ensuring uninterrupted access to quality veterinary medicines, vaccines, biological products, diagnostic reagents, and equipment remained another important priority during the year. Continued investment in supply chain management and biological production has strengthened national preparedness and enhanced the delivery of veterinary services throughout the country.

These achievements would not have been possible without the dedication and professionalism of our veterinarians, laboratory personnel, livestock officials, technical staff, and administrative teams working across the country. I extend my sincere appreciation to the Department of Livestock, our regional and district counterparts, and our valued development partners—including the Fleming Fund, the Pandemic Fund, and international reference laboratories—for their continued technical and financial support.

As Bhutan's national veterinary reference centre, NCAH remains committed to further strengthening disease surveillance, laboratory diagnostics, emergency preparedness, veterinary service delivery, and One Health collaboration. Together, we will continue to safeguard animal health, protect rural livelihoods, strengthen food security, and contribute to the sustainable development of Bhutan's livestock sector.

A handwritten signature in blue ink, appearing to read 'Lungten', with a long horizontal flourish extending to the right.

(Dr. Lungten)
Program Director

Executive Summary

The National Centre for Animal Health (NCAH), under the Department of Livestock, continued to strengthen Bhutan's animal health system during FY 2025–2026 through enhanced disease surveillance, laboratory diagnostics, preventive animal health programmes, veterinary supply management, biological production, and antimicrobial resistance (AMR) initiatives.

A total of **42 notifiable disease outbreaks** involving seven priority diseases were reported across **11 dzongkhags**. Rabies (14 outbreaks) and African Swine Fever (ASF) (9 outbreaks) remained the principal disease threats, with Samtse recording the highest number of outbreaks. African Swine Fever (ASF) affected a number of farming households across six dzongkhags, prompting coordinated surveillance, laboratory confirmation, movement control, and disease containment measures to prevent further spread. Genomic characterization also confirmed Bhutan's circulating Foot-and-Mouth Disease virus as **serotype O**, providing important evidence for future disease control strategies.

Preventive animal health programmes achieved notable progress during the year. The national Lumpy Skin Disease (LSD) vaccination campaign protected **191,091 cattle**, achieving **74.57% national coverage**. Bhutan also completed its first nationwide serological surveillance for Peste des Petits Ruminants (PPR), testing **1,288 serum samples** and generating evidence to support the country's roadmap towards World Organisation for Animal Health (WOAH) recognition of PPR-free status.

Laboratory services continued to enhance both diagnostic capacity and quality assurance. During the year, the Laboratory Services Unit received **4,788 samples** and performed **8,677 diagnostic tests** covering molecular biology, virology, bacteriology, parasitology, serology, and pathology. The laboratory expanded its diagnostic capability through validation of new ELISA and RT-PCR assays, participated successfully in international proficiency testing programmes, and strengthened AMR surveillance and laboratory information systems with support from the Fleming Fund and the Pandemic Fund.

Progress also continued towards Bhutan's goal of eliminating dog-mediated human rabies by 2030. The Dog Population Management Unit vaccinated **7,112 dogs** and **2,638 cats**, sterilized and managed free-roaming dog populations in highland areas, registered and microchipped companion animals, and vaccinated **4,329 livestock** along the southern border through cross-border rabies prevention initiatives with neighbouring Indian states.

The veterinary supply system ensured uninterrupted availability of essential animal health commodities nationwide. The Drugs, Vaccine and Equipment Unit procured veterinary medicines, equipment, and consumables valued at more than **Nu. 46 million**, while distributing supplies worth over **Nu. 73 million** to support veterinary services across the country. The Biological Production Unit procured **8.7 million doses** of livestock, poultry, and canine vaccines valued at **Nu. 20.61 million** and distributed **7.35 million doses (85%)** nationwide while maintaining adequate emergency buffer stocks to support preparedness for priority animal diseases.

Through strong collaboration with the Department of Livestock, field veterinary services, development partners, and international reference laboratories, NCAH continued to strengthen Bhutan's preparedness for transboundary animal diseases, enhance laboratory and surveillance capacity, improve veterinary service delivery, and advance the One Health approach to animal health, antimicrobial stewardship, rabies control, and food safety.

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1. Background

The National Centre for Animal Health (NCAH), Serbithang, is located approximately 12 kilometers from Thimphu, the capital city of Bhutan. The Centre was established in 1978 as the Diagnostic Laboratory at Chhubachu, Thimphu. In 1981, under the United Nations Development Programme (UNDP) and Food and Agriculture Organization (FAO) project, it was relocated to Serbithang and renamed the Royal Veterinary Diagnostic Laboratory (RVDL). Between 1991 and 1999, the laboratory was further strengthened with assistance from the European Union (EU) and renamed the Royal Veterinary Epidemiology Centre (RVEC). In 2005, RVEC was redesignated as the National Centre for Animal Health (NCAH) under the Department of Livestock (DoL), Ministry of Agriculture and Forests (MoAF).

NCAH serves as the national centre for animal health and is responsible for animal disease diagnosis, veterinary epidemiology, disease prevention and control, veterinary medicines and vaccine management, antimicrobial resistance (AMR) coordination, and capacity development. The Centre also provides technical support to Dzongkhags and other livestock institutions in implementing animal health programmes. Situated on an 8.8259-acre campus at Serbithang, NCAH provides a conducive environment for laboratory services, research, training, and national coordination of animal health activities.

1.1 Mandates

The mandates of the National Centre for Animal Health are to:

- Function as the national referral laboratory for animal health.
- Function as the national centre for veterinary epidemiology.
- Ensure the availability of quality veterinary medicines, vaccines, and equipment.
- Function as the national institute for capacity development in animal health.

1.2 Functions

The National Centre for Animal Health is responsible for:

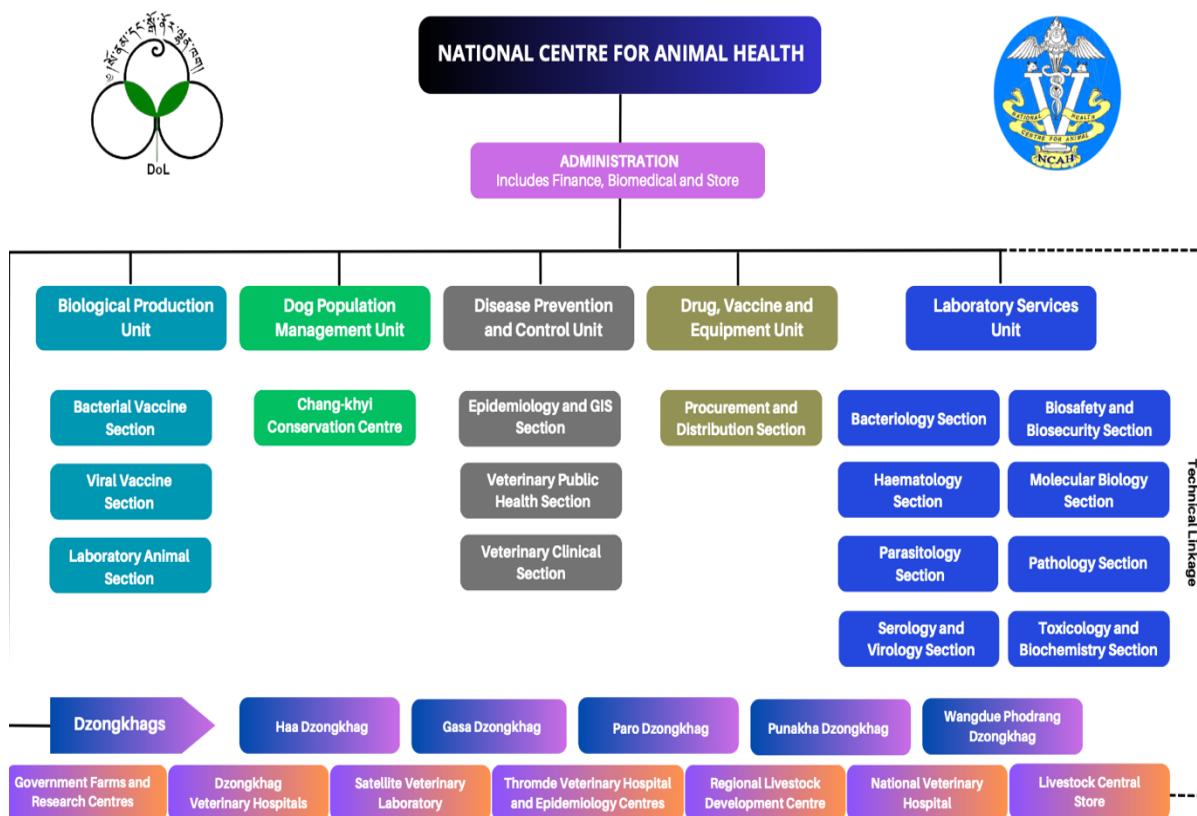
- Developing, implementing, and evaluating disease prevention and emergency response plans for livestock diseases and zoonoses.
- Supporting the development of animal health policies, strategies, and programmes.
- Coordinating, monitoring, and evaluating disease prevention and control programmes.
- Planning, coordinating, and conducting disease surveillance, epidemiological investigations, and animal health research.
- Maintaining and disseminating animal health and epidemiological information.
- Providing national referral laboratory and diagnostic services.
- Supporting capacity development in animal health programmes.
- Coordinating and implementing antimicrobial resistance (AMR) surveillance and studies in the veterinary sector through a One Health approach.
- Planning, coordinating, monitoring, and evaluating the management of veterinary medicines, vaccines, and equipment at the national level.

- Liaising with national and international agencies to strengthen technical collaboration in animal health.
- Coordinating and implementing the national stray dog population management programme.

1.3. Organogram

The main functional units under the Centre are:

- Laboratory Services Unit (LSU)
- Disease Prevention and Control Unit (DPCU)
- Drug, Vaccines and Equipment Unit (DVEU)
- Biological Production Unit (BPU)
- Dog Population Management Unit (DPMU)



2. Diseases Prevention and Control Unit (DPCU)

2.1 Notifiable diseases outbreaks

In the financial year 2025–2026, outbreaks of seven major notifiable animal diseases were reported across Bhutan. The reported diseases included African Swine Fever (ASF), Foot-and-Mouth Disease (FMD), Infectious Bursal Disease (IBD/Gumboro disease), Highly Pathogenic Avian Influenza (HPAI, H5N1), Hemorrhagic Septicaemia (HS), Lumpy Skin Disease (LSD), and Rabies (Figure 1). These outbreaks affected a range of livestock and animal species, including swine, cattle, bovines, poultry, dogs, cats, and other susceptible animals, with cases reported from multiple dzongkhags throughout the year. Rabies and ASF were the most frequently reported diseases, while HPAI and HS were reported in localized outbreaks. Continuous surveillance and prompt reporting enabled timely detection and response to these notifiable diseases (figure 1)

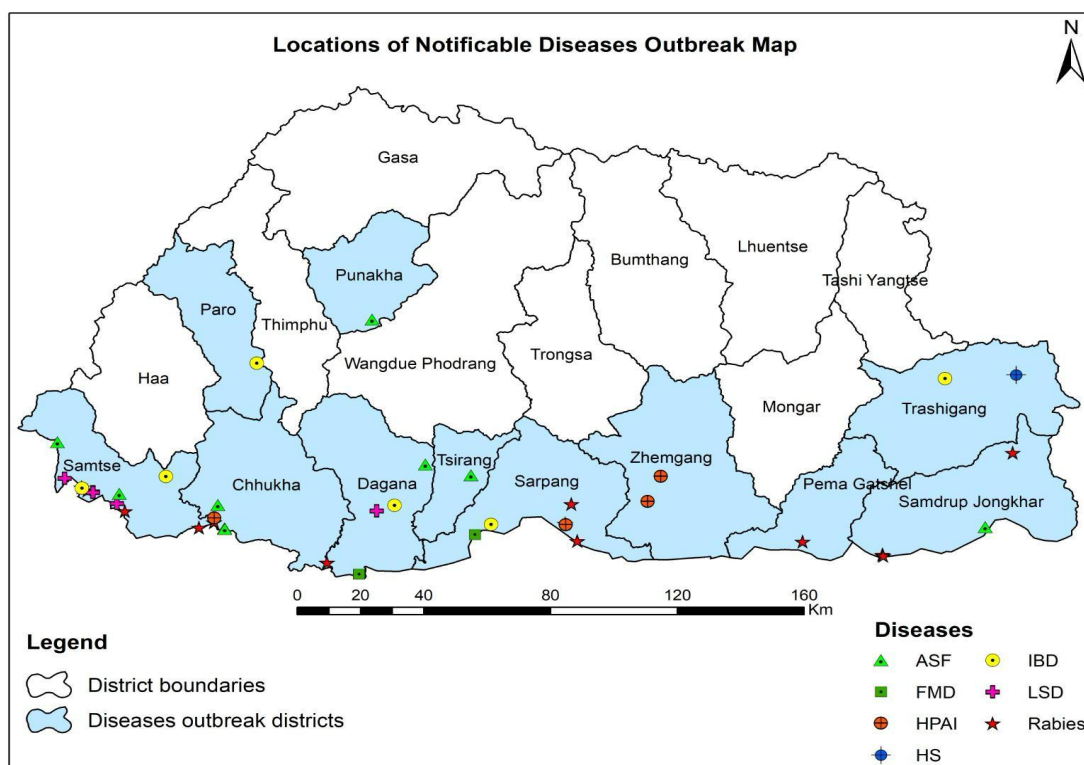


Figure 1. Map showing outbreak locations of notifiable diseases (2025-2026).

Maximum outbreaks were reported for Rabies ($n = 14$), followed by African Swine Fever (ASF) ($n = 9$). Lumpy Skin Disease (LSD) and Infectious Bursal Disease (IBD) each accounted for six outbreaks ($n = 6$), while Highly Pathogenic Avian Influenza (HPAI/H5N1) was reported in four outbreaks ($n = 4$). Foot-and-Mouth Disease (FMD) was reported in two outbreaks ($n = 2$), and Hemorrhagic Septicaemia (HS) was reported in one outbreak ($n = 1$) during the financial year 2025–2026 (Figure 2)

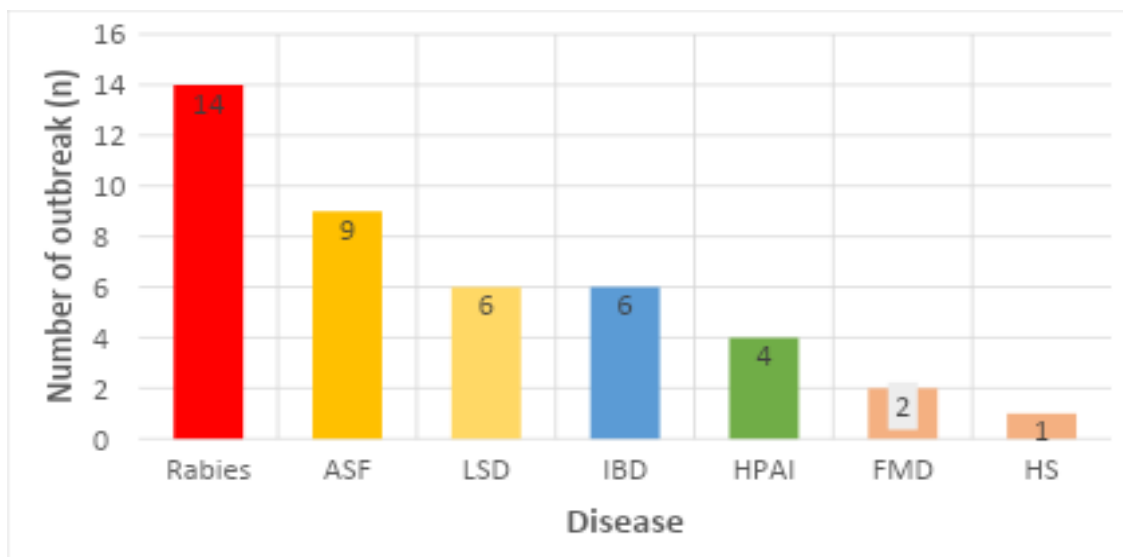


Figure 2. Graph showing disease outbreak by type (2025-2026).

Overall, during the financial year 2025–2026, a total of 42 notifiable disease outbreaks were reported from 11 dzongkhags. The highest number of outbreaks was reported from Samtse (n = 13), followed by Sarpang (n = 6), Chukha (n = 6) and Dagana (n = 5). Samdrup Jongkhar reported four outbreaks, while Zhemgang and Trashigang reported two outbreaks each. Tsirang, Paro, Pemagatshel and Punakha each recorded one outbreak (figure 3).

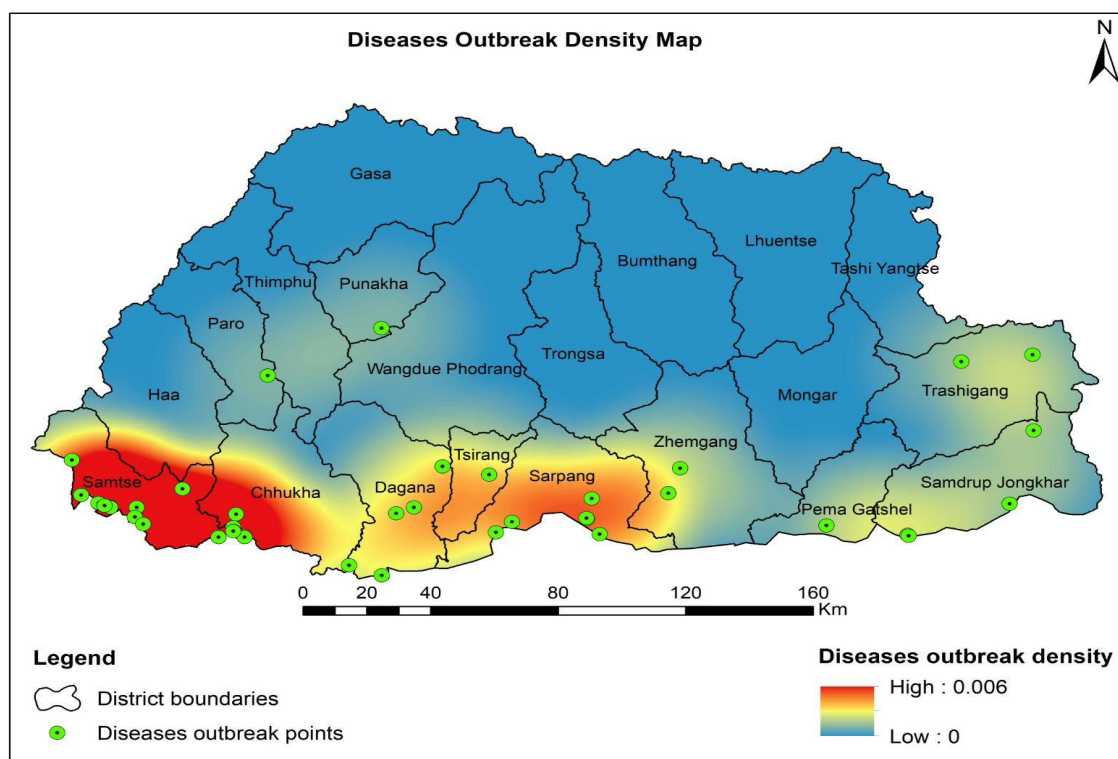


Figure 3. Map showing disease outbreak density map 2025-2026.

Among disease categories, Rabies accounted for the highest burden (n = 14), reported from Samtse (n = 4), Sarpang (n = 3), Samdrup Jongkhar (n = 3), Chukha (n = 2), Dagana (n = 1) and Pemagatshel (n = 1). African Swine Fever (ASF) outbreaks (n = 9) were reported from Tsirang,

Dagana, Chukha, Samdrup Jongkhar, Samtse and Punakha, with Chukha (n = 3) and Samtse (n = 2) showing relatively higher occurrence. Lumpy Skin Disease (LSD) (n = 6) was reported from Samtse (n = 5) and Dagana (n = 1). Infectious Bursal Disease (IBD) (n = 5) occurred in Samtse (n = 2), Sarpang (n = 1), Dagana (n = 1) and Paro (n = 1). Highly Pathogenic Avian Influenza (HPAI H5N1) (n = 4) was reported from Zhemgang (n = 2), Sarpang (n = 1) and Chukha (n = 1). Foot-and-Mouth Disease (FMD) (n = 2) was reported from Dagana and Sarpang (one outbreak each), while Hemorrhagic Septicaemia (HS) (n = 1) was reported from Trashigang. Additionally, one NCD/IBD poultry outbreak (n = 1) was reported from Trashigang.

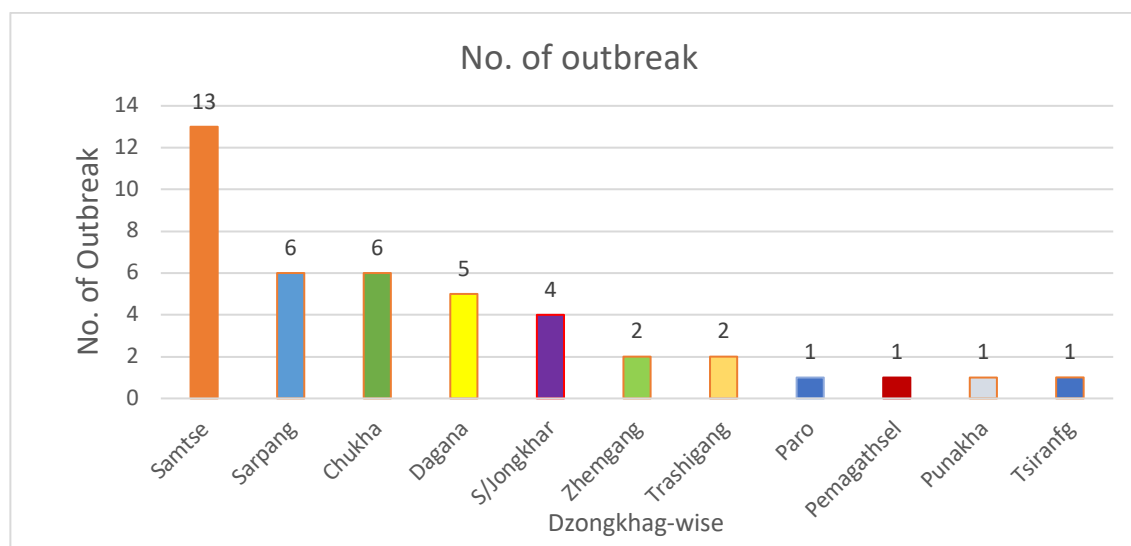


Figure 4. Dzongkhagwise notifiable disease outbreak (2025-2026).

2.2 Priority diseases screening in highland areas

In the Financial Year 2025–2026, deworming activities were carried out in the highland geogs of Lingshi and Soe Yaksa as part of routine parasite control interventions. Albendazole was administered to a total of 922 yaks aged one month to three years, with 532 yaks in Lingshi and 390 yaks in Soe Yaksa. In addition, praziquantel tablets were given to a total of 77 watch dogs used for yak protection, comprising 45 dogs in Lingshi and 32 dogs in Soe Yaksa. Alongside the deworming programme, fecal sample collection was conducted for parasitological monitoring. A total of 102 fecal samples were collected, including samples from both dogs and yaks across the two geogs. In Lingshi, 11 dog fecal samples and 41 yak fecal samples were collected, while in Soe Yaksa, 9 dog fecal samples and 35 yak fecal samples were obtained. In addition, 6 random scat fecal samples were collected for further examination.

Table 1. Highland Deworming and Fecal Sample Collection (FY 2025–2026).

Category	Sub-category	Lingshi	Soe Yaksa	Total
Deworming (Albendazole)	Yaks (1 month–3 years)	532	390	922
Deworming (Praziquantel)	Watch dogs	45	32	77

Fecal samples collected – Dogs	Dogs	11	9	20
Fecal samples collected – Yaks	Yaks	41	35	76
Random scat fecal samples	Environmental samples	6	0	6
Total fecal samples collected	Combined total	58	44	102
Total		693	510	1203

2.3 Lumpy skin disease outbreak response

During the reporting period, a total of six Lumpy Skin Disease (LSD) outbreaks were recorded, predominantly affecting Samtse dzongkhag (n = 5), with a single outbreak reported from Dagana (n = 1). The outbreaks in Samtse were spatially clustered across multiple gewogs, including Namgaycholing, Ugyentse, and Samtse gewog, indicating localized transmission within high-density cattle-raising areas (figure 5). Dagana reported one outbreak in Gesarling gewog. The spatial distribution, as illustrated through the heat map/density map, shows a clear concentration of cases in western Samtse, highlighting it as a persistent hotspot for LSD activity. In response, immediate containment measures were implemented, including movement restriction of cattle, active surveillance in surrounding villages, ring vaccination in at-risk herds, and heightened clinical monitoring by field veterinarians. The clustering pattern suggests ongoing transmission pressure within Samtse, reinforcing the need for sustained vaccination coverage and targeted surveillance in identified high-risk zones, while maintaining preventive preparedness in adjacent dzongkhags such as Dagana.

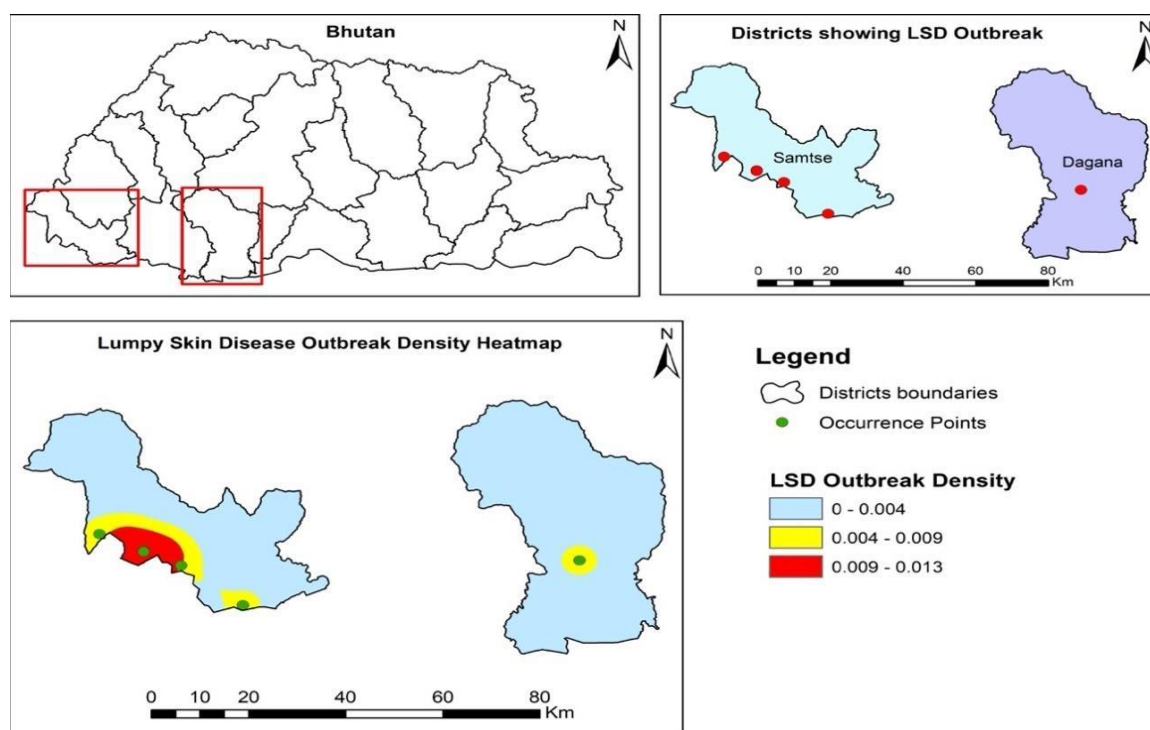


Figure 5. Map showing LSD outbreak density map for FY 2025-2026.

2.4 LSD vaccination

In line with the national strategy for improving livestock health and preventing disease outbreaks through systematic immunization, vaccination activities were implemented across all 20 dzongkhags of Bhutan during the reporting period. Based on the Integrated Annual Livestock Census (IALC) 2024, the total bovine population was estimated at 256,247 animals, including cattle, yak, mithun, buffalo, and other bovine species targeted under the vaccination programme. During the financial year, a total of 191,091 animals were vaccinated, resulting in an overall national vaccination coverage of 74.57%. Vaccination coverage varied across dzongkhags, ranging from 8.92% in Gasa to 108.32% in Paro, with several dzongkhags achieving coverage above the 80% target recommended for effective disease control.

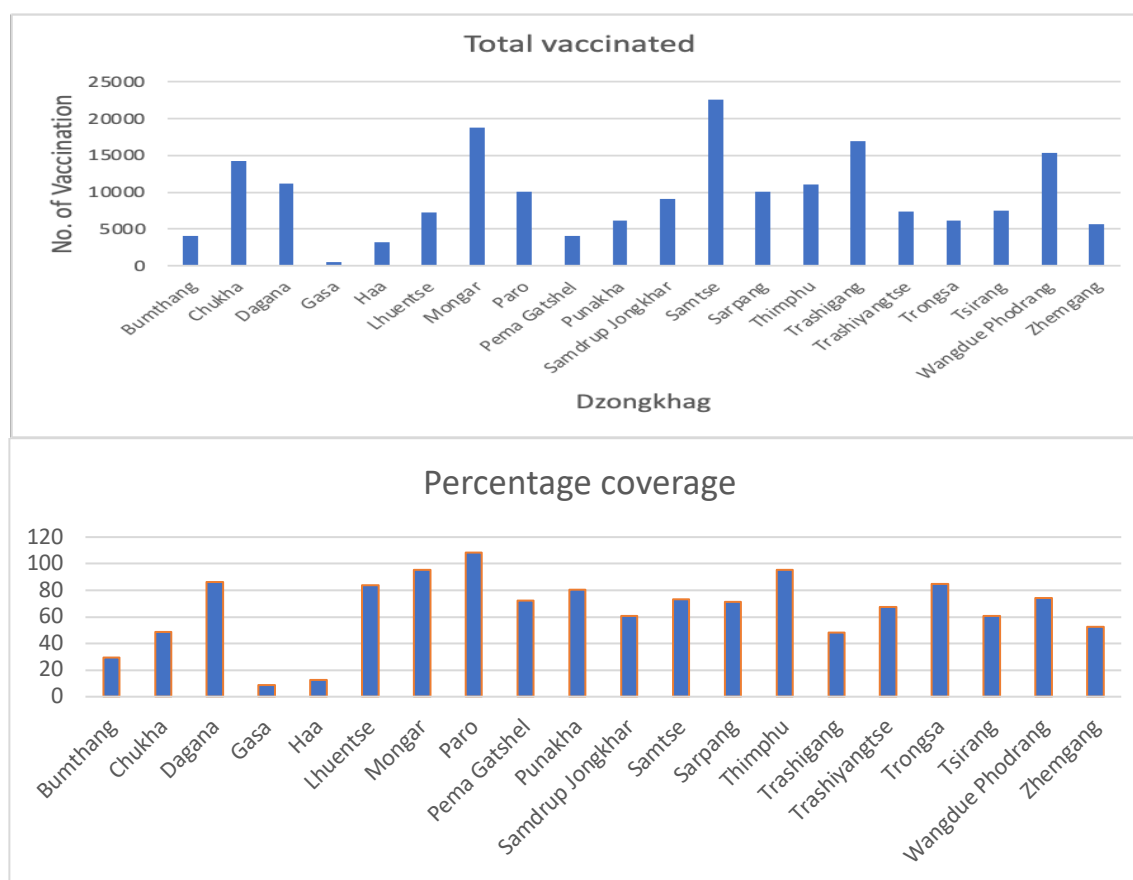


Figure 6. Graph showing LSD percentage coverage across 20 Dzongkhag for FY 2025-2026.

At the dzongkhag level, the highest vaccination coverage was recorded in Paro (108.32%), followed by Mongar (95.34%), Thimphu (95.26%), Chukha (92.51%), and Trashiyangtse (88.92%), indicating excellent immunization performance in these dzongkhags. High coverage was also achieved in Dagana (86.30%), Zhemgang (85.70%), Trongsa (85.53%), Samdrup Jongkhar (84.89%), Lhuentse (83.75%), and Punakha (80.23%), meeting or exceeding the recommended 80% vaccination coverage target. Moderate coverage was observed in Tsirang (76.92%), Wangdue Phodrang (74.00%), Samtse (73.24%), Pema Gatsel (73.14%), and Sarpang (71.51%). Lower coverage was recorded in Trashigang (48.23%), Haa (45.61%), Bumthang (40.31%), and Gasa (8.92%), highlighting priority areas for strengthening future vaccination efforts. The vaccination programme targeted multiple bovine species, including

cattle, yak, mithun, buffalo, and other bovines, ensuring broad protection of Bhutan's national livestock population (Figure 6).

Among the vaccinated bovine species, cattle accounted for the largest proportion (91.08%), followed by yak (8.8%). Buffalo (1.0%) and mithun (0.05%) represented only a small share of the total vaccinated animals. This distribution reflects the predominance of cattle within Bhutan's bovine population and indicates that vaccination efforts during the reporting period were primarily focused on cattle, with comparatively lower coverage in yak, buffalo, and mithun across the dzongkhags (Table 2).

Table 2. Different animal species vaccinated against LSD (2025-2026).

Sl.no	Species	Total Vaccinated (n)	Percentage (%)
1	Cattle	174,039	91.08
2	Yak	15,233	7.97
3	Buffalo	1,727	0.9
4	Mithun	92	0.05
Total		191,091	100

2.5 Outbreaks of African Swine Fever (ASF)

The figure (7) shows the distribution and intensity of ASF outbreaks across districts. The color gradient moves from yellow, representing areas with low outbreak density, to red, representing areas with high outbreak density. District boundaries are marked to provide administrative context, and outbreak points are plotted to show exact case locations. The visualization highlights the uneven spread of ASF, with certain districts such as Samtse, Central, and Eastern showing concentrated activity, while others remain relatively unaffected. By combining outbreak points with density shading, the map provides a clear picture of the epidemiological burden and helps identify priority areas for surveillance, resource allocation, and risk communication.

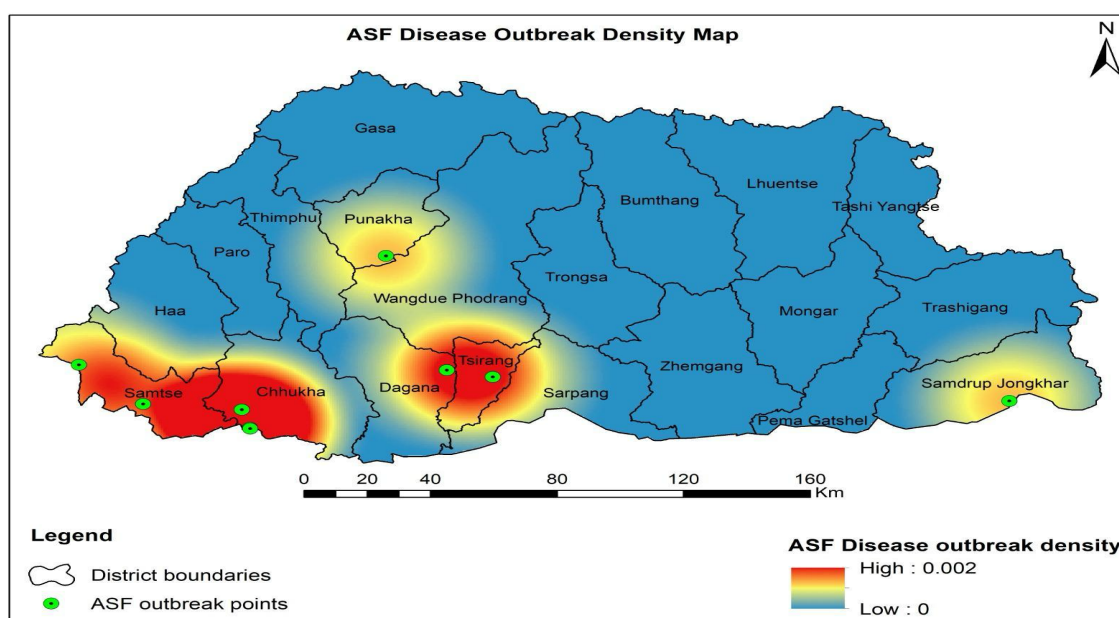


Figure 7. African swine fever outbreak density areas (2025-2026).

The ASF Disease Outbreak Map (figure 8) for 2025–2026 presents the spread of African Swine Fever in Bhutan using shaded Dzongkhags and outbreak points. Dzongkhags shaded in blue are those affected, while red dots show the exact outbreak locations. This makes it easy to see both the regional distribution and the specific points of occurrence.

A total of nine outbreaks were reported from six Dzongkhags. The highest number was in Chukha with three outbreaks (n=3). Samtse had two outbreaks (n=2). Single outbreaks were recorded in Paro, Dagana, Tsirang, and Punakha. The southern Dzongkhags Chukha (n=3), Samtse (n=2), Sarpang, and Tsirang—show a clear concentration of outbreaks, while Bumthang and Punakha reflect isolated cases. Eastern Dzongkhags such as Trashigang and Trashiyangtse remained unaffected.

This distribution highlights the southern corridor as the most vulnerable zone, likely due to livestock movement and trade routes. The isolated outbreaks in central and western Bhutan suggest sporadic introductions rather than continuous transmission. The map and data together underline the need for stronger surveillance in southern Dzongkhags and careful monitoring of animal movement across the country.

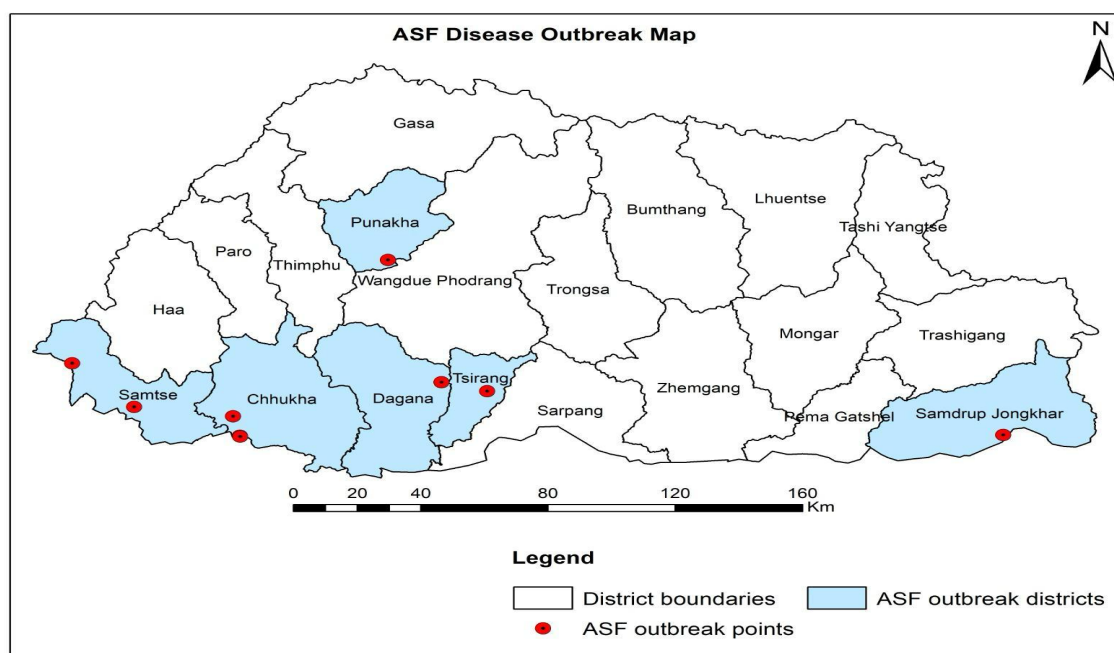


Figure 8. Map showing outbreak locations of notifiable diseases (2025-2026).

As shown in Table 3, a total of nine African Swine Fever (ASF) outbreak events were reported during the financial year 2025–2026, affecting 137 households across five dzongkhags. The outbreaks resulted in 238 pig deaths, while a total of 2,062 pigs were culled as part of disease control and containment measures.

Samtse recorded the highest overall impact, with three outbreak events affecting 66 households, resulting in 118 pig deaths and 405 pigs culled. Tsirang reported 32 affected households, with 69 deaths and 187 pigs culled, representing a substantial outbreak burden. Samdrup Jongkhar recorded 11 affected households and 12 deaths, but the highest number of pigs culled (882), indicating extensive depopulation measures.

Dagana experienced 12 affected households, resulting in 21 pig deaths and 398 pigs culled. Chukha reported three outbreak events affecting 14 households in total, with 16 pig deaths and 168 pigs culled. Punakha recorded the lowest impact, with 2 affected households, 2 pig deaths, and 22 pigs culled.

Table 3.ASF Outbreak Impact by Dzongkhag (2025-2026).

Sl.no	Dzongkhag	Households Affected	Mortality	Pig culled
1	Tsirang	32	69	187
2	Dagana	12	21	398
3	Samdrup Jongkhar	11	12	882
4	Samtse	57	105	348
5	Chukha	3	0	19
6	Punakha	2	2	22
7	Samtse	9	13	57
8	Chukha	1	4	0
9	Chukha	10	12	149
Total		137	238	2062

2.6 Strengthening Outbreak Governance through Integrated Digital Upload and Training

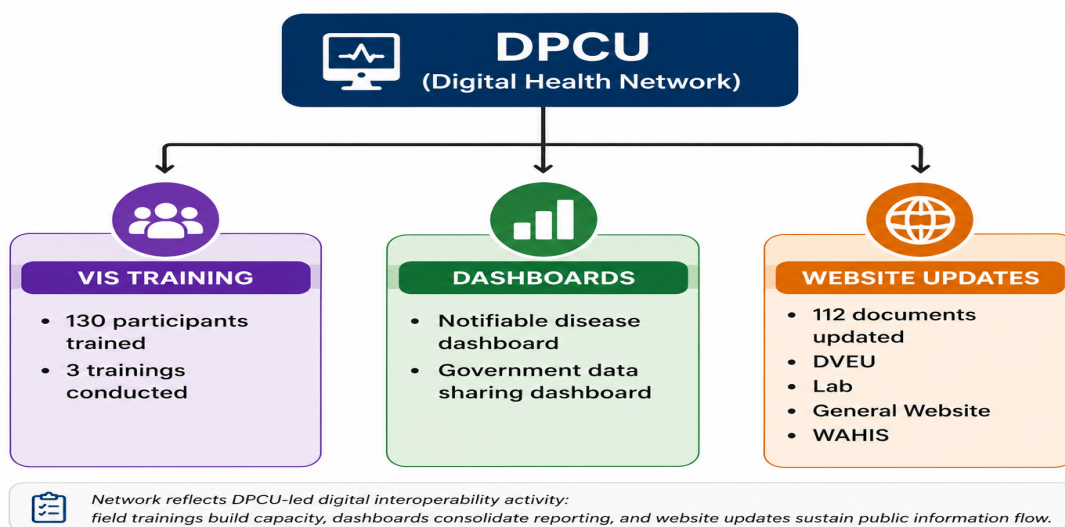


Figure 9. Network map showing DPCU's digital reporting infrastructure — interoperable dashboards and website-based information dissemination, (FY 2025–2026).

Figure 9 maps the full range of digital interoperability activity led by DPCU during FY 2025–2026, organized around three connected workstreams: VIS training, dashboards, and website updates. Together these reflect a coordinated effort to build the human capacity, the data systems, and the public communication channels needed for an interoperable veterinary information system.

Dashboards

DPCU developed two linked dashboards to consolidate and share the data generated by these trained personnel. The first is an interoperable dashboard for notifiable disease, supporting one health surveillance by drawing together disease data across sectors in a single, shared view. The second is a government data sharing dashboard, built to support cross agency interoperability so that animal health information can move smoothly between DPCU and partner government platforms. Where the trainings build the capacity to collect and report data, these dashboards provide the infrastructure that consolidates and routes that data to where it is needed.

Website updates

The third workstream, website updates, reflects DPCU's ongoing public facing reporting and communication. Over the year, DPCU recorded 112 document and content updates across four areas: 28 under DVEU, 18 under the Lab section, 24 under general web and Facebook page content, and 42 under WAHIS disease reporting updates. This volume of activity shows a sustained, near continuous flow of disease reporting and public information being pushed out through the website and associated social media channels, complementing the internal dashboard work with transparent, externally visible reporting.

Read together, the three branches in Figure 9 show DPCU's digital initiatives as a single connected system: trainings build the people side of interoperability, dashboards build the data side, and website updates build the public communication side, all feeding into one digital health network for FY 2025–2026.

VIS trainings

DPCU conducted three rounds of VIS (Veterinary Information System) training over the reporting period, reaching a combined total of 130 participants. The first session was held in Bumthang in October 2025 and brought together 60 participants, including vet officers, lab technicians, gov tech staff, NCAH representatives, staff from I technologies, veterinary paraprofessionals, and representatives from central farms. The second session, an interoperable VIS training held in Gelephu in February 2026, was attended by 26 participants drawn from the Department of Forests and Park Services (DoFPS) and NCAH, extending the system's reach beyond the veterinary sector into forestry and park management. The third



Figure 10. Participants of interoperable-VIS training.

session was held in May 2026 at Metta Paro, training a further 44 participants from the same core groups as the first round: vet officers, gov tech, NCAH, I technologies, veterinary paraprofessionals, and central farms. Across all three sessions, the training served to build a shared base of technical capacity among the diverse set of personnel who feed data into and rely on the interoperable system.

3. Laboratory Services Unit (LSU)

3.1 Overall Performance of Sections under LSU

In the fiscal year 2025-2026, the Laboratory Services Unit (LSU) received a total of 4788 samples and conducted 8677 diagnostic tests across its various sections. These figures reflect a sustained level of activity, indicating the lab's continued role as a key national diagnostic and surveillance center.

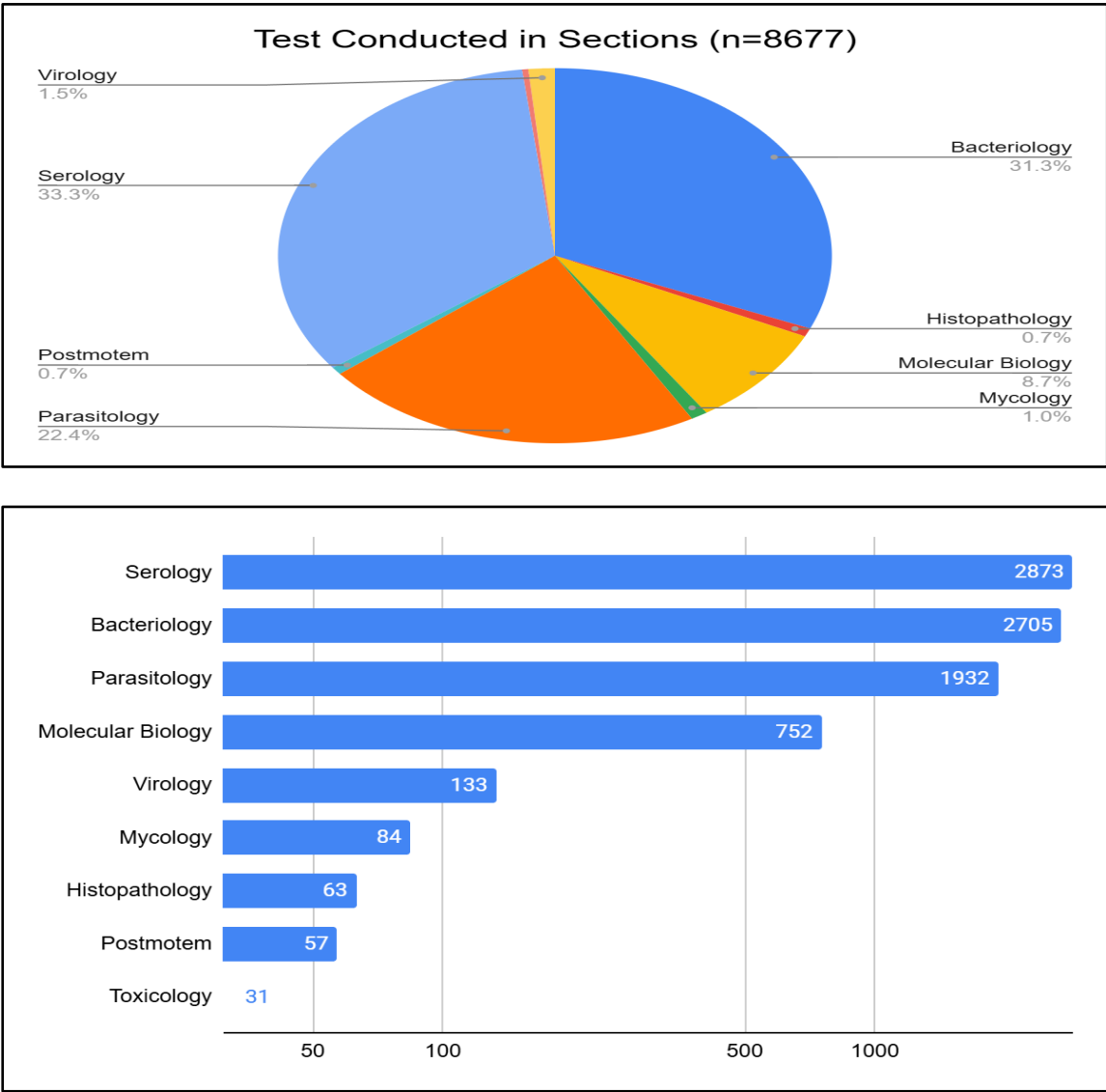


Figure 11. Proportional distribution of diagnostic tests conducted across LSU sections, FY 2025-2026 (n=8,677).

Beyond routine diagnostic of routine and referrals, LSU was actively engaged in several priority surveillance programs, including:

- Nationwide Peste des Petits Ruminants (PPR) surveillance
- Taeniid egg surveillance in highland and stray dog populations
- Rabies antibody titre evaluation at Changkye Conservation Centre and Lhamoizingkha
- Brucellosis Screening in Trongsa

A significant milestone for the reporting period was the timely detection of notifiable and zoonotic disease such as African Swine Fever (ASF), Rabies, Infectious Bursal Disease (IBD), Avian Influenza Virus (AIV) outbreaks, which was achieved without delay—even during weekends and holidays—demonstrating the unit’s enhanced diagnostic preparedness and commitment.

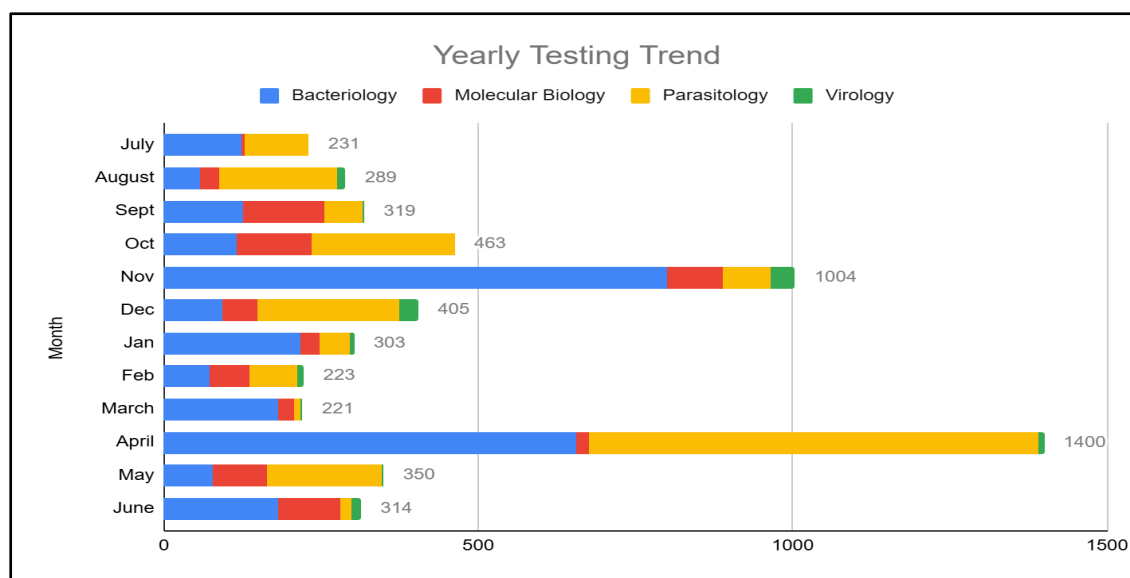


Figure 12.: Monthly trend of diagnostic tests conducted by the Bacteriology, Molecular Biology, Parasitology, and Virology sections, July 2025–June 2026.

3.2 Laboratory Testing of Routine and Referral Samples (Section Wise)

These findings are presented below, based on tests conducted and categorized by animal species and disease of significance.

3.2.1 Molecular Biology

The Molecular Biology section received samples for disease confirmation. The majority of samples originated from swine, followed by avian species, primarily due to African Swine Fever (ASF) outbreaks and avian influenza (bird flu) events reported during the year as presented in the figure 13.

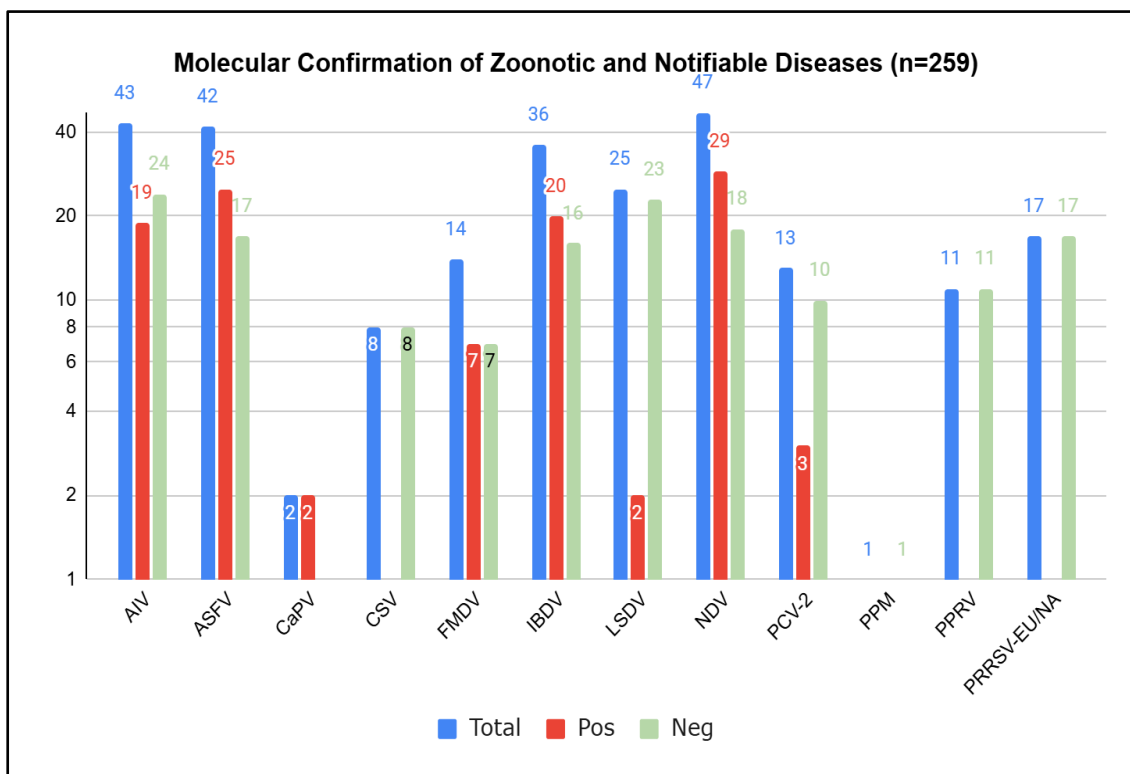


Figure 13.: Molecular confirmation results for zoonotic and notifiable disease agents, showing total, positive, and negative samples tested (n=259).

3.2.2 Virology

During the financial year 2025-2026, the virology section provides confirmatory tests for Rabies and capacity building for sampling and diagnosis to various regional laboratories in Bhutan. Major samples submitted for confirmatory diagnosis were Dog (n=11), followed by cat (n=3), and finally cattle (n=1), and the samples were referred from Sarpang, Samtse and Chhukha.

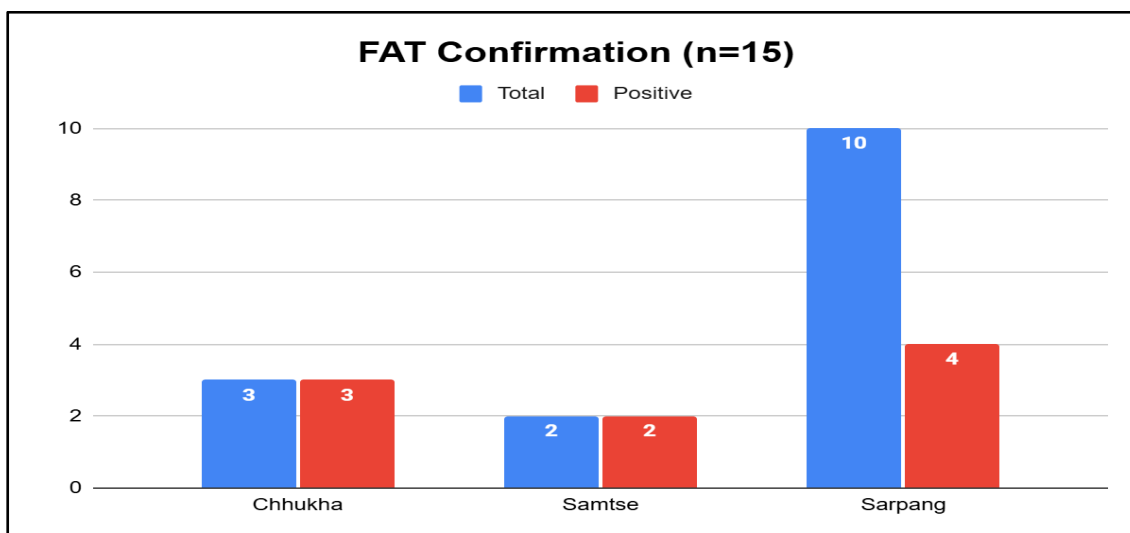
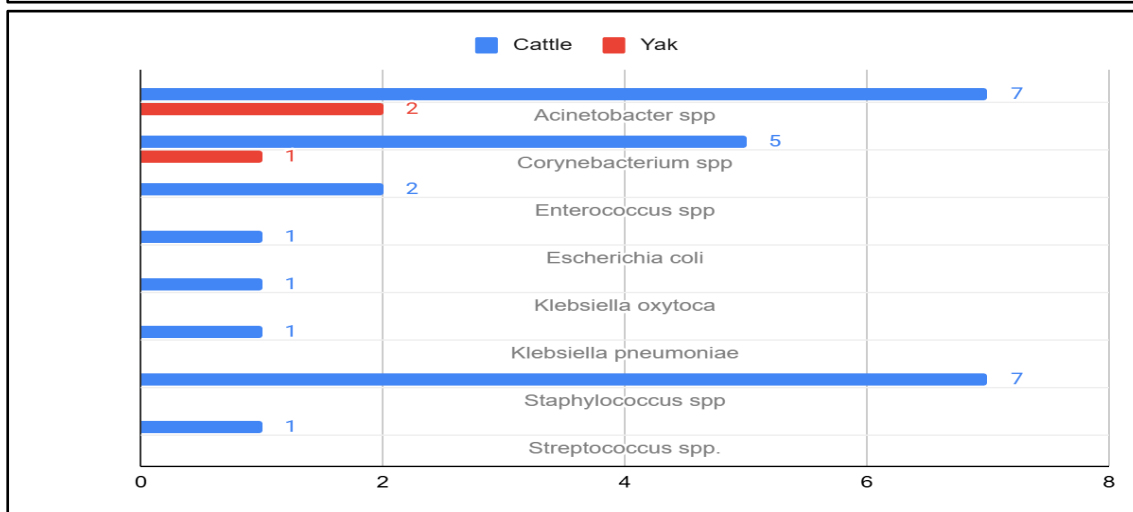
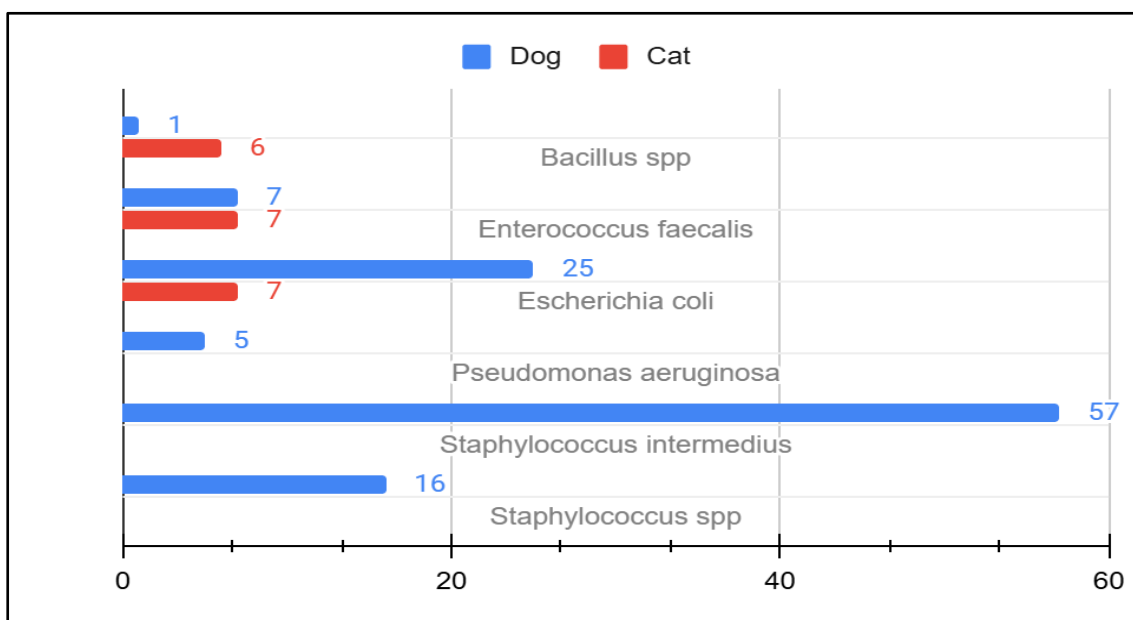


Figure 14. Fluorescent Antibody Test (FAT) confirmation results for rabies by referring district (n=15).

3.2.3 Bacteriology

The Bacteriology section continued to provide bacterial isolation and identification services for referral samples received from across the country. The number of samples processed, categorized by animal species and bacterial isolates, is summarized below. During FY 2025-2026, the majority of bacterial isolates were obtained from canine samples, followed by cat and bovine. Among the identified pathogens, *Staphylococcus intermedius* was most frequently isolated, particularly from dogs, indicating its continued relevance in small animal infections. Other notable isolates included *Escherichia coli* (from avian and canine samples), *Staphylococcus spp.*, *Staphylococcus aureus*, and *Staphylococcus hyicus*. Occasional isolates such as *Pseudomonas pseudomallei*, *Enterobacter aerogenes*, and *Streptococcus canis* were also identified.



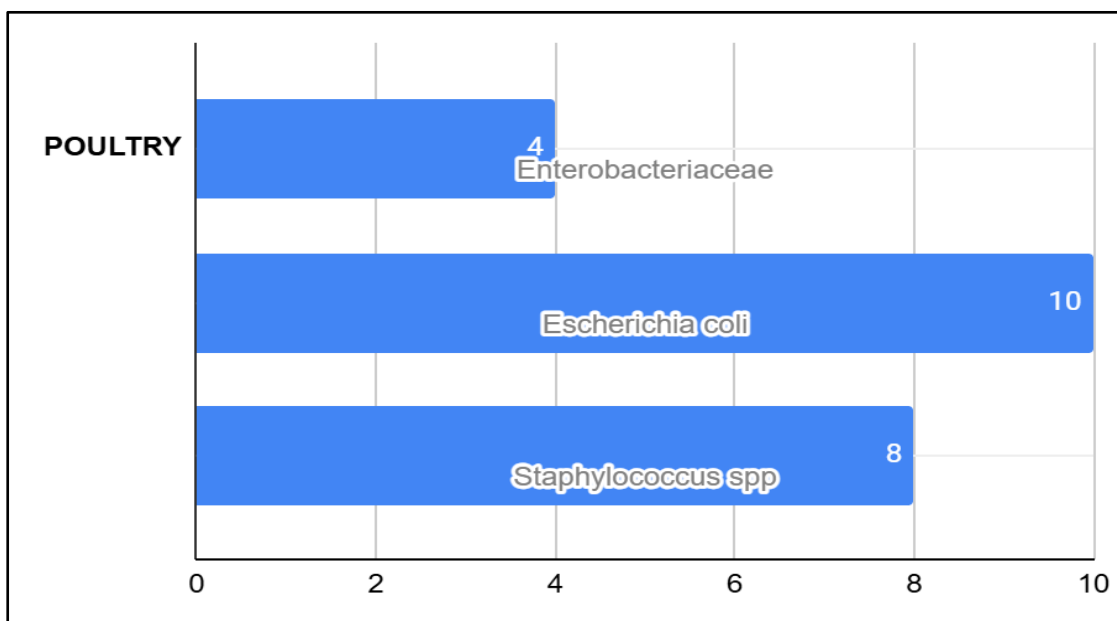
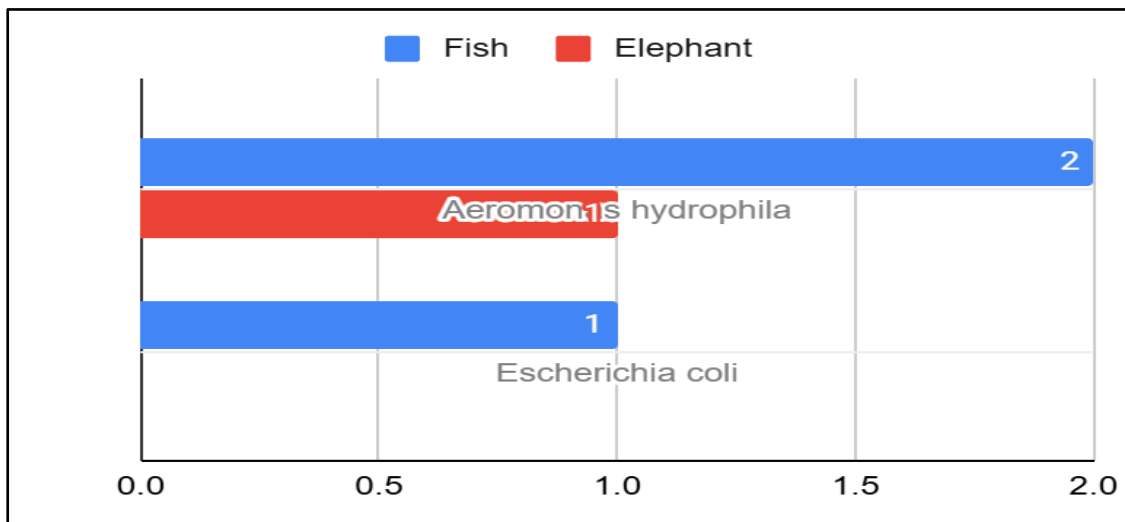
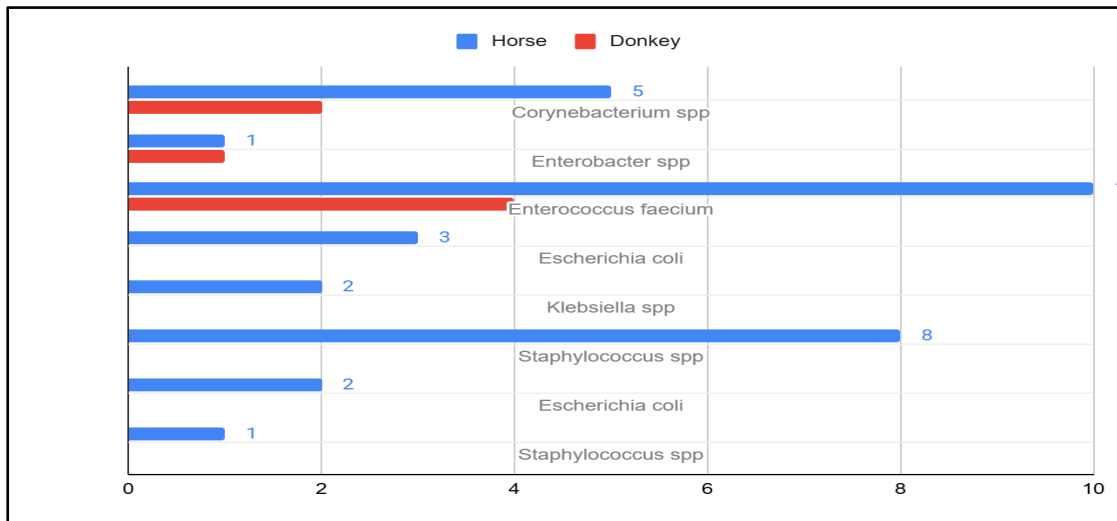


Figure 15. Comparative chart of Bacterial isolates identified from animal species and poultry.

3.2.4 Parasitology

Majority of samples originating from swine and Dogs. The most commonly identified parasites included *Coccidia* spp., *Balantidium coli*, and *Strongyloides* spp.

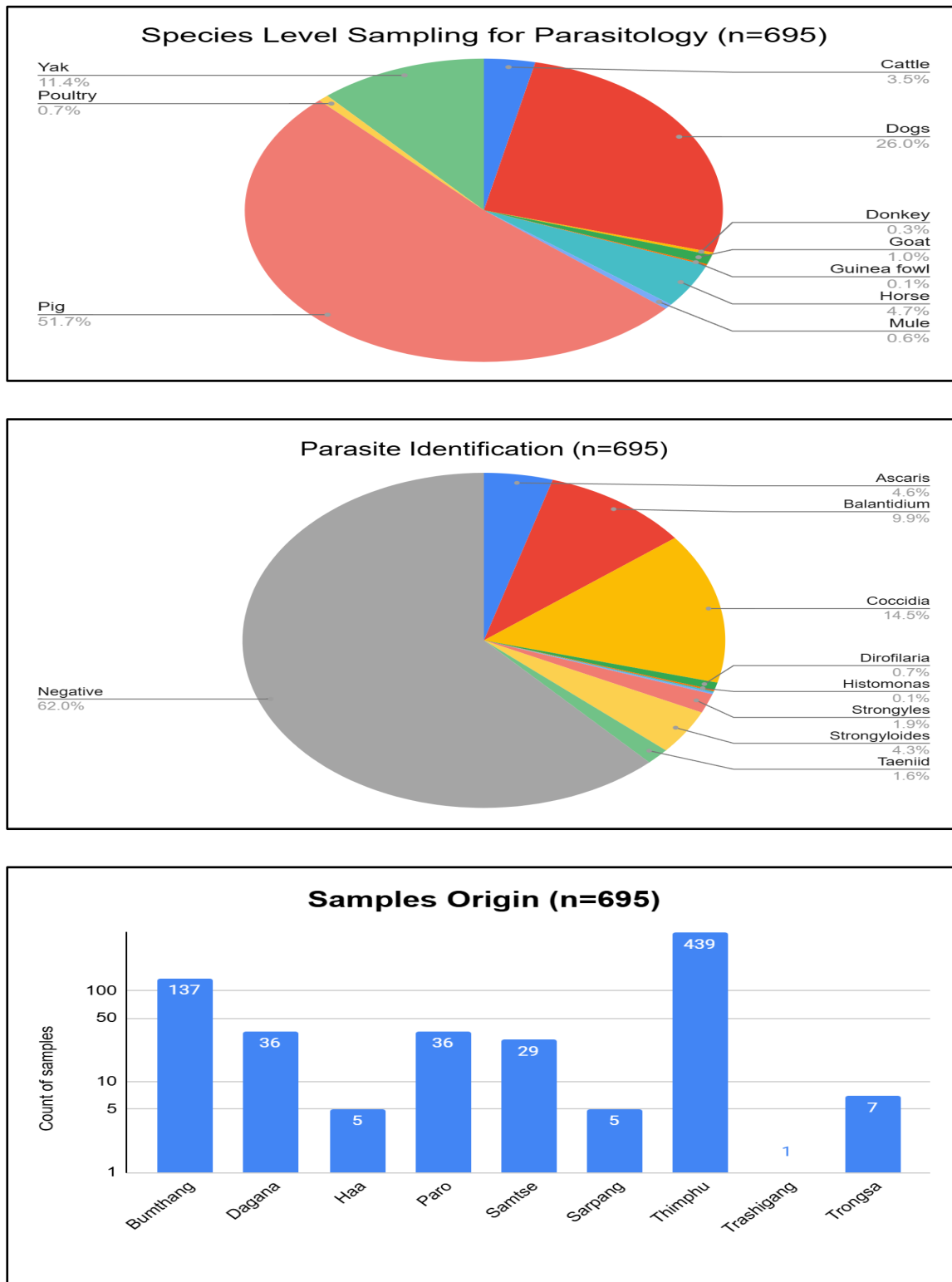


Figure 16. Distribution of parasitology samples by host species, parasite identified, and Dzongkhag, FY 2025–2026 (n=695)

3.2.5 Serology

The Serology section conducted ELISA, RBT, rapid antigen, and antibody titre testing across submitted samples, with ELISA (204 samples) and RBT (127 samples) accounting for the majority of tests performed. As part of this work, Brucellosis screening in cattle identified 37 positive results out of 203 samples tested by ELISA, and 1 positive result out of 127 samples tested by RBT.

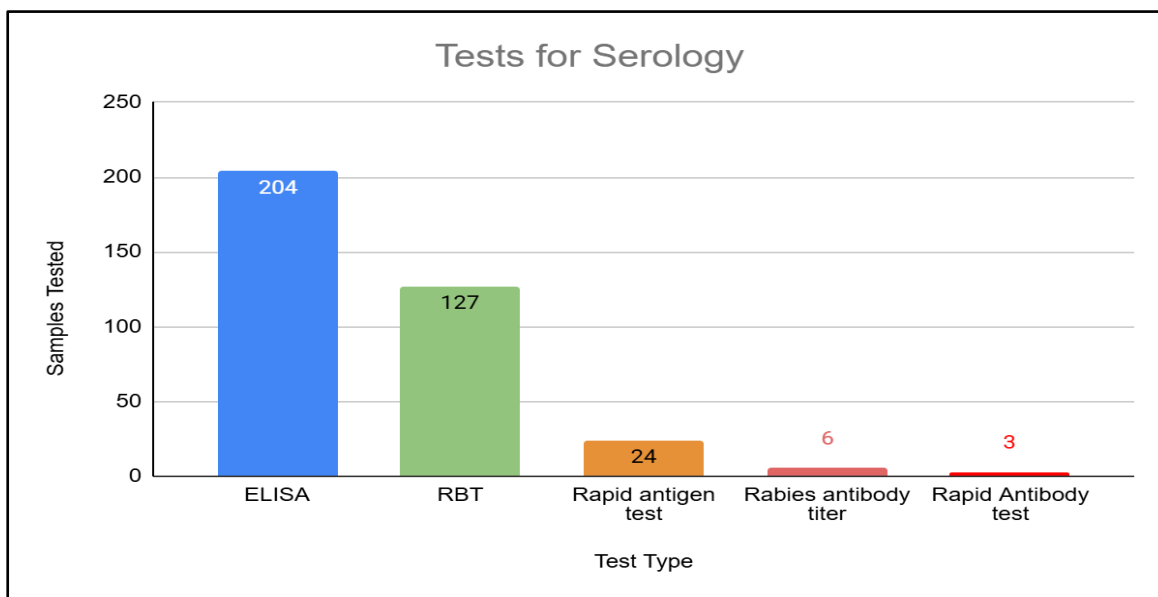


Figure 17. Number of samples tested by test type in the Serology section, FY 2025–2026.

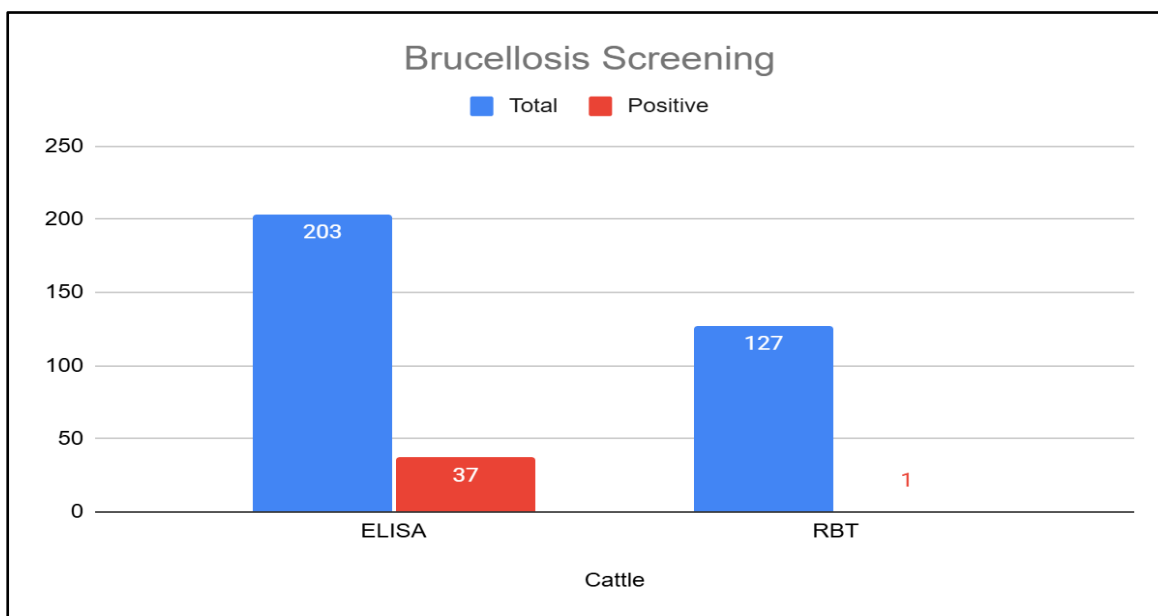


Figure 18. Brucellosis screening results in cattle by ELISA and RBT, showing total and positive samples.

3.2.6 Postmortem and Histopathology

The section conducted necropsy and histopathology examinations on referral cases from across the country, with a total of 139 necropsies performed during the reporting year. The

majority of referrals (97 cases) originated from Thimphu, with smaller numbers received from Paro, Chhukha, Trashigang, Wangdue Phodrang, Dagana, and Sarpang.

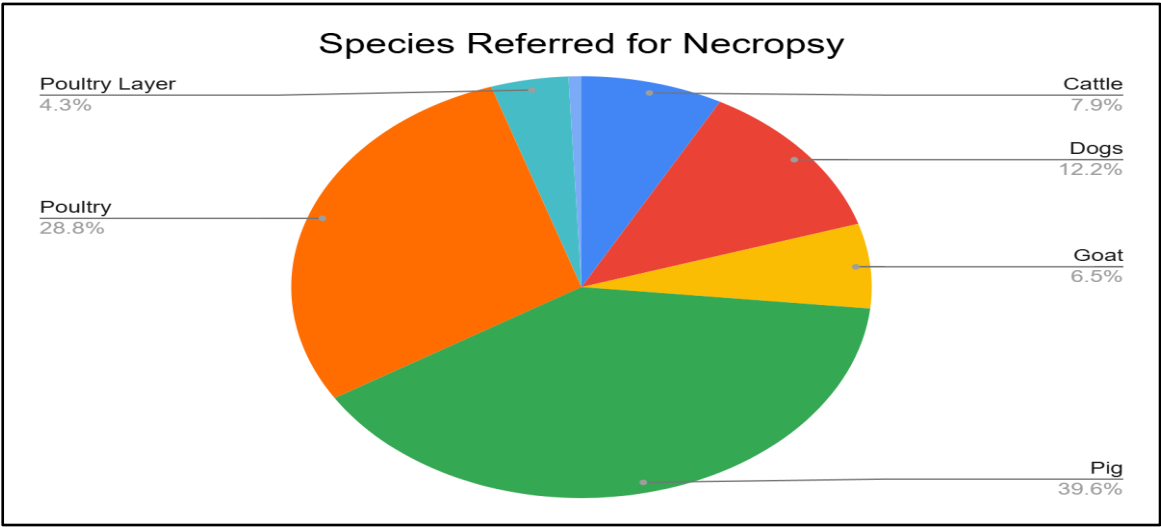
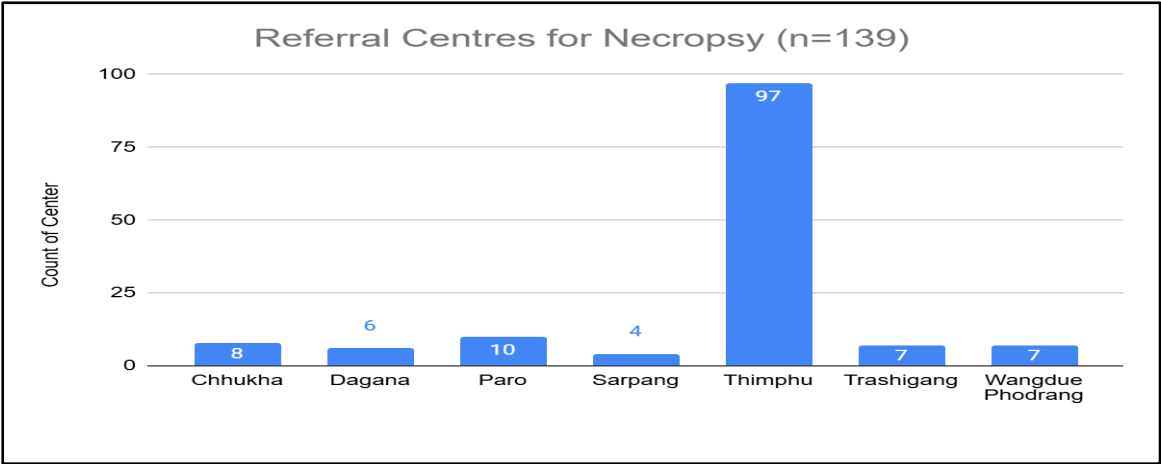
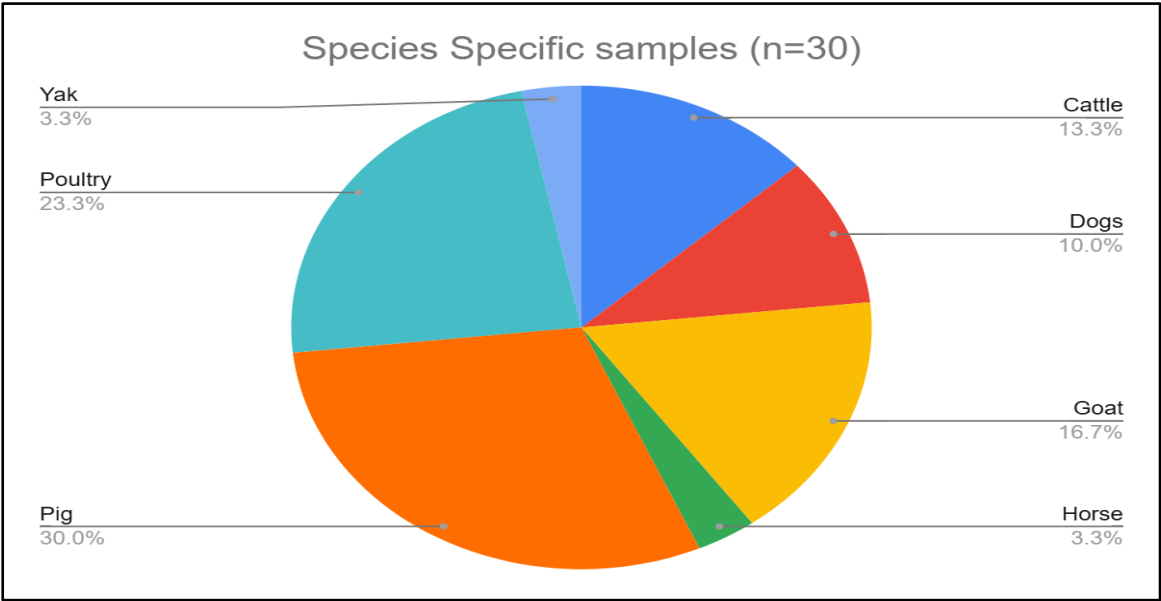


Figure 19. Dzongkhag-wise and species distribution of animals referred for necropsy, FY 2025–2026 (n=139).



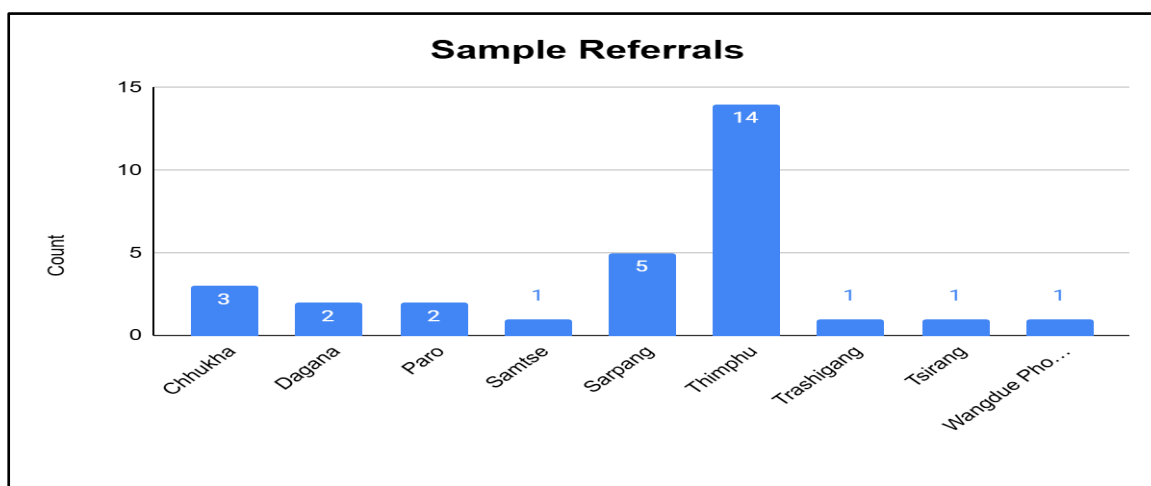


Figure 20. Species and Dzongkhag-wise distribution of histopathology samples submitted, FY 2025–2026 (n=30).

3.3 Sample Referral for the FY 2025-2026

The laboratory referred samples to international and national institutes for advance testing and confirmation. The details of specimens, type of testing requested and referring centers are listed in the table below. Through this referral, the results showed that the current circulating strain of FMDV in Bhutan is FMDV O serotype O, this ensures vaccine efficacy and commits to disease preparedness and response.

Table 4. Samples referred to international and national institutes for advanced testing during FY 2025–2026, showing specimen type, number, test requested, and receiving institute.

Specimen	Number	Testing	Institute/Centre
Serum	567	LSD antibodies titre	Pirbright Laboratory, UK
Vesicular fluid	17	FMDV detection, serotyping and phylogenetics analysis	Pirbright Laboratory, UK
Serum	31	Brucellosis CFT	NIAH, Thailand

Virus sample: BHU/3/2024	
Sample details	
Reception Date:	2026-01-30
Sender reference:	16
Location of origin:	Yalang, Tashigang
Country of origin:	Bhutan
Date of collection:	2024-10-01
Host species:	cattle
Genotyping details	
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequencing details	
Material submitted for sequencing:	WRL-LFBK1
Material Harvest Date:	2026-02-18
Sequence length:	636
Ambiguities:	0

Figure 21. Sample sequencing and genotyping report for FMD virus isolate BHU/3/2024.

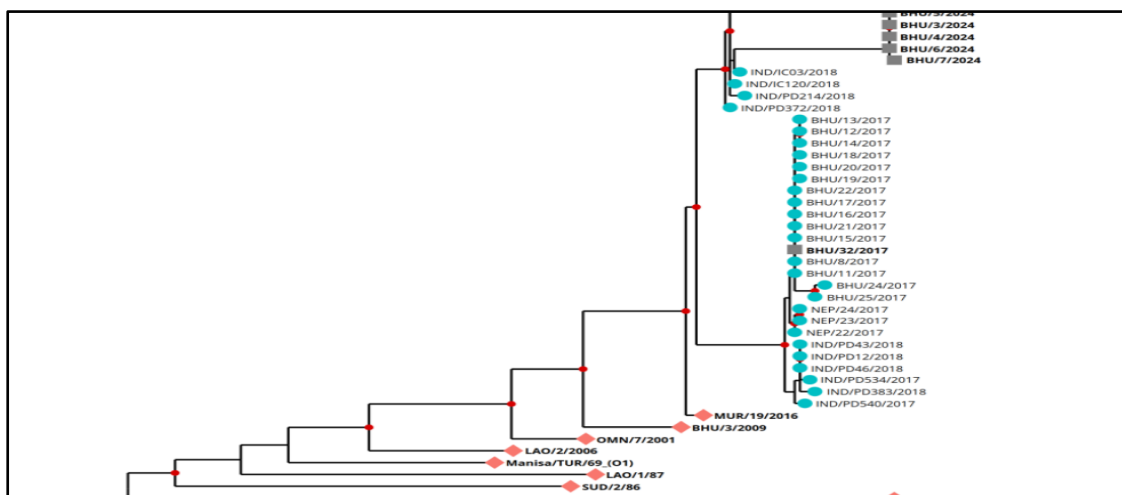


Figure 22. Phylogenetic tree of FMD virus isolates from Bhutan in relation to regional reference strains, showing serotype O lineage clustering.

3.4 Surveillance

Laboratory service unit is actively involved in Laboratory testing of Peste des Petits Ruminants (PPR) surveillance and main objective of the surveillance are:

To provide evidence that Bhutan is free from PPR in both domestic and wildlife populations.

To meet the WOA requirements for self-declaration of freedom from PPR.

To ensure that the absence of PPRV circulation is statistically validated.

To detect PPRV sero-prevalence at a threshold level (2% at 95% confidence) in domestic ruminant

To detect the PPV if present in wildlife population combination of serological, clinical and virological surveillance

Preliminary Laboratory Findings (Prevalence at 4.8%)

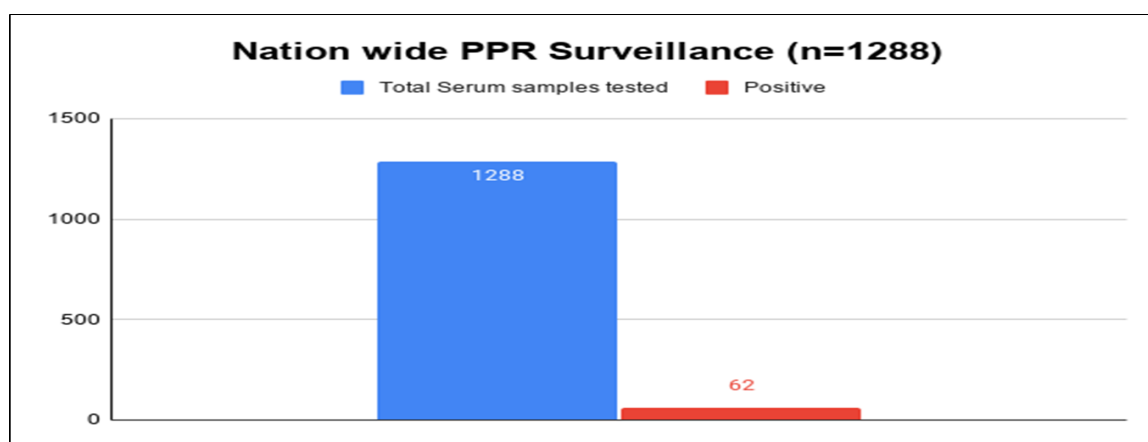


Figure 23. Nationwide PPR surveillance results, showing total serum samples tested and positive results (n=1,288).

3.5 Laboratory Quality Assurance and Quality Management System (LQMS)

Participation in internal and external quality assurance systems is a useful tool for production of reliable laboratory results of consistently good quality. The laboratory service unit

participated in proficiency testing for the Bacteriology, Molecular biology and Serology section.

3.5.1 External Quality Assurance System (EQAS) with EQASIA for Bacteriology

The Bacteriology Section participated in the proficiency testing (PT) program organized by EQASIA for the 11th round of bacterial detection and antimicrobial susceptibility testing (AST). The test panel comprised unidentified isolates, which needed to be identified as either *Enterococcus spp*, *E. coli*, *Campylobacter*, or *Staphylococcus aureus*. Laboratories were tasked with employing their standard methodologies for the identification and AST of these bacterial strains. Results were submitted to DTU Food via a secure, password-protected web tool, which will generate an evaluation report upon the deadline.

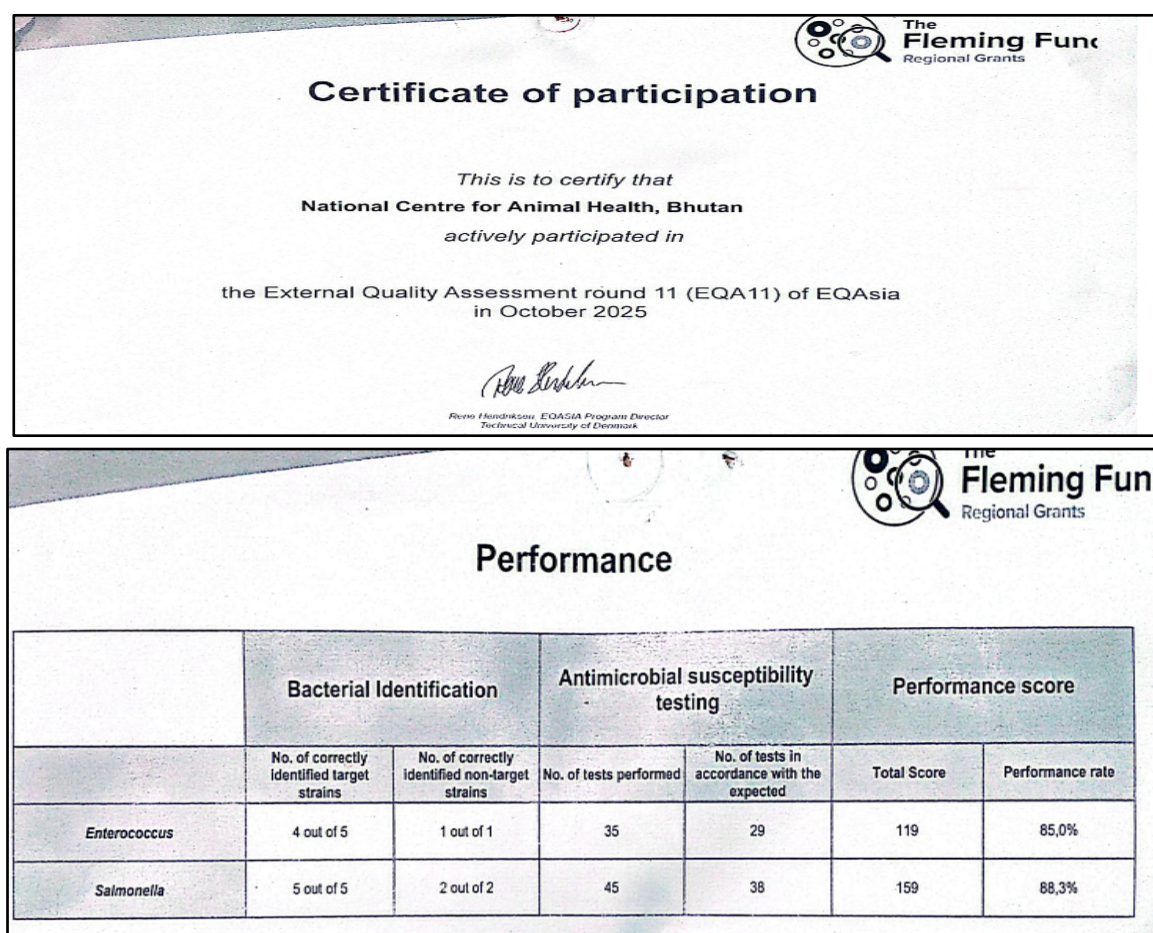


Figure 24. EQASIA External Quality Assessment (Round 11, October 2025): (A) Certificate of participation; (B) proficiency testing performance scores for bacterial identification and antimicrobial susceptibility testing.

3.5.2 National External Quality Assessment Scheme (NEQAS) with RCDC for bacteriology diagnostics.

The Bacteriology Laboratory took part in the NEQAS in November 2025. Three unidentified lyophilized samples were provided; bacterial identification and antimicrobial susceptibility

testing (AST) were conducted using the available antibiotic discs. The report was submitted online via RCDC NEQAS. The results and scores are detailed below.

National Centre For Animal Health	BAC2510-010	Salmonella species	Salmonella species	1.00
	BAC2510-011	Enterococcus faecalis	Enterococcus faecalis	1.00
	BAC2510-012	No Growth No Growth	No Growth No Growth	1.00
Total Score				3/3

Figure 25. NEQAS (RCDC) bacterial identification results for National Centre for Animal Health submitted samples.

3.5.3 Asia Pacific Terrestrial Regional Proficiency Testing Program for Molecular Biology

As part of continuous quality assurance and external validation of molecular diagnostic capabilities, the National Veterinary Laboratory participated in the 2025 Proficiency Testing (PT) program organized by the Australian Centre for Disease Preparedness (ACDP), AAHL, Geelong. The panels assessed laboratory performance in the molecular detection of key transboundary animal diseases using Real-Time PCR.

The Avian panel evaluated laboratory proficiency in detecting:

- Avian paramyxovirus
- Avian Influenza Virus (AIV) [Matrix gene]
- AIV H5 subtype

Results for the Avian paramyxovirus and AIV H5 targets were reported as *acceptable*, while the AIV Matrix gene target was reported as *unacceptable*. However, internal data review indicated minor variability.

AT26	APMV-1 M-gene	Acceptable
	AIV H5	Acceptable
	AIV Matrix	Unacceptable

Proficiency Testing Report	
Date of issue:	18 December 2025
Report status:	FINAL
Target agent(s):	Avian paramyxovirus, type 1 Influenza A
Test period:	13 August 2025 – 14 October 2025
Round code:	AT25R02
NATA Facility Accreditation Number	13546

Figure 26. Avian panel proficiency testing report, showing results for Avian Paramyxovirus, AIV H5, and AIV Matrix gene targets.

The Swine panel included targets:

- African Swine Fever Virus (ASF)
- Classical Swine Fever Virus (CSF)
- Porcine Reproductive and Respiratory Syndrome Virus (PRRS) – both EU (PRRS-E) and Southeast Asian (PRRS-S) strains.

Results were *not acceptable* for ASF, CSF, and PRRS-S targets (PRRS-E was acceptable). One *unacceptable* result was noted however was rectified and a problem was identified within the laboratory, as during that time, the lab was handling samples from ASFV outbreaks in Dagana and thus experienced laboratory contamination and was corrected. Despite the discrepancies, the participation provided valuable insights into assay performance, aiding refinement of internal processes. Regular PT participation remains a cornerstone of quality assurance and capacity building in molecular diagnostics.

Proficiency Testing Report		
Date of issue:	28 November 2025	
Report status:	FINAL	
Target agent(s):	African swine fever virus Classical swine fever virus Influenza A Porcine reproductive and respiratory syndrome virus	
Test period:	12 August 2025 – 9 September 2025	
Round code:	AT25R01	
NATA Facility Accreditation Number	13546	

AT26	ASF	Unacceptable
	CSF	Unacceptable
	PRRS-E	Acceptable
	PRRS-S	Unacceptable

Figure 27. Swine panel proficiency testing report, showing results for ASF, CSF, and PRRS (EU/Southeast Asian strain) targets.

Proficiency Testing	Round 1	Round 2
LAB001	Satisfactory	Satisfactory
LAB002	Satisfactory	Satisfactory

Figure 28. Proficiency testing performance summary for participating laboratories, round 1 and round 2.

3.6 Tests Introduced, Validated, and Standardized

To strengthen diagnostic capacity and support disease surveillance efforts, the laboratory undertook validation, standardization, and implementation of a range of new diagnostic tests during the reporting year. These included serological, molecular, and rapid point-of-care assays.

Table 5.ELISA tests validated and standardized during FY 2025–2026 and their diagnostic purpose.

Test	Purpose
Brucella Abortus	Antibody detection
Lumpy Skin Disease	Antibody detection
PPR	Antibody detection
Bovine Tuberculosis	Antibody detection

Table 6.RT-PCR assays validated and standardized during FY 2025–2026 and their diagnostic or operational purpose.

Test	Purpose
FMDV	RNA detection
N1 AIV	RNA detection
Dye, ROI, Background	Machine Calibration

3.7 Pandemic Fund Activities

3.7.1 Pandemic Fund activities timeline (October 2025 – June 2026)

October 2025

1. Laboratory coordination meeting

Bumthang, 3 days

October 2025

2. LIMS ToT for laboratory technicians, veterinarians, and para-professionals

Bumthang 2 days

December 2025

3. Technical skill transfer — refresher of FAT

RVH & EC, Phuntsholing, 2 days

March 2026

4. Laboratory quality management system (LQMS) and laboratory SOP update workshop

Paro, 5 days

April 2026

5. Technical skill transfer — training and installation of PCR

RLDC, Kanglung, 3 days

May 2026

6. Biorisk assessment of regional and satellite veterinary hospitals and centres

Regional, 12 days

May 2026

7. National strategic plan for rabies prevention and control; framework and guidelines for leptospirosis prevention and control

Paro, 5 days

June 2026

8. Technical skill transfer — training and installation of FAT

RVH & EC, Gelephu, 3 days

June 2026

9. LIMS ToT for farm in-charges

Paro, 2 days

3.7.2 Key Outcomes

Here are 10 key outcomes from these activities,

1. Standardized laboratory testing protocols and updated SOPs, improved the reliability and comparability of diagnostic results across laboratories, reducing the risk of misdiagnosis during outbreak investigations.
- The laboratory coordination meeting (Bumthang) clarified sample referral pathways and reporting lines between facilities, enabling faster movement of suspect samples to the appropriate testing laboratory during a disease event.
- LIMS training for laboratory technicians, veterinarians, and para-professionals introduced digital sample tracking and reporting, shortening the time between sample receipt and result reporting
- LIMS training for Farm In-charges extended digital reporting down to the field level, allowing disease events to be flagged and tracked from the point of origin rather than only at the laboratory stage.
- The Biorisk assessment of regional and satellite veterinary hospitals identified specific gaps in biosafety and containment practices, providing a basis for targeted infrastructure and protocol improvements at high-risk sites.
- Installation and training on PCR equipment at RLDC Kanglung established decentralized molecular diagnostic capacity in the east, reducing dependence on sample transport to central laboratories and cutting confirmation turnaround time for priority diseases.
- Installation and training on the Fluorescent Antibody Test (FAT) at RVH & EC Gelephu added rabies diagnostic capability in the central-south region, supporting faster confirmation to guide post-exposure response decisions.
- The FAT refresher training at RVH & EC Phuntsholing maintained diagnostic competency and quality assurance in a high-risk border area where cross-border rabies transmission is a recurring concern.
- Development of the National Strategic Plan for Rabies Prevention and Control, along with the national framework and guidelines for Leptospirosis, gave the country

standardized, sector-wide protocols for prevention, surveillance, and coordinated response to these zoonotic diseases.

- Collectively, the training built a layered surveillance and response network spanning farm level, regional laboratories, and national policy, strengthening the overall early-warning system and reducing the time needed to detect, confirm, and respond to animal and zoonotic disease outbreaks.

3.8 Procurement of Laboratory Reagent, Diagnostic kit, and Consumables and Laboratory Equipment 2025-26

The total approved budget for procurement of Laboratory Reagent, Diagnostic kit and Consumables and laboratory equipment for FY 2025-2026 is Nu 2.075 million and 2.5 million respectively, for a combined total of Nu 4.575 million.

Table 7: Approved budget allocation for laboratory equipment and laboratory reagents, diagnostic kits, and consumables, FY 2025–2026.

Sl. No.	Budget allocation	Amount (Nu. In Million)
1	Laboratory equipment	2.075
2	Laboratory Reagent, Diagnostic kit and Consumables	2.5
Total		4.575

The Laboratory Services Unit (LSU), NCAH, Serbithang tendered following Open Tendering Method (OTM) through e-GP system. The bidding document was uploaded in e-GP. Sixteen bidders submitted their bidding documents through e-GP within the deadline. The bids were opened on 24/09/2025 tender opening committee.

The following Tender Evaluation Committee members met at NCAH, Serbithang to undertake the evaluation. Followings are the current Tender Evaluation Committee members:

- Mr. Tenzinla, LSU (Chair)
- Mrs. Kelzang Lhamo, LSU (Member Secretary)
- Dr. Tshering Choden, LSU (Member)
- Mr. Karma Tsheten, LSU (Member)
- Mr. Dawa Tshering, LSU (Member)

Based on the procurement rules and regulations and ToR mentioned in the Bid document and Evaluation Criteria, the Tender Evaluation Committee carried out the evaluation and was awarded accordingly by the awarding committee. The following were the procured items,

Table 8. Summary of tendered versus selected items by procurement category, including retenders and percentage selected

Category	Total Tendered	Total Selected	Retender	% Selected
Laboratory Reagent, Diagnostic kit and Consumables	75	72	3	96%
Laboratory Equipment	20	16	4	80%
Total	95	88	7	88%

Table 9. Bidder wise items selected with value for award (Laboratory Reagent, Diagnostic kit and Consumables)

Sl No	Suppliers	Tender selected		Amount (Nu)
		Number	Percentage (%)	
1	Druk Scientific Supplier	5	6.9	61170
2	Druk Wangmo Supplier	14	19	260034
3	Tshering Enterprise	15	20	975659
4	KMT PMS	7	9.7	67245
5	Sai Trading Partner	1	1.3	41140
6	Ghalley Enterprises	8	11	38962
7	Must Health Care	11	15.2	20910
8	Karma Tshongkhang	3	4.1	11000
9	Karma PMS	2	2.7	755400
10	Wangchen Trader	4	5.5	658500
11	Care Precision Equipment and Medical Supplies	2	2.7	300000
Total		72	100	3189961

Table 10. Bidder-wise items selected with award value for Laboratory Equipment.

Sl No	Suppliers	Tender selected	Amount (Nu)
1	Tshering Enterprise	1	308704.5
2	PD Trader	4	1037025
3	KMT & PMS	6	34800
4	Druk Scientific Supplier	1	30000
5	Druk Wangmo Supplier	5	81287
6	Sai Trading Partner	2	0
7	Karma Tshongkhang	1	0
Total		20	1459862.5

4. Dog Population Management and Rabies Control Unit (DPM & RCP)

4.1 Background

The Dog Population Management Unit (DPMU) is one of the technical units under the National Centre for Animal Health (NCAH), Department of Livestock. The Unit is mandated to coordinate and oversee the implementation of the national Dog Population Management and Rabies Prevention Programme across the country.

The Unit is responsible for monitoring national dog population dynamics, implementing mass dog vaccination programmes in accordance with the National Rabies Prevention and Control Programme (NRPCP) 2017, sustaining the achievements of the Nationwide Accelerated Dog Population Management and Rabies Control Programme (NADPM&RCP), managing feral dog populations in highland areas, and enforcing digital identification and registration of pet dogs through nationwide microchipping.

4.2 Objectives

The Dog Population Management Unit aims to:

1. Working towards the elimination of dog-mediated human rabies in Bhutan by 2030 in line with the global "Zero by 30" initiative.
2. Sustain and consolidate the achievements of NADPM&RCP 1.0 and 2.0.
3. Achieve progressive compliance with responsible pet ownership requirements, closing the remaining gap to attain 100% pet dog microchipping and registration coverage.
4. Safeguard livestock production through effective management of feral dog populations in highland areas.

4.3 Strategies

The Unit adopts the following strategic approaches:

- Sustain 100% sterilisation coverage of free-roaming dogs through the Catch-Sterilized-Vaccinate-Withhold-Release (CSVWR) protocol.
- Maintain high mass dog vaccination coverage to prevent rabies transmission.
- Strengthen nationwide digital identification and registration of pet dogs.
- Implement feral dog population management programmes in highland areas.
- Enhance public awareness on rabies prevention and responsible pet ownership.
- Strengthen the enforcement of the Livestock Act of Bhutan 2001 and Livestock Rules and Regulations (Amendment) 2022.
- Promote conservation and sustainable management of the indigenous Bhutanese Chang-khyi dog breed.

4.4 Unit Personnel

The Dog Population Management Unit comprises:

Dr Nima Gyeltshen – Veterinary Officer & Head, DPMU

Prem Kumar Gurung – Animal Welfare Attendant

Pema Tashi – Animal Welfare Attendant

Jamyang Chador – Animal Welfare Attendant

4.5 Mass Dog Vaccination Programme

Under NADPM&RCP 2.0, the Mass Dog Vaccination program and the feral dog program, as of 30 June 2026, a total of 7112 dogs (2727 pet and 4385 free roaming dogs) and 2638 cats (2280

pet and 358 free roaming cats) were vaccinated in high-risk dzongkhags in *Samtse, Samdrupjongkhar, Pemagatshel, Chukha, Haa, Tashigang and Trashiyangtse*. In addition, vaccination campaigns were successfully implemented in Lhamoizingkha (Dagana), Pangbang (Zhemgang), and Sarpang under NADPM&RCP 2.0.



Figure 29. NADPM&RCP 2.0 banner used during the program in Lhamoizingkha and Pangbang

Among the implementation areas, Samtse achieved the highest vaccination coverage, followed by Samdrup Jongkhar. Detailed vaccination figures are presented in Table 11, while the geographical distribution of vaccination activities is illustrated in figure 30.

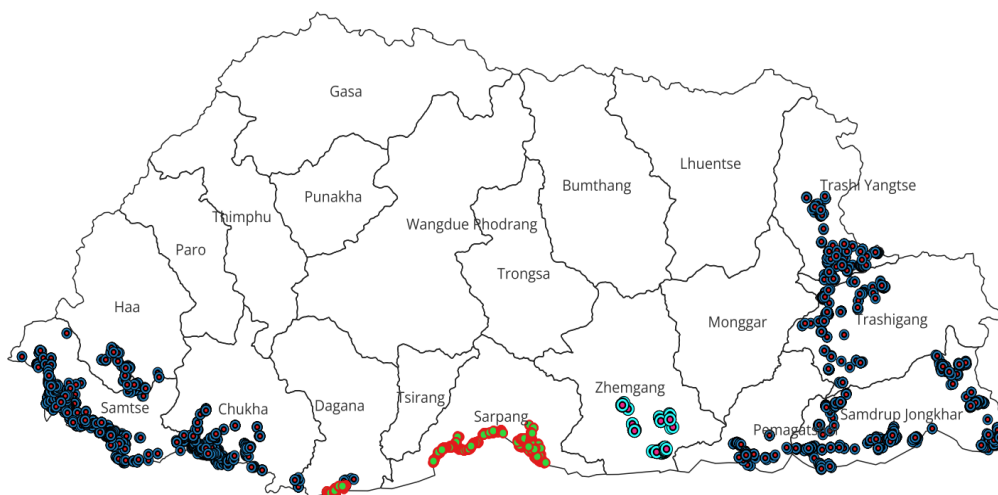


Figure 30. Map showing the Mass dog vaccination coverage in high-risk dzongkhags

4.6 Dog Sterilisation Programme

Following the successful completion of NADPM&RCP 1.0 and the signing of exit agreements with Dzongkhag and Thromde administrations, responsibility for routine sterilisation programmes was transferred to local authorities. However, based on urgent requests and operational necessity, the Unit continued to provide technical support by conducting targeted sterilisation programmes alongside other dog population management activities. Details of sterilisation carried out during the reporting period are presented in Table 12.

Table 11. Number of dogs vaccinated during different programs

Dzongkhag/Area	Dog		Cat	
	Owned	Unowned	Owned	Unowned
Pemagatshel(MDV program)	57	227	113	0
Samtse(MDV program)	1179	946	472	0
Haa(MDV program)	98	53	169	63
Chukha(MDV program)	445	1265	328	261
Lhamoizingkha(MDV program)	14	57	4	1
Tashigang(MDV program)&(Feral program)	264	350	257	0
Samdrup Jongkhar(MDV program)	362	861	116	33
Tashiyangtse(MDV program)	44	501	0	0
Paro(Feral program)	23	53	20	0
Punakha(Feral program)	0	5	0	0
Gasa(Feral program)	0	33	0	0
Lhamoizingkha(NADPM&RCP)	151	23	459	0
Pangbang(NADPM&RCP)	90	11	342	0
	2727	4385	2280	358

Table 12. showing the number of dogs and cats sterilized during different programs

	Dog		Cat	
	Owned	Unowned	Owned	Unowned
Pemagatshel(MDV program)	0	2	2	0
Samtse(MDV program)	87	179	16	0
Haa(MDV program)	20	53	65	63
Chukha(MDV program)	100	258	0	0
Lhamoizingkha(MDV program)	15	1	0	0
Tashigang(MDV program)&(Feral program)	69	127	0	0
Samdrup Jongkhar(MDV program)	75	231	0	0
Tashiyangtse(MDV program)	40	9	0	0
Lhamoizingkha(NADPM&RCP)	36	23	409	0
Pangbang(NADPM&RCP)	14	11	280	0
Paro(Feral program)	23	53	20	0
Punakha(Feral program)	0	5	0	0
Gasa(Feral program)	0	33	0	0
	479	985	792	63

4.7 Responsible Pet Ownership: Registration and Microchipping

To strengthen responsible pet ownership, the Unit implemented pet registration and microchipping activities during NADPM&RCP 2.0. During the program, 193 pet dogs were registered and microchipped, and 795 pet cats were registered, as shown in Table 13. Pet registration cards were issued, and animal information was uploaded into the Veterinary Information System (VIS).

Table 13. showing the number of dogs registered in NADPM&RCP 2.0

Dzongkhag/Area	Dog registered	Cat registered
Lhamoizingkha	133	444
Panbang	160	351
Total	193	795

In addition, pet owners received awareness on responsible pet ownership, rabies prevention and legal obligations for pet registration and vaccination. These activities were mainly conducted in Lhamoizingkha and Pangbang.

4.8 Feral Dog Population Management

The Unit continued implementing feral dog management programmes in highland areas to reduce livestock losses and improve livestock productivity.

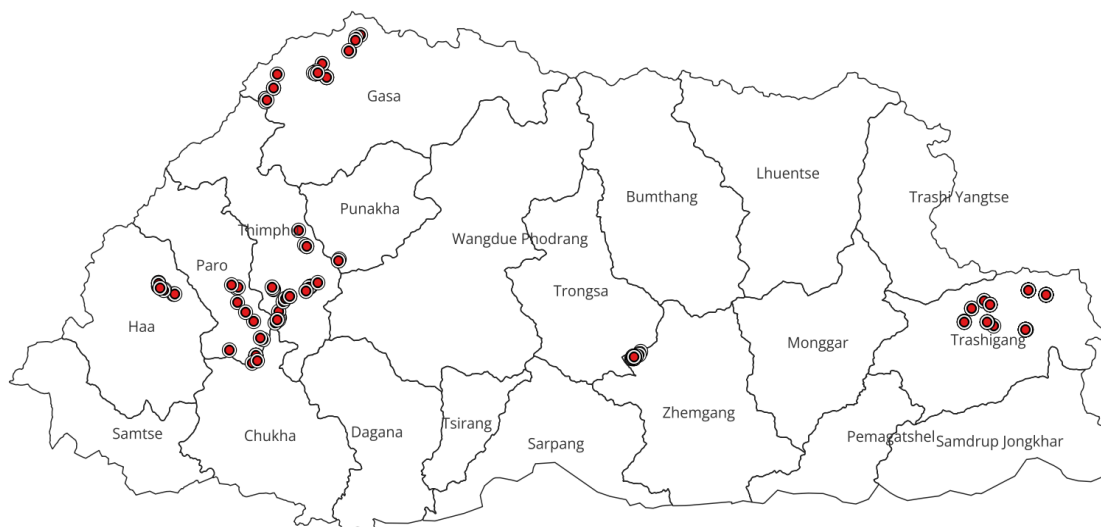


Figure 31. Map showing the geo-coordinates of the feral dog spotted

During the feral dog program, 164 feral dogs were sterilized and released, and 128 aggressive feral dogs posing serious threats to livestock were humanely culled in accordance with approved protocols. Four dogs underwent canine tooth removal were deemed appropriate for public and livestock safety. Detailed information is presented in Table 14.

Table 14. showing the different methods used for managing the feral dog population

Dzongkhag	Sterilisation	Managed(Culled)	Canine tooth removed
Zhemgang	0	27	0
Thimphu	0	22	0
Haa	0	43	0
Paro	76*	8	0
Punakha	5*	0	0
Tashigang	50*	28	0
Gasa	33*	0	4
Total	164*	128	4

*sterilisation progress data included in the sterilisation program

4.9 Stray Dog Management

The Unit continued to support Thimphu Thromde in managing stray dog-related public complaints. During the fiscal year, the unit received 12 written and 9 verbal complaints from Thimphu Thromde and accordingly, 43 stray dogs were captured and transferred to Nakula Dog Shelter. Of these 6 were registered dogs and 37 were unregistered dogs. These interventions helped reduce dog nuisance and improve public safety within the capital.

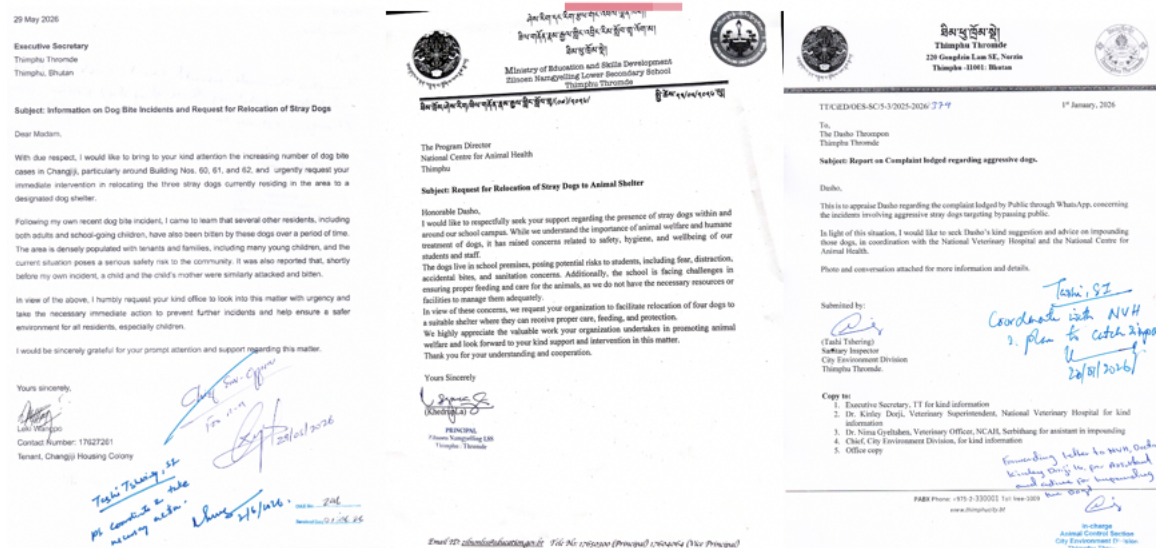


Figure 32. showing the complaint letter received from the Thromde Office

4.10 Anti-Rabies Vaccination of Susceptible Livestock

To establish a protective immunity buffer along Bhutan's southern border, anti-rabies vaccination was conducted for susceptible livestock species within approximately one kilometer of the international border. A total of 4,329 animals were vaccinated out of 5,372 targeted animals in Sarpang and Lhamoizingkha. After excluding 938 ineligible animals, vaccination coverage achieved was 84% in Sarpang and 76% in Lhamoizingkha. The spatial distribution of vaccinated households is presented in figure 33.

Figure 33. Map showing Geo-coordinates of households of susceptible livestock species vaccinated against rabies

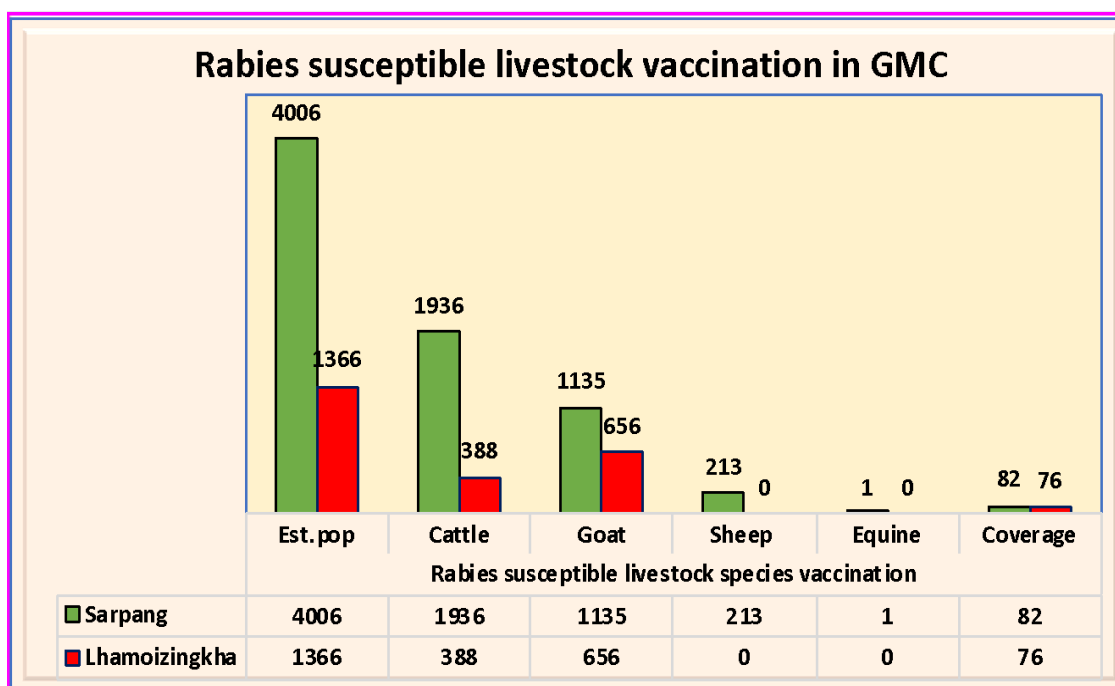
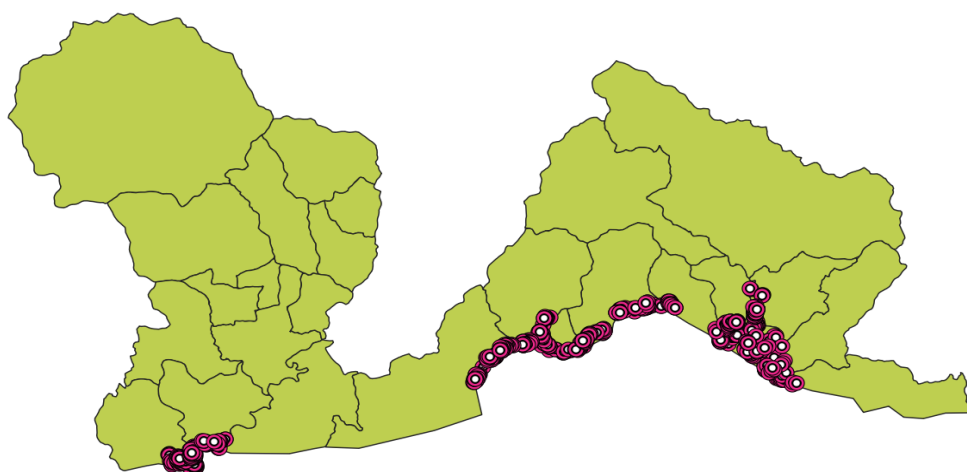


Figure 34. Anti-Rabies vaccination of susceptible species within a 1 km radius

4.11 Cross-Border Rabies Control Collaboration

Strengthening cross-border collaboration remains an important strategy for rabies elimination. Between 11 and 12 February 2026, the Unit conducted a joint rabies prevention programme with Indian counterparts and BIFA in Hatisar and Malivita.



Figure 35. shows the meeting and activities carried out across the bordering districts of India in collaboration with BIFA

The programme achieved vaccination of 338 pet dogs, 194 pet cats, 33 free-roaming dogs and 9 free-roaming cats. These collaborative interventions enhanced regional cooperation in preventing cross-border rabies transmission.

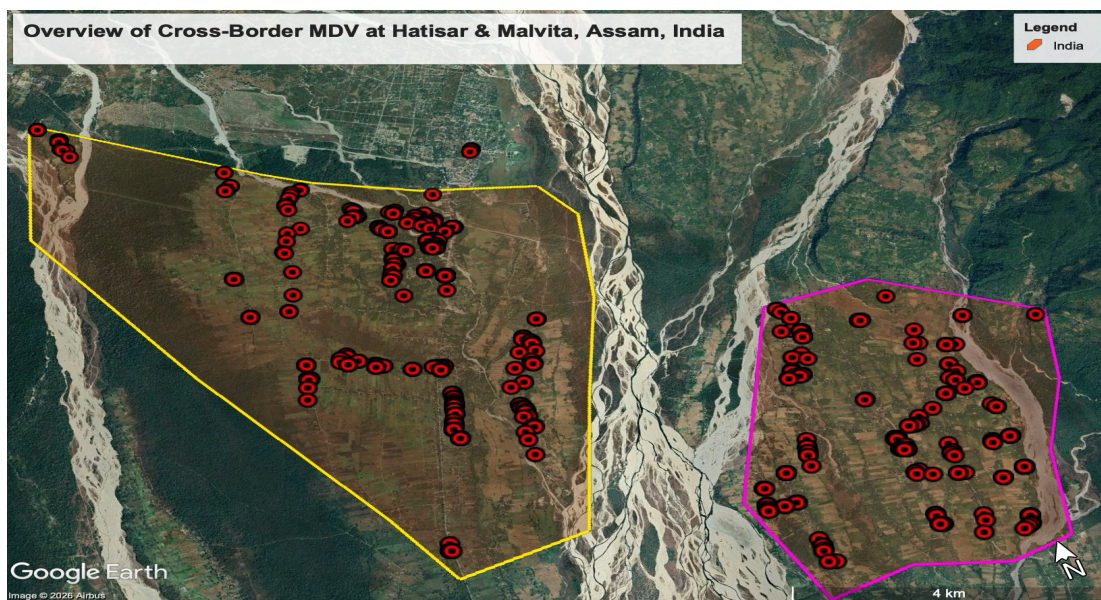


Figure 36. Map showing the geo-coordinates of MDV coverage in Malavita and Hatisar

5. Drug, Vaccine and Equipment Unit

Drugs Vaccine & Equipment Unit (DVEU) under the National Center for Animal Health ensures that the quality essential veterinary items (veterinary medicines, vaccines, non-drug items and equipment) are made available in all animal health centers at all times.

5.1 Equipment Procurement

The total expenditure for equipment procurements amounted to Nu. 2,401,926, (2.4M) reflecting targeted investments in diagnostic, monitoring, and frontline veterinary tools to enhance operational efficiency and service quality. The details are in below table 15:

Table 15. List of equipment procured during 2025-2026

Sl no	Item Name	Supplier Name	Rate (Nu.)	Qty	Total Amount
1	Automatic syringe	Karma Tshongkhang	1810	270	488700
2	Doctor's Bag	Druk Wangmo Supplier	2470	152	375440
3	IV stand	KMT PMS	1118	700	782600
5	Stethoscope	Karma Tshongkhang	785	198	155430
6	Veterinary thermometer	Druk Wangmo Supplier	183	327	59841
7	Applicator for Ear tag	Axis Technologies	995	117	116415
8	Data logger	SALS	14500	25	362500
9	Token dispenser (NVH)	Getwell Pharma	0	0	120000
Total			21861	1789	2460926

5.2 Medicine procurement

During the year, DVEU procured a comprehensive portfolio of veterinary medicines to ensure uninterrupted animal health services across the country. The total expenditure amounted to Nu. 33.65 million, reflecting a balanced investment in antimicrobials, antiparasitic, supportive therapies, and specialized drugs.

A significant share was directed towards antimicrobials, accounting for approximately Nu. 5.1 million. Key items included *Amoxycillin trihydrate bolus*, *Amoxycillin + Clavulanate tablets*, *Azithromycin*, *Gentamicin* (cream and injection), *Oxytetracycline* (LA and SA), and *Sulphadiazine + Trimethoprim powder*. These ensured effective management of bacterial infections in livestock.

Anthelmintics contributed Nu. 1.35 million, with major purchases of *Albendazole*, *Fenbendazole*, *Levamisole + Oxyclozanide suspension*, *Ivermectin*, and *Praziquantel combinations*, supporting parasite control programs nationwide.

Procurement of acaricides and insecticides amounted to Nu. 3.1 million, dominated by the *Deltamethrin solution* (Nu. 1.86 million) and *Flumethrin*, alongside *Gamma Benzene ointment* and *Maggotocidal sprays* for ectoparasite management.

Anti-protozoals, including *Diaminazine aceturate* and *Amprolium + Sulfaquinoxaline powder*, accounted for Nu. 3.66 million, while antifungals such as *Clotrimazole*, *Itraconazole*, and *Ketoconazole* totaled Nu. 0.16 million.

A wide range of gastrointestinal drugs were procured at Nu. 1.1 million, including rumenototics, antacids (*Omeprazole*, *Ranitidine*, *Pantoprazole*), anti-bloat powders, anti-diarrhoeals, laxatives (*Ispaghula husk*, *Liquid Paraffin*), and hepatotonics (*Ursidiol capsules*, *liver tonic powders*).

Minerals and vitamins formed a major component at Nu. 2.2 million, with large volumes of *Iron Dextran injections* (Nu. 1.24 million), *Mineral mixture powder* (Nu. 0.43 million), and *Vitamin B-complex injections* (Nu. 0.10 million).

Supportive therapies such as fluids and electrolytes amounted to Nu. 0.83 million, covering *Calcium borogluconate*, *Dextrose solutions*, *Normal Saline*, and *Ringer's Lactate*.

Specialized categories included analgesics, anaesthetics, and anti-inflammatories (Nu. 0.49 million), hormones (Nu. 2.5 million, including *Buserelin acetate*, *CIDR-B progesterone inserts*, *Oxytocin*, and *Prostaglandins*), and intramammary infusions (Nu. 1.7 million).

Further investments were made in antiseptics and disinfectants (Nu. 1.8 million, including *Formaldehyde*, *Glutaraldehyde*, *Povidone Iodine*, and *Potassium Permanganate*), as well as specialized drugs such as *cardiac stimulants*, *anti-convulsants*, *anti-emetics*, *haemostatics*, and *aquatic medicines*, together totaling approximately Nu. 2.0 million.

5.3 Procurement of Non-drug Consumables

The consolidated procurement of veterinary surgical, clinical, and animal management supplies was carried out, encompassing diverse categories to ensure comprehensive operational readiness. Under surgical instruments, a wide range of forceps, scissors, hooks, clamps, catheters, masks, splints, drapes, gloves, syringes, and hypodermic needles were acquired, with high-value items including trocars (Nu. 311,454) and large splints (Nu. 994,500). The suture materials section covers monofilament polyamide, monoglyde, polyglactin, PGA sutures, and silk thread, with significant allocations such as PGA sutures amounting to Nu. 320,131. In bandages and absorbents, absorbent wool (Nu. 685,170), surgical gauze sheets (Nu. 382,500), and plaster bandages form the bulk of consumables. The clinical and gynecology equipment category includes aprons, autoclave tape, Buhner prolapse needles, butterfly scalp vein sets, dispensing materials, IV cannulas, IV sets, nitrile gloves (Nu. 307,476), ultrasound gel, and biohazard bags (Nu. 249,375). Finally, animal management tools such as ear tag pens and AI gloves were procured, totaling Nu. 91,611 and Nu. 198,750 respectively.

The overall procurement expenditure stands at Nu. 10,245,842.6, reflecting a balanced investment across surgical, clinical, consumable, and animal management essentials, thereby strengthening veterinary service delivery and ensuring preparedness for diverse operational requirements.

5.4 Direct Procurement

Some medicines not quoted or single high quotes were procured directly from the supplier nearby India. The procurement list includes a wide range of medicines and consumables essential for veterinary use.

Under medicines, notable entries are Benzathine Penicillin injections in both 24 lakhs IU and 6 lakhs IU presentations, Omeprazole injections, Ursidiol capsules, and Amino acid solutions. Other critical drugs include Chloramphenicol eye ointment, Butorphenol Tartrate, Methadone, Oxytocin, Propofol, Thiopentone Sodium, Strepto-penicillin, Gabapentin, Maropitant citrate, Metoclopramide, Pimobendan tablets, Adenochrome monosemicarbazone, Botrophase, Tetanus toxoid, and Salbutamol injections. These items are sourced from manufacturers such as Jakson, Oscar, Cure Healthcare, Oriyon, Vivaldis, and others, with GST applied at 5%. The consumables section covers specialized needles for automatic syringes and semi-circle surgical needles in multiple specifications, along with advanced data loggers for monitoring temperature and humidity. Altogether, the medicines

and consumables amount to Nu. 3,513,420 (3.5M) with an additional Nu. 175,671 (0.18M) as GST, ensuring comprehensive coverage of therapeutic, surgical, and monitoring needs for veterinary services were procured directly as it could not be sourced during normal tender of 2025-26.

5.5 Medicine Distribution

5.5.1 Medicine Distribution to Central agencies

For FY 2025–26, the distribution of medicines against budget ceilings across central agencies revealed several highly significant deviations. Overall, medicines worth Nu. 1.65 million were distributed against a ceiling of Nu. 6.30 million, leaving a substantial under-utilization of Nu. 4.65 million. The most striking case was BLDCL, which distributed Nu. 1.64 million despite having no approved ceiling, reflecting a major variance. Similarly, NCBC Bumthang exceeded its ceiling by Nu. 357,211.60, and Yak Farm Haa overshot Nu. 60,586.70 (figure 37 and table 16).

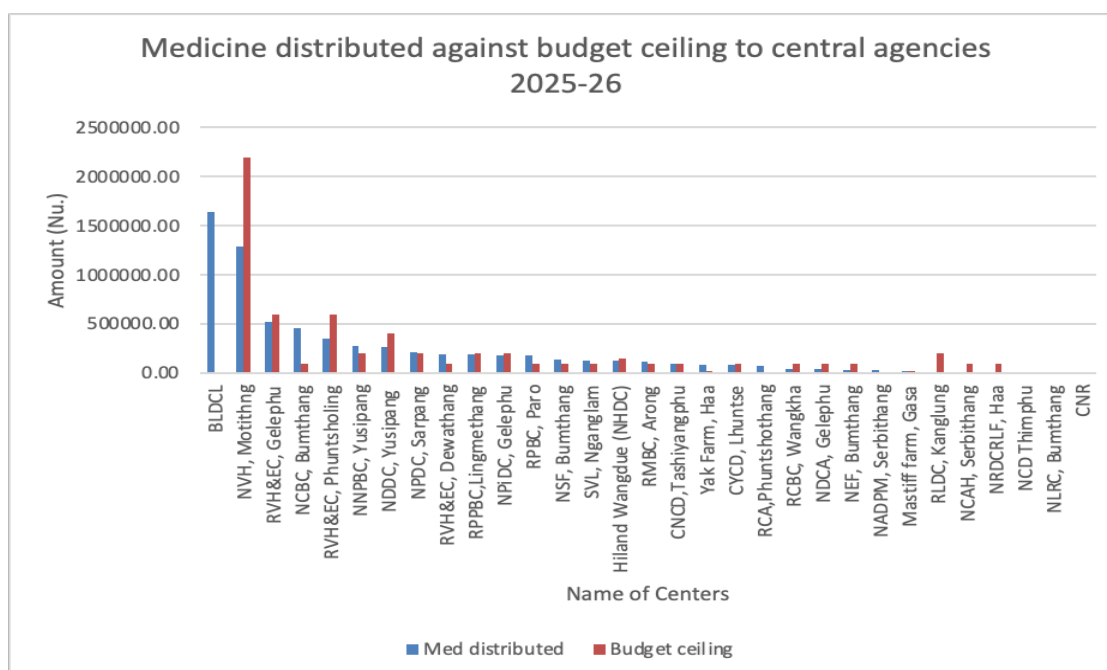


Figure 37. Medicines distributed against budget ceiling to central agencies

5.5.2 Medicine Distribution to Dzongkhags

For the fiscal year 2025–26, the distribution of veterinary medicines against the approved budget ceilings across Dzongkhags and central agencies revealed several highly significant trends. Overall, medicines worth Nu. 32.18 million were distributed against a ceiling of Nu. 32.80 million, reflecting a close alignment with only a marginal surplus of Nu. 614,076.36. Notably, Tashigang recorded the most significant over-utilization, distributing Nu. 3.90 million against a ceiling of Nu. 2.60 million (figure 38, table 16).

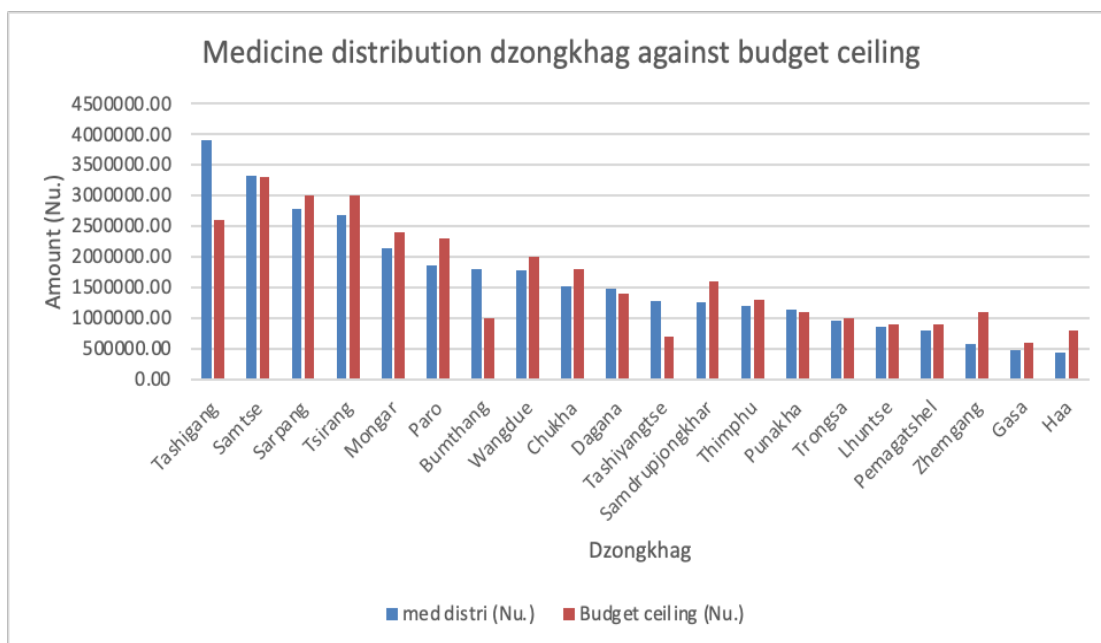


Figure 38. Medicines distributed to dzongkhags against budget ceiling

Table 16. Medicine distributed to dzongkhags against budget ceiling

Dzongkhag	Medicine distributed (Nu.)	Budget ceiling (Nu.)
Tashigang	3900745.79	2600000
Samtse	3321991.42	3300000
Sarpang	2774305.61	3000000
Tsirang	2674282.58	3000000
Mongar	2130501.11	2400000
Paro	1858784.93	2300000
Bumthang	1796817.28	1000000
Wangdue	1788458.44	2000000
Chukha	1516398.11	1800000
Dagana	1476356	1400000
Trashiyangtse	1270749.42	700000
Samdrupjongkhar	1255760.17	1600000
Thimphu	1188256.93	1300000
Punakha	1140097.01	1100000
Trongsa	954987.87	1000000
Lhuentse	856705.39	900000
Pemagatshel	789117.39	900000
Zhemgang	584046.08	1100000
Gasa	469950.18	600000
Haa	437611.93	800000
Total		32800000

5.6 Equipment and non-drug consumables distribution

5.6.1 Distribution to Dzongkhags

For FY 2025–26, the distribution of veterinary and clinical equipment across Dzongkhags amounted to Nu. 40.87 million, with three agencies recording the highest expenditures. Tashigang led with Nu. 4,598,474.71, followed by Samtse at Nu. 4,205,085.40, and Sarpang at Nu. 3,180,794.04 (figure 39, table 17).

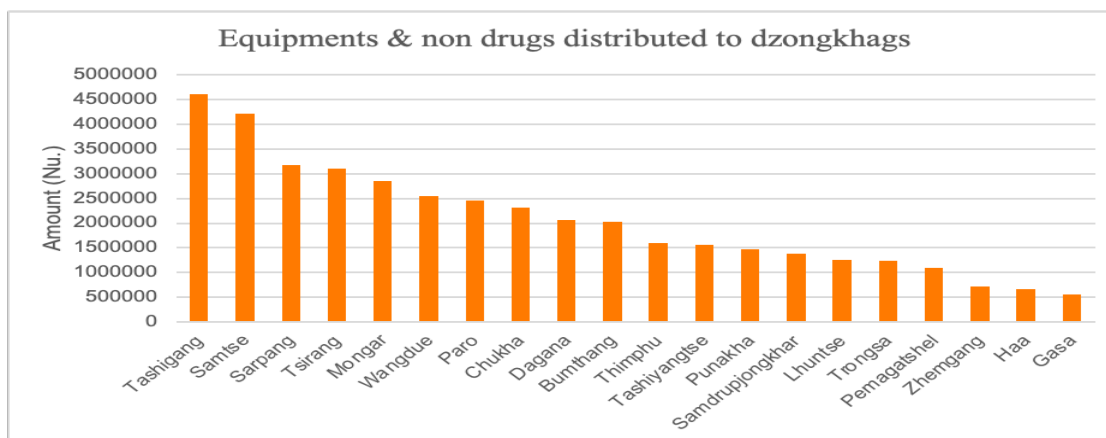


Figure 39. Equipment and non-drug consumables distributed to dzongkhags

Table 17. Equipment and non-drug items distributed to dzongkhags (amount)

Sl.no	Dzongkhags	Equip (Nu.)
1	Tashigang	4598474.71
2	Samtse	4205085.4
3	Sarpang	3180794.04
4	Tsirang	3104877.56
5	Mongar	2850204.06
6	Wangdue	2547297.77
7	Paro	2453935.36
8	Chukha	2309330.48
9	Dagana	2067400.3
10	Bumthang	2025662.73
11	Thimphu	1596513.43
12	Trashiyangtse	1563526.91
13	Punakha	1473612.06
14	Samdrupjongkhar	1375498.17
15	Lhuentse	1264984.98
16	Trongsa	1236336.87
17	Pemagatshel	1089009.75
18	Zhemgang	713219.33
19	Haa	658057.8
20	Gasa	557942.01
21	Total	40871763.7

5.6.2 Distribution to Central agencies

For FY 2025–26, the distribution of equipment across central agencies totaled Nu. 3.66 million, with significantly high amounts concentrated in a few institutions. The largest allocation was recorded at NVH Motithang, which utilized Nu. 1,909,710.95, accounting for more than half of the overall distribution. This was followed by RVH&EC Phuntsholing at Nu. 721,294, and RVH&EC Dewathang at Nu. 190,149.70 (fig. 4, table 5).

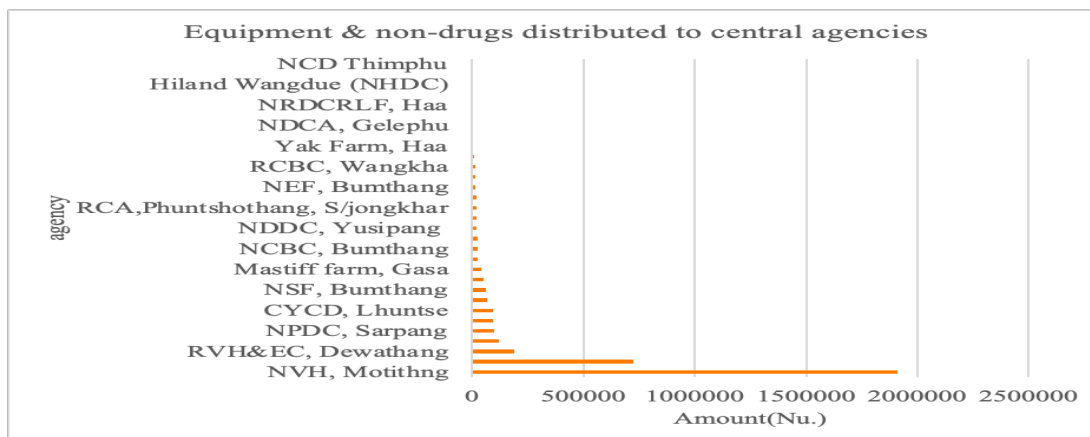


Figure 40. Equipment and non-drug items distributed to central agencies

Table 18. Equipment and non-drug items distributed to central agencies (amount)

Sl.no	Central agency	Equipment (Nu.)
1	NVH, Motithang	1909710.95
2	RVH&EC, Phuntsholing	721294
3	RVH&EC, Dewathang	190149.7
4	RVH&EC, Gelephu	120806.57
5	NPDC, Sarpang	96609.5
6	RLDC, Kanglung	95067.9
7	CYCD, Lhuentse	92912.92
8	NNPBC, Yusipang	64696.55
9	NSF, Bumthang	59245.32
10	NPiDC, Gelephu	52661.2
11	Mastiff farm, Gasa	40486.25
12	CNCD, Tashiyangphu	25590.16
13	NCBC, Bumthang	25405.72
14	RPBC, Paro	25017.85
15	NDDC, Yusipang	20957.72
16	RMBC, Arong	20560.01
17	RCA, Phuntshothang, S/jongkhar	19973.1
18	SVL, Nganglam	19731.25
19	NEF, Bumthang	14365.01
20	RPPBC, Lingmethang	14356.87
21	RCBC, Wangkha	11486.93

22	NLRC, Bumthang	8044.25
23	Yak Farm, Haa	4454.65
24	NCAH, Serbithang	2800
25	NDCA, Gelephu	2199.5
26	BLDCL	1144
27	NRDCRLF, Haa	0
28	NADPM, Serbithang	0
29	Hiland Wangdue (NHDC)	0
30	CNR	0
31	NCD Thimphu	0
Total		3659727.88

5.7 Annual Reconciliation at Livestock Central Store for FY 2025–2026 for Regularization

The Annual Reconciliation at the Livestock Central Store for the financial year 2025–2026 was conducted to regularize stock discrepancies across both equipment and medicines. In the category of equipment and non-drug items, the reconciliation revealed a total unreconciled amount of Nu. 126,497.53. Within this, excess stock was valued at Nu. 91,504.17, while deficit stock accounted for Nu. 34,993.36. After balancing these figures, the net outcome reflected a surplus amount of Nu. 56,510.81.

Similarly, in the category of medicines, the total unreconciled amount stood at Nu. 61,256.35, comprising excess stock worth Nu. 41,575.65 and deficit stock valued at Nu. 19,680.70. This resulted in a surplus balance of Nu. 21,894.95.

The reconciliation exercise identified several underlying causes for these mismatches. One of the primary reasons was the absence of standardized units of conversion in the system, which led to inconsistencies when recording items during receipt and issue—for example, strips being converted to jars, milliliters to grams, or vials to ampoules without uniform standards. Additionally, errors were noted during peak periods of annual distribution and packaging, when the high workload contributed to recording inaccuracies. Occasional issuance of items was also not properly reflected in the ledger, further contributing to discrepancies. Moreover, some shortages were likely the result of distribution errors, transit damage, or physical shrinkage during handling and storage.

5.8 15th National Veterinary Committee (NVMC) Meeting

15th NVMC meeting was held on 1st of May 2026 at NCAH conference in person for the members residing in Thimphu and virtual for the members outside Thimphu in view of conserving the fossil fuel.

The NVMC meeting began with a welcome note delivered by Dr. Lungten, Program Director at NCAH and a permanent member of the committee, followed by an opening address from Dr. Kinley Dorji, Vice Chair of NVMC and Superintendent of NVH, who emphasized the importance of strengthening veterinary medicine governance. The agenda was then formally adopted under the guidance of Dr. N.K. Thapa, Secretariat, NVMC (DVEU, NCAH), who also led the follow-up discussion on resolutions from the 14th NVMC meeting to ensure continuity and accountability. Dr. Thapa further facilitated the selection of the NVMC Chair, updated the membership list, and briefed members on their roles and responsibilities. After a short tea break, the session resumed with Mr. Namgay Dorji presenting on the EVSS strategy and procurement cycle, covering focal responsibilities, indent versus distribution mechanisms,

emergency requisition issues, and coordination with outside agencies. This was followed by Dr. Thapa's proposal for updates on equipment, consumables, and medicines to strengthen supply chain efficiency. Dr. Tenzin Wangchuk from NVH Motithang then presented a proposal for a standardized design of clinical dress for the Department of Livestock, highlighting the need for uniformity and professional identity. Subsequently, Dr. Thapa introduced the PCV2 vaccination proposal for government pig breeding farms, outlining its benefits for herd health management. The meeting concluded with deliberations under Any Other Business, which included discussions on LSD vaccination in cattle, before formally closing the workshop.

5.8.1 Minutes of the 15th National Veterinary Medicines Committee (NVMC) Meeting

Date: 1st May 2026, Venue: NCAH Serbithang and members outside Thimphu attended virtually

A. **Participants (in-person)**

1. Dr. Kinley Dorji, Specialist Head, NVH, Motithang (Vice-chair)
2. Dr. Lungten, PD NCAH (Permanent member)
3. Dr. Tenzin Wangchuk, Sr. VO, NVH, Motithang (Co-opt member)
4. Dr. Jamtsho, VO, DVH, Thimphu (Co-opt member)
5. Ms. Menuka Rai, Head, BPU (Co-opt member)

Secretary

1. Dr. NK Thapa, Head, DVEU, Head DVEU (Secretary)
2. Mr. Namgay Dorji, Sr. LHS, DVEU (Secretary)

Other co-opt members attended virtually

The chair (Chief, AHD) could not attend due to other priority engagement hence, the vice chair (Head, NVH) convened the meeting. During the meeting, following resolutions were made:

1. NVMC Meeting Modality

The NVMC meeting is one of the important technical meetings and hence it is very difficult to discuss and resolve most of the issues. Therefore, as far as possible, provided the resources are available, henceforth the meeting be conducted in person, recognizing the technical importance. **(Action: NCAH)**

2. Distribution pattern of Medicines, Consumables, and Equipment

Currently the practice of the distribution of medicines, consumables and equipment are done on 70% first lot and 30% second lot for the same item. Since all the items are purchased in one lot, 100% of the items indented and whichever are received at LCS during the distribution time will be distributed in the first lot. The items received after the first distribution shall be distributed in the second lot. **(Action: NCAH/LCS)**

3. EVSS Supply Cycle

The existing EVSS supply cycle was reviewed and was proposed such that first distribution be made by January to February and second lot by April-May. The supply cycle shall be reviewed and compared with that of the Ministry of Health and revise/ adopt accordingly. **(Action: NCAH)**

4. Medicine indent for non-departmental agencies

Currently, the medicines, consumables and equipment are being distributed to the non-departmental agencies like CNR, BLDC, NCD without indent collection. This often leads to the shortage in the regular distribution to animal health centers. Hence, the house recommended to collect indents from non-departmental organizations also and separate estimate shall be submitted for additional budget during annual budget proposal. **(Action: NCAH)**

5. Medicine Indent

In most of the cases, it has been found that there is significant mismatch of medicine indent verses distribution in some of the dzongkhags. Often the medicines were collected 4 to 5 times more than indented and in some, un-indented medicines were being collected which leads to shortage in other dzongkhags/centers. Hence, medicine indents shall be prepared realistically, based on actual requirements rather than assumptions as far as possible. **(Action: NVH, RLDC/ RVHs/ DVHs/ Central agencies)**

6. Vaccine Indent

Since vaccine indents has to be based on projections of the available/upcoming farms currently there is confusion as whether to follow FRS projection or VIS data. The house recommended that though both the database is going to be integrated and preferably, FRS projection could be used for vaccine indents shall be used as it will have records of the farms and the animals. **(Action: NVH, RLDC/RVHs/DVHs/Central agencies)**

7. Tender Evaluation Criteria

Difficulties are often encountered during the tender evaluation as the criteria set on Standard Bidding Document (SBD) are not very clear. Hence, before uploading the tender, the criteria/requirements shall be properly set and uploaded in the Standard Bidding Document (SBD). **(Action: NCAH)**

8. Equipment List Updates

Based on the field requirements and suggestions, following items shall be included in the equipment list:

1. Multiparameter Monitor for Surgery
2. Farrier set (For Cattle & Equine) for hoof trimming
3. Burdizzo castrator (bull)
4. Surgical table (Stainless steel adjustable height)

9. Clinical Dress Standardization

Considering the different clinical dress code used in the animal health centers currently, the requirement of uniform clinical dress code was felt very important. Based on the presentation made by NVH, a three-color scheme shall be adopted for: Veterinarians, Veterinary Paraprofessionals and Lab technicians. The proposals shall be submitted to the department for approval. **(Action: NVH, NCAH, DoL)**

10. PCV2 Vaccination Proposal

Based on the requisition for vaccination of pigs at NNPBC Yusipang against Porcine circo-virus (PCV) type 2 and Porcine Respiratory and Reproductive Syndrome (PRRS), a feasibility study

was conducted. The findings suggested for introduction of vaccination against PCV2 only as PRRS was not detected in RT-PCR. A pilot vaccination program could be implemented at NNPBC by including appropriate strains/genotypes. A detailed proposal shall be submitted to the Department. **(Action: NCAH, AHD DoL)**

11. New NVMC Chair

Following the completion of two years chairmanship tenure by the Chief, AHD, the committee selected the Program Director, NCAH, through open poll and PD, NCAH shall be the Chair of NVMC for the period of two years **(Action: AHD/NCAH/NVH)**

1.2 Amendments in Essential veterinary medicine list

A. Medicine

I. Tetracycline Powder

Each gram contains Tetracycline hydrochloride I.P. – 50 mg

II. Azithromycin Tab & Azithromycin Inj segregated

III. Albendazole

Albendazole 150 mg Tab & Albendazole 600 mg Boli segregated

IV. Melbimycin, Alfoxonar

Selected 15 mg Melbimycin + 75 mg Alfoxonar Presentation 3tab/strip

V. Sodium Bicarbonate Inj. 7.5 % w/v -200 ml selected instead of 25 ml

VI. Mineral Mixture powder composition

Calcium	20.0 %
Phosphorus 1	2.0 %
Magnesium	5.0 %
Sulphur	1.8-3.0 %
Copper	0.10 %
Zinc	0.80 %
Manganese	0.12 %
Iodine	0.026 %
Iron	0.40 %
Cobalt	0.012%

VII. Calcium Borogluconate

Specifications refined as each 450 ml contains:

Calcium (as calcium gluconate) I.P.	1.86% w/v
Boric Acid I.P.	4.21% w/v
Magnesium hypophosphite	5% w/v
Dextrose (anhydrous) I.P.	20% w/v
Chlorocresol I.P.	0.1% w/

B. vaccines

I. Mareks Disease Vaccine

Specifications included

Bivalent MD cell associated is combined HVT FC-126 strain (Serotype 3) and Rispen strain (Serotype 1) grown on SPF chick embryo fibroblast culture.

I. Consumables

I. 2-0 suture

2-0 suture (needle round)- suturing internal organs with 2-0 suture needs round needle instead of cutting edge.

Specification

Absorbable polyglycolic acid (PGA) 30 mm ½ circle round bodied.

II. 1-0 Suture

Absorbable polyglycolic acid (PGA) 40 mm ½ circle reverse cutting.

III. Cotton

Zigzag cotton: accurate weighing.

IV. POP

5 cm X 2.70 m X 12 X 1 (Unit Packet)

6

II. Equipment (new addition)

Table 19. List of new addition of equipment

1	Partition room Multipurpose Bedside/Chairside 3-Fold & Detachable divider for surgery Screen/Partition with Green Cotton Curtain for Clinic table
2	Multiparameter monitor (Display & hardware: 12.1" high-resolution LED screen (touchscreen) with multiple layout modes, Lightweight and portable (< 4 kg with battery), Built-in rechargeable lithium-ion battery (standard ~4 h, optional ~8 h), Fan-less design reduces dust and fur interference. Standard monitoring parameters: ECG (3 or 5 leads) with veterinary-specific algorithm, SpO ₂ (pulse oximetry) for oxygen saturation and perfusion index, NIBP (non-invasive blood pressure) with veterinary-optimized algorithm, Temperature (typically 2 channels), Respiration rate (RR). Extended/optional parameters: Side-stream CO ₂ (capnography) to track end-tidal CO ₂ (etCO ₂), IBP (invasive blood pressure), Cardiac output (C.O.) monitoring, Data & alarms Trend storage of vital data (up to ~1200 hrs in some models), Configurable alarms for all monitored parameters, Provide comprehensive physiologic monitoring. Configuration can be customized based on species and clinical scenario.
3	Farrier set (Cattle & Equine) Lukar 8 pcs farrier tools kit horse hoof trimmers, includes horse hoof nipper, horseshoe cutting pliers, hoof nail clincher, hoof hammer, hoof knife, rasp file, horseshoe brush
4	Burdizzo castrator 18-inch length, surgical grade stainless steel, clinical grade and (bloodless autoclave able Material, antirust, castrator)

5	Surgical table	V top, electrically operated lifting mechanism with a 300mm range, 124.5cm×61cm×56cm-99cmH (stainless steel),
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5.9 Assessment of Infectious Bursal Disease (IBD) Outbreak and Vaccine Efficacy at the National Poultry Development Center (NPDC), Sarpang

Dr. NK Thapa (NCAH), Dr. Rinzin Loday (RVH & EC Gelephu), Ms. Menuka Rai (BPU), Mr. Dawa Tshering (LSU)

In early July 2025, the National Poultry Development Centre (NPDC), Sarpang, reported an outbreak of Infectious Bursal Disease (IBD) in two sheds just days after routine vaccination. Although the mortality remained low (about 2%), the event raised concerns about vaccine efficacy and farm-level biosecurity. An investigation was carried out between 6–9 August 2025 to review vaccination practices, vaccine quality, cold chain management, and biosecurity compliance. Samples collected from affected sheds tested positive for IBD through rapid antigen tests and RT-PCR. The same batch of vaccine (Batch No. IN24-010, valid until October 2025) had also been distributed to over 40 other government and private farms, but no outbreaks were reported elsewhere. This indicated that vaccine failure was unlikely, and the issue was more likely linked to farm-level handling and cold chain lapses.

At NPDC, weaknesses were noted in vaccine storage and transportation, including the absence of continuous temperature monitoring and reliance on attendants rather than trained technical staff for administering vaccines. In addition, the presence of wild birds around sheds, movement of staff from nearby villages, and the farm's history of previous outbreaks suggested possible breaches in biosecurity and environmental persistence of the virus.

The outbreak in Dagana in August 2025, traced to chicks supplied from NPDC, further highlighted the risk of virus spread through movement of birds or fomites. Overall, the assessment ruled out vaccine inefficacy but pointed to cold chain management gaps, questionable vaccination practices, and inadequate biosecurity as the main contributors.

The report recommends stricter biosecurity protocols, disinfection before restocking, vaccination by competent personnel, improved cold chain monitoring with temperature loggers, and a review of the national vaccination schedule in line with global guidelines. It also stresses the need for continued virus characterization and vaccine strain matching to ensure long-term protection.

5.10 Feasibility of Vaccination Against PCV2 and PRRS at Government Pig Breeding Farms

Dr. NK Thapa, Menuka and Dr. Tshering Choden

Porcine Circovirus Type 2 (PCV2) and Porcine Reproductive and Respiratory Syndrome (PRRS) are major swine pathogens with significant economic impact on pig production worldwide. A feasibility study was conducted to evaluate vaccination against these diseases in government pig breeding farms in Bhutan, including the National Nucleus Pig Breeding Centre (NNPBC, Yusipang), Regional Pig & Poultry Breeding Centre (RPPBC, Lingmethang), and National Pig Research and Development Centre (NPRDC, Gelephu). Serological surveillance (2021–2023) and molecular diagnostics (2021–2025) confirmed persistent circulation of PCV2, with seropositivity ranging from 63–100% and RT-PCR positivity up to 62.5%. In contrast, PRRS seropositivity was detected at low levels (9–24%), but repeated RT-PCR assays confirmed absence of active infection. Cost analysis indicated that vaccinating the total herd population

of 2,994 pigs would require Nu. 373,052 for a one-time PCV2 vaccination program. International evidence supports PCV2 vaccination as a cost-effective intervention to improve herd immunity, reduce mortality, and safeguard genetic nucleus herds. Based on current findings, vaccination against PCV2 using genotype b is strongly recommended, while PRRS vaccination should be deferred until active circulation is detected. Complementary measures including strengthened biosecurity, periodic surveillance, and cost optimization strategies are essential to sustain productivity and protect the national pig breeding program.

6. Biological production Unit (BPU)

6.1 Vaccine Procurement and Supply

During the F Y 2025-2026, total budget of 20.6 million (M) were utilized to procure different livestock, poultry and canine vaccines. Three types of vaccine for cattle and pig, five different poultry vaccines and canine anti-rabies vaccine. Lumpy skin disease vaccine also had been procured (direct purchase) from Turkey as in previous two years. Anti-rabies vaccine had been procured and issued for MDV program as well as Normal Dzongkhag annual requirement.

Table 20. Details of vaccines procured in FY 2025-2026

Sl. No	Name of Vaccines	Rate/Vial	Total Vial	Total Dose	Total Amt (Nu.)
1	Anti-Rabies	155.75	8000	80,000	1246000
2	Foot & Mouth Disease	891.22	5000	2,50,000	4456100
3	HS&BQ combined	191.5	5000	1,25,000	957500
4	Fowl Pox	147	6626	33,13,000	974022
5	Infectious Bursal Disease	85	14470	28,94,000	1229950
6	Marek's Disease	350	2000	1,00,000	700000
7	Newcastle Disease (B1)	65	12500	2,500,000	812500
8	Newcastle Disease (R2B)	85	15000	1,50,000	1275000
9	PPR Vaccine	450	50	5000	22,500
10	Lumpy Skin Disease (25 doses)	881	3200	160,000	7,414,400.00
11	Lumpy Skin Disease (50 doses)	2872	1600	80,000	4,585,200.00
Grand Total		6173.47	73446	2,825,000	23,673,172.00

In order to provide effective and efficient service delivery in procurement, distribution, and application in the field, BPU has to properly plan the procurement based on past records with a 5 to 10% provision on these Figures. It is mandatory to keep a buffer stock of all vaccines

for emergency use during outbreaks. A total budget amounting to Nu. 23,673,172.00 is utilized for procuring all the vaccines.

Table 21. Vaccines manufacturer/brand and Suppliers

SI No	Name of Vaccine	Manufacturer	Supplier
1	Anti-rabies Vaccine (10 dose)	Brilliant Pharma.Pvt. Ltd	Bio- Paruna PMS
2	FMD Vaccine (50 dose)	Brilliant Pharma.Pvt. Ltd	Bio- Paruna PMS
3	HS-BQ Combined (25 dose)	Brilliant Pharma.Pvt. Ltd	Bio- Paruna PMS
4	CSF (10 dose)	Indian Immunologicals	Karma PMS
5	Fowl Pox (500 dose)	Hesters Bioscience	Tsampaka PMS
6	IBD (200 dose)	Venkateshwara Hatcheries Pvt Ltd	Karma PMS
7	Marek's (1000 dose)	Hesters Bioscience	Tsampaka PMS
8	NCD B1 (200 dose)	Venkateshwara Hatcheries Pvt Ltd	Karma PMS
9	NCD R2B (100 dose)	Venkateshwara Hatcheries Pvt Ltd	Karma PMS
10	PPR	Hesters Bioscience	Tsampaka
11	Lumpy Skin Disease Vaccine	VETAL Turkey	Int.Company (Direct)

During the reporting year, the Biological Production Unit (BPU), NCAH, conducted a one-time mass distribution of vaccines to the Eastern Dzongkhags. Subsequently, vaccine supplies to the remaining Dzongkhags, Central Farms, and Central Agencies were made on a demand-driven basis throughout the year. Since most of the beneficiaries lifted vaccines only as and when required, a considerable quantity remained in the BPU cold store for future distribution, leading to a high closing stock balance. Furthermore, the BPU intentionally maintains buffer stocks to ensure uninterrupted vaccine availability and enable a prompt response to emergency disease outbreaks across the country.

Table 22.Vaccines manufacturer/brand and Suppliers

SN	Vaccine	Procured (doses)	Distributed (doses)
1	FMD	2,50,000	2,09,350
2	HSBQ	1,25,000	98,700
3	ARV	80,000	27,780
4	PPR	5,000	0
5	CSF	19,000	26,160
6	IBD	28,00,000	35,53,600
7	NCD B1	2,40,000	12,20,400
8	NCD R2B	14,00,000	6,52,200
9	Fowl Pox	10,00,000	7,35,600
10	Marek's	10,00,000	6,45,500
11	LSD	1,60,000	182,500
Total		87,00,000	73,51,790

A total of 87,00,000 doses of livestock and poultry vaccines were procured, out of which 73,51,790 doses were distributed during 2025 -26 with the distribution rate of 85% of the vaccine balance stocked at BPU. About 15% of the vaccine remained in the BPU vaccine bank as of the record compiled from July '2025 to June 2026. The majority of vaccine issued for the year was Infectious Bursal Disease (IBD), total of 6, 59,600 doses above the indented quantity amounting to 23 % above the indented of 28,94,000 doses. The least amount of vaccine lifted was for PPR (utilized NIL) followed by Fowl Pox as shown in Table. 3

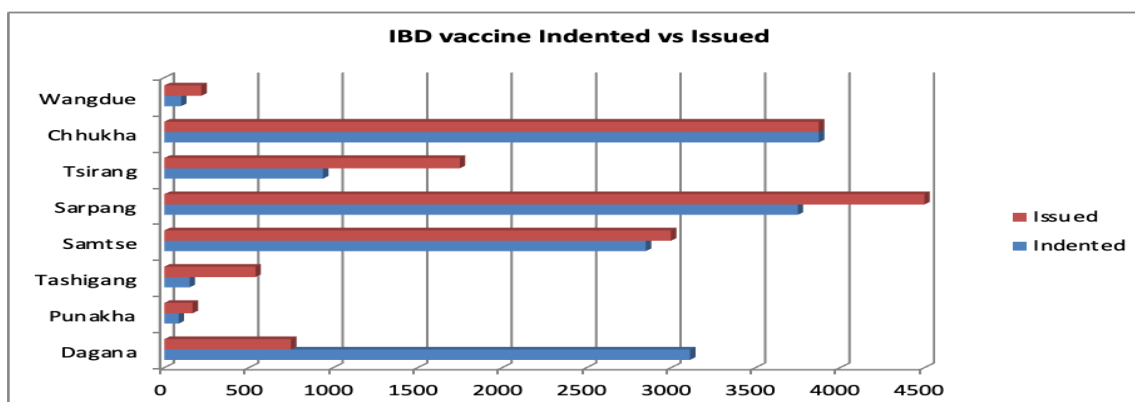


Figure 41.Dzongkhagwise Indent vs Distributed for IBD vaccine

Among the poultry vaccines, IBD had been highly demanded from the Dzongkhags& centers. The IBD vaccine recorded the highest consumption, with the quantity issued exceeding the originally indented amount. Sarpang Dzongkhag had the highest no. of IBD vaccine, 4500 vials from the indent amount of 3750 nos. More than 78% of the total IBD vaccines procured were utilized within seven months, indicating a much higher demand than anticipated.

In contrast, vaccines such as Fowl Pox and Marek's Disease vaccines recorded comparatively low consumption, leaving a significant quantity of stock unutilized. The distribution figures cover July 2025–June 2026. Any vaccine issued from the remaining stock after this period will be recorded under the next fiscal year's distribution.

6.2 Cold chain monitoring at Dzongkhags and other Central Agencies

All the vaccines and biological consignments are transported and delivered by suppliers at BPU and stored in a cold storage room maintained at 2 to 8°C. The daily temperature of the cold storage is managed using data loggers, and the data uploaded in the device is downloaded periodically to maintain proper records for reference. While the vaccine consignment is transported, the temperature of the vaccines is maintained at the range of 2 to 8°C by using data logger till it reaches the cold room. However, few suppliers could not provide proper data loggers in the consignment.

6.3 Way Forward

6.3.1 Monitoring cold chain management in the Dzongkhags/Centers

Monitoring of cold chain & vaccine storage facility at the field had been an important activity of the unit. However, the activity could not be conducted in whole Dzongkhag due to the shortage fuel & budget. The same activity will be taken up in next financial year

6.3.2 Recommendations for procurement & improvement

To ensure timely availability of vaccines to the Dzongkhags, it is important that the standard procurement timeline of 45 to 60 days is strictly adhered by the manufacturing company and suppliers. Following this timeframe will help expedite subsequent essential processes to be completed before the vaccines can be distributed and administered at the field level.

6.3.3 Mandatory Inclusion of Data Loggers by Suppliers

All vaccine suppliers should be required to include a calibrated data logger with every vaccine consignment. This will ensure continuous temperature monitoring during transit, enable verification of cold chain compliance upon receipt, and help maintain vaccine quality and potency

6.3.4 Vaccine indenting and submission

Several Dzongkhags submitted unrealistic annual vaccine indents that did not reflect actual field requirements. Consequently, the Biological Production Unit received numerous ad hoc vaccine requests throughout the year, disrupting planned procurement and distribution

6.4 Other activities

- Evaluation of Medicine tender evaluation for Vety. Drugs, Vaccines for FY 2025-26 w.e.f September 3rd till 20th September 2025 at NCAH Conference Hall.
- Co-ordination for procurement of LSD vaccine from Paro Int. airport, storage and immediate distribution to all the dzongkhags.
- Internal Verification/QC of vaccine consignments at BPU
- Liase with BFDA for QC and lot release of vaccine consignment before conducting mass distribution to Dzongkhags.
- Attend online database training on VIS/EVSS/LIMS at Paro.



ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF HEALTH
BHUTAN FOOD AND DRUG AUTHORITY

Form Number: BFDA-MC-LR-2025-12-0005 Effective Date: 15/12/2025
Review Date: 15/12/2025

LOT RELEASE CERTIFICATE
Lot Release No: BFDA-MC-LR-2025-12-0005

The following lot(s) of **A live, mesogenic virus vaccine** manufactured by **Venkateshwara Hatcheries Pvt. Ltd** has met the minimum requirements for lot release. This certificate is issued based on examination and verification of the required documents accompanying the shipment at the time of inspection.

A. Details of Vaccine:

Type	Lot No.	Mfg. Date	Expiry Date	Manufacturer	Importing Country	Quantity	Dose/Vial
A live, mesogenic virus vaccine	RB25-002	11/12/2025	28/02/2027	Venkateshwara Hatcheries Pvt. Ltd	Bhutan	15000	With Diluent

B. Cold Chain Conditions:

Cold Box found at 4°C	Broken Vials	Cold Chain Monitor	Frozen Vials	Vaccine Granted	Labels Attached
None	None	OK	None	Failed	Yes

C. Documents Accompanying Shipment:

Batch Release Certificate	Summary of Protocol	Analytical Report	Invoice	Packing List	Air Way Bill	Others
Reviewed & Accepted	Reviewed & Accepted	Reviewed & Accepted	Reviewed & Accepted	Reviewed & Accepted	Reviewed & Accepted	NA

Lot Release Date: 12/12/2025

Drug Controller


 Scan to verify

Figure 42. BFDA inspection & Lot release certificate and Cold room for vaccine storage