

OUR MANDATE

- A) Conduct research into all aspects of animal diseases, their treatment and control.
- B) Develop and produce animal vaccines, sera and biologicals to meet the national demand.
- C) Provide surveillance and diagnosis of animal diseases.
- D) To introduce exotic stock for improving egg, meat and milk production.
- E) Provide extension services and publications to poultry and livestock farmers.
- F) Train Intermediate manpower in Veterinary and Medical Laboratory Technology and Animal Health and Production Technology

OUR MISSION

To be the foremost Veterinary Research Institute in Africa, producing international quality standard vaccines and offering services for the identification, control and eradication of economically important livestock diseases, through best practices, research excellence and applying modern technology, with highly motivated, trained and experienced personnel.

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Preface to 2015 annual reports

The wind of “Change that blew over Nigeria under the administration of President Muhammadu Buhari during the year under review affected the Institute significantly especially with the introduction of the Single Treasury Account (TSA) and the consequent tight financial releases. This made for serious prioritization in the Institute. However, research, vaccine production, disease surveillance and diagnosis and other activities continued but at a slow pace.

Despite the challenge of funding, research, which is one of the main thrust of the Institute had to continue. Demand driven basic and applied research on livestock health, animal disease diagnosis and control, biochemical and toxicological analysis were conducted. During the year, researchers in the Institute demonstrated that, African swine fever virus (ASFV) circulating in the country belongs to genotype I, with five new variants. It was further shown that contrary to an earlier epidemiology report, Tet-20 the fifth variant is the most widely distributed displacing the Tet-36 variant. Interestingly a new emerging trend of co-infection of ASFV with *Torque teno sus virus* in domestic pigs in Nigeria was reported. This calls for large scale survey of pigs Industry in Nigeria. Passive and active surveillance of the poultry population in the country for evidence of Newcastle disease virus and highly pathogenic avian influenza (HPAI) virus was sustained throughout the year. The Institute was able to respond timely to all suspected samples sent in for confirmatory diagnosis HPAI which contributed to a scale down and control of 2015 outbreaks.

Research to extend the shelf-life of the hemorrhagic septicaemia vaccine (HSV) from 3 months to 12 months was undertaken successfully and the result has been published in a peer review journal. Similarly, there has been a sustained tempo in the research activities to adapt LEP rabies virus to Baby Hamster Kidney (BHK) cell culture. Five different passages were achieved and the harvested cells were appropriately stored. The Capripox vaccine, being developed in the institute over the years, is currently undergoing tests for final certification at the African Union- Pan African Veterinary Vaccine Centre (AU-PANVAC) in Ethiopia.

During the year, over 70 million doses of viral vaccines and 11 million doses of bacterial vaccines were produced in the Institute and sold to farmers. This production figure is grossly inadequate compared to the huge national demand for veterinary vaccines. However it is hoped that funding will improve in 2016 which will enable the full installation of the larger capacity freeze dryer, completion of the new Bacterial vaccine Production facility and facilitate better research and production.

Dr. David Shamaki

Acting Executive Director

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Group picture of NVRI Management team and the FAO technical mission on Avian Influenza during their visit to the Institute 19th Feb, 2015



NVRI EDVR Dr. M.S. Ahmed addressing the NIPSS participants SEC 37, 2015 during their visit to the Institute on the 23rd Feb. 2015



Cross section of participants of NIPSS SEC 37 2015 during interactive session



NVRI EDVR Dr. M.S. Ahmed (4th from right) explaining a point to the Country Representative of FAO, Ms Louise Setshwaelo (1st from right) during her visit to the Institute on May, 14th 2015



Group picture of Management team of NVRI and the Permanent Secretary of Federal Ministry of Agric. and Rural Development Arc. Sunny Echono (6th from the right) during his Official visit to the Institute on the 21st August, 2015



NVRI EDVR Dr. M.S. Ahmed (3rd from left) and the management team of the Institute conducting the Permanent Secretary Federal Ministry of Agriculture, Arc. Sunny Echono (2nd from left) round during his visit to the Institute



Group picture of NVRI Executive Director Dr. M.S. Ahmed (5th from the left) and National Executive Committee members of Senior Staff Association during their courtesy visit to the Institute on 24th August, 2015



Executive Director NVRI Dr M.S. Ahmed (middle) poses with 2015 NEF/NVRI Toxicology Interns at the closing ceremony of their internship programme in the Institute on the 25th August, 2015



Acting Executive Director NVRI, Dr David Shamaki (left) receiving the handing over document from the Outgoing Executive Director, Dr M.S. Ahmed on the 5th October, 2015



NVRI Staff participating in monthly jogging exercise



NVRI Acting Executive Director, Dr D. Shamaki (left) and the Plateau State Commissioner of Police, CP Adekunle Oladunjoye (right) during his official visit to the Institute, 12th Nov., 2015



Group picture of NVRI Football team during the RIGAN games held at Zaria between 27th November, 2015 - 6th December, 2015



The Representative of the Acting Executive Director NVRI, Dr P.A. Okewole (left) exchanging pleasantries with the Chairman Management Committee of Jos South LGA Hon Sir A.P. Choji (KSM) during his visit to the Institute on the 15th Dec. 2015



The Ag Executive Director, NVRI Dr. David Shamaki receiving the Red Cross and Plateau State Ministry of Agric representative



Training of Community Animal Health Workers by Staff of the NVRI in conjunction with Red Cross and Plateau State Ministry of Agric. Dr. I Ifende (3rd from the left) one of the facilitators from the Institute

REPORTS FROM DIVISIONS

ADMINISTRATION

The Department is charged with the responsibility of assisting the Management in the day-to-day running of the Institute. This includes matters relating to Administration and Establishment. The Department also handles the processing of Retirement, Training and Staff Welfare. The Administration Department has three Divisions:

- Administration
- Stores
- Workshop

Under the Administration Division, the following Units exist:

Establishment Section

The Establishment Unit is saddled with the responsibility of:

- Appointments, Promotions, Disciplinary cases for both Junior and Senior Staff.
- Handling of both open and secret registries of Junior and Senior Staff
- Preparation of quarterly/annual reports for the division.
- Liaising with the Records Unit to update Staff Nominal Roll.
- Coordination of general duties
- Custodian of Staff records
- Assist in implementing Institute’s policies
- Interpreting Government circulars, extant rules and regulations

In the period under review the Establishment Unit of the Division handled the following:

Employment:

Veterinary Research Officers	-	10
Research officers	-	10
Medical Laboratory Scientists	-	1
Livestock Superintendents	-	3
Medical Laboratory Technician	-	6
Administrative officers	-	5
Sores officers	-	4

Promotions:

Senior staff	-	121
Junior staff	-	89

Advancement/Conversion:

Senior	-	11
Junior	-	9

Disciplinary cases:

Senior Staff	-	2
Junior staff	-	2

Records Unit

The Records Unit is one of the cardinal Unit of the Administration Division mandated to carry out the following responsibilities:

- Maintaining Staff records of service
- Processing of Staff leave such as:
 - Maternity leave
 - Annual leave
 - Casual leave
 - Examination leave
 - Sick leave
 - And other types of leave as may be approved by the Chief Executive.
- Compiling documents for both Junior and Senior Staff's graded files.
- Keeping records of both the Junior and Senior Staff on:
 - Appointments
 - Severance
 - Retirement
 - Death/Demise
 - Dismissal
 - Termination
 - Updating Staff Nominal Roll on very regular basis

The Records Unit in the period under review successfully handled issues relating to the records of over 1,000 Staff as regards their appointments, promotions, retirements, leave, transfers, and deaths.

In the period under review, the Records Unit recorded the following:

• Appointment	-	42
• Resignation	-	2
• Retirements	-	22
• Deaths	-	5

Achievements:

The records Unit in liaison with and cooperation of other Units/Sections of the Administration Department had a smooth sail in carrying out its functions with very minimal difficulties hence the successes recorded.

Notable among the Unit's achievement is the production of an up-to-date and authentic Staff Nominal Roll within the shortest possible time. This is due to the fact that most of the

operations were done electronically; making access to information easier and faster There is however still room for improvement.

Challenge(s)

- Lack of a laptop of higher configurations (because of the volume of records for compilation and maintenance). The use of a functional computer will go a long way in aiding documentation and updating of Staff records easily.
- Inconsistent and sometimes incorrect data/information some members of Staff provide whenever required. This hampers and slows down the process of updating. Concerned staffs are contacted for conformation in other to avoid future problems for Staff with Pension Fund Administrators (PFAs) at their point of exit.
- Lack of training and re-training of Staff on how to make on-line transactions between the Unit and other Departments/Divisions within and outside the Institute is another major challenge for the Unit. This requires urgent attention, as the training should always be uppermost in the agenda of any organization, if optimum result is to be achieved.

Future Plan

The importance of proper record keeping in any endeavour of life cannot be overemphasize. Attention in the area of training and facilities is to be given to the Records Unit in other for the Unit to do its best in keeping proper records for every Staff.

Legal Unit The Unit serves as adviser to the Institute on legal matters. It also handles criminal and civil cases of the Institute in liaison with the external solicitors and the Legal Department of the Federal Ministry of Agriculture and Rural Development. About seven (7) cases are being handled by the Legal Unit in 2015 which are at various stages of hearing while 4 have been disposed off.

The breakdown of the cases is as follows:

Pending Cases

S/N	PARTIES	SUIT NO.	COURT
1.	Dr. Samuel O. Ogunjumo Vs. i. NVRI, Vom ii. Dr. (Mrs.) L. H. Lombin	FHC/J/CS/45/2009	National Industrial Court, Jos Division
2.	Mr. Rueben Awanye Itruman Vs. i. NVRI, Vom ii. Dr. (Mrs.) L. H. Lombin	FHC/J/CS/15/2009	National Industrial Court, Jos Division
3.	NVRI Vom & 4 Others Vs. Governor of Lagos State & 3 Others	LD/74/07	Supreme Court, Abuja
4.	Mrs. Omolara R. Umar Vs. i. NVRI, Vom ii. The Governing Board, NVRI, Vom	FHC/J/C5/36/2010	National Industrial Court, Jos Division
5.	Mr. Segun Babatunde Akinola Vs. i. Dr. Shekarau	KDH/KAD/1039/2011	High Court Division, Kaduna, Kaduna State
6.	Plateau State Board of Internal Revenue Vs. NVRI, Vom	FHC/J/UD/4/2013	Supreme Court, Abuja
7.	Mal. Mohammed Nasir Ambursa	NICN/Jos/35/2014	National Industrial Court, Kano

	Vs. NVRI, Vom		
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Disposed Cases

S/N	PARTIES	SUIT NO.	COURT
1.	Alh. Sadiq Masalla Vs. NVRI, Vom	FHC/J/CS/10/201 1	Federal High Court, Jos
2.	Mr. Segun Babatunde Akinola Vs. Dr. Shekarau Audu	KMD/36/DC/201 1	Chief Magistrate Court, Kaduna
3.	Mr. Ramalan Mohammed Vs. NVRI, Vom	FHC/J/CS/84/200 7	Court of Appeal, Jos Division
4.	The National Union of Printing, Publishing and Paper Products Workers (NUPPPROW) Vs. The Management of NVRI, Vom	NICN/JOS/52/201 4	

Institute's Landed Properties in Lagos State Omole Residential Scheme Block 34, Plot 885.

This parcel of land is covered by C of O No, 15/15/1983D located at Omole Ikeja, Lagos State with an area of 12,386, 589 for residential quarters.

Development of the Property

To develop the property, MAS-FAD & Co. (Nig.) Limited, an experienced and reputable Real Estate Company, conversant with land matters, land survey, regularization of Title Deed, documents, preparations of residential layout in Lagos was contacted by the Institute.

As a result of non-development of the land over the years, the Lagos State Government had continued to sanction undeveloped allocated plots of land in the GRAs as they were considered as abandoned. The Institute was then served with Notice of Revocation for failure to develop the plot.

MAS-FAD & Co Limited was contacted to intervene. Detailed information on the approved plan was forwarded to the Governor's Office several times but no response was received by the Institute.

Contact was made to G. N. Uwechue, SAN who is handling the No. 1, Keffi Street Institute's Outstation Laboratory property at the Supreme Court on the matter. He advised that since the C of O is subject to certain terms and conditions, e.g. the building or other works on the plot to be valued at not less than N100, 000.00 at that time.

However, there has not been any document or receipt of such payment for work done on the plot. It is however presumed that the grant of the approval of building plan in 2010 in convention and practice ought to have been preceded by visits and or inspection of the site/plot.

No further action has been taken probably in view of the action against the Lagos State Government by the Institute at the Supreme Court on the No. 1, Keffi Street, Obalende, Lagos property.

Ikorodu Land

This is covered by C of O No. 17/17/1987D, located at Ikorodu Industrial Layout with an area of 25.82 hectares of land allocated to the Institute for the purpose of research.

The Institute equally contacted the Company, MAS-FAD & Co Limited, and it confirmed that the Institute is the authentic owner of the land. However, through continuous acts of encroachment by Messrs Lucky Fibres Industry and the illegal land speculations, the land had drastically reduced in size with various developments.

As at September, 2010, when visited by a team of Staff of the Federal Ministry of Agriculture and Rural Development and the Institute, the extent of encroachment and devastation was observed. The team recommended that necessary legal framework be put in place by the Federal Ministry of Agriculture and Rural Development with a view to recover the encroached land.

There was communication on this recommendation to the Federal Ministry of Agriculture and Rural Development's Legal Adviser to initiate legal actions against Messrs Lucky Fibres, following the Resolution of the Institute's Governing Board's at its Meeting of 29th July, 2010.

There has been no further information on the matter from the Federal Ministry of Agriculture and Rural Development's Legal Unit.

Triangular Land

The issue of compensation to land owners on the triangular land as directed by the Plateau State Ministry of Land and Survey is still pending. In the meantime, the Plateau State Ministry of Agriculture wrote to the Ministry of Lands, Survey and Town Planning that it was interested in a portion of the Triangular Land to set up ASTC Headquarters.

The Institute did not really object to the request but equally requested that an alternative land for the purpose of its Staff Housing Scheme be provided. There has been no response from the Ministry of Lands, Survey and Town Planning, Jos on the request made to it by the Institute despite several visits by the Legal Officer to the Lands, Survey, and Town Planning, Jos to this effect till date.

Madara Limited

The Institute had paid the total purchase price of Madara Limited and the legal ownership of Madara is vested in the National Veterinary Research Institute, Vom. However, Certificate of Occupancy No. 80 which covers the Madara Intermediary Quarters deposited at First Bank of Nigeria Plc for safe custody is yet to be handed over to the Institute and efforts are still on to retrieve same.

Training Unit

The Institute has a Desk Office headed by Principal Administrative Officer. The Training Unit in collaboration with the Training Committee advises Management on training needs of Staff who are willing to study in Institutions within and outside the Country.

The Training Unit recommends suitable and qualified Staff for appropriate training in accordance with the Training Policy Guidelines for the Institute and Colleges. The Unit also processes refund of School Fees, other Study Leave Allowances e.g. fund for research incurred from the training on completion of study, report on thesis and books allowances.

The Unit liaises with the Records Unit to maintain an update of Staff on training.

Achievement

The Unit processed the following for training in the year under review (January to December, 2015)

• PhD	-	8
• M.Sc	-	12
• HND	-	7
• ND	-	5
Total	=	32

Challenge(s)

The major challenge facing the Training Unit is lack of computer and external hard drive to use for good record keeping of Staff on training and resumption dates.

Future Plan

The Unit hopes to add value to the Institute by preparing detailed information about Staff on training.

Security Unit

The Fundamental function of the Internal Security Unit has been protection of lives and properties of the Institute and that of FCAH&PT and FCVMLT. The Unit has been working round the clock alongside with other Private Security Outfits e.g. Pahek and Executive Guards Limited.

In addition to the Private Guards, we also have the Mopol/Conventional Policemen attached to the Institute and there have been corresponding synergy which ensured safety of lives and properties within the Institute.

The Institute (NVRI) in the Last One Year 2015

In the year 2015, the Institute witnessed an influx of high profile personalities both nationally and internationally. The Institute provided adequate security to all visitors such as the Senate, the House of Representatives, Houses of Assembly, Local Government Legislators, Participants from NIPPS, Schools on excursions, committees on Agriculture, committees on familiarization visits to NVRI Government Board, Expatriates and Partners

on research collaboration. The Internal Security Unit also monitored and provided security activities for students on excursion, the Institute's routine and special seminars, workshops and other social activities.

Monitoring of Students' Activities

All the Students social activities in the two colleges, FCAH&PT and FCVMLT, Vom were monitored. Cases of theft and vandalization of electric wires and other important installations within the Institute were reported. The Unit was able to forestall any incident.

Pension Unit

Some functions of the Pension Unit:

- To handle all matters relating to the Old Pension Scheme
- To issue letters of introduction to retired Staff in order to access their National Housing Fund domiciled at the Federal Mortgage Bank.
- To maintain and update the Pension Payroll.
- To calculate millage of Staff who have just retired from service in order to access repatriation to their registered domicile.
- To handle all Pension related matters and correspondences.

Major highlights

- Pension payments have continued to be paid by the Accounts Department as soon as releases are made from the Office of the Accountant General of the Federation (OAGF).
- The Unit was notified on the death of Dr. Musa Goni, the first indigenous Director of the Institute.
- The smooth integration of Dr. J. C. Ajufo into the NVRI, Vom Pension Payroll.
- Emergency Meeting of the NVRI BOT held on the 22nd May, 2015.
- The Unit handled appropriately the cases of wrong account numbers of some Pensioners to enable the continuous payment of their monthly Pensions.
- The Unit handled appropriately the millage of the former Executive Director (Dr. M. S. Ahmed) who retired from the services of the Institute and other retirees.

Challenges

- Insufficient working equipments like computer set, printer and other office stationeries.
- The delay in millage of retired Staff by the Federal Ministry of Works, Jos Office.

Protocol Unit

The Protocol Unit of the Institute is saddled with the responsibility of giving a positive outlook and good image of the organization. It sees to the day to day running of the

establishment, caters for the general wellbeing of Institute's visitors/guests by providing accurate information, hospitality and welfare.

Functions:

Functions of the Unit include:

- Receiving visitors
- Accommodating visitors
- Entertainment
- Transportation of guest(s) and other important personalities from international and reputable organizations.
- Assisting in organizing conferences, seminars and other official programmes in the Institute
- Taking care of the Executive Director's office and board room

Activities

- Receiving, accommodating, entertaining and general welfare of Institute's Governing Board members.
- Provision of entertainment to the Executive Director's office and Internal Management Committee members of the Institute especially during their meetings.
- Carrying out condolence visits to deceased Staff families.
- Tour of Institute's facilities during courtesy calls or visits by very important personalities of the Institute.
- Coordinating meetings between Management and Staff of the Institute.
- Participation in the handing over of the past Executive Director to the present Ag. Executive Director.

Visits

- FAO Technical Mission on Avian Influenza to the Institute on Thursday, 19th February, 2015.
- NIPPS Participants Senior Executive Course, SEC No. 37 on Monday, 23rd February,, 2015.
- Country Representative Food and Agricultural Organization (FAO) to the Institute on Wednesday 14th May, 2015.
- The Permanent Secretary, Federal Ministry of Agriculture and Rural Development, Arch. Sonny T. Echono to the Institute on Friday 21st August, 2015.
- The Commissioner of Police, Plateau State Command, CP Adekunle Oladunjoye to the Institute on Thursday 12th November, 2015.
- The Management Committee Chairman, Jos South Local Government Council , Plateau State Hon. Augustine Pwakin Choji (KSJ) JP to the Institute on Thursday 15th December, 2015.

Achievements

- The good image of the Institute was portrayed and maintained.
- Visitors were properly accommodated and treated well as arranged.

- Cordial relationship and understanding between the Director, Protocol Staff and Guests.
- Items needed for work was made available and used accordingly.
- Good working relationship maintained.

Challenges

- Inadequate information and short notice to the Institute from visitors which often lead to haphazard preparations.
- There is the need for training and retraining of Protocol Officers to meet up with the current trends and for improvement and effectiveness at the job.

Future Plans

- To hold a conference and symposium of Protocol Officers from the Institute and other Organizations in order to rub minds together, share ideas and bring out the way forward on the job.
- To continually help in maintaining a good image of the Institute.
- To meet from time to time and discuss issues, challenges and the way forward for the Unit.

SIWES Unit

SIWES is a skill development programme designed to prepare students of Universities, Polytechnics/Monotechnics and Colleges of Education for transmission from College environment to work.

Functions of SIWES Unit

The SIWES Unit is charged with the following responsibilities:

- Preparation of acceptance or rejection letters for newly posted Corp members.
- Preparation of clearance letters of Transportation Allowances for Corp members at the end of every month.
- Preparation of acceptance letters and letters of attestation for I. T. students.
- Processing of Student's Logbook, I.T.F. forms and I. T. reports.
- Supervision of the students accepted within the various Divisions in the Institute.

Activities

S/N	SCHOOLS	NO. OF STUDENTS	DURATION
UNIVERSITIES			
1.	Abubakar Tafawa Balewa University	4	Jan., 2015 – Dec. 2015
2.	Nasarawa State University, Keffi	10	Feb. 2015 – July, 2015
3.	University of Agriculture, Makurdi	8	Feb. 2015 - April, 2015
4.	Modibbo Adamawa University of Technology, Yola	7	Feb. 2015 – July, 2015
5.	Federal University, Lafia	3	March, 2015 – Aug. 2015
6.	University of Maiduguri	2	March, 2015 – Aug. 2015
7.	Federal University, Wukari	3	April, 2015 – Oct. 2015

8.	Nnamdi Azikiwe University, Awka	4	April, 2015 -Sept. 2015
9.	Salem University	1	May, 2015 – Sept. 2015
10.	Ahmadu Bello University, Zaria	6	June, 2015 – Nov. 2015
11.	Plateau State University, Bokkos	16	June, 2015 – Nov. 2015
12.	University of Ilorin	2	July, 2015 – Oct. 2015
13.	University of Jos	28	Nov. 2015 – March, 2016

Industrial Attachment (I.T.)

COLLEGES			
1.	Federal College of Forestry	5	July, 2015 – Nov. 2015
2.	Hill College of Education, Gwanje	1	Aug. 2015 – Oct. 2015
3.	College of Agriculture, Lafia	5	Aug. 2015 – Dec. 2015
4.	Fed. Col. Of Animal Health & Prod. Tech., Vom	21	Sept. 2015 – Dec. 2015
5.	College of Agriculture, Jalingo	8	Oct. 2015 – Jan. 2016
6.	Plateau Sate College of Agriculture, Garkawa	6	Oct. 2015 – Jan. 2016
7.	Federal College of Land Resources Tech., Kuru	4	Oct. 2015 – April, 2016

POLYTECHNICS			
1.	Federal Polytechnic, Bauchi	4	Aug. 2015 - Nov. 2015
2.	Nasarawa State Polytechnic, Lafia	4	Oct. 2015 – April, 2016
3.	Plateau State Polytechnic, Barkin Ladi	15	Dec. 2015 – April, 2016
		Total 167	

The total number of Students accepted into the Institute from January, 2015 to December, 2015 is 167.

Corp members

Nineteen (19) Corp Members were accepted into the Institute in June, 2015 (Batch ‘A’) and Nineteen (19) in December, 2015 (Batch ‘B’)

Challenges

The major challenge facing the Unit is Computer equipment.

Educational visit to the Institute

EAs part of the Institute’s mandate to provide extension services to poultry and livestock farmers and to train intermediate manpower in veterinary laboratory and animal health and production technologies, the institute hosted 97 schools on educational visits comprising of Universities, Polytechnics, Colleges of Education and Senior Secondary Schools as shown below in 2015.

S/N	UNIVERSITY	DEPARTMENT
1.	Nasarawa State University, Keffi	Microbiology
2.	Gombe State University	Biological
3.	Nasarawa State Univeristy, Keffi	Biochemistry
4.	Modibbo Adamawa University of Tech., Yola	
5.	Federal University, Dutse, Katsina State	Animal Science
6.	Gombe State University	Biochemistry
7.	Federal University, Dutse	Microbiology
8.	University of Jos	Microbiology
9.	University of Nigeria, Nsukka	Veterinary Science
10.	Federal University, Umudike	Veterinary Science
11.	Federal University of Technology, Yola	Microbiology
12.	Federal University of Technology, Yola	Animal Science
13.	Kogi State University, Anyigba	Microbiology
14.	Kaduna State University, Kaduna	Biology Science
15.	Nasarawa State University, Keffi	Microbiology

POLYTECHNICS		
1.	Benue State Polytechnic, Ugbokolo	Microbiology
2.	Sokoto State Polytechnic, Sokoto	Science Laboratory Tech (SLT)
3.	Nasarawa State Polytechnic, Lafia	Science Laboratory Tech. (SLT)
4.	Polytechnic, Zaria	Microbiology
5.	Federal Polytechnic, Bauchi	Agricultural Science
6.	Federal Polytechnic, Bauchi	General Agriculture

COLLEGES OF EDUDCATION		
1.	Hill College of Education, Akwanga	Biology
2.	College of Agriculture, Nutru, Bauchi	
3.	College of Education, Akwanga	
4.	Kaduna State College of Education, Gidan Waya	
5.	Federal College of Horticulture, Dadin Kowa, Gombe State	
6.	College of Education, Gindiri,	
7.	Federal College of Education, Pankshin,	
8.	Federal College of Education, Akwanga	
9.	Federal College of Forestry, Jos	
10.	College of Education, Akwanga	
SCHOOLS		
1.	Senior Secondary Schools	97

The Total number of Schools that visited in 2015 is Ninety Seven (97).

Challenges

- The Excursion Officer needs some protective wears like raincoats, rain boots and incentives i.e. hazard allowance.
- Reprint of more copies of the Institute's Brochure which gives detailed history of the Institute.

APPLIED BIOTECHNOLOGY

Mandate

- The Biotechnology Division of the National Veterinary Research Institute has the following mandates:
- Research into all aspects of animal diseases, treatment and control using biotechnology techniques.
- Development of animal vaccines, sera and biologicals using biotechnology techniques.
- Laboratory diagnosis of animal diseases using biotechnology methodologies.
- Development and validation of biotechnology techniques for national use in diagnosis and research.
- Conducting national and international trainings on biotechnology methodologies in diagnosis and research.

Activities

Research

There are currently two approved projects in the division

- Evaluation of the Immunogenicity of Haemagglutinin Genes of H5N1 Sublineages of AI Virus from Nigeria for Vaccine Development - ARCN CARGS Project.
- Molecular Epidemiology of African Swine in Nigeria (Under NVRI-IAEA Research Contract No.18347/R0). The first is on halt for lack of funds while the second is in progress. As confirmed by the second project, ASFV circulating in Nigeria belong to genotype I, but five new variants have been detected, the fifth(Tet-20) being the most widely distributed displacing the Tet-36 variant previously reported in the 2003 - 2006 epidemiologic study. The study has also discovered co-infection of ASFV with Torque teno sus virus in domestic pigs in Nigeria which is most likely a new emerging trend.
- Two small in-house projects: Optimization and Adoption of RT-LAMP for Rapid Detection of Peste des Petits Ruminants Virus in Nigeria. and Surveillance of Microbial Population in Raw and Treated Water in Jos and environs) were initiated in 2014 and are at some level of execution.

Collaboration/Bench Work Activities

Fifteen postgraduate students (Ahmadu Bello University Zaria - 6; University of Jos - 8; University of Agriculture Markudi - 1) had their laboratory research work in the division involving a total of six hundred and thirty-five(635) isolates/clinical samples and seeds. Two researchers of the institute also carried out identification and characterisation of their isolates in the division involving thirty(30) isolates - *Capripox* isolates(23) and *Pasturella multocida*(7).

Laboratory Diagnosis

Ninety (90) clinical samples were received from the Central Diagnostic Division for biotechnology laboratory diagnosis. Seventy (70) were rabies virus samples, while twenty (20) were African swine fever clinical samples.

Trainings/Workshops Conducted

The division conducted a five-day(26th -30th October, 2015) training on PCR methodology and diagnostics for ten(10) postgraduate students of the Department of Parasitology, Faculty of Veterinary Medicine, Ahmadu Bello University Zaria.

Staff Training

Five (5) members of staff of the division are on postgraduate training. Three are on PhD programmes (i.e. Dr. Antiabong J. F., Dr. Luka Pam D., Dr. Benshak J. A.). Two are on M Sc programmes (i.e. Dinchi A. Tyem; Oluchi Ibem- Awoloh).

Dr. Obishakin T. E., Dr Ogedengbe M.E. and Dr. Owolodun O.A. who were on PhD programmes have successfully completed their PhD programmes and resumed duty within the period under review.

Achievements

IAEA contract grant for ASF epidemiology in Nigeria was won by Dr Pam D. Luka to span up to 2016. Two members of staff (Dr Emmanuel T. Obishakin; Miss Anvou Jambol) were sponsored to attend the 3rd General Assembly Meeting of the African Research Network for Neglected Tropical Diseases at Protea Ryalls Hotel, Blantyre, Malawi.

Publications

Three papers were first authored and published by three members of staff of the division while five were co-authors in five published papers during the year under review. The papers by first author and journal are as follows:

Owolodun et al., (2015). *Tropical Animal Health Production*; 47:1437 - 1441.

Ogedengbe et al., (2015). *International Journal of Parasitology*.

Yakubu et al., (2015). *Biotechnology and Molecular Biology Reviews*; 10(3); 19 -36.

The co-authored papers are as follows:

Ogedengbe JD et al., (2015). *Parasitology Research*; 114(11). DOI.10.1007/s00436-015-4646-1.

Hafeez et al., (2015). *Parasitology Research*; DOI.10.1007/s00436 - 015-4361-y.

Orji et al., (2015). *African Journal of Biotechnology*: 14(19):1605-1613. DOI: 10.5897/AJB2015.14411.

Moustafa et al., (2015). *Prev. Vet. Med.* doi:10.1016/j.prevetmed.2015.09.002.

Moustafa et al., (2015). *Trop An Hlth Prod* 47:1279-1284. doi:10.1007/s11250-015-0860-

Conference/Seminar/workshop papers were as follows:

Chima et al., (2015) Comparative analysis of garlic extracts and conventional antibiotics on selected pathogenic bacteris. Presented at the 28th Biotechnology Society of Nigeria, Godfrey Okoye University Enugu, 24th – 25th August, 2015. Pam et al., (2015). Metagenomic profile of the viral communities in raw and treated water in Jos (Plateau State, Nigeria) and environs: 1st International Conference on Biosciences Research, ICBR 2015. Awka, Nigeria. 25th -27th May, 2015.

Pam et al., (2015). Torque teno sus virus (TTV) detection from pig samples collected from some slaughterhouses in Nigeria: 1st International Conference on Biosciences Research, ICBR 2015. Awka, Nigeria. 25th -27th May, 2015.

Obishakin et al (2015). Generation of Nanobody Targeting the Paraflagellar Rod Protein of Trypanosomes.

Obishakin et al (2015). Cutaneous Leishmaniasis in Nigeria: Microscopic and Molecular Evidence of a Clinical Case.

Challenges

The division requires two laboratory assistants.

- The division requires two sets of agarose gel electrophoresis apparatus (Bio-Rad) and protein electrophoresis apparatus.
- Laboratory reagents and consumables are in short supply.
- Repairs and servicing of some equipment and laboratory fittings are urgently needed.
- Constant supply of water for routine use in the laboratory is a major constraint

Future Plans

- The division plans to establish polyacrylamide gel electrophoresis (PAGE) for protein based research.
- The existing projects and collaborative research projects will continue as funds become available and will be pursued with much vigor to achieve the remaining set objectives. Diagnostic analysis and collaborative research with national and international institutions and organizations will continue.
- The division has plans to conduct trainings on modern veterinary and medical biotechnology diagnostic and research techniques for both national and international participants.
- The division has a plan to develop new proposals and to pursue access to grants both at the national and international levels.

BACTERIAL RESEARCH DIVISION

Functions and Mandate

- To conduct research in all aspects of bacterial diseases of animals, their treatment and control.
- To develop bacterial vaccines, sera and biologicals to meet the national demand
- To provide surveillance and diagnosis of bacterial diseases of Livestock nationwide
- Research and production of ethno veterinary products
- To participate in external agency research projects
- To assist in training of intermediate manpower in veterinary laboratory technology and animal health and production technology.

The Division is made up of the following sections:

Mycoplasma Research Section

Activities:

Routine Laboratory Diagnosis:

- Serology:
 - Bovine Sera Processed = One hundred and Forty four (144)
 - Positive Bovine Sera = Fifty five (55)
- Culture and Isolation:
 - Bovine isolates processed = Three hundred and twenty three (323)
 - Positive Bovine isolates = Twelve (12)
 - Caprine isolates processed = Three (3)
 - Positive Caprine isolates = Two (2)
 - Avian isolates processed = Fifty three (53)
 - Cell Cultures processed = Three (3)
 - Total number of samples processed: Three hundred and eighty two (382)
 - Total number of positive samples: Fourteen (14)

Achievements:

Increase in number of isolates in the isolate bank of MmmSC strains, isolated from nasal swabs and pleural fluid.

Future Plan:

- Procurement of items/equipment
- Viability test on presumptive isolates
- Molecular characterization of these isolates will commence (When funds are available).

Brucellosis Research Unit

Specific notable activities of the year

Routine

- Routine serological diagnosis carried out by Rose Bengal Plate Test (RBPT) on 29 serum samples consisting of 13 from bovine, 4 from canine and 12 from ovine.
- Routine cultural diagnosis were also carried out on 10 samples , consisting of 1 foetal abomasums and 1 amniotic fluid from ovine , 3 vaginal swab and 3 milk sample from bovine, 1 vaginal swab from canine ,1 Vaginal swab from caprine
- Serum samples from experimentally vaccinated sheep were received from an M.Sc student from UNN for the determination of antibody titre. One set of 11 sera taken prevaccination and 8 sets of 11 sera taken weekly post vaccination for 8 weeks. Antibody titre was determined by serum agglutination test (SAT).

Achievement

- All the 29 serum samples tested were negative by RBPT.
- No *Brucella* isolated.
- High antibody Titre was detected from sera collected from vaccinated sheep post vaccination throughout the period of the experiment.

Future Plans

- Sero-prevalence, Isolation and identification of *Brucella* in dogs and pigs
- Sero-prevalence, Isolation and identification of *Brucella* in hospital patients.
- Molecular characterisation of *Brucella* isolates.
- *Brucella* antigen production. Preliminary study on the adoption of conjunctival vaccination for the control of Brucellosis in cattle.

Salmonella Section

Specific Activities

- 54 samples brought from CDL for routine diagnosis were analyzed.
- Drug residues: Testing was carried out on 3 samples brought from Regional Laboratory.
- Serotyping of on suspected Salmonella isolates sent to Italy has commenced.

Achievement

- 37 *Salmonella* isolates obtained
- 2 samples were positive for antimicrobial drug residues

Future Plan

To complete the serotyping of all the *Salmonella* isolates

Report On Students On Industrial Attachment:

Sixty-two (62) students from various tertiary institutions in the country were received and trained on laboratory procedures for the diagnosis of bacterial diseases by the division.

Challenges

- The protein profiles of *D. congolensis* isolates, a very critical part in dermatophilosis research could not be carried out because the reagents were expired.
- Poor yield of dermatophyte isolates resulting from lack of inclusion of selective components (cyclohexamide + chloramphenicol) during preparation of mycological media.
- The factory for ethno veterinary products could not operate at full capacity due to inadequate supply of raw materials.
- Late arrival and inadequate materials, reagents and equipment.
- Inadequate freezers to store large amount of sera
- Lack of CO₂ incubator.
- Lack of digital weighing balance.
- Lack of incubator shaker.
- Erratic power supply which affect some equipment.
- Inadequate reagents for serological work (ELISA kit).
- Lack of Milli-pore filters (0.45µl).
- Problem of water supply

Publications:

Ducrotoy, M., Bertu, W.J., Matope, G., Cadmus, S., Conde-A´lvarez, R., Gusi, A.M., Welburn, S., Ocholi, R., Blasco, J.M., Moriyo´n, I (2015). Brucellosis in Sub-Saharan Africa: Current challenges for management, diagnosis and control. Acta Tropica <http://dx.doi.org/10.1016/j.actatropica.2015.10.023>

Bertu, Wilson J., Ducrotoy, Marie J., Mu˜noz, Pilar M., Mick, Virginie, Z´u˜niga-Ripa, Amaia, Bryssinckx, Ward, Kwaga, Jacob K.P., Kabir, Junaid, Welburn, Susan C., Moriy´on, Ignacio, Ocholi, Reuben A (2015). Phenotypic and genotypic characterization of *Brucella* strains isolated from autochthonous livestock reveals the dominance of *B. abortus biovar 3a* in Nigeria. Veterinary Microbiology <http://dx.doi.org/10.1016/j.vetmic.2015.08.014>

Bertu W. J., Ocholi R. A., Gusi A. M., Abdullahi S., Zwandor N. J., Durbi I. A. A., Opara J., Okewole P.A (2015). *Brucella abortus* infection in a multispecies livestock farm in Nigeria. International Journal of Biotechnology and Food Science Vol. 3(3), pp. 36-40

Gusi, Amahyel Madu, Ocholi Reuben Adama Bertu Wilson James, Moses Hassan, Ibrahim Lubabatu, Mwankon Esther Wungak Yiltawe, Woma Timothy Yusufu and Ularamu Husseini Gulak.(2015). Sero-Prevalence of Camel Brucellosis in three abattoirs of Northern Nigeria. Journal of Vet. Med. and animal health. 7(11) pp 328-330

Bertu, W. J., Kwaga, J.K.P., Kabir, J., Ocholi, R.A., Gusi, A.M., Ngulukun, S.S., Ekong, P., Mwankon, E., Hassan, M., and Ignacio, M (2015). Comparison of brucellosis seroprevalence in cattle in kachia grazing reserve and the Jos Plateau. Paper presented at the 52nd NVMA congress, Garden City, 2015

Bertu, W. J., Kwaga, J.K.P., Kabir, J., Ocholi, R.A., Gusi, A.M., Ngulukun, S.S., Mwankon, E., Hassan, M., Ekong, P., Maurice, N.A and Moriyon, I (2015). Isolation of *Brucella abortus* biotype 3 from cattle in Kachia Grazing Reserve and Jos-Plateau and their Identification by Bruce-Ladder Multiplex PCR. The proceeding of the 51st Annual Congress of the Nigeria Veterinary medical Association (NVMA).

Bertu, W. J., Ocholi, R.A and Moriyon I (2015). Isolation of *Brucella abortus* biotype 3 from cattle in Kachia Grazing Reserve and Jos-Plateau and their Identification by Bruce-Ladder Multiplex PCR. NVRI, SEMINAR SERIES 2015.

Ikpa, L.T, Damter, F.E, Maichibi, S, Kigbu, S, Nendir, U, Ankeli, P.I, and Adah, M.I (2015). In vitro antimicrobial susceptibility assay on two isolates of bovine mycoplasma. Paper presented at the 52nd NVMA congress, Garden City, 2015

Jasini, A.M, Livinus, T. Ikpa. Fati, A.L, Enenche, F.E and Quagar, T. Tizhe (2015). Detection of antibodies to *Mycoplasma mycoides* subspecies *mycoides* in cattle using Competitive Enzyme- linked immunosorbent Assay. International Journal of current microbiology and Applied Sciences. 4. Pp 770-777.

BIOCHEMISTRY DIVISION

Mandate and Functions

The mandate of Biochemistry Division is “To conduct research into all aspects of Animal Nutrition, Veterinary Toxicology, Chemical pathology and Drug development for the prevention, treatment and control of Animal diseases”. The Division is subdivided into four sections namely: Clinical Biochemistry, Nutrition, Toxicology and Drug Development sections.

Specific Activities

During the report period the following projects were handled by the Division:

- Phytochemical, Nutritional and medicinal evaluation of plants in NVRI, Vom and environs.
- Effects of grazing on oxidative stress in grazing ruminants.
- Effects of selected infestation on nutrient quality of fish (collaborative research between Parasitology and Biochemistry Divisions)
- Antinutritional, Phytochemical and toxicity profile of some dry season browse plants found in Bauchi and Plateau States.
- Therapeutic and safety evaluation of combined aqueous extracts of *Azadirachta indica* and *Khaya senegalensis* in chickens experimentally infected with *Eimeria* oocysts (2015 NEF project).

Achievements

As a result of hard work done in the Division some research projects handled by the Division were completed while others are near completion. Results from NVRI plant samples (project 1), showed presence of reasonable quantities of protein suggesting their nutritive value potential while preliminarily results in fish work (project 3) showed decreased protein and lipid levels.

As part of the achievements, the following articles are in Press:-

Gotep JG, Oladipo OO, Makoshi MS, Doku ET, Asala MT, Eki MM, Yusuf HB, Akanbi BO, Isa S, Dogonyaro BB, Okewole PA, Atiku AA, Ahmed MS, and Nduaka CI (2015). Toxicological evaluation of *Euphorbia hirta* on baby hamster kidney (BHK-21) cells and in Albino rats. European Journal of Medicinal plants.

Atiku A, Oladipo OO, Gilead F, Abdullahi SU, and Mancha M, (2015). Anti-nutritional and phytochemical profile of some browse plants grazed upon by ruminants in North Central Nigeria.

Falang KD, Uguru MO and Gotep JG (2015). Acute and sub-acute toxicology of HRT 123 herbal formular. Journal of Advances in Medical and Pharmaceutical Sciences,4(4): 1-8.

Routine Activities

The Division analysed a total of eight hundred and twenty four (824) samples. One hundred and twenty six (126) samples were from the Institute, comprising of water samples from the reservoir, feed from Dagwom farm and biological samples from Diagnostic Division.

The remaining six hundred and ninety eight (698) were commercial samples from outside the Institute and across the Country. They were for nutritional, biochemical and toxicological analyses. A sum of nine hundred and sixty thousand, nine hundred (~~₦~~960, 900.00) naira was realized from the analyses and the money has since been remitted to the Institute accordingly.

Distilled water – A total of one thousand two hundred and twenty two (1,222) litres of distilled water was produced and supplied to various laboratories in the Institute.

Training

Staff of the Division attended various professional conferences, seminars and workshops in addition to the Divisional and Institute seminars that held during the year.

Also two (2) staffs were approved to proceed on training that will lead to the award of Doctorate degree (PhD).

Challenges

- The new auto amino acid analyser and high performance liquid chromatography (HPLC) procured for the Division has not been installed.
- This has greatly affected both research and routine activities of the Division. In addition to the above the Atomic Absorption Spectrophotometer (AAS) installed has broken down thus hindering micro and macro mineral elements analysis.
- Fluctuations in power supply have caused frequent burning of electric cables which stalled utilization of Freeze drying machine in Drug Development Section.
- Non availability of reagents and tests kit was responsible for the low number of samples analysed as some clients were either turn down or referred to other places where they can have their needs met.
- Lack of constant water in the reservoir hampered our routine water monitoring as pumps in the dams and boreholes were broken down.
- New Staff have been employed and posted to the Division. This development has increased pressure on the limited stools, chairs and tables that are available in the Division.

BACTERIAL VACCINE PRODUCTION DIVISION

Mandate

To develop and produce animal vaccines (bacterial vaccines), sera and biological to meet national and regional demands

Achievements

- A notable achievement was the review of the shelf-life of Hemorrhagic septicaemia vaccine (HSV) from 3 months to 12 months (1 year). The decision to review the shelf-life was taken in December by IMC following a published work on the shelf-life and potency of the vaccine, in the journal ,Zariya Veterinarian. (Odugbo MO & Gilbert N . (1989). Re-evaluation of the shelf-life of Vom haemorrhagic septicaemia vaccine. *Zariya Veterinarian*, Vol 4 (2): 74-76).
- The Table below gives the total doses of bacterial vaccines produced in the year 2015.

Bacterial Vaccine Production Division Production figures 2015

MONTH	ASV	BV	BQV	CBPP	FCV	FTV	HSV	H/VAC	TOTAL
Jan.				400400					400,400
Feb.	348400								348,400
Mar.				396000			20880	44280	461,160
Apr.		439100							439,100
May									
Jun.			699000		113000	481100			1,293,100
Jul.									
Aug.	354400				172400	385500	37600		949,900
Sep.				798200	331600	710800	57440	58080	1,956,120
Oct.	712000	977200	658000		276800				2,624,000
Nov.									
Dec.	344400		305000	1234400		750000	42400		2,676,200
Total	1759200	1416300	1662000	2829000	893800	2327400	158320	102360	11,148,380

Total doses produced in 2015 = 11,148,380

Keys:

ASV: Anthrax Spore Vaccine

BV: Brucella Vaccine

BQV: Black Quarter Vaccine

CBPP: Contagious Bovine Pleuro Pneumonia

FCV: Fowl Cholera Vaccine

FTV: Fowl Typhoid Vaccine

HSV: Haemorrhagic Septicaemia Vaccine

HV: Hantavac Vaccine

Challenges/Future Plan

- The production of Bacterial vaccines has faced several challenges due to:
- Frequent break down of one or two of the available freeze-drying machines.
- Shortage of 200 ml capacity bottles, for a better part of year, for packaging the wet products.
- Infrequent availability of raw materials especially the ones sourced from without.
- At the end of the year 2015, a new Head of BVPD, Mr Gimba Haruna was appointed, while the former was promoted to the position of Director and given a new portfolio (Director Production).

NVRI CONSULTANCY UNIT

The consultancy unit of the institute was set up to provide services to the general public and generate income for the Institute. The services provided are: laundry services, ambulatory services, chair rentals, bus service, waste management, training, sale of ethno-veterinary products and sale of meat (beef, goat, sheep, and chicken).

In 2015 the renting of canopies and chairs dropped because the chairs and canopies are in bad condition.

With the introduction of IPPIS in the institute, the payment for waste management by staff living in NVRI quarters became poor because of none deduction from salary source and lack of commitment by staff to pay up. Almost 90% of what is generated from this service goes to the contractor who owns the refuse disposal vehicle.

Challenges

The major challenges facing the consultancy unit are:

- None payment of waste management by some staff living in NVRI quarter which make the unit owing the contractor up to ten month
- Lack of funds which hamper the unit to carry out its routine and planned activities.
- Insecurity in the country has made ambulatory service almost impossible.
- The old canopies and chairs do not attract good patronage.

Future plan

- The unit hopes that better funding will be provided in 2016 for short, medium, and long term plans of the unit.

Short Term Plan

- Renovation of NVRI Abattoir
- Selling of frozen meat (beef, goat, sheep and chicken meats), to customers (Hotels and individual) in Plateau, Nasarawa Benue, Abuja and other states
- Registration of contractors with different Government Institutions and Organizations at Federal and States level
- Purchase of new chairs, canopies, bridal stand, and tables for rental services
- Securing a temporary place for proper storage of chairs, canopies, bridal stand and tables.
- Advertisement of the Consultancy services through print media (hand bills, leaflet), electronic media (radio, and television) & seminars
- Over hauling the Hilux vehicle for effective ambulatory services
- Purchase and installation of two dry cleaning machines in the laundry section
- Training of laundry staff on dry cleaning
- Establishment of laundry collecting point at Bukuru, and Jos metropolis
- Training workshop for meat inspectors and butchers in plateau, Nasarawa, Benue, Bauchi States etc

- Production of sachets water and bottle water for sale
- Proper packaging of ethno veterinary products for sale to some pharmaceutical stores in Plateau, Bauchi, Benue, Abuja and other states
- Establishment of commercial poultry (broiler and pullet) farm
- Commercial quails production
- Repair of echet truck for waste disposal
- Sales of NVRI vaccines, veterinary kits, reagents, veterinary drugs and other veterinary equipments
- There is need for the consultancy unit to have it own separate block, this will reduce traffic in Parasitology Department.
- All consultancy services will be available from Monday to Saturday from 8:00am to 6:00pm and as such staff of the unit will be available to render the services

Medium Term Plan

- Commercial production and sale of day old chicks to general public
- Production of commercial feed for poultry, livestock, horses, dogs
- Production of commercials incubators (electric, and kerosene)

Long Term Plan

- Fattening of rams, cattle and goats for sale
- Establishment of commercial pasture for sale
- Establishment of Guest House around Abuja

DAGWOM FARM DIVISION

Introduction:

Dagwom farm division has four sections: Feed mill, Rabbitry, Fabrication and Stores.

The division carried out the following activities in 2015:

- Production of standard quality livestock feed to support vaccine production and research.
- Researched and formulated appropriate livestock feeds for adequate performance.
- Production of rabbits for replacement and extension to interested organizations, Institutions and individuals
- Cross-breeding rabbits to improve adaptability, feed conversion and carcass yield
- Investigation of common diseases of rabbits to improve performance
- Production of cheaper and affordable kerosene powered incubators with high efficiency.
- Adequate storage and issue of feed ingredients and finished feeds respectively.

Achievements

Production, Distribution and Sales

Feed Mill

The feed mill section produced and distributed 364.4 tons of feeds and 4,600 litres of crude soya oil.

The sum of 414,000.00 only was realized from the sales of 3600.00 litres of oil.

Rabbitary Section

Rabbits Production For Research, Replacement and Sales

S/N	CATEGORIES OF RABBITS	OPENING STOCK	CLOSING STOCK	PRODUCTION	SALES	AMOUNT (₦)
1	Does	124	91		86	86,000.00
2	Bucks	23	24		67	67,000.00
3	Growers	99	19		113	158,300.00
4	Weaners	102	27		1437	1,002 600.00
5	Litters	242	112	2,536	-	-
6	TOTAL	590	273	2,536	1,703	1,313900.00

Fabrication Section

Kerosene incubator Production and sales

QUARTERS OF THE YEAR	STOCK BAL. (B/F)	NO. CONSTRUCTED	TARGET	NO. SOLD	COST PER UNIT	TOTAL COST(N)
1 st quarter	2	5	33	2(two)	45,000.00	90,000.00
2 nd quarter	-	10	33	1(one)	45,000.00	45,000.00
3 rd quarter	-	5	33	3(three)	65,000.00	195,000.00
4 th quarter	-	Nil	33	4(four)	65,000.00	260,000.00
Total	2	20	132	10(ten)	-	590,000.00

Stores Section

Summary Of Materials Issued From Stores Section For Da Gwom Farm /Lid In

S/N	ITEMS	B/F DEC. 2014(KG)	QTY RECEIPTS (KG)	TOTAL BALANCE (KG)	QTY ISSUED (KG)	UNIT PRICE (₦)	AMOUNT (₦)	STOCK BALANCE (KG)
1	Maize	36,305.98	210,000	246,305.98	231,817.7	110	25,499,947	14,488.28
2	Soya beans	25,346	66,910	92,256	81,846	170	13,913,820	10,410
3	Wheat offal	18,400	120,000	138,400	124,204	80	9,936,320	14,196
4	Limes stone	15,199.95	30,000	45,199.55	18,317.75	45	824,298.75	26,882.2
5	Bone meal	17,715.75	3,405	21,120.75	19,024.25	85	1,617,061.25	2,096.5
6	Methionine	122.125	375.0	497.125	354.87	2,850	1,011,379.5	142.25
7	Lysine	108.17	375.0	483.17	354.25	1,850	655,362.5	128.92
8	Common salt	3,687.875	NIL	3,687.875	2,459.75	66	162,343.5	1,228.125
9	Fish meal	466.3	NIL	466.3	220	1,150	253,000	246.3
10	Toxynil	-	-	-	-	-	-	-
11	Mycotoxin binder	199.1	100	299.1	256.875	1,350	346,781.25	42.225
12	Nutrizyme	56.815	75.0	131.815	88.832	1,237	109,885.184	42.983
13	Chick Premix	123.75	25	148.75	106.25	1,250	132,812.5	42.5
14	Grower Premix	35.0	112.5	147.5	141.875	950	134,781.25	5.625
15	Layer Premix	6.875	225	231.875	231.875	980	227,237.5	Out of stock
16	Breeder Premix	86.875	-	86.875	86.875	1,650	143,343.75	Out of stock
17	Empty bags	11,836	25,000	36,836	14,205	62	880,710	22,631 (pcs)
18	Broiler Starter	-	-	-	-	-	-	-
19	Broiler finisher	50.0	-	50.0	50	800	40,000	Out of stock
	TOTAL						₦ 55,889,083.9	

Key Constraints and Challenges

- Delayed installation of a new INSTA- PRO EXPRESS System model 2000.
- Insufficient water supply influences rabbit nutrition and sanitation
- Obsolete feed mill and fabrication equipment: Reduces productivity, quality and increase cost.
- Inadequate Staff office accommodation: Unsuitable working environment, reducing motivation
- Inadequate feed ingredient storage facilities: Increase risk of weevils, insect's, fungi and rodent attacks to minimize wastage
- Lack of livestock and poultry performance records from user Divisions and sections:
- Lack of a weigh bridge which leads to poor estimates of actual quantities of raw materials (feedstuffs) received from suppliers.
- Lack of a Divisional vehicle delays farm operations
- Lack of grain pre-cleaning machine: Difficulty to manually clean grains and feedstuff before storage.
- Lack of constant power supply: Poor lightening of the entire farm, this increase cost of production is a (disease) security risk in general.
- Delay in fund release to purchase incubator materials: Long delay of product release to our teaming farmers
- The need to constitute a feedstuff procurement/advisory committee to set standard for all incoming ingredients
- Ingredients supplied in used sacks makes storage for longer periods impossible.

CENTRAL DIAGNOSTIC DIVISION

Introduction

The Central Diagnostic Laboratory and Division operate under the Department of Diagnostic and Extension services of the National Veterinary Research Institute, Vom. The Division is divided into seven (7) sections: microbiology, clinical pathology, epidemiology, histopathology, necropsy, small and large animal experiment stations; and four (4) units: rabies, serology (for viral diagnosis), laundry and wash-up. The CDL is the major driver of the Institute's role as a National and Regional laboratory for avian influenza and other trans-boundary animal diseases in west and central Africa.

Mandate

Central Diagnostic Division is mandated to do the following:

- Clinical outreaches (i.e. ambulatory services) to pets, farms and wildlife parks.
- Diagnosis and surveillance of diseases (emerging and re-emerging) within the Nation and the Sub-region.
- Isolation and identification of important livestock disease causing agents.
- Collates, sorts, analyze and model appraisal of disease data stored in the section, on weekly, monthly and quarterly basis for adequate emergency preparedness, timely intervention and disease control strategies.
- Report urgently high risks or newly emerging and re-emerging diseases to designated authorities for immediate intervention and control.
- Prepare reagents for clinical pathology and hematological analysis.
- Manages and maintains livestock for research by (i) evaluating and allocating space for experiment and (ii) ensuring bio-safety measures are adhered to at the station.
- Produce laboratory animals for research, diagnosis and quality control purposes.
- Generate revenue for the institute by selling laboratory animals to project students from various Institutions.
- Use pathological, microscopy and immune-histochemical tools to diagnose diseases of domestic, wild and laboratory animals through ante and post-mortem examination of live animals or carcasses.
- Produce interim and final reports of diagnostic cases and advice farmers/clients on possible treatment and control measures within 24hours of examination.
- Conducts serological diagnosis of avian disease especially Newcastle and Infectious Bursal diseases through HA/HI and AGID respectively and sero-monitoring for poultry farmers after vaccination. .
- Surveillance and diagnosis of rabies in all animals.

Activities of the CDL

The Microbiology section isolated microorganisms using non-conventional method (i.e. use of commercially prepared biochemical test kit). The section hosted undergraduate and postgraduate research projects in the year under review.

The Epidemiology section collated data, analyzed and performed quick appraisal of data on the current highly pathogenic avian influenza outbreak. Results were reported to designated government offices for timely control intervention in the affected states. Diagnoses of cases were confirmed by the CDL and the regional laboratory of the Institute.

The section also presented an awareness seminar on the epidemiology and spread of the current outbreak of highly pathogenic avian influenza across the affected states of the federation.

The clinical pathology section analysed whole blood and serum samples for haematology and clinical pathology tests, while experimental animals used for two research projects: (i) evaluation of poultry enzyme on growth performance of broiler and, (ii) 2015 NEF-NVRI Toxicology Internship Programme were housed in the large animal experimental section.

A total of 1598 experimental animals were successful reared in the small animal experimental section, one thousand and two (1002) were distributed to user departments i.e. CDL, NEF Internship Programme, viral research and biochemistry departments.

Necropsy and histopathology section: In the year 2015, the first reported case of highly pathogenic avian influenza disease in Nigerian poultry for that year was recorded on the 7th of January, 2015.

Sera samples were received by the Serology unit from different farms in Plateau for sero-monitoring and diagnosis. Human sera samples for a student project were also sero-monitored. About eighty (80) samples were screened for Newcastle disease antibody and about sixty two (62) were positive.

A total of 187 specimens from more than five (5) species of animals were received and diagnosed for rabies in the Rabies unit. A total of 174 (93.0 %) were from domestic dog, 2 (1.1%) from cattle, 4 (2.2%) from sheep, 3 (1.6%) from goat, 1 (0.5%) from cat and 3 (1.6%) from wildlife. Cases from rabid suspected animals numbered 175, while 12 were from necropsy for routine post mortem diagnosis. A total of 103 (55.1%) from domestic dogs only were confirmed positive..

Achievements

Microbiology section: (I) a total 669 samples were received this year, comprising of samples from avian, ovine, laprine, caprine, canine, feline, wildlife, swine, bovine, water, broth, VVP and contaminated broth from regional laboratory. Avian had the largest samples and out of the 669 samples, 641 different isolates were identified. They include *Salmonella gallinarum*, *Salmonella* spp, *Escherichia coli*, *Klebsiella aerogenes*, *K. oxytoca*, *Staphylococcus aureus*, *S. Epidermidis*, *Clostridium difficile*, *Pseudomonas aeruginosa*, *P. cepacia*, *Pseudomonas* spp, *Bacillus subtilis*, *Bacillus* spp, *Neisseria catarrhalis*, *Enterobacter gergoviae*, *Enterobacter* spp, *Proteus vulgaris*, *Proteus morgana*, *Micrococcus* spp, *Streptococcus faecalis*, *Streptococcus* spp, *Aeromonas* spp, *Candida albicans*, *Cndida* spp, *Aspergillus flavus*, *A. Fumigates*, *A. Niger*, *Mucor spp* and *Trichophyton* spp. The most prevalent are *Escherichia coli* 350, *Salmonella gallinarum* 55, *Bacillus* spp 55, *Proteus* spp 31, *Staphylococcus aureus* 26, *Staphylococcus* spp 31 and *Salmonella* spp 7.

(II) The section hosted undergraduate and postgraduate students from different Universities for their research and thesis work. Eighty five (85) students on industrial attachment from 15 different universities were trained.

In addition to reporting avian influenza outbreaks to designated authorities, the Epidemiology section designed short and long term research projects for the year 2016.

Haematology tests (avian 8; bovine 17; canine 6 and caprine 3) and clinical chemistry (caprine 1 and avian 36) were carried out in the Clinical pathology section

Necropsy and histopathology section: the necropsy section received and processed one thousand, three hundred and forty-six (1,346) (CD/01-A/15 – CD A1358 /15) ante and post-mortem cases. These comprised of 1,057 avian, 32 bovine, 185 canine, 24 caprine, 1 feline, 18 laprine, 22 ovine, 2 porcine, and 5 wildlife cases. For avian species, mostly diagnosed diseases include highly pathogenic avian influenza (HPAI), colibacillosis, colisepticaemia, fowl typhoid, fowl cholera, gumboro, lousiness, helminthosis, salpingitis, coccidiosis, aspergillosis, Newcastle disease, Marek's and other bacterial septicaemias. Bovine cases consisted of trypanosomosis and ruminal impaction. Canine cases showed rabies, leptospirosis, parvoviral enteritis and neoplasms. In caprine, bacteria septicaemias was diagnosed. Laprine cases had coccidiosis, colibacillosis, and fungal infection. Ovine samples had bacterial septicaemia and pneumonia while the wildlife sample had heart failure. The section also processed a total of one thousand, one hundred and twenty six (1126) biopsy/post-mortem animal tissues from three hundred and fifty two (352) cases involving avian, bovine, canine, laprine, ovine, porcine and wildlife (primate, ostrich, python) species, from the necropsy section.

Serology unit successfully screened eighty samples of avian sera for Newcastle disease antibodies.

The Rabies unit tested one hundred and eighty seven (187) specimens from more than 5 animal species for rabies and sent out results of diagnosis to clients that submitted the samples. The unit successfully participated and passed the FAT and the conventional RT-PCR tests in the Annual Proficiency Test in rabies diagnosis. Test was administered by the EU reference laboratory for rabies at the Lyssa virus unit of Nancy laboratory, France.

Challenges

- Lack of some reagents;
- Non- functional electrical sockets of the working bench
- The 'Leec' CO₂ and cold temperature incubator are non-functional.
- Electrical repairs of some equipment (autoclave and distiller) were not successful.
- Only one old desktop computer is available for use, hence successful execution of activities are either slowed or hindered
- Lack of epidemiological and statistical software (such as SPSS, STATA, Arc GIS (Redland, USA) or updated version of Microsoft office and active antivirus protection.
- No external drives for backup of the sectional disease database and printer.
- There is need for one or two notice boards for showcasing the works of the section.
- Laboratory machines (i.e. biochemistry analyser, heamo-analyser, spectrophotometer and incubator) are not working.

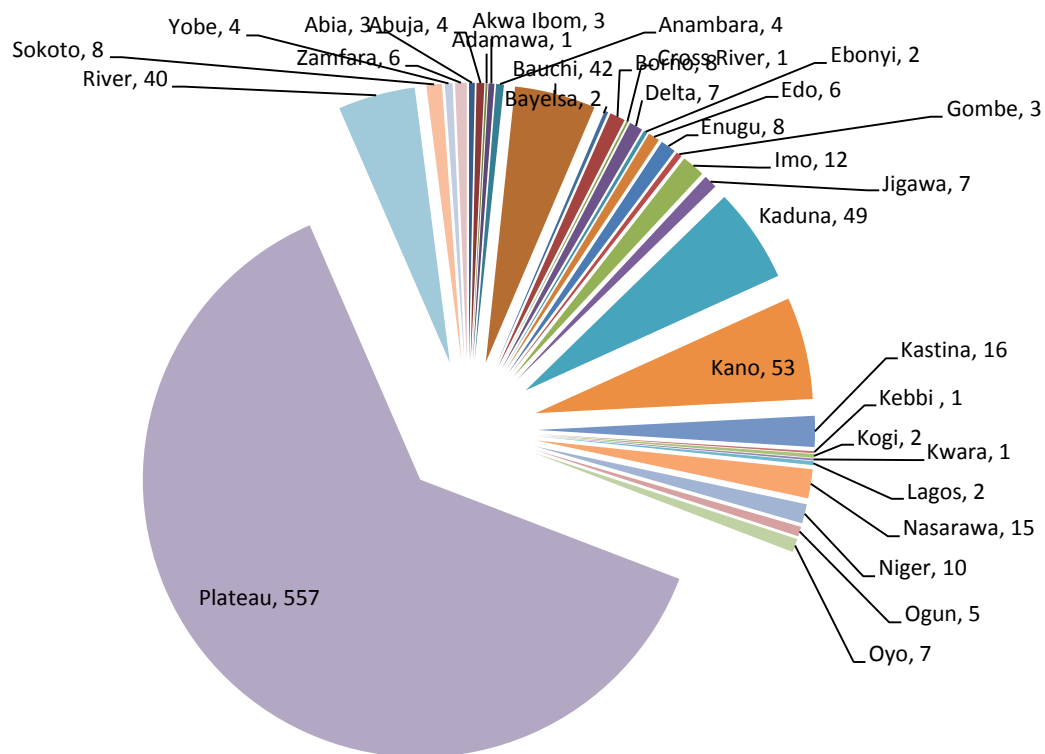
- Fencing of the large animal experimental section is inadequate, which allows the animals to get out, thus, making bio safety management difficult. (
- Lack of infrastructures such as offices, toilets, hay ban, water troughs and surface tank.
- Lack of adequate water supply and overhead water tank
- There are cracks in walls and zinc leakages in the entire small animal house, leading to constant problem of reptiles (snake) and wild rat roaming the vicinity of the station.
- Serology unit is experiencing shortage of staff and lack of antigen to run serological tests.
- Non-availability of panel of monoclonal antibody for Nigerian isolates of rabies virus.

- Limited training of staff of the section has delayed the section from meeting the needs of the clients

Future plans

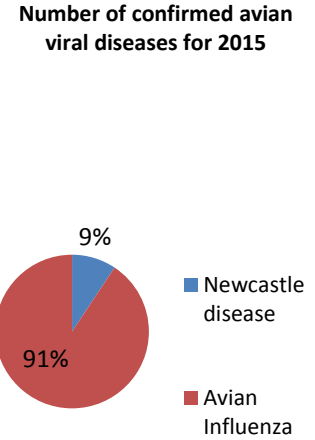
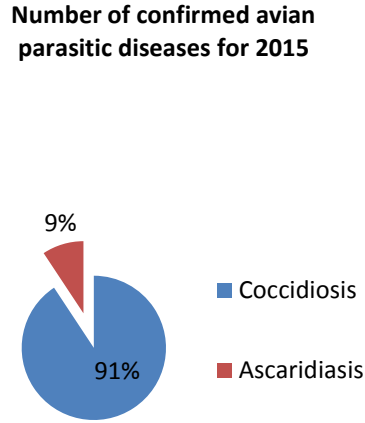
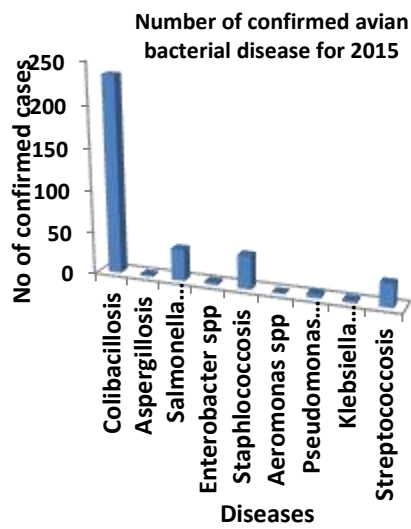
- Molecular characterization of isolates
- Freeze drying of important bacterial and fungal isolates
- Collaboration with reference laboratories to obtain reference strains
- Introduction of non-conventional method of identifying microorganism in the laboratory
- Continued routine bacteriological analysis of treated and untreated water around Vom and its environs
- Enhance the mobilization of revenue for the Institute through commercialization of students research work.
- Develop capability for disease appraisal and modelling of possible disease spread/outbreak scenarios based on results of data analysis.
- Designing, supervising and completing both short and long term research projects that will result into at least 2 publications each year.
- Upgrade the laboratory with a portable biochemistry analyzer and a veterinary **heamoanalyzer**
- Ready availability of **hematological** and clinical chemistry reagent for quick and quality work delivery at all times.
- Encourage training of staff on how to use and fix minor faults of the laboratory equipments.
- Procurement of drugs and scale machines for the cattle, sheep, goat and chicken
- Construction of experimental houses for mice, rats, guinea pigs and rabbits
- Repair of fences and office structures at the station and building of toilets and bathrooms for staff.
- Increase the number of albino mice, albino rats and rabbits.
- Introduce exotic breeds of rabbit to the crosses available in the section and guinea pigs.
- Production of hyper immune serum for Infectious bursal disease (IBD), positive antisera for Newcastle disease (ND), positive antigen for ND, positive antigen for IBD.
- Replace the mouse inoculation test (MIT) with rabies tissue culture isolation test (RTCIT) for isolation of rabies and related viruses
- Antigenic typing of available rabies and related virus isolates for archiving and further research studies.
- Acquisition of the panel of monoclonal antibody (MAb) to Nigerian isolates of the rabies virus.
- Submission of proposal to the Institute on a survey of rabies and/or related viruses in bats, rodents and wildlife that are incriminated in the epidemiology of rabies in Nigeria.

1.0: Total number of samples received by the CDL per each state of the federation that submitted samples to the division for the year 2015.



2.0: Summary of confirmed disease cases for each species for the year 2015, as provided to the epidemiology section of the CDL.

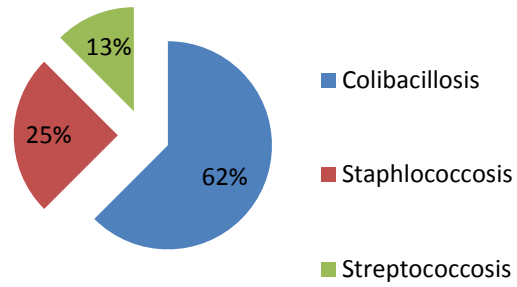
2.1: Avian



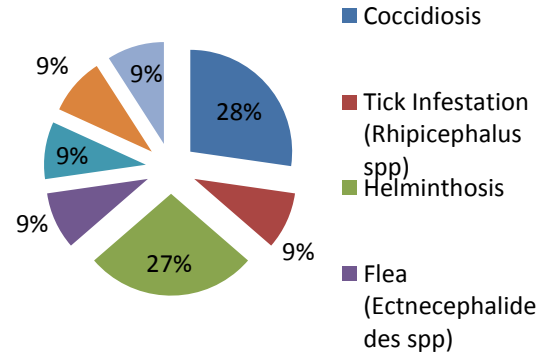
2.1 Above shows the number of confirmed avian diseases for the year 2015. Colibacillosis is the highest confirmed bacterial disease, while Coccidiosis is shown to be the most prevalent parasitic diseases and the highly pathogenic avian influenza is the most prevalent viral disease.

2.2 Ovine

Number of confirmed ovine bacterial cases, 2015



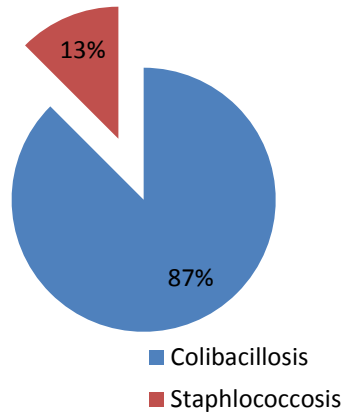
Number of confirmed ovine parasitic diseases, 2015



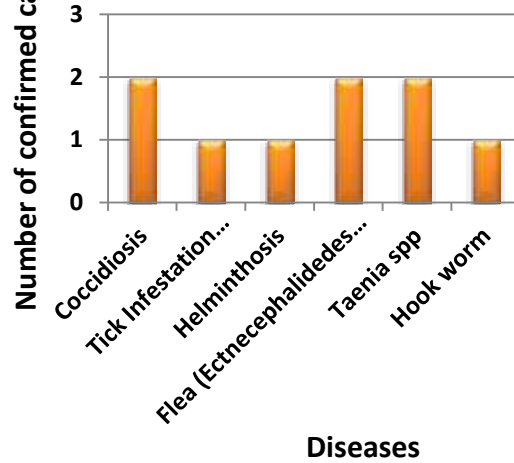
2.2: Displays the number of confirmed ovine diseases for the year 2015. Similar to the case of the avian, Colibacillosis is also the most prevalent bacterial disease, while Coccidiosis and Helminthosis are both shown to be the most prevalent parasitic diseases for ovine during the year.

2.3 Caprine

Number of confirmed caprine bacterial diseases, 2015



Number of confirmed caprine parasitic diseases, 2015



2.3. Presents the number of confirmed caprine diseases for the year 2015. Colibacillosis is again the highest confirmed bacterial disease, while Coccidiosis, Flea infestation and Taeniasis are the most prevalent parasitic diseases of caprine for the year.

2.4 Bovine

Number of confirmed bovine bacterial cases

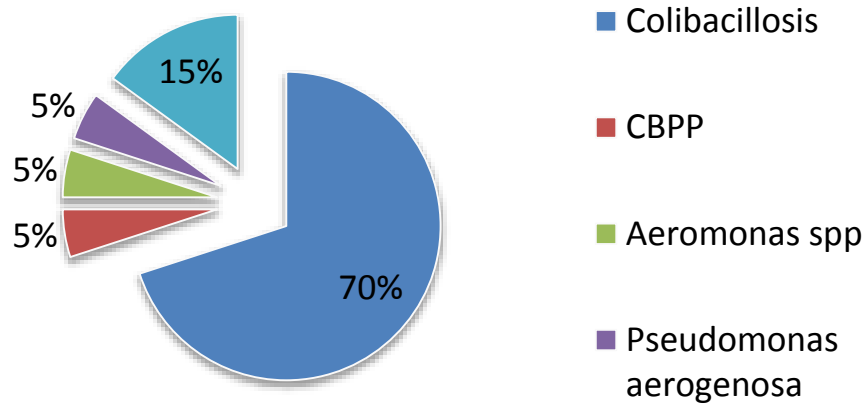
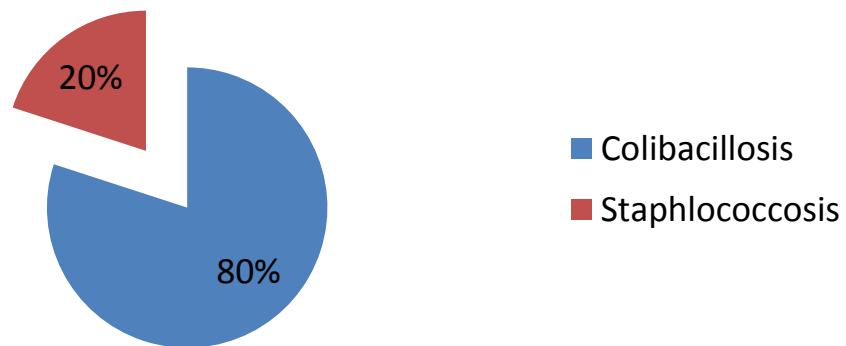


Figure 2.4 displays the number of confirmed bacterial diseases of bovine for the year 2015. Colibacillosis is the highest confirmed bacterial disease, while CBPP is among the least prevalent of the species for the year 2015.

2.5 Canine

Number of confirmed canine bacterial diseases, 2015



2.5 displays the number of confirmed bacterial diseases of canine for the year 2015. Colibacillosis is the highest confirmed bacterial disease for the year.

DERMATOPHILOSIS RESEARCH LABORATORY

Mandate of the Division

- Research on dermatophilosis of livestock
- Research on mycotic organisms of livestock especially those associated with *Dermatophilus congolensis* infection
- Research and production of ethno veterinary products (Lamstreptocide A&B) and Dermatocide (soap, ointment and lotion) for the treatment of skin diseases in animals and humans respectively.

Activities

- Collection of skin scabs/scrapings from cattle, sheep and goats
- Direct microscopic examination of skin scabs/scrapings for *Dermatophilus congolensis* and fungi
- Culturing of skin scabs/scrapings on Bacteriological and mycological media for *D. congolensis* and fungal isolation
- Biochemical characterization of *D. congolensis*
- Morphological and Microscopic identification of fungal isolates
- Documentation and preservation of *D. congolensis* and significant fungal isolates especially dermatophytes
- Teaching of students on industrial attachment

Achievements

Bacteriology:

One hundred and fifty-one (151) cattle skin scab samples were collected and processed for bacteriology. 136(90.1%) of the samples were positive for *D. congolensis* while 15(9.9%) were negative.

Mycology

Six hundred and ninety-six (696) samples were collected and processed for mycology. 679 (97.6%) (634 from humans and 45 from animals) were positive for fungi, 17(2.4%) of these samples were negative. *Trichophyton mentagrophytes*, *Trichophyton species*, *Sporothrix scenkii*, *Aspergillus niger*, *A. flavus*, *Penicillium spp.*, *Scopulariopsis spp.*, *Fusarium spp.*, *Rhizopus spp.* *Curvularia spp.* and *Mucor spp.* were the fungi isolated from humans while *Aspergillus flavus*, *A. nigger*, *Mucor spp* and *Acremonium spp* were isolated from animal samples.

Factory (ethno veterinary) products:

The under listed ethno veterinary products were produced within the period in view

Dermatocide® 3M soap	1,320 tablets
Dermatocide ®3M ointment (120 grams)	130 units
Dermatocide® 3M ointment (40 grams)	100 units

Students on Industrial Attachment:

Sixty-two (62) students from various tertiary institutions in the country were trained on laboratory procedures for the diagnosis of Dermatophilosis and dermatomycoses.

Challenges

- The protein profiles of *D. congolensis* isolates, a very critical part in dermatophilosis research could not be carried out because the reagents were expired.
- Poor yield of dermatophyte isolates resulting from lack of inclusion of selective components (cyclohexamide + chloramphenicol) during preparation of mycological media.
- The factory could not operate at full capacity due to inadequate supply of raw materials.

Future Plan

- To collect and process more samples for bacteriology and mycology
- To characterize and preserve all *D. congolensis* and significant fungi especially dermatophytes and carry out molecular characterization of both *D. congolensis* and fungi isolates
- To determine the protein profiles of all *D. congolensis* isolates
- To determine the susceptibility of *D. congolensis* and fungi isolates to standard antibacterial and antifungal agents respectively
- To increase production of ethno veterinary products to meet public demand

FINANCE AND ACCOUNTS

Presently the Directorate has 54 members of staff made up of 48 in Vom and 6 in the Outstation Laboratories.

Accomplishments

Budget:

The Division has consistently prepared and presented timely budget for the Institute and has always met the deadlines set for it.

a. Institute's Requirement:

Capital	=	1,446,174,374.00
Other Charges	=	488,041,408.00
Personnel Emolument	=	1,989,129,218.00

b. Amount Appropriated:

Capital	=	195,539,012.00
Other Charges	=	136,001,724.00
Personnel Emolument	=	1,989,129,218.00

c. Amount Released

Capital	=	97,769,500.00
Other Charges	=	136,001,724.00
Personnel Emolument	=	1,989,129,218.00

d. Shortfall on Appropriation Releases

Capital	=	97,769,512.00
Other Charges	=	-
Personnel Emolument	=	-

Internally Generated Revenue

S/No	INCOME HEAD	AMOUNT
1	Vaccine Production	113,863,683.00
2	Biochemistry	956,300.00
3	Bacteriology	49,050.00
4	Contract Reg. /Tender	-
5	Cyber Café	-
6	Dagwom Farm / LID	1,644,303.00
7	Dermatophilosis	224,650.00
8	Diagnostic/ Lab Analysis	53,400.00
9	Guest House	2,212,630.00

10	Small Animal	57,750.00
11	LID	2,082,000.00
12	Virology	18,000.00
13	NEF	2,890,000.00
14	Poultry	3,262,050.00
15	Rent	5,083,587.00
16	Staff School	14,744,000.00
17	Other Incomes	317,100.00
18	Joint Grand Cereal Project	4,803,418.00
19	Interest on Bank Deposit	731.53
	TOTAL DEPOSITS	152,262,652.53

Treasury Single Account (TSA)

- The Federal Government in 2015 instructed that all MDAs must close down all accounts with Commercial Banks on or before 15th of September 2015 and all balances were transferred to TSAAccount before the deadline date.
- The Federal Government also instructed that all MDA's must migrate all their accounts with Commercial Banks to the Treasury Single Account (TSA) with the Central Bank of Nigeria. This implies that henceforth, all payments for Internally Generated Revenues will be paid through the TSA account with CBN through all Commercial Banks.

Constraints

- **Outstanding liabilities (unpaid vouchers)**
During the year there were so many payment approvals that the fund available was insufficient. Such vouchers are still pending as outstanding liabilities on the Institute.
- **Lack of office space and furniture for few staff.**
The shortage of office accommodation and furniture in accounts department has made staff to be sharing offices and table. Most of our offices are accommodating more staff than necessary.

INTERNAL AUDIT

The mandate of the Internal Audit Department is to provide a comprehensive and continues audit of the accounts and records of the Institute, and to carry out Management audit.

The Main Functions of the Internal Audit Includes

- Ensuring compliance with rules, regulations and procedures in the conduct of government business.
- Ensuring that adequate and accurate book of accounts and records of the Institute are kept.
- Examining the procedure and processes of all major operations with the aim of identifying areas where efficiency and effectiveness can be improved.
- Ensuring that the systems of internal control for all operation are adequate and functional.

Activities

- In line with our mandate, we attained 100% pre payment audit in the year.
- We are continuously on post-payment audit including payroll that is under IPPIS.

Achievements

- In the first quarter of the year, we presented audit report to the Governing Board of the Institute.
- We presented audit reports to the executive Director on various aspects of the Institute ranging from ways and means of improving revenue generation and cost-cutting measures.
- We interacted with the accounts department on ways and means of improving internal control.
- We also carried out the verification of the payments of pensions to ensure every Pensioner got his/her rightful entitlement based on what were released from the Insurance Company.

Challenges:

- Late submission of records from accounts department to carry out routine assignment whenever we request.
- The financial constrain on the Institute has made staff training almost impossible. Training is necessary for the acquisition of latest knowledge in the field of Auditing.

Future Plan

We hope to widen our scope of operation to cover areas that have not been touched for sometimes.

LIBRARY AND DOCUMENTATION

The NVRI library is designed to meet specialized information resources, and delivery of specialized services to its clientele. The library was established to support the mission and mandate of the institute, through acquisition and organization of library materials, and services targeted to meet the needs of its clientele.

In the light of the above the Institute's library is saddled with the following objectives and divided into four (4) service points.

Objectives

- To provide research scientists access to the right information, in the right form and at the right time.
- To establish a computerize information system for easy access to current information on animal health and production from all over the world.
- To create and manage local databases on the country's animal health and production research activities.
- To provide extension workers access to information that covers a wide range of problems and solutions to enable them transfer this knowledge to end-users.
- To link up with international computerize information system such as databases of the Common Wealth Agricultural Bureau (CAB Abstract), Agricola Database, Medline Databases and Agris Databases, CD ROMs by Consultative Group on International Agricultural Research.

The Circulation Section

The circulation section disseminated research findings and scientific information on medical, veterinary and allied sciences through books, staff thesis, reports and other reference materials.

During the period, the section received and answered queries from two hundred and eleven clienteles (211), comprising of seventy three (73) staff of the institute, thirty two (32) students from the Federal College of Medical and Laboratory Technology Vom, sixty seven(67) students from the Federal College of Animal Health and Production Technology Vom and Thirty nine (39) referral visits from other Institutions. Books where issued out to staff of the Institute on special loan services for their research works for a period of two weeks. The section received and documented thirteen (13) theses and projects by staff of the Institute.

The Serial Section

The serial section of the library witnessed a depreciable demand of journals from research staff due to the fact that no new journal titles held in reference for the Institute research interest were subscribed to for the past six years, coupled with the problem of lack of internet services. However appreciable numbers of staff make use of the library for the purpose of reading and research.

The Technical Section

During the period reviewed, the unit received five (5) books three (3) journal titles and one hundred sixty five (165) pamphlets as gratis from (ACIAR) and WAAPP. Seven hundred and sixty thousand (760,000) barcode labels were applied on books and scanned into liberty3 software.

The Electronic Library Section

This section provides scientific information from CD ROMs. Internet services were not available coupled with faulty computers.

Challenges

- Some library books have been mutilated and needs to be rebounded before their bibliographic information can be captured and bar coded.
- The single user license of Liberty 3 library software makes retrospective conversion of library recourses cumbersome.
- Low patronage of the library due to the lack of new subscription of journals and failure of internet services in the library.
- The 3.0 Kva APC UPC is weak and cannot reserve power; subsequently making data entry difficult coupled with power fluctuations.

Future Plans:

- Complete digitization of library holdings and access to the digitized resources through OPAC (Online Public Access Catalogue).
- Additional 16 computers will be needed for the E-library for better information retrieval services
- More databases to be subscribed to the library

PARASITOLOGY DIVISION

Introduction

In pursuant of the mandate of the Division which includes; conducting research into parasitic diseases of economic importance to livestock, provision of timely and accurate diagnosis of parasitic diseases and training of middle level manpower among others, the under listed are some of the activities of the Division geared towards achieving the mandate in 2015. The activities were conducted at the various sections (Protozoology, Helminthology, Entomology, Immunology, Ethno-Veterinary and Molecular Parasitology) of the Division to encourage participation of all staff and ensure every case was handled by a specialist in order to arrive at accurate diagnosis of samples.

Routine Diagnosis

The distribution of samples received and processed in the Division in 2015 is presented in Fig 1.

Protozoology Section

A total of 936 samples (914 blood and 22 brain tissue) were received for diagnosis during the year under review. Canine blood samples constituted 54.5% of the samples submitted followed by bovine, bats, caprine and ovine samples as 33.3%, 8.4%, 1.9% and 1.7% respectively (Fig 1). Of these samples, 137 (15%) were positive for various hemoparasites. The commonly diagnosed parasites include *Babesia bigemina*, *B. bovis*, *Trypanosoma* spp, *Microfilaria*, *Theileria mutans*, and *Anaplasma marginale* in ruminants, *Babesia canis* and *Hepatozoon canis* in dogs and *Babesia* spp merozoites and gametocytes in fruit eating bat samples.

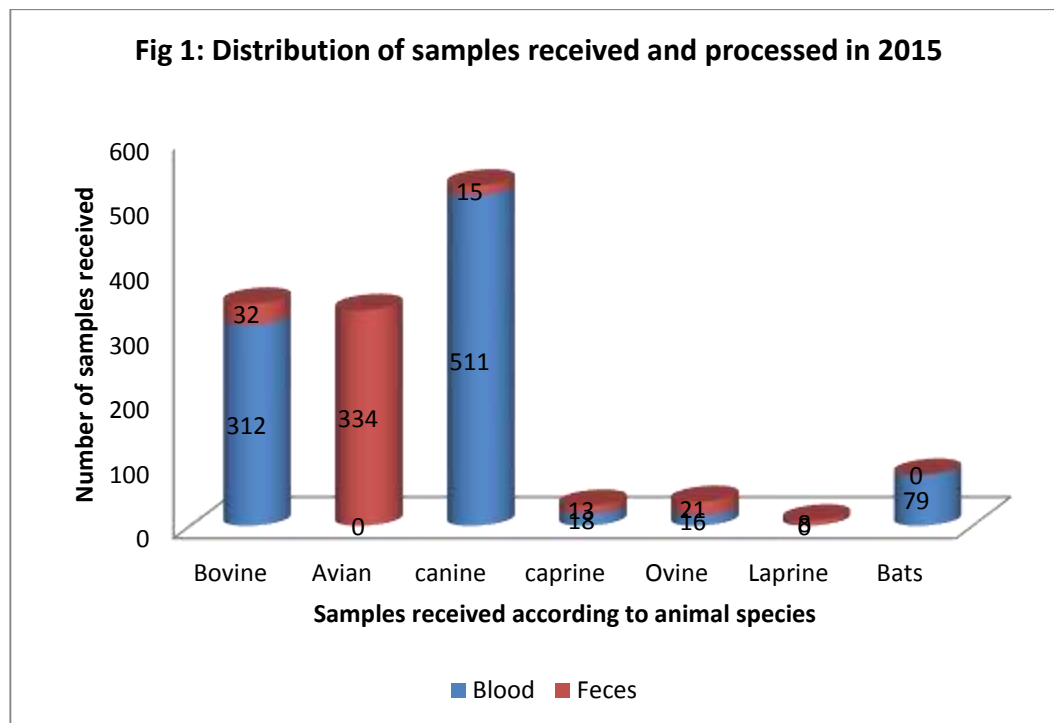
Helminthology Section

Fecal and intestinal segments (mainly from chicken) submitted to the section numbered 417 of which 173 (41%) were positive for single or multiple parasite egg or cysts. Intestinal segments of chicken constituted the bulk (80%) of the samples submitted and worryingly greater than 36% of them were infected with coccidia oocyst. This underscores the fact that *Eimeria* spp. constitutes a major impediment to successful poultry production in the country. Other helminthes routinely diagnosed were *Hemonchus* spp., *Dicrocoelium dentriticum*, *Oesophagostomum* spp., *Ascaris lumbricoides*, *Ascaridia galli* etc.

Entomology Section

Ticks and skin scarring samples were received for identification in this section. A total of 34 samples were received and processed. Morphological identification was aided by

the used of standard taxonomical keys and where necessary, cultural and spiracular plating methods were employed especially for dipterous flies. Ticks were identified mainly as *Rhipicephalus* spp., and *Amblyomma* spp., while fleas were *Ctenocephalide* spp. another sample was identified as *Oestrus ovis*.



Ethno veterinary Production Unit

During the year under review, a total of 3,580 Scabicur® products comprising 2,708 soaps, 220 lotions and 652 ointments were produced and supplied to the Consultancy Department of the Institute for marketing.

Furthermore, in a bid to improve the efficacy, potency and safety of the products, the Unit has successfully in-cooperated an herbal component into a new range of products and has commenced trials in animal and human patients. So far a total of 41 patients (animals (5 dogs, 2 goats) and 34 humans) have used the new product against various skin ailments such as ringworm, scabies, mange, rashes, eczema etc and over 80% of them have shown good recovery rate.

Training and Supervision of Projects and NEFT Interns

Staffs of the Division were actively involved in the training of students on Student Industrial Work Experience Scheme (SIWES) as well as processing, analysis and supervision of Diploma, Higher National Diploma, Undergraduate and Graduate projects. A total of 73 students on SIWES were trained while samples from 3ND/HND, 2 BSc, 2 MSc and 3 PhD student projects were analyzed during the year. We equally

supplied *Eimeria* oocysts to 2 postgraduate students for their project work which was conducted outside the Institute.

Worthy of note is the participation of our staff as one of the mentors to the 2015 NEFT Toxicology Internship programme. The Division participated in the project design, isolation and sporulation of *Eimeria* oocysts, experimental challenge and estimation of oocysts load, thereby ensuring the success of the project.

Seminar Presentation

Four staffs of the Division presented seminars in the Institute highlighting the socioeconomic effects of parasitic diseases on the livestock industry in Nigeria. The prevalence of parasitic conditions of livestock, use of molecular and cultural methods for diagnosis of parasitic conditions as well the potentials of extracts from plants materials for the control of fascioliasis were presented and discussed.

Challenges

The challenges we have experienced over the years are:

- Lack of funds to conduct research activities in the Division.
- Need more staff to man the various Units of the Division
- Some newly supplied equipment eg Water distiller and ELISA reader could not be installed, therefore negatively affecting the operations of the Immunology Unit. We equally lack some reagents and consumables especially in the molecular parasitology laboratory.

Future Plans

We plan to undertake the following activities to enhance research in the Division.

- Constitute a think tank and grant writing group in the Division to explore avenues for sourcing research grants.
- Conduct pilot/preliminary studies on some neglected parasitic diseases of livestock to generate data that will support our documents for sourcing grants from some funding agencies.
- Registration of Scabicur[®] with NAFDAC.

PLANNING DIVISION

Planning, Monitoring & Evaluation

The Division serves as the **DATABANK** of the Institute. It is charged with the Formulation, Co-ordination, Monitoring & Evaluation of the Institute's projects and programmes. It is also charged with the responsibility of collecting, collating and analyzing all kinds of data for effective implementation of the Institute's Mandates.

Activities

The **DATABANK** unit of the Division processed several data relating to Research, Human Resource Development and Socio-Economic activities of the Institute such as, Quarterly Progress Report of NVRI Specialised Research Programmes, Staff Nominal Roll and Staff Training among others. These Data were sent to Federal Ministry of Agriculture & Rural Development, Agricultural Research Council of Nigeria (ARCN), Nigerian Communications Commission and Other Government Agencies.

Other Activities of the Databank Unit the following:

- Inventory of the Institute's landed properties all over the country were updated
- Processed various data on Appointments, Promotions, Retirements/ Resignations, Various Postings to Divisions, Units and Departments, Change of Names and Cadres among others.
- The Hard copies of the Institute's map kept in a Map Cupboard and the backup Soft copy were maintained
- A database of the Institute's Furniture is being created
- The Inventory of all the computers of the Institute was updated.
- The database of visits of Dignitaries to the Institute was updated.
- Some of these data collated were used to attend to various questionnaires that were brought to the institute within the year.
- The Statistics Section continued the compilation of Vaccine data for the year 2015.
- Data collected were for Production (Bacterial, Viral), Sales, Stores, Demand and Supply.
- The following figures show bacterial and viral vaccine production as well as vaccine demand and supply data charts and graphs.

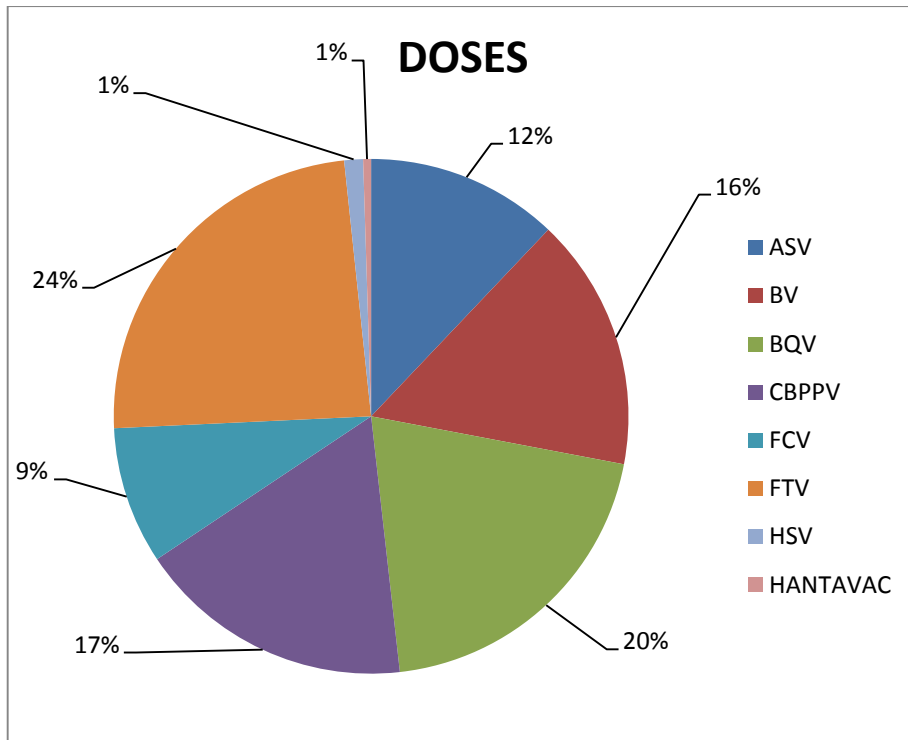


Fig. I: Bacterial Vaccine Production Chart.

Key:ASV = Anthrax Spore Vaccine

BV = *Brucella* Vaccine

BQV = Black Quarter Vaccine

CBPPV = Contagious Bovine Pleuropneumonia Vaccine

FCV = Fowl Cholera Vaccine

FTV = Fowl Typhoid Vaccine

HSV = Haemorrhagic Septicaemia Vaccine

HANTAVAC = Clostridial Vaccine

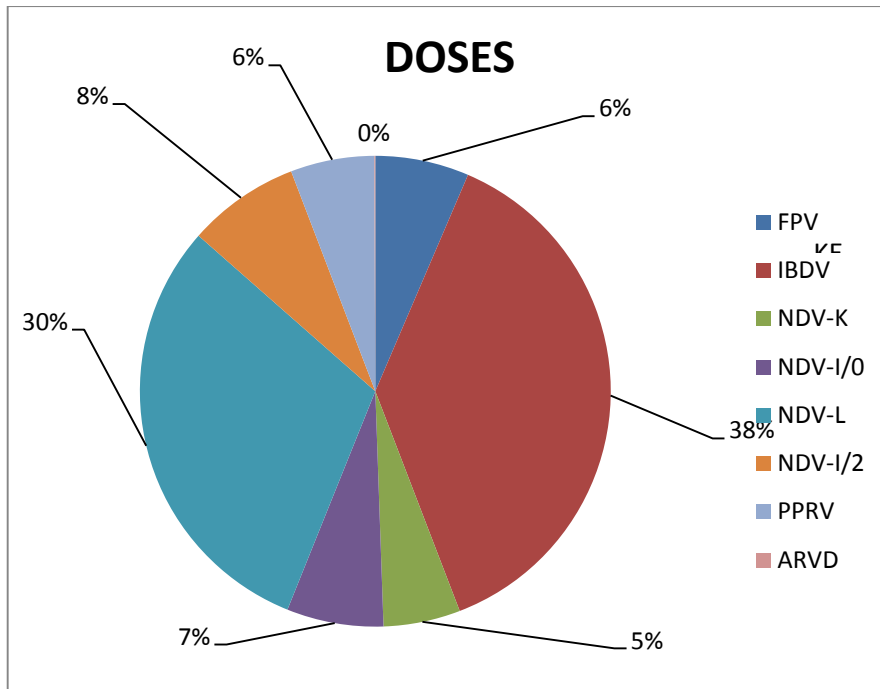


Fig. II: Viral Vaccine Production Chart.

Key:

FPV = Fowl Pox Vaccine

IBDV = Infectious Bursal Disease Vaccine

NDV-K = Newcastle Disease Vaccine – Kamorov

NDV-I/O = Newcastle Disease vaccine – Intraocular

NDV-L = Newcastle Disease Vaccine – Lasota

NDV-I/2 = Newcastle Disease Vaccine – (Thermostable)

PPRV = Peste des Petit Ruminants Vaccine

ARVD = Anti-Rabies Vaccine for Dogs

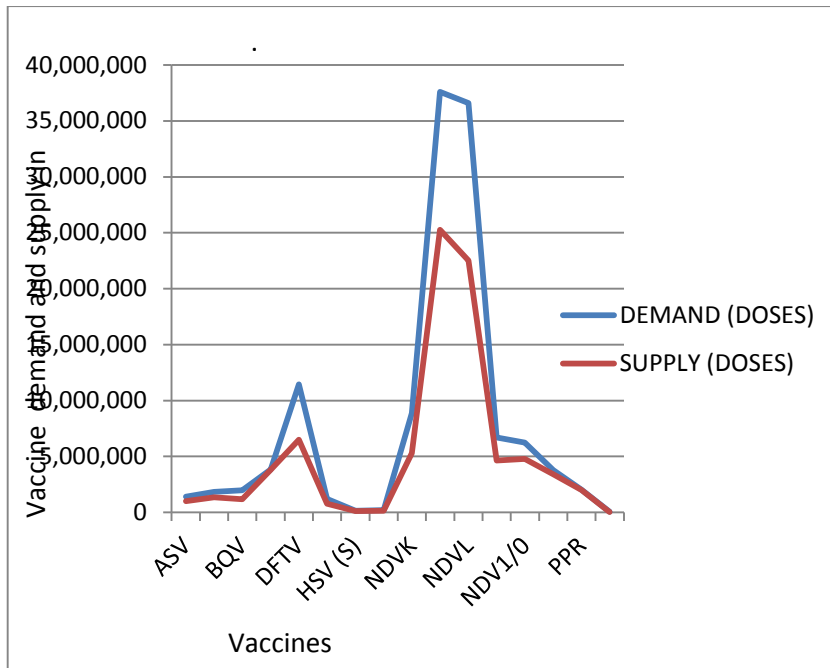


Fig. III: Vaccine Demand and Supply Graph.

Key:

- ASV = Anthrax Spore Vaccine
- BV = *Brucella* Vaccine
- BQV = Black Quarter Vaccine
- CBPPV = Contagious Bovine Pleuropneumonia Vaccine
- FTV = Fowl Typhoid Vaccine
- FCV = Fowl Cholera Vaccine
- HSV = Haemorrhagic Septicaemia Vaccine
- HANTAVAC = Clostridial Vaccine
- NDV-K = Newcastle Disease Vaccine – Kamorov
- IBDV = Infectious Bursal Disease Vaccine
- NDV-L = Newcastle Disease Vaccine – Lasota
- FPV = Fowl Pox Vaccine
- NDV-I/O = Newcastle Disease Vaccine – Intraocular
- NDV-I/2 = Newcastle Disease Vaccine – (Thermostable)
- PPRV = Peste des Petit Ruminants Vaccine
- ARVD = Anti-Rabies Vaccine for Dogs

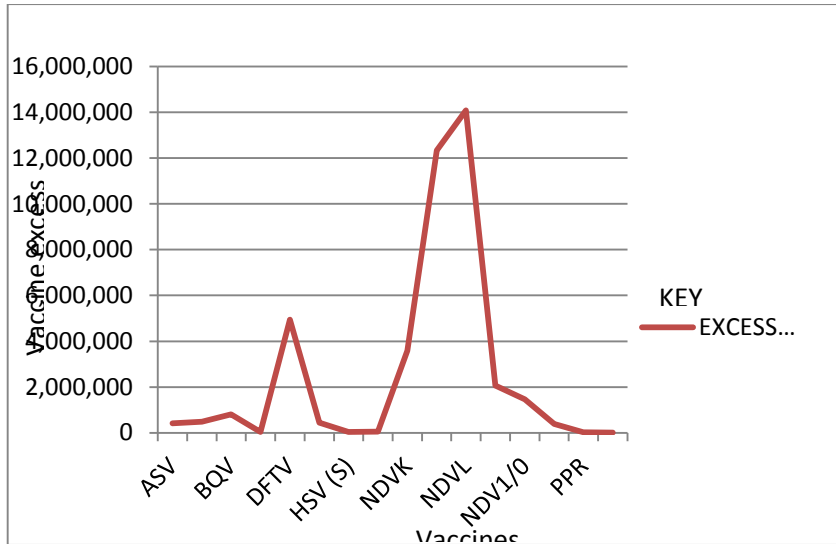


Fig. IV: Vaccine Excess Demand Graph.

Key:

- ASV = Anthrax Spore Vaccine
- BV = *Brucella* Vaccine
- BQV = Black Quarter Vaccine
- CBPPV = Contagious Bovine Pleuropneumonia Vaccine
- FTV = Fowl Typhoid Vaccine
- FCV = Fowl Cholera Vaccine
- HSV = Haemorrhagic Septicaemia Vaccine
- HANTAVAC = Clostridial Vaccine
- NDV-K = Newcastle Disease Vaccine – Kamorov
- IBDV = Infectious Bursal Disease Vaccine
- NDV-L = Newcastle Disease Vaccine – Lasota
- FPV = Fowl Pox Vaccine
- NDV-I/O = Newcastle Disease Vaccine – Intraocular
- NDV-I/2 = Newcastle disease Vaccine – (Thermostable)
- PPRV = Peste des Petit Ruminants Vaccine
- ARVD = Anti-Rabies Vaccine for Dogs

In the section, several research data were brought for analysis. The service was provided for staff and students from the neighbouring schools.

Monitoring and Evaluation Unit

To build the capacity of the Monitoring and Evaluation Unit, a staff of the Division attended a short course in ‘Result Based Management in Monitoring and Evaluation Systems Operationalization’ organized by the Federal Ministry of Agriculture and Rural Development in conjunction with USAID, Feed the Future, and Africa Lead in Abuja from December 14th-19th, 2015.

Contributory Pension Scheme

- Data of NVRI Staff due to retire between January and December, 2016 was submitted to PENCOM on 18th February 2015. The submission was in accordance with PENCOM required format for the purpose of organizing ‘Verification and Enrolment Exercise’ for the affected persons.
- NVRI staff due to retire between January and December, 2016 were presented for Verification and Enrolment exercise by PENCOM in Federal Polytechnic, Nasarawa on 5th and 6th August, 2015.
- NVRI staff due to retire between January and December, 2016 were presented for pre-retirement workshop organized by PENCOM at National Women Centre, Abuja on 22nd July, 2015
- Delayed payment of retirement benefit for some retired and disengaged staff of NVRI was properly addressed
- Payments of deceased staff pension contribution to their respective Next-of-Kin were processed.
- Bulk remittance of contribution backlog was effected for affected officers.
- Anomaly of multiple registrations (registration with two different Pension Fund Administrators) by some staff was handled.

The National Health Insurance Scheme Unit

During the year under review, a total of 179 NHIS forms were processed. These were 99 forms for new registration, 54 additions of dependants, and 35 changes of data and Primary Healthcare Providers. Three replacements of ID cards were made, 1 change of employer data and 2 changes of name and 4 wrong name spellings. Those who were registered during the period under review and their names have appeared in the database of NHIS have been issued printouts to enable them access their healthcare providers pending the receipt of the identity cards. However, a list of staff without NHIS ID cards were compiled and submitted to the NHIS office in Abuja Every quota, the updated NHIS lists were obtained to enable staff verify their change of registration data and for issuance of printouts.

Similarly, on the 23rd September, 2015, a sensitization workshop was held on the topic ‘Overview of the National Health Insurance Scheme/Benefit Package’ .This is to enlighten staff on what the scheme is all about and its benefit package. It was to also equip staff so that they know their rights and are not short changed by their healthcare providers. Resource persons came from the NHIS.

In line with the TSA policy of government, a new account was provided for all NHIS financial transactions.

Tenders Board / Procurement Unit

The Tenders Board/Procurement unit of the Planning Department has continued to discharge its mandate of ensuring adherence to Due Process procedures in the award of contracts via advertisement, pre-qualification, open competitive bidding, financial analysis in providing goods and services thereby contributing to the attainment of the objectives/vision of the entire institute and value for money. However, the function and mandate of the unit are as follows:

- Adhere strictly to Due Process Procedure in the awarding of contract as in the provision of the Public Procurement act 2007.
- To advertise intended contracts in two national dailies and the Federal Tender Journal as well as internal advert.
- Issuance of Award of contract as approved by the Institute Tender Board (ITB), Federal Executive Council (FEC) and obtaining a certificate of no objection from BPP for special procurement.
- Collating and maintaining a data base on procurement activities of the Institute and any other work as assigned by the Executive Director.

Activities

In the year under review, the unit was able to adopt special procurement method in the award of contract by seeking the approval of Bureau of Public Procurement for no objection certificate for 2015 procurement.

Challenges

Due to the increasing volume of work in attaining to the objectives/vision of the entire institute in procuring goods and services received from different department of the Institute, the unit is faced with inadequate office space, especially for keeping sensitive documents.

Cyber café unit

This unit comprises of an IT team of staff located in the NVRI Cyber cafe responsible for internet services and interconnectivity, resolving internet downtimes, software upgrades, installations, troubleshooting hardware and IT equipment maintenance within the Institute.

The team experienced some constraints listed below:

- Numerous downtimes recorded from the ISP for long intervals.
- Users with very little or no knowledge on use of computers and Internet.
- Lack of software for installations, upgrades and maintenance.
- Lack of hardware replacement components and devices.
- Limited number of computer systems available for users.

Challenges

One of the most pressing challenges being encountered is the lack of adequate storage devices and functional computers and laptops to ease the execution of various tasks given within the institute.

Future Plans

- To establish effective and efficient information systems to manage the Institute's database.
- Good planning and organisational skills with a strong focus on attention to details, quality and high performance.
- The Cyber Café hopes to raise its capacity for service delivery in line with global practices in order to function effectively as a support system to the research activities of National Veterinary Research Institute Vom.

POULTRY

Functions /mandate of the Division

- To produce fertile eggs for the production of various poultry vaccines.
- To produce chicks for vaccine testing and research purposes.
- Introduction, adaptation and disease management of exotic breeds of poultry.
- Research on production and health of poultry generally.

Specific Activities in the year

- Production of fertile eggs /birds for vaccines production and Research..
- NVRI/GCL Collaborative research projects on production parameters.
- Production of birds for research (Ducks, guinea fowls, quails, black bantam and geese.

Achievements

- Birds were hatched and raised as replacement for older birds in the vaccine birds section.
- Fertile eggs were continuously supplied to the vaccine production laboratories.
- Eggs were incubated routinely for the research and quality control laboratories.
- Collaborative research work with Grand Cereal Limited on feed trials in the farm is ongoing.
- Quail birds and other species of birds with their eggs were produced in the farm. These with their products (egg and meat) were sold.

Health section

In the year under review, the health section of the division in collaboration with the central diagnostic Laboratory (CDL) diagnosed a number of diseases affecting the birds in the division as indicated in the table below:

Table 1: Diseases recorded in birds in the Poultry Division in 2015

S/NO	DISEASE	NO AFFECTED	%
1	New castle Disease	23	29.8
2	Salmonellosis	34	44.1
3	Coccidiosis	6	7.8
4	Colibacillosis	9	11.7
5	Others	5	6.5
Total		77	100

Table 2 Vaccine Birds Egg Production & Disposal in 2015

MONTH	TOTAL PROD	VIROLOGY SETTING	B/FACTOR Y	VISITORS/ ENTERT	HATCHING	BROKENS	DEAD EMBRYO	INFER TILE
Jan	48,576	14,125	19,830	4,322	-	10,299	820	5,500
Feb	64,074	19,580	25,140	5,432	1,505	13,862		
March	69,265	15,875	24,480	8,847	6,200	13,863		
April	59,597	32,195	7,260	4,951	500	14,691		
May	53,387	16,915	8,767	5,925	8,000	13,780		
June	43,923	3,460	13,230	10,325	-	16,908		
July	31,678	15,653	2,970	5,990	-	7,065		
August	26,833	10,473	1,860	6,600	-	7,900		
Sept	21,924	2,700	1,470	4,054	8,000	5,700		
Oct	24,229	10,500	1,920	7,700	60	4,099		
Nov	24,462	12,130	3,060	4,846	432	3,994		
Dec	21,575	5,065	9,660	3,375	108	2,465		
Total	516,523	158,671	119,647	72,367	24,805	114,577		

Egg Production and Utilization

Table 3 Vaccine eggs supplied to production and research laboratories 2015

MONTH	NDV	IBDV	AI/TADS	Q/CONTROL	LID	FPV	TOTAL
January	11,910	1,600	450	420	45	-	
February	15,000	1,600	1,500	420	60	1,000	
March	12,000	400	1,800	630	45	1,000	
April	22,700	1,600	2,400	420	75	5,000	
May	12,000	800	1,800	255	75	2,000	
June	3,000	400	-	-	60	-	
July	15,608	-	-	-	45	-	
August	10,023	-	-	420	-	-	
September	2,700	-	-	-	-	-	
October	10,500	-	-	-	-	-	
November	11,500	-	-	630	-	-	
December	7,455	-	-	210	-	-	
Total							

Table: 3 Egg productions from other species of birds in 2015

MONTH	QUAILS	B/BANTAM	NAKED NECK	TURKEY	DUCK	G/FOWL	GEESE
January	46,013	766	390	1	2,523	31	30
February	59,927	613	336	7	2,694	319	19
March	57,550	646	365	16	2,813	738	7
April	67,495	695	379	11	2,664	690	13
May	60,448	730	534	21	2,773	622	1
June	79,035	558	481	21	2,241	634	-
July	76,773	544	462	11	1,246	363	-
August	70,521	367	393	17	1,602	266	-
September	63,842	333	410	16	3,690	240	-
October	69,680	398	599	17	3,863	167	16
November	61,625	540	515	15	3,614	13	18
December	40,337	697	484	6	2,975	-	25
Total	753,246	6,897	5,348	169	32,698	4,083	129

Challenges

- Dilapidated hatchery due to damage by rainstorm
- Old and obsolete incubators that need urgent replacement
- Lack of mini poultry processing plant
- Dilapidated administrative block and staff offices
- Inadequate junior staff strength

Future Plans

- To stock layers (brown eggers) for table eggs.
- To produce turkey broilers for table meat.

PRINTING AND PUBLICATION DIVISION

Mandate

- To handle all the printing requirements of the Institute
- To formulate new concept, design, code and printing of the entire Institute vaccines labels.
- To publish all scientific and technological research journals that will be sent to the Divisions.

Function

- Vaccine Labels
- Scientific Journals
- Official Sales Invoices
- Officials Receipts
- Yearly Calendar
- File Jackets and official headed papers and envelops
- Examination answers booklets for the colleges etc.

The production of a printed material is classified into three sections namely prepress, press and post press.

Prepress: - (Graphics) this deals with electronic pagination, impositioning and plate making

Press: - (Printing machine) this is where the printing of Vaccine Labels Scientific Journals, Sales Invoices, Receipts. Letter Heads, File Jackets, Examination answer booklets, Posters and other numerous printing is done.

Post Press: - trimming and cutting of papers and other documents

- Folding
- Stitching/Gluing
- Collation
- Dispatch

Jobs Handled From January to December, 2015

The following jobs were produced during the accounting period January to December, 2015

IBDV (Komorov)	-	2530 pieces
NDV-I2	-	3744 pieces
NDV (lasota)	-	4800 pieces

NDV-I2	-	2456 pieces
NVRI Official File	-	5000 copies
NDV-I2	-	8900 pieces
Fowl typhoid	-	5000 pieces
Newcastle disease	-	6020 pieces
EDVR headed paper	-	5000 pieces
2014 Annual Report	-	300 copies
Seminar Series	-	282 copies
NDV – I2	-	19800 pieces
African Education Initiative	-	200 books
Community Animal Health		
Workers in		
Nigeria	-	200 books
NDV -12	-	10,100pcs
CBPP	-	9,500 pieces
CBPP	-	7,670 Pieces
NDV -12	-	10,260 pieces
NDV - 12	-	9,200 pieces
PPR	-	9,020 pieces
PPR	-	10,340 pieces
PPR	-	10,450 pieces
PPR	-	9,500 pieces
FCV	-	720 pieces
BQV	-	1,400 pieces
NDV	-	8,840 pieces
ASV	-	950 pieces
Brucela	-	3,700 pieces
ASV	-	950 pieces
IBDV	-	10,900 pieces
FPV	-	7,200 pieces
NDV - 12	-	10,100 pieces
NDV –L	-	8,400 pieces
CBPP	-	6,900 pieces
IBDV	-	8,532 pieces
ARV	-	9,041 pieces
PPR	-	10,970 pieces
FTV	-	7,620 pieces
FTV	-	7,630 pieces
IBDV	-	7,380 pieces
NDV – K	-	4,120 pieces
PPR	-	10,630 pieces

Training Activities

Two staffs are undergoing training, one pursuing a post graduate programme and the other National Diploma in Printing Technology

Constraints

- Shortage of Technical staff
- Lack of modern printing equipment
- Renovation /creation of additional offices through partition
- Creation of an independent entry (Exit) into the division
- Creation of toilet convenience for the division

Future Plan

At the moment, there are several printing technologies evolving with benefits and value. The division will want to pursue a printing technology that will best suit the need of the Institute in these modern times where exciting quality products of good standard will be produced. The technology will also include the protection of the Institute's numerous brands and other benefits such as:

- Revenue generation; the technology will serve the Institute and customers with similar needs
- Speed and efficiency; a usually long production process is cut short and saves time.
- Producing at the cheapest price possible will attract more customers
- Delivers goods of the right quality and quantity at the right time, and at the right price.
- It motivates and boost the morale of staff etc
- Need of a modern direct image machine for easy printing of vaccine labels and souvenirs. To have the opportunity to attend conferences, Book Fairs and International Printing Exhibitions E.g. FESPA coming up on the 22nd-24th July 2015 in Johannesburg, South Africa and DRUPA etc. The above printing festivities feature live display of the various printing technologies from different companies from all over the world and provide the option to choose a printing technology that best suits the Institute's printing need.
- Need for Technical Staff. Two of the technical staffs were transferred out of the division due to misconduct. At least five (5) Technical staffs are graciously required.

QUALITY CONTROL DIVISION

Functions/Mandate

The Quality Control Division of the National Veterinary Research Institute is saddled with the responsibility of ensuring the implementation of a quality management system (QMS) for the production of veterinary vaccines, biologicals and general laboratory procedures in the institute to meet international standards. Quality control tests on the vaccines are carried out to ensure that they have been appropriately packaged, labelled and stored. Further tests involving purity, sterility, viability, safety, potency and absence of foreign bodies are carried out to ascertain that vaccines are certified fit for field use. Periodic assessment and auditing of all the institutes laboratories are performed to ensure Good Laboratory Practice in accordance to international standards.

Activities

Vaccine Quality checks

Bacterial Vaccines

A total of 24 batches of 8 Bacterial vaccines were sent to the division out of which 20 were tested. These include:

- FCV- 02/15, 03/15, 04/15, 05/15= 4 Batches
- FTV - 01/15, 02/15, 04/15 = 3 Batches
- BAV- 01/15 = 1 Batch
- HSV-01/15, 02/15, 03/15 = 3 Batches
- ASV- 01/15, 02/15, 03/15 = 3 Batches
- Hantavac – 01/1, 02/15 = 2 Batches
- BQV- 01/15, 02/15 = 2 Batches
- CBPPV- 01/15, 02/15, 03/15, 04/15, 05/15, 06/15 = 6 Batches

All vaccines tested passed the stipulated Quality control tests

Viral Vaccines

A total of 68 batches of Viral vaccines were sent to the division out of which 17 were tested. These include:

- NDVL- 01/15-08/15, 10/15, 12/15-20/15=18 Batches
- NDVK- 02/15-04/15, 06/15 = 3 Batches
- NDVi/o - 01/15 - 04/15= 4 Batches
- NDVI₂ - 01/15 - 09/15 = 9 Batches
- IBDV- 01/15 - 07/15, 09/15- 15/15, 17/15, 18/15= 16 Batches
- PPR - 01/15- 07/15, 09/15 = 8 Batches
- FPV - 02/15- 04/15= 3 Batches
- ARV- 01/15- 07/15 = 7 Batches

All vaccines tested passed the stipulated Quality control tests except for PPR which had a low titre. FPV and ARV were not tested due to lack of materials.

Achievements

Results for Quality check on a few CBPPV were obtainable due to materials donated by PANVAC however they ran out of stock in the year being reported.

Seminars/Conferences Attended

- Ten (10) day Training Workshop was organised for all Staff of Quality Control on the quality control of veterinary vaccines by Quality Control Division NVRI, Vom from 18th -27th May, 2015
- Dr. Leo Shedua attended workshop on Molecular Techniques held at the institute of Tropical Agriculture IITA, Ibadan from 4th-8th May, 2015
- Dr.(Mrs) M.N Benson, attended 52th Annual National Veterinary Medical Association at Port Harcourt from 16th -20th November, 2015
- Mr. Oga Onoja attended training in molecular technologies held in mutteng Switzerland from 15th September, 2014 to 14th February, 2015 at the University of Applied Science, Switzerland.
- Mr. Oga Onoja attended training in society and politics Ausbi/dungszentrum, Switzerland from 19th -23rd January, 2015
- Mr. Oga,Onoja Mr. Lokason Sati, Miss Victoria Timothy and Mr. Haruna Dagwong Kwanga attended annual scientific conference of Association of Medical Laboratory Scientists of Nigeria Plateau State chapter held at Hill Station Hotel, Jos from 8th - 14th June, 2015
- Mr. Kwanga Adamu Choji attended 28th Annual National Conference of Nigerian Association of Animal Health and Husbandry Technologists from 3rd -6th November, 2015 held at University of Port Harcourt, Rivers State.
- Miss Victoria Timothy attended National Conference of Association of Medical Laboratory Scientist of Nigeria held at Port Harcourt, Rivers State From 12th – 17th October, 2015

Staff Promotions

Mrs. Amina Danbaki attended the promotion interview in October, 2015 and was successfully promoted from Senior Data Processing Officer to Principal Data Processing Officer.

New Staff

The following staffs were posted to the division

- Mr. Akachi Kenneth and Mr. Obene Chinemerem as Research Officers 2
- Mr. Haruna Dagwong Kwanga as Medical Laboratory Technician

Staff on training

- Drs Leo Shedua and Egbuji Anthony are both on part time studies for their PhD. at A.B.U Zaria and the University of Agriculture, Markurdi, Benue State respectively.
- Mr Oga Onoja is on a 1year study leave with effect from September, 2014 to undergo an MSc programme in Molecular Technology at University of Applied Sciences MuttENZ, Switzerland however resumed work temporarily in February 2015.
- Mrs Fatima Mukaila is on a 2year study leave with effect from July, 2014 to undergo an MSc programme in Microbiology at Abubakar Tafawa Balewa University Bauchi.

Visit to the Division

Staff of the Pan African Veterinary Vaccine Centre (AU-PANVAC) and those from the National Agency for Food Drugs Administration and Control (NAFDAC) both paid visits at different times to the Division in line with accreditation exercise in April and August, 2015 respectively.

Challenges

- Lack of equipment in the Molecular Biology laboratory.
- Lack of procurement of laboratory reagents such as media bases, new born calf Serum, horse, ethanol and some materials for CBPPV Quality check donated by PANVAC are completely out of stock.
- Lack of a dedicated equipment calibration and maintenance regiment for the division
- Lack of essential equipment such as vacuum pump, moisture analyzer, biosafety cabinet, centrifuge and CO₂ gas.
- Inadequate water and power supply
- Lack of an experimental house stocked with animals, cages and other essential materials necessary for Quality control test in order to meet with international standards.

Future Plan

- Proficiency in all the stipulate quality control tests on vaccines as outlined by the OIE
- Provision of quality control services to the public on commercial basis on Veterinary and Human vaccines and biologicals.
- Equipping the Molecular Biology section of the Division.
- Provision of essential equipment and reagents required by the Division.
- Provision of experimental house.
- Audit visits to all technical divisions in 2016.

REGIONAL LABORATORY FOR AVIAN INFLUENZA & OTHER TADs

Mandate

The Regional Laboratory is saddled with the following responsibilities: -

- Research and Diagnosis of avian and trans-boundary animal diseases notably Newcastle disease virus, animal influenza virus, infectious bursar disease virus, and infectious bronchitis.
- Development and production of viral transport media, antisera, antigens and biological.
- Quality control assessment of avian viral vaccines,
- Clinical trials and field evaluation of NVRI avian viral vaccines through sero-monitoring of vaccinated flocks
- Participating in national surveillance of avian influenza in suspected flocks.
- Training and capacity development.

Laboratory Activities

The Laboratory was involved in the diagnosis and confirmation of the 2015 Highly Pathogenic Avian Influenza Virus Outbreak in 22 states including FCT of the country. The table below shows the summary of the samples received for the diagnosis of avian influenza and other viruses.

Summary of tissue samples received from January to December, 2015.

MONTHS	NUMBER OF SAMPLES (TISSUES)			NUMBER POSITIVE (TISSUES)		
	AIV*	NDV [§]	IBDV ^Φ	AIV (%)	NDV	IBDV
January	132	132	1	78	16	1
February	282	282	4	175	31	3
March	248	248	1	153	38	1
April	92	92	2	48	12	2
May	45	45	3	14	3	3
June	37	37	4	0	7	4
July	50	50	2	15	2	2
August	64	64	1	17	0	1
September	52	52	0	30	0	0
October	31	31	1	10	1	0
November	50	50	1	8	0	1
December	28	28	6	5	0	0
Total	1118	1118	26	554	110	18
				49.6%	9.9%	69.2%

*=avian influenza virus §=Newcastle disease virus Φ= infectious bursa disease virus

In the drive to fulfill our mandate, the Department conducted field assessment of NDV vaccines through sero-monitoring of vaccinated flocks. A total of 623 sera samples were screened for NDV sero conversion. The results were communicated to the farmers for

necessary action either to administer a booster dose or treat for ongoing infection in the farm.

Other Activities

- The Department hosted two post graduate students (MSc and PhD) from Ahmadu Bello University Zaria to carry out their research work on the “Molecular Epidemiology of Newcastle Disease Virus from North Eastern Nigeria”
- The Department also received 17 avian samples from the Kaduna State Ministry of Agriculture for avian influenza active surveillance. All the samples screened by RT-PCR and virus isolation were negative for avian influenza virus. The results were communicated to the permanent secretary, Kaduna State Ministry of Agriculture.
- Trachea and cloacal swabs obtained from migratory wild bird were received from Kebbi State Ministry of Agriculture and diagnosed for avian influenza and Newcastle disease virus. The swabs were negative for avian influenza and Newcastle disease by RT-PCR and serology. The results were communicated to the Permanent secretary, Kebbi State Ministry of Agriculture.
- The Department organized weekly internal seminar presentations. Some of the topics discussed includes:
 - Proposal on exposure risk to avian influenza among veterinary health workers in Jos South and North LGA of Plateau State.
 - Good general laboratory practice
 - Review of clinical samples diagnosed and veterinary health implications
 - Research proposal on “Identification of Corona Virus in Bats”
 - Scientific manuscript writing – An overview

Achievement

The Department promptly confirmed the outbreak of avian influenza in the poultry industry in the country this year. Over 1000 specimens were received and processed from January to December, 2015.

Challenges

- The major challenge affecting our activities is the constant power outage and epileptic supplies. This has resulted in the breakdown of 3 Ultra low refrigerators where samples and reagent were stored. The power interruption during work has resulted in waste of reagents and work hours.
- The non availability of a surveillance vehicle to receive samples 24/7 from motor parks had sometimes caused unnecessary delays in diagnosis and communication of result to Federal Ministry of Agriculture and Rural Development.
- There is an acute shortage of seating and office space in the Laboratory complex.

Future Plan

The next plan of action is to conduct active surveillance for highly pathogenic avian influenza virus in wetlands and live bird markets. The on-going collection, collation and analysis of data from live bird market will help in the prevention of future outbreaks as suspected cases will be properly handled.

NVRI STAFF PRIMARY SCHOOL

The school has three sections- these are: Nursery (One-Three), Junior Primary (One - Three) and Senior Primary (Four-Six).

The School has three terms in a Session,(i.e. First Term-Third Term). The first term was from Monday 19th September-12th December, 2014. Second Term was from 9th January–20th March, 2015 and the Third Term was from 20th April–July 2015.

The school conducted terminal examinations and prepared pupils for entrance examinations into Secondary Schools in the Country. The school activities were guided by the Curriculum and Syllabus from both the Federal and State Ministries of Education.

Apart from the normal academic activities, the school also organized Open Day, Educational Visits and Excursions and Sports. In addition, the school also organized internal/external workshops and seminars for teachers.

Activities

Internal Examinations

The school in each of the terms conducted three continuous assessment tests before the terms examinations and all results of the terms were released to the pupils on the closing dates. The performances of the pupils were all impressive.

Sports

The 17th Annual Inter-House Sports Competition was held on Friday the 14th of November, 2015 with Dr David Shamaki, Ag Executive Director as the Chief Host.

Mr A. Idoko was the Chairman of the occasion, while Bar. J. L. Bawul, Chairman, NVRI Staff Schools Management Board, was the Host. At the end of the competition, the following results were recorded:

S/NO	HOUSE	SCORES	POSITION
1	Green	858	1 st
2	Red	793	2 nd
3	Blue	762	3 rd
4	Yellow	569	4 th

It was a memorable occasion for the pupils and students. Prizes were presented to the winners in the various events.

Academic Performance

The Internal Examinations were conducted in all the classes and the results were given to the pupils at the end of each term. Generally, the results were impressive in all classes. The External Examinations for thirteen (13) different secondary schools were

taken by the pupils in Primary Five and Six. The students scored a cumulative average of 100% as shown below:

S/N	NAME OF SCHOOLS	NUMBER OF CANDIDATES	NO. PASS	% PASS
1	NVRI Staff Secondary School, Vom	15	15	100%
2	St Joseph's College, Vom	8	8	100%
3	COCIN Comp. College Gindiri	2	2	100%
4	St Louis College, Jos	2	2	100%
5	EWCA Sec. School, Miango	2	2	100%
6	Girl's High School, Gindiri	1	1	100%
7	Fed. Govt Colleges	6	6	100%
8	St. John Vienny Seminary, B/Ladi,	1	1	100%
9	St. Rita's College, K/Vom	2	2	100%
10	St John Bosco Science & Tech Kuru	2	2	100%
11	Corpus Comp. College, Kwol	2	2	100%
12	Boy's Sec. School, Gindiri	3	3	100%
13	Govt Technical College, Bukuru	1	1	100%

Other students not mentioned above wrote the external examinations in different Government Secondary Schools within the country.

Abuja NTA ETV Expo Exhibition 2015

Two children, Miss Mercy Ajibade and Master Timothy Adeboye participated and came first at the Plateau State NTA ETV Expo Exhibition and subsequently represented the State in Abuja on 25th–30th October, 2015. They won a laurel for the State at the end of the competition. Also, two other children, Miss Doofan Iorkyase and Miss Magdalene Ugbonng sat for an International Mathematics Competition and passed. They were to represent the country in South Korea but could not make it due to circumstances beyond our control.

2015 Joint Annual Speech and Prize Giving Ceremony

The school organized the Tenth (10th) Joint Annual Graduation Speech and Prize Giving Ceremony on Wednesday 22nd July, 2015, at 10.00am prompt. Dr Chukwu O. Chukwu, former Ag Provost, FCVML&P, was the Chairman of the occasion. The programme was well attended by invited dignitaries, management, staff of the schools and the Institute. Mr Jeremiah Yahaya Zechariah was the Guest Speaker and presented a paper on the topic "Events That Shape Education in Nigeria". It was a memorable occasion for the pupils and students as they received several prizes.

A total of eighty four (84) pupils graduated from Nursery Section to Primary One while fifty six (56) pupils graduated from Primary Six to different colleges of their choice.

School Clinic

Immunization against Measles, Polio, Meningitis, De-wormers and Vitamin A were given to pupils during the year 2015.

Deaths

A pupil in Primary two died in January, 2015. May her soul rest in peace with Lord, Amen.

School Discipline

Two pupils were discipline for beating up their classmate who sustained injuries.

Promotion/Conversion

Thirteen (13) staffs was promoted within the year 2015

Seminars, Workshops and Conferences

The Institute took the interest of the school at heart and sent five (5) staff to attend various educational workshops, seminars and conferences relevant to their fields. This has been translated into hard work and commitment to duty.

Students on Teaching Practice/Corps Members

Four (4) students from Federal College of Education, Pankshin and NTI Jos Study Centre were in the school for teaching practice. Two (2) Corps members were posted to the school.

Challenges

- Replacement of five retired staff
- Inadequate number of play materials at the play-ground
- Lack of sporting materials
- Lack of seats in the classrooms
- Lack of school library, laboratory and assembly hall.

NVRI STAFF SECONDARY SCHOOL

Activities of the school are guided by the curriculum and syllabus from both the Federal and State Ministries of Education.

Apart from carrying out the normal academic activities, the school organizes counselling sessions for its new students, clubs and societies, undertakes educational trips and excursions as well as sporting events. In addition, the school also organizes internal and external workshops and seminars for the teachers.

The session ends with termly examinations and students are issued results.

Achievements in 2015

- The school successfully conducted the three terms continuous assessments as well as internal examinations. The results showed that some students were promoted while others were asked to repeat the failed class.
- The school graduated 47 students who sat for both SSCE and NECO External Examination. While 57 students in JSS 3 sat for the Basic Education Certificate Examination (BECE)
- As a routine, an orientation programme was organized for the JSS 1 and other new students admitted into the school.
- The annual Speech and Prize Giving Day for the 2014/2015 academic session was held on 23 July 2015.
- The 16th Inter House Sports Competition was held on the 13th November 2015 with Green House emerging the winner. Green House made History. This happens to be the first time Green House is emerging the overall winner and collecting the cup since the school started this Inter House Competition.
- The 2015 Area Office Selection Competition took place on the 16th–26th September 2015. Two of our students namely Mercy Davou and Sele Mwanti qualified and represented the Area Office in the State Selection at Quan-pan on the 10th–11th November 2015. Mercy Davou came first in 1,500m race. Mercy Davou is therefore, going to represent Plateau State this year 2016 at Akwa Ibom State.
- Four students qualified for the second round of the 2015 Nigeria Mathematics and Science Olympiads. They are:
 - Ephraim Nanmet
 - Toedat Favour

- John Jidirshak
 - Ameh Samuel
- The 4th edition of the school magazine “Voice of the Future” with the theme: “Events that shape education in Nigeria” was released.
 - The school together with PTA organized a successful congress meeting to deliberate on issues that concerns the association.
 - Like other years, a number of our students secured admission into various Institutions of learning. Below is a list of students and the Institutions.

S/NO	NAME OF STUDENT	INSTITUTION	COURSE OF STUDY
1	Shangle Longul	University of Jos	Medicine
2	Augustine Faith	Benue State University	Biology
3	Augustine Veronica	Benue State University	Law
4	Chatong Dabere	FCE Pankshin	CRS/History
5	Hudu Khalid	FCAH & PT	Animal Production
6	Philip Faith	University of Jos	Mechanical Engr.
7	Orinya Paul	University of Agric	Electrical Engr.
8	Kujul Selbol	FCMLT	MLT
9	Kyuku Priscilla	Plateau State Polytechnic	Electrical Engr.
10	Alhamis Nenpinwa	FCE Pankshin	Bio Chem.

Basic Education Certificate Examination (BECE) Result Analysis

S/N	SUBJECT	NO OF CANDIDATE	GRADE				
			A	C	P	F	%PASS
1	Mathematics	57	1	5	34	17	70.2
2	English	57	14	25	18	-	100
3	Social Studies	57	8	39	10	-	100
4	Basic Education	57	2	14	41	-	100
5	Hausa	57	2	16	38	-	100
6	Cultural and Creative Arts	56	9	23	24	-	100

7	C R S	55	19	29	7	-	100
8	I R S	1	-	-	1	-	100
9	P H E	57	12	42	3	-	100
10	Agric	57	-	13	44	-	100
11	Basic Technology	57	9	19	29	-	100
12	Home Economics	57	2	20	35	-	100
13	French	57	-	8	48	1	98.2%
14	Computer Studies	57	-	16	41	-	100
15	Civic Education	57	21	36	-	-	100

Overall % Pass = 97.9%

**West African Senior School Certificate Examination (WASSCE) May/June
2015 Result Analysis**

S/N	SUBJECT	NO OF CANDIDATE	GRADE									% PASS
			A1	B2	B3	C4	C5	C6	D7	E8	F9	
1	Civic Education	47	2	2	5	-	2	11	13	12	-	100
2	English	48	-	-	-	5	9	20	10	3	1	97.9
3	Mathematics	48	-	-	4	2	2	19	15	6	-	100
4	Agriculture	17	-	1	7	5	3	1	-	-	-	100
5	Biology	48	-	-	1	2	4	13	11	14	3	93.8
6	Chemistry	25	-	-	4	8	4	6	2	1	-	100
7	Physics	25	-	-	1	1	5	9	7	2	-	100
8	Animal Husbandry	24	-	2	12	1	7	2	-	-	-	100
9	Geography	6	2	2	2	-	-	-	-	-	-	100
10	Catering	16	-	-	-	2	1	11	2	-	-	100
11	Commerce	10	2	1	5	1	-	-	-	-	1	90
12	C R S	20	-	-	13	3	1	2	-	1	-	100
13	Economics	23	-	-	-	-	-	2	9	10	2	91.3
14	Government	10	1	1	2	1	3	1	-	-	1	90
15	History	12	-	-	2	2	2	5	1	-	-	100
16	Literature	13	1	-	4	2	2	2	1	-	1	92.3

17	Computer	24	1	6	11	-	-	2	4	-	-	100
18	Home Management	12	-	-	5	3	2	2	-	-	-	100
19	I R S	1	-	-	-	-	-	-	1	-	-	100
20	Further Math's	2	-	-	-	-	-	-	1	1	-	100

Overall % Pass = 92.8%

**National Examination Council (NECO) Senior School Certificate Examination
(2015) Result Analysis By Grades**

S/N	SUBJECT	GRADE									NO OF STUDENTS	% PASS
		A1	B2	B3	C4	C5	C6	D7	E8	F9		
1	English		1	8	16	14					39	100
2	Mathematics			4	7	9	13	5	1		39	100
3	Civic Education			7	9	15	8				39	100
4	Biology			3	6	14	15	1			39	100
5	Chemistry				6	7	4				17	100
6	Physics			1	4	6	6				17	100
7	Further Math's				1						1	100
8	Agriculture				1	2	1	1			5	100
9	Computer Studies			3	4	6	2			1	16	93.7
10	C R S			3	6	9	2	1			21	100
11	I R S					1		1			2	100
12	History	6	3	3							12	100
13	Geography			1	1	1	2				5	100
14	Government				1	3	5				9	100
15	Economics		1	7	6	6	2				22	100
16	Literature		4	4	2	5					15	100
17	Commerce			1		4	2				7	100
18	Data Processing			5	7	10	15	1			38	100

Overall % Pass = 99.7%

STORES DIVISION

Introduction:

The Division is charged with the responsibility of need ascertainment, procuring and holding stocks. This includes receiving new consignments from suppliers, storing such in required conditions and issuing same in good condition to user departments. The Division also handles the receipt and issuance of vaccine and retrieves unserviceable items and disposes same on approval by Management. It carries out regular provisioning of resources and ascertains stocks that need replenishment.

To effectively and efficiently discharge these tasks, the Stores Division is grouped into the following sections:

- Main stores
- Ledger/stock accounts section
- Receiving section
- Vaccine and dispatch sections
- Maintenance stores.

Main Stores

The Main Stores has a stock in hand as at December 2015 the following worth:

• Drugs, Chemicals and Reagents	-	₦31,955,737.30
• Glass-wares	-	₦28,441,442.80
• Consumables	-	₦46,657,130.32
• Expendables	-	₦15,545,299.08
• Non-expendables	-	₦62,758,374.99

Requirements

- Procurement of a heavy duty fork-lift for off-loading and movement of materials.
- Procurement of consumables for daily maintenance of the department.
- Employment of junior staff for assistance.

Ledger/ Stock Accounts and Documentation Section

Security documents in stock as at 31st December, 2015 are valued at one million, nine hundred and nineteen thousand, two hundred and forty nine naira (₦1,919,249.00) only. Plants and equipment issued to user departments during the period under review is valued at one million, four hundred and thirty three thousand, and fifty naira only (₦1,433,050.00) and a stock balance of same put at four million, eight hundred and seventy one thousand, one hundred and fifty four naira (₦4,871,154.00) only.

Receiving Section

S/ N	DESCRIPTION	1 ST QUARTER (₦)	2 ND QUARTER (₦)	3 RD QUARTER (₦)	4 TH QUARTER (₦)	TOTAL (₦)
1.	Diesel	17,820,000.00	21,424,200.00	8,514,000.00	6,859,800.00	54,618,000.00
2.	Grains	8,100,00.00	4,800,000.00	15,000,000.00	11,700,000.00	39,600,000.00
3.	Feeds and Concentrates	2,550,000.00	2,591,000.00	7,060,250.00	13,657,210.00	25,858,460.00
4.	Cleaning detergent	1,558,050.00	29,550.00	305,000.00	-	1,892,600.00
5.	Lab/Chem Drugs & Reagents	1,252,350.00	203,000.00	1,602,610.00	116,500.00	3,174,510.00
6.	Office equipment	964,000.00	204,500.00	-	150,000.00	1,318,500.00
7.	Tractor spare parts	-	933,450.00	-	-	933,450.00
8.	Gas	-	30,000.00	-	-	30,000.00
9.	Stationery	-	357,350.00	-	275,410.00	632,760.00
10.	Laboratory Equipment	-	14,962,904	-	-	14,962,904.00
11.	Sport Equipment	-	847,350.00	-	-	847,350.00
12.	Project WAAPP	271,000.00	981,458.91	200,000.00	-	1,452,458.91
13.	Electricals	-	-	251,500.00	-	251,500.00
14.	Consumable	-	-	15,000.00	-	15,000.000
15.	Production of Mahogany	-	-	-	1,530,000.00	1,530,000.00
	Total	₦32,515,400.00	₦47,364,762.91	₦32,948,360.00	₦34,288,970.00	₦147,117,492.91

Vaccine section and dispatch sections

Stock Movement (comparison between 2014 and 2015)

DESCRIPTION	TOTAL VACCINES ACTIVITY IN 2014	TOTAL VACCINES ACTIVITY IN 2015	DIFFERENCE
Opening Balance	8,934,457	3,104,690	-
ADD: Receipts	100,510,518	85,263,172	15,247,346
Total Available	109,444,975	88,367,862	-

LESS: Releases	106,340,285	83,268,772	-
Balance C/F	3,104,690	5,099,090	-

Analysis

In 2015, production decreased by 18% over the year 2014 and invariably issues have to fall. In 2015 6,507 vials of CBPV earlier issued to State Governments were returned. As the result of expiration and poor handling, the vials of CBPV could not be salvaged.

Maintenance/Workshop Store

Diesel Stock Movement:	Litres
Balance B/F	23,977
Add Receipts	<u>325,399</u>
Total available	349,376
Less Issues	<u>349,376</u>
	Nil

Departmental Consumption

• Workshop	=	245,760	
• Diagnostic	=	6,520	
• Bacterial Boiler	=	22,880	
• Poultry Division	=	9,560	
• Dagwom Farm	=	7,700	
• Liquid Nitrogen	=	1,360	
• Vehicles	=	7,076	
• L.I.D	=	7,580	
• Write-off	=	<u>940</u>	349,376

Total Issued from January–December, 2015 = 348,436Litres

Others items:

• Soda Ash	=	4,900kg
• Roofing Sheets	=	22 Sheets

DAGWOM FARM STORES

Mandate

- To ensure proper store keeping and recording of all receipts and issues of grains and premises.
- To carry weekly documentation of all receipts and issuances.
- To store all feed ingredients under good conditions (free from insects and rodents).
- To avoid losses of stored materials during handling and storage.
- To monitor and report stock balances.

Over-All Achievements

During the year under review, the following constituted our achievements. These are:

- We grouped some items according to their classes.
- We fostered relationship among ourselves and with other departments of the Institute.
- We reconciled some Physical items with the Bin Cards and Ledgers.
- Feeds are stocked on wooden pallets
- Stock balance of all the feedstuff is updated
- Weekly, monthly and quarterly records are reliable
- Cleanliness of the store houses is maintained.
- Continuous and timely production of vaccines reports.
- The role weekly report played is seen in the production.
- The market also played a role as seen in the releases and stock balance.
- Effective documentation of all receipts and issues
- All the offices and laboratories have been inventoried,
- Coding of all Institute assets is at a stage of completion).
- Cost of diesel purchase was relatively low.

Constraints

- Lack of renovation of the store house to make room for improved ventilation and storage space.
- The store house is choked up with outdated or obsolete materials/items i.e. slow moving expired drugs, chemicals and reagents, expendables/ Non-expendables, consumables and Glass-wares.
- Lack of regular maintenance of cold room machine as at when due.
- Lack of production materials has cause out of stock syndrome.
- Lack of vaccine packing materials as it is packed in cartons from production to sales units.

- Most purchases do not pass through the stores for proper documentation as a result not all procurement activities are captured in our stores through Stores Received Voucher.
- Inadequate office and furniture for staff.
- Lack of staff training
- Lack of safety and protective clothing
- Non-payment of hazard allowance despite handling hazardous materials
- Lack of vehicle to facilitate purchase of diesel
- Need to replace damaged hose.

2016 Work Plan/Requirement

- Encourage staff development through training and retraining, seminars and workshops between January and December, 2016.
- Computerization of store activity to enhance efficiency.
- Draw up a machine service/maintenance time table
- Procurement of a heavy duty fork-lift for off-loading and movement of materials.
- Procurement of consumables for daily maintenance of the department.
- Employment of junior staff for assistance

VIRAL RESEARCH DIVISION

Mandate

To conduct research, undertake surveillance and disease diagnosis and development of biologicals with reference to vaccines, anti-sera, antigens and information towards the control of African Swine fever, African horse Sickness, Foot and Mouth disease, viral skin disease (Lumpy skin disease, Sheep and goat pox) Capri pox, Peste Des Petits Ruminants (PPR), NDV12, Parainfluenza-3, Rabies and Rabies related diseases.

Major Activities

Foot and Mouth Disease Section

Thirty three (33) tissue samples were collected from outbreaks in Bauchi and Plateau states, after analyses serotypes A, O and SAT2 were detected.

Three hundred and sixty (360) swine sera were screened for FMD non-structural protein, forty one (41) were positive for non-structural protein.

The FMD Section of the Viral Research Division participated in Reference laboratory proficiency test for FMD.

Five staff of the laboratory visited Veterinary and Agrochemical Research Center (CODA-CERVA), Belgium in the on-going framework of the OIE Twinning Programme between the National Veterinary Research Institute, Vom, Nigeria and the Veterinary and Agrochemical Research Center (CODA-CERVA), Belgium.

Newcastle Disease Virus (NDVI₂) Section

The section carried out feed sample analyses which include maize, sorghum, millet and *Digitaria exilis* (acha) to select suitable carrier for the thermo stable pelleted NDVI₂ vaccine development. The thermo stable NDVI₂ was formulated using acha as suitable carrier. The thermo stable NDVI₂ vaccine developed was pelleted and dried. The laboratory vaccine testing for safety, purity, potency and efficacy were carried out. Currently the field trial of the thermo stable NDVI₂ vaccine is being conducted.

The Section handled laboratory bench work activities for Mr. K.D. Falang in which eighteen thousand (N18, 000) naira was generated and paid into the Institute's Account with receipt No. 0011348-108 on the 25th August, 2015.

Rabies Section

The section carried out CVS and LEP rabies virus titration in baby mice. The LEP rabies virus was adapted in BHK cell culture through five different passages. The harvest was freeze dried in vials and stored at -20°C deep freezer. The CVS was also passed in cell culture; harvest is yet to be titrated. Standardization and titration of FITC conjugate using BHK – 21 cell cultures was carried out. The section also developed 22 SOPs which covered the activities carried out in rabies project.

Viral Skin Diseases Section

A safe, potent, and immunogenic vaccine for the prevention and control of Capripox has been developed. A virus (Trop. Vet. 24(4), 2006) isolated from Zebu cattle in Kano Nigeria, designated (ZC-KN) and specifically identified by phylogenetic analysis of Lumpy Skin Disease Virus (LSDV) was carried out. The working seed virus employed was at its 10²nd passage level for the development of LSDV vaccine.

The developed Lumpy vaccine has undergone laboratory and field trials and has been certified to be pure, safe, potent and immunogenic by tests carried out in our laboratory and the QC Division here in Vom. It is currently undergoing tests for final certification at the African Union-Pan African Veterinary Vaccine Centre (AU-PANVAC) in Ethiopia.

Training

- Staffs of the division have also received workshop training under the CODA, Belgium and NVRI Nigeria twinning project on Epidemiology of FMD, in 2014 on Nigeria while three staff have gone to Belgium and back in 2015.

The following officers are on training

Within Nigeria:

- Dr. Ularamu H.G., Dr. Wungak Y.S., Dr. (Mrs.) Ogo M.F., Miss. Ijeoma Nwagbo, Mr.G. Bature, Miss Evelyn David Dung and Chollom Solomon.

Outside Nigeria

- Dr.D.G. Bwala and Dr.S.Adamu

Achievements

Vaccine Development

FMD: FMD vaccine development is on-going. So far the development has attended 40% completion

Rabies: The development of killed adjuvanted rabies cell culture vaccine is ongoing and has attended 60% completion. The cell culture adapted seed virus, freeze dried in vials are stored at -20°C deep freezer.

Capripox: The development of Capripox Vaccines (LSD, Sheep and goat pox) is ongoing and has attended 90% completion.

LSD: The development of LSD vaccine for cattle has been completed and tested and certified by PANVAC.

Thermostable Pelleted NDV: The thermostable pelleted Newcastle disease vaccine formulated with feed carrier has been completed. The vaccine is currently undergoing field test.

Constraints:

- Lack of steady power supply to the laboratories, which has resulted to damage of laboratory equipment and stored biological reagents and materials
- Lack of adequate water supply to the various laboratories which has adversely affected research activities
- Lack of adequate and regular funds for procurement of equipment and reagents
- Lack of CO₂ incubators and Revco freezer

Publications

Chukwuedo, A.A., Ujah A.E. and Echeonwu, B.C. (2015) Studies on potency of Newcastle disease virus and Infectious bursal disease vaccines in exotic birds in Jos, Plateau state, Nigeria. *Nig. J. Microbiol.* 27(1): 2658-2663.

Ularamu, H.G., K.P. Sibeko, A.B. Bosman, E.H. Venter & M. vanVuuren (2015) Archives of Virology ISSN 0304-8608 Genetic characterization of bovine viral diarrhoea (BVD) viruses: confirmation of the presence of BVD genotype 2 in Africa Arch Virol DOI 10.1007/s00705-012-1478-5

Timothy, Y.W, D.J.U.Kalla, P.S. Ekong, H.G. Ularamu, S.C. Chollom, I.I.Lamurde, D. B.Bajehson, N.D.Tom, G.B. Aaron, D. Shamaki, D. Bailey, A. Diallo and M. Quan (2015). Serological evidence of camel exposure to peste des petits ruminants virus (PPRV) in Nigeria Trop Anim Health Prod 47:603–606 doi 10.1007/s11250-014-0747-6

VIRAL VACCINES PRODUCTION DIVISION

Introduction

The Division has a primary responsibility of producing vaccines for prevention of livestock and poultry viral diseases of economic and/or public health importance in Nigeria and other West African countries.

In addition, the Division produces distilled water and cell cultures for other user Divisions in the Institute. The freeze drying and labelling sections render services to other Divisions involved in the production of lyophilized vaccines and other biologics.

In line with this mandate, the Division is responsible for the production of the veterinary viral vaccines listed below:

- IBDV (Gumboro) vaccine
- Fowl Pox vaccine
- Newcastle disease vaccine (La Sota)
- Newcastle disease vaccine (Intra-ocular)
- Newcastle disease vaccine (Komarov)
- Newcastle disease vaccine (NDV I-2)
- PPR vaccine
- Rabies vaccine for dogs

Production

The Division produced over 70 million doses of the various veterinary viral vaccines in 2015 to meet up with market demands. The details of vaccine production for the period are given in Tables 1 and 2.

The Division produced about 4,000 litres of distilled water for use in various divisions of the Institute and the two Colleges. Cell cultures were prepared in monolayer and suspension including Vero R133, MNA, IBRS, ZZR 2 and BHK-21 for research and for quality control tests. Viral vaccines and culture bank of all cells are maintained in liquid nitrogen.

Table 1: Vaccines (vials) Production January - Dec 2015

MONTH	ARV	IBDV	FPV	NDV-K	NDV-L	NDV- i _o	NDV- I ₂	PPRV	TOTAL
Jan.	8,946	8,247	0	0	17,862	1,471	0	0	36,526
Feb.	0	16,733	0		0	0	8,813	19,772	45,318
Mar.	4,828	6,134	0	0	4,657	4,522	0	0	20,141
Apr.	4,971	12,062	0	0	10,663	0	5,937	0	33,633
May	4,673	6,209	5,323	0	9,774	5,021	5,502	0	36,502
Jun.	4,972	6,284	5,739	9,692		0	0	0	26,498
July	0	12,661	0	4,704	17,574	0	4,214	0	36,153
Aug.	9,715	30,727	4,402	0	9,651	10,024	9,555	0	74,074
Sept.	0	0	0	0	17,979	0	10,234	18,440	46,650
Oct.	9,212	10,803	7,091		8,308	-	29,208	31,693	96,315
Nov.	-	15,835	-	-	-	-	-	10,609	26,444
Dec.	-	6,320	-	4,096	9,921	2,217	-	-	22,554
Total	47317	125881	22555	18492	106,389	23255	73463	80514	497866

MONTH	ARV	IBDV	FPV	NDV-K	NDV-L	NDV- i _o	NDV- I ₂	PPRV	TOTAL
Jan	8,946	1,649,400	0	0	3,572,400	294,200	0	0	5,524,946
Feb	0	3,346,600	0		0	0	440,650	988,600	4,775,850
Mar.	4,828	1,226,800	0	0	931,400	904,400	0	0	3,067,428
Apr.	4,971	2,412,400	0	0	2,132,600	0	1,187,400	0	5,737,371
May	4,673	1,241,800	1,064,600	0	1,954,800	1,004,200	1,100,400	0	6,370,473
Jun.	4,972	1,256,800	1,147,800	1,938,400		0	0	0	4,347,972
July	0	2,532,200	0	940,800	3,514,800	0	210,700	0	7,198,500
Aug.	9,715	6,145,400	880,400	0	1,930,200	2,004,800	477,750	0`	11,448,265
Sept.	0	0	0	0	3,595,600	0	511,700	922,000	5,029,300
Oct.	9,211	2,160,600	1,418,200		1,661,600	-	1,460,400	1,584,650	8,294,661
Nov.	-	3,167,000	-	-	-	-	-	530,450	3,697,450
Dec.	-	1,264,000	-	819,200	1,984,200	443,400	-	-	4,510,800
Total	47316	26403000	4511000	3698400	21277600	4651000	5389000	4025700	70003016

Table 2: Vaccines (doses) Production January – December 2015

Activities

- Repair and resuscitation of GT-40 (1) freeze drier
- Installation of two Aquatron (single and double) distillers to enhance distill water production
- Assessment and evaluation of divisional production facilities by AU-PANVAC, NAFDAC and GALVMED in September, 2015.
- On-going installation of BOC Edwards Freeze Dyer.
- On-going development of Vaccine Dossiers for Viral vaccines

Challenges/Constraints

- Inadequate supply of fertile eggs for vaccine
- Inadequate power supply from obsolete generators adversely affects efficiency of equipments and machines used in vaccine production.
- Incessant break down of freeze dryer, sometimes in the process of freeze drying which leads to spoilage of such vaccines and as a result wastages. These breakdowns are often attributable to electric power fluctuations and sometimes mechanical problems due to aging.
- Faulty automated Newman labeling machine and Door seal for GT40 (1) freeze dryer
- Unavailability of potent master seed for vaccine production.
- Inadequate and poor water supply for vaccine production.



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